

TeSys Power - Deca, Giga Motor circuit breakers

Type of product	Range (400/415 V AC)	Pages
Introduction		B6/3
TeSys Deca Frame 2 - Motor circuit breakers Magnetic, Thermal magnetic (Product ref. GV2L, GV2LE, GV2P, GV2ME)	0.06 or 15 kW	B6/11
TeSys Deca Frame 2 - Motor circuit breakers Thermal magnetic - delayed tripping - For high current peak motors or 3-phase transformers (Product ref. GV2RT)	0.09 or 11 kW	B6/18
Add-on blocks, accessories (for TeSys Deca Frame 2 circuit breakers)		
TeSys Deca Frame 3 - Motor circuit breakers Magnetic, Thermal magnetic (Product ref. GV3L, GV3P)	5.5 to 45 kW	B6/25
Add-on blocks, accessories (for TeSys Deca Frame 3 circuit breakers)		
TeSys Deca Frame 4 - Motor circuit breakers Magnetic, Thermal magnetic (Product ref. GV4L, GV4LE, GV4P, GV4PE, GV4PEM, GV4PB)	0.25 to 55 kW 1/2 to 60 HP	B6/31
Add-on blocks, accessories (for TeSys Deca Frame 4 circuit breakers)		
TeSys Giga Frame 5, 6 - Motor circuit breakers Thermal magnetic (Product ref. GV5P, GV6P)	55 to 250 kW	B6/49
Add-on blocks, accessories (for TeSys Giga Frame 5, 6 circuit breakers)		
PowerLogic™ Energy measurement solutions		
PowerTag Energy sensors can be used with TeSys Deca, Giga motor circuit breakers		B6/58
PowerTag Energy Link Modbus TCP/IP concentrator for PowerTag Energy sensors		B6/62
TeSys Power - Modular circuit breakers for auxiliary circuits		
Modular circuit breakers Thermal magnetic (Product ref. GB)	0.5 to 20 A	B6/63

Circuit breakers for motor protection and control

Deca, Giga motor circuit breakers provide compact, reliable and efficient solutions for:

- isolation,
- protection against short circuits and overloads,
- On-Off manual control of motors from 0.06 to 250 kW.

They are conforming to, depending of the versions, IEC/EN 60947-1, IEC/EN 60947-2, IEC/EN 60947-4-1 and UL 60497-4-1, CSA 22.2 n° 60497-4-1.

Deca, Giga protection technologies

Deca, Giga circuit breakers are carried with 3 variants:

- Magnetic detection: product references GV2LE, GV2L, GV3L, GV4L, GV4LE for protection against short-circuit.
 - Thermal-magnetic: product references GV2ME⁽¹⁾, GV2P, GV3P, GV4P, GV4PE, GV5, GV6 for protection against short-circuits, overload, phase loss and phase unbalance.
 - Advanced: product references GV4PEM combines GV4P protections and motor jam, long start, ground-fault protections.
- With a magnetic circuit breaker, a thermal relay is frequently associated in order to have a short circuit protection and an overload protection.

TeSys Deca - Frame 2 circuit breakers: 45 mm width, for motors up to 15 kW

The most commonly used circuit breaker. with a choice of about 100 auxiliaries and accessories. TeSys Deca Frame 2 circuit breakers and TeSys K, Deca contactors can be easily assembled as a single block with one accessory.

The high Frame 2 electrical endurance (up to 100 000 operating cycles) makes it very suitable for direct manual motor control, especially ref. GV2ME⁽¹⁾ (thermal-magnetic c.b., lth up to 32 A).

Enclosure mounting is well adapted to ref. GV2L and GV2P, with their possible extended rotary handle and visible trip indication.

TeSys Deca - Frame 3 circuit breakers: 55 mm width, for motors up to 45 kW

High performance breakers, high breaking capacity (Ics 100 kA/400 V for ratings up to 32 A, 50 kA up to 80 A).

Wide choice of auxiliaries / accessories, possible extended rotary handle. Visible tri indication.

Patented Everlink connectors provide everlasting connection (no re-tightening required).

Direct monoblock starter assembly with TeSys Deca contactors. No accessory required.

TeSys Deca - Frame 4 circuit breakers: 81 mm width, for motors up to 55 kW

State-of-the-art technology, TeSys Deca Frame 4 is compact and robust. Electronic core of ref. GV4P gives a great detection accuracy, with alarming and advanced protections for ref. GV4PEM, GV4PB.

Magnetic, electronic thermal-magnetic, or electronic thermal magnetic with advanced protections versions.

Ratings up to 115 A with breaking capacity Ics of 25 kA/400 V (B series), 50 kA/400 V (N series) or 100 kA/400 V (S series).

TeSys Giga - Frame 5: 105 mm width, for motors up to 110 kW / Frame 6: 140 mm width, for motors up to 250 kW

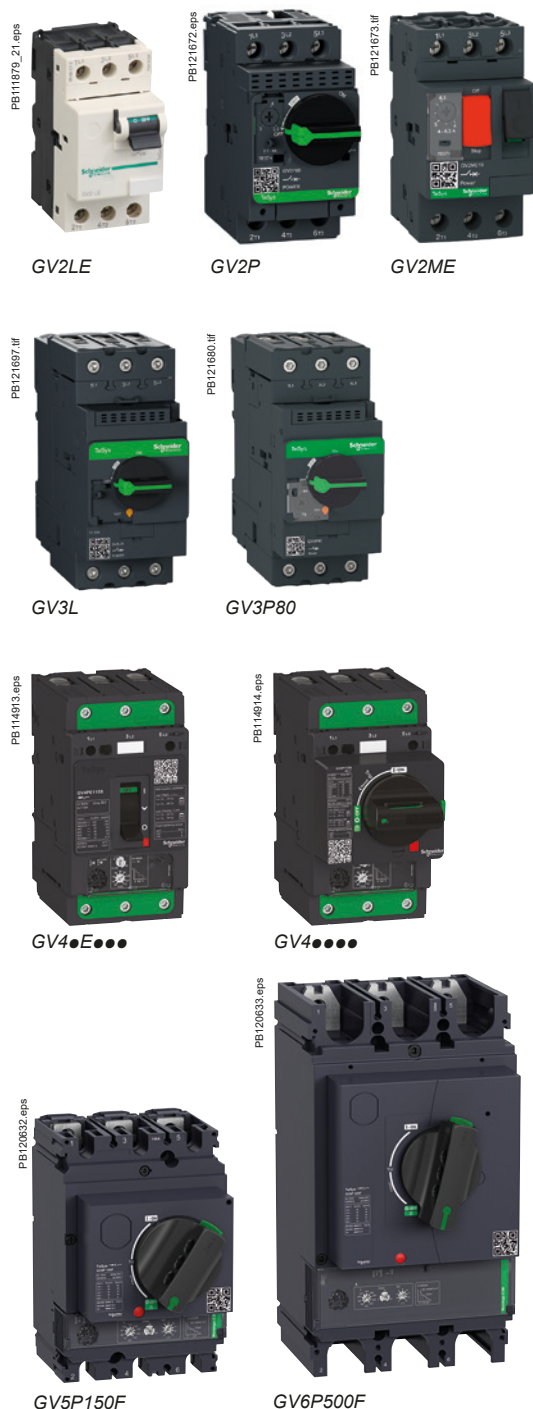
TeSys Giga - Frame 5 and 6 with advanced thermal-magnetic trip unit provide more effective protection to high power motors in the most demanding appliances.

