



# Altivar Soft Starter ATS01

Soft Starters for simple machines from  
0.37 to 15kW

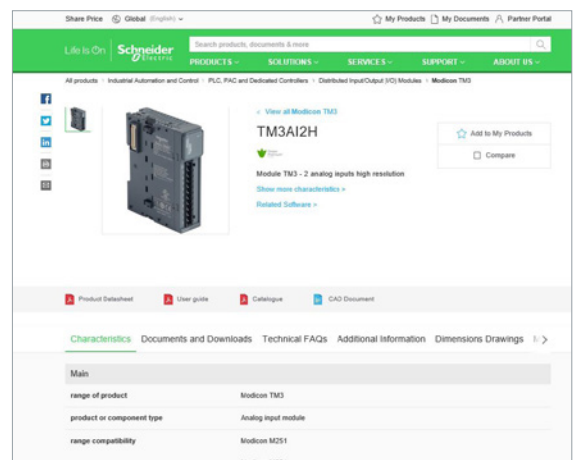
# Quick access to product information

## Get technical information about your product

References

**Modicon TM3**  
I/O expansion modules for Modicon controllers  
Analog I/O modules

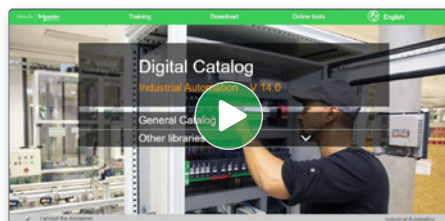
| Module type                         | Input range                           | Output range                 | Resolution       | Input terminal block (pin) | Reference | Weight (g) |
|-------------------------------------|---------------------------------------|------------------------------|------------------|----------------------------|-----------|------------|
| 2 refrigerant inputs                | -10...+10 VDC<br>0...20 mA, 4...20 mA | 10 bits or<br>10 bits + sign | 0.001%<br>0.001% | 28-pin D                   | TM3AI2H   | 0.100      |
| 4 refrigerant inputs                | -10...+10 VDC<br>0...20 mA, 4...20 mA | 10 bits or<br>10 bits + sign | 0.001%<br>0.001% | 28-pin D                   | TM3AI4H   | 0.100      |
| 4 refrigerant or temperature inputs | -10...+10 VDC<br>0...20 mA, 4...20 mA | 10 bits or<br>10 bits + sign | 0.001%<br>0.001% | 28-pin D                   | TM3AI4H   | 0.100      |
| 2 differential temperature inputs   | -10...+10 VDC<br>0...20 mA, 4...20 mA | 10 bits or<br>10 bits + sign | 0.001%<br>0.001% | 28-pin D                   | TM3AI4H   | 0.100      |



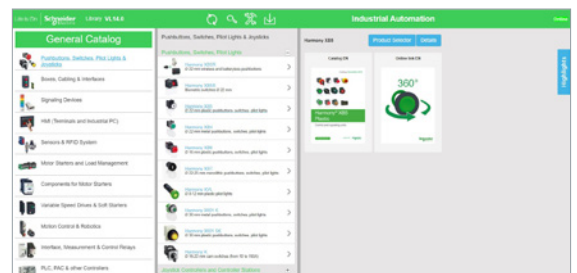
Each commercial reference presented in a catalog contains a hyperlink. Click on it to obtain the technical information of the product:

- Characteristics, Dimensions and drawings, Mounting and clearance, Connections and schemas, Performance curves
- Product image, Instruction sheet, User guide, Product certifications, End of life manual

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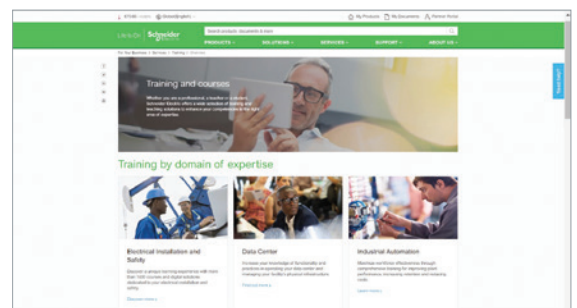


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# Altivar

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Soft starters for asynchronous motors

| Applications                                                                                  |                             | Starting simple machines                                                          | Controlled starting and deceleration of simple machines                            |
|-----------------------------------------------------------------------------------------------|-----------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|                                                                                               |                             |  |  |
| Power range for 50...60 Hz line supply (kW/HP)<br>(connection to the motor power supply line) |                             | 0.37...11/0.5...15                                                                | 0.75...15/1...20                                                                   |
|                                                                                               |                             | Single-phase 110...230 V (kW)                                                     | —                                                                                  |
|                                                                                               |                             | Three-phase 200...240 V (kW/HP)                                                   | —                                                                                  |
|                                                                                               |                             | Three-phase 200...480 V (kW/HP)                                                   | 0.75...7.5/1...10                                                                  |
|                                                                                               |                             | Three-phase 208...600 V (kW/HP)                                                   | —                                                                                  |
|                                                                                               |                             | Three-phase 208...690 V (kW/HP)                                                   | —                                                                                  |
|                                                                                               |                             | Three-phase 230...415 V (kW)                                                      | —                                                                                  |
|                                                                                               |                             | Three-phase 230...440 V (kW)                                                      | —                                                                                  |
|                                                                                               |                             | Three-phase 380...415 V (kW)                                                      | 1.5...15                                                                           |
|                                                                                               |                             | Three-phase 440...480 V (HP)                                                      | 2...20                                                                             |
| Drive                                                                                         | Number of controlled phases | 1                                                                                 | 2                                                                                  |
|                                                                                               | Type of control             | —                                                                                 | —                                                                                  |
|                                                                                               | Operating cycle             | —                                                                                 | —                                                                                  |
| Functions                                                                                     |                             | Integrated                                                                        |                                                                                    |
| Bypass                                                                                        | Number of I/Os              | —                                                                                 | —                                                                                  |
|                                                                                               | Analog inputs               | —                                                                                 | —                                                                                  |
|                                                                                               | Logic inputs                | —                                                                                 | —                                                                                  |
|                                                                                               | Analog outputs              | —                                                                                 | —                                                                                  |
|                                                                                               | Logic outputs               | —                                                                                 | —                                                                                  |
|                                                                                               | Relay outputs               | —                                                                                 | —                                                                                  |
| Communication                                                                                 | Integrated                  | —                                                                                 | —                                                                                  |
|                                                                                               | Available as an option      | —                                                                                 | —                                                                                  |
| Standards and certifications                                                                  |                             | IEC/EN 60947-4-2<br>CE, UL, CSA, C-Tick, and CCC                                  |                                                                                    |
| References                                                                                    |                             | ATS01N1●●●●                                                                       | ATS01N2●●●●                                                                        |
| Pages                                                                                         |                             | 8                                                                                 |                                                                                    |

| Controlled starting and deceleration of simple and complex machines                 |                                                                                     |                                                                                                 |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
|  |  |                                                                                                 |
| 4...400/3...500                                                                     | 3...630                                                                             | 3...900/3...1,200                                                                               |
| —                                                                                   | —                                                                                   | —                                                                                               |
| —                                                                                   | —                                                                                   | —                                                                                               |
| —                                                                                   | —                                                                                   | —                                                                                               |
| 4...400/3...500                                                                     | —                                                                                   | —                                                                                               |
| —                                                                                   | —                                                                                   | 3...900/3...1,200                                                                               |
| —                                                                                   | 3...630                                                                             | —                                                                                               |
| 4...355                                                                             | —                                                                                   | —                                                                                               |
| —                                                                                   | —                                                                                   | —                                                                                               |
| —                                                                                   | —                                                                                   | —                                                                                               |
| 3                                                                                   | TCS (Torque Control System)                                                         |                                                                                                 |
| Configurable voltage ramp                                                           | Standard and severe                                                                 |                                                                                                 |
| Standard                                                                            | Available as an option                                                              |                                                                                                 |
| Integrated                                                                          | Available as an option                                                              |                                                                                                 |
| 1 PTC probe                                                                         |                                                                                     |                                                                                                 |
| 3                                                                                   | 4                                                                                   |                                                                                                 |
| —                                                                                   | 1                                                                                   |                                                                                                 |
| —                                                                                   | 2                                                                                   |                                                                                                 |
| 2 (CO)                                                                              | 3                                                                                   |                                                                                                 |
| Modbus                                                                              |                                                                                     |                                                                                                 |
| —                                                                                   | Fipio, PROFIBUS DP, DeviceNet, Modbus TCP                                           |                                                                                                 |
| IEC/EN 60947-4-2, EMC class A<br>CE, UL, CSA, C-Tick, GOST, CCC                     |                                                                                     | IEC/EN 60947-4-2, EMC class A and B<br>CE, UL, CSA, DNV, C-Tick, GOST, CCC, NOM, SEPRO, and TCF |
| ATS22●●●●                                                                           | ATS48●●●Q                                                                           | ATS48●●●Y                                                                                       |
| Please refer to the "Altistart 22" catalog.                                         |                                                                                     | Please refer to the "Altistart 48" catalog.                                                     |

# Soft starters for asynchronous motors

## Altivar Soft Starter ATS01

PF 140052A



ATS01N1●●●

PF 140051A



ATS01N2●●●

### Presentation

The Altivar Soft Starter ATS01 operates as a soft start/soft stop unit for asynchronous motors.

The Altivar Soft Starter ATS01 enhances the starting performance of asynchronous motors by allowing them to start gradually, smoothly, and in a controlled manner. It helps to prevent mechanical shocks, which cause wear and tear, and subsequent maintenance work and production downtime.

The Altivar Soft Starter ATS01 limit the starting torque without torque control system and current peaks on starting on machines that do not require a high starting torque.

It is designed for the following simple applications:

- conveyors
- conveyor belts
- pumps
- fans
- compressors
- automatic doors and gates
- Overhead Traveling Cranes (Horizontal Loads)
- belt-driven machinery, etc.

The Altivar Soft Starter ATS01 is compact, easy to install, and can be mounted side-by-side (1).

It complies with standards IEC/EN 60947-4-2, and carries UL, CSA, C-Tick, and CCC certifications, and CE marking.

The Altivar Soft Starter ATS01 soft start/soft stop unit offer comprises 3 ranges:

#### ■ ATS01N1●●● soft starters

- These control one phase of the motor power supply (single-phase or three-phase) to limit the starting torque.
- They feature an internal bypass relay except N103 (smallest one).
- For IE2 motors power ratings range from 0.37 kW to 11 kW.
- Motor supply voltages range from 110 V to 480 V, 50/60 Hz. For 110 V, 230 V applications there is no need for extra power supply, the line voltage can be used. 400 V and 480 V applications an external power supply is necessary.

#### ■ ATS01N2●●● soft start/soft stop units

- These control two phases of the motor power supply to limit the starting current and for deceleration.
  - They feature an internal bypass relay.
  - Motor power ratings range from 0.75 kW to 15 kW (2).
  - The motor supply voltages are as follows: 230 V, 400 V, and 480 V, 50/60 Hz.
- The use of a line contactor is not necessary on machines where electrical isolation is not required.

#### ■ ATS01N2●●● soft start/soft stop units

See [page 10](#).

(1) Side-By-Side Conditions:

The maximum starts per hour are 2 under following worst case conditions:

Ramp-up time: 10 s

Motor current 5x rated softstarter current

Ambient temperature 40°C

Applications with shorter ramp-up times and/or lower motor current and/or lower ambient temperature the cycle time can be increased.

E.g. ramp-up time 5 s -> starts per hour are 4 or motor current 3x I<sub>e</sub> -> starts per hour are 4

For stronger conditions 15 mm distance are necessary.

(2) Please pay attention and consider for the operation of IE3 motors while dimensioning of softstarters the resulting higher starting currents.

For the use of IE3 motors it is needed to dimension and design the softstarters one size higher.

# Soft starters for asynchronous motors

## Altivar Soft Starter ATS01

### Description

- Altivar Soft Starter ATS01 (ATS01N1●●●) are equipped with:
  - a potentiometer **1** for setting the starting time
  - a potentiometer **2** for adjusting the starting voltage threshold according to the motor load
  - 2 inputs **3**:
    - 1 x 24 V  $\overline{\text{---}}$  input or 1 x 110...240 V  $\sim$  input for powering the control part that controls the motor
- Altivar Soft Starter ATS01 soft start/soft stop units (ATS01N2●●●) are equipped with:
  - a potentiometer **6** for setting the starting time
  - a potentiometer **8** for setting the deceleration time
  - a potentiometer **7** for adjusting the starting voltage threshold according to the motor load
  - 1 green LED **4** to indicate that the unit is powered up
  - 1 yellow LED **5** to indicate that the motor is powered at nominal voltage, if it is connected to the starter
  - a connector **9** for:
    - 2 logic inputs for Run/Stop commands
    - 1 logic input for the BOOST function
    - 1 logic output to indicate the end of starting
    - 1 relay output to indicate the motor has reached a standstill at the end of the deceleration stage

### Equivalence table for contact references

| Functions                    | ATS01N2●●●LU/QN/RT           |
|------------------------------|------------------------------|
| Relay outputs                | R1A                          |
|                              | R1C                          |
| External power supply 0 V    | C0M                          |
| Stop command                 | LI1                          |
| Run command                  | LI2                          |
| Control section power supply | LI + (+ 24 V positive logic) |
| BOOST                        | BOOST                        |
| End of starting              | LO1                          |
| 115 V external power supply  | —                            |

# Soft starters for asynchronous motors

## Altivar Soft Starter ATS01

### Cycle time calculation

Start/Stop per hour:

Determining the permissible starting frequency

The starting frequency depends on the:

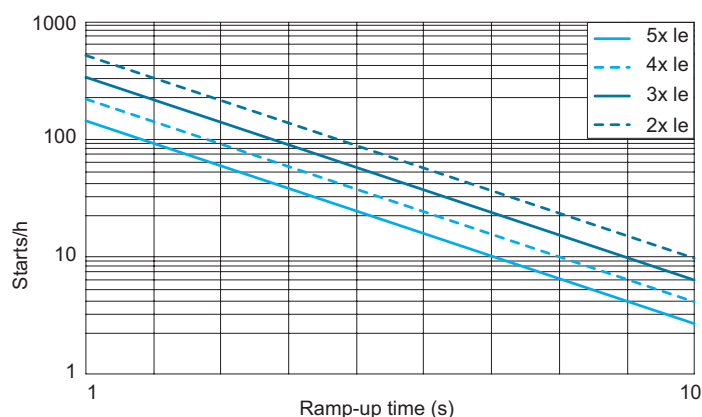
- starting current or the heat loss across the power semiconductors
- current carrying capacity and the temperature increase of the power semiconductors.
- heat sink's capability of absorbing the heat loss and passing the temperature increase on to the environment

The following diagrams are to assist you in determining the maximum starting frequency per hour, i.e., on the basis of the given maximum starting current and for various starting times. Should the requested starting frequency not be reached, a different device series has to be chosen.

Example: In a drive, a 15 kW-motor is to be started. A maximum starting current of 120 A has been measured. This approximately corresponds to the 4-times nominal current. The device employed is a ATS01N232. From the applicable chart it is now possible to read off a max. starting frequency per hour lying between 280 (starting time = 1 s) and 28 (starting time = 10 s).

### Cycle time: ATS01N103...222

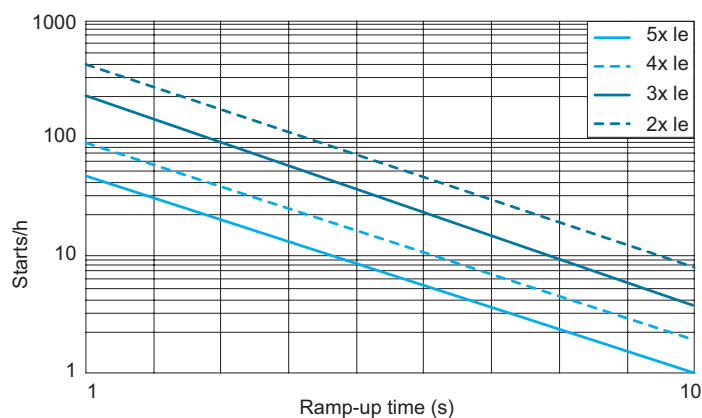
Motor ramp-up current relating rated softstarter current



**Note:** Over 40 °C ambient temperature, oversize the starter by 1 is mandatory for ATS01N103...222 ranges.

### Cycle time: ATS01N232

Motor ramp-up current relating rated softstarter current



# Soft starters for asynchronous motors

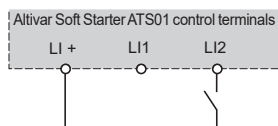
## Altivar Soft Starter ATS01

### Functions

#### ■ 2-wire control

The run and stop commands are controlled by a single logic input. State 1 of logic input LI2 controls starting and state 0 controls stopping.

#### ATS01N2●●LU/QN/RT



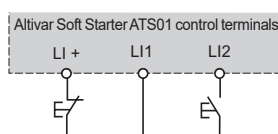
Wiring diagram for 2-wire control

#### ■ 3-wire control

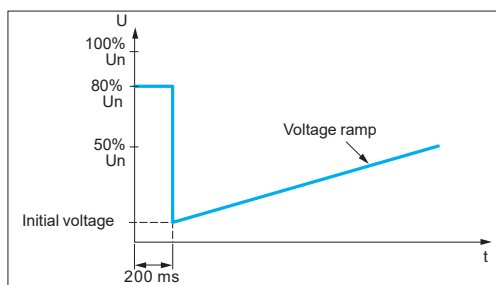
The run and stop commands are controlled by 2 different logic inputs.

Stopping is achieved when logic input LI1 opens (state 0).

The pulse on input LI2 is stored until input LI1 opens.



Wiring diagram for 3-wire control



Application of a voltage boost equal to 100% of the nominal motor voltage

#### ■ Starting time

Controlling the starting time means that the time of the voltage ramp applied to the motor can be adjusted to obtain a gradual starting time, dependent on the motor load.

#### ■ Voltage boost function via logic input

Activating the BOOST logic input enables the function for supplying a starting overtorque capable of overcoming any mechanical friction.

When the input is at state 1, the function is active (input connected to the + 24 V) and the starter applies a fixed voltage to the motor for a limited time before starting.

#### ■ End of starting

##### □ Application function via logic output LO1

ATS01N206●● to ATS01N232●● soft start/soft stop units are equipped with an open collector logic output LO, which indicates the end of starting when the motor has reached nominal speed.

# Soft starters for asynchronous motors

## Altivar Soft Starter ATS01



ATS01N103FT



ATS01N212QN

### Soft starters for 0.37 to 11 kW motors

| Motor                                                                        |        |               |                |                |          | Starter         |                                           |             | Reference (2)   | Weight |
|------------------------------------------------------------------------------|--------|---------------|----------------|----------------|----------|-----------------|-------------------------------------------|-------------|-----------------|--------|
| Motor power (1)                                                              |        |               |                |                |          | Nominal current | Dimensions<br>W x D x H                   |             |                 |        |
| Single-phase                                                                 |        | Three-phase   |                |                |          |                 |                                           |             |                 |        |
| 230 V                                                                        | 110 V  | 230 V         | 230 V          | 400 V          | 460 V    |                 |                                           |             |                 |        |
| kW                                                                           | HP     | kW            | HP             | kW             | HP       | A               | mm/<br>in.                                |             | kg/<br>lb       |        |
| Single-phase 110...230 V or three-phase 110...480 V supply voltage, 50/60 Hz |        |               |                |                |          |                 |                                           |             |                 |        |
| 0.37                                                                         | —      | 0.37          | 0.5            | 1.1            | 0.5      | 3               | 22.5 x 100.4 x 100/<br>0.89 x 3.95 x 3.94 | ATS01N103FT | 0.160/<br>0.353 |        |
| 0.75                                                                         | 0.5    | 0.75          | 1              | 2.2            | 2        | 6               | 22.5 x 100.4 x 100/<br>0.89 x 3.95 x 3.94 | ATS01N106FT | 0.160/<br>0.353 |        |
| 1.1                                                                          | 1      | 1.5           | 2              | 4              | 5        | 9               | 45 x 130.7 x 124/<br>1.77 x 5.15 x 4.88   | ATS01N109FT | 0.280/<br>0.617 |        |
| 1.5                                                                          | 1.5    | 2.2           | 3              | 5.5            | 7.5      | 12              | 45 x 130.7 x 124/<br>1.77 x 5.15 x 4.88   | ATS01N112FT | 0.280/<br>0.617 |        |
| 2.2                                                                          | 2<br>3 | 3<br>4<br>5.5 | 5<br>7.5<br>11 | 7.5<br>9<br>11 | 10<br>15 | 25              | 45 x 130.7 x 124/<br>1.77 x 5.15 x 4.88   | ATS01N125FT | 0.350/<br>0.772 |        |

### Accessories

| Description                              | For use with starter        | Reference | Weight<br>kg/lb |
|------------------------------------------|-----------------------------|-----------|-----------------|
| Adapter for mounting on<br>□ DZ5 MB rail | ATS01N103FT,<br>ATS01N106FT | RHZ66     | 0.005/<br>0.011 |

### Soft start/soft stop units for 0.75 to 15 kW motors (3)

| Motor                                            |       | Starter         |                                         | Reference (2) | Weight          |
|--------------------------------------------------|-------|-----------------|-----------------------------------------|---------------|-----------------|
| Motor power (1)                                  |       | Nominal current | Dimensions<br>W x D x H                 |               |                 |
| kW                                               | HP    | A               | mm/in.                                  |               | kg/lb           |
| Three-phase supply voltage: 200...240 V 50/60 Hz |       |                 |                                         |               |                 |
| 0.75/1.1                                         | 1/1.5 | 6               | 45 x 130.7 x 124/<br>1.77 x 5.15 x 4.88 | ATS01N206LU   | 0.420/<br>0.926 |
| 1.5                                              | 2     | 9               | 45 x 130.7 x 124/<br>1.77 x 5.15 x 4.88 | ATS01N209LU   | 0.420/<br>0.926 |
| 2.2/3                                            | 3/—   | 12              | 45 x 130.7 x 124/<br>1.77 x 5.15 x 4.88 | ATS01N212LU   | 0.420/<br>0.926 |
| 4/5.5                                            | 5/7.5 | 22              | 45 x 130.7 x 154/<br>1.77 x 5.15 x 6.06 | ATS01N222LU   | 0.560/<br>1.235 |
| 7.5                                              | 10    | 32              | 45 x 130.7 x 154/<br>1.77 x 5.15 x 6.06 | ATS01N232LU   | 0.560/<br>1.235 |
| Three-phase supply voltage: 380...415 V 50/60 Hz |       |                 |                                         |               |                 |
| 1.5/2.2/3                                        | —     | 6               | 45 x 130.7 x 124/<br>1.77 x 5.15 x 4.88 | ATS01N206QN   | 0.420/<br>0.926 |
| 4                                                | —     | 9               | 45 x 130.7 x 124/<br>1.77 x 5.15 x 4.88 | ATS01N209QN   | 0.420/<br>0.926 |
| 5.5                                              | —     | 12              | 45 x 130.7 x 124/<br>1.77 x 5.15 x 4.88 | ATS01N212QN   | 0.420/<br>0.926 |
| 7.5/11                                           | —     | 22              | 45 x 130.7 x 154/<br>1.77 x 5.15 x 6.06 | ATS01N222QN   | 0.560/<br>1.235 |
| 15                                               | —     | 32              | 45 x 130.7 x 154/<br>1.77 x 5.15 x 6.06 | ATS01N232QN   | 0.560/<br>1.235 |
| Three-phase supply voltage: 440...480 V 50/60 Hz |       |                 |                                         |               |                 |
| —                                                | 2/3   | 6               | 45 x 130.7 x 124/<br>1.77 x 5.15 x 4.88 | ATS01N206RT   | 0.420/<br>0.926 |
| —                                                | 5     | 9               | 45 x 130.7 x 124/<br>1.77 x 5.15 x 4.88 | ATS01N209RT   | 0.420/<br>0.926 |
| —                                                | 7.5   | 12              | 45 x 130.7 x 124/<br>1.77 x 5.15 x 4.88 | ATS01N212RT   | 0.420/<br>0.926 |
| —                                                | 10/15 | 22              | 45 x 130.7 x 154/<br>1.77 x 5.15 x 6.06 | ATS01N222RT   | 0.560/<br>1.235 |
| —                                                | 20    | 32              | 45 x 130.7 x 154/<br>1.77 x 5.15 x 6.06 | ATS01N232RT   | 0.560/<br>1.235 |

(1) Standard motor power ratings, HP power ratings indicated according to standard UL 508.

(2) For motor thermal protection, use a GVME thermal-magnetic motor circuit breaker (see combinations [page 9](#)).

(3) Control power supply built into the starter.

# Soft starters for asynchronous motors

Altivar Soft Starter ATS01

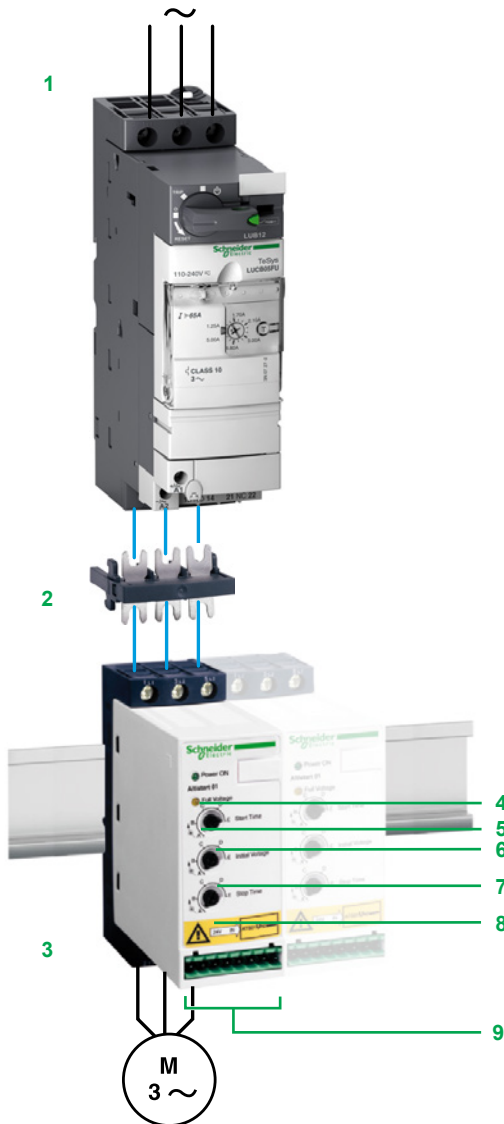
400 V power supply, type 1 coordination

| Compatible components according to IEC 60947-4-1 and IEC 60947-4-2                                                                        |      |                     |                 |        |                     |                                                  |                       |        |                                      |                           |
|-------------------------------------------------------------------------------------------------------------------------------------------|------|---------------------|-----------------|--------|---------------------|--------------------------------------------------|-----------------------|--------|--------------------------------------|---------------------------|
| Combine either circuit breaker (light green columns), contactor, and starter, or switch/fuse (dark green columns), contactor, and starter |      |                     |                 |        |                     |                                                  |                       |        |                                      |                           |
| Motor                                                                                                                                     |      | Starter<br>Class 10 | Circuit breaker | Rating | Contactor           | Switch or<br>disconnect<br>switch<br>(base unit) | aM fuses<br>Reference | Rating | I <sup>2</sup> t<br>A <sup>2</sup> s | Thermal<br>overload relay |
| kW                                                                                                                                        | A    |                     |                 | A      |                     |                                                  |                       | A      |                                      |                           |
| M1                                                                                                                                        |      | A1                  | Q1              |        | KM1, KM2, KM3       | Q2                                               |                       |        |                                      | F4                        |
| 0.37                                                                                                                                      | 0.98 | ATS01N103FT         | GV2ME05         | 1      | LC1K06 or<br>LC1D09 | LS1D2531                                         | DF2CA02               | 2      | 265                                  | LR2K0306<br>LRD05         |
| 0.55                                                                                                                                      | 1.5  | ATS01N103FT         | GV2ME06         | 1.6    | LC1K06 or<br>LC1D09 | LS1D2531                                         | DF2CA02               | 2      | 265                                  | LR2K0307<br>LRD06         |
| 0.75                                                                                                                                      | 2    | ATS01N103FT         | GV2ME07         | 2.5    | LC1K06 or<br>LC1D09 | LS1D2531                                         | DF2CA02               | 2      | 265                                  | LR2K0308<br>LRD07         |
| 1.1                                                                                                                                       | 2.5  | ATS01N103FT         | GV2ME08         | 4      | LC1K06 or<br>LC1D09 | LS1D2531                                         | DF2CA04               | 4      | 265                                  | LR2K0308<br>LRD08         |
|                                                                                                                                           |      | ATS01N206QN         | GV2ME08         | 4      | LC1K06 or<br>LC1D09 | LS1D2531                                         | DF2CA04               | 4      | 265                                  | LR2K0308<br>LRD08         |
| 1.5                                                                                                                                       | 3.5  | ATS01N106FT         | GV2ME08         | 4      | LC1K06 or<br>LC1D09 | LS1D2531                                         | DF2CA06               | 6      | 265                                  | LR2K0310<br>LRD08         |
|                                                                                                                                           |      | ATS01N206QN         | GV2ME08         | 4      | LC1K06 or<br>LC1D09 | LS1D2531                                         | DF2CA06               | 6      | 265                                  | LR2K0310<br>LRD08         |
| 2.2                                                                                                                                       | 5    | ATS01N106FT         | GV2ME10         | 6.3    | LC1K06 or<br>LC1D09 | LS1D2531                                         | DF2CA08               | 8      | 265                                  | LR2K0312<br>LRD10         |
|                                                                                                                                           |      | ATS01N206QN         | GV2ME10         | 6.3    | LC1K09 or<br>LC1D09 | LS1D2531                                         | DF2CA08               | 8      | 265                                  | LR2K0312<br>LRD10         |
| 3                                                                                                                                         | 6.5  | ATS01N106FT         | GV2ME14         | 9      | LC1K09 or<br>LC1D09 | LS1D2531                                         | DF2CA12               | 12     | 265                                  | LR2K0314<br>LRD12         |
|                                                                                                                                           |      | ATS01N206QN         | GV2ME14         | 9      | LC1K09 or<br>LC1D09 | LS1D2531                                         | DF2CA12               | 12     | 265                                  | LR2K0314<br>LRD12         |
| 4                                                                                                                                         | 8.4  | ATS01N109FT         | GV2ME14         | 9      | LC1K09 or<br>LC1D09 | LS1D2531                                         | DF2CA12               | 12     | 610                                  | LR2K0316<br>LRD14         |
|                                                                                                                                           |      | ATS01N209QN         | GV2ME14         | 9      | LC1K09 or<br>LC1D09 | LS1D2531                                         | DF2CA12               | 12     | 610                                  | LR2K0316<br>LRD14         |
| 5.5                                                                                                                                       | 11   | ATS01N112FT         | GV2ME16         | 13     | LC1K12 or<br>LC1D12 | LS1D2531                                         | DF2CA16               | 16     | 610                                  | LR2K0321<br>LRD16         |
|                                                                                                                                           |      | ATS01N212QN         | GV2ME16         | 13     | LC1K12 or<br>LC1D12 | LS1D2531                                         | DF2CA16               | 16     | 610                                  | LR2K0321<br>LRD16         |
| 7.5                                                                                                                                       | 14.8 | ATS01N125FT         | GV2ME20         | 17     | LC1D18              | LS1D2531                                         | DF2CA20               | 20     | 6050                                 | LRD21                     |
|                                                                                                                                           |      | ATS01N222QN         | GV2ME20         | 17     | LC1D18              | LS1D2531                                         | DF2CA20               | 20     | 6050                                 | LRD21                     |
| 9                                                                                                                                         | 18.1 | ATS01N125FT         | GV2ME21         | 21     | LC1D25              | LS1D2531                                         | DF2CA25               | 25     | 6050                                 | LRD21                     |
|                                                                                                                                           |      | ATS01N222QN         | GV2ME21         | 21     | LC1D25              | LS1D2531                                         | DF2CA25               | 25     | 6050                                 | LRD21                     |
| 11                                                                                                                                        | 21   | ATS01N125FT         | GV2ME22         | 23     | LC1D25              | LS1D2531                                         | DF2CA25               | 25     | 6050                                 | LRD22                     |
|                                                                                                                                           |      | ATS01N222QN         | GV2ME22         | 23     | LC1D25              | LS1D2531                                         | DF2CA25               | 25     | 6050                                 | LRD22                     |
| 15                                                                                                                                        | 28.5 | ATS01N232QN         | GV2ME32         | 32     | LC1D32              | GK1EM                                            | DF2EA40               | 40     | 7200                                 | LRD3353                   |

# Soft starters for asynchronous motors

## Altivar Soft Starter ATSU01 and TeSys U

PF514367



### Presentation

The Altivar Soft Starter ATSU01 is a soft start/soft stop unit for asynchronous motors. It is designed primarily for combinations with **TeSys U** starter-controllers.

