

VDI100

GENERAL PURPOSE FULL VECTOR INVERTER



GEFRAN



With fifty years of experience, Gefran is the world's leading designer and producer of solutions for **measuring, controlling, and driving industrial production processes**.

We have branches in 14 countries and a network of over 80 worldwide distributors.

QUALITY AND TECHNOLOGY

Gefran components are a **concentration of technology**, the result of constant research and of **cooperation with major research centers**.

This makes Gefran synonymous with quality and expertise in the design and production of:

- **sensors** for measuring main variables such as **temperature, pressure, position and force**
- **state-of-the-art components and solutions for indication and control**, satisfying demands for optimization of processes and intelligent management of energy consumption
- **automation platforms** of various complexities
- **electronic drives and electric motors** in AC and DC for all industrial automation, HVAC, water treatment and lift needs.

Gefran's know-how and experience guarantee continuity and tangible solutions.

SERVICES

A team of Gefran experts works with each customer to select the ideal product for its application and to help install and configure devices (technohelp@gefran.com).

Gefran offers a wide range of courses at different levels for the technical-commercial study of its product as well as specific courses *on demand*.



APPLICATIONS



CONVEYOR AND TRANSPORTATION MACHINERY



PAPER MAKING MACHINE



MACHINE TOOL/METAL PROCESSING MACHINERY



WOOD WORKING MACHINERY



HVAC AND PUMP SYSTEMS



PAPER/TEXTILE MACHINE



GRAVITATIONAL HANDLING EQUIPMENT



PLASTICS / RUBBER PROCESSING MACHINE



WIRE / CABLE MAKING MACHINE

In addition to foreseeing the market's application needs, Gefran forms partnerships with its customers to find **the best way to optimise and boost the performance of various applications.**

Gefran products communicate with one another to provide integrated solutions, and can dialogue with devices by other companies thanks to compatibility with numerous fieldbuses.

Modbus

PROFIBUS

CANopen

DeviceNet

DESCRIPTION



The GEFRAN range of VDI100 inverters is specifically designed to give the utmost flexibility of application to modern automation systems and ensure ease of use, while guaranteeing advanced control capabilities for both asynchronous and permanent magnet SPM and IPM motors.

VDI100 inverter features an intuitive and user friendly interface to enable immediate motor start-up and system functions to implement control architectures for the most advanced application solutions, all with maximum energy efficiency.

The VDI100 series offer a perfect automation system integration with “universal” standard configuration, optional cards and accessories. All these elements offer real advantages in terms of product and system optimization and cost saving.

- > Wide motor control capability
- > Advanced auto-tuning
- > High level sensor vector mode
- > Fast computing ability
- > Conformity to global standards.

POWER RANGE

| kW (Hp) | Power | | | | | | | | | | | | | |
|-----------------|---------------|--------------|--------------|--------------|--------------|-------------|------------|------------|--------------|------------|------------|------------|------------|--|
| | 0.75 (1.0) | 1.5 (2.0) | 2.2 (3.0) | 3.7 (5.0) | 5.5 (7.5) | 7.5 (10) | 11 (15) | 15 (20) | 18.5 (25) | 22 (30) | 30 (40) | 37 (50) | 45 (60) | |
| 400 Vac, 3ph | Size 1 | | | Size 2 | | Size 3 | | | Size 4 | | Size 5 | | | |
| 400 Vac -F, 3ph | Size 1 | | | Size 2 | | Size 3 | | Size 4 | | | Size 5 | | | |

DRIVE TYPE DESIGNATION

VDI100-X XXX-KXX-X-Y

| | |
|-------------------------------|---|
| EMI Filter: | F = included; [Empty] = not included |
| Rated voltage: | 4 = 400 Vac (380...480 Vac), 3ph |
| Software: | X = standard |
| Braking unit: | B = included; X = not included |
| Keypad: | K = Integrated (LED keypad with 5-digits 7-segment display) |
| Drive power, in kW | |
| Mechanical drive sizes | |
| VDI100 drive series | |

WEIGHTS AND DIMENSIONS

| Mechanical size - Protection degree | Dimensions: Width x Height x Depth | | Weight | |
|-------------------------------------|------------------------------------|-------------------------------|------------|--------------|
| | mm | inches | kg | lbs |
| 1 - IP20/NEMA 1 | 130 x 215 (306*) x 150 | 5.12 x 8.46 (12.04*) x 5.9 | 2.2 (3.5*) | 4.8 (7.7*) |
| 2 - IP20/NEMA 1 | 140 x 279 (400*) x 177 | 5.51 x 10.98 (15.75*) x 6.97 | 3.8 (5.5*) | 8.4 (12.1*) |
| 3 - IP20/NEMA 1 | 210 x 300 (416.5*) x 215 | 8.26 x 11.81 (16.4*) x 8.46 | 6.2 (8*) | 13.7 (17.6*) |
| 4 - IP20/NEMA 1 | 265 x 360 (500*) x 225 | 10.43 x 14.17 (19.68*) x 8.56 | 10 (12.5*) | 22 (27.5*) |
| 5 - IP20/NEMA 1 | 286.5 x 525 (679*) x 252 | 10.57 x 9.92 (26.73*) x 29.92 | 30 (32.5*) | 66.1 (71.6*) |