They provide protection to motors against overloads with selection of a trip class (5, 10 or 20), short-circuits, phase unbalance or phase loss.

Adjustable over-load and short circuit current settings provide flexibility.

Wide choice of auxiliaries/accessories are available for indication, control and operation.

⁽¹⁾ Ref. GV2ME●●AP are specific GV2ME references for CEE zone.



TeSys Deca, Giga circuit breakers - Range overview

Molded case circuit breakers for motor protection and control

Deca - Frame 2

Product reference	Protection against			Range (kW / 415 V AC)	Control	Terminals	Dimensions (W x H x D)
	Short-circuits	Overload	Jam, ground-fault, long start... (Multifunction - see page B6/6)				
GV2L	●			0.09 to 15	Rotary handle	Screw clamp	44.5 x 89 x 97 (with rotary handle)
GV2LE	●			0.06 to 15	Toggle	Screw clamp	44.5 x 89 x 78.5 (with toggle)
GV2P	●	●		0.06 to 15	Rotary handle	Screw clamp	44.5 x 89 x 97 (with rotary handle)
GV2ME ⁽¹⁾	●	●		0.06 to 11	Push button	Screw clamp, lug or spring	44.5 x 89 x 78.2 (with push button) ⁽²⁾
GV2RT	●	●		0.09 to 11	Toggle	Screw clamp	44.5 x 89 x 78.5 (with toggle)

Deca - Frame 3

GV3L	●			11 to 45	Rotary handle	Lug, EverLink (BTR screw)	55 x 132 x 136 (with rotary handle)
GV3P	●	●		5.5 to 45			

Deca - Frame 4

GV4L	●			0.25 to 55 kW	Rotary handle	Lug, EverLink (BTR screw)	81 x 156 x 116 (with toggle)
GV4LE	●				Toggle		81 X 156 x 165 (with rotary handle)
GV4P	●	●			Rotary handle		
GV4PE	●	●			Toggle		
GV4PEM	●	●	●		Toggle		
GV4PB	●	●	●	½ to 60 HP	Toggle		

Giga - Frame 5

GV5P150●	●	●		55 to 110	Direct rotary handle	Lug, screw clamp	105 x 161 x 155 ⁽³⁾ (with direct rotary handle)
GV5P220●	●	●					

Giga - Frame 6

GV6P320●	●	●		132 to 250	Direct rotary handle	Lug, screw clamp	140 x 255 x 179 ⁽³⁾ (with direct rotary handle)
GV6P500●	●	●					

⁽¹⁾ Ref. **GV2ME●●AP** are specific **GV2ME** references for CEE zone.

⁽²⁾ 44.5 x 101 x 78.2 mm for **GV2ME●●3**.

⁽³⁾ Depth without keylock.

Motor circuit breakers



GV2L



GV2LE



GV2P



GV2ME



GV2RT



GV3L



GV3P



GV4L



GV4P



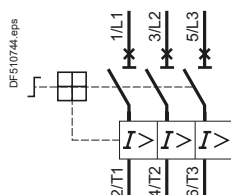
GV4PEM



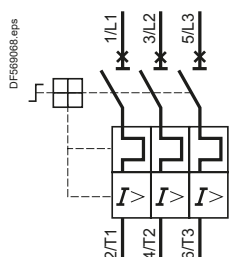
GV5P150F



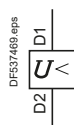
GV6P500F



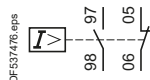
Thermal protection circuit breaker (with rotary control)



Thermal magnetic protection circuit breaker (with rotary control)



Voltage trip



Fault signalling

Basic functions

Short circuit protection (magnetic/thermal magnetic circuit breakers)

It provides a protection of the installation against short-circuit by an instantaneous trip of the circuit breaker. The tripping is obtained by means of a magnetic element incorporated in the motor circuit breaker or by an electronic detection (ref. GV4P, GV5 and GV6).

The magnetic tripping threshold is not adjustable, except on ref. GV4L, and is a fixed ratio of the maximum setting current I_n .

Overload protection (thermal magnetic circuit breakers)

It provides a protection of the motor against overload. When current drawn by the motor is above its rated current, this continuous overcurrent lead to increase of motor internal temperature and reduce motor life time. Use of suitable protective device shall avoid this damage to the motor. This is obtained by means of a thermal element incorporated in the motor circuit breaker, or by sensors for electronic products (ref. GV4P, GV5 and GV6).

An automatic compensation for ambient temperature variations is also provided. The rated operational current of the motor is displayed by turning a graduated knob.

Motor ON/OFF control

The circuit breaker provides a local manual control of the motor when used on its own (without contactor). The operation is possible by push buttons, toggle, or a single rotary handle.

Contacts position indication

Because they are suitable for isolation, the circuit breakers, in the open position, provide an adequate isolation distance and indicate the accurate position of the moving contacts by the position of the operators.

Additional functions

They are provided by additional modules.

Under voltage protection

Trips the circuit breaker in case of under voltage. The user is therefore protected against sudden starting of the machine when normal voltage is restored. Circuit breaker reset and/or start button "I" has to be pressed to restart the motor.

Remote off-power

Circuit breaker can be remotely tripped with the addition of a shunt trip.

Off-power locking

The operators on both open-mounted and enclosed motor circuit breakers can be locked in the off position "O" by up to 3 padlocks.



Motor circuit breakers versus fuse protection ?

Circuit breakers are a common solution for Powering motor against short circuits and overloads.

As a comparison, a fuse based solution can only provide a partial protection depending on the choice of the fuse type and rating. The thermal magnetic circuit breaker is adjustable and can be fine-tuned to the practical motor load.

The fuse based solution offers a very fast protection.



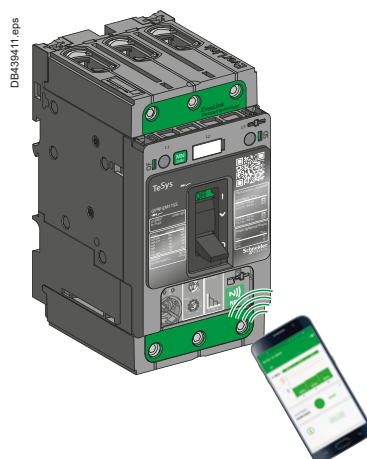
Advanced protections embedded on Deca - Frame 4 ref. GV4PEM, GV4PB (multifunction)

In addition to basic protections, ref. GV4PEM, GV4PB embed protections against:

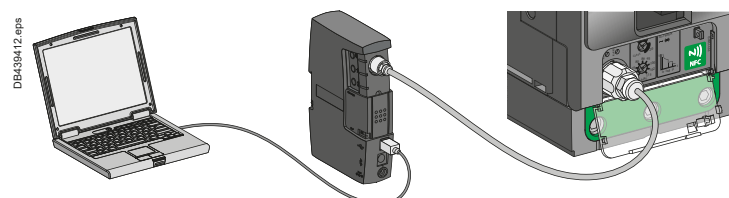
- Long start (high inertia, resistive torque machines)
- Jam (overtorque, machine failure)
- Ground-fault (reduced isolation)
- Unbalanced (phase currents are not equal)
- Phase loss (1 or 2 phases missing).