When used in combination with a **TeSys U 1** controller by means of a connector **2**, the Altivar Soft Starter ATSU01 **3** is a power option that provides the “soft start/soft stop” function. The result is a unique, innovative motor starter.

Using the Altivar Soft Starter ATSU01 enhances the starting performance of asynchronous motors by allowing them to start gradually, smoothly, and in a controlled manner. It helps to prevent mechanical shocks, which cause wear and tear, and subsequently limits the amount of maintenance work and production downtime.

The Altivar Soft Starter ATSU01 limits the starting torque and current peaks on starting on machines that do not require a high starting torque.

The Altivar Soft Starter ATSU01 is designed for the following simple applications:

- conveyors
- conveyor belts
- pumps
- fans
- compressors
- automatic doors and gates
- small cranes
- belt-driven machinery

The Altivar Soft Starter ATSU01 is compact and easy to install. It complies with standards IEC/EN 60947-4-2, and carries UL, CSA, C-Tick, and CCC certifications, and CE marking.

### ■ ATSU01N2●●LT soft start/soft stop units

- These control two phases of the motor power supply to limit the starting current and for deceleration.
  - They feature an internal bypass relay.
  - Motor power ratings range from 0.75 kW to 15 kW.
  - Motor supply voltages range from 200 V to 480 V, 50/60 Hz.
- An external power supply is required for controlling the starter.

### Description

- Altivar Soft Starter ATSU01 soft start/soft stop units are equipped with:
  - a potentiometer for setting the starting time **6**
  - a potentiometer for setting the deceleration time **8**
  - a potentiometer for adjusting the starting voltage threshold according to the motor load **7**
  - 1 green LED **4** to indicate that the unit is powered up
  - 1 yellow LED **5** to indicate that the motor is powered at nominal voltage, if it is connected to the starter
  - a connector **9** for:
    - 2 logic inputs for Run/Stop commands
    - 1 logic input for the BOOST function
    - 1 logic output to indicate the end of starting
    - 1 relay output to indicate that an error has been detected on the starter power supply or that the motor has reached a standstill at the end of the deceleration stage

# Soft starters for asynchronous motors

## Altivar Soft Starter ATSU01 and TeSys U

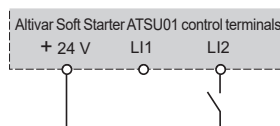
### Description of a TeSys U starter-controller

Please refer to the "TeSys U starters - open version" catalog.

### ATSU01N2●●LT soft start unit functions

#### ■ 2-wire control

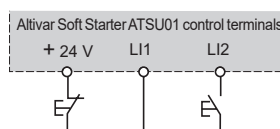
The run and stop commands are controlled by a single logic input. State 1 of logic input LI2 controls starting and state 0 controls stopping.



Wiring diagram for 2-wire control

#### ■ 3-wire control

The run and stop commands are controlled by 2 different logic inputs. Stopping is achieved when logic input LI1 opens (state 0). The pulse on input LI2 is stored until input LI1 opens.



Wiring diagram for 3-wire control

#### ■ Starting time:

Controlling the starting time means that the time of the voltage ramp applied to the motor can be adjusted to obtain a gradual starting time, dependent on the motor load.

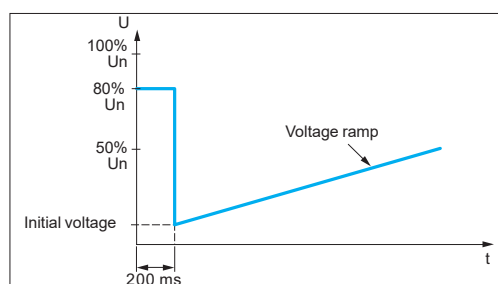
#### ■ Voltage boost function via logic input

Activating the BOOST logic input enables the function for supplying a starting overtorque capable of overcoming any mechanical friction. When the input is at state 1, the function is active (input connected to the + 24 V) and the starter applies a fixed voltage to the motor for a limited time before starting.

#### ■ End of starting

##### □ Application function for logic output LO1

ATSU01N2●●LT soft start/soft stop units are equipped with an open collector logic output LO, which indicates the end of starting when the motor has reached nominal speed.



Application of a voltage boost equal to 100% of the nominal motor voltage

# Soft starters for asynchronous motors

Altivar Soft Starter ATSU01 and TeSys U



ATSU01N222LT

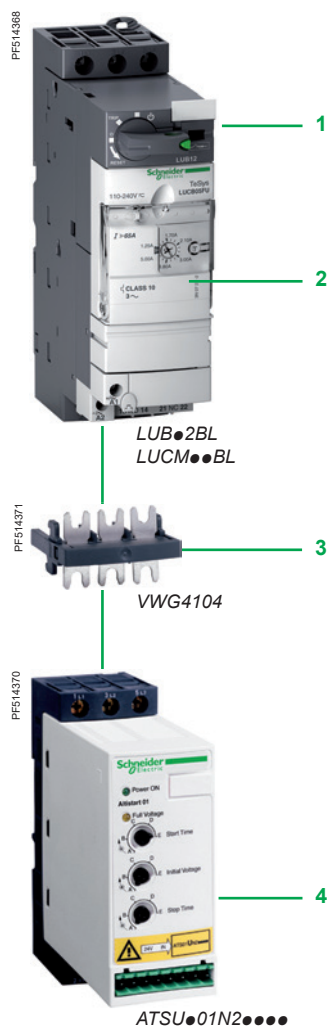
| Soft start/soft stop units for 0.75 to 15 kW motors (can be combined with TeSys U starter) |       |       |       |                 |                                      |              |              |
|--------------------------------------------------------------------------------------------|-------|-------|-------|-----------------|--------------------------------------|--------------|--------------|
| Motor                                                                                      |       |       |       | Starter         |                                      |              |              |
| Motor power (1)                                                                            |       |       |       | Nominal current | Dimensions W x D x H                 | Reference    | Weight       |
| 230 V                                                                                      | 230 V | 400 V | 460 V |                 |                                      |              |              |
| kW                                                                                         | HP    | kW    | HP    | A               | mm/ in.                              |              | kg/ lb       |
| Three-phase supply voltage: 200...480 V 50/60 Hz                                           |       |       |       |                 |                                      |              |              |
| 0.75                                                                                       | 1     | 1.5   | 2     | 6               | 45 x 130.7 x 124/ 1.77 x 5.15 x 4.88 | ATSU01N206LT | 0.340/ 0.750 |
| 1.1                                                                                        | 1.5   | 2.2   | 3     |                 |                                      |              |              |
|                                                                                            |       | 3     |       |                 |                                      |              |              |
| 1.5                                                                                        | 2     | —     | 5     | 9               | 45 x 130.7 x 124/ 1.77 x 5.15 x 4.88 | ATSU01N209LT | 0.340/ 0.750 |
| —                                                                                          | —     | 4     | —     |                 |                                      |              |              |
| 2.2                                                                                        | 3     | 5.5   | 7.5   | 12              | 45 x 130.7 x 124/ 1.77 x 5.15 x 4.88 | ATSU01N212LT | 0.340/ 0.750 |
| 3                                                                                          | —     | —     | —     |                 |                                      |              |              |
| 4                                                                                          | 5     | 7.5   | 10    | 22              | 45 x 130.7 x 124/ 1.77 x 5.15 x 4.88 | ATSU01N222LT | 0.490/ 1.080 |
| 5.5                                                                                        | 7.5   | 11    | 15    |                 |                                      |              |              |
| 7.5                                                                                        | 10    | 15    | 20    | 32              | 45 x 130.7 x 124/ 1.77 x 5.15 x 4.88 | ATSU01N232LT | 0.490/ 1.080 |

| Accessory                                        |                      |           |               |
|--------------------------------------------------|----------------------|-----------|---------------|
| Description                                      | For use with starter | Reference | Weight kg/ lb |
| Power connector between ATSU01N2●●LT and TeSys U | ATSU01N2●●LT         | VW3G4104  | 0.020/ 0.044  |

(1) Standard motor power ratings, HP power ratings indicated according to standard UL508.

# Soft starters for asynchronous motors

## Altivar Soft Starter ATSU01 and TeSys U



### TeSys U starter and soft start unit combinations

Numerous possibilities for combinations and options are offered. Please refer to the "TeSys U starters - open version" catalog.

| Motor power |       |       | Soft start unit | TeSys U    |                  |
|-------------|-------|-------|-----------------|------------|------------------|
| Voltage     |       |       |                 | Power base | Control unit (1) |
| 230 V       | 400 V | 460 V |                 |            |                  |
| kW/HP       | kW    | HP    |                 |            |                  |
| 0.75/1      | 1.5   | 2     | ATSU01N206LT    | LUB12      | LUC●05BL         |
| 1.1/1.5     | 2.2/3 | 3     | ATSU01N206LT    | LUB12      | LUC●12BL         |
| 1.5/2       | —     | —     | ATSU01N209LT    | LUB12      | LUC●12BL         |
| —           | 4     | 5     | ATSU01N209LT    | LUB12      | LUC●12BL         |
| 2.2/3       | —     | —     | ATSU01N212LT    | LUB12      | LUC●12BL         |
| 3/—         | 5.5   | 7.5   | ATSU01N212LT    | LUB32      | LUC●18BL         |
| 4/5         | 7.5   | 10    | ATSU01N222LT    | LUB32      | LUC●18BL         |
| 5.5/7.5     | 11    | 15    | ATSU01N222LT    | LUB32      | LUC●32BL         |
| 7.5/10      | 15    | 20    | ATSU01N232LT    | LUB32      | LUC●32BL         |

Example of combining a motor-starter with:

- 1 power base for non-reversing DOL starting (LUB●2BL)
- 2 control unit (LUCM●●BL)
- 3 power connector (VW3G4104)
- 4 Altivar Soft Starter ATSU01 (ATSU01N2●●LT) soft start/soft stop unit

(1) Depending on the configuration required for the TeSys U starter, replace the ● with A for standard, B for advanced, and M for multifunction.

**A**

|              |    |
|--------------|----|
| ATS01N103FT  | 8  |
| ATS01N106FT  | 8  |
| ATS01N109FT  | 8  |
| ATS01N112FT  | 8  |
| ATS01N125FT  | 8  |
| ATS01N206LU  | 8  |
| ATS01N206QN  | 8  |
| ATS01N206RT  | 8  |
| ATS01N209LU  | 8  |
| ATS01N209QN  | 8  |
| ATS01N209RT  | 8  |
| ATS01N212LU  | 8  |
| ATS01N212QN  | 8  |
| ATS01N212RT  | 8  |
| ATS01N222LU  | 8  |
| ATS01N222QN  | 8  |
| ATS01N222RT  | 8  |
| ATS01N232LU  | 8  |
| ATS01N232QN  | 8  |
| ATS01N232RT  | 8  |
| ATSU01N206LT | 12 |
| ATSU01N209LT | 12 |
| ATSU01N212LT | 12 |
| ATSU01N222LT | 12 |
| ATSU01N232LT | 12 |

**R**

|       |   |
|-------|---|
| RHZ66 | 8 |
|-------|---|

**V**

|          |    |
|----------|----|
| VW3G4104 | 12 |
|----------|----|

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# Soft start/soft stop units Altistart 22

for asynchronous motors

Catalog

March 2017



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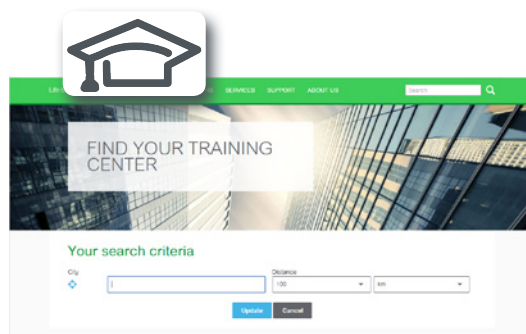


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## Altistart 22 soft start/soft stop units

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Soft starters for asynchronous motors

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|-----------------------------------------------------------------------------------------------|-----------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Applications                                                                                  |                             | Starting simple machines                                                          | Controlled starting and deceleration of simple machines                            |
|                                                                                               |                             |  |  |
| Power range for 50...60 Hz line supply (kW/HP)<br>(connection to the motor power supply line) |                             | 0.37...11/0.5...15                                                                | 0.75...15/1...20                                                                   |
| Single-phase 110...230 V (kW)                                                                 |                             | 0.37...2.2                                                                        | –                                                                                  |
| Three-phase 200...240 V (kW/HP)                                                               |                             | –                                                                                 | 0.75...7.5/1...10                                                                  |
| Three-phase 200...480 V (kW/HP)                                                               |                             | 0.37...11/0.5...15                                                                | –                                                                                  |
| Three-phase 208...600 V (kW/HP)                                                               |                             | –                                                                                 | –                                                                                  |
| Three-phase 208...690 V (kW/HP)                                                               |                             | –                                                                                 | –                                                                                  |
| Three-phase 230...415 V (kW)                                                                  |                             | –                                                                                 | –                                                                                  |
| Three-phase 230...440 V (kW)                                                                  |                             | –                                                                                 | –                                                                                  |
| Three-phase 380...415 V (kW)                                                                  |                             | –                                                                                 | 1.5...15                                                                           |
| Three-phase 440...480 V (HP)                                                                  |                             | –                                                                                 | 2...20                                                                             |
| Drive                                                                                         | Number of controlled phases | 1                                                                                 | 2                                                                                  |
|                                                                                               | Type of control             | –                                                                                 | –                                                                                  |
|                                                                                               | Operating cycle             | –                                                                                 | –                                                                                  |
| Functions                                                                                     |                             | Integrated                                                                        |                                                                                    |
| Bypass                                                                                        | Number of I/Os              | –                                                                                 | –                                                                                  |
|                                                                                               | Analog inputs               | –                                                                                 | –                                                                                  |
|                                                                                               | Logic inputs                | –                                                                                 | –                                                                                  |
|                                                                                               | Analog outputs              | –                                                                                 | –                                                                                  |
|                                                                                               | Logic outputs               | –                                                                                 | –                                                                                  |
|                                                                                               | Relay outputs               | –                                                                                 | –                                                                                  |
| Communication                                                                                 | Integrated                  | –                                                                                 | –                                                                                  |
|                                                                                               | Available as an option      | –                                                                                 | –                                                                                  |
| Standards and certifications                                                                  |                             | IEC/EN 60947-4-2<br>CE, UL, CSA, C-Tick, and CCC                                  |                                                                                    |
| References                                                                                    |                             | ATS01N1●●●●                                                                       | ATS01N2●●●●                                                                        |
| Pages                                                                                         |                             | Please refer to the Altistart 01 catalog.                                         |                                                                                    |

|                                                                                     |                                                                                                 |                   |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------|
| Controlled starting and deceleration of simple and complex machines                 |                                                                                                 |                   |
|  |              |                   |
| 4...400/3...500                                                                     | 3...900                                                                                         | 3...900/3...1,200 |
| —                                                                                   |                                                                                                 |                   |
| —                                                                                   |                                                                                                 |                   |
| —                                                                                   |                                                                                                 |                   |
| 4...400/3...500                                                                     | —                                                                                               | 3...900/3...1,200 |
| —                                                                                   | 3...630                                                                                         | —                 |
| 4...355                                                                             | —                                                                                               |                   |
| —                                                                                   |                                                                                                 |                   |
| —                                                                                   |                                                                                                 |                   |
| 3                                                                                   |                                                                                                 |                   |
| Configurable voltage ramp                                                           | TCS (Torque Control System)                                                                     |                   |
| Standard                                                                            | Standard and severe                                                                             |                   |
| Integrated                                                                          | Available as an option                                                                          |                   |
| 1 PTC probe                                                                         |                                                                                                 |                   |
| 3                                                                                   | 4                                                                                               |                   |
| —                                                                                   | 1                                                                                               |                   |
| —                                                                                   | 2                                                                                               |                   |
| 2 (CO)                                                                              | 3                                                                                               |                   |
| Modbus                                                                              |                                                                                                 |                   |
| —                                                                                   | Fipio, PROFIBUS DP, DeviceNet, Modbus TCP                                                       |                   |
| IEC/EN 60947-4-2, EMC class A<br>CE, UL, CSA, C-Tick, GOST, CCC                     | IEC/EN 60947-4-2, EMC class A and B<br>CE, UL, CSA, DNV, C-Tick, GOST, CCC, NOM, SEPPO, and TCF |                   |
| ATS22●●●●                                                                           | ATS48●●●Q                                                                                       | ATS48●●●Y         |
| 8                                                                                   | Please refer to the Altistart 48 catalog.                                                       |                   |

# Altistart 22 soft start/soft stop units



The Altistart 22 soft start/soft stop unit offer

## Presentation

Altistart 22 soft start/soft stop units support the controlled starting and stopping, via voltage and torque, of three-phase squirrel cage asynchronous motors for power ratings ranging from 4 to 400 kW.

They are supplied ready for use in standard applications with class 10 motor protection.

Altistart 22 soft start/soft stop units have been designed to meet the performance requirements of applications where ruggedness, security of personnel and equipment, and ease of setup are a priority.

The bypass function (based on a bypass contactor) has been made easier to use by integrating it into the starter. This approach suits applications where it may be necessary to bypass the starter at the end of starting in order, for example, to limit the starter's heat dissipation.

Altistart 22 soft start/soft stop units have an integrated display terminal that allows the user to change both the programming and the adjustment or monitoring parameters in order to adapt and customize the application in line with customer needs.

They also feature an integrated thermal motor protection function as well as machine monitoring functionality, and offer immediate installation setup capability using SoMove setup software.

## Applications

The integrated functions of Altistart 22 soft start/soft stop units are compatible with the more common types of application found in the construction, infrastructure, or industrial sectors:

- centrifugal pumps, piston pumps
- fans
- screw compressors
- material handling (conveyors, etc.)
- specialist machinery (agitators, mixers, centrifuges)

Altistart 22 soft start/soft stop units offer a truly cost-effective solution by providing:

- a reduction in installation costs through optimum product sizes, integrated bypass function, and faster wiring time
- a reduction in the stress associated with electrical distribution through fewer current peaks and line voltage drops caused by motor starting
- a reduction in machine running costs through reduced mechanical stress

The three phases of the motor windings are controlled to help maintain performance, whatever the situation (with or without load, any voltage or power range, etc.).

## Conformity to standards

| Description                             | Performance                  |                                                           |
|-----------------------------------------|------------------------------|-----------------------------------------------------------|
| <b>Conducted and radiated emissions</b> | Conforming to IEC 60947-4-2  | Class A                                                   |
| <b>Vibration resistance</b>             | Conforming to IEC 60068-2-6  | 1.5 mm/0.06 in. from 2 to 13 Hz<br>1 gn from 13 to 200 Hz |
| <b>Shock resistance</b>                 | Conforming to IEC 60068-2-27 | 15 gn for 11 ms                                           |
| <b>Maximum ambient pollution</b>        | Conforming to IEC 60664-1    | Degree 2                                                  |
| <b>Relative humidity</b>                | Conforming to IEC 60068-2-3  | 95% non-condensing, no dripping water                     |
| <b>Degree of protection</b>             | For ATS22D17...C11           | IP 20<br>(IP 00 if no connection)                         |
|                                         | For ATS22C14...C59           | IP 00                                                     |

Altistart 22 soft start/soft stop units conform to the RoHS Directive.

# Altistart 22

## soft start/soft stop units

### Functions

The main functions integrated in the drive are as follows:

#### Adjustment functions

- Adjustment of the Altistart 22 soft start/soft stop unit current in line with the motor nominal current
- Limiting current
- Choice of the type of stop (freewheel or deceleration)

#### Soft starter performance functions

- Management of the three supply phases
- Option to connect the starter in the motor delta connection in series with each winding. This supports the use of a soft start/soft stop unit with a lower rating (for the ATS22●●●Q range only)
- Management of the ramp and torque supplied to the motor throughout the acceleration and deceleration stages (significantly smoother)
- Variety of control profiles to suit different applications
- Integrated and automated management of the bypass function at the end of starting (bypass contactor), while preserving electronic protection functions

#### Protection functions for the motor and machine

- Integrated configurable motor thermal protection
- Thermal protection of the Altistart 22 soft start/soft stop unit
- Integrated processing of the PTC thermal probe with electrical isolation (optimum management of motor protection function)
- Monitoring of the duration and number of starts
- Management of stopping time before restart
- Protection against underloads and overcurrents in transient or steady state
- Automatic adjustment to the line frequency
- Phase sequence detection
- Phase loss detection
- Detection of imbalances between phases and of leakage currents (for the ATS22●●●S6 and S6U ranges)

#### Functions to facilitate integration into control systems

- 3 programmable logic inputs
- 2 programmable CO relay outputs
- Plug-in I/O connectors
- Second set of motor control parameters
- Modbus serial link via RJ45 connector
- Display of soft start/soft stop unit and machine states
- Display of I/O states and currents
- Detected errors log, diagnostics for soft start/soft stop unit
- Restore factory settings
- 4 LEDs on the front (Ready, Communication, Run, and Trip)

# Altistart 22 soft start/soft stop units



Testing and start-up of the ATS 22 soft start/soft stop unit using SoMove setup software

## The offer

The Altistart 22 soft start/soft stop unit offer comprises 2 voltage ranges for motor power ratings ranging from 4 to 400 kW:

- three-phase power supply voltage ranging from 230 V to 440 V, 50/60 Hz (ATS22●●●Q)
- three-phase power supply voltage ranging from 208 V to 600 V, 50/60 Hz (ATS22●●●S6 and ATS22●●●S6U)

## Options

The Altistart 22 soft start/soft stop unit range also offers a number of options:

- A remote display terminal can be installed on the front of a floor-standing enclosure with IP 54/UL type 12 or IP 65 protection depending on the model. It offers the same functions as an integrated display terminal.
- Additional fans to support a greater number of starts
- SoMove setup software
- Protective terminal covers for compliance with IP 20 degree of protection

## Selection criteria

Altistart 22 soft start/soft stop units have been designed for standard control system applications.

In addition to the chosen application, the choice of starter will depend on the following main criteria:

- the power and nominal current on the motor rating plate
- the load factor of the application

The starting capacity also needs to be considered when selecting an Altistart 22 soft start/soft stop unit.

## Starting capacity

The standard starting capacity for a class 10 motor is:

- 3.5 In for 40 seconds from cold in S1 duty
- 3.5 In for 20 seconds in S4 duty with a load factor of 95%

**Note:** S1 duty corresponds to a start followed by operation at constant load, making it possible to achieve thermal equilibrium.

S4 duty corresponds to a cycle consisting of a start, operation at constant load, and an idle period.

## Number of starts per hour

Assuming the starting capacity remains the same, the number of starts per hour can be increased by adding a fan.

ATS22D17Q...C17Q, ATS22D17S6...C17S6, and ATS22D17S6U...C17S6U soft start/soft stop units can be equipped with an additional fan (see options page 11).

Possible number of starts per hour based on a capacity of 3.5 In for 20 seconds (S4 duty) after adding a fan:

| Soft start/soft stop unit | Number of starts per hour |                     |
|---------------------------|---------------------------|---------------------|
|                           | Without fan               | With additional fan |
| ATS22D17●...D47●          | 6                         | 10                  |
| ATS22D62●...D88●          | 6                         | 10                  |
| ATS22C11●...C17●          | 4                         | 10                  |

**Note:** ATS22C21Q...C59Q, ATS22C21S6...C59S6, and ATS22C21S6U...C59S6U soft start/soft stop units are equipped with a fan as standard.

The standard number of starts per hour in S4 duty is 4. Anything more would require derating by one power rating.

# Altistart 22

## soft start/soft stop units



Example of using the Altistart 22 soft start/soft stop unit in a pumping application

### Standard applications

Examples of functions performed by Altistart 22 soft start/soft stop units depending on the application:

| Type of machine          | Functions performed by the Altistart 22                                                                                              |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Centrifugal pump         | Controlled deceleration and stopping (reduces water hammer)<br>Protection against underloads or reversal of phase rotation direction |
| Piston pump              | Control of pump priming and direction of rotation                                                                                    |
| Fan                      | Detection of under/overloads (motor/fan transmission broken)<br>Braking torque on stopping                                           |
| Turbine                  | Thermal monitoring of motor via electrically isolated PTC probe                                                                      |
| Refrigeration compressor | Control of starting characteristics<br>Automatic restart management                                                                  |
| Screw compressor         | Protection against reversal of phase rotation direction<br>Contact for automatic draining on stopping                                |
| Centrifugal compressor   | Protection against reversal of phase rotation direction<br>Contact for automatic draining on stopping                                |
| Conveyor                 | Overload monitoring for incident detection or underload monitoring for break detection                                               |
| Conveyor belt            | Second set of motor parameters depending on the load transported                                                                     |
| Lifting screw            | Overload monitoring for hard spot detection or underload monitoring for break detection                                              |
| Agitator                 | Display of the current to indicate the density of the material                                                                       |
| Mixer                    | Display of the current to indicate the density of the material<br>Boost on starting                                                  |
| Refiner                  | Torque control on starting and stopping                                                                                              |

### Special applications

ATS 22 soft start/soft stop units can be used for applications outside the standard characteristics, but this may involve derating by at least one power rating.

Examples of applications outside the standard characteristics:

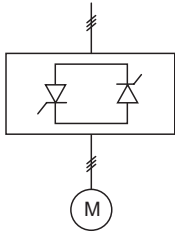
- Greater number of starts
- Motor thermal protection higher than class 10
- Excess current required on starting
- Certain ambient temperatures:

For ambient temperatures between + 40 °C/+ 104 °F and + 60 °C/+ 140 °F, derate the nominal current of the Altistart by 2.2% for each additional degree.

- Certain altitudes:

For altitudes between 1,000 m/3,280.83 ft and 2,000 m/6,561.66 ft, derate the nominal current of the Altistart by 2% for each additional 100 m/328.08 ft.

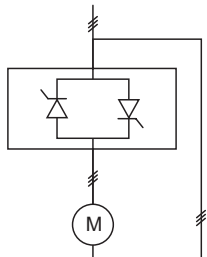
- ...



Connection in the motor power supply line



ATS22D17●●●  
ATS22D32●●●  
ATS22D47●●●



Connection in the motor delta connection



ATS22D62●●●  
ATS22D75●●●  
ATS22D88●●●

## Connection in the motor power supply line

Motor power given in kW in accordance with standard IEC/EN 60947-4-2. 220 V control power supply on CL1, CL2

| Motor                           |          |          | Soft start/soft stop unit, 230...440 V - 50/60 Hz |                           |                                     |                                           | Reference | Weight             |
|---------------------------------|----------|----------|---------------------------------------------------|---------------------------|-------------------------------------|-------------------------------------------|-----------|--------------------|
| Power indicated on rating plate |          |          | Factory-set current (In) (1)                      | Nominal current (IcL) (2) | Power dissipated at nominal current | Dimensions W x D x H                      |           |                    |
| 230 V kW                        | 400 V kW | 440 V kW | A                                                 | A                         | W                                   | mm/<br>in.                                |           | kg/<br>lb          |
| 4                               | 7.5      | 7.5      | 14.8                                              | 17                        | 39                                  | 130 x 169 x 265/<br>5.12 x 6.65 x 10.43   | ATS22D17Q | 7.000/<br>15.432   |
| 7.5                             | 15       | 15       | 28.5                                              | 32                        | 44                                  | 130 x 169 x 265/<br>5.12 x 6.65 x 10.43   | ATS22D32Q | 7.000/<br>15.432   |
| 11                              | 22       | 22       | 42                                                | 47                        | 48                                  | 130 x 169 x 265/<br>5.12 x 6.65 x 10.43   | ATS22D47Q | 7.000/<br>15.432   |
| 15                              | 30       | 30       | 57                                                | 62                        | 59                                  | 145 x 207 x 295/<br>5.71 x 8.15 x 11.61   | ATS22D62Q | 12.000/<br>26.455  |
| 18.5                            | 37       | 37       | 69                                                | 75                        | 63                                  | 145 x 207 x 295/<br>5.71 x 8.15 x 11.61   | ATS22D75Q | 12.000/<br>26.455  |
| 22                              | 45       | 45       | 81                                                | 88                        | 66                                  | 145 x 207 x 295/<br>5.71 x 8.15 x 11.61   | ATS22D88Q | 12.000/<br>26.455  |
| 30                              | 55       | 55       | 100                                               | 110                       | 73                                  | 150 x 229 x 356/<br>5.91 x 9.02 x 14.02   | ATS22C11Q | 18.000/<br>39.683  |
| 37                              | 75       | 75       | 131                                               | 140                       | 82                                  | 150 x 229 x 356/<br>5.91 x 9.02 x 14.02   | ATS22C14Q | 18.000/<br>39.683  |
| 45                              | 90       | 90       | 162                                               | 170                       | 91                                  | 150 x 229 x 356/<br>5.91 x 9.02 x 14.02   | ATS22C17Q | 18.000/<br>39.683  |
| 55                              | 110      | 110      | 195                                               | 210                       | 117                                 | 206 x 299 x 425/<br>8.11 x 11.77 x 16.73  | ATS22C21Q | 33.000/<br>72.752  |
| 75                              | 132      | 132      | 233                                               | 250                       | 129                                 | 206 x 299 x 425/<br>8.11 x 11.77 x 16.73  | ATS22C25Q | 33.000/<br>72.752  |
| 90                              | 160      | 160      | 285                                               | 320                       | 150                                 | 206 x 299 x 425/<br>8.11 x 11.77 x 16.73  | ATS22C32Q | 33.000/<br>72.752  |
| 110                             | 220      | 220      | 388                                               | 410                       | 177                                 | 206 x 299 x 425/<br>8.11 x 11.77 x 16.73  | ATS22C41Q | 33.000/<br>72.752  |
| 132                             | 250      | 250      | 437                                               | 480                       | 218                                 | 304 x 340 x 455/<br>11.97 x 13.39 x 17.91 | ATS22C48Q | 50.000/<br>110.231 |
| 160                             | 315      | 355      | 560                                               | 590                       | 251                                 | 304 x 340 x 455/<br>11.97 x 13.39 x 17.91 | ATS22C59Q | 50.000/<br>110.231 |

## Connection in the motor delta connection

Motor power given in kW in accordance with standard IEC/EN 60947-4-2. 220 V control power supply

| Motor                               |          |          | Soft start/soft stop unit, 230...440 V - 50/60 Hz |                           |                                     |                                           | Reference | Weight             |
|-------------------------------------|----------|----------|---------------------------------------------------|---------------------------|-------------------------------------|-------------------------------------------|-----------|--------------------|
| Power indicated on rating plate (4) |          |          | Factory-set current (In) (1) (3)                  | Nominal current (IcL) (2) | Power dissipated at nominal current | Dimensions W x D x H                      |           |                    |
| 230 V kW                            | 400 V kW | 440 V kW | A                                                 | A                         | W                                   | mm/<br>in.                                |           | kg/<br>lb          |
| 5.5                                 | 11       | 15       | 14.8                                              | 17                        | 39                                  | 130 x 169 x 265/<br>5.12 x 6.65 x 10.43   | ATS22D17Q | 7.000/<br>15.432   |
| 11                                  | 22       | 22       | 28.5                                              | 32                        | 44                                  | 130 x 169 x 265/<br>5.12 x 6.65 x 10.43   | ATS22D32Q | 7.000/<br>15.432   |
| 18.5                                | 45       | 45       | 42                                                | 47                        | 48                                  | 130 x 169 x 265/<br>5.12 x 6.65 x 10.43   | ATS22D47Q | 7.000/<br>15.432   |
| 22                                  | 55       | 55       | 57                                                | 62                        | 59                                  | 145 x 207 x 295/<br>5.71 x 8.15 x 11.61   | ATS22D62Q | 12.000/<br>26.455  |
| 30                                  | 55       | 75       | 69                                                | 75                        | 63                                  | 145 x 207 x 295/<br>5.71 x 8.15 x 11.61   | ATS22D75Q | 12.000/<br>26.455  |
| 37                                  | 75       | 75       | 81                                                | 88                        | 66                                  | 145 x 207 x 295/<br>5.71 x 8.15 x 11.61   | ATS22D88Q | 12.000/<br>26.455  |
| 45                                  | 90       | 90       | 100                                               | 110                       | 73                                  | 150 x 229 x 356/<br>5.91 x 9.02 x 14.02   | ATS22C11Q | 18.000/<br>39.683  |
| 55                                  | 110      | 110      | 131                                               | 140                       | 82                                  | 150 x 229 x 356/<br>5.91 x 9.02 x 14.02   | ATS22C14Q | 18.000/<br>39.683  |
| 75                                  | 132      | 132      | 162                                               | 170                       | 91                                  | 150 x 229 x 356/<br>5.91 x 9.02 x 14.02   | ATS22C17Q | 18.000/<br>39.683  |
| 90                                  | 160      | 160      | 195                                               | 210                       | 117                                 | 206 x 299 x 425/<br>8.11 x 11.77 x 16.73  | ATS22C21Q | 33.000/<br>72.752  |
| 110                                 | 220      | 220      | 233                                               | 250                       | 129                                 | 206 x 299 x 425/<br>8.11 x 11.77 x 16.73  | ATS22C25Q | 33.000/<br>72.752  |
| 132                                 | 250      | 250      | 285                                               | 320                       | 150                                 | 206 x 299 x 425/<br>8.11 x 11.77 x 16.73  | ATS22C32Q | 33.000/<br>72.752  |
| 160                                 | 315      | 355      | 388                                               | 410                       | 177                                 | 206 x 299 x 425/<br>8.11 x 11.77 x 16.73  | ATS22C41Q | 33.000/<br>72.752  |
| 220                                 | 355      | 400      | 437                                               | 480                       | 218                                 | 304 x 340 x 455/<br>11.97 x 13.39 x 17.91 | ATS22C48Q | 50.000/<br>110.231 |
| 250                                 | 400      | 500      | 560                                               | 590                       | 251                                 | 304 x 340 x 455/<br>11.97 x 13.39 x 17.91 | ATS22C59Q | 50.000/<br>110.231 |

(1) In corresponds to the maximum continuous current for class 10 motors. It equates to the nominal current of a standard 4-pole, 400 V, class 10 motor (standard application).