* with filter

GENERAL CHARACTERISTICS

| | | |
|------------------------------------|---|--|
| Control Characteristics | Motor type | Asynchronous and Synchronous Motor (Surface Permanent Magnet Motor, Interior Permanent Magnet Motor) |
| | Control Modes ⁽¹⁾ | V/f, V/f+Encoder, SLV (vector control open loop), SV (vector control closed loop), PMSLV (vector control open loop for Permanent Magnet Motor, PMSV (vector control closed loop for Permanent Magnet Motor) |
| | Speed control accuracy | ±1% (SLV, overload 200% and control range 1 : 30 (60...2Hz ; 50...1.6Hz)), ±1% (SLV, overload 150% and control range 1 : 50 (60...1.2Hz ; 50...1Hz)), ±1.5% (V/f open-loop, overload 150% and control range 1 : 40 / 60...1.5Hz ; 50...1.25Hz), ±0.1% (SV) |
| | Output Frequency range | 0.1Hz-599Hz |
| | Output Frequency Resolution | 0.01Hz |
| | Overload Tolerance ⁽¹⁾ | <ul style="list-style-type: none"> Heavy Duty Mode (HD.): 150% rated current for 60sec, 200% rated current for 2 sec. (Factory default) Normal Duty Mode (ND.): 120% rated current for 60sec |
| | Frequency Setting Signal | 0 to +10V, -10V to +10V, 4 to 20mA or pulse train input |
| | Acceleration / Deceleration Time | 0.0 – 6000.0 sec (separate acceleration and deceleration time set) |
| | Voltage / Frequency Characteristics | 15 fixed + one customized V/f pattern |
| | Braking Unit | Built-in braking transistor on 0.75-30kW HD |
| | Display | LED keypad with 5-digits 7-segment display (LCD keypad option) |
| | Main Control Functions | Auto-tuning, Zero Servo, Torque Control, Position Control, Droop, Soft-PWM, Over-Voltage Protection, Dynamic Braking, Speed Search, Frequency Traversing, Momentary Power Loss Restart, PID Control, Automatic Torque Compensation, Slip Compensation, RS-485 Communication, Close Loop Control with encoder, Simple PLC Function, 2 Analog Output, Run Permissive inputs, Application Presets |
| | Other Functions | Records of Power ON and Operation Time, 4 Fault History Records and Latest Fault State Record, Energy-Saving Function, Phase Loss Protection, DC Braking, Mechanical Brake Control, Dwell, S Curve Acceleration and Deceleration, Pulse input / output, Display of Engineering Unit, NPN / PNP Selection |
| Protection Functions | Stall Prevention | During Acceleration, Deceleration and continuous run |
| | Over Current (OC) and Output Short-Circuit (SC) Protection | When the current exceeds 200% of the inverter rated current |
| | Inverter Overload Protection (OL2) | Inverter stops when the output is higher than below conditions. <ul style="list-style-type: none"> Heavy Duty Mode (HD.): 150% rated current for 60sec, 200% rated current for 2 sec. (Factory default), Carrier frequency is from 2kHz to 8kHz Normal Duty Mode (ND.): 120% rated current for 60sec, Carrier frequency is 2kHz |
| | Motor Overload Protection (OL1) | Electrical overload protection curve |
| | Over Voltage Protection (OV) | OV threshold = 820Vdc |
| | Under Voltage (UV) | UV threshold = 380Vdc |
| | Momentary Power Loss Restart | When Power loss exceeds 15ms. This function can be set up to 2 sec |
| | Overheat Protection (OH) | Thermistor sensor on heatsink |
| | Ground Fault Protection (GF) | Protection by current detection circuit |
| | Charge Indicator | When main circuit DC voltage ≥ 50V, the CHARGE LED is on |
| Output Phase Loss Protection (OPL) | If the OPL function acts, the motor stops rotation automatically | |
| Environment Specification | Protection degree | IP20 / NEMA 1, with standard removable anti dust cover |
| | Operating Temperature | -10~+50°C (without anti dust cover) -10~+40°C (with anti dust cover) Up to +60°C with derating. |
| | Storage Temperature | -20 ~ +70°C |
| | Humidity | 95% RH or less (no condensation) |
| | Altitude | Altitude of 1000 meters or lower |
| | Vibration | 1.0G, in compliance with IEC 60068-2-6 |
| | Pollution Degree | Meet IEC 60721-3-3 Class 3C2 |
| Communication Function | Built-in: RS-485 with Modbus RTU / ASCII (standard RJ45 connection) Optional: Profibus/CANopen/DeviceNet/TCP-IP | |
| EMI filter | Add-on module on -F version 0.75-45kW HD In compliance with EN61800-3 standard | |
| Certification |  | Complies with the EC Directive concerning low voltage equipment (Directives LVD 2014/35/EC, EMC 2014/30/EC) In compliance with EN61800-3 (CE & RE) and EN61800-5-1 (LVD) Conformity to RoHS directive |
| |  | UL508C |
| Encoder expansion card (optional) | Asynchronous Motor: Digital incremental Line driver and Open collector, Resolver PM motor: Digital incremental Line driver, Resolver, SinCos | |

[1] The V/f, V/f+Encoder, and SLV control modes can be used with ND Overload. See the instruction manual for further information.

GENERAL CHARACTERISTICS

SMART FUNCTIONS INTEGRATED

VDI100 integrates intelligent functions to simplify system integration, reduce costs and improve comfort in industrial environment.

- > Intelligent over voltage suppression
- > Advanced motor auto-tune
- > Ultra low motor noise with Soft-PWM
- > Application presets.



I/O CONFIGURATION

The VDI100 inverter features a standard I/O card specially developed to give maximum flexibility for the user.

- > Digital input: 8, NPN/PNP
- > Digital output: 2 (size 1) / 1 (all other sizes)
- > Analog input: 2, AI1: -10~10V / 0~10V, AI2: 0~10V / 4~20mA
- > Analog output: 2, AO1: 0~10V, AO2: 0~10V/4~20mA
- > Relay output: 1 (size 1) / 2 (all other sizes)
- > Others: PTC input (AI2), Pulse input (32kHz), Pulse output (32kHz).



ROBUST DESIGN

Coated PCB offers protection for harsh environments.

All models have fan cooled external heatsinks which eliminate ingress of dust.



SERIAL COMMUNICATION

Modbus

The VDI100 integrates a standard RS485 serial line with Modbus RTU/ASCII protocol, for peer-to-peer or multidrop connections.



DUAL CORE PROCESSORS

High Performance & Reliability.

- **32Bit MCU**
Mass computing capability for advanced current vector control technology. Minimizes the internal loop time for higher control response.
- **ASIC** (from size 2)
Prevents inrush current damage to IGBT module. Enhances the reliability and life expectancy of motor drive.

"UNIVERSAL" IN MOTOR TECHNOLOGIES

Simple parameter settings for easy switching between asynchronous and permanent magnet motors.

High performance current vector control for a wide range of motors types.



Asynchronous Motor

- > Competitive
- > Mechanical Robustness



Surface Permanent Magnet Motors (SPM)

- > High Efficiency
- > High power density
- > Low Cogging Torque



Interior Permanent Magnet Motors (IPM)

- > Highly Efficiency
- > Compact Size
- > With Reluctance Torque

FAN CONTROL AND EASY MAINTENANCE

Fan control achieves low noise levels and long-lasting fan.