Fully configurable-advanced protections:

- wireless with 'EcoStruxure Power Device App' application for Android smartphone through NFC (near field communication).

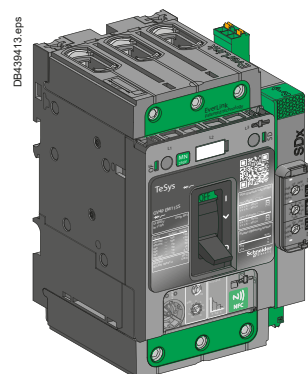


- with EcoStruxure Power Commission software on a computer connected to the test socket through a configuration and maintenance module.

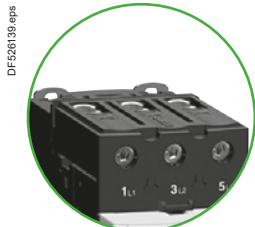


Remote indications:

Ref. GV4PEM, GV4PB circuit breaker may be equipped with an SDx alarming / fault differentiation module to prevent to trip or to identify the type of fault after a trip (see page B6/44).

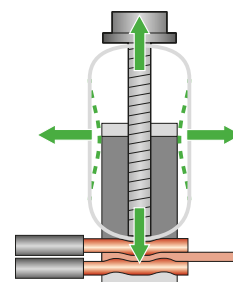
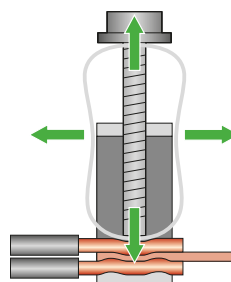
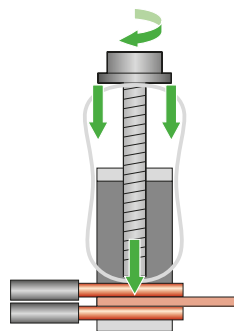


- With EverLink connectors, save space and time during panel assembly.
- Bare cable connections are as safe as compression lug ones.



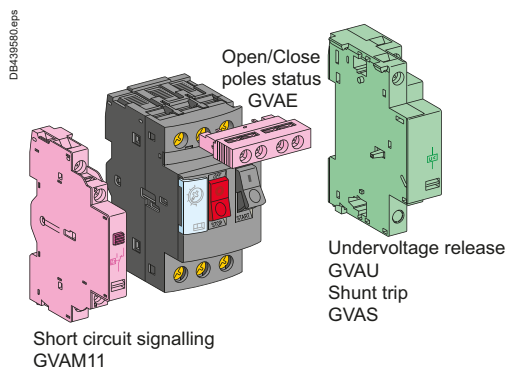
Long lasting connection quality

The spring compensates for cable conductor creep. Tightening force is assured.

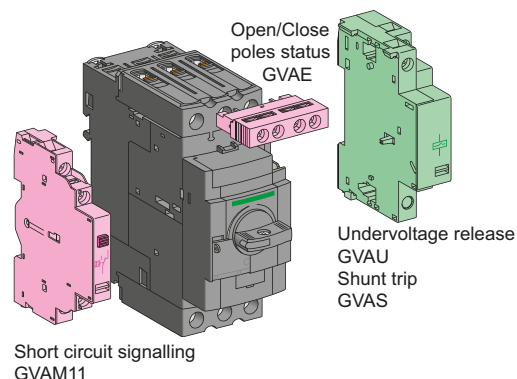


Motor circuit breakers

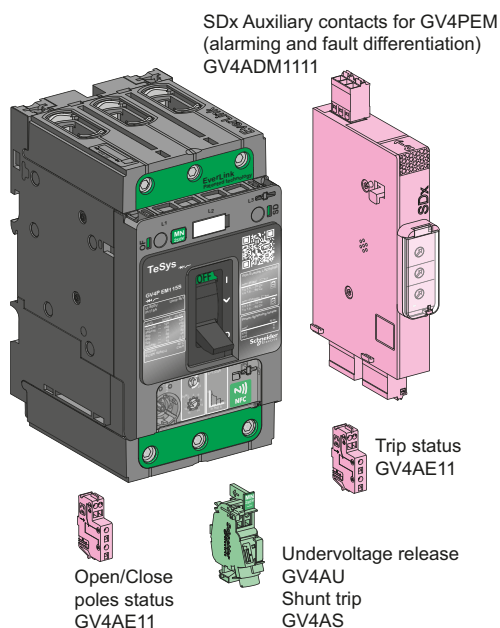
Auxiliary functions provided by add-on blocks



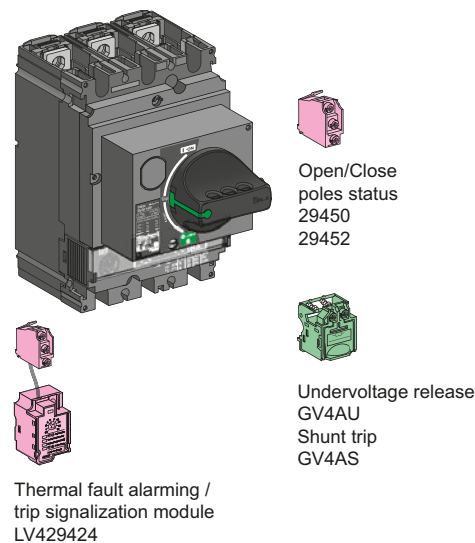
TeSys Deca - Frame 2



TeSys Deca - Frame 3



TeSys Deca - Frame 4



TeSys Giga - Frame 5, 6

Auxiliary contacts add-on blocks

For control, alarms, automatic actions:

- **Instantaneous** indication of the position of the circuit breaker contacts
- **Trip indication,**
- **Alarming.**

Trip units

For remote tripping of circuit breaker:

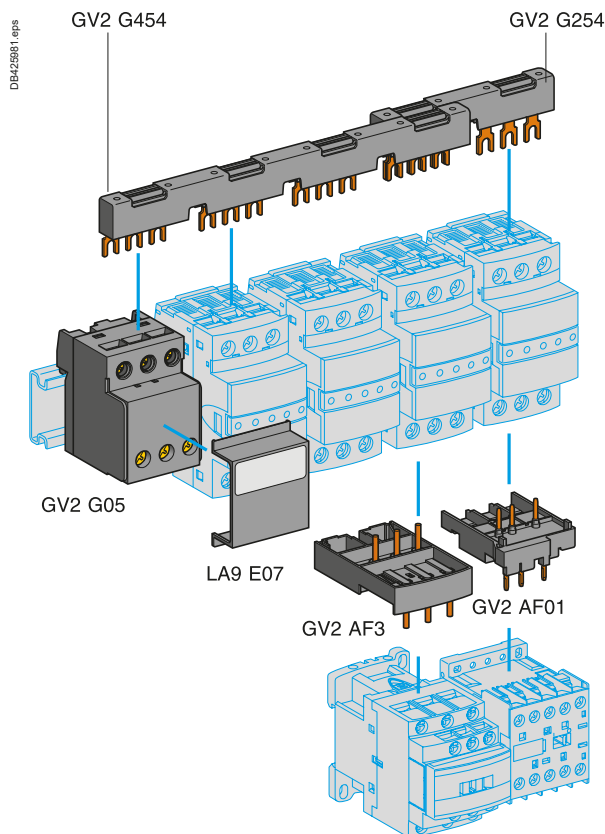
- **Shunt trip / MX**, trips the circuit breaker when powered
- **Undervoltage release / MN**, trips the circuit breaker when voltage is loss.

Compact power circuits wiring with TeSys Deca circuit breakers (Frame 2) and Deca contactors ⁽¹⁾

Busbars and combination blocks

Power busbars and combinations blocks provide a compact solution for assembling a group of motor starters. They save wiring time and provide a clear finish aspect.

These solutions are available for Deca - Frame 2 circuit breakers + Deca contactors.



Motor
circuit
breakers

⁽¹⁾ Details on these solution in chapter B2 of catalogue.

TeSys Deca - Frame 2 0.06 to 15 kW



Motor
circuit
breakers

PB121071.ir



GV2L16



Motor
circuit
breakers

Motor circuit breakers from 0.09 to 15 kW

Deca - Frame 2 (ref. GV2L): Control by rotary knob, connection by screw clamp terminals

Standard power ratings of 3-phase motors

50/60 Hz in category AC-3

400/415 V			500 V			690 V			Magnetic protection rating	Tripping current I _d ± 20 %	Use in association with thermal overload relay (class 10 A)	Reference
P	I _{cu}	I _{cs} ⁽¹⁾	P	I _{cu}	I _{cs} ⁽¹⁾	P	I _{cu}	I _{cs} ⁽¹⁾				
kW	kA		kW	kA		kW	kA		A	A		
0.09	★	★	—	—	—	—	—	—	0.4	5	LRD03	GV2L03
0.12	★	★	—	—	—	0.37	★	★	0.63	8	LRD04	GV2L04
0.18	★	★	—	—	—	—	—	—	0.63	8	LRD04	GV2L04
—	—	—	—	—	—	0.55	★	★	1	13	LRD05	GV2L05
0.25	★	★	—	—	—	—	—	—	1	13	LRD05	GV2L05
—	—	—	—	—	—	0.75	★	★	1	13	LRD06	GV2L05
0.37	★	★	0.37	★	★	—	—	—	1	13	LRD05	GV2L05
0.55	★	★	0.55	★	★	1.1	★	★	1.6	22.5	LRD06	GV2L06
—	—	—	0.75	★	★	—	—	—	1.6	22.5	LRD06	GV2L06
0.75	★	★	1.1	★	★	1.5	4	100	2.5	33.5	LRD07	GV2L07
1.1	—	—	—	—	—	—	—	—	—	—	LRD08	GV2L08
1.5	★	★	1.5	★	★	3	4	100	4	51	LRD08	GV2L08
—	—	—	—	—	—	—	—	—	—	—	LRD08	GV2L08
2.2	★	★	3	★	★	4	4	100	6.3	78	LRD10	GV2L10
3	★	★	4	10	100	5.5	4	100	10	138	LRD12	GV2L14
4	—	—	—	—	—	—	—	—	—	—	LRD14	GV2L14
—	—	—	—	—	—	7.5	4	100	10	138	LRD14	GV2L14
—	—	—	—	—	—	9	4	100	14	170	LRD16	GV2L16
5.5	50	50	7.5	10	75	11	4	100	14	170	LRD16	GV2L16
7.5	50	50	9	10	75	15	4	100	18	223	LRD21	GV2L20
9	50	50	11	10	75	18.5	4	100	25	327	LRD22	GV2L22
11	50	50	15	10	75	—	—	—	25	327	LRD22	GV2L22
15	50	50	18.5	10	75	22	4	100	32	416	LRD32	GV2L32

(1) As % of I_{cu}. Associated current limiter or fuses, where required.

★ > 100 kA.

PB11079 epa



GV2LE

Magnetic motor circuit breakers from 0.06 to 15 kW												
Deca - Frame 2 (ref. GV2LE): control by rocker lever, connection by screw clamp terminals												
Standard power ratings of 3-phase motors 50/60 Hz in category AC-3									Magnetic protection rating	Tripping current I _d ± 20 %	Use in association with thermal overload relay	Reference
400/415 V			500 V			690 V						
P	Icu	Ics ⁽¹⁾	P	Icu	Ics ⁽¹⁾	P	Icu	Ics ⁽¹⁾				
kW	kA		kW	kA		kW	kA		A	A		
0.06	★	★	—	—	—	—	—	—	0.4	5	LR2K0302	GV2LE03
0.09	★	★	—	—	—	—	—	—	0.4	5	LR2K0304	GV2LE03
0.12	★	★	—	—	—	0.37	★	★	0.63	8	LR2K0304	GV2LE04
0.18	★	★	—	—	—	—	—	—	0.63	8	LR2K0305	GV2LE04
—	—	—	—	—	—	0.55	★	★	1	13	LR2K0305	GV2LE05
0.25	★	★	—	—	—	—	—	—	1	13	LR2K0306	GV2LE05
—	—	—	—	—	—	0.75	★	★	1	13	LR2K0306	GV2LE05
0.37	★	★	0.37	★	★	—	—	—	1	13	LR2K0306	GV2LE05
0.55	★	★	0.55	★	★	1.1	★	★	1.6	22.5	LR2K0307	GV2LE06
—	—	—	0.75	★	★	—	—	—	1.6	22.5	LR2K0307	GV2LE06
0.75	★	★	1.1	★	★	1.5	3	75	2.5	33.5	LR2K0308	GV2LE07
1.1	★	★	—	—	—	—	—	—	2.5	33.5	LR2K0308	GV2LE07
1.5	★	★	1.5	★	★	3	3	75	4	51	LR2K0310	GV2LE08
—	—	—	2.2	★	★	—	—	—	4	51	LR2K0312	GV2LE08
2.2	★	★	3	50	100	4	3	75	6.3	78	LR2K0312	GV2LE10
3	★	★	4	10	100	5.5	3	75	10	138	LR2K0314	GV2LE14
4	★	★	5.5	10	100	—	—	—	10	138	LR2K0316	GV2LE14
—	—	—	—	—	—	7.5	3	75	10	138	LRD14	GV2LE14
—	—	—	—	—	—	9	3	75	14	170	LRD16	GV2LE16
5.5	15	50	7.5	6	75	11	3	75	14	170	LR2K0321	GV2LE16
7.5	15	50	9	6	75	15	3	75	18	223	LRD21	GV2LE20
9	15	40	11	4	75	18.5	3	75	25	327	LRD22	GV2LE22
11	15	40	15	4	75	—	—	—	25	327	LRD22	GV2LE22
15	10	50	18.5	4	75	22	3	75	32	416	LRD32	GV2LE32

⁽¹⁾ As % of Icu.