(2) IcL corresponds to the starter rating.

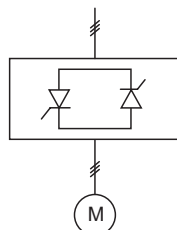
(3) In = motor current/√3.

(4) When connected in the delta configuration, starters allow the use of motors of a larger rating relative to that of the starter. In this configuration, the nominal motor current should not exceed 1.5 IcL.

# Altistart 22

## soft start/soft stop units

Three-phase power supply voltage 208...600 V



Connection in the motor power supply line



ATS22C1●●●●



ATS22C2●●●●  
ATS22C32●●●●  
ATS22C41●●●●



ATS22C48●●●●  
ATS22C59●●●●

### Connection in the motor power supply line

Motor power given in kW in accordance with standard IEC/EN 60947-4-2. 220 V control power supply

| Motor                           |             |             |             | Soft start/soft stop unit, 230...600 V - 50/60 Hz |                           |                                     |                                           | Reference  | Weight             |
|---------------------------------|-------------|-------------|-------------|---------------------------------------------------|---------------------------|-------------------------------------|-------------------------------------------|------------|--------------------|
| Power indicated on rating plate |             |             |             | Factory-set current (In) (1)                      | Nominal current (IcL) (2) | Power dissipated at nominal current | Dimensions (W x D x H)                    |            |                    |
| 230 V<br>kW                     | 400 V<br>kW | 440 V<br>kW | 500 V<br>kW | A                                                 | A                         | W                                   | mm/<br>in.                                |            | kg/<br>lb          |
| 4                               | 7.5         | 7.5         | 9           | 14                                                | 17                        | 39                                  | 130 x 169 x 265/<br>5.12 x 6.65 x 10.43   | ATS22D17S6 | 7.000/<br>15.432   |
| 7.5                             | 15          | 15          | 18.5        | 27                                                | 32                        | 44                                  | 130 x 169 x 265/<br>5.12 x 6.65 x 10.43   | ATS22D32S6 | 7.000/<br>15.432   |
| 11                              | 22          | 22          | 30          | 40                                                | 47                        | 48                                  | 130 x 169 x 265/<br>5.12 x 6.65 x 10.43   | ATS22D47S6 | 7.000/<br>15.432   |
| 15                              | 30          | 30          | 37          | 52                                                | 62                        | 59                                  | 145 x 207 x 295/<br>5.71 x 8.15 x 11.61   | ATS22D62S6 | 12.000/<br>26.455  |
| 18.5                            | 37          | 37          | 45          | 65                                                | 75                        | 63                                  | 145 x 207 x 295/<br>5.71 x 8.15 x 11.61   | ATS22D75S6 | 12.000/<br>26.455  |
| 22                              | 45          | 45          | 55          | 77                                                | 88                        | 66                                  | 145 x 207 x 295/<br>5.71 x 8.15 x 11.61   | ATS22D88S6 | 12.000/<br>26.455  |
| 30                              | 55          | 55          | 75          | 96                                                | 110                       | 73                                  | 150 x 229 x 356/<br>5.91 x 9.02 x 14.02   | ATS22C11S6 | 18.000/<br>39.683  |
| 37                              | 75          | 75          | 90          | 124                                               | 140                       | 82                                  | 150 x 229 x 356/<br>5.91 x 9.02 x 14.02   | ATS22C14S6 | 18.000/<br>39.683  |
| 45                              | 90          | 90          | 110         | 156                                               | 170                       | 91                                  | 150 x 229 x 356/<br>5.91 x 9.02 x 14.02   | ATS22C17S6 | 18.000/<br>39.683  |
| 55                              | 110         | 110         | 132         | 180                                               | 210                       | 117                                 | 206 x 299 x 425/<br>8.11 x 11.77 x 16.73  | ATS22C21S6 | 33.000/<br>72.752  |
| 75                              | 132         | 132         | 160         | 240                                               | 250                       | 129                                 | 206 x 299 x 425/<br>8.11 x 11.77 x 16.73  | ATS22C25S6 | 33.000/<br>72.752  |
| 90                              | 160         | 160         | 220         | 302                                               | 320                       | 150                                 | 206 x 299 x 425/<br>8.11 x 11.77 x 16.73  | ATS22C32S6 | 33.000/<br>72.752  |
| 110                             | 220         | 220         | 250         | 361                                               | 410                       | 177                                 | 206 x 299 x 425/<br>8.11 x 11.77 x 16.73  | ATS22C41S6 | 33.000/<br>72.752  |
| 132                             | 250         | 250         | 315         | 414                                               | 480                       | 218                                 | 304 x 340 x 455/<br>11.97 x 13.39 x 17.91 | ATS22C48S6 | 50.000/<br>110.231 |
| 160                             | 315         | 355         | 400         | 477                                               | 590                       | 251                                 | 304 x 340 x 455/<br>11.97 x 13.39 x 17.91 | ATS22C59S6 | 50.000/<br>110.231 |

### Motor power given in HP. 110 V control power supply

| Motor                           |             |             |             | Soft start/soft stop unit, 208...600 V - 50/60 Hz |                           |                                     |                                           | Reference   | Weight             |
|---------------------------------|-------------|-------------|-------------|---------------------------------------------------|---------------------------|-------------------------------------|-------------------------------------------|-------------|--------------------|
| Power indicated on rating plate |             |             |             | Factory-set current (In) (1)                      | Nominal current (IcL) (2) | Power dissipated at nominal current | Dimensions (W x D x H)                    |             |                    |
| 208 V<br>HP                     | 230 V<br>HP | 460 V<br>HP | 575 V<br>HP | A                                                 | A                         | W                                   | mm/<br>in.                                |             | kg/<br>lb          |
| 3                               | 5           | 10          | 15          | 14                                                | 17                        | 39                                  | 130 x 169 x 265/<br>5.12 x 6.65 x 10.43   | ATS22D17S6U | 7.000/<br>15.432   |
| 7.5                             | 10          | 20          | 25          | 27                                                | 32                        | 44                                  | 130 x 169 x 265/<br>5.12 x 6.65 x 10.43   | ATS22D32S6U | 7.000/<br>15.432   |
| –                               | 15          | 30          | 40          | 40                                                | 47                        | 48                                  | 130 x 169 x 265/<br>5.12 x 6.65 x 10.43   | ATS22D47S6U | 7.000/<br>15.432   |
| 15                              | 20          | 40          | 50          | 52                                                | 62                        | 59                                  | 145 x 207 x 295/<br>5.71 x 8.15 x 11.61   | ATS22D62S6U | 12.000/<br>26.455  |
| 20                              | 25          | 50          | 60          | 65                                                | 75                        | 63                                  | 145 x 207 x 295/<br>5.71 x 8.15 x 11.61   | ATS22D75S6U | 12.000/<br>26.455  |
| 25                              | 30          | 60          | 75          | 77                                                | 88                        | 66                                  | 145 x 207 x 295/<br>5.71 x 8.15 x 11.61   | ATS22D88S6U | 12.000/<br>26.455  |
| 30                              | 40          | 75          | 100         | 96                                                | 110                       | 73                                  | 150 x 229 x 356/<br>5.91 x 9.02 x 14.02   | ATS22C11S6U | 18.000/<br>39.683  |
| 40                              | 50          | 100         | 125         | 124                                               | 140                       | 82                                  | 150 x 229 x 356/<br>5.91 x 9.02 x 14.02   | ATS22C14S6U | 18.000/<br>39.683  |
| 50                              | 60          | 125         | 150         | 156                                               | 170                       | 91                                  | 150 x 229 x 356/<br>5.91 x 9.02 x 14.02   | ATS22C17S6U | 18.000/<br>39.683  |
| 60                              | 75          | 150         | 200         | 180                                               | 210                       | 117                                 | 206 x 299 x 425/<br>8.11 x 11.77 x 16.73  | ATS22C21S6U | 33.000/<br>72.752  |
| 75                              | 100         | 200         | 250         | 240                                               | 250                       | 129                                 | 206 x 299 x 425/<br>8.11 x 11.77 x 16.73  | ATS22C25S6U | 33.000/<br>72.752  |
| 100                             | 125         | 250         | 300         | 302                                               | 320                       | 150                                 | 206 x 299 x 425/<br>8.11 x 11.77 x 16.73  | ATS22C32S6U | 33.000/<br>72.752  |
| 125                             | 150         | 300         | 350         | 361                                               | 410                       | 177                                 | 206 x 299 x 425/<br>8.11 x 11.77 x 16.73  | ATS22C41S6U | 33.000/<br>72.752  |
| 150                             | –           | 350         | 400         | 414                                               | 480                       | 218                                 | 304 x 340 x 455/<br>11.97 x 13.39 x 17.91 | ATS22C48S6U | 50.000/<br>110.231 |
| –                               | 200         | 400         | 500         | 477                                               | 590                       | 251                                 | 304 x 340 x 455/<br>11.97 x 13.39 x 17.91 | ATS22C59S6U | 50.000/<br>110.231 |

(1) In corresponds to the maximum continuous current for class 10 motors. It equates to the nominal current of a standard 4-pole, 400 V, class 10 motor (standard application).

(2) IcL corresponds to the starter rating.

# Altistart 22

## soft start/soft stop units

Options: dialog and configuration tools



SoMove setup software

### SoMove setup software

#### Presentation

SoMove software incorporates various functions for setting up Schneider Electric motor control devices, including:

- configuration preparation
- setup
- maintenance

To facilitate setup and maintenance, SoMove software can use a direct USB/RJ45 cable link TCSMCNAM3M002P or a Bluetooth® link.

#### References

| Description                                                                                                                                                         | For soft start/<br>soft stop unit | Reference      | Weight<br>kg/<br>lb |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------------|---------------------|
| SoMove setup software                                                                                                                                               | ATS 22                            | —              | —                   |
| USB/RJ45 cable<br>equipped with a USB connector and an RJ45 connector<br>for connecting a PC to the Altistart 22 soft start/soft stop unit<br>Length: 2.5 m/8.20 ft | ATS 22                            | TCSMCNAM3M002P | 0.115/<br>0.254     |

### Remote display terminal

#### Presentation

This terminal enables the human machine interface of the Altistart 22 soft start/soft stop unit to be positioned remotely on the door of a floor-standing enclosure. It provides IP 54/UL type 12 or IP 65 protection depending on the model.

It is used to:

- set and configure the soft start/soft stop unit remotely
- display the soft start/soft stop unit status and detected errors remotely



VW3G22101

#### Description

- 1 4-digit display
- 2 Selection/validation key **ENT**: opens a menu or validates the selected value
- 3 Navigation keys **▲**, **▼**
- 4 Selection key **ESC**: used to exit a menu

#### References

| Description                                                                           | Degree of<br>protection | Length<br>m/<br>ft | Dimensions<br>W x D x H<br>mm/<br>in. | Reference   | Weight<br>kg/<br>lb |
|---------------------------------------------------------------------------------------|-------------------------|--------------------|---------------------------------------|-------------|---------------------|
| Remote display terminals<br>A remote-mounting cordset<br>is also required VW3A1104R●● | IP 54/UL type 12        | —                  | 50 x 15 x 70/<br>1.97 x 0.59 x 2.76   | VW3G22101   | 0.250/<br>0.551     |
|                                                                                       | IP 65                   | —                  | 66 x 19 x 106/<br>2.60 x 0.75 x 4.17  | VW3G22102   | 0.275/<br>0.606     |
| Remote-mounting cordsets<br>with 2 RJ45 connectors                                    | —                       | 1/<br>3.28         | —                                     | VW3A1104R10 | 0.050/<br>0.110     |
|                                                                                       | —                       | 3/<br>9.84         | —                                     | VW3A1104R30 | 0.150/<br>0.331     |

### Modbus serial link

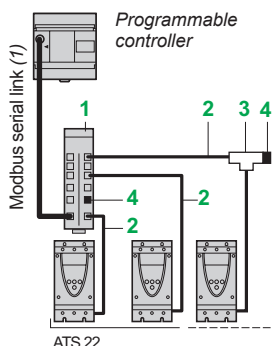
#### Connection via splitter box with RJ45 connectors

| Description                                               | Item | Length<br>m/<br>ft | Unit<br>reference | Weight<br>kg/<br>lb |
|-----------------------------------------------------------|------|--------------------|-------------------|---------------------|
| Modbus splitter box<br>with 10 RJ45 connectors            | 1    | —                  | LU9GC3            | 0.500/<br>1.102     |
| Cordsets for Modbus serial link<br>with 2 RJ45 connectors | 2    | 0.3/<br>0.98       | VW3A8306R03       | 0.025/<br>0.055     |
|                                                           |      | 1/<br>3.28         | VW3A8306R10       | 0.060/<br>0.132     |
|                                                           |      | 3/<br>9.84         | VW3A8306R30       | 0.130/<br>0.287     |
|                                                           |      | —                  | —                 | —                   |
| Modbus T-junction boxes<br>(with integrated cable)        | 3    | 0.3/<br>0.98       | VW3A8306TF03      | 0.190/<br>0.419     |
|                                                           |      | 1/<br>3.28         | VW3A8306TF10      | 0.210/<br>0.463     |
|                                                           |      | —                  | —                 | —                   |
| Line terminators<br>(2) (3)                               | 4    | R = 120 Ω          | VW3A8306RC        | 0.010/<br>0.022     |
|                                                           |      | C = 1 nf           | —                 | —                   |
|                                                           |      | R = 120 Ω          | VW3A8306R         | 0.010/<br>0.022     |

(1) Cable depends on the type of controller or PLC.

(2) Sold in lots of 2.

(3) Depends on the bus architecture.



Example of Modbus serial  
link architecture with  
connection via splitter box  
with RJ45 connectors

# Altistart 22 soft start/soft stop units

Options: fans and accessories

Replacement parts



ATS22D17Q + VW3G2240●



LA9F70●



VZ3V22D1220V



VZ3V22E1110V

## Fans

### Presentation

ATS22C21Q...C59Q, ATS22C21S6...C59S6, and ATS22C21S6U...C59S6U soft start/soft stop units have an integrated fan.

ATS22D17Q...C17Q, ATS22D17S6...C17QS6, and ATS22D17S6U...C17S6U soft start/soft stop units are ventilated by means of natural convection.

To meet the needs of more demanding applications, such as those with a greater number of starts, the Altistart 22 range offers fans as an option. These are driven by the soft start/soft stop unit and are mounted on the back of the device.

The fan noise level is less than 60 dBA.

### References

| Description | Control supply voltage<br>V | For soft start/<br>soft stop unit       | Dimensions<br>W x D x H<br>mm/<br>in.  | Reference  | Weight<br>kg/<br>lb |
|-------------|-----------------------------|-----------------------------------------|----------------------------------------|------------|---------------------|
| Fans        | 220                         | ATS22D17Q...D47Q,<br>ATS22D17S6...D47S6 | 130 x 40 x 265/<br>5.11 x 1.57 x 10.43 | VW3G22400  | 1.200/<br>2.646     |
|             |                             | ATS22D62Q...D88Q,<br>ATS22D62S6...D88S6 | 145 x 40 x 295/<br>5.71 x 1.57 x 11.61 | VW3G22401  | 1.400/<br>3.086     |
|             |                             | ATS22C11Q...C17Q,<br>ATS22C11S6...C17S6 | 150 x 40 x 350/<br>5.91 x 1.57 x 13.78 | VW3G22402  | 1.600/<br>3.527     |
|             |                             |                                         |                                        |            |                     |
|             | 110                         | ATS22D17S6U...D47S6U                    | 130 x 40 x 265/<br>5.11 x 1.57 x 10.43 | VW3G22U400 | 1.200/<br>2.646     |
|             |                             | ATS22D62S6U...D88S6U                    | 145 x 40 x 295/<br>5.71 x 1.57 x 11.61 | VW3G22U401 | 1.400/<br>3.086     |
|             |                             | ATS22C11S6U...C17S6U                    | 150 x 40 x 350/<br>5.91 x 1.57 x 13.78 | VW3G22U402 | 1.600/<br>3.527     |
|             |                             |                                         |                                        |            |                     |

## Protective covers for power terminals (for use with eyelet connectors)

ATSC11Q...C59Q, ATSC11S6...C59S6, and ATSC11S6U...C59S6U soft start/soft stop units have 6 unprotected power terminals. These terminals can be equipped with protective covers.

| Description                | For soft start/<br>soft stop unit                                | Reference   | Weight<br>kg/<br>lb |
|----------------------------|------------------------------------------------------------------|-------------|---------------------|
| Set of 6 protective covers | ATS22C11Q...C17Q,<br>ATS22C11S6...C17S6,<br>ATS22C11S6U...C17S6U | LA9F702     | 0.250/<br>0.551     |
|                            | ATS22C21Q...C59Q,<br>ATS22C21S6...C59S6,<br>ATS22C21S6U...C59S6U | LA9F703 (1) | 0.250/<br>0.551     |

## Replacement parts

### References

| Description | Control supply voltage<br>V | For soft start/<br>soft stop unit | Reference    | Weight<br>kg/<br>lb |
|-------------|-----------------------------|-----------------------------------|--------------|---------------------|
| Fans        | 220                         | ATS22C21Q...C41Q                  | VZ3V22D1220V | 1.145/<br>2.524     |
|             |                             | ATS22C21S6...C41S6                |              |                     |
|             |                             | ATS22C48Q...C59Q                  | VZ3V22E1220V | 2.195/<br>4.839     |
|             |                             | ATS22C48S6...C59S6                |              |                     |
|             | 110                         | ATS22C21S6U...C41S6U              | VZ3V22D1110V | 1.145/<br>2.524     |
|             |                             | ATS22C48S6U...C59S6U              | VZ3V22E1110V | 2.195/<br>4.839     |

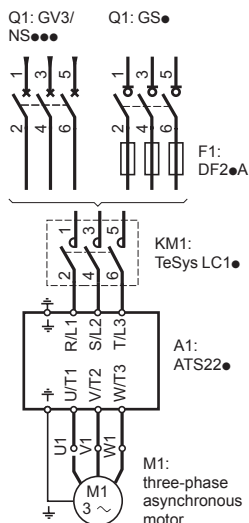
(1) For use with M10 x 35 mm/1.38 in. screws (not supplied).

# Altistart 22 soft start/soft stop units

Motor starters:

three-phase supply voltage 400...440 V

Type 1 coordination



Motor starter with protection via circuit breaker or disconnect switch

## Compatible components according to standard IEC/EN 60947-4-2

Use the contactor and starter with either a circuit breaker or a fused disconnect switch

| Three-phase 4-pole motor 50/60 Hz |          |      | Class 10 starter (1) | Circuit breaker              |          | Contactor (3) | Fused disconnect switch (for front and side-mounted operator) | aM fuse            |                         |          |
|-----------------------------------|----------|------|----------------------|------------------------------|----------|---------------|---------------------------------------------------------------|--------------------|-------------------------|----------|
| 400 V kW                          | 440 V kW | A    |                      | Reference                    | Rating A |               |                                                               | Unit reference (4) | Size mm/in.             | Rating A |
| M1                                | M1       | A1   | Q1                   |                              |          | KM1           | Q1                                                            | F1                 |                         |          |
| 7.5                               | 7.5      | 14.8 | ATS22D17●            | GV3L20                       | —        | LC1D18●●      | GS1DD3                                                        | DF2CA16            | 10 x 38/<br>0.39 x 1.50 | 16       |
|                                   |          |      |                      | NS80H-MA                     | 25       |               |                                                               |                    |                         |          |
| 15                                | 15       | 28.5 | ATS22D32●            | GV3L32                       | —        | LC1D32●●      | GS1DD3                                                        | DF2CA32            | 10 x 38/<br>0.39 x 1.50 | 32       |
|                                   |          |      |                      | NS80H-MA                     | 50       |               |                                                               |                    |                         |          |
| 22                                | 22       | 42   | ATS22D47●            | GV3L50                       | —        | LC1D50A●●     | GS2F3                                                         | DF2EA50            | 14 x 51/<br>0.55 x 2.00 | 50       |
|                                   |          |      |                      | NS80H-MA                     | 50       |               |                                                               |                    |                         |          |
| 30                                | 30       | 57   | ATS22D62●            | GV3L65                       | —        | LC1D65A●●     | GS2J3                                                         | DF2FA63            | 22 x 58/<br>0.87 x 2.28 | 63       |
|                                   |          |      |                      | NS80H-MA                     | 80       |               |                                                               |                    |                         |          |
| 37                                | 37       | 69   | ATS22D75●            | NS80H-MA                     | 80       | LC1D80●●      | GS2J3                                                         | DF2FA80            | 22 x 58/<br>0.87 x 2.28 | 80       |
| 45                                | 45       | 81   | ATS22D88●            | NSX100●MA (2)                | 100      | LC1D115●●     | GS2J3                                                         | DF2FA100           | 22 x 58/<br>0.87 x 2.28 | 100      |
| 55                                | 55       | 100  | ATS22C11●            | NSX160●MA (2)                | 150      | LC1D115●●     | GS2K3                                                         | DF2FA125           | 22 x 58/<br>0.87 x 2.28 | 125      |
| 75                                | 75       | 131  | ATS22C14●            | NSX160●MA (2)                | 150      | LC1D150●●     | GS2L3                                                         | DF2GA1161          | Size 0                  | 160      |
| 90                                | 90       | 162  | ATS22C17●            | NSX250●MA (2)                | 220      | LC1F185●●     | GS2N3                                                         | DF2HA1201          | Size 1                  | 200      |
| 110                               | 110      | 195  | ATS22C21●            | NSX250●MA (2)                | 220      | LC1F225●●     | GS2N3                                                         | DF2HA1251          | Size 1                  | 250      |
| 132                               | 132      | 233  | ATS22C25●            | NSX400● Micrologic 1.3-M (2) | 320      | LC1F265●●     | GS2N3                                                         | DF2HA1251          | Size 1                  | 250      |
| 160                               | 160      | 285  | ATS22C32●            | NSX400● Micrologic 1.3-M (2) | 320      | LC1F330●●     | GS2QQ3                                                        | DF2JA1311          | Size 2                  | 315      |
| 220                               | 220      | 388  | ATS22C41●            | NSX630● Micrologic 1.3-M (2) | 500      | LC1F400●●     | GS2S3                                                         | DF2KA1401          | Size 3                  | 400      |
| 250                               | 250      | 437  | ATS22C48●            | NSX630● Micrologic 1.3-M (2) | 500      | LC1F500●●     | GS2S3                                                         | DF2KA1501          | Size 3                  | 500      |
| 315                               | 355      | 560  | ATS22C59●            | NS630B● Micrologic 5.0 (2)   | 500      | LC1F630●●     | GS2S3                                                         | DF2KA1631          | Size 3                  | 630      |

(1) Replace ● with Q or S6 depending on the starter voltage range.

(2) Replace ● with F, N, H, S, or L depending on the breaking capacity (see table below).

(3) Replace ●● with the control circuit voltage reference: please refer to our "Control and protection components" catalog.

(4) DF2CA, EA, FA: sold in lots of 10.

DF2GA, HA, JA, KA: sold in lots of 3.

## Maximum prospective starter short-circuit current according to standard IEC/EN 60947-4-2

| Starter               | Iq (kA) at 500 V |
|-----------------------|------------------|
| ATS22D17●...ATS22D75● | 25               |
| ATS22D88●...ATS22C59● | 50               |

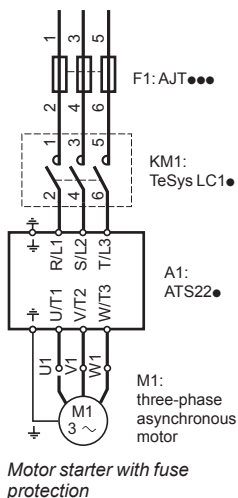
## Breaking capacity of circuit breakers according to standard IEC/EN 60947-4-2

| Circuit breaker | Icu (kA) at 400 V |    |    |     |     | Icu (kA) at 400 V |    |    |    |     |
|-----------------|-------------------|----|----|-----|-----|-------------------|----|----|----|-----|
|                 | F                 | N  | H  | S   | L   | F                 | N  | H  | S  | L   |
| GV3L            | 50                |    |    |     |     | 50                |    |    |    |     |
| NS80H-MA        | 70                |    |    |     |     | 65                |    |    |    |     |
| NSX100...NSX630 | 36                | 50 | 70 | 100 | 150 | 35                | 50 | 65 | 90 | 130 |
| NS630B          | —                 | 50 | 70 | —   | 150 | —                 | 50 | 65 | —  | 130 |

# Altistart 22 soft start/soft stop units

Motor starters:

three-phase supply voltage 208...575 V



## Compatible components in accordance with standard UL 508

### Product without enclosure

| Three-phase 4-pole motor 50/60 Hz |          |          |          |     | Class 10 starter | Maximum short-circuit current (SCC) at 600 V | Contactor (1) | Time delay fuse (sold by Ferraz Shawmut) |         |
|-----------------------------------|----------|----------|----------|-----|------------------|----------------------------------------------|---------------|------------------------------------------|---------|
| 208 V HP                          | 230 V HP | 460 V HP | 575 V HP | A   |                  |                                              |               | Class J                                  | Class L |
| M1                                | M1       | M1       | M1       | A1  |                  | kA                                           | KM1           | F1                                       |         |
| 3                                 | 5        | 10       | 15       | 14  | ATS22D17S6U      | 5                                            | LC1D18●●      | AJT40                                    | –       |
| 7.5                               | 10       | 20       | 25       | 27  | ATS22D32S6U      | 5                                            | LC1D32●●      | AJT70                                    | –       |
| –                                 | 15       | 30       | 40       | 40  | ATS22D47S6U      | 5                                            | LC1D50A●●     | AJT100                                   | –       |
| 15                                | 20       | 40       | 50       | 52  | ATS22D62S6U      | 10                                           | LC1D65A●●     | AJT125                                   | –       |
| 20                                | 25       | 50       | 60       | 65  | ATS22D75S6U      | 10                                           | LC1D80A●●     | AJT175                                   | –       |
| 25                                | 30       | 60       | 75       | 77  | ATS22D88S6U      | 10                                           | LC1D115●●     | AJT200                                   | –       |
| 30                                | 40       | 75       | 100      | 96  | ATS22C11S6U      | 10                                           | LC1D115●●     | AJT250                                   | –       |
| 40                                | 50       | 100      | 125      | 124 | ATS22C14S6U      | 10                                           | LC1D150●●     | AJT300                                   | –       |
| 50                                | 60       | 125      | 150      | 156 | ATS22C17S6U      | 10                                           | LC1F185●●     | AJT400                                   | –       |
| 60                                | 75       | 150      | 200      | 180 | ATS22C21S6U      | 18                                           | LC1F225●●     | –                                        | 500     |
| 75                                | 100      | 200      | 250      | 240 | ATS22C25S6U      | 18                                           | LC1F265●●     | –                                        | 600     |
| 100                               | 125      | 250      | 300      | 302 | ATS22C32S6U      | 18                                           | LC1F330●●     | –                                        | 700     |
| 125                               | 150      | 300      | 350      | 361 | ATS22C41S6U      | 18                                           | LC1F400●●     | –                                        | 800     |
| 150                               | –        | 350      | 400      | 414 | ATS22C48S6U      | 18                                           | LC1F500●●     | –                                        | 1,000   |
| –                                 | 200      | 400      | 500      | 477 | ATS22C59S6U      | 30                                           | LC1F630●●     | –                                        | 1,200   |