Easy access to fan allows simple and quick maintenance and replacement.



INTEGRATED KEYPAD

The integrated programming keypad with 5 Digit 7 Segment LED display provide fast programming and immediate start-up.

OPTIONAL LCD PROGRAMMING KEYPAD

The optional LCD programming keypad with clear and wide parameter display in multiple languages, makes the VDI100 extremely intuitive and easy to use.

The keypad can also be used remotely and as a copy unit to copy parameter settings from one drive to another.

FIELDBUS

The VDI100 can be easily integrated into machine architectures through optional Profibus, CANopen, Devicenet and TCP-IP communication modules.

| Model | Description |
|-------------------|----------------------------------|
| EXP-PDP-BDI/VDI | Profibus DP interface module |
| EXP-TCPIP-BDI/VDI | Ethernet TCP/IP interface module |
| EXP-DN-BDI/VDI | DeviceNet interface module |
| EXP-CAN-BDI/VDI | CanBus interface module |



RJ45 TO USB CONNECTING CABLE

For the connection between inverter and PC using Gf_eXpress and PC Tools configurator (length 1.8 m).



COPY UNIT

- > Copying parameters settings from one AC drive to another.
- > Standard RJ45 interface cable (2 m. included).

ENCODER FEEDBACK EXPANSION CARDS

> EXP-OC-VDI100

Digital incremental open collector encoder card.

- For Asynchronous motor
- Support Open Collector type and pulse signal



| Terminals | Description |
|-----------------|--|
| Vcc | Power Supply for encoder: 12V/5V±5%, 200mA |
| GND, /A, /B, /Z | Power Source and Input Signal Common |
| A, B, Z | Encoder Signal Input Terminal (Open Collector Type) |
| AO, BO, ZO, | Pulse monitor output: Open Collector Type, 24V, 30mA |
| /AO, /BO, /ZO | Output Signal Common |
| E | Shielding connection |

> EXP-LD-VDI100

Digital incremental Line driver encoder card.

- For Asynchronous motor
- Support Line Driver type and complementary type pulse signal



| Terminals | Description |
|---------------------------|---|
| Vcc | Power Supply for encoder: 12V/5V±5%, 200mA |
| GND | Power Source and Input Signal Common |
| A, /A, B, /B, Z, /Z | Encoder Signal Input Terminal (Line Driver Type), RS-422 Level Output |
| AO, /AO, BO, /BO, ZO, /ZO | Pulse monitor output: Line Driver Type, RS-422 Level Input |
| E | Shielding connection |

> EXP-LD-PM-VDI100

Digital incremental Line driver encoder card with Hall sensor.

- For Permanent Magnet motor
- Support Line Driver type and complementary type pulse signal



| Terminals | Description |
|--|--|
| Vcc | Power Supply for encoder: 5V±5%, 200mA |
| GND | Power Source and Input Signal Common |
| A, /A, B, /B, Z, /Z, U, /U, V, /V, W, /W | Encoder Signal Input Terminal (Line Driver Type), RS-422 Level Input |
| AO, /AO, BO, /BO, ZO, /ZO | Pulse monitor output: Line Driver Type, RS-422 Level Output |
| E | Shielding connection |

> EXP-RS-PM-VDI100 (*)

Resolver card for SPM / IPM Permanent Magnet motor and Asynchronous.



| Terminals | Description |
|---------------------------|---|
| R1, R2, S1, S2, S3, S4 | R1-R2: Sinusoidal excitation signal. 7Vrms, 10kHz. Transformation ratio: 0.5±5% S1-S3: analog input of Sine signal. S2-S4: analog input of Cosine signal. |
| AO, /AO, BO, /BO, ZO, /ZO | A and B phase output terminal; Z phase monitoring output terminal. Line Driver output type: RS-422 Level output |
| E | Shielding connection |