★ > 100 kA.



Motor
circuit
breakers



GV2ME

Motor circuit breakers from 0.06 to 15 kW / 400 V, with screw clamp terminals
Deca - Frame 2 (ref. GV2ME) with pushbutton control

 Standard power ratings of 3-phase motors
 50/60 Hz in category AC-3

400/415 V			500 V			690 V			Setting range of thermal trips (2)	Magnetic tripping current I _d ± 20 %	Reference
P	I _{cu}	I _{cs} (1)	P	I _{cu}	I _{cs} (1)	P	I _{cu}	I _{cs} (1)			
kW	kA	%	kW	kA	%	kW	kA	%	A	A	
—	—	—	—	—	—	—	—	—	0.1...0.16	1.5	GV2ME01
0.06	★	★	—	—	—	—	—	—	0.16...0.25	2.4	GV2ME02
0.09	★	★	—	—	—	—	—	—	0.25...0.40	5	GV2ME03
0.12	★	★	—	—	—	0.37	★	★	0.40...0.63	8	GV2ME04
0.18	★	★	—	—	—	—	—	—			
0.25	★	★	—	—	—	0.55	★	★	0.63...1	13	GV2ME05
0.37	★	★	0.37	★	★	—	—	—	1...1.6	22.5	GV2ME06
0.55	★	★	0.55	★	★	0.75	★	★			
—	—	—	0.75	★	★	1.1	★	★			
0.75	★	★	1.1	★	★	1.5	3	75	1.6...2.5	33.5	GV2ME07
1.1	★	★	1.5	★	★	2.2	3	75	2.5...4	51	GV2ME08
1.5	★	★	2.2	★	★	3	3	75			
2.2	★	★	3	50	100	4	3	75	4...6.3	78	GV2ME10
3	★	★	4	10	100	5.5	3	75	6...10	138	GV2ME14
4	★	★	5.5	10	100	7.5	3	75			
5.5	15	50	7.5	6	75	9	3	75	9...14	170	GV2ME16
—	—	—	—	—	—	11	3	75			
7.5	15	50	9	6	75	15	3	75	13...18	223	GV2ME20
9	15	40	11	4	75	18.5	3	75	17...23	327	GV2ME21
11	15	40	15	4	75	—	—	—	20...25	327	GV2ME22 (3)
15	10	50	18.5	4	75	22	3	75	24...32	416	GV2ME32

Motor circuit breakers from 0.06 to 15 kW / 400 V, with lugs

 To order thermal magnetic circuit breakers with connection by lugs, add the digit **6** to the end of reference selected above.

Example: ref. GV2ME08 becomes GV2ME086.

Thermal magnetic circuit breakers GV2ME with built-in auxiliary contact block

With instantaneous auxiliary contact block (composition, see page B6/21):

 ■ GVAE1, add suffix **AE1TQ** to the motor circuit breaker reference selected above.

 Example: **GV2ME01AE1TQ**.

 ■ GVAE11, add suffix **AE11TQ** to the motor circuit breaker reference selected above.

 Example: **GV2ME01AE11TQ**.

 ■ GVAN11, add suffix **AN11TQ** to the motor circuit breaker reference selected above.

 Example: **GV2ME01AN11TQ**.

These circuit breakers with built-in contact block are sold in lots of 20 units in a single pack.

 (1) As % of I_{cu}.

(2) The thermal trip setting must be within the range marked on the graduated knob.

 (3) Maximum rating which can be mounted in enclosures **GV2MC** or **MP**, please consult your Regional Sales Office.

★ > 100 kA.

PB121073.HF



GV2ME

Motor circuit breakers from 3/4 to 20 HP / 460 V, with screw clamp terminals										
Deca - Frame 2 (ref. GV2ME) with pushbutton control										
Thermal setting (A)	Maximum Horsepower ratings								Group Motor applications Max. Fuse or Circuit breaker (A)	Reference
	Single-Phase			Three-Phase						
	115 V	200 V	230 V	115 V	200 V	230 V	460 V	575 V		
0.1...0.16	—	—	—	—	—	—	—	—	450	GV2ME01
0.16...0.25	—	—	—	—	—	—	—	—	450	GV2ME02
0.25...0.40	—	—	—	—	—	—	—	—	450	GV2ME03
0.40...0.63	—	—	—	—	—	—	—	—	450	GV2ME04
0.63...1	—	—	—	—	—	—	—	1/2	450	GV2ME05
1...1.6	—	—	1/10	—	—	—	3/4	3/4	450	GV2ME06
1.6...2.5	—	1/6	1/6	—	1/2	1/2	1	1.5	450	GV2ME07
2.5...4	1/8	1/4	1/3	—	3/4	3/4	2	3	450	GV2ME08
4...6.3	1/4	1/2	1/2	3/4	1	1.5	3	5	450	GV2ME10
6...10	1/2	1	1.5	1	2	3	5	7.5	450	GV2ME14
9...14	3/4	2	2	2	3	3	10	10	450	GV2ME16
13...18	1	2	3	2	5	5	10	15	450	GV2ME20
17...23	1.5	3	3	3	5	7.5	15	20	450	GV2ME21
20...25	2	—	—	—	7.5	7.5	15	20	450	GV2ME22
24...32	2	5	5	5	7.5	10	20	25	450	GV2ME32



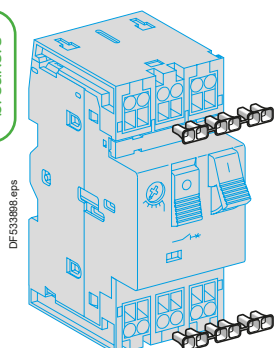
Motor circuit breakers



GV2ME003



Motor circuit breakers



LA9D99

Motor circuit breakers from 0.06 to 11 kW, with spring terminal connections
Deca - Frame 2 (ref. GV2ME) ⁽¹⁾ with pushbutton control