### Enclosed product

| Three-phase 4-pole motor 50/60 Hz |          |          |          |     | Class 10 starter | Maximum short-circuit current (SCC) at 600 V | Minimum enclosure volume |        | Contactor (1) | Time delay fuse |         |
|-----------------------------------|----------|----------|----------|-----|------------------|----------------------------------------------|--------------------------|--------|---------------|-----------------|---------|
| 208 V HP                          | 230 V HP | 460 V HP | 575 V HP | A   |                  |                                              | cm³                      | in.³   |               | Class J         | Class L |
| M1                                | M1       | M1       | M1       | A1  |                  | kA                                           |                          |        | KM1           | F1              |         |
| 3                                 | 5        | 10       | 15       | 14  | ATS22D17S6U      | 100                                          | 40                       | 2.406  | LC1D18●●      | 30              | –       |
| 7.5                               | 10       | 20       | 25       | 27  | ATS22D32S6U      | 100                                          | 40                       | 2.406  | LC1D32●●      | 60              | –       |
| –                                 | 15       | 30       | 40       | 40  | ATS22D47S6U      | 100                                          | 40                       | 2.406  | LC1D50A●●     | 90              | –       |
| 15                                | 20       | 40       | 50       | 52  | ATS22D62S6U      | 100                                          | 52                       | 3.149  | LC1D65A●●     | 110             | –       |
| 20                                | 25       | 50       | 60       | 65  | ATS22D75S6U      | 100                                          | 52                       | 3.149  | LC1D80A●●     | 150             | –       |
| 25                                | 30       | 60       | 75       | 77  | ATS22D88S6U      | 100                                          | 52                       | 3.149  | LC1D115●●     | 175             | –       |
| 30                                | 40       | 75       | 100      | 96  | ATS22C11S6U      | 100                                          | 125                      | 7.630  | LC1D115●●     | 200             | –       |
| 40                                | 50       | 100      | 125      | 124 | ATS22C14S6U      | 100                                          | 125                      | 7.630  | LC1F150●●     | 250             | –       |
| 50                                | 60       | 125      | 150      | 156 | ATS22C17S6U      | 100                                          | 125                      | 7.630  | LC1F185●●     | 300             | –       |
| 60                                | 75       | 150      | 200      | 180 | ATS22C21S6U      | 100                                          | 130                      | 7.892  | LC1F225●●     | 400             | –       |
| 75                                | 100      | 200      | 250      | 240 | ATS22C25S6U      | 100                                          | 130                      | 7.892  | LC1F265●●     | 450             | –       |
| 100                               | 125      | 250      | 300      | 302 | ATS22C32S6U      | 100                                          | 130                      | 7.892  | LC1F330●●     | 600             | –       |
| 125                               | 150      | 300      | 350      | 361 | ATS22C41S6U      | 100                                          | 130                      | 7.892  | LC1F400●●     | 600             | –       |
| 150                               | –        | 350      | 400      | 414 | ATS22C48S6U      | 100                                          | 195                      | 11.869 | LC1F500●●     | –               | 800     |
| –                                 | 200      | 400      | 500      | 477 | ATS22C59S6U      | 100                                          | 195                      | 11.869 | LC1F630●●     | –               | 800     |

(1) Replace ●● with the control circuit voltage reference: please refer to our "Control and protection components" catalog.

| A              |    |                 |
|----------------|----|-----------------|
| ATS22C11Q      | 8  | VW3A8306TF03 10 |
| ATS22C11S6     | 9  | VW3A8306TF10 10 |
| ATS22C11S6U    | 9  | VW3G22U400 11   |
| ATS22C14Q      | 8  | VW3G22U401 11   |
| ATS22C14S6     | 9  | VW3G22U402 11   |
| ATS22C14S6U    | 9  | VW3G22101 10    |
| ATS22C17Q      | 8  | VW3G22102 10    |
| ATS22C17S6     | 9  | VW3G22400 11    |
| ATS22C17S6U    | 9  | VW3G22401 11    |
| ATS22C21Q      | 8  | VW3G22402 11    |
| ATS22C21S6     | 9  | VZ3V22D1110V 11 |
| ATS22C21S6U    | 9  | VZ3V22D1220V 11 |
| ATS22C25Q      | 8  | VZ3V22E1110V 11 |
| ATS22C25S6     | 9  | VZ3V22E1220V 11 |
| ATS22C25S6U    | 9  |                 |
| ATS22C32Q      | 8  |                 |
| ATS22C32S6     | 9  |                 |
| ATS22C32S6U    | 9  |                 |
| ATS22C41Q      | 8  |                 |
| ATS22C41S6     | 9  |                 |
| ATS22C41S6U    | 9  |                 |
| ATS22C48Q      | 8  |                 |
| ATS22C48S6     | 9  |                 |
| ATS22C48S6U    | 9  |                 |
| ATS22C59Q      | 8  |                 |
| ATS22C59S6     | 9  |                 |
| ATS22C59S6U    | 9  |                 |
| ATS22D17Q      | 8  |                 |
| ATS22D17S6     | 9  |                 |
| ATS22D17S6U    | 9  |                 |
| ATS22D32Q      | 8  |                 |
| ATS22D32S6     | 9  |                 |
| ATS22D32S6U    | 9  |                 |
| ATS22D47Q      | 8  |                 |
| ATS22D47S6     | 9  |                 |
| ATS22D47S6U    | 9  |                 |
| ATS22D62Q      | 8  |                 |
| ATS22D62S6     | 9  |                 |
| ATS22D62S6U    | 9  |                 |
| ATS22D75Q      | 8  |                 |
| ATS22D75S6     | 9  |                 |
| ATS22D75S6U    | 9  |                 |
| ATS22D88Q      | 8  |                 |
| ATS22D88S6     | 9  |                 |
| ATS22D88S6U    | 9  |                 |
| L              |    |                 |
| LA9F702        | 11 |                 |
| LA9F703        | 11 |                 |
| LU9GC3         | 10 |                 |
| T              |    |                 |
| TCSMCNAM3M002P | 10 |                 |
| V              |    |                 |
| VW3A1104R10    | 10 |                 |
| VW3A1104R30    | 10 |                 |
| VW3A8306R      | 10 |                 |
| VW3A8306R03    | 10 |                 |
| VW3A8306R10    | 10 |                 |
| VW3A8306R30    | 10 |                 |
| VW3A8306RC     | 10 |                 |

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# Soft start/soft stop units

## Altistart 48

for asynchronous motors

Catalog

October 2014



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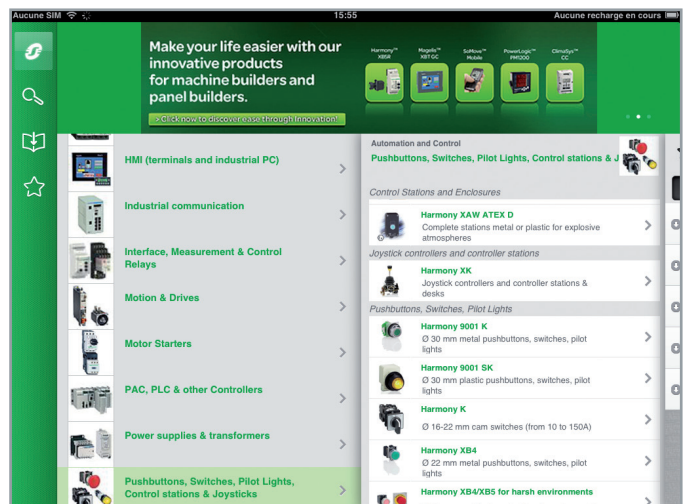
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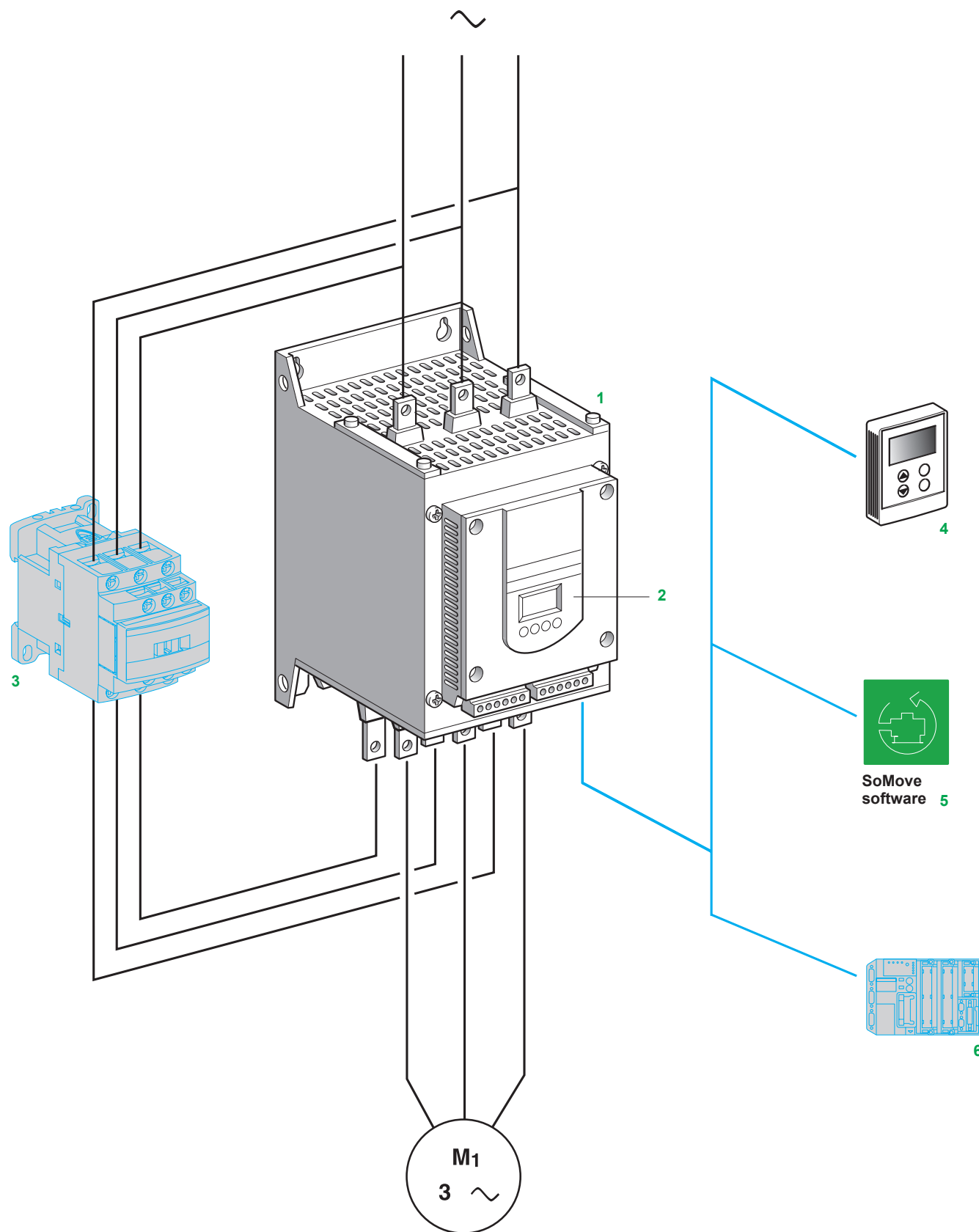
Soft starters for asynchronous motors

| Applications                                                                                  |                             | Starting simple machines                                                          | Controlled starting and deceleration of simple machines                            |
|-----------------------------------------------------------------------------------------------|-----------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|                                                                                               |                             |  |  |
| Power range for 50...60 Hz line supply (kW/HP)<br>(connection to the motor power supply line) |                             | 0.37...11/0.5...15                                                                | 0.75...15/1...20                                                                   |
|                                                                                               |                             | 0.37...2.2                                                                        | —                                                                                  |
|                                                                                               |                             | —                                                                                 | 0.75...7.5/1...10                                                                  |
|                                                                                               |                             | 0.37...11/0.5...15                                                                | —                                                                                  |
|                                                                                               |                             | —                                                                                 | —                                                                                  |
|                                                                                               |                             | —                                                                                 | —                                                                                  |
|                                                                                               |                             | —                                                                                 | —                                                                                  |
|                                                                                               |                             | —                                                                                 | 1.5...15                                                                           |
|                                                                                               |                             | —                                                                                 | 2...20                                                                             |
| Drive                                                                                         | Number of controlled phases | 1                                                                                 | 2                                                                                  |
|                                                                                               | Type of control             | —                                                                                 | —                                                                                  |
|                                                                                               | Operating cycle             | —                                                                                 | —                                                                                  |
| Functions                                                                                     |                             | Integrated                                                                        |                                                                                    |
| Bypass                                                                                        | Number of I/Os              | —                                                                                 | —                                                                                  |
|                                                                                               | Analog inputs               | —                                                                                 | —                                                                                  |
|                                                                                               | Logic inputs                | —                                                                                 | —                                                                                  |
|                                                                                               | Analog outputs              | —                                                                                 | —                                                                                  |
|                                                                                               | Logic outputs               | —                                                                                 | —                                                                                  |
|                                                                                               | Relay outputs               | —                                                                                 | —                                                                                  |
| Communication                                                                                 | Integrated                  | —                                                                                 | —                                                                                  |
|                                                                                               | Available as an option      | —                                                                                 | —                                                                                  |
| Standards and certifications                                                                  |                             | IEC/EN 60947-4-2<br>CE, UL, CSA, C-Tick, and CCC                                  |                                                                                    |
| References                                                                                    |                             | ATS01N1●●●●                                                                       | ATS01N2●●●●                                                                        |
| Pages                                                                                         |                             | Please refer to the Altistart 01 catalog.                                         |                                                                                    |

| Controlled starting and deceleration of simple and complex machines                 |                                                                                                 |                   |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------|
|  |              |                   |
| 4...400/3...500                                                                     | 3...630                                                                                         | 3...900/3...1,200 |
| —                                                                                   |                                                                                                 |                   |
| —                                                                                   |                                                                                                 |                   |
| —                                                                                   |                                                                                                 |                   |
| 4...400/3...500                                                                     | —                                                                                               |                   |
| —                                                                                   |                                                                                                 | 3...900/3...1,200 |
| —                                                                                   | 3...630                                                                                         | —                 |
| 4...355                                                                             | —                                                                                               |                   |
| —                                                                                   |                                                                                                 |                   |
| —                                                                                   |                                                                                                 |                   |
| 3                                                                                   |                                                                                                 |                   |
| Configurable voltage ramp                                                           | TCS (Torque Control System)                                                                     |                   |
| Standard                                                                            | Standard and severe                                                                             |                   |
| Integrated                                                                          | Available as an option                                                                          |                   |
| 1 PTC probe                                                                         |                                                                                                 |                   |
| 3                                                                                   | 4                                                                                               |                   |
| —                                                                                   | 1                                                                                               |                   |
| —                                                                                   | 2                                                                                               |                   |
| 2 (CO)                                                                              | 3                                                                                               |                   |
| Modbus                                                                              |                                                                                                 |                   |
| —                                                                                   | Fipio, PROFIBUS DP, DeviceNet, Modbus TCP                                                       |                   |
| IEC/EN 60947-4-2, EMC class A<br>CE, UL, CSA, C-Tick, GOST, CCC                     | IEC/EN 60947-4-2, EMC class A and B<br>CE, UL, CSA, DNV, C-Tick, GOST, CCC, NOM, SEPRO, and TCF |                   |
| ATS22●●●●                                                                           | ATS48●●●Q                                                                                       | ATS48●●●Y         |
| Please refer to the Altistart 22 catalog.                                           | 10                                                                                              | 12                |

# Soft starters for asynchronous motors

Altistart 48 soft start/soft stop units



# Soft starters for asynchronous motors

## Altistart 48 soft start/soft stop units

### Applications

The Altistart 48 soft start/soft stop unit is a controller with 6 thyristors used for torque-controlled soft starting and stopping of three-phase squirrel cage asynchronous motors, for power ratings between 4 and 900 kW.

It offers soft starting and deceleration functions along with machine and motor protection functions, as well as functions for communicating with control systems.

These functions are designed for use in the most common applications for centrifugal machines, pumps, fans, compressors and conveyors, which are primarily to be found in the construction, food and beverage and chemical industries. The high-performance algorithms of the Altistart 48 contribute significantly to its ruggedness, safety and ease of setup.

The Altistart 48 soft start/soft stop unit is a cost-effective solution which can:

- reduce machine operating costs by reducing mechanical stress and improving machine availability,
- reduce the stress on the electrical distribution system by reducing line current peaks and voltage drops during motor starts.
- The Altistart 48 soft start/soft stop unit offer comprises 2 ranges:
  - three-phase voltages 230 V to 415 V, 50/60 Hz,
  - three-phase voltages 208 V to 690 V, 50/60 Hz.

In each voltage range, the Altistart 48 soft start/soft stop units are sized for standard and severe applications.

### Functions

The Altistart 48 soft start/soft stop unit **1** is supplied ready for use in a standard application with class 10 motor protection.

It comprises an integrated display terminal **2**, which can be used to modify the programming, adjustment or monitoring functions in order to adapt and customize the application to meet individual customer requirements.

#### ■ Drive performance functions:

- exclusive Altistart torque control (patented by Schneider Electric),
- constant control of the torque supplied to the motor during acceleration and deceleration periods (significantly reducing pressure surges),
- ease of adjusting the ramp and the starting torque,
- option of bypassing the starter using a contactor **3** at the end of the starting period whilst maintaining electronic protection (bypass function),
- wide frequency tolerance for generator set power supplies,
- option of connecting the starter to the motor delta terminals in series with each winding.

#### ■ Machine and motor protection functions:

- built-in motor thermal protection,
- processing of information from PTC thermal probes,
- monitoring of the starting time,
- motor preheating function,
- protection against underloads and overcurrents in steady state.

#### ■ Functions to ease integration into control systems:

- 4 logic inputs, 2 logic outputs, 3 relay outputs and 1 analog output,
- plug-in I/O connectors,
- function for configuring a second motor and easy-to-adapt settings,
- display of electrical values, the state of the load and the operating time,
- RS 485 serial link for connection to Modbus serial link.

### Advantage of starting with Altistart 48

#### ■ Conventional electronic starting

To resolve problems such as:

- mechanical stress on starting,
- hydraulic transients on acceleration and deceleration in pumping applications, conventional electronic starting methods use a number of current limits, or switch several voltage ramps.

This makes adjustment complex and it has to be modified each time the load changes.

#### ■ Starting with the Altistart 48

Altistart 48 torque control enables starting without mechanical stress and smooth control of hydraulic transitions, with a single acceleration ramp.

Making adjustments is quick and easy, whatever the load.

### Options

- A remote terminal can be mounted on the door of a wall-fixing or floor-standing enclosure **4**.
- SoMove setup software for PC **5**:  
SoMove software incorporates various functions for the device setup phases:
  - configuration preparation,
  - commissioning,
  - maintenance.

- A wiring accessories offer making it easy to connect the starter to PLCs on a Modbus serial link connection **6**.
- Communication options for Ethernet, Fipio, DeviceNet and Profibus DP buses and networks.

# Soft starters for asynchronous motors

## Altistart 48 soft start/soft stop units

### Selection criteria for an Altistart 48 soft start/soft stop unit

The Altistart 48 should be selected on the basis of 3 main criteria:

- Two line supply voltage ranges are available for selection:

- ☐ 3-phase AC supply: 230 – 415 V,
- ☐ 3-phase AC supply: 208 – 690 V.

- The power and nominal current on the motor rating plate.

- The type of application and the operating cycle.

To simplify selection, applications are categorized as one of 2 types:

- ☐ standard applications,
- ☐ severe applications.

Standard or severe applications define the limit values of the current and the cycle for motor duties S1 and S4.

### Standard application

In standard applications, the Altistart 48 is designed to provide:

- Starting at 4 In for 23 seconds or at 3 In for 46 seconds from cold state (corresponding to motor duty S1).
- Starting at 3 In for 23 seconds or at 4 In for 12 seconds with a load factor of 50% and 10 starts per hour or an equivalent thermal cycle (corresponding to motor duty S4).

The motor thermal protection must conform to protection class 10.

Example: centrifugal pump.

### Severe application

In severe applications, the Altistart 48 is designed to provide:

- Starting at 4 In for 48 seconds or at 3 In for 90 seconds from cold state (corresponding to motor duty S1).
- Starting at 4 In for 25 seconds with a load factor of 50% and 5 starts per hour or an equivalent thermal cycle (corresponding to motor duty S4).

The motor thermal protection must conform to protection class 20.

Example: grinder.

### Motor duties

S1 motor duty is based on starting followed by operation at constant load, making it possible to achieve thermal equilibrium.

S4 motor duty is based on a cycle consisting of starting, operation at constant load and an idle period.

This cycle is characterized by a load factor of 50%.

### Selecting the starter

Once the appropriate application has been selected from the following page, select the starter from page 10 according to the supply voltage and the motor power.

### Caution:

If the Altistart 48 is installed inside an enclosure, observe the mounting and derating recommendations.

# Soft starters for asynchronous motors

## Altistart 48 soft start/soft stop units

### Application areas

Depending on the type of machine, the applications are categorized as standard or severe based on the starting characteristics, which are given as examples only, in the table below.

| Type of machine        | Application                  | Functions performed by the Altistart 48                                                                                 | Starting current (% In) | Starting time (s) |
|------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------|
| Centrifugal pump       | Standard                     | Deceleration (reduction in pressure surges)<br>Protection against underload or reversal of phase rotation direction     | 300                     | 5 to 15           |
| Piston pump            | Standard                     | Control of pump priming and the pump's direction of rotation                                                            | 350                     | 5 to 10           |
| Fan                    | Standard<br>Severe if > 30 s | Detection of overloads caused by clogging or underloads (motor/fan transmission broken)<br>Braking torque on stopping   | 300                     | 10 to 40          |
| Cold compressor        | Standard                     | Protection, even for special motors                                                                                     | 300                     | 5 to 10           |
| Screw compressor       | Standard                     | Protection against reversal of phase rotation direction<br>Contact for automatic draining on stopping                   | 300                     | 3 to 20           |
| Centrifugal compressor | Standard<br>Severe if > 30 s | Protection against reversal of phase rotation direction<br>Contact for automatic draining on stopping                   | 350                     | 10 to 40          |
| Piston compressor      | Standard                     | Protection against reversal of phase rotation direction<br>Contact for automatic draining on stopping                   | 350                     | 5 to 10           |
| Conveyor, transporter  | Standard                     | Monitoring of overloads for incident detection or underloads for break detection                                        | 300                     | 3 to 10           |
| Lifting screw          | Standard                     | Monitoring of overloads for hard spot detection or underloads for break detection                                       | 300                     | 3 to 10           |
| Drag lift              | Standard                     | Monitoring of overloads for jamming detection or underloads for break detection                                         | 400                     | 2 to 10           |
| Elevator               | Standard                     | Monitoring of overloads for jamming detection or underloads for break detection<br>Constant starting with variable load | 350                     | 5 to 10           |
| Circular saw, band saw | Standard<br>Severe if > 30 s | Braking for fast stop                                                                                                   | 300                     | 10 to 60          |
| Pulper, butchery knife | Severe                       | Torque control on starting                                                                                              | 400                     | 3 to 10           |
| Agitator               | Standard                     | The current display indicates the density of the material                                                               | 350                     | 5 to 20           |
| Mixer                  | Standard                     | The current display indicates the density of the material                                                               | 350                     | 5 to 10           |
| Grinder                | Severe                       | Braking to limit vibrations during stopping, monitoring of overloads for jamming detection                              | 450                     | 5 to 60           |
| Crusher                | Severe                       | Braking to limit vibrations during stopping, monitoring of overloads for jamming detection                              | 400                     | 10 to 40          |
| Refiner                | Standard                     | Torque control on starting and stopping                                                                                 | 300                     | 5 to 30           |
| Press                  | Severe                       | Braking to increase the number of cycles                                                                                | 400                     | 20 to 60          |

# Soft starters for asynchronous motors

## Altistart 48 soft start/soft stop units

### Special uses

Other criteria can influence selection of the Altistart 48 rating:

#### Starter wired to the motor delta terminals

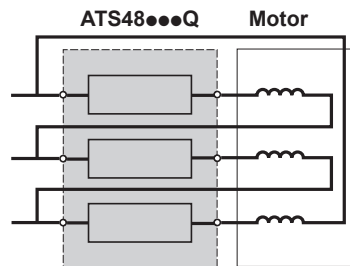
In addition to the most frequently encountered wiring layouts, where the starter is installed in the line supply of the motor and the motor is connected in star or delta configuration, the Altistart 48 ATS48●●●Q can be wired to the motor delta terminals in series with each winding (see figure below). The starter current is lower by a ratio of  $\sqrt{3}$  than the line current absorbed by the motor. This type of installation enables a starter with a lower rating to be used.

Example: For a 400 V/110 kW motor with a line current of 195 A (current indicated on the rating plate for the delta connection), the current in each winding is equal to  $195/\sqrt{3}$  i.e. 114 A.

Select the starter rating with a maximum permanent nominal current just above this current, i.e. 140 A (ATS48C14Q for a standard application).

To avoid the need to do this calculation, simply use the table on page 11.

This type of installation only permits freewheel stopping and is not compatible with the cascade and preheating functions.



Starter wired in series with the motor windings

**Note:** The nominal current and limiting current settings as well as the current displayed during operation are on-line values (so do not have to be calculated by the user).

**Caution:** For this type of installation, observe the wiring scheme and the associated recommendations.

#### Starter bypassed by a contactor

The starter can be bypassed by a contactor at the end of starting (to limit the heat dissipated by the starter). The bypass contactor is controlled by the starter, and the current measurements and protective mechanisms remain active when the starter is bypassed.

The starter is selected on the basis of the 3 main criteria and one of the following criteria:

- If the starter is bypassed at the end of starting, the motor is always started from cold state and the starter can be oversized by one rating.

Example: Select an ATS 48D17Q for an 11 kW motor in a standard 400 V application.

- If the starter needs to be able to operate without the bypass contactor at the end of starting, it does not have to be derated.

Example: Select an ATS 48D17Q for a 7.5 kW motor in a standard 400 V application.

# Soft starters for asynchronous motors

## Altistart 48 soft start/soft stop units

### Special uses (continued)

#### Motors in parallel

Motors may be connected in parallel provided that the power limit of the starter is not exceeded (the sum of the motor currents must be less than the nominal current of the starter chosen according to the type of application). Provide thermal protection for each motor.

#### Slip-ring motors

The Altistart 48 can operate with a bypassed rotor resistance motor or with a threshold resistor. The starting torque is modified according to the rotor resistance. If necessary, keep a low-value resistor in order to obtain the required torque to overcome the resistive torque on starting.

A bypassed slip-ring motor has very low starting torque. A high stator current is required to obtain sufficient starting torque.

Oversize the starter in order to have a limiting current 7 times that of the nominal current.

**Note:** Ensure that the motor starting torque, equal to 7 times the nominal current, is greater than the resistive torque.

**Comment:** The Altistart 48 torque control enables excellent soft starting despite the limiting current being 7 times the nominal current required to start the motor.

#### Dahlander motor and 2-speed motor

The Altistart 48 can operate with a 2-speed motor. A motor demagnetization period must elapse before changing from low speed to high speed in order to avoid antiphases between the line supply and the motor, which would generate very high currents.

Select the starter using the 3 main criteria.

#### Very long cable

Very long motor cables cause voltage drops due to the resistance of the cable. If the voltage drop is significant, it could affect the current consumption and the torque available. This must therefore be taken into account when selecting the motor and the starter.

#### Starters in parallel on the same line supply

If several starters are installed on the same line supply, line chokes should be installed between the transformer and the starter (see page 27).

#### Recommendations for use

**Caution:** Do not use the Altistart 48 upstream of loads other than motors (for example, transformers and resistors are forbidden).

Do not connect power factor correction capacitors to the terminals of a motor controlled by an Altistart 48.

# Soft starters for asynchronous motors

## Altistart 48 soft start/soft stop units

Line voltage 230...415 V  
Connection in the motor supply line



ATS48D17Q



ATS48C14Q



ATS48M12Q

### For standard applications

| Motor           |       | Starter 230...415 V - 50/60 Hz |                             |                                  |           | Reference | Weight          |
|-----------------|-------|--------------------------------|-----------------------------|----------------------------------|-----------|-----------|-----------------|
| Motor power (1) |       | Nominal current (IcL) (2)      | Factory setting current (4) | Dissipated power at nominal load |           |           |                 |
| 230 V           | 400 V |                                |                             |                                  |           |           |                 |
| kW              | kW    | A                              | A                           | W                                |           |           | kg/lb           |
| 4               | 7.5   | 17                             | 14.8                        | 59                               | ATS48D17Q |           | 4.900/10.803    |
| 5.5             | 11    | 22                             | 21                          | 74                               | ATS48D22Q |           | 4.900/10.803    |
| 7.5             | 15    | 32                             | 28.5                        | 104                              | ATS48D32Q |           | 4.900/10.803    |
| 9               | 18.5  | 38                             | 35                          | 116                              | ATS48D38Q |           | 4.900/10.803    |
| 11              | 22    | 47                             | 42                          | 142                              | ATS48D47Q |           | 4.900/10.803    |
| 15              | 30    | 62                             | 57                          | 201                              | ATS48D62Q |           | 8.300/18.298    |
| 18.5            | 37    | 75                             | 69                          | 245                              | ATS48D75Q |           | 8.300/18.298    |
| 22              | 45    | 88                             | 81                          | 290                              | ATS48D88Q |           | 8.300/18.298    |
| 30              | 55    | 110                            | 100                         | 322                              | ATS48C11Q |           | 8.300/18.298    |
| 37              | 75    | 140                            | 131                         | 391                              | ATS48C14Q |           | 12.400/27.337   |
| 45              | 90    | 170                            | 162                         | 479                              | ATS48C17Q |           | 12.400/27.337   |
| 55              | 110   | 210                            | 195                         | 580                              | ATS48C21Q |           | 18.200/40.124   |
| 75              | 132   | 250                            | 233                         | 695                              | ATS48C25Q |           | 18.200/40.124   |
| 90              | 160   | 320                            | 285                         | 902                              | ATS48C32Q |           | 18.200/40.124   |
| 110             | 220   | 410                            | 388                         | 1339                             | ATS48C41Q |           | 51.400/113.317  |
| 132             | 250   | 480                            | 437                         | 1386                             | ATS48C48Q |           | 51.400/113.317  |
| 160             | 315   | 590                            | 560                         | 1731                             | ATS48C59Q |           | 51.400/113.317  |
| —               | 355   | 660                            | 605                         | 1958                             | ATS48C66Q |           | 51.400/113.317  |
| 220             | 400   | 790                            | 675                         | 2537                             | ATS48C79Q |           | 115.000/253.531 |
| 250             | 500   | 1000                           | 855                         | 2865                             | ATS48M10Q |           | 115.000/253.531 |
| 355             | 630   | 1200                           | 1045                        | 3497                             | ATS48M12Q |           | 115.000/253.531 |

### For severe applications

| Motor           |       | Starter 230...415 V - 50/60 Hz |                             |                                  |           | Reference | Weight          |
|-----------------|-------|--------------------------------|-----------------------------|----------------------------------|-----------|-----------|-----------------|
| Motor power (1) |       | Nominal current (3)            | Factory setting current (4) | Dissipated power at nominal load |           |           |                 |
| 230 V           | 400 V |                                |                             |                                  |           |           |                 |
| kW              | kW    | A                              | A                           | W                                |           |           | kg/lb           |
| 3               | 5.5   | 12                             | 14.8                        | 46                               | ATS48D17Q |           | 4.900/10.803    |
| 4               | 7.5   | 17                             | 21                          | 59                               | ATS48D22Q |           | 4.900/10.803    |
| 5.5             | 11    | 22                             | 28.5                        | 74                               | ATS48D32Q |           | 4.900/10.803    |
| 7.5             | 15    | 32                             | 35                          | 99                               | ATS48D38Q |           | 4.900/10.803    |
| 9               | 18.5  | 38                             | 42                          | 116                              | ATS48D47Q |           | 4.900/10.803    |
| 11              | 22    | 47                             | 57                          | 153                              | ATS48D62Q |           | 8.300/18.298    |
| 15              | 30    | 62                             | 69                          | 201                              | ATS48D75Q |           | 8.300/18.298    |
| 18.5            | 37    | 75                             | 81                          | 245                              | ATS48D88Q |           | 8.300/18.298    |
| 22              | 45    | 88                             | 100                         | 252                              | ATS48C11Q |           | 8.300/18.298    |
| 30              | 55    | 110                            | 131                         | 306                              | ATS48C14Q |           | 12.400/27.337   |
| 37              | 75    | 140                            | 162                         | 391                              | ATS48C17Q |           | 12.400/27.337   |
| 45              | 90    | 170                            | 195                         | 468                              | ATS48C21Q |           | 18.200/40.124   |
| 55              | 110   | 210                            | 233                         | 580                              | ATS48C25Q |           | 18.200/40.124   |
| 75              | 132   | 250                            | 285                         | 695                              | ATS48C32Q |           | 18.200/40.124   |
| 90              | 160   | 320                            | 388                         | 1017                             | ATS48C41Q |           | 51.400/113.317  |
| 110             | 220   | 410                            | 437                         | 1172                             | ATS48C48Q |           | 51.400/113.317  |
| 132             | 250   | 480                            | 560                         | 1386                             | ATS48C59Q |           | 51.400/113.317  |
| 160             | 315   | 590                            | 605                         | 1731                             | ATS48C66Q |           | 51.400/113.317  |
| —               | 355   | 660                            | 675                         | 2073                             | ATS48C79Q |           | 115.000/253.531 |
| 220             | 400   | 790                            | 855                         | 2225                             | ATS48M10Q |           | 115.000/253.531 |
| 250             | 500   | 1000                           | 1045                        | 2865                             | ATS48M12Q |           | 115.000/253.531 |

(1) Value indicated on the motor rating plate.