(*) this card is not applicable on size 1 models:
• VDI100-1007...1022-KBX-.-4

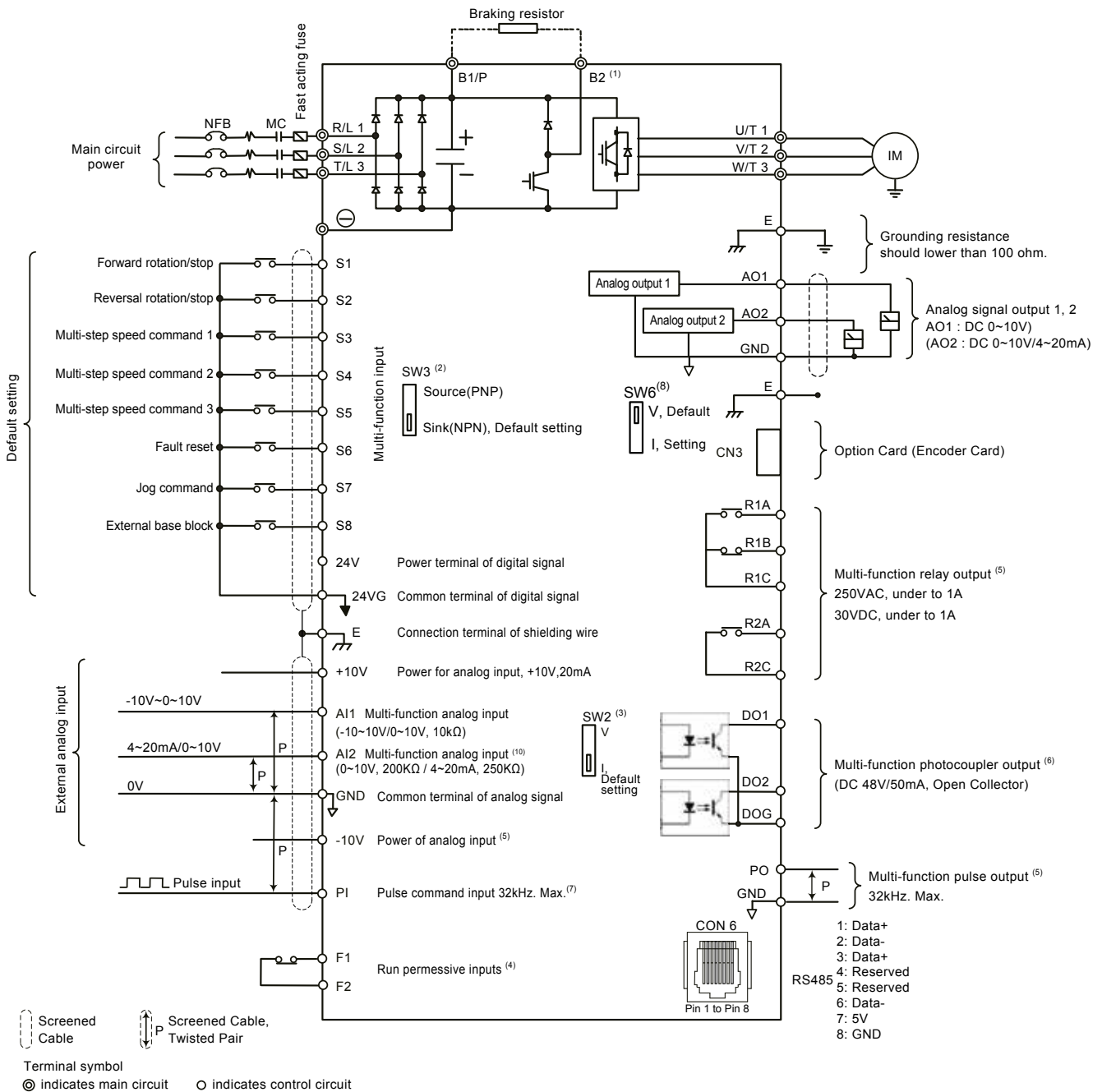
> EXP-SC-PM-VDI100

SinCos encoder card for Permanent Magnet motor



| Terminals | Description |
|-----------|--|
| E5V | Power supply for encoder 5V±5%, 200mA |
| GND | Power supply common |
| C+, C- | Input C pulse from the encoder. Vpp= 0.6-1.2V |
| D+, D- | Input D pulse from the encoder. Vpp= 0.6-1.2V |
| A+, A- | Input A pulse from the enc., Vpp= 0.6-1.2V, fmax=20KHz |
| B+, B- | Input B pulse from the enc. Vpp= 0.6-1.2V, fmax=20KHz |
| R+, R- | Input R pulse (encoder home pulse) |
| a+, a- | Output a ratio of the A pulse frequency |
| b+, b- | Output b ratio of the B pulse frequency |
| E, E | Shielding connection: wire and inverter terminal "E" |

WIRING DIAGRAM



- (1) The main circuit of 0.75~30kW (included) with built-in braking transistor provide terminal B2. The braking resistor can be connected directly between B1 and B2. Optional braking module is available for the other models.
- (2) The multi-function digital input terminals S1~S8 can be set to Source (PNP) or Sink (NPN) mode by SW3 switch.
- (3) Multi-function analog input 2 (AI2) can be set to the voltage command input [0~10V/-10~10V] or the current command input [4~20mA] through SW2 switch.
- (4) When integrated Run Permissive inputs is NOT used, connect a link across terminals F1 & F2 for the inverter output to function. External safety circuits can be interfaced with inverter using terminals F1 and F2.
- (5) Terminals -10V (S+, S-), R2A~R2C and PO-GND are provided for 3.7kW ratings or above.
- (6) Terminals DO2 is provided for 2.2kW ratings or below (size 1).
- (7) When using open collector input, there is no need of resistance because of built-in pull-up resistance.
- (8) AO2 default setting is 0~+10V.
- (9) Multi-function analog input 2 (AI2) can be set as PTC Overheat Protection.

CHOOSING THE INVERTER: INPUT AND OUTPUT DATA

THREE PHASE – 400V CLASS

| Sizes VDI100 | | 1007 | 1015 | 1022 | 2037 | 2055 | 3075 | 3110 | 3150 4150-F | 4185 | 4220 | 5300 | 5370 | 5450 | | |
|---|---------------------------------|---|--------------------------------------|-------|-------|-------|-------|-------|----------------|-------|-------|--------|--------|----------------------------------|--------|--------|
| Output Rating ⁽²⁾ | HD ⁽³⁾ | Rated Output Capacity | KVA | 2.6 | 3.2 | 4.2 | 7 | 11.3 | 13.7 | 18.3 | 23.6 | 29.7 | 34.3 | 45.7 | 57.2 | 69.3 |
| | | Rated Output Current | A | 3.4 | 4.2 | 5.5 | 9.2 | 14.8 | 18 | 24 | 31 | 39 | 45 | 60 | 75 | 91 |
| | | Maximum Applicable Motor ⁽¹⁾ | HP | 1 | 2 | 3 | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 |
| | kW | | 0.75 | 1.5 | 2.2 | 3.7 | 5.5 | 7.5 | 11 | 15 | 18.5 | 22 | 30 | 37 | 45 | |
| | ND ⁽⁴⁾ | Rated Output Capacity | KVA | 3.1 | 4.1 | 5.3 | 9.2 | 13.3 | 17.5 | 23.6 | 29.0 | 33.5 | 44.2 | 55.6 | 67.1 | 78.5 |
| | | Rated Output Current | A | 4.1 | 5.4 | 6.9 | 12.1 | 17.5 | 23 | 31 | 38 | 44 | 58 | 73 | 88 | 103 |
| Maximum Applicable Motor ⁽¹⁾ | | HP | 2 | 3 | 5 | 7.5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 | |
| | kW | 1.5 | 2.2 | 3.7 | 5.5 | 7.5 | 11 | 15 | 18.5 | 22 | 30 | 37 | 45 | 55 | | |
| Maximum Output Voltage | | V | Three-Phase, 380V to 480V | | | | | | | | | | | | | |
| Maximum Output Frequency | | Hz | 0.1–599 (Based on parameter setting) | | | | | | | | | | | | | |
| Input Power | Rated Voltage, Frequency | | Three-Phase, 380V to 480V, 50/60Hz | | | | | | | | | | | | | |
| | Allowable Voltage Fluctuation | | -15% ~ +10% | | | | | | | | | | | | | |
| | Allowable Frequency Fluctuation | | ±5% | | | | | | | | | | | | | |
| | HD | Rated Input Current | A | 3,7 | 5,3 | 6 | 9,6 | 15,5 | 18,7 | 25 | 33,7 | 42,4 | 48,9 | 65,2 | 81,5 | 98,9 |
| A | | | 4,5 | 5,9 | 7,5 | 11,6 | 18,2 | 24 | 32,3 | 41,3 | 47,8 | 58,7 | 78,3 | 95,7 | 112 | |
| Power-loss | Watt Loss | | W | 127,4 | 134,7 | 171,7 | 241,9 | 294,1 | 697,7 | 829,7 | 880,5 | 1109,4 | 1172,5 | 1666,5 | 1965,9 | 2562,8 |
| | Heat Loss | | kcal/hr | 109,6 | 115,8 | 147,7 | 208 | 252,9 | 600 | 713,5 | 757,2 | 954,1 | 1008,4 | 1433,2 | 1690,7 | 2204 |
| | Switching Frequency | | kHz | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 5 | 5 | 5 |
| Braking Transistor | | Built-in | | | | | | | | | | | | Option (External Braking Module) | | |