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3						Setting range of thermal trips (3)	Magnetic tripping current I _d ± 20 %	Reference
400/415 V			500 V					
P	I _{cu}	I _{cs} (2)	P	I _{cu}	I _{cs} (2)			
kW	kA	%	kW	kA	%	A	A	
—	—	—	—	—	—	0.1...0.16	1.5	GV2ME013
0.06	★	★	—	—	—	0.16...0.25	2.4	GV2ME023
0.09	★	★	—	—	—	0.25...0.40	5	GV2ME033
0.12	★	★	—	—	—	0.40...0.63	8	GV2ME043
0.18	★	★	—	—	—	0.63...1	13	GV2ME053
0.25	★	★	0.37	★	★	1...1.6	22.5	GV2ME063
0.37	★	★	0.37	★	★	1.6...2.5	33.5	GV2ME073
0.55	★	★	0.55	★	★	2.5...4	51	GV2ME083
0.75	★	★	0.75	★	★	4...6.3	78	GV2ME103
1.1	★	★	1.1	★	★	6...10	138	GV2ME143
1.5	★	★	1.5	★	★	9...14	170	GV2ME163
2.2	★	★	2.2	★	★	13...18	223	GV2ME203
3	★	★	3	★	★	17...23	327	GV2ME213
4	★	★	4	★	★	20...25	327	GV2ME223
5.5	15	50	5.5	6	75			
7.5	15	50	7.5	6	75			
9	15	40	9	4	75			
11	15	40	11	4	75			
11	15	40	15	4	75			

Contact blocks

Description	Mounting	Maximum number	Type of contacts	Sold in lots of	Unit reference
Instantaneous auxiliary contacts	Front	1	N/O + N/C	10	GVAE113
			N/O + N/O	10	GVAE203
	LH side	2	N/O + N/C	1	GVAN113
			N/O + N/O	1	GVAN203

Accessory

Description	Application	Sold in lots of	Unit reference
Cable end reducer	For connection of conductors from 1 to 1.5 mm ²	20	LA9D99

⁽¹⁾ For connection of conductors from 1 to 1.5 mm², the use of an LA9D99 cable end reducer is recommended.

⁽²⁾ Maximum rating which can be mounted in enclosures GV2MC or MP, please consult your Regional Sales Office

⁽³⁾ The thermal trip setting must be within the range marked on the graduated knob.

★ > 100 kA.

PB12/1672/1r



GV2P08

Motor circuit breakers from 0.06 to 30 kW / 400 V

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3									Setting range of thermal trips (2)	Magnetic tripping current I _d ± 20 %	Reference
400/415 V			500 V			690 V					
P	I _{cu}	I _{cs} (1)	P	I _{cu}	I _{cs} (1)	P	I _{cu}	I _{cs} (1)			
kW	kA	%	kW	kA	%	kW	kA	%	A	A	
Deca - Frame 2 (ref. GV2P): control by rotary knob											
Screw clamp terminals											
—	—	—	—	—	—	—	—	—	0.1...0.16	1.5	GV2P01
0.06	★	★	—	—	—	—	—	—	0.16...0.25	2.4	GV2P02
0.09	★	★	—	—	—	—	—	—	0.25...0.40	5	GV2P03
0.12	★	★	—	—	—	0.37	★	★	0.40...0.63	8	GV2P04
0.18	★	★	—	—	—	—	—	—	—	—	—
0.25	★	★	—	—	—	0.55	★	★	0.63...1	13	GV2P05
0.37	★	★	0.37	★	★	—	—	—	1...1.6	22.5	GV2P06
0.55	★	★	0.55	★	★	0.75	★	★	—	—	—
0.75	★	★	1.1	★	★	1.5	8	100	1.6...2.5	33.5	GV2P07
1.1	★	★	1.5	★	★	2.2	8	100	2.5...4	51	GV2P08
2.2	★	★	3	★	★	4	6	100	4...6.3	78	GV2P10
3	★	★	5	50	100	5.5	6	100	6...10	138	GV2P14
5.5	★	★	7.5	42	75	9	6	100	9...14	170	GV2P16
—	—	—	—	—	—	11	6	100	—	—	—
7.5	50	50	9	10	75	15	4	100	13...18	223	GV2P20
9	50	50	11	10	75	18.5	4	100	17...23	327	GV2P21
11	50	50	15	10	75	—	—	—	20...25	327	GV2P22
15	50	50	18.5	10	75	22	4	100	24...32	416	GV2P32

How to use the table : select your load operating voltage, then select its standard power value (below, in the same column). The appropriate circuit breaker is in the extreme right column, in the corresponding row.

Example: GV2P04 can protect 0.12 and 0.18 kW under 400/415 V, and 0.18 kW under 440 V, and 0.37 kW under 690 V. No 500 V standard power value can fit GV2P04.

Motor circuit breakers up to 50 HP / 600 V, UL 60947-4-1 type E
Deca - Frame 2 (ref. GV2P) (3)

To obtain a GV2P motor circuit breaker, UL 60947-4-1 type E, use the following with the circuit breaker:

- a "Large Spacing" adapter **GV2GH7**.

Motor circuit breakers from 3/4 to 20 HP / 460 V, with screw clamp terminals
Deca - Frame 2 (ref. GV2P) with rotary handle

Thermal setting (A)	Maximum Horsepower ratings ⁽⁴⁾								Group Motor applications Max. Fuse or Circuit breaker (A)	Reference
	Single-Phase			Three-Phase						
	115 V	200 V	230 V	115 V	200 V	230 V	460 V	575 V		
0.1...0.16	—	—	—	—	—	—	—	—	450	GV2P01
0.16...0.25	—	—	—	—	—	—	—	—	450	GV2P02
0.25...0.40	—	—	—	—	—	—	—	—	450	GV2P03
0.40...0.63	—	—	—	—	—	—	—	—	450	GV2P04
0.63...1	—	—	—	—	—	—	—	1/2	450	GV2P05
1...1.6	—	—	1/10	—	—	—	3/4	3/4	450	GV2P06
1.6...2.5	—	1/6	1/6	—	1/2	1/2	1	1.5	450	GV2P07
2.5...4	1/8	1/4	1/3	—	3/4	3/4	2	3	450	GV2P08
4...6.3	1/4	1/2	1/2	3/4	1	1.5	3	5	450	GV2P10
6...10	1/2	1	1.5	1	2	3	5	7.5	450	GV2P14
9...14	3/4	2	2	2	3	3	10	10	450	GV2P16
13...18	1	2	3	2	5	5	10	15	450	GV2P20
17...23	1.5	3	3	3	5	7.5	15	20	450	GV2P21
20...25	2	—	—	—	7.5	7.5	15	20	450	GV2P22
24...32	2	5	5	5	7.5	10	20	25	450	GV2P32

(1) As % of Icu.

(2) The thermal trip setting must be within the range marked on the graduated knob.

(3) Accessory: see page B6/23.

(4) 3P FLA corresponding values: see page A5/84.

* > 100 kA.