(2) Corresponds to the maximum continuous current in class 10. IcL corresponds to the starter rating.

(3) Corresponds to the maximum continuous current in class 20.

(4) The factory setting current corresponds to the nominal current of a standard 4-pole, 400 V, class 10 motor (standard application). Adjust it in line with the current indicated on the motor rating plate.

# Soft starters for asynchronous motors

Altistart 48 soft start/soft stop units

Line voltage 230...415 V

Connection to the motor delta terminals

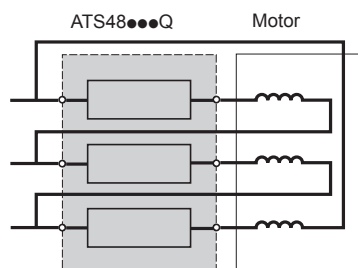


Figure 1  
Special use:  
starter connected to the motor delta  
terminals, in series with each winding.

## For standard applications according to figure 1

| Motor           |       | Starter 230...415 V - 50/60 Hz |                             |                                  |           |                 |
|-----------------|-------|--------------------------------|-----------------------------|----------------------------------|-----------|-----------------|
| Motor power (1) |       | Nominal current (2)            | Factory setting current (4) | Dissipated power at nominal load | Reference | Weight          |
| 230 V           | 400 V |                                |                             |                                  |           |                 |
| kW              | kW    | A                              | A                           | W                                |           | kg/lb           |
| 7.5             | 15    | 29                             | 14.8                        | 59                               | ATS48D17Q | 4.900/10.803    |
| 9               | 18.5  | 38                             | 21                          | 74                               | ATS48D22Q | 4.900/10.803    |
| 15              | 22    | 55                             | 28.5                        | 104                              | ATS48D32Q | 4.900/10.803    |
| 18.5            | 30    | 66                             | 35                          | 116                              | ATS48D38Q | 4.900/10.803    |
| 22              | 45    | 81                             | 42                          | 142                              | ATS48D47Q | 4.900/10.803    |
| 30              | 55    | 107                            | 57                          | 201                              | ATS48D62Q | 8.300/18.298    |
| 37              | 55    | 130                            | 69                          | 245                              | ATS48D75Q | 8.300/18.298    |
| 45              | 75    | 152                            | 81                          | 290                              | ATS48D88Q | 8.300/18.298    |
| 55              | 90    | 191                            | 100                         | 322                              | ATS48C11Q | 8.300/18.298    |
| 75              | 110   | 242                            | 131                         | 391                              | ATS48C14Q | 12.400/27.337   |
| 90              | 132   | 294                            | 162                         | 479                              | ATS48C17Q | 12.400/27.337   |
| 110             | 160   | 364                            | 195                         | 580                              | ATS48C21Q | 18.200/40.124   |
| 132             | 220   | 433                            | 233                         | 695                              | ATS48C25Q | 18.200/40.124   |
| 160             | 250   | 554                            | 285                         | 902                              | ATS48C32Q | 18.200/40.124   |
| 220             | 315   | 710                            | 388                         | 1339                             | ATS48C41Q | 51.400/113.317  |
| 250             | 355   | 831                            | 437                         | 1386                             | ATS48C48Q | 51.400/113.317  |
| –               | 400   | 1022                           | 560                         | 1731                             | ATS48C59Q | 51.400/113.317  |
| 315             | 500   | 1143                           | 605                         | 1958                             | ATS48C66Q | 51.400/113.317  |
| 355             | 630   | 1368                           | 675                         | 2537                             | ATS48C79Q | 115.000/253.531 |
| –               | 710   | 1732                           | 855                         | 2865                             | ATS48M10Q | 115.000/253.531 |
| 500             | –     | 2078                           | 1045                        | 3497                             | ATS48M12Q | 115.000/253.531 |

## For severe applications according to figure 1

| Motor           |       | Starter 230...415 V - 50/60 Hz |                             |                                  |           |                 |
|-----------------|-------|--------------------------------|-----------------------------|----------------------------------|-----------|-----------------|
| Motor power (1) |       | Nominal current (3)            | Factory setting current (4) | Dissipated power at nominal load | Reference | Weight          |
| 230 V           | 400 V |                                |                             |                                  |           |                 |
| kW              | kW    | A                              | A                           | W                                |           | kg/lb           |
| 5.5             | 11    | 22                             | 14.8                        | 46                               | ATS48D17Q | 4.900/10.803    |
| 7.5             | 15    | 29                             | 21                          | 59                               | ATS48D22Q | 4.900/10.803    |
| 9               | 18.5  | 38                             | 28.5                        | 74                               | ATS48D32Q | 4.900/10.803    |
| 15              | 22    | 55                             | 35                          | 99                               | ATS48D38Q | 4.900/10.803    |
| 18.5            | 30    | 66                             | 42                          | 116                              | ATS48D47Q | 4.900/10.803    |
| 22              | 45    | 81                             | 57                          | 153                              | ATS48D62Q | 8.300/18.298    |
| 30              | 55    | 107                            | 69                          | 201                              | ATS48D75Q | 8.300/18.298    |
| 37              | 55    | 130                            | 81                          | 245                              | ATS48D88Q | 8.300/18.298    |
| 45              | 75    | 152                            | 100                         | 252                              | ATS48C11Q | 8.300/18.298    |
| 55              | 90    | 191                            | 131                         | 306                              | ATS48C14Q | 12.400/27.337   |
| 75              | 110   | 242                            | 162                         | 391                              | ATS48C17Q | 12.400/27.337   |
| 90              | 132   | 294                            | 195                         | 468                              | ATS48C21Q | 18.200/40.124   |
| 110             | 160   | 364                            | 233                         | 580                              | ATS48C25Q | 18.200/40.124   |
| 132             | 220   | 433                            | 285                         | 695                              | ATS48C32Q | 18.200/40.124   |
| 160             | 250   | 554                            | 388                         | 1017                             | ATS48C41Q | 51.400/113.317  |
| 220             | 315   | 710                            | 437                         | 1172                             | ATS48C48Q | 51.400/113.317  |
| 250             | 355   | 831                            | 560                         | 1386                             | ATS48C59Q | 51.400/113.317  |
| –               | 400   | 1022                           | 605                         | 1731                             | ATS48C66Q | 51.400/113.317  |
| 315             | 500   | 1143                           | 675                         | 2073                             | ATS48C79Q | 115.000/253.531 |
| 355             | 630   | 1368                           | 855                         | 2225                             | ATS48M10Q | 115.000/253.531 |
| –               | 710   | 1732                           | 1045                        | 2865                             | ATS48M12Q | 115.000/253.531 |

(1) Value indicated on the motor rating plate.

(2) Corresponds to the maximum continuous current in class 10.

(3) Corresponds to the maximum continuous current in class 20.

(4) For this type of connection, the factory setting current must be adjusted in line with the current indicated on the motor rating plate.

# Soft starters for asynchronous motors

Altistart 48 soft start/soft stop units

Line voltage 208...690 V

Motor power given in HP



ATS48D17Y



ATS48C14Y



ATS48M12Y

## For standard applications

| Motor           |       |       |       |  | Starter 208...690 V - 50/60 Hz |                             |                                  |           |                 |
|-----------------|-------|-------|-------|--|--------------------------------|-----------------------------|----------------------------------|-----------|-----------------|
| Motor power (1) |       |       |       |  | Nominal current (IcL) (2)      | Factory setting current (4) | Dissipated power at nominal load | Reference | Weight          |
| 208 V           | 230 V | 460 V | 575 V |  |                                |                             |                                  |           |                 |
| HP              | HP    | HP    | HP    |  | A                              | A                           | W                                |           | kg/lb           |
| 3               | 5     | 10    | 15    |  | 17                             | 14                          | 59                               | ATS48D17Y | 4.900/10.803    |
| 5               | 7.5   | 15    | 20    |  | 22                             | 21                          | 74                               | ATS48D22Y | 4.900/10.803    |
| 7.5             | 10    | 20    | 25    |  | 32                             | 27                          | 104                              | ATS48D32Y | 4.900/10.803    |
| 10              | —     | 25    | 30    |  | 38                             | 34                          | 116                              | ATS48D38Y | 4.900/10.803    |
| —               | 15    | 30    | 40    |  | 47                             | 40                          | 142                              | ATS48D47Y | 4.900/10.803    |
| 15              | 20    | 40    | 50    |  | 62                             | 52                          | 201                              | ATS48D62Y | 8.300/18.298    |
| 20              | 25    | 50    | 60    |  | 75                             | 65                          | 245                              | ATS48D75Y | 8.300/18.298    |
| 25              | 30    | 60    | 75    |  | 88                             | 77                          | 290                              | ATS48D88Y | 8.300/18.298    |
| 30              | 40    | 75    | 100   |  | 110                            | 96                          | 322                              | ATS48C11Y | 8.300/18.298    |
| 40              | 50    | 100   | 125   |  | 140                            | 124                         | 391                              | ATS48C14Y | 12.400/27.337   |
| 50              | 60    | 125   | 150   |  | 170                            | 156                         | 479                              | ATS48C17Y | 12.400/27.337   |
| 60              | 75    | 150   | 200   |  | 210                            | 180                         | 580                              | ATS48C21Y | 18.200/40.124   |
| 75              | 100   | 200   | 250   |  | 250                            | 240                         | 695                              | ATS48C25Y | 18.200/40.124   |
| 100             | 125   | 250   | 300   |  | 320                            | 302                         | 902                              | ATS48C32Y | 18.200/40.124   |
| 125             | 150   | 300   | 350   |  | 410                            | 361                         | 1339                             | ATS48C41Y | 51.400/113.317  |
| 150             | —     | 350   | 400   |  | 480                            | 414                         | 1386                             | ATS48C48Y | 51.400/113.317  |
| —               | 200   | 400   | 500   |  | 590                            | 477                         | 1731                             | ATS48C59Y | 51.400/113.317  |
| 200             | 250   | 500   | 600   |  | 660                            | 590                         | 1958                             | ATS48C66Y | 51.400/113.317  |
| 250             | 300   | 600   | 800   |  | 790                            | 720                         | 2537                             | ATS48C79Y | 115.000/253.531 |
| 350             | 350   | 800   | 1000  |  | 1000                           | 954                         | 2865                             | ATS48M10Y | 115.000/253.531 |
| 400             | 450   | 1000  | 1200  |  | 1200                           | 1170                        | 3497                             | ATS48M12Y | 115.000/253.531 |

## For severe applications

| Motor           |       |       |       |  | Starter 208...690 V - 50/60 Hz |                             |                                  |           |                 |
|-----------------|-------|-------|-------|--|--------------------------------|-----------------------------|----------------------------------|-----------|-----------------|
| Motor power (1) |       |       |       |  | Nominal current (3)            | Factory setting current (4) | Dissipated power at nominal load | Reference | Weight          |
| 208 V           | 230 V | 460 V | 575 V |  |                                |                             |                                  |           |                 |
| HP              | HP    | HP    | HP    |  | A                              | A                           | W                                |           | kg/lb           |
| 2               | 3     | 7.5   | 10    |  | 12                             | 14                          | 46                               | ATS48D17Y | 4.900/10.803    |
| 3               | 5     | 10    | 15    |  | 17                             | 21                          | 59                               | ATS48D22Y | 4.900/10.803    |
| 5               | 7.5   | 15    | 20    |  | 22                             | 27                          | 74                               | ATS48D32Y | 4.900/10.803    |
| 7.5             | 10    | 20    | 25    |  | 32                             | 34                          | 99                               | ATS48D38Y | 4.900/10.803    |
| 10              | —     | 25    | 30    |  | 38                             | 40                          | 116                              | ATS48D47Y | 4.900/10.803    |
| —               | 15    | 30    | 40    |  | 47                             | 52                          | 153                              | ATS48D62Y | 8.300/18.298    |
| 15              | 20    | 40    | 50    |  | 62                             | 65                          | 201                              | ATS48D75Y | 8.300/18.298    |
| 20              | 25    | 50    | 60    |  | 75                             | 77                          | 245                              | ATS48D88Y | 8.300/18.298    |
| 25              | 30    | 60    | 75    |  | 88                             | 96                          | 252                              | ATS48C11Y | 8.300/18.298    |
| 30              | 40    | 75    | 100   |  | 110                            | 124                         | 306                              | ATS48C14Y | 12.400/27.337   |
| 40              | 50    | 100   | 125   |  | 140                            | 156                         | 391                              | ATS48C17Y | 12.400/27.337   |
| 50              | 60    | 125   | 150   |  | 170                            | 180                         | 468                              | ATS48C21Y | 18.200/40.124   |
| 60              | 75    | 150   | 200   |  | 210                            | 240                         | 580                              | ATS48C25Y | 18.200/40.124   |
| 75              | 100   | 200   | 250   |  | 250                            | 302                         | 695                              | ATS48C32Y | 18.200/40.124   |
| 100             | 125   | 250   | 300   |  | 320                            | 361                         | 1017                             | ATS48C41Y | 51.400/113.317  |
| 125             | 150   | 300   | 350   |  | 410                            | 414                         | 1172                             | ATS48C48Y | 51.400/113.317  |
| 150             | —     | 350   | 400   |  | 480                            | 477                         | 1386                             | ATS48C59Y | 51.400/113.317  |
| —               | 200   | 400   | 500   |  | 590                            | 590                         | 1731                             | ATS48C66Y | 51.400/113.317  |
| 200             | 250   | 500   | 600   |  | 660                            | 720                         | 2073                             | ATS48C79Y | 115.000/253.531 |
| 250             | 300   | 600   | 800   |  | 790                            | 954                         | 2225                             | ATS48M10Y | 115.000/253.531 |
| 350             | 350   | 800   | 1000  |  | 1000                           | 1170                        | 2865                             | ATS48M12Y | 115.000/253.531 |

(1) Value indicated on the motor rating plate.

(2) Corresponds to the maximum continuous current in class 10. IcL corresponds to the starter rating.

(3) Corresponds to the maximum continuous current in class 20.

(4) The factory setting current corresponds to the nominal current of a standard NEC, 460 V, class 10 motor (standard application). Adjust it in line with the current indicated on the motor rating plate.

# Soft starters for asynchronous motors

Altistart 48 soft start/soft stop units  
Line voltage 208...690 V  
Motor power in kW

| For standard applications |       |       |       |       |       |       |                                |                             |                                  |           |                 |  |
|---------------------------|-------|-------|-------|-------|-------|-------|--------------------------------|-----------------------------|----------------------------------|-----------|-----------------|--|
| Motor                     |       |       |       |       |       |       | Starter 208...690 V - 50/60 Hz |                             |                                  |           |                 |  |
| Motor power (1)           |       |       |       |       |       |       | Nominal current (IcL) (2)      | Factory setting current (4) | Dissipated power at nominal load | Reference | Weight          |  |
| 230 V                     | 400 V | 440 V | 500 V | 525 V | 660 V | 690 V |                                |                             |                                  |           |                 |  |
| kW                        | kW    | kW    | kW    | kW    | kW    | kW    | A                              | A                           | W                                |           | kg/lb           |  |
| 4                         | 7.5   | 7.5   | 9     | 9     | 11    | 15    | 17                             | 14                          | 59                               | ATS48D17Y | 4.900/10.803    |  |
| 5.5                       | 11    | 11    | 11    | 11    | 15    | 18.5  | 22                             | 21                          | 74                               | ATS48D22Y | 4.900/10.803    |  |
| 7.5                       | 15    | 15    | 18.5  | 18.5  | 22    | 22    | 32                             | 27                          | 104                              | ATS48D32Y | 4.900/10.803    |  |
| 9                         | 18.5  | 18.5  | 22    | 22    | 30    | 30    | 38                             | 34                          | 116                              | ATS48D38Y | 4.900/10.803    |  |
| 11                        | 22    | 22    | 30    | 30    | 37    | 37    | 47                             | 40                          | 142                              | ATS48D47Y | 4.900/10.803    |  |
| 15                        | 30    | 30    | 37    | 37    | 45    | 45    | 62                             | 52                          | 201                              | ATS48D62Y | 8.300/18.298    |  |
| 18.5                      | 37    | 37    | 45    | 45    | 55    | 55    | 75                             | 65                          | 245                              | ATS48D75Y | 8.300/18.298    |  |
| 22                        | 45    | 45    | 55    | 55    | 75    | 75    | 88                             | 77                          | 290                              | ATS48D88Y | 8.300/18.298    |  |
| 30                        | 55    | 55    | 75    | 75    | 90    | 90    | 110                            | 96                          | 322                              | ATS48C11Y | 8.300/18.298    |  |
| 37                        | 75    | 75    | 90    | 90    | 110   | 110   | 140                            | 124                         | 391                              | ATS48C14Y | 12.400/27.337   |  |
| 45                        | 90    | 90    | 110   | 110   | 132   | 160   | 170                            | 156                         | 479                              | ATS48C17Y | 12.400/27.337   |  |
| 55                        | 110   | 110   | 132   | 132   | 160   | 200   | 210                            | 180                         | 580                              | ATS48C21Y | 18.200/40.124   |  |
| 75                        | 132   | 132   | 160   | 160   | 220   | 250   | 250                            | 240                         | 695                              | ATS48C25Y | 18.200/40.124   |  |
| 90                        | 160   | 160   | 220   | 220   | 250   | 315   | 320                            | 302                         | 902                              | ATS48C32Y | 18.200/40.124   |  |
| 110                       | 220   | 220   | 250   | 250   | 355   | 400   | 410                            | 361                         | 1339                             | ATS48C41Y | 51.400/113.317  |  |
| 132                       | 250   | 250   | 315   | 315   | 400   | 500   | 480                            | 414                         | 1386                             | ATS48C48Y | 51.400/113.317  |  |
| 160                       | 315   | 355   | 400   | 400   | 560   | 560   | 590                            | 477                         | 1731                             | ATS48C59Y | 51.400/113.317  |  |
| –                         | 355   | 400   | –     | –     | 630   | 630   | 660                            | 590                         | 1958                             | ATS48C66Y | 51.400/113.317  |  |
| 220                       | 400   | 500   | 500   | 500   | 710   | 710   | 790                            | 720                         | 2537                             | ATS48C79Y | 115.000/253.531 |  |
| 250                       | 500   | 630   | 630   | 630   | 900   | 900   | 1000                           | 954                         | 2865                             | ATS48M10Y | 115.000/253.531 |  |
| 355                       | 630   | 710   | 800   | 800   | –     | –     | 1200                           | 1170                        | 3497                             | ATS48M12Y | 115.000/253.531 |  |

| For severe applications |       |       |       |       |       |       |                                |                             |                                  |           |                 |  |
|-------------------------|-------|-------|-------|-------|-------|-------|--------------------------------|-----------------------------|----------------------------------|-----------|-----------------|--|
| Motor                   |       |       |       |       |       |       | Starter 208...690 V - 50/60 Hz |                             |                                  |           |                 |  |
| Motor power (1)         |       |       |       |       |       |       | Nominal current (3)            | Factory setting current (4) | Dissipated power at nominal load | Reference | Weight          |  |
| 230 V                   | 400 V | 440 V | 500 V | 525 V | 660 V | 690 V |                                |                             |                                  |           |                 |  |
| kW                      | kW    | kW    | kW    | kW    | kW    | kW    | A                              | A                           | W                                |           | kg/lb           |  |
| 3                       | 5.5   | 5.5   | 7.5   | 7.5   | 9     | 11    | 12                             | 14                          | 46                               | ATS48D17Y | 4.900/10.803    |  |
| 4                       | 7.5   | 7.5   | 9     | 9     | 11    | 15    | 17                             | 21                          | 59                               | ATS48D22Y | 4.900/10.803    |  |
| 5.5                     | 11    | 11    | 11    | 11    | 15    | 18.5  | 22                             | 27                          | 74                               | ATS48D32Y | 4.900/10.803    |  |
| 7.5                     | 15    | 15    | 18.5  | 18.5  | 22    | 22    | 32                             | 34                          | 99                               | ATS48D38Y | 4.900/10.803    |  |
| 9                       | 18.5  | 18.5  | 22    | 22    | 30    | 30    | 38                             | 40                          | 116                              | ATS48D47Y | 4.900/10.803    |  |
| 11                      | 22    | 22    | 30    | 30    | 37    | 37    | 47                             | 52                          | 153                              | ATS48D62Y | 8.300/18.298    |  |
| 15                      | 30    | 30    | 37    | 37    | 45    | 45    | 62                             | 65                          | 201                              | ATS48D75Y | 8.300/18.298    |  |
| 18.5                    | 37    | 37    | 45    | 45    | 55    | 55    | 75                             | 77                          | 245                              | ATS48D88Y | 8.300/18.298    |  |
| 22                      | 45    | 45    | 55    | 55    | 75    | 75    | 88                             | 96                          | 252                              | ATS48C11Y | 8.300/18.298    |  |
| 30                      | 55    | 55    | 75    | 75    | 90    | 90    | 110                            | 124                         | 306                              | ATS48C14Y | 12.400/27.337   |  |
| 37                      | 75    | 75    | 90    | 90    | 110   | 110   | 140                            | 156                         | 391                              | ATS48C17Y | 12.400/27.337   |  |
| 45                      | 90    | 90    | 110   | 110   | 132   | 160   | 170                            | 180                         | 468                              | ATS48C21Y | 18.200/40.124   |  |
| 55                      | 110   | 110   | 132   | 132   | 160   | 200   | 210                            | 240                         | 580                              | ATS48C25Y | 18.200/40.124   |  |
| 75                      | 132   | 132   | 160   | 160   | 220   | 250   | 250                            | 302                         | 695                              | ATS48C32Y | 18.200/40.124   |  |
| 90                      | 160   | 160   | 220   | 220   | 250   | 315   | 320                            | 361                         | 1017                             | ATS48C41Y | 51.400/113.317  |  |
| 110                     | 220   | 220   | 250   | 250   | 355   | 400   | 410                            | 414                         | 1172                             | ATS48C48Y | 51.400/113.317  |  |
| 132                     | 250   | 250   | 315   | 315   | 400   | 500   | 480                            | 477                         | 1386                             | ATS48C59Y | 51.400/113.317  |  |
| 160                     | 315   | 355   | 400   | 400   | 560   | 560   | 590                            | 590                         | 1731                             | ATS48C66Y | 51.400/113.317  |  |
| –                       | 355   | 400   | –     | –     | 630   | 630   | 660                            | 720                         | 2073                             | ATS48C79Y | 115.000/253.531 |  |
| 220                     | 400   | 500   | 500   | 500   | 710   | 710   | 790                            | 954                         | 2225                             | ATS48M10Y | 115.000/253.531 |  |
| 250                     | 500   | 630   | 630   | 630   | 900   | 900   | 1000                           | 1170                        | 2865                             | ATS48M12Y | 115.000/253.531 |  |

(1) Value indicated on the motor rating plate.

(2) Corresponds to the maximum continuous current in class 10. IcL corresponds to the starter rating.

(3) Corresponds to the maximum continuous current in class 20.

(4) The factory setting current corresponds to the nominal current of a standard NEC, 460 V, class 10 motor (standard application). Adjust it in line with the current indicated on the motor rating plate.

# Soft starters for asynchronous motors

Altistart 48 soft start/soft stop units  
230 V power supply  
Type 1 coordination

## Compatible components according to standards IEC 60947-4-1 and IEC 60947-4-2

Use either a circuit-breaker (light green columns), contactor, starter combination or a switch/fuse (dark green columns), contactor, starter combination

| Motor |      | Starter (1)                       |                                 | Circuit-breaker                      |        | Type of contactor | Type of switch or switch disconnector (bare unit) | aM fuses           |              |         |        |
|-------|------|-----------------------------------|---------------------------------|--------------------------------------|--------|-------------------|---------------------------------------------------|--------------------|--------------|---------|--------|
|       |      | Class 10<br>Standard applications | Class 20<br>Severe applications | Reference                            | Rating |                   |                                                   | Unit reference (3) |              | Size    | Rating |
| kW    | A    |                                   |                                 |                                      |        |                   |                                                   | Without striker    | With striker |         |        |
| M1    | A1   |                                   |                                 | Q1                                   |        | KM1, KM2, KM3     |                                                   |                    |              |         |        |
| 3     | 11.5 | –                                 | ATS48D17●                       | GV2L20                               | 18     | LC1D18            | LS1D32                                            | DF2CA16            | –            | 10 x 38 | –      |
|       |      |                                   |                                 | NS80HMA                              | 12.5   | LC1D18            | LS1D32                                            | DF2CA16            | –            | 10 x 38 | 16     |
| 4     | 14.5 | ATS48D17●                         | ATS48D22●                       | GV2L20                               | 18     | LC1D18            | LS1D32                                            | DF2CA16            | –            | 10 x 38 | 16     |
|       |      |                                   |                                 | NS80HMA                              | 25     | LC1D18            | LS1D32                                            | DF2CA16            | –            | 10 x 38 | 16     |
| 5.5   | 20   | ATS48D22●                         | ATS48D32●                       | GV2L22                               | 25     | LC1D25            | LS1D32                                            | DF2CA25            | –            | 10 x 38 | 25     |
|       |      |                                   |                                 | NS80HMA                              | 25     | LC1D25            | LS1D32                                            | DF2CA25            | –            | 10 x 38 | 25     |
| 7.5   | 27   | ATS48D32●                         | ATS48D38●                       | GV2L32                               | 32     | LC1D32            | GK1EK                                             | DF2EA32            | DF3EA32      | 14 x 51 | 32     |
|       |      |                                   |                                 | NS80HMA                              | 50     | LC1D32            | GK1EK                                             | DF2EA32            | DF3EA32      | 14 x 51 | 32     |
| 9     | 32   | ATS48D38●                         | ATS48D47●                       | GV3L40                               | 40     | LC1D38            | GK1EK                                             | DF2EA40            | DF3EA40      | 14 x 51 | 40     |
|       |      |                                   |                                 | NS80HMA                              | 50     | LC1D38            | GK1EK                                             | DF2EA40            | DF3EA40      | 14 x 51 | 40     |
| 11    | 39   | ATS48D47●                         | ATS48D62●                       | GV3L65                               | 65     | LC1D50A           | GS1K                                              | DF2FA50            | DF3FA50      | 22 x 58 | 50     |
|       |      |                                   |                                 | NS80HMA                              | 50     | LC1D50A           | GS1K                                              | DF2FA50            | DF3FA50      | 22 x 58 | 50     |
| 15    | 52   | ATS48D62●                         | ATS48D75●                       | GV3L65                               | 65     | LC1D65A           | GS1K                                              | DF2FA80            | DF3FA80      | 22 x 58 | 80     |
|       |      |                                   |                                 | NS80HMA                              | 80     | LC1D65A           | GS1K                                              | DF2FA80            | DF3FA80      | 22 x 58 | 80     |
| 18.5  | 64   | ATS48D75●                         | ATS48D88●                       | NS80HMA                              | 80     | LC1D80            | GS1K                                              | DF2FA80            | DF3FA80      | 22 x 58 | 80     |
| 22    | 75   | ATS48D88●                         | ATS48C11●                       | NSX100●MA (2)                        | 100    | LC1D115           | GS1K                                              | DF2FA100           | DF3FA100     | 22 x 58 | 100    |
| 30    | 103  | ATS48C11●                         | ATS48C14●                       | NSX160●MA (2)                        | 150    | LC1D115           | GS1K                                              | DF2FA125           | DF4FA125     | 22 x 58 | 125    |
| 37    | 126  | ATS48C14●                         | ATS48C17●                       | NSX160●MA (2)                        | 150    | LC1D150           | GS1L                                              | DF2GA1161          | DF4GA1161    | 0       | 160    |
| 45    | 150  | ATS48C17●                         | ATS48C21●                       | NSX250●MA (2)                        | 220    | LC1F185           | GS1N                                              | DF2HA1201          | DF4HA1201    | 1       | 200    |
| 55    | 182  | ATS48C21●                         | ATS48C25●                       | NSX250●MA (2)                        | 220    | LC1F225           | GS1N                                              | DF2HA1201          | DF4HA1201    | 1       | 200    |
| 75    | 240  | ATS48C25●                         | ATS48C32●                       | NSX400● (2)<br>Micrologic 1.3M       | 320    | LC1F265           | GS1QQ                                             | DF2JA1251          | DF4JA1251    | 2       | 250    |
| 90    | 295  | ATS48C32●                         | ATS48C41●                       | NSX400● (2)<br>Micrologic 1.3M       | 320    | LC1F330           | GS1QQ                                             | DF2JA1311          | DF4JA1311    | 2       | 315    |
| 110   | 356  | ATS48C41●                         | ATS48C48●                       | NSX630● (2)<br>Micrologic 1.3M       | 500    | LC1F400           | GS1S                                              | DF2KA1401          | DF4KA1401    | 3       | 400    |
| 132   | 425  | ATS48C48●                         | ATS48C59●                       | NSX630● (2)<br>Micrologic 1.3M       | 500    | LC1F500           | GS1S                                              | DF2KA1501          | DF4KA1501    | 3       | 500    |
| 160   | 520  | ATS48C59●                         | ATS48C66●                       | NS630b● (2)<br>Micrologic 5.0 LR Off | 630    | LC1F630           | GS1S                                              | DF2KA1631          | DF4KA1631    | 3       | 630    |
| 200   | 630  | ATS48C66●                         | ATS48C79●                       | NS800● (2)<br>Micrologic 5.0 LR Off  | 800    | LC1F800           | GS1S                                              | DF2KA1631          | DF4KA1631    | 3       | 630    |
| 220   | 700  | ATS48C79●                         | ATS48M10●                       | NS800● (2)<br>Micrologic 5.0 LR Off  | 800    | LC1F800           | GS1V                                              | DF2LA1801          | DF4LA1801    | 4       | 800    |
| 250   | 800  | ATS48M10●                         | ATS48M12●                       | NS1000● (2)<br>Micrologic 5.0 LR Off | 1000   | LC1BM33           | GS1V                                              | DF2LA1101          | DF4LA1101    | 4       | 1000   |
| 355   | 1115 | ATS48M12●                         | –                               | NS1250● (2)<br>Micrologic 5.0 LR Off | 1250   | LC1BP33           | –                                                 | DF2LA1251          | DF4LA1251    | 4       | 1250   |

(1) Replace ● with Q or Y according to the starter's voltage range.