| Power | HD mode carrier freq range | HD mode carrier freq default setting |
|--------------|----------------------------|--------------------------------------|
| 0.75 ~ 22 kW | 2~16 kHz | 8 kHz |
| 30 ~ 37 kW | 2~12 kHz ⁽⁵⁾ | 5 kHz |
| 45 kW | 2~10 kHz ⁽⁵⁾ | 5 kHz |

- (1) Based on the standard 4-pole induction motor. The selected inverter must have a higher output current rating than the motor.
- (2) The default setting of VDI100 is HD (heavy duty mode). To switch VDI100 to ND (normal duty mode) set parameter (00-27) to 1. When switching to ND (normal duty mode), the frequency will change to 2kHz.
- (3) The default setting of carrier frequency in HD mode is shown into the table on the right, if the setting value is higher than default setting, derating may be required.
- (4) The default setting of carrier frequency in ND mode is 2kHz, if the setting value is higher than default setting, de-rating may be required.
- (5) If control mode is set to SLV mode and maximum frequency is larger than 80Hz, the carrier frequency range is 2–8kHz.

DRIVE MODELS & CODES

THREE PHASE – 400V CLASS

- With built-in EMI filter
- BU built-in up to 30 kW
- IP20 / NEMA 1

| Code | Model | Pn @ 400 Vac | | Configuration |
|--------|---------------------|--------------|---------|---|
| | | HD | ND | |
| S6N110 | VDI100-1007-KBX-4-F | 0.75 kW | 1.5 kW | Internal Braking Unit - With EMI filter |
| S6N111 | VDI100-1015-KBX-4-F | 1.5 kW | 2.2 kW | Internal Braking Unit - With EMI filter |
| S6N112 | VDI100-1022-KBX-4-F | 2.2 kW | 3.7 kW | Internal Braking Unit - With EMI filter |
| S6N113 | VDI100-2037-KBX-4-F | 3.7 kW | 5.5 kW | Internal Braking Unit - With EMI filter |
| S6N114 | VDI100-2055-KBX-4-F | 5.5 kW | 7.5 kW | Internal Braking Unit - With EMI filter |
| S6N115 | VDI100-3075-KBX-4-F | 7.5 kW | 11 kW | Internal Braking Unit - With EMI filter |
| S6N116 | VDI100-3110-KBX-4-F | 11 kW | 15 kW | Internal Braking Unit - With EMI filter |
| S6N117 | VDI100-4150-KBX-4-F | 15 kW | 18.5 kW | Internal Braking Unit - With EMI filter |
| S6N118 | VDI100-4185-KBX-4-F | 18.5 kW | 22 kW | Internal Braking Unit - With EMI filter |
| S6N119 | VDI100-4220-KBX-4-F | 22 kW | 30 kW | Internal Braking Unit - With EMI filter |
| S6N120 | VDI100-5300-KBX-4-F | 30 kW | 37 kW | Internal Braking Unit - With EMI filter |
| S6N121 | VDI100-5370-KXX-4-F | 37 kW | 45 kW | With EMI filter |
| S6N122 | VDI100-5450-KXX-4-F | 45 kW | 55 kW | With EMI filter |

- Without EMI filter
- BU built-in up to 30 kW
- IP20 / NEMA 1

| Code | Model | Pn @ 400 Vac | | Configuration |
|--------|-------------------|--------------|---------|--|
| | | HD | ND | |
| S6N123 | VDI100-1007-KBX-4 | 0.75 kW | 1.5 kW | Internal Braking Unit - Without EMI filter |
| S6N124 | VDI100-1015-KBX-4 | 1.5 kW | 2.2 kW | Internal Braking Unit - Without EMI filter |
| S6N125 | VDI100-1022-KBX-4 | 2.2 kW | 3.7 kW | Internal Braking Unit - Without EMI filter |
| S6N126 | VDI100-2037-KBX-4 | 3.7 kW | 5.5 kW | Internal Braking Unit - Without EMI filter |
| S6N127 | VDI100-2055-KBX-4 | 5.5 kW | 7.5 kW | Internal Braking Unit - Without EMI filter |
| S6N128 | VDI100-3075-KBX-4 | 7.5 kW | 11 kW | Internal Braking Unit - Without EMI filter |
| S6N129 | VDI100-3110-KBX-4 | 11 kW | 15 kW | Internal Braking Unit - Without EMI filter |
| S6N130 | VDI100-3150-KBX-4 | 15 kW | 18.5 kW | Internal Braking Unit - Without EMI filter |
| S6N131 | VDI100-4185-KBX-4 | 18.5 kW | 22 kW | Internal Braking Unit - Without EMI filter |
| S6N132 | VDI100-4220-KBX-4 | 22 kW | 30 kW | Internal Braking Unit - Without EMI filter |
| S6N133 | VDI100-5300-KBX-4 | 30 kW | 37 kW | Internal Braking Unit - Without EMI filter |
| S6N134 | VDI100-5370-KXX-4 | 37 kW | 45 kW | Without EMI filter |
| S6N135 | VDI100-5450-KXX-4 | 45 kW | 55 kW | Without EMI filter |