PB121514 eps



GV2RT

Motor
circuit
breakers

For motors with high current peak on starting

Deca - Frame 2 (ref. GV2RT) control by rocker lever

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3					Setting range of thermal trips (1)	Magnetic tripping current Id ± 20 %	Reference
220/ 230 V	400/ 415 V	440 V	500 V	690 V			
kW	kW	kW	kW	kW	A	A	
0.06	0.09	0.09 0.12	–	–	0.25...0.40	8	GV2RT03
–	0.12 0.18	0.18	–	0.37	0.40...0.63	13	GV2RT04
0.09 0.12	0.25 0.37	0.25 0.37	0.37	0.55	0.63...1	22	GV2RT05
0.18 0.25	0.37 0.55	0.37 0.55	0.37 0.55 0.75	0.75 1.1	1...1.6	33	GV2RT06
0.37	0.75	0.75 1.1	1.1	1.5	1.6...2.5	51	GV2RT07
0.55 0.75	1.1 1.5	1.5	1.5 2.2	2.2 3	2.5...4	78	GV2RT08
1.1	2.2	2.2 3	3	4	4...6.3	138	GV2RT10
1.5 2.2	3 4	4	4 5.5	5.5 7.5	6...10	200	GV2RT14
2.2 3	5.5	5.5 7.5	7.5	9 11	9...14	280	GV2RT16
4	7.5	7.5 9	9	15	13...18	400	GV2RT20
5.5	9 11	11	11	18.5	17...23	400	GV2RT21

(1) The thermal trip setting must be within the range marked on the graduated knob.

For primaries of 3-phase transformers

Deca - Frame 2 (ref. GV2RT) control by rocker lever

Standard power ratings					Setting range of thermal trips (2)	Magnetic tripping current Id ± 20 %	Reference
230/240 V	400/415 V	440 V	500 V	690 V			
kVA	kVA	kVA	kVA	kVA	A	A	
–	–	–	–	–	0.25...0.40	8	GV2RT03
–	–	–	–	–	0.40...0.63	13	GV2RT04
–	–	0.63	0.63	1	0.63...1	22	GV2RT05
0.4	0.63	1	1	–	1...1.6	33	GV2RT06
0.63	1	–	1.6	1.6 2	1.6...2.5	51	GV2RT07
1	1.6 2	1.6 2	2 2.5	2.5	2.5...4	78	GV2RT08
1.6 2	2.5	2.5 4	4	4 5 6.3	4...6.3	138	GV2RT10
2.5	4 5	5	5 6.3	–	6...10	200	GV2RT14
4	6.3	6.3	–	10 12.5	9...14	280	GV2RT16
5 6.3	10	10	10 12.5	10	13...18	400	GV2RT20

Accessory (3)

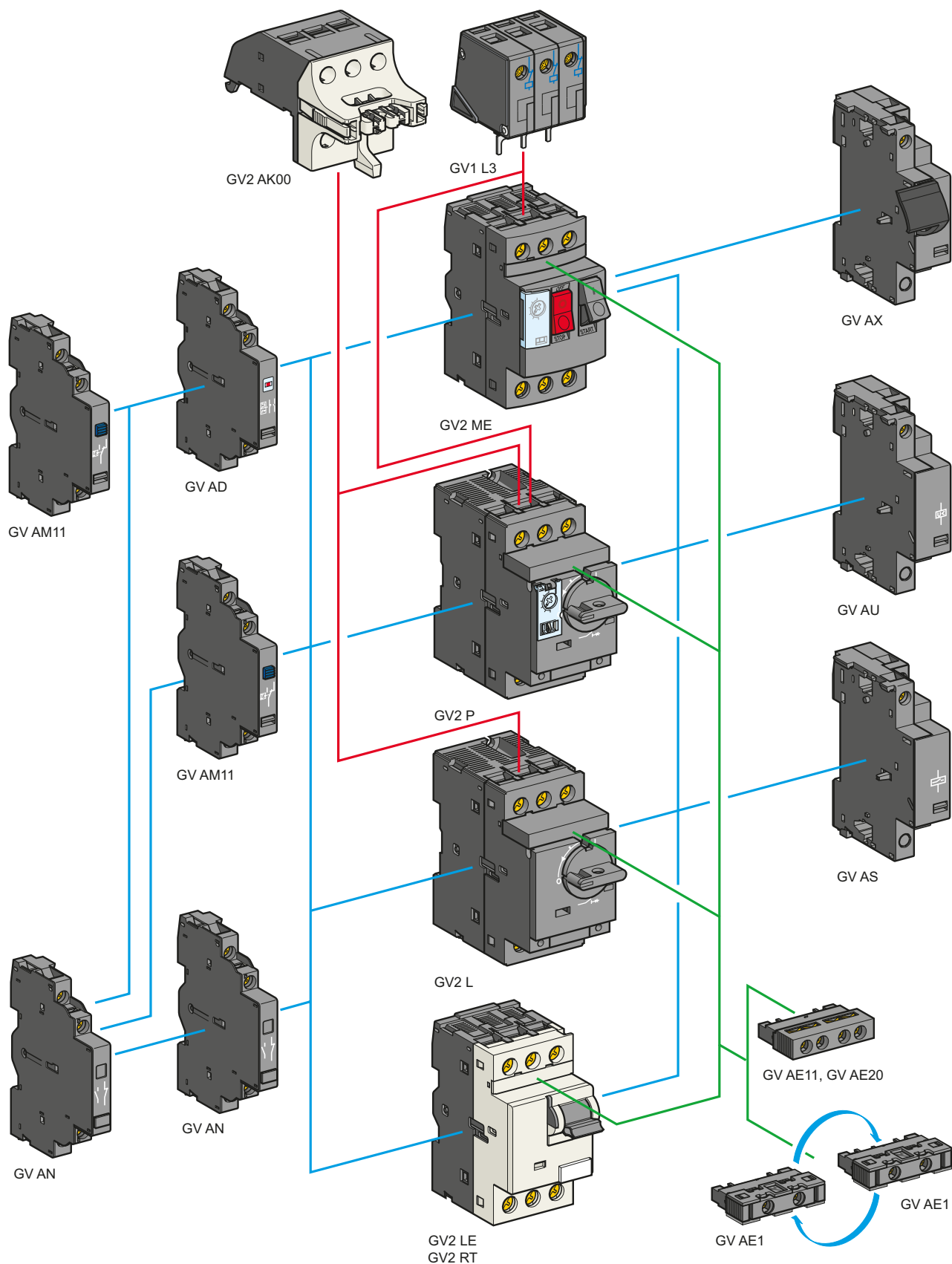
Description

Padlockable external operator (IP 54)
black handle, blue legend plate

Reference
GV2AP03

(2) The thermal trip setting must be within the range marked on the graduated knob.

(3) Other accessories such as mounting, cabling and marking accessories are identical to those used for GV2ME motor circuit breakers, see page B6/23.