(2) Replace ● with F, N, H, S, L or LB according to the breaking capacity (see the breaking capacity table below).

(3) DF2CA, DF●EA, DF●FA: sold in lots of 20.

DF●GA, DF●KA: sold in lots of 3.

DF●LA: sold singly.

Maximum starter prospective short-circuit current according to standard IEC 60947-4-2

| Starter                | Iq (kA) |
|------------------------|---------|
| ATS48D17● to ATS48C32● | 50      |
| ATS48C41● to ATS48M12● | 70      |

Breaking capacity of circuit-breakers according to standard IEC 60947-4-2

| 230 V                          | Icu (kA) |       |        |        |        |        |
|--------------------------------|----------|-------|--------|--------|--------|--------|
| GV2L20                         | 100      |       |        |        |        |        |
| GV2L22, GV2L32, GV3L40, GV3L65 | 50       |       |        |        |        |        |
| 230 V                          | Icu (kA) |       |        |        |        |        |
|                                | F        | N     | H      | S      | L      | LB     |
| NS80HMA                        | –        | –     | 100 kA | –      | –      | –      |
| NSX100/160/250                 | 85 kA    | 90 kA | 100 kA | 120 kA | 150 kA | –      |
| NSX400/630                     | 85 kA    | 90 kA | 100 kA | 120 kA | 150 kA | –      |
| NS630b/800L/LB                 | –        | –     | –      | –      | 150 kA | 200 kA |
| NS1000L                        | –        | –     | –      | –      | 150 kA | –      |
| NS1250                         | –        | 50 kA | 70 kA  | –      | –      | –      |

# Soft starters for asynchronous motors

Altistart 48 soft start/soft stop units  
230 V power supply  
Type 2 coordination

## Compatible components according to standards IEC 60947-4-1 and IEC 60947-4-2: circuit-breakers, contactors, fast-acting fuses, starters

Combination: circuit-breaker, contactor, starter

| Motor |      | Starter (1)           |                     | Circuit-breaker                   |        | Type of contactor |
|-------|------|-----------------------|---------------------|-----------------------------------|--------|-------------------|
| kW    | A    | Class 10              | Class 20            | Reference                         | Rating |                   |
|       |      | Standard applications | Severe applications |                                   | A      |                   |
| M1    |      | A1                    |                     | Q1                                |        | KM1, KM2, KM3     |
| 3     | 11.5 | –                     | ATS48D17●           | GV2L20                            | 18     | LC1D40A           |
|       |      |                       |                     | NS80HMA                           | 12.5   | LC1D40            |
| 4     | 14.5 | ATS48D17●             | ATS48D22●           | GV2L20                            | 18     | LC1D40A           |
|       |      |                       |                     | NS80HMA                           | 25     | LC1D40            |
| 5.5   | 20   | ATS48D22●             | ATS48D32●           | GV2L22                            | 25     | LC1D40A           |
|       |      |                       |                     | NS80HMA                           | 25     | LC1D40            |
| 7.5   | 27   | ATS48D32●             | ATS48D38●           | GV2L32                            | 32     | LC1D40A           |
|       |      |                       |                     | NS80HMA                           | 50     | LC1D80            |
| 9     | 32   | ATS48D38●             | ATS48D47●           | GV3L40                            | 40     | LC1D80            |
|       |      |                       |                     | NS80HMA                           | 50     | LC1D80            |
| 11    | 39   | ATS48D47●             | ATS48D62●           | GV3L65                            | 65     | LC1D80            |
|       |      |                       |                     | NS80HMA                           | 50     | LC1D80            |
| 15    | 52   | ATS48D62●             | ATS48D75●           | NS80HMA                           | 80     | LC1D80            |
| 18.5  | 64   | ATS48D75●             | ATS48D88●           | NS80HMA                           | 80     | LC1D80            |
| 22    | 75   | ATS48D88●             | ATS48C11●           | NSX100●MA (2)                     | 100    | LC1D115           |
| 30    | 103  | ATS48C11●             | ATS48C14●           | NSX160●MA (2)                     | 150    | LC1D115           |
| 37    | 126  | ATS48C14●             | ATS48C17●           | NSX160●MA (2)                     | 150    | LC1D150           |
| 45    | 150  | ATS48C17●             | ATS48C21●           | NSX250●MA (2)                     | 220    | LC1F185           |
| 55    | 182  | ATS48C21●             | ATS48C25●           | NSX250●MA (2)                     | 220    | LC1F225           |
| 75    | 240  | ATS48C25●             | ATS48C32●           | NSX400● (2) Micrologic 1.3M       | 320    | LC1F265           |
| 90    | 295  | ATS48C32●             | ATS48C41●           | NSX400● (2) Micrologic 1.3M       | 320    | LC1F330           |
| 110   | 356  | ATS48C41●             | ATS48C48●           | NSX630● (2) Micrologic 1.3M       | 500    | LC1F400           |
| 132   | 425  | ATS48C48●             | ATS48C59●           | NSX630● (2) Micrologic 1.3M       | 500    | LC1F500           |
| 160   | 520  | ATS48C59●             | ATS48C66●           | NS630bL/LB Micrologic 5.0 LR Off  | 630    | LC1F630           |
| 200   | 626  | ATS48C66●             | ATS48C79●           | NS800L/LB Micrologic 5.0 LR Off   | 800    | LC1F800           |
| 220   | 700  | ATS48C79●             | ATS48M10●           | NS800L/LB Micrologic 5.0 LR Off   | 800    | LC1F800           |
| 250   | 800  | ATS48M10●             | ATS48M12●           | NS1000L Micrologic 5.0 LR Off     | 1000   | LC1BM33           |
| 355   | 1115 | ATS48M12●             | –                   | NS1250● (3) Micrologic 5.0 LR Off | 1250   | LC1BP33           |

(1) Replace ● with Q or Y according to the starter's voltage range.

(2) Replace ● with F, N, H, S, L or LB according to the breaking capacity (see the breaking capacity table on page 14).

(3) Type 2 coordination is only possible if the fast-acting fuses remain in the motor supply circuit and are not bypassed at the end of starting.

| Maximum starter prospective short-circuit current according to standard IEC 60947-4-2 |                     | Fast-acting fuse (essential for type 2 coordination) and starter combinations |                                    |         |          |                                     |
|---------------------------------------------------------------------------------------|---------------------|-------------------------------------------------------------------------------|------------------------------------|---------|----------|-------------------------------------|
| Starter                                                                               | I <sub>q</sub> (kA) | Starter                                                                       | Fast-acting fuses with microswitch |         |          |                                     |
|                                                                                       |                     | Reference                                                                     | Unit reference (4)                 | Size    | Rating A | I <sup>2</sup> t kA <sup>2</sup> .s |
| ATS48D17● to ATS48C79●                                                                | 50                  |                                                                               |                                    |         |          |                                     |
| ATS48M10● and ATS48M12●                                                               | 85                  | A1                                                                            | Q3                                 |         |          |                                     |
|                                                                                       |                     | ATS48D17●                                                                     | DF3ER50                            | 14 x 51 | 50       | 2.3                                 |
|                                                                                       |                     | ATS48D22● and ATS48D32●                                                       | DF3FR80                            | 22 x 58 | 80       | 5.6                                 |
|                                                                                       |                     | ATS48D38● and ATS48D47●                                                       | DF3FR100                           | 22 x 58 | 100      | 12                                  |
|                                                                                       |                     | ATS48D62● and ATS48D75●                                                       | DF400125                           | 00      | 125      | 45                                  |
|                                                                                       |                     | ATS48D88● and ATS48C11●                                                       | DF400160                           | 00      | 160      | 82                                  |
|                                                                                       |                     | ATS48C14● and ATS48C17●                                                       | DF430400                           | 30      | 400      | 120                                 |
|                                                                                       |                     | ATS48C21● to ATS48C32●                                                        | DF431700                           | 31      | 700      | 490                                 |
|                                                                                       |                     | ATS48D75●                                                                     | DF433800                           | 33      | 800      | 490                                 |
|                                                                                       |                     | ATS48C48● and ATS48C59●                                                       | DF4331000                          | 33      | 1000     | 900                                 |
|                                                                                       |                     | ATS48C66●                                                                     | DF42331400                         | 2 x 33  | 1400     | 1200                                |
|                                                                                       |                     | ATS48C79●                                                                     | DF4441600                          | 44      | 1600     | 1600                                |
|                                                                                       |                     | ATS48M10● and ATS48M12●                                                       | DF4442200                          | 44      | 2200     | 4100                                |

(4) DF3ER, DF3FR: sold in lots of 10.

DF4: sold singly.

# Soft starters for asynchronous motors

Altistart 48 soft start/soft stop units  
380 V, 400 V, 415 V power supply  
Type 1 coordination

| Compatible components according to standards IEC 60947-4-1 and IEC 60947-4-2                                                                             |      |                       |                     |                                      |        |                   |                                                   |                    |              |         |        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----------------------|---------------------|--------------------------------------|--------|-------------------|---------------------------------------------------|--------------------|--------------|---------|--------|
| Use either a circuit-breaker (light green columns), contactor, starter combination or a switch/fuse (dark green columns), contactor, starter combination |      |                       |                     |                                      |        |                   |                                                   |                    |              |         |        |
| Motor                                                                                                                                                    |      | Starter (1)           |                     | Circuit-breaker                      |        | Type of contactor | Type of switch or switch disconnector (bare unit) | aM fuses           |              | Size    | Rating |
|                                                                                                                                                          |      | Class 10              | Class 20            | Reference                            | Rating |                   |                                                   | Unit reference (3) |              |         |        |
| kW                                                                                                                                                       | A    | Standard applications | Severe applications |                                      | A      |                   |                                                   | Without striker    | With striker |         | A      |
| M1                                                                                                                                                       | A1   |                       |                     | Q1                                   |        | KM1, KM2, KM3     |                                                   |                    |              |         |        |
| 5.5                                                                                                                                                      | 11   | –                     | ATS48D17●           | GV2L20                               | 18     | LC1D18            | LS1D32                                            | DF2CA16            | –            | 10 x 38 | 16     |
|                                                                                                                                                          |      |                       |                     | NS80HMA                              | 12.5   | LC1D18            | LS1D32                                            | DF2CA16            | –            | 10 x 38 | 16     |
| 7.5                                                                                                                                                      | 14.8 | ATS48D17●             | ATS48D22●           | GV2L20                               | 18     | LC1D18            | LS1D32                                            | DF2CA16            | –            | 10 x 38 | 16     |
|                                                                                                                                                          |      |                       |                     | NS80HMA                              | 25     | LC1D18            | LS1D32                                            | DF2CA16            | –            | 10 x 38 | 16     |
| 11                                                                                                                                                       | 21   | ATS48D22●             | ATS48D32●           | GV2L22                               | 25     | LC1D25            | LS1D32                                            | DF2CA25            | –            | 10 x 38 | 25     |
|                                                                                                                                                          |      |                       |                     | NS80HMA                              | 25     | LC1D25            | LS1D32                                            | DF2CA25            | –            | 10 x 38 | 25     |
| 15                                                                                                                                                       | 28.5 | ATS48D32●             | ATS48D38●           | GV2L32                               | 32     | LC1D32            | GK1EK                                             | DF2EA32            | DF3EA32      | 14 x 51 | 32     |
|                                                                                                                                                          |      |                       |                     | NS80HMA                              | 50     | LC1D32            | GK1EK                                             | DF2EA32            | DF3EA32      | 14 x 51 | 32     |
| 18.5                                                                                                                                                     | 35   | ATS48D38●             | ATS48D47●           | GV3L40                               | 40     | LC1D38            | GK1EK                                             | DF2EA40            | DF3EA40      | 14 x 51 | 40     |
|                                                                                                                                                          |      |                       |                     | NS80HMA                              | 50     | LC1D38            | GK1EK                                             | DF2EA40            | DF3EA40      | 14 x 51 | 40     |
| 22                                                                                                                                                       | 42   | ATS48D47●             | ATS48D62●           | GV3L65                               | 65     | LC1D50A           | GS1K                                              | DF2FA50            | DF3FA50      | 22 x 58 | 50     |
|                                                                                                                                                          |      |                       |                     | NS80HMA                              | 50     | LC1D50A           | GS1K                                              | DF2FA50            | DF3FA50      | 22 x 58 | 50     |
| 30                                                                                                                                                       | 57   | ATS48D62●             | ATS48D75●           | GV3L65                               | 65     | LC1D65A           | GS1K                                              | DF2FA80            | DF3FA80      | 22 x 58 | 80     |
|                                                                                                                                                          |      |                       |                     | NS80HMA                              | 80     | LC1D65A           | GS1K                                              | DF2FA80            | DF3FA80      | 22 x 58 | 80     |
| 37                                                                                                                                                       | 69   | ATS48D75●             | ATS48D88●           | NS80HMA                              | 80     | LC1D80            | GS1K                                              | DF2FA80            | DF3FA80      | 22 x 58 | 80     |
| 45                                                                                                                                                       | 81   | ATS48D88●             | ATS48C11●           | NSX100●MA (2)                        | 100    | LC1D115           | GS1K                                              | DF2FA100           | DF3FA100     | 22 x 58 | 100    |
| 55                                                                                                                                                       | 100  | ATS48C11●             | ATS48C14●           | NSX160●MA (2)                        | 150    | LC1D115           | GS1K                                              | DF2FA125           | DF4FA125     | 22 x 58 | 125    |
| 75                                                                                                                                                       | 131  | ATS48C14●             | ATS48C17●           | NSX160●MA (2)                        | 150    | LC1D150           | GS1L                                              | DF2GA1161          | DF4GA1161    | 0       | 160    |
| 90                                                                                                                                                       | 162  | ATS48C17●             | ATS48C21●           | NSX250●MA (2)                        | 220    | LC1F185           | GS1N                                              | DF2HA1201          | DF4HA1201    | 1       | 200    |
| 110                                                                                                                                                      | 195  | ATS48C21●             | ATS48C25●           | NSX250●MA (2)                        | 220    | LC1F225           | GS1N                                              | DF2HA1201          | DF4HA1201    | 1       | 200    |
| 132                                                                                                                                                      | 233  | ATS48C25●             | ATS48C32●           | NSX400● (2)<br>Micrologic 1.3M       | 320    | LC1F265           | GS1QQ                                             | DF2JA1251          | DF4JA1251    | 2       | 250    |
| 160                                                                                                                                                      | 285  | ATS48C32●             | ATS48C41●           | NSX400● (2)<br>Micrologic 1.3M       | 320    | LC1F330           | GS1QQ                                             | DF2JA1311          | DF4JA1311    | 2       | 315    |
| 220                                                                                                                                                      | 388  | ATS48C41●             | ATS48C48●           | NSX630● (2)<br>Micrologic 1.3M       | 500    | LC1F400           | GS1S                                              | DF2KA1401          | DF4KA1401    | 3       | 400    |
| 250                                                                                                                                                      | 437  | ATS48C48●             | ATS48C59●           | NSX630● (2)<br>Micrologic 1.3M       | 500    | LC1F500           | GS1S                                              | DF2KA1501          | DF4KA1501    | 3       | 500    |
| 315                                                                                                                                                      | 560  | ATS48C59●             | ATS48C66●           | NS630b● (2)<br>Micrologic 5.0 LR Off | 630    | LC1F630           | GS1S                                              | DF2KA1631          | DF4KA1631    | 3       | 630    |
| 355                                                                                                                                                      | 605  | ATS48C66●             | ATS48C79●           | NS800● (2)<br>Micrologic 5.0 LR Off  | 800    | LC1F780           | GS1V                                              | DF2LA1631          | DF4LA1631    | 4       | 630    |
| 400                                                                                                                                                      | 675  | ATS48C79●             | ATS48M10●           | NS800● (2)<br>Micrologic 5.0 LR Off  | 800    | LC1F780           | GS1V                                              | DF2LA1801          | DF4LA1801    | 4       | 800    |
| 500                                                                                                                                                      | 855  | ATS48M10●             | ATS48M12●           | NS1000● (2)<br>Micrologic 5.0 LR Off | 1000   | LC1BM33           | GS1V                                              | DF2LA1101          | DF4LA1101    | 4       | 1000   |
| 630                                                                                                                                                      | 1045 | ATS48M12●             | –                   | NS1250● (2)<br>Micrologic 5.0 LR Off | 1250   | LC1BP33           | –                                                 | DF2LA1251          | DF4LA1251    | 4       | 1250   |

(1) Replace ● with Q or Y according to the starter's voltage range.

(2) Replace ● with F, N, H, S, L or LB according to the breaking capacity (see the breaking capacity table below).

(3) DF2CA, DF●EA, DF●FA: sold in lots of 20.

DF●GA, DF●KA: sold in lots of 3.

DF●LA: sold singly.

| Maximum starter prospective short-circuit current according to standard IEC 60947-4-2 |         | Breaking capacity of circuit-breakers according to standard IEC 60947-4-2 |    |          |    |     |     |     |
|---------------------------------------------------------------------------------------|---------|---------------------------------------------------------------------------|----|----------|----|-----|-----|-----|
|                                                                                       |         | 380 V, 400 V, 415 V                                                       |    | Icu (kA) |    |     |     |     |
| Starter                                                                               | Iq (kA) | GV2L20, GV2L22, GV2L32, GV3L40, GV3L50, GV3L65                            | 50 |          |    |     |     |     |
| ATS48D17● to ATS48C32●                                                                | 50      | 380 V, 400 V, 415 V                                                       |    | Icu (kA) |    |     |     |     |
| ATS48C41● to ATS48M12●                                                                | 70      | F                                                                         | N  | H        | S  | L   | LB  |     |
|                                                                                       |         | NS80HMA                                                                   | —  | —        | 70 | —   | —   | —   |
|                                                                                       |         | NSX100/160/250                                                            | 36 | 50       | 70 | 100 | 150 | —   |
|                                                                                       |         | NSX400/630                                                                | 36 | 50       | 70 | 100 | 150 | —   |
|                                                                                       |         | NS630b/800                                                                | —  | 50       | 70 | —   | 150 | 200 |
|                                                                                       |         | NS1000                                                                    | —  | 50       | 70 | —   | 150 | —   |
|                                                                                       |         | NS1250                                                                    | —  | 50       | 70 | —   | —   | —   |

# Soft starters for asynchronous motors

Altistart 48 soft start/soft stop units  
380 V, 400 V, 415 V power supply  
Type 2 coordination

## Compatible components according to standards IEC 60947-4-1 and IEC 60947-4-2: circuit-breakers, contactors, fast-acting fuses, starters

Combination: circuit-breaker, contactor, starter

| Motor |      | Starter (1)           |                     | Circuit-breaker                    |        | Type of contactor |
|-------|------|-----------------------|---------------------|------------------------------------|--------|-------------------|
|       |      | Class 10              | Class 20            | Reference                          | Rating |                   |
| kW    | A    | Standard applications | Severe applications |                                    | A      |                   |
| M1    |      | A1                    |                     | Q1                                 |        | KM1, KM2, KM3     |
| 5.5   | 11   | –                     | ATS48D17●           | GV2L20                             | 18     | LC1D25            |
|       |      |                       |                     | NS80HMA                            | 12.5   | LC1D40            |
| 7.5   | 14.8 | ATS48D17●             | ATS48D22●           | GV2L20                             | 18     | LC1D25            |
|       |      |                       |                     | NS80HMA                            | 25     | LC1D40            |
| 11    | 21   | ATS48D22●             | ATS48D32●           | GV2L22                             | 25     | LC1D25            |
|       |      |                       |                     | NS80HMA                            | 25     | LC1D40            |
| 15    | 28.5 | ATS48D32●             | ATS48D38●           | GV2L32                             | 32     | LC1D32            |
|       |      |                       |                     | NS80HMA                            | 50     | LC1D80            |
| 18.5  | 35   | ATS48D38●             | ATS48D47●           | GV3L40                             | 40     | LC1D50A           |
|       |      |                       |                     | NS80HMA                            | 50     | LC1D80            |
| 22    | 42   | ATS48D47●             | ATS48D62●           | GV3L50                             | 50     | LC1D50A           |
|       |      |                       |                     | NS80HMA                            | 50     | LC1D80            |
| 30    | 57   | ATS48D62●             | ATS48D75●           | GV3L65                             | 65     | LC1D65A           |
|       |      |                       |                     | NS80HMA                            | 80     | LC1D80            |
| 37    | 69   | ATS48D75●             | ATS48D88●           | NS80HMA                            | 80     | LC1D80            |
| 45    | 81   | ATS48D88●             | ATS48C11●           | NSX100●MA (2)                      | 100    | LC1D115/F115      |
| 55    | 100  | ATS48C11●             | ATS48C14●           | NSX160●MA (2)                      | 150    | LC1D115/F115      |
| 75    | 131  | ATS48C14●             | ATS48C17●           | NSX100●MA (2)                      | 150    | LC1D150/F150      |
| 90    | 162  | ATS48C17●             | ATS48C21●           | NSX250●MA (2)                      | 220    | LC1F185           |
| 110   | 195  | ATS48C21●             | ATS48C25●           | NSX250●MA (2)                      | 220    | LC1F225           |
| 132   | 233  | ATS48C25●             | ATS48C32●           | NSX400● (2) Micrologic 1.3M        | 320    | LC1F265           |
| 160   | 285  | ATS48C32●             | ATS48C41●           | NSX400● (2) Micrologic 1.3M        | 320    | LC1F330           |
| 220   | 388  | ATS48C41●             | ATS48C48●           | NSX630● (2) Micrologic 1.3M        | 500    | LC1F500           |
| 250   | 437  | ATS48C48●             | ATS48C59●           | NSX630● (2) Micrologic 1.3M        | 500    | LC1F500           |
| 315   | 560  | ATS48C59●             | ATS48C66●           | NS630bL Micrologic 5.0 LR Off      | 630    | LC1F630           |
| 355   | 605  | ATS48C66●             | ATS48C79●           | NS800L or LB Micrologic 5.0 LR Off | 800    | LC1F780           |
| 400   | 675  | ATS48C79●             | ATS48M10●           | NS800L or LB Micrologic 5.0 LR Off | 800    | LC1F780           |
| 500   | 855  | ATS48M10●             | ATS48M12●           | NS1000L Micrologic 5.0 LR Off      | 1000   | LC1BM33           |
| 630   | 1045 | ATS48M12●             | –                   | NS1250 (3) Micrologic 5.0 LR Off   | 1250   | LC1BP33           |

(1) Replace ● with Q or Y according to the starter's voltage range.

(2) Replace ● with F, N, H, S, L or LB according to the breaking capacity (see the breaking capacity table below).

(3) Type 2 coordination is only possible if the fast-acting fuses remain in the motor supply circuit and are not bypassed at the end of starting.

| Maximum starter prospective short-circuit current according to standard IEC 60947-4-2 |         | Fast-acting fuse (essential for type 2 coordination) and starter combinations |                                    |         |          |                                     |
|---------------------------------------------------------------------------------------|---------|-------------------------------------------------------------------------------|------------------------------------|---------|----------|-------------------------------------|
| Starter                                                                               | Iq (kA) | Starter Reference                                                             | Fast-acting fuses with microswitch |         |          |                                     |
|                                                                                       |         |                                                                               | Unit reference (4)                 | Size    | Rating A | I <sup>2</sup> t kA <sup>2</sup> .s |
| ATS48D17●                                                                             | 50      | A1                                                                            | Q3                                 |         |          |                                     |
| ATS48D22● to ATS48D47●                                                                | 40      | ATS48D17●                                                                     | DF3ER50                            | 14 x 51 | 50       | 2.3                                 |
| ATS48D62● to ATS48C79●                                                                | 50      | ATS48D22● and ATS48D32●                                                       | DF3FR80                            | 22 x 58 | 80       | 5.6                                 |
| ATS48M10● and ATS48M12●                                                               | 85      | ATS48D38● and ATS48D47●                                                       | DF3FR100                           | 22 x 58 | 100      | 12                                  |
|                                                                                       |         | ATS48D62● and ATS48D75●                                                       | DF400125                           | 00      | 125      | 45                                  |
|                                                                                       |         | ATS48D88● and ATS48C11●                                                       | DF400160                           | 00      | 160      | 82                                  |
|                                                                                       |         | ATS48C14● and ATS48C17●                                                       | DF430400                           | 30      | 400      | 120                                 |
|                                                                                       |         | ATS48C21● to ATS48C32●                                                        | DF431700                           | 31      | 700      | 490                                 |
|                                                                                       |         | ATS48D75●                                                                     | DF433800                           | 33      | 800      | 490                                 |
|                                                                                       |         | ATS48C48● and ATS48C59●                                                       | DF4331000                          | 33      | 1000     | 900                                 |
|                                                                                       |         | ATS48C66●                                                                     | DF42331400                         | 2 x 33  | 1400     | 1200                                |
|                                                                                       |         | ATS48C79●                                                                     | DF4441600                          | 44      | 1600     | 1600                                |
|                                                                                       |         | ATS48M10● and ATS48M12●                                                       | DF4442200                          | 44      | 2200     | 4100                                |

(4) DF3ER, DF3FR: sold in lots of 10.

DF4: sold singly.

### Breaking capacity of circuit-breakers according to standard IEC 60947-4-2

| 380 V, 400 V, 415 V                            |  | Icu (kA) |    |    |     |     |     |
|------------------------------------------------|--|----------|----|----|-----|-----|-----|
| GV2L20, GV2L22, GV2L32, GV3L40, GV3L50, GV3L65 |  | 50       |    |    |     |     |     |
| 380 V, 400 V, 415 V                            |  | Icu (kA) |    |    |     |     |     |
|                                                |  | F        | N  | H  | S   | L   | LB  |
| NS80HMA                                        |  | –        | –  | 70 | –   | –   | –   |
| NSX100/160/250                                 |  | 36       | 50 | 70 | 100 | 150 | –   |
| NSX400/630                                     |  | 36       | 50 | 70 | 100 | 150 | –   |
| NS630b/800L/LB                                 |  | –        | –  | –  | –   | 150 | 200 |
| NS1000L                                        |  | –        | –  | –  | –   | 150 | –   |
| NS1250                                         |  | –        | 50 | 70 | –   | –   | –   |

# Soft starters for asynchronous motors

Altistart 48 soft start/soft stop units  
440 V power supply  
Type 1 coordination

## Compatible components according to standards IEC 60947-4-1 and IEC 60947-4-2

Use either a circuit-breaker (light green columns), contactor, starter combination or a switch/fuse (dark green columns), contactor, starter combination

| Motor |      | Starter                           |                                 | Circuit-breaker                      |        | Type of contactor | Type of switch or switch disconnecter (bare unit) | aM fuses           |              |         |        |
|-------|------|-----------------------------------|---------------------------------|--------------------------------------|--------|-------------------|---------------------------------------------------|--------------------|--------------|---------|--------|
|       |      | Class 10<br>Standard applications | Class 20<br>Severe applications | Reference                            | Rating |                   |                                                   | Unit reference (2) |              | Size    | Rating |
| kW    | A    |                                   |                                 |                                      |        |                   |                                                   | Without striker    | With striker |         |        |
| M1    | A1   |                                   |                                 | Q1                                   |        | KM1, KM2, KM3     |                                                   |                    |              |         |        |
| 5.5   | 10.4 | –                                 | ATS48D17Y                       | NSX100●MA (1)                        | 12.5   | LC1D12            | LS1D32                                            | DF2CA16            | –            | 10 x 38 | 16     |
|       |      |                                   |                                 | NS80HMA                              | 12.5   | LC1D12            | LS1D32                                            | DF2CA16            | –            | 10 x 38 | 16     |
| 7.5   | 13.7 | ATS48D17Y                         | ATS48D22Y                       | NSX100●MA (1)                        | 25     | LC1D18            | LS1D32                                            | DF2CA16            | –            | 10 x 38 | 16     |
|       |      |                                   |                                 | NS80HMA                              | 25     | LC1D18            | LS1D32                                            | DF2CA16            | –            | 10 x 38 | 16     |
| 11    | 20.1 | ATS48D22Y                         | ATS48D32Y                       | NSX100●MA (1)                        | 25     | LC1D25            | GK1EK                                             | DF2EA25            | DF3EA25      | 14 x 51 | 25     |
|       |      |                                   |                                 | NS80HMA                              | 25     | LC1D25            | GK1EK                                             | DF2EA25            | DF3EA25      | 14 x 51 | 25     |
| 15    | 26.5 | ATS48D32Y                         | ATS48D38Y                       | NSX100●MA (1)                        | 50     | LC1D32            | GK1EK                                             | DF2EA32            | DF3EA32      | 14 x 51 | 32     |
|       |      |                                   |                                 | NS80HMA                              | 50     | LC1D32            | GK1EK                                             | DF2EA32            | DF3EA32      | 14 x 51 | 32     |
| 18.5  | 32.8 | ATS48D38Y                         | ATS48D47Y                       | NSX100●MA (1)                        | 50     | LC1D40A           | GK1EK                                             | DF2EA40            | DF3EA40      | 14 x 51 | 40     |
|       |      |                                   |                                 | NS80HMA                              | 50     | LC1D40A           | GK1EK                                             | DF2EA40            | DF3EA40      | 14 x 51 | 40     |
| 22    | 39   | ATS48D47Y                         | ATS48D62Y                       | NSX100●MA (1)                        | 50     | LC1D40A           | GS1K                                              | DF2FA50            | DF3FA50      | 22 x 58 | 50     |
|       |      |                                   |                                 | NS80HMA                              | 50     | LC1D40A           | GS1K                                              | DF2FA50            | DF3FA50      | 22 x 58 | 50     |
| 30    | 52   | ATS48D62Y                         | ATS48D75Y                       | NSX100●MA (1)                        | 100    | LC1D65A           | GS1K                                              | DF2FA80            | DF3FA80      | 22 x 58 | 80     |
|       |      |                                   |                                 | NS80HMA                              | 80     | LC1D65A           | GS1K                                              | DF2FA80            | DF3FA80      | 22 x 58 | 80     |
| 37    | 64   | ATS48D75Y                         | ATS48D88Y                       | NSX100●MA (1)                        | 100    | LC1D65A           | GS1K                                              | DF2FA80            | DF3FA80      | 22 x 58 | 80     |
|       |      |                                   |                                 | NS80HMA                              | 80     | LC1D65A           | GS1K                                              | DF2FA80            | DF3FA80      | 22 x 58 | 80     |
| 45    | 76   | ATS48D88Y                         | ATS48C11Y                       | NSX100●MA (1)                        | 100    | LC1D115           | GS1K                                              | DF2FA100           | DF3FA100     | 22 x 58 | 100    |
| 55    | 90   | ATS48C11Y                         | ATS48C14Y                       | NSX100●MA (1)                        | 100    | LC1D115           | GS1L                                              | DF2GA1121          | DF4GA1121    | 0       | 125    |
| 75    | 125  | ATS48C14Y                         | ATS48C17Y                       | NSX160●MA (1)                        | 150    | LC1D150           | GS1L                                              | DF2GA1161          | DF4GA1161    | 1       | 160    |
| 90    | 150  | ATS48C17Y                         | ATS48C21Y                       | NSX250●MA (1)                        | 220    | LC1F185           | GS1N                                              | DF2HA1201          | DF4HA1201    | 1       | 200    |
| 110   | 178  | ATS48C21Y                         | ATS48C25Y                       | NSX250●MA (1)                        | 220    | LC1F225           | GS1N                                              | DF2HA1251          | DF4HA1251    | 1       | 250    |
| 132   | 215  | ATS48C25Y                         | ATS48C32Y                       | NSX250●MA (1)                        | 220    | LC1F265           | GS1QQ                                             | DF2JA1311          | DF4JA1311    | 2       | 315    |
| 160   | 256  | ATS48C32Y                         | ATS48C41Y                       | NSX400● (1)<br>Micrologic 1.3M       | 320    | LC1F265           | GS1QQ                                             | DF2JA1401          | DF4JA1401    | 2       | 315    |
| 220   | 353  | ATS48C41Y                         | ATS48C48Y                       | NSX630● (1)<br>Micrologic 1.3M       | 500    | LC1F400           | GS1S                                              | DF2KA1501          | DF4KA1501    | 3       | 500    |
| 250   | 401  | ATS48C48Y                         | ATS48C59Y                       | NSX630● (1)<br>Micrologic 1.3M       | 500    | LC1F400           | GS1S                                              | DF2KA1501          | DF4KA1501    | 3       | 500    |
| 355   | 549  | ATS48C59Y                         | ATS48C66Y                       | NS630b● (1)<br>Micrologic 5.0 LR Off | 630    | LC1F630           | GS1V                                              | DF2LA1801          | DF4LA1801    | 4       | 800    |
| 400   | 611  | ATS48C66Y                         | ATS48C79Y                       | NS630b● (1)<br>Micrologic 5.0 LR Off | 630    | LC1F630           | GS1V                                              | DF2LA1801          | DF4LA1801    | 4       | 800    |
| 500   | 780  | ATS48C79Y                         | ATS48M10Y                       | NS800● (1)<br>Micrologic 5.0 LR Off  | 800    | LC1F780           | GS1V                                              | DF2LA1801          | DF4LA1801    | 4       | 800    |
| 630   | 965  | ATS48M10Y                         | ATS48M12Y                       | NS1000● (1)<br>Micrologic 5.0 LR Off | 1000   | LC1BP33           | GS1V                                              | DF2LA1101          | DF4LA1101    | 4       | 1000   |
| 710   | 1075 | ATS48M12Y                         | –                               | NS1250● (1)<br>Micrologic 5.0 LR Off | 1250   | LC1BP33           | –                                                 | DF2LA1251          | –            | 4       | 1250   |

(1) Replace ● with F, N, H, S, L or LB according to the breaking capacity (see the breaking capacity table below).