ACCESSORIES AND OPTIONS

INPUT CHOKE

| Code | Model | Dimensions: WxHxd (mm) | Weight (kg) | For VDI100-.... |
|--|-----------|------------------------|-------------|-----------------|
| Input choke - Overload HD (150%) - Class 400V 3ph | | | | |
| S7AAE | LR3y-1015 | 120 x 125 x 65 | 1.8 | 1007 |
| S7AAF | LR3y-1022 | 120 x 125 x 65 | 1.9 | 1015 |
| S7AB3 | LR3y-1030 | 120 x 125 x 65 | 1.9 | 1022 |
| S7AAG | LR3y-2040 | 120 x 125 x 65 | 2 | 2037 |
| S7AB6 | LR3y-2075 | 150 x 155 x 79 | 4.9 | 2055 |
| S7AB7 | LR3y-3110 | 150 x 155 x 79 | 5 | 3075 |
| S7AB8 | LR3y-3150 | 150 x 169 x 85 | 5.5 | 3110 |
| S7FF4 | LR3-022 | 180 x 182 x 130 | 7.8 | 3150 |
| S7FF4 | LR3-022 | 180 x 182 x 130 | 7.8 | 4150 |
| S7FF4 | LR3-022 | 180 x 182 x 130 | 7.8 | 4185 |
| S7FF3 | LR3-030 | 180 x 160 x 185 | 8.2 | 4220 |
| S7FF2 | LR3-037 | 180 x 160 x 185 | 9.5 | 5300 |
| S7FF1 | LR3-055 | 180 x 180 x 185 | 12 | 5370 |
| S7FF1 | LR3-055 | 180 x 180 x 185 | 12 | 5450 |

| Code | Model | Dimensions: WxHxd (mm) | Weight (kg) | For VDI100-.... |
|--|-----------|------------------------|-------------|-----------------|
| Input choke - Overload ND (120%) - Class 400V 3ph | | | | |
| S7AB3 | LR3y-1030 | 120 x 125 x 65 | 1.9 | 1007 |
| S7AAG | LR3y-2040 | 120 x 125 x 65 | 3 | 1015 |
| S7AB6 | LR3y-2075 | 150 x 155 x 79 | 4.9 | 1022 |
| S7AB7 | LR3y-3110 | 150 x 155 x 79 | 5 | 2037 |
| S7AB8 | LR3y-3150 | 150 x 169 x 85 | 5.5 | 2055 |
| S7FF4 | LR3-022 | 180 x 182 x 130 | 7.8 | 3075 |
| S7FF3 | LR3-030 | 180 x 160 x 185 | 8.2 | 3110 |
| S7FF3 | LR3-030 | 180 x 160 x 185 | 8.2 | 3150 |
| S7FF3 | LR3-030 | 180 x 160 x 185 | 8.2 | 4150 |
| S7FF2 | LR3-037 | 180 x 160 x 185 | 9.5 | 4185 |
| S7FF1 | LR3-055 | 180 x 180 x 185 | 12 | 4220 |
| S7FF1 | LR3-055 | 180 x 180 x 185 | 12 | 5300 |
| S7D19 | LR3-090 | 300 x 205 x 265 | 30 | 5370 |
| S7D19 | LR3-090 | 300 x 205 x 265 | 30 | 5450 |

Mains choke listed in this table can only be used for the inverter input side. Do not connect Mains choke to the inverter output side.

OUTPUT CHOKE

| Code | Model | Finv_max [Hz] | Fswitch [kHz] | Dimensions WxHxd (mm) | Weight (kg) | For VDI100-.... |
|--------------------------------------|---------|---------------|---------------|-----------------------|-------------|-----------------|
| Output Choke - Class 400V 3ph | | | | | | |
| S7FG1 | LU3-001 | 400 | 20 | 120 x 128 x 71 | 2.7 | 1007 |
| S7FG1 | LU3-001 | 400 | 20 | 120 x 128 x 71 | 2.7 | 1015 |
| S7FG1 | LU3-001 | 400 | 20 | 120 x 128 x 71 | 2.7 | 1022 |
| S7FG3 | LU3-005 | 400 | 20 | 180 x 170 x 110 | 5.2 | 2037 |
| S7FG4 | LU3-011 | 400 | 20 | 180 x 180 x 130 | 8 | 2055 |
| S7FG4 | LU3-011 | 400 | 20 | 180 x 180 x 130 | 8 | 3075 |
| S7FH2 | LU3-015 | 400 | 20 | 180 x 160 x 170 | 7.5 | 3110 |
| S7FH3 | LU3-022 | 300 | 20 | 180 x 160 x 170 | 8 | 3150 |
| S7FH3 | LU3-022 | 300 | 20 | 180 x 160 x 170 | 8 | 4150-F |
| S7FH3 | LU3-022 | 300 | 20 | 180 x 160 x 170 | 8 | 4185 |
| S7FH4 | LU3-030 | 300 | 15 | 180 x 160 x 180 | 9.5 | 4220 |
| S7FH5 | LU3-037 | 300 | 15 | 180 x 160 x 180 | 9.7 | 5300 |
| S7FH5 | LU3-037 | 300 | 15 | 180 x 160 x 180 | 9.7 | 5370 |
| S7FH6 | LU3-055 | 300 | 15 | 240 x 210 x 180 | 14 | 5450 |