Contact blocks						
Description	Mounting	Maximum number	Type of contacts	Sold in lots of	Unit reference	
Instantaneous auxiliary contacts	Front ⁽¹⁾	1	N/O or N/C ⁽²⁾	10	GVAE1	
			N/O + N/C	10	GVAE11	
			N/O + N/O	10	GVAE20	
	Side (LH)	2	N/O + N/C	1	GVAN11	
			N/O + N/O	1	GVAN20	
Fault signalling contact + instantaneous auxiliary contact	Side ⁽³⁾ (LH)	1	N/O (fault)	+ N/O	1	GVAD1010
				+ N/C	1	GVAD1001
			N/C (fault)	+ N/O	1	GVAD0110
				+ N/C	1	GVAD0101
Short-circuit signalling contact	Side (LH)	1	C/O common point	1	GVAM11	

Electric trips			
Mounting	Voltage		Reference
Undervoltage or shunt trips ⁽⁴⁾			
Side (1 block on RH side of circuit breaker)	24 V	50 Hz	GVA●025
		60 Hz	GVA●026
	48 V	50 Hz	GVA●055
		60 Hz	GVA●056
	100 V	50 Hz	GVA●107
	100...110 V	60 Hz	GVA●107
	110...115 V	50 Hz	GVA●115
		60 Hz	GVA●116
	120...127 V	50 Hz	GVA●125
	127 V	60 Hz	GVA●115
	200 V	50 Hz	GVA●207
	200...220 V	60 Hz	GVA●207
	220...240 V	50 Hz	GVA●225
		60 Hz	GVA●226
	380...400 V	50 Hz	GVA●385
		60 Hz	GVA●386
	415...440 V	50 Hz	GVA●415
	415 V	60 Hz	GVA●416
	440 V	60 Hz	GVA●385
	480 V	60 Hz	GVA●415
	500 V	50 Hz	GVA●505
	600 V	60 Hz	GVA●505

Undervoltage trip, INRS (can only be mounted on GV2ME) Safety device for dangerous machines conforming to INRS and VDE 0113

Side (1 block on RH side of circuit breaker GV2ME)	110...115 V	50 Hz	GVAX115
		60 Hz	GVAX116
	127 V	60 Hz	GVAX115
	220...240 V	50 Hz	GVAX225
		60 Hz	GVAX226
	380...400 V	50 Hz	GVAX385
		60 Hz	GVAX386
	415...440 V	50 Hz	GVAX415
	440 V	60 Hz	GVAX385

Limiter blocks			
Description	Mounting	Maximum number	Reference
Visible isolation block ⁽⁵⁾	Front ⁽¹⁾	1	GV2AK00 ⁽⁶⁾
Limiters	At top (GV2ME and GV2P) for circuit breakers with screw clamp connections	1	GV1L3
	Independent ⁽⁷⁾	1	LA9LB920

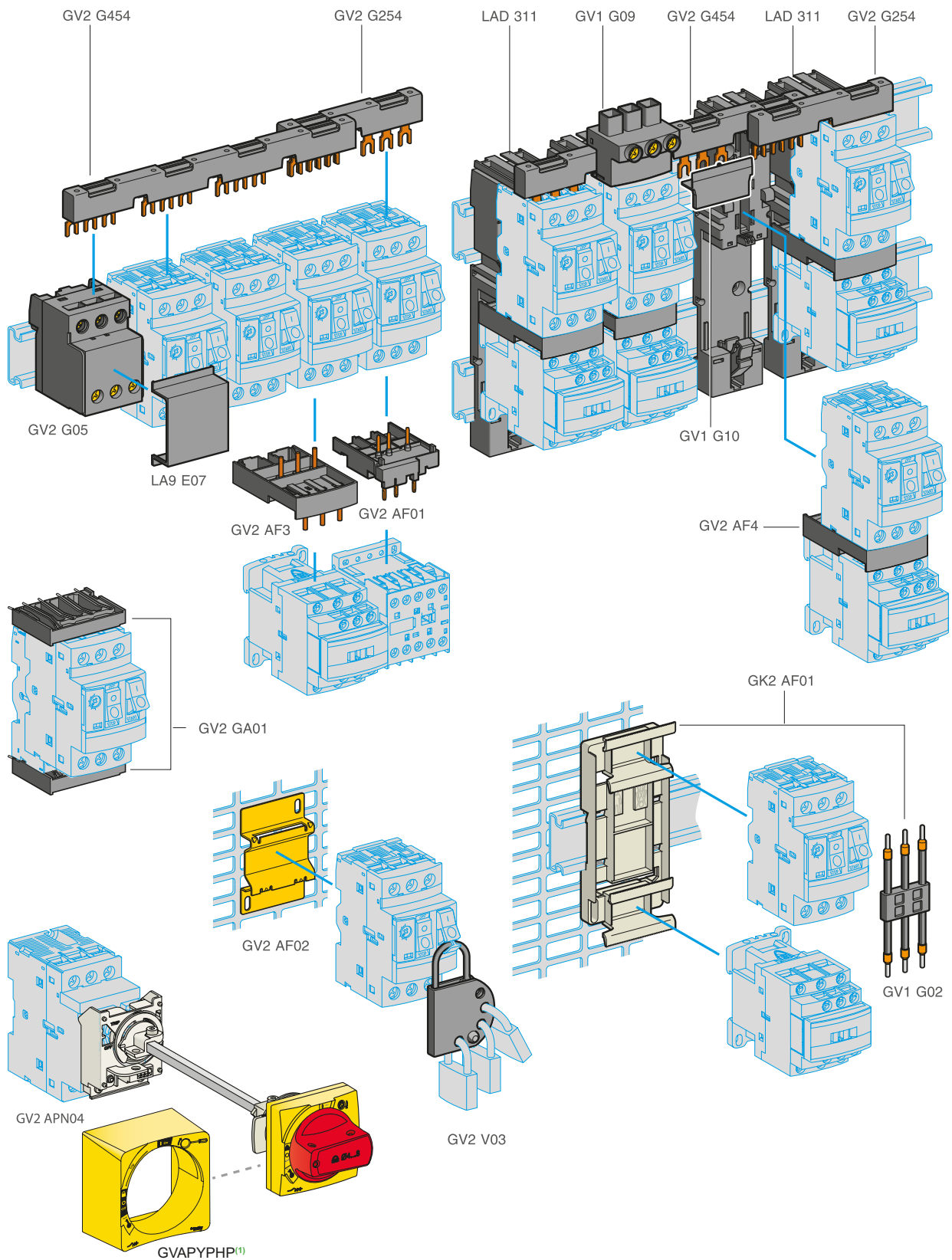
- (1) Mounting of a GVAE contact block or a GV2AK00 visible isolation block on GV2P and GV2L.
 (2) Choice of N/C or N/O contact operation, depending on which way round the reversible block is mounted.
 (3) The GVAD is always mounted next to the circuit breaker.
 (4) To order an undervoltage trip: replace the dot (●) in the reference with a U, example: GVAU025.
 To order a shunt trip: replace the dot (●) in the reference with an S, example: GVAS025.
 (5) Visible isolation of the 3 poles upstream of circuit breaker GV2P and GV2L.
 (6) I_e Max = 32 A.
 (7) For more information about the current limiter LA9LB920, see pages A4/31 and A4/63.



GV1L3



LA9LB920



(1) Standard front plate must be removed from the assembly and replaced by Protective front plate (GVAPYPHP).

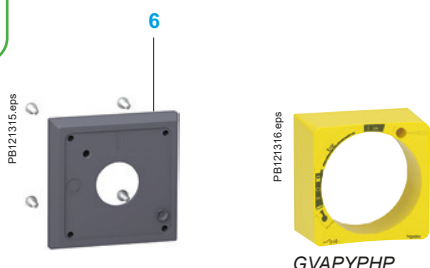