(2) DF2CA, DF●EA, DF●FA: sold in lots of 20.

DF●GA, DF●KA: sold in lots of 3.

DF●LA: sold singly.

| Maximum starter prospective short-circuit current according to standard IEC 60947-4-2 |         | Breaking capacity of circuit-breakers according to standard IEC 60947-4-2 |    |    |    |    |     |     |
|---------------------------------------------------------------------------------------|---------|---------------------------------------------------------------------------|----|----|----|----|-----|-----|
| Starter                                                                               | Iq (kA) | 440 V Icu (kA)                                                            |    |    |    |    |     |     |
| ATS48D17Y to ATS48C32Y                                                                | 50      | GV2L20, GV2L22, GV2L32                                                    |    |    |    |    |     |     |
| ATS48C41Y to ATS48M12Y                                                                | 70      | GV3L40, GV3L65                                                            |    |    |    |    |     |     |
|                                                                                       |         | GK3EF80                                                                   |    |    |    |    |     |     |
|                                                                                       |         | 440 V Icu (kA)                                                            |    |    |    |    |     |     |
|                                                                                       |         | F                                                                         | N  | H  | S  | L  | LB  |     |
|                                                                                       |         | NS80HMA                                                                   | –  | –  | 65 | –  | –   | –   |
|                                                                                       |         | NSX100/160/250                                                            | 35 | 50 | 65 | 90 | 130 | –   |
|                                                                                       |         | NSX400/630                                                                | 30 | 42 | 65 | 90 | 130 | –   |
|                                                                                       |         | NS630b/800                                                                | –  | 50 | 65 | –  | 130 | 200 |
|                                                                                       |         | NS1000                                                                    | –  | 50 | 65 | –  | 130 | –   |
|                                                                                       |         | NS1250                                                                    | –  | 50 | 65 | –  | –   | –   |

# Soft starters for asynchronous motors

Altistart 48 soft start/soft stop units  
440 V power supply  
Type 2 coordination

## Compatible components according to standards IEC 60947-4-1 and IEC 60947-4-2: circuit-breakers, contactors, fast-acting fuses, starters

Combination: circuit-breaker, contactor, starter

| Motor |      | Starter               |                     | Circuit-breaker                      |        | Type of contactor |
|-------|------|-----------------------|---------------------|--------------------------------------|--------|-------------------|
| kW    | A    | Class 10              | Class 20            | Reference                            | Rating |                   |
|       |      | Standard applications | Severe applications |                                      | A      |                   |
| M1    |      | A1                    |                     | Q1                                   |        | KM1, KM2, KM3     |
| 5.5   | 10.4 | –                     | ATS48D17Y           | NS80HMA                              | 12.5   | LC1D40            |
|       |      |                       |                     | NSX100●MA (1)                        | 12.5   | LC1D80            |
| 7.5   | 13.7 | ATS48D17Y             | ATS48D22Y           | NS80HMA                              | 25     | LC1D40            |
|       |      |                       |                     | NSX100●MA (1)                        | 25     | LC1D80            |
| 11    | 20.1 | ATS48D22Y             | ATS48D32Y           | NS80HMA                              | 25     | LC1D40            |
|       |      |                       |                     | NSX100●MA (1)                        | 25     | LC1D80            |
| 15    | 26.5 | ATS48D32Y             | ATS48D38Y           | NSX100●MA (1)                        | 50     | LC1D80            |
|       |      |                       |                     | NS80HMA                              | 50     | LC1D80            |
| 18.5  | 32.8 | ATS48D38Y             | ATS48D47Y           | NSX100●MA (1)                        | 50     | LC1D80            |
|       |      |                       |                     | NS80HMA                              | 50     | LC1D80            |
| 22    | 39   | ATS48D47Y             | ATS48D62Y           | NSX100●MA (1)                        | 50     | LC1D80            |
|       |      |                       |                     | NS80HMA                              | 50     | LC1D80            |
| 30    | 52   | ATS48D62Y             | ATS48D75Y           | NSX100●MA (1)                        | 100    | LC1D80            |
|       |      |                       |                     | NS80HMA                              | 80     | LC1D80            |
| 37    | 64   | ATS48D75Y             | ATS48D88Y           | NSX100●MA (1)                        | 100    | LC1D80            |
|       |      |                       |                     | NS80HMA                              | 80     | LC1D80            |
| 45    | 76   | ATS48D88Y             | ATS48C11Y           | NSX100●MA (1)                        | 100    | LC1D115           |
| 55    | 90   | ATS48C11Y             | ATS48C14Y           | NSX100●MA (1)                        | 100    | LC1D115           |
| 75    | 125  | ATS48C14Y             | ATS48C17Y           | NSX160●MA (1)                        | 150    | LC1D150           |
| 90    | 150  | ATS48C17Y             | ATS48C21Y           | NSX160●MA (1)                        | 150    | LC1D150           |
| 110   | 178  | ATS48C21Y             | ATS48C25Y           | NSX250●MA (1)                        | 220    | LC1F185           |
| 132   | 215  | ATS48C25Y             | ATS48C32Y           | NSX400● (1) Micrologic 1.3M          | 320    | LC1F265           |
| 160   | 256  | ATS48C32Y             | ATS48C41Y           | NSX400● (1) Micrologic 1.3M          | 320    | LC1F265           |
| 220   | 353  | ATS48C41Y             | ATS48C48Y           | NSX630● (1) Micrologic 1.3M          | 500    | LC1F400           |
| 250   | 401  | ATS48C48Y             | ATS48C59Y           | NSX630● (1) Micrologic 1.3M          | 500    | LC1F500           |
| 355   | 549  | ATS48C59Y             | ATS48C66Y           | NS630bL/LB Micrologic 5.0 LR Off     | 630    | LC1F630           |
| 400   | 611  | ATS48C66Y             | ATS48C79Y           | NS800L/LB Micrologic 5.0 LR Off      | 800    | LC1F800           |
| 500   | 780  | ATS48C79Y             | ATS48M10Y           | NS800L/LB Micrologic 5.0 LR Off      | 800    | LC1F780           |
| 630   | 965  | ATS48M10Y             | ATS48M12Y           | NS1000L Micrologic 5.0 LR Off        | 1000   | LC1BP33           |
| 710   | 1075 | ATS48M12Y             | –                   | NS1250● (1)(2) Micrologic 5.0 LR Off | 1250   | LC1BP33           |

(1) Replace ● with F, N, H, S, L or LB according to the breaking capacity (see the breaking capacity table on page 18).

(2) Type 2 coordination is only possible if the fast-acting fuses remain in the motor supply circuit and are not bypassed at the end of starting.

| Maximum starter prospective short-circuit current according to standard IEC 60947-4-2 |         | Fast-acting fuse (essential for type 2 coordination) and starter combinations |                                    |         |          |                                     |
|---------------------------------------------------------------------------------------|---------|-------------------------------------------------------------------------------|------------------------------------|---------|----------|-------------------------------------|
| Starter                                                                               | Iq (kA) | Starter                                                                       | Fast-acting fuses with microswitch |         |          |                                     |
|                                                                                       |         | Reference                                                                     | Unit reference (3)                 | Size    | Rating A | I <sup>2</sup> t kA <sup>2</sup> .s |
| ATS48D17Y                                                                             | 50      |                                                                               |                                    |         |          |                                     |
| ATS48D22Y to ATS48D47Y                                                                | 20      | A1                                                                            | Q3                                 |         |          |                                     |
| ATS48D62Y and ATS48D75Y                                                               | 50      | ATS48D17Y                                                                     | DF3ER50                            | 14 x 51 | 50       | 2.3                                 |
| ATS48D88Y and ATS48C41Y                                                               | 40      | ATS48D22Y and ATS48D32Y                                                       | DF3FR80                            | 22 x 58 | 80       | 5.6                                 |
| ATS48C11Y to ATS48C32Y                                                                | 50      | ATS48D38Y and ATS48D47Y                                                       | DF3FR100                           | 22 x 58 | 100      | 12                                  |
| ATS48C48Y to ATS48C79Y                                                                | 50      | ATS48D62Y and ATS48D75Y                                                       | DF400125                           | 00      | 125      | 45                                  |
| ATS48M10Y and ATS48M12Y                                                               | 85      | ATS48D88Y and ATS48C11Y                                                       | DF400160                           | 00      | 160      | 82                                  |
|                                                                                       |         | ATS48C14Y and ATS48C17Y                                                       | DF430400                           | 30      | 400      | 120                                 |
|                                                                                       |         | ATS48C21Y to ATS48C32Y                                                        | DF431700                           | 31      | 700      | 490                                 |
|                                                                                       |         | ATS48C41Y                                                                     | DF433800                           | 33      | 800      | 490                                 |
|                                                                                       |         | ATS48C48Y and ATS48C59Y                                                       | DF4331000                          | 33      | 1000     | 900                                 |
|                                                                                       |         | ATS48C66Y                                                                     | DF42331400                         | 2 x 33  | 1400     | 1200                                |
|                                                                                       |         | ATS48C79Y                                                                     | DF4441600                          | 44      | 1600     | 1600                                |
|                                                                                       |         | ATS48M10Y and ATS48M12Y                                                       | DF4442200                          | 44      | 2200     | 4100                                |

(3) DF3ER, DF3FR: sold in lots of 10.

DF4: sold singly.

# Soft starters for asynchronous motors

Altistart 48 soft start/soft stop units  
500 V power supply  
Type 1 coordination

| Compatible components according to standards IEC 60947-4-1 and IEC 60947-4-2                                                                             |      |                                   |                                 |                                      |        |                   |                                                   |                    |              |         |        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----------------------------------|---------------------------------|--------------------------------------|--------|-------------------|---------------------------------------------------|--------------------|--------------|---------|--------|
| Use either a circuit-breaker (light green columns), contactor, starter combination or a switch/fuse (dark green columns), contactor, starter combination |      |                                   |                                 |                                      |        |                   |                                                   |                    |              |         |        |
| Motor                                                                                                                                                    |      | Starter                           |                                 | Circuit-breaker                      |        | Type of contactor | Type of switch or switch disconnector (bare unit) | aM fuses           |              | Size    | Rating |
|                                                                                                                                                          |      | Class 10<br>Standard applications | Class 20<br>Severe applications | Reference                            | Rating |                   |                                                   | Unit reference (2) | With striker |         |        |
| kW                                                                                                                                                       | A    |                                   |                                 |                                      | A      |                   |                                                   | Without striker    |              |         | A      |
| M1                                                                                                                                                       | A1   |                                   |                                 | Q1                                   |        | KM1, KM2, KM3     |                                                   |                    |              |         |        |
| 7.5                                                                                                                                                      | 12   | –                                 | ATS48D17Y                       | GV2L16 + LA9LB920                    | –      | LC1D18            | LS1D32                                            | DF2CA16            | –            | 10 x 38 | 16     |
|                                                                                                                                                          |      |                                   |                                 | NS80HMA                              | 12.5   | LC1D32            | –                                                 | –                  | –            | –       | –      |
|                                                                                                                                                          |      |                                   |                                 | NSX100●MA (1)                        | 12.5   | LC1D40A           | –                                                 | –                  | –            | –       | –      |
| 9                                                                                                                                                        | 14   | ATS48D17Y                         | ATS48D22Y                       | GV2L20 + LA9LB920                    | –      | LC1D25            | LS1D32                                            | DF2CA16            | –            | 10 x 38 | 16     |
|                                                                                                                                                          |      |                                   |                                 | NS80HMA                              | 25     | LC1D32            | –                                                 | –                  | –            | –       | –      |
|                                                                                                                                                          |      |                                   |                                 | NSX100●MA (1)                        | 25     | LC1D40A           | –                                                 | –                  | –            | –       | –      |
| 11                                                                                                                                                       | 18.4 | ATS48D22Y                         | ATS48D32Y                       | GV2L22 + LA9LB920                    | –      | LC1D25            | GK1EK                                             | DF2EA25            | DF3EA25      | 14 x 51 | 25     |
|                                                                                                                                                          |      |                                   |                                 | NS80HMA                              | 25     | LC1D32            | –                                                 | –                  | –            | –       | –      |
|                                                                                                                                                          |      |                                   |                                 | NSX100●MA (1)                        | 25     | LC1D40A           | –                                                 | –                  | –            | –       | –      |
| 18.5                                                                                                                                                     | 28.5 | ATS48D32Y                         | ATS48D38Y                       | GV2L32 + LA9LB920                    | –      | LC1D32            | GK1EK                                             | DF2EA32            | DF3EA32      | 14 x 51 | 32     |
|                                                                                                                                                          |      |                                   |                                 | NS80HMA                              | 50     | LC1D40A           | –                                                 | –                  | –            | –       | –      |
|                                                                                                                                                          |      |                                   |                                 | NSX100●MA (1)                        | 50     | LC1D40A           | –                                                 | –                  | –            | –       | –      |
| 22                                                                                                                                                       | 33   | ATS48D38Y                         | ATS48D47Y                       | NS80HMA                              | 50     | LC1D50A           | GK1EK                                             | DF2EA40            | DF3EA40      | 14 x 51 | 40     |
|                                                                                                                                                          |      |                                   |                                 | NSX100●MA (1)                        | 50     | LC1D50A           | –                                                 | –                  | –            | –       | –      |
| 30                                                                                                                                                       | 45   | ATS48D47Y                         | ATS48D62Y                       | NS80HMA                              | 50     | LC1D50A           | GS1K                                              | DF2FA50            | DF3FA50      | 22 x 58 | 50     |
|                                                                                                                                                          |      |                                   |                                 | NSX100●MA (1)                        | 50     | LC1D50A           | –                                                 | –                  | –            | –       | –      |
| 37                                                                                                                                                       | 55   | ATS48D62Y                         | ATS48D75Y                       | NSX100●MA (1)                        | 100    | LC1D65A           | GS1K                                              | DF2FA80            | DF3FA80      | 22 x 58 | 80     |
| 45                                                                                                                                                       | 65   | ATS48D75Y                         | ATS48D88Y                       | NSX100●MA (1)                        | 100    | LC1D80            | GS1K                                              | DF2FA80            | DF3FA80      | 22 x 58 | 80     |
| 55                                                                                                                                                       | 80   | ATS48D88Y                         | ATS48C11Y                       | NSX100●MA (1)                        | 100    | LC1D80            | GS1K                                              | DF2FA100           | DF3FA100     | 22 x 58 | 100    |
| 75                                                                                                                                                       | 105  | ATS48C11Y                         | ATS48C14Y                       | NSX160●MA (1)                        | 150    | LC1D150/F115      | GS1L                                              | DF2GA1121          | DF4GA1121    | 0       | 125    |
| 90                                                                                                                                                       | 130  | ATS48C14Y                         | ATS48C17Y                       | NSX160●MA (1)                        | 150    | LC1D150/F115      | GS1L                                              | DF2GA1161          | DF4GA1161    | 0       | 160    |
| 110                                                                                                                                                      | 156  | ATS48C17Y                         | ATS48C21Y                       | NSX250●MA (1)                        | 220    | LC1F185           | GS1N                                              | DF2HA1201          | DF4HA1201    | 1       | 200    |
| 132                                                                                                                                                      | 207  | ATS48C21Y                         | ATS48C25Y                       | NSX250●MA (1)                        | 220    | LC1F225           | GS1N                                              | DF2HA1251          | DF4HA1251    | 1       | 250    |
| 160                                                                                                                                                      | 257  | ATS48C25Y                         | ATS48C32Y                       | NSX400● (1)<br>Micrologic 1.3M       | 320    | LC1F265           | GS1QQ                                             | DF2JA1311          | DF4JA1311    | 2       | 315    |
| 220                                                                                                                                                      | 310  | ATS48C32Y                         | ATS48C41Y                       | NSX630● (1)<br>Micrologic 1.3M       | 500    | LC1F400           | GS1QQ                                             | DF2JA1401          | DF4JA1401    | 2       | 400    |
| 250                                                                                                                                                      | 360  | ATS48C41Y                         | ATS48C48Y                       | NSX630● (1)<br>Micrologic 1.3M       | 500    | LC1F400           | GS1S                                              | DF2KA1501          | DF4KA1501    | 3       | 500    |
| 315                                                                                                                                                      | 460  | ATS48C48Y                         | ATS48C59Y                       | NSX630● (1)<br>Micrologic 1.3M       | 500    | LC1F500           | GS1S                                              | DF2KA1631          | DF4KA1631    | 3       | 630    |
| 400                                                                                                                                                      | 540  | ATS48C59Y                         | ATS48C66Y                       | NS630b● (1)<br>Micrologic 5.0 LR Off | 630    | LC1F630           | GS1V                                              | DF2LA1801          | DF4LA1801    | 4       | 800    |
| 450                                                                                                                                                      | 630  | ATS48C66Y                         | ATS48C79Y                       | NS630b● (1)<br>Micrologic 5.0 LR Off | 630    | LC1F780           | GS1V                                              | DF2LA1801          | DF4LA1801    | 4       | 800    |
| 500                                                                                                                                                      | 680  | ATS48C79Y                         | ATS48M10Y                       | NS800● (1)<br>Micrologic 5.0 LR Off  | 800    | LC1BL33           | GS1V                                              | DF2LA1801          | DF4LA1801    | 4       | 800    |
| 630                                                                                                                                                      | 850  | ATS48M10Y                         | ATS48M12Y                       | NS1000● (1)<br>Micrologic 5.0 LR Off | 1000   | LC1BP33           | GS1V                                              | DF2LA1101          | DF4LA1101    | 4       | 1000   |
| 800                                                                                                                                                      | 1100 | ATS48M12Y                         | –                               | NS1250● (1)<br>Micrologic 5.0 LR Off | 1250   | LC1BP33           | –                                                 | DF2LA1251          | –            | 4       | 1250   |

(1) Replace ● with N, H, S, L, R, HB1 or HB2 according to the breaking capacity (see the breaking capacity table below).

(2) DF2CA, DF●EA, DF●FA: sold in lots of 20. DF●GA, DF●KA: sold in lots of 3. DF●LA: sold singly.

## Breaking capacity of circuit-breakers according to standard IEC 60947-4-2

| 500 V            | Icu (kA) |    |    |     |    |     |     |
|------------------|----------|----|----|-----|----|-----|-----|
| GV2 + LA9LB920   | 100      |    |    |     |    |     |     |
| 500 V            | Icu (kA) |    |    |     |    |     |     |
|                  | N        | H  | S  | L   | R  | HB1 | HB2 |
| NS80HMA          | –        | 25 | –  | –   | –  | –   | –   |
| NSX100           | 36       | 50 | 65 | 70  | 80 | 85  | 100 |
| NSX160           | 36       | 50 | 65 | 70  | –  | –   | –   |
| NSX250/400/630   | 36       | 50 | 65 | 70  | 80 | 85  | 100 |
| NS630b/800/1000L | –        | –  | –  | 100 | –  | –   | –   |
| NS1250           | 40       | 50 | –  | –   | –  | –   | –   |

## Maximum starter prospective short-circuit current according to standard IEC 60947-4-2

| Starter                | Iq (kA) |
|------------------------|---------|
| ATS48D17Y to ATS48C32Y | 50      |
| ATS48C41Y to ATS48M12Y | 70      |

# Soft starters for asynchronous motors

Altistart 48 soft start/soft stop units  
500 V power supply  
Type 2 coordination

## Compatible components according to standards IEC 60947-4-1 and IEC 60947-4-2: circuit-breakers, contactors, fast-acting fuses, starters

Combination: circuit-breaker, contactor, starter

| Motor |      | Starter               |                     | Circuit-breaker                       |        | Type of contactor |
|-------|------|-----------------------|---------------------|---------------------------------------|--------|-------------------|
|       |      | Class 10              | Class 20            | Reference                             | Rating |                   |
| kW    | A    | Standard applications | Severe applications |                                       | A      |                   |
| M1    |      | A1                    |                     | Q1                                    |        | KM1, KM2, KM3     |
| 7.5   | 12   | –                     | ATS48D17Y           | GV2L16 + LA9LB920                     | –      | LC1D25            |
|       |      |                       |                     | NS80HMA                               | 12.5   | LC1D40            |
|       |      |                       |                     | NSX100●MA (1)                         | 12.5   | LC1D80            |
| 9     | 14   | ATS48D17Y             | ATS48D22Y           | GV2L20 + LA9LB920                     | –      | LC1D25            |
|       |      |                       |                     | NS80HMA                               | 25     | LC1D40            |
|       |      |                       |                     | NSX100●MA (1)                         | 25     | LC1D80            |
| 11    | 18.4 | ATS48D22Y             | ATS48D32Y           | GV2L22 + LA9LB920                     | –      | LC1D25            |
|       |      |                       |                     | NS80HMA                               | 25     | LC1D40            |
|       |      |                       |                     | NSX100●MA (1)                         | 25     | LC1D80            |
| 18.5  | 28.5 | ATS48D32Y             | ATS48D38Y           | GV2L32 + LA9LB920                     | –      | LC1D25            |
|       |      |                       |                     | NS80HMA                               | 50     | LC1D40            |
|       |      |                       |                     | NSX100●MA (1)                         | 50     | LC1D80            |
| 22    | 33   | ATS48D38Y             | ATS48D47Y           | NS80HMA                               | 50     | LC1D80            |
|       |      |                       |                     | NSX100●MA (1)                         | 50     | LC1D80            |
| 30    | 45   | ATS48D47Y             | ATS48D62Y           | NS80HMA                               | 50     | LC1D80            |
|       |      |                       |                     | NSX100●MA (1)                         | 50     | LC1D80            |
| 37    | 55   | ATS48D62Y             | ATS48D75Y           | NSX100●MA (1)                         | 100    | LC1D150/F115      |
| 45    | 65   | ATS48D75Y             | ATS48D88Y           | NSX100●MA (1)                         | 100    | LC1D150/F115      |
| 55    | 80   | ATS48D88Y             | ATS48C11Y           | NSX100●MA (1)                         | 100    | LC1D150/F115      |
| 75    | 105  | ATS48C11Y             | ATS48C14Y           | NSX160●MA (1)                         | 150    | LC1F150           |
| 90    | 130  | ATS48C14Y             | ATS48C17Y           | NSX160●MA (1)                         | 150    | LC1F185           |
| 110   | 156  | ATS48C17Y             | ATS48C21Y           | NSX250●MA (1)                         | 220    | LC1F225           |
| 132   | 207  | ATS48C21Y             | ATS48C25Y           | NSX250●MA (1)                         | 220    | LC1F330           |
| 160   | 257  | ATS48C25Y             | ATS48C32Y           | NSX400● (1) Micrologic 1.3M           | 320    | LC1F400           |
| 220   | 310  | ATS48C32Y             | ATS48C41Y           | NSX400● (1) Micrologic 1.3M           | 320    | LC1F400           |
| 250   | 360  | ATS48C41Y             | ATS48C48Y           | NSX630● (1) Micrologic 1.3M           | 500    | LC1F500           |
| 315   | 460  | ATS48C48Y             | ATS48C59Y           | NSX630● (1) Micrologic 1.3M           | 500    | LC1F500           |
| 400   | 540  | ATS48C59Y             | ATS48C66Y           | NS630bL Micrologic 5.0 LR Off         | 630    | LC1F630           |
| 450   | 630  | ATS48C66Y             | ATS48C79Y           | NS630bL Micrologic 5.0 LR Off         | 630    | LC1F800           |
| 500   | 680  | ATS48C79Y             | ATS48M10Y           | NS800L Micrologic 5.0 LR Off          | 800    | LC1BL33           |
| 630   | 850  | ATS48M10Y             | ATS48M12Y           | NS1000L Micrologic 5.0 LR Off         | 1000   | LC1BP33           |
| 800   | 1100 | ATS48M12Y             | –                   | NS1250● (1) (2) Micrologic 5.0 LR Off | 1250   | LC1BP33           |

(1) Replace ● with N, H, S, L, R, HB1 or HB2 according to the breaking capacity (see the breaking capacity table below).

(2) Type 2 coordination is only possible if the fast-acting fuses remain in the motor supply circuit and are not bypassed at the end of starting.

| Maximum starter prospective short-circuit current according to standard IEC 60947-4-2 |         | Fast-acting fuse (essential for type 2 coordination) and starter combinations |                                    |         |          |           |     |     |
|---------------------------------------------------------------------------------------|---------|-------------------------------------------------------------------------------|------------------------------------|---------|----------|-----------|-----|-----|
| Starter                                                                               | Iq (kA) | Starter Reference                                                             | Fast-acting fuses with microswitch |         |          |           |     |     |
|                                                                                       |         |                                                                               | Unit reference(3)                  | Size    | Rating A | I²t kA².s |     |     |
| ATS48D17Y                                                                             | 50      | A1                                                                            | Q3                                 |         |          |           |     |     |
| ATS48D22Y to ATS48D47Y                                                                | 20      |                                                                               | DF3ER50                            | 14 x 51 | 50       | 2.3       |     |     |
| ATS48D62Y and ATS48D75Y                                                               | 50      |                                                                               | DF3FR80                            | 22 x 58 | 80       | 5.6       |     |     |
| ATS48D88Y                                                                             | 40      |                                                                               | DF3FR100                           | 22 x 58 | 100      | 12        |     |     |
| ATS48C11Y to ATS48C32Y                                                                | 50      |                                                                               | DF400125                           | 00      | 125      | 45        |     |     |
| ATS48C41Y                                                                             | 40      |                                                                               | DF400160                           | 00      | 160      | 82        |     |     |
| ATS48C48Y to ATS48C79Y                                                                | 50      |                                                                               | DF430400                           | 30      | 400      | 120       |     |     |
| ATS48M10Y and ATS48M12Y                                                               | 85      |                                                                               | DF431700                           | 31      | 700      | 490       |     |     |
|                                                                                       |         |                                                                               | DF433800                           | 33      | 800      | 490       |     |     |
|                                                                                       |         |                                                                               | DF4331000                          | 33      | 1000     | 900       |     |     |
|                                                                                       |         |                                                                               | DF42331400                         | 2 x 33  | 1400     | 1200      |     |     |
|                                                                                       |         |                                                                               | DF4441600                          | 44      | 1600     | 1600      |     |     |
|                                                                                       |         |                                                                               | DF4442200                          | 44      | 2200     | 4100      |     |     |
| Breaking capacity of circuit-breakers according to standard IEC 60947-4-2             |         |                                                                               |                                    |         |          |           |     |     |
| 500 V                                                                                 |         | Icu (kA)                                                                      |                                    |         |          |           |     |     |
| GV2 + LA9LB920                                                                        |         | 100                                                                           |                                    |         |          |           |     |     |
| 500 V                                                                                 |         | Icu (kA)                                                                      |                                    |         |          |           |     |     |
|                                                                                       |         | N                                                                             | H                                  | S       | L        | R         | HB1 | HB2 |
| NS80HMA                                                                               |         | —                                                                             | 25                                 | —       | —        | —         | —   | —   |
| NSX100                                                                                |         | 36                                                                            | 50                                 | 65      | 70       | 80        | 85  | 100 |
| NSX160                                                                                |         | 36                                                                            | 50                                 | 65      | 70       | —         | —   | —   |
| NSX250/400/630                                                                        |         | 36                                                                            | 50                                 | 65      | 70       | 80        | 85  | 100 |
| NS630b/800/1000L                                                                      |         | —                                                                             | —                                  | —       | 100      | —         | —   | —   |
| NS1250                                                                                |         | 40                                                                            | 50                                 | —       | —        | —         | —   | —   |

(3) DF3ER, DF3FR: sold in lots of 10. DF4: sold singly.