ACCESSORIES AND OPTIONS

BRAKING RESISTORS AND BRAKING UNIT

| VDI100-.... | Braking unit | | | Braking resistor | | | Braking torque (Peak / Continues) 10%ED | Minimum Resistance ⁽¹⁾ | | |
|-----------------------|-----------------------------|------|--------|-------------------------|-------------------|------|---|--|------|------|
| | Model (Code) | Q.ty | Code | Type | Protection degree | Q.ty | | Dimensions - Weight W x H x d (mm) - (kg) | (Ω) | (W) |
| Class 400V 3ph | | | | | | | | | | |
| 1007 | - | - | S8SA26 | RFH 220 750R | IP44 | 1 | 220 x 27 x 36 - (0.33) | 126% | 120 | 600 |
| 1015 | - | - | S8T0CR | RF 300 DT 400R | IP44 | 1 | 260 x 106 x 47 - (1.4) | 119% | 120 | 600 |
| 1022 | - | - | S8T0CP | RF 220 T 250R | IP44 | 1 | 300 x 36 x 27 - (0.5) | 126% | 100 | 680 |
| 2037 | - | - | S6F64 | RFH 600 160R | IP44 | 1 | 320 x 27 x 36 - (0.6) | 126% | 60 | 1200 |
| 2055 | - | - | S8SA31 | RFMTX 400 130R | IP44 | 1 | 580 x 140 x 110 - (4.2) | 102% | 43 | 1600 |
| 3075 | - | - | S8T0CM | RFPD 900 DT 100R | IP44 | 1 | 260 x 106 x 70 (2.2) | 99% | 43 | 1600 |
| 3110 | - | - | S8SA30 | BRT 1K6 52R | IP20 | 1 | 580 x 140 x 110 - (4.2) | 126% | 43 | 1600 |
| 3150 | - | - | S8SA29 | BRT 1K5 40R | IP20 | 1 | 440 x 140 x 110 - (3) | 119% | 22 | 3000 |
| 4150 | - | - | S8SA29 | BRT 1K5 40R | IP20 | 1 | 440 x 140 x 110 - (3) | 119% | 22 | 3000 |
| 4185 | - | - | S8SA36 | BRT 4K8 32R | IP20 | 1 | 570 x 180 x 330 - (11) | 119% | 14 | 4800 |
| 4220 | - | - | S8SA35 | BRT 4K8 27R2 | IP20 | 1 | 570 x 180 x 330 - (11) | 117% | 14 | 4800 |
| 5300 | - | - | S8SA34 | BRT 6K 20R | IP20 | 1 | 570 x 180 x 330 - (11) | 119% | 11 | 6000 |
| 5370 | BU-4-VDI100 (S6N143) | 2 | S8SA36 | BRT 4K8 32R | IP20 | 2 | 570 x 180 x 330 - (11) | 119% | 19,2 | 3600 |
| 5450 | BU-4-VDI100 (S6N143) | 2 | S8SA35 | BRT 4K8 27R2 | IP20 | 2 | 570 x 180 x 330 - (11) | 117% | 19,2 | 3600 |

Inverters ratings 0.75 ~ 30kW have a built-in braking transistor. For applications requiring a greater braking torque an external braking resistor can be connected to terminals B1 / P and B2; for inverter ratings above 30 kW an external braking unit (connected to (+) / (-) of the inverter) and a braking resistor (connected to two ends of the detection module BR+ / BR-) is required.

(1): Minimum resistance is the acceptable minimum value of the braking resistor for a single braking unit.

VDI100 GENERAL PURPOSE FULL VECTOR INVERTER

EMI FILTERS

| Code | Model | Dimensions: WxHxd (mm) | Weight (kg) | For VDI100-.... |
|--|-----------------|------------------------|-------------|-----------------|
| Overload HD (150%) - Class 400V 3ph | | | | |
| S7GHL | EMI-FTF-480-7 | 190 x 40 x 70 | 0.6 | 1007 |
| S7GHL | EMI-FTF-480-7 | 190 x 40 x 70 | 0.6 | 1015 |
| S7GHL | EMI-FTF-480-7 | 190 x 40 x 70 | 0.6 | 1022 |
| S7GHO | EMI-FTF-480-16 | 250 x 45 x 70 | 0.8 | 2037 |
| S7GHO | EMI-FTF-480-16 | 250 x 45 x 70 | 0.8 | 2055 |
| S7GHO | EMI-FTF-480-16 | 250 x 45 x 70 | 0.8 | 3075 |
| S7GHP | EMI-FTF-480-30 | 270 x 50 x 85 | 1 | 3110 |
| S7GHP | EMI-FTF-480-30 | 270 x 50 x 85 | 1 | 3150 |
| S7GHP | EMI-FTF-480-30 | 270 x 50 x 85 | 1 | 4150 |
| S7GOA | EMI-FTF-480-42 | 310 x 50 x 85 | 1.3 | 4185 |
| S7GOB | EMI-FTF-480-55 | 250 x 85 x 90 | 1.9 | 4220 |
| S7GOC | EMI-FTF-480-75 | 270 x 80 x 135 | 2.6 | 5300 |
| S7GOC | EMI-FTF-480-75 | 270 x 80 x 135 | 2.6 | 5370 |
| S7GOD | EMI-FTF-480-100 | 270 x 90 x 150 | 3 | 5450 |

| Code | Model | Dimensions: WxHxd (mm) | Weight (kg) | For VDI100-.... |
|--|-----------------|------------------------|-------------|-----------------|
| Overload ND (120%) - Class 400V 3ph | | | | |
| S7GHL | EMI-FTF-480-7 | 190 x 40 x 70 | 0.6 | 1007 |
| S7GHL | EMI-FTF-480-7 | 190 x 40 x 70 | 0.6 | 1015 |
| S7GHL | EMI-FTF-480-7 | 190 x 40 x 70 | 0.6 | 1022 |
| S7GHO | EMI-FTF-480-16 | 250 x 45 x 70 | 0.8 | 2037 |
| S7GHO | EMI-FTF-480-16 | 250 x 45 x 70 | 0.8 | 2055 |
| S7GHO | EMI-FTF-480-16 | 250 x 45 x 70 | 0.8 | 3075 |
| S7GHP | EMI-FTF-480-30 | 270 x 50 x 85 | 1 | 3110 |
| S7GHP | EMI-FTF-480-30 | 270 x 50 x 85 | 1 | 3150 |
| S7GHP | EMI-FTF-480-30 | 270 x 50 x 85 | 1 | 4150 |
| S7GOA | EMI-FTF-480-42 | 310 x 50 x 85 | 1.3 | 4185 |
| S7GOB | EMI-FTF-480-55 | 250 x 85 x 90 | 1.9 | 4220 |
| S7GOB | EMI-FTF-480-55 | 250 x 85 x 90 | 1.9 | 4150 |
| S7GOC | EMI-FTF-480-75 | 270 x 80 x 135 | 2.6 | 4185 |
| S7GOC | EMI-FTF-480-75 | 270 x 80 x 135 | 2.6 | 4220 |
| S7GOD | EMI-FTF-480-100 | 270 x 90 x 150 | 3 | 5300 |
| S7GOE | EMI-FTF-480-130 | 270 x 90 x 150 | 3.6 | 5370 |
| S7GOF | EMI-FTF-480-180 | 400 x 120 x 170 | 6.2 | 5450 |

Install an EMC filter on power supply side to eliminate noise transmitted between the power line and the inverter.
The inverter EMI filter above meets the EN 61800:2004/A1:2012 specification.
Inverter can be ordered with EMC filter (-F models).