# Soft starters for asynchronous motors

Altistart 48 soft start/soft stop units  
690 V power supply  
Type 1 coordination

| Compatible components according to standards IEC 60947-4-1 and IEC 60947-4-2                                                                             |      |                                   |                                 |                                      |        |                   |                                                   |                    |              |         |        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----------------------------------|---------------------------------|--------------------------------------|--------|-------------------|---------------------------------------------------|--------------------|--------------|---------|--------|
| Use either a circuit-breaker (light green columns), contactor, starter combination or a switch/fuse (dark green columns), contactor, starter combination |      |                                   |                                 |                                      |        |                   |                                                   |                    |              |         |        |
| Motor                                                                                                                                                    |      | Starter                           |                                 | Circuit-breaker                      |        | Type of contactor | Type of switch or switch disconnecter (bare unit) | aM fuses           |              | Size    | Rating |
|                                                                                                                                                          |      | Class 10<br>Standard applications | Class 20<br>Severe applications | Reference                            | Rating |                   |                                                   | Unit reference (2) |              |         |        |
| kW                                                                                                                                                       | A    |                                   |                                 |                                      | A      |                   |                                                   | Without striker    | With striker |         | A      |
| M1                                                                                                                                                       |      | A1                                |                                 | Q1                                   |        | KM1, KM2, KM3     |                                                   |                    |              |         |        |
| 11                                                                                                                                                       | 12.1 | –                                 | ATS48D17Y                       | GV2L16 + LA9LB920                    | –      | LC1D18            | GS1K                                              | DF2FA16            | DF3FA16      | 22 x 58 | 16     |
| 15                                                                                                                                                       | 16.5 | ATS48D17Y                         | ATS48D22Y                       | GV2L20 + LA9LB920                    | –      | LC1D25            | GS1K                                              | DF2FA20            | DF3FA20      | 22 x 58 | 20     |
|                                                                                                                                                          |      |                                   |                                 | NSX100●MA (1)                        | 25     | LC1D25            | –                                                 | –                  | –            | –       | –      |
| 18.5                                                                                                                                                     | 20.2 | ATS48D22Y                         | ATS48D32Y                       | GV2L22 + LA9LB920                    | –      | LC1D32            | GS1K                                              | DF2FA25            | DF3FA25      | 22 x 58 | 25     |
|                                                                                                                                                          |      |                                   |                                 | NSX100●MA (1)                        | 50     | LC1D32            | –                                                 | –                  | –            | –       | –      |
| 22                                                                                                                                                       | 24.2 | ATS48D32Y                         | ATS48D38Y                       | GV2L32 + LA9LB920                    | –      | LC1D32            | GS1K                                              | DF2FA32            | DF3FA32      | 22 x 58 | 32     |
|                                                                                                                                                          |      |                                   |                                 | NSX100●MA (1)                        | 50     | LC1D40A           | –                                                 | –                  | –            | –       | –      |
| 30                                                                                                                                                       | 33   | ATS48D38Y                         | ATS48D47Y                       | NSX100●MA (1)                        | 50     | LC1D40A           | GS1K                                              | DF2FA40            | DF3FA40      | 22 x 58 | 40     |
| 37                                                                                                                                                       | 40   | ATS48D47Y                         | ATS48D62Y                       | NSX100●MA (1)                        | 50     | LC1D65A           | GS1K                                              | DF2FA50            | DF3FA50      | 22 x 58 | 50     |
| 45                                                                                                                                                       | 49   | ATS48D62Y                         | ATS48D75Y                       | NSX100●MA (1)                        | 100    | LC1D80            | –                                                 | –                  | –            | –       | –      |
| 55                                                                                                                                                       | 58   | ATS48D75Y                         | ATS48D88Y                       | NSX100●MA (1)                        | 100    | LC1D-115          | –                                                 | –                  | –            | –       | –      |
| 75                                                                                                                                                       | 75.5 | ATS48D88Y                         | ATS48C11Y                       | NSX100●MA (1)                        | 100    | LC1D-115          | –                                                 | –                  | –            | –       | –      |
| 90                                                                                                                                                       | 94   | ATS48C11Y                         | ATS48C14Y                       | NSX160●MA (1)                        | 150    | LC1D-150          | –                                                 | –                  | –            | –       | –      |
| 110                                                                                                                                                      | 113  | ATS48C14Y                         | ATS48C17Y                       | NSX160●MA (1)                        | 150    | LC1D-150          | –                                                 | –                  | –            | –       | –      |
| 160                                                                                                                                                      | 165  | ATS48C17Y                         | ATS48C21Y                       | NSX250●MA (1)                        | 220    | LC1F-265          | –                                                 | –                  | –            | –       | –      |
| 200                                                                                                                                                      | 203  | ATS48C21Y                         | ATS48C25Y                       | NSX400● (1)<br>Micrologic 1.3M       | 320    | LC1F-330          | –                                                 | –                  | –            | –       | –      |
| 250                                                                                                                                                      | 253  | ATS48C25Y                         | ATS48C32Y                       | NSX400● (1)<br>Micrologic 1.3M       | 320    | LC1F-400          | –                                                 | –                  | –            | –       | –      |
| 315                                                                                                                                                      | 321  | ATS48C32Y                         | ATS48C41Y                       | NSX630● (1)<br>Micrologic 1.3M       | 500    | LC1F-500          | –                                                 | –                  | –            | –       | –      |
| 400                                                                                                                                                      | 390  | ATS48C41Y                         | ATS48C48Y                       | NSX630LB<br>Micrologic 1.3M          | 500    | LC1F630           | –                                                 | –                  | –            | –       | –      |
| 500                                                                                                                                                      | 490  | ATS48C48Y                         | ATS48C59Y                       | NS630bLB<br>Micrologic 5.0 LR Off    | 630    | LC1BL33           | –                                                 | –                  | –            | –       | –      |
| 560                                                                                                                                                      | 549  | ATS48C59Y                         | ATS48C66Y                       | NS630bLB<br>Micrologic 5.0 LR Off    | 630    | LC1BL33           | –                                                 | –                  | –            | –       | –      |
| 630                                                                                                                                                      | 605  | ATS48C66Y                         | ATS48C79Y                       | NS800LB<br>Micrologic 5.0 LR Off     | 800    | LC1BP33           | –                                                 | –                  | –            | –       | –      |
| 710                                                                                                                                                      | 694  | ATS48C79Y                         | ATS48M10Y                       | NS800LB<br>Micrologic 5.0 LR Off     | 800    | LC1BP33           | –                                                 | –                  | –            | –       | –      |
| 900                                                                                                                                                      | 880  | ATS48M10Y                         | ATS48M12Y                       | NS1000● (1)<br>Micrologic 5.0 LR Off | 1000   | LC1BR33           | –                                                 | –                  | –            | –       | –      |
| 950                                                                                                                                                      | 1000 | ATS48M12Y                         | –                               | NS1250● (1)<br>Micrologic 5.0 LR Off | 1250   | LC1BR33           | –                                                 | –                  | –            | –       | –      |

(1) Replace ● with N, H, S, L, R, HB1, HB2 or LB according to the breaking capacity (see the breaking capacity table below).  
(2) DF●FA: sold in lots of 10.

| Maximum starter prospective short-circuit current according to standard IEC 60947-4-2 |         | (2) Breaking capacity of circuit-breakers according to standard IEC 60947-4-2 |    |          |    |    |     |     |    |  |
|---------------------------------------------------------------------------------------|---------|-------------------------------------------------------------------------------|----|----------|----|----|-----|-----|----|--|
| Starter                                                                               | Iq (kA) | 690 V                                                                         |    | Icu (kA) |    |    |     |     |    |  |
| ATS48D17Y to ATS48C32Y                                                                | 50      | GV2 + LA9LB920                                                                |    | 50       |    |    |     |     |    |  |
| ATS48C41Y to ATS48M12Y                                                                | 70      |                                                                               |    |          |    |    |     |     |    |  |
|                                                                                       |         | 690 V                                                                         |    | Icu (kA) |    |    |     |     |    |  |
|                                                                                       |         | N                                                                             | H  | S        | L  | R  | HB1 | HB2 | LB |  |
| NSX100                                                                                |         | 8                                                                             | 10 | 10       | 15 | 45 | 75  | 100 | –  |  |
| NSX160                                                                                |         | 8                                                                             | 10 | 10       | 15 | –  | –   | –   | –  |  |
| NSX250                                                                                |         | 8                                                                             | 10 | 10       | 15 | 45 | 75  | 100 | –  |  |
| NSX400/630                                                                            |         | 10                                                                            | 10 | 20       | 25 | 45 | 75  | 100 | –  |  |
| NS630b/800LB                                                                          |         | –                                                                             | –  | –        | –  | –  | –   | –   | 75 |  |
| NS1250                                                                                |         | 30                                                                            | 42 | –        | –  | –  | –   | –   | –  |  |

# Soft starters for asynchronous motors

Altistart 48 soft start/soft stop units  
690 V power supply  
Type 2 coordination

## Compatible components according to standards IEC 60947-4-1 and IEC 60947-4-2: circuit-breakers, contactors, fast-acting fuses, starters

Combination: circuit-breaker, contactor, starter

| Motor |      | Starter               |                     | Circuit-breaker                  |        | Type of contactor |
|-------|------|-----------------------|---------------------|----------------------------------|--------|-------------------|
| kW    | A    | Class 10              | Class 20            | Reference                        | Rating |                   |
|       |      | Standard applications | Severe applications |                                  | A      |                   |
| M1    |      | A1                    |                     | Q1                               |        | KM1, KM2, KM3     |
| 11    | 12.1 | –                     | ATS48D17Y           | NSX100●MA (1)                    | 25     | LC1D80            |
| 15    | 16.5 | ATS48D17Y             | ATS48D22Y           | NSX100●MA (1)                    | 25     | LC1D80            |
| 18.5  | 20.2 | ATS48D22Y             | ATS48D32Y           | NSX100●MA (1)                    | 25     | LC1D80            |
| 22    | 24.2 | ATS48D32Y             | ATS48D38Y           | NSX100●MA (1)                    | 25     | LC1D80            |
| 30    | 33   | ATS48D38Y             | ATS48D47Y           | NSX100●MA (1)                    | 50     | LC1D150/F115      |
| 37    | 40   | ATS48D47Y             | ATS48D62Y           | NSX100●MA (1)                    | 50     | LC1D150/F115      |
| 45    | 49   | ATS48D62Y             | ATS48D75Y           | NSX100●MA (1)                    | 100    | LC1D150/F115      |
| 55    | 58   | ATS48D75Y             | ATS48D88Y           | NSX100●MA (1)                    | 100    | LC1D150/F115      |
| 75    | 75.5 | ATS48D88Y             | ATS48C11Y           | NSX100●MA (1)                    | 100    | LC1D150/F115      |
| 90    | 94   | ATS48C11Y             | ATS48C14Y           | NSX250●MA (1)                    | 150    | LC1F150           |
| 110   | 113  | ATS48C14Y             | ATS48C17Y           | NSX250●MA (1)                    | 150    | LC1F185           |
| 160   | 165  | ATS48C17Y             | ATS48C21Y           | NSX250●MA (1)                    | 220    | LC1F330           |
| 200   | 203  | ATS48C21Y             | ATS48C25Y           | NSX250●MA (1)                    | 220    | LC1F330           |
| 250   | 253  | ATS48C25Y             | ATS48C32Y           | NSX400●MA (1)                    | 320    | LC1F400           |
| 315   | 321  | ATS48C32Y             | ATS48C41Y           | NSX630●MA (1)                    | 500    | LC1F500           |
| 400   | 390  | ATS48C41Y             | ATS48C48Y           | NSX630●MA (1)                    | 500    | LC1F630           |
| 500   | 490  | ATS48C48Y             | ATS48C59Y           | NS630bLB Micrologic 5.0 LR Off   | 630    | LC1F630           |
| 560   | 549  | ATS48C59Y             | ATS48C66Y           | NS630bLB Micrologic 5.0 LR Off   | 630    | LC1F630           |
| 630   | 605  | ATS48C66Y             | ATS48C79Y           | NS800LB Micrologic 5.0 LR Off    | 800    | LC1F780           |
| 710   | 694  | ATS48C79Y             | ATS48M10Y           | NS800LB Micrologic 5.0 LR Off    | 800    | LC1F780           |
| 900   | 880  | ATS48M10Y             | ATS48M12Y           | NS1000 (2) Micrologic 5.0 LR Off | 1000   | LC1BR33           |
| 950   | 1000 | ATS48M12Y             | –                   | NS1250 (2) Micrologic 5.0 LR Off | 1250   | LC1BR33           |

(1) Replace ● with HB1 or HB2 according to the breaking capacity (see the breaking capacity table below).

(2) Type 2 coordination is only possible if the fast-acting fuses remain in the motor supply circuit and are not bypassed at the end of starting.

| Maximum starter prospective short-circuit current according to standard IEC 60947-4-2 |                     | Fast-acting fuse (essential for type 2 coordination) and starter combinations |                                    |         |          |                                     |
|---------------------------------------------------------------------------------------|---------------------|-------------------------------------------------------------------------------|------------------------------------|---------|----------|-------------------------------------|
| Starter                                                                               | I <sub>q</sub> (kA) | Starter Reference                                                             | Fast-acting fuses with microswitch |         |          |                                     |
|                                                                                       |                     |                                                                               | Unit reference (3)                 | Size    | Rating A | I <sup>2</sup> t kA <sup>2</sup> .s |
| ATS48D17Y                                                                             | 50                  |                                                                               |                                    |         |          |                                     |
| ATS48D22Y to ATS48D47Y                                                                | 20                  | A1                                                                            | Q3                                 |         |          |                                     |
| ATS48D62Y and ATS48D75Y                                                               | 50                  | ATS48D17Y                                                                     | DF3ER50                            | 14 x 51 | 50       | 2.3                                 |
| ATS48D88Y                                                                             | 40                  | ATS48D22Y and ATS48D32Y                                                       | DF3FR80                            | 22 x 58 | 80       | 5.6                                 |
| ATS48C11Y to ATS48C32Y                                                                | 50                  | ATS48D38Y and ATS48D47Y                                                       | DF3FR100                           | 22 x 58 | 100      | 12                                  |
| ATS48C41Y                                                                             | 40                  | ATS48D62Y and ATS48D75Y                                                       | DF400125                           | 00      | 125      | 45                                  |
| ATS48C48Y to ATS48C79Y                                                                | 50                  | ATS48D88Y and ATS48C11Y                                                       | DF400160                           | 00      | 160      | 82                                  |
| ATS48M10Y and ATS48M12Y                                                               | 85                  | ATS48C14Y and ATS48C17Y                                                       | DF430400                           | 30      | 400      | 120                                 |
| ATS48D17Y                                                                             | 50                  | ATS48C21Y to ATS48C32Y                                                        | DF431700                           | 31      | 700      | 490                                 |
|                                                                                       |                     | ATS48C41Y                                                                     | DF433800                           | 33      | 800      | 490                                 |
|                                                                                       |                     | ATS48C48Y and ATS48C59Y                                                       | DF4331000                          | 33      | 1000     | 900                                 |
|                                                                                       |                     | ATS48C66Y                                                                     | DF42331400                         | 2 x 33  | 1400     | 1200                                |
|                                                                                       |                     | ATS48C79Y                                                                     | DF4441600                          | 44      | 1600     | 1600                                |
|                                                                                       |                     | ATS48M10Y and ATS48M12Y                                                       | DF4442200                          | 44      | 2200     | 4100                                |

(3) DF3ER, DF3FR: sold in lots of 10.

DF4: sold singly.

### Breaking capacity of circuit-breakers according to standard IEC 60947-4-2

| 690 V          |  | I <sub>cu</sub> (kA) |    |     |     |    |
|----------------|--|----------------------|----|-----|-----|----|
| GV2 + LA9LB920 |  | 50                   |    |     |     |    |
| 690 V          |  | I <sub>cu</sub> (kA) |    |     |     |    |
|                |  | N                    | H  | HB1 | HB2 | LB |
| NSX100/250     |  | –                    | –  | 75  | 100 | –  |
| NSX400/630     |  | –                    | –  | 75  | 100 | –  |
| NS630b/800LB   |  | –                    | –  | –   | –   | 75 |
| NS1000/1250    |  | 30                   | 42 | –   | –   | –  |

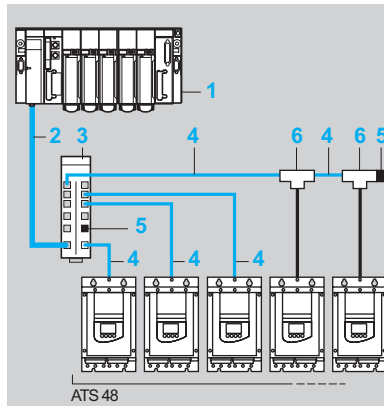
## Soft starters for asynchronous motors

Altistart 48 soft start/soft stop units  
Communication options

### Modbus serial link

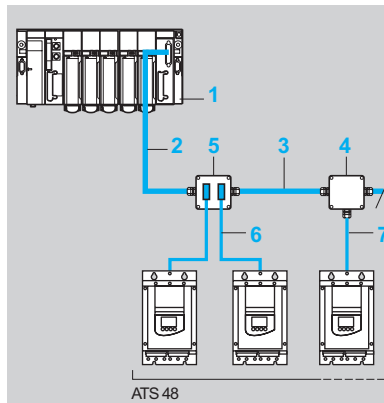
The Altistart 48 is connected directly to the Modbus bus via its RJ45 connector port. This port supports the RS 485 (2-wire) standard and the Modbus RTU protocol. The communication function provides access to the starter's configuration, adjustment, control and signaling functions.

### Connections via splitter boxes and RJ45 connectors



- 1 PLC (1).
- 2 Modbus cable depending on the controller or PLC type.
- 3 Modbus splitter box **LU9GC3**.
- 4 Modbus drop cables **VW3A8306R●●**.
- 5 Line terminators **VW3A8306RC**.
- 6 Modbus T-junction boxes **VW3A8306TF●●** (with cable).

### Connections via tap junctions



- 1 PLC (1).
- 2 Modbus cable depending on the controller or PLC type.
- 3 Modbus cable **TSXCSA●00**.
- 4 Junction box **TSXSACA50**.
- 5 Subscriber socket **TSXSACA62**.
- 6 Modbus drop cable **VW3A8306**.
- 7 Modbus drop cable **VW3A8306D30**.

### Connection via screw terminals

In this case, use a Modbus drop cable **VW3A8306D30** and line terminators **VW3A8306DRC**.

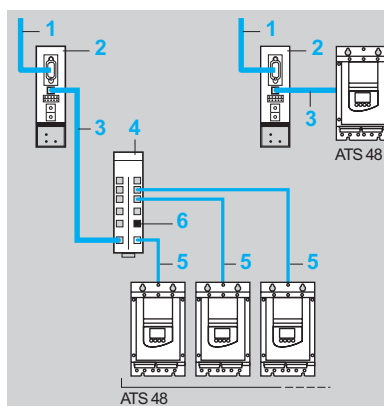
### Other communication buses

The Altistart 48 can also be connected to Ethernet, Fipio, Profibus DP and DeviceNet networks via a module (bridge or gateway).

Communication on the network is used for:

- controlling,
- monitoring and,
- adjusting the connected Modbus devices.

### Connection via modules



- 1 To network.
- 2 Communication modules.
- 3 Cables **VW3A8306R●●**, **VW3P07306R10** or **VW3A8306D30**.
- 4 Modbus splitter box **LU9GC3**.
- 5 Modbus drop cables **VW3A8306R●●**.
- 6 Line terminator **VW3A8306RC**.

(1) Please refer to our specialist "Modicon Premium automation platform" and "Modicon TSX Micro automation platform" catalogs.

# Soft starters for asynchronous motors

## Altistart 48 soft start/soft stop units

### Communication options



LU9GC3

#### Modbus serial link

##### Connection accessories

| Description                                                                                                                                                 |                     | Reference                              | Weight<br>kg/<br>lb                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------------------------------|---------------------------------------|
| <b>Tap junction</b><br>3 screw terminals and RC line terminator<br>To be connected using cable VW3A8306D30                                                  |                     | <b>TSXSACA50</b>                       | 0.520/<br>1.156                       |
| <b>Subscriber socket</b><br>2 x 15-way female SUB-D connectors and<br>2 sets of screw terminals, RC line terminator<br>To be connected using cable VW3A8306 |                     | <b>TSXSACA62</b>                       | 0.570/<br>1.257                       |
| <b>Modbus splitter box</b><br>8 RJ45 connectors and 1 set of screw terminals                                                                                |                     | <b>LU9GC3</b>                          | 0.500/<br>1.102                       |
| <b>Line terminators</b><br>(1)                                                                                                                              | For RJ45 connector  | R = 120 Ω, C = 1 nf                    | <b>VW3A8306RC</b><br>0.200/<br>0.441  |
|                                                                                                                                                             |                     | R = 150 Ω                              | <b>VW3A8306R</b><br>0.200/<br>0.441   |
|                                                                                                                                                             | For screw terminals | R = 120 Ω, C = 1 nf                    | <b>VW3A8306DRC</b><br>0.200/<br>0.441 |
|                                                                                                                                                             |                     | R = 150 Ω                              | <b>VW3A8306DR</b><br>0.200/<br>0.441  |
| <b>Modbus T-junction boxes</b>                                                                                                                              |                     | With integrated cable<br>0.3 m/0.98 ft | <b>VW3A8306TF03</b><br>—              |
|                                                                                                                                                             |                     | With integrated cable<br>1 m/3.28 ft   | <b>VW3A8306TF10</b><br>—              |

##### Connection cables

| Description                                       | Length<br>m/<br>ft | Connectors                                                               | Reference    | Weight<br>kg/<br>lb |
|---------------------------------------------------|--------------------|--------------------------------------------------------------------------|--------------|---------------------|
| <b>Cables for Modbus bus</b>                      | 3/<br>9.84         | 1 RJ45 connector<br>and a stripped end                                   | VW3A8306D30  | 0.150/<br>0.331     |
|                                                   | 3/<br>9.84         | 1 RJ45 connector and 1 x<br>15-way male SUB-D<br>connector for TSXSACA62 | VW3A8306     | 0.150/<br>0.331     |
|                                                   | 0.3/<br>0.98       | 2 RJ45 connectors                                                        | VW3A8306R03  | 0.050/<br>0.110     |
|                                                   | 1/<br>3.28         | 2 RJ45 connectors                                                        | VW3A8306R10  | 0.050/<br>0.110     |
|                                                   | 3/<br>9.84         | 2 RJ45 connectors                                                        | VW3A8306R30  | 0.150/<br>0.331     |
| <b>Cables for Profibus DP</b>                     | 1/<br>3.28         | 2 RJ45 connectors                                                        | VW3P07306R10 | 0.050/<br>0.110     |
| <b>RS 485 double shielded twisted pair cables</b> | 100/<br>328.08     | Supplied without connector                                               | TSXCASA100   | –                   |
|                                                   | 200/<br>656.17     | Supplied without connector                                               | TSXCASA200   | –                   |
|                                                   | 500/<br>1640.42    | Supplied without connector                                               | TSXCASA500   | –                   |

#### Other communication buses

| Description                                                                                                            | Cables to be connected | Reference       | Weight<br>kg/<br>lb |
|------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------|---------------------|
| <b>Ethernet/Modbus bridge</b><br>with 1 Ethernet 10baseT port<br>(RJ45 type)                                           | VW3A8306D30            | 174CEV30010 (2) | 0.500/<br>1.102     |
| <b>Fipio/Modbus gateway</b>                                                                                            | VW3A8306R●●            | LUFP1           | 0.240/<br>0.529     |
| <b>DeviceNet/Modbus gateway</b>                                                                                        | VW3A8306R●●            | LUFP9           | 0.240/<br>0.529     |
| <b>Profibus DP/Modbus gateway</b><br>Parameters set using standard<br>Profibus DP configurator,<br>Hilscher Sycon type | VW3P07306R10           | LA9P307         | 0.240/<br>0.529     |
| <b>Profibus DP/Modbus gateway</b><br>Parameters set using<br>ABC Configurator software                                 | VW3A8306R●●            | LUFP7           | 0.240/<br>0.529     |

(1) Sold in lots of 2.

(2) Please refer to the "Modicon Premium and PL7 software automation platform" catalog.



LUFP1



LA9P307

# Soft starters for asynchronous motors

## Altistart 48 soft start/soft stop units

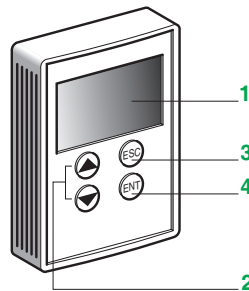
Options: remote terminal, line chokes and DNV kits

### Remote terminal

The terminal can be mounted on the door of a wall-fixing or floor-standing enclosure. It has the same signaling display and configuration buttons as the terminal integrated in the starter. A menu access locking switch is located on the rear of the terminal.

The option comprises:

- the remote terminal,
- a mounting kit containing a cover, screws and an IP 54 seal on the front panel,
- a connection cable 3 m/9.84 ft long, with a 9-way SUB-D connector at the terminal end and an RJ45 connector at the Altistart 48 end.



- 1 Information is displayed in the form of codes or values in three 7-segment displays.
- 2 Buttons for scrolling through the menus or modifying values.
- 3 "ESC": Button for exiting the menus (no confirmation).
- 4 "ENT": Confirm button for entering a menu or confirming the new value selected.

### Line chokes

The use of line chokes is recommended in particular when installing several electronic starters on the same line supply. The inductance values are defined for a voltage drop between 3% and 5% of the nominal line voltage. Install the line choke between the line contactor and the starter.

### DNV kits

These kits enable ATS48D62●...48M12● starters to meet the requirements of the DNV certification body.

Each kit consists of the fixing pins and the parts necessary for mounting the starter (when mounting using the VW3G48107 kit a sling must be used, which is not included).

ATS48D17●...48D47● starters are DNV certified and it is not necessary to add an optional kit.

### Protective covers for power terminals

To be used with eyelet connectors

ATS48C14● and ATS48C17● soft start/soft stop units have 9 unprotected power terminals. These terminals can be fitted with protective covers for compliance with IP 20 degree of protection.

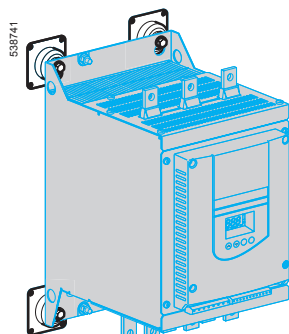
# Soft starters for asynchronous motors

Altistart 48 soft start/soft stop units

Options: remote terminal, line chokes, DNV kits, protective covers and documentation



VW3G48101



VW3G48106



LA9F702

## Remote terminal

| Description                                                                                                                                          | Reference        | Weight<br>kg/<br>lb |
|------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------|
| <b>Remote terminal</b><br>with a connection cable 3 m/9.84 ft long, with 9-way SUB-D connectors at the terminal end and RJ45 at the Altistart 48 end | <b>VW3G48101</b> | 0.200/<br>0.441     |

## Line chokes

| For starters         | Value of the choke<br>mH | Nominal current<br>A | Degree of protection | Reference           | Weight<br>kg/<br>lb |
|----------------------|--------------------------|----------------------|----------------------|---------------------|---------------------|
| ATS48D17●            | 1.7                      | 15                   | IP 20                | <b>VZ1L015UM17T</b> | 2.100/<br>4.630     |
| ATS48D22●            | 0.8                      | 30                   | IP 20                | <b>VZ1L030U800T</b> | 4.100/<br>9.039     |
| ATS48D32● and 48D38● | 0.6                      | 40                   | IP 20                | <b>VZ1L040U600T</b> | 5.100/<br>11.244    |
| ATS48D47● and 48D62● | 0.35                     | 70                   | IP 20                | <b>VZ1L070U350T</b> | 8.000/<br>17.637    |
| ATS48D75●...48C14●   | 0.17                     | 150                  | IP 00                | <b>VZ1L150U170T</b> | 14.900/<br>32.849   |
| ATS48C17●...48C25●   | 0.1                      | 250                  | IP 00                | <b>VZ1L250U100T</b> | 24.300/<br>53.572   |
| ATS48C32●            | 0.075                    | 325                  | IP 00                | <b>VZ1L325U075T</b> | 28.900/<br>63.714   |
| ATS48C41● and 48C48● | 0.045                    | 530                  | IP 00                | <b>VZ1L530U045T</b> | 37.000/<br>81.571   |
| ATS48C59●...48M10●   | 0.024                    | 1025                 | IP 00                | <b>VZ1LM10U024T</b> | 66.000/<br>145.505  |
| ATS48M12●            | 0.016                    | 1435                 | IP 00                | <b>VZ1LM14U016T</b> | 80.000/<br>176.370  |

**Note:** Line chokes with IP 00 degree of protection must be fitted with a protective bar to protect personnel from electrical contact.

## DNV kits

| For starters       | Reference        | Weight<br>kg/<br>lb |
|--------------------|------------------|---------------------|
| ATS48D62●...48C17● | <b>VW3G48106</b> | 0.600/<br>1.323     |
| ATS48C21●...48C32● | <b>VW3G48107</b> | 0.680/<br>1.499     |
| ATS48C41●...48C66● | <b>VW3G48108</b> | 3.400/<br>7.496     |
| ATS48C79●...48M12● | <b>VW3G48109</b> | 4.400/<br>9.700     |

## Protective covers for power terminals

To be used with eyelet connectors

| For starters            | Number of covers<br>per set | Reference      | Weight<br>kg/<br>lb |
|-------------------------|-----------------------------|----------------|---------------------|
| ATS48C14● and ATS48C17● | 6 (1)                       | <b>LA9F702</b> | 0.250/<br>0.551     |

(1) The starters have 9 unprotected power terminals.

|             |          |              |          |
|-------------|----------|--------------|----------|
| 174CEV30010 | 25       | ATS48D75Q    | 10<br>11 |
| <b>A</b>    |          | ATS48D75Y    | 12<br>13 |
| ATS48C11Q   | 10<br>11 | ATS48D88Q    | 10<br>11 |
| ATS48C11Y   | 12<br>13 | ATS48D88Y    | 12<br>13 |
| ATS48C14Q   | 10<br>11 | ATS48M10Q    | 10<br>11 |
| ATS48C14Y   | 12<br>13 | ATS48M10Y    | 12<br>13 |
| ATS48C17Q   | 10<br>11 | ATS48M12Q    | 10<br>11 |
| ATS48C17Y   | 12<br>13 | ATS48M12Y    | 12<br>13 |
| ATS48C21Q   | 10<br>11 | <b>L</b>     |          |
| ATS48C21Y   | 12<br>13 | LA9F702      | 27       |
| ATS48C25Q   | 10<br>11 | LA9P307      | 25       |
| ATS48C25Y   | 12<br>13 | LU9GC3       | 25       |
| ATS48C32Q   | 10<br>11 | LUF1         | 25       |
| ATS48C32Y   | 12<br>13 | LUF7         | 25       |
| ATS48C41Q   | 10<br>11 | LUF9         | 25       |
| ATS48C41Y   | 12<br>13 | <b>T</b>     |          |
| ATS48C48Q   | 10<br>11 | TSXCSA100    | 25       |
| ATS48C48Y   | 12<br>13 | TSXCSA200    | 25       |
| ATS48C59Q   | 10<br>11 | TSXCSA500    | 25       |
| ATS48C59Y   | 12<br>13 | TSXSCA50     | 25       |
| ATS48C66Q   | 10<br>11 | TSXSCA62     | 25       |
| ATS48C66Y   | 12<br>13 | <b>V</b>     |          |
| ATS48C79Q   | 10<br>11 | VW3A8306     | 25       |
| ATS48C79Y   | 12<br>13 | VW3A8306D30  | 25       |
| ATS48D17Q   | 10<br>11 | VW3A8306DR   | 25       |
| ATS48D17Y   | 12<br>13 | VW3A8306DRC  | 25       |
| ATS48D22Q   | 10<br>11 | VW3A8306R    | 25       |
| ATS48D22Y   | 12<br>13 | VW3A8306R03  | 25       |
| ATS48D32Q   | 10<br>11 | VW3A8306R10  | 25       |
| ATS48D32Y   | 12<br>13 | VW3A8306R30  | 25       |
| ATS48D38Q   | 10<br>11 | VW3A8306RC   | 25       |
| ATS48D38Y   | 12<br>13 | VW3A8306TF03 | 25       |
| ATS48D47Q   | 10<br>11 | VW3A8306TF10 | 25       |
| ATS48D47Y   | 12<br>13 | VW3G48101    | 27       |
| ATS48D62Q   | 10<br>11 | VW3G48106    | 27       |
| ATS48D62Y   | 12<br>13 | VW3G48107    | 27       |
|             |          | VW3G48108    | 27       |
|             |          | VW3G48109    | 27       |
|             |          | VW3P07306R10 | 25       |
|             |          | VZ1L015UM17T | 27       |
|             |          | VZ1L030U800T | 27       |
|             |          | VZ1L040U600T | 27       |
|             |          | VZ1L070U350T | 27       |
|             |          | VZ1L150U170T | 27       |
|             |          | VZ1L250U100T | 27       |
|             |          | VZ1L325U075T | 27       |
|             |          | VZ1L530U045T | 27       |
|             |          | VZ1LM10U024T | 27       |
|             |          | VZ1LM14U016T | 27       |



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