A. VDI100-...-4-F series with EMC filter (-F models)

VDI100-...-4-F series inverters are equipped with an EMC filter able to guarantee the performance levels required by EN 61800:2004/A1:2012 standard:

- sizes 1007 to 3110: category C2 with a maximum of 10 meters of shielded motor cable,
- sizes 4150 to 5450: category C3 with a maximum of 10 meters of shielded motor cable.

B. External Input EMI Filter

VDI100-...-4 series inverters equipped with external filter above, are able to guarantee the performance levels required by EN 61800:2004/A1:2012 standard, with the same behaviour of above filter.

ACCESSORIES AND OPTIONS

OTHER OPTIONS

| Code | Model | Description |
|------------------------------|--------------------------------|---|
| Communication modules | | |
| S6N218 | EXP-PDP-BDI/VDI | Profibus DP interface module |
| S6N219 | EXP-TCPIP-BDI/VDI | Ethernet TCP/IP interface module |
| S6N220 | EXP-DN-BDI/VDI | DeviceNet interface module |
| S6N221 | EXP-CAN-BDI/VDI | CanBus interface module |
| Encoder cards | | |
| S6N222 | EXP-LD-VDI100 | Digital incremental Line driver encoder card |
| S6N223 | EXP-OC-VDI100 | Digital incremental open collector encoder card |
| S6N224 | EXP-LD-PM-VDI100 | Digital incremental line driver encoder card for Permanent Magnet motor (*) |
| S6N225 | EXP-RS-PM-VDI100 | Resolver card for Permanent Magnet motor and Asynchronous (*) |
| S6N226 | EXP-SC-PM-VDI100 | SinCos encoder card for Permanent Magnet motor (*) |
| | | <i>(*) : installation on VDI100 sizes 2 and higher</i> |
| Others | | |
| S6N228 | Memory KB-BDI/VDI | Copy unit |
| S6N229 | Cable RJ45 to USB 1.8m | RJ45 to USB connecting cable (1.8 m. length) |
| S6N231 | KB-LCD-VDI100 | LCD keypad |
| S6N233 | KB-BLI-VDI100 | Blind cover |
| S6N234 | KB cable 1m | Keypad extension cable 1 m |
| S6N235 | KB cable 2m | Keypad extension cable 2 m |
| S6N236 | KB cable 3m | Keypad extension cable 3 m |
| S6N237 | KB cable 5m | Keypad extension cable 5 m |
| S6N242 | Protective cover VDI100 Size 1 | Protective cover for VDI100 Size 1 |
| S6N243 | Protective cover VDI100 Size 2 | Protective cover for VDI100 Size 2 |
| S6N244 | Protective cover VDI100 Size 4 | Protective cover for VDI100 Size 4 |

SOFTWARE

GF-eXpress PROGRAMMING SOFTWARE

Applications

- › Configuring parameters of Gefran devices (Instruments, Drives, Sensors)
- › Tuning control parameters with on-line tests and trends
- › Managing parameter archive for multiple configuration.

Features

- › Guided product selection
- › Multiple languages
- › Creation and storage of recipes
- › Oscilloscope
- › Simplified settings
- › Parameter printout
- › Network autoscan

GF_eXpress software configures the parameters of the automation components, drives and sensors in the Gefran catalogue.

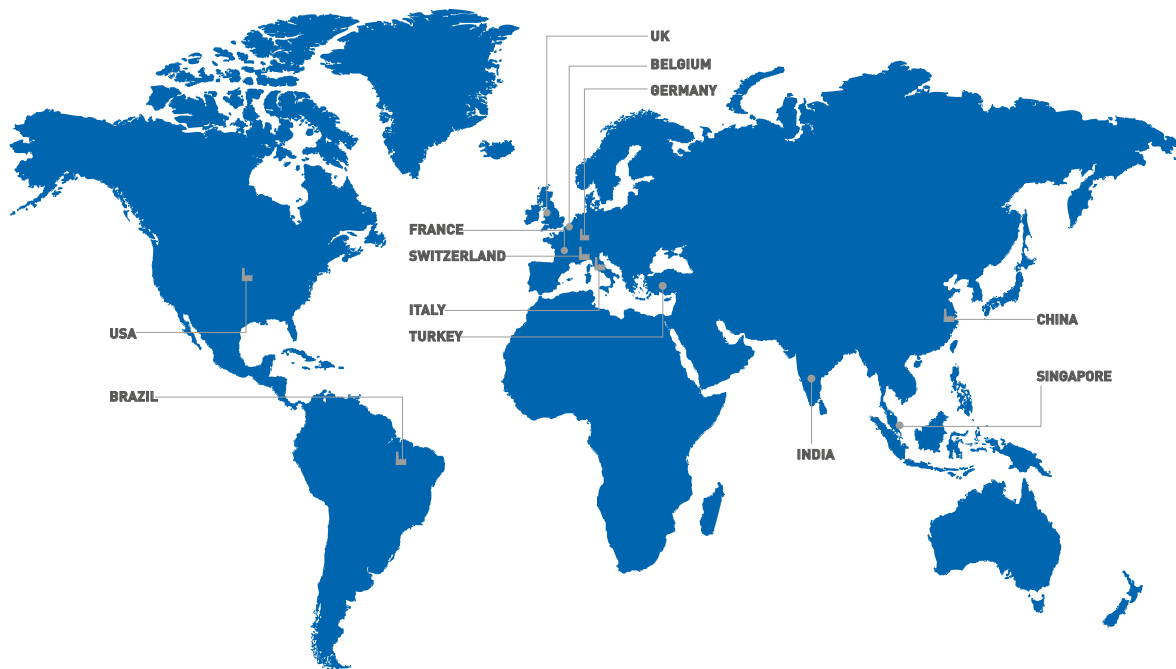
The graphic interface makes selecting and configuring parameters easy and intuitive. Devices are grouped according to product type and functions.

Products are searched by means of a context search and a display of product photos.

This provides a single device library for all Gefran products.

Complete configuration information for every device is given in XML format to facilitate expansion of the catalogue and parameters.





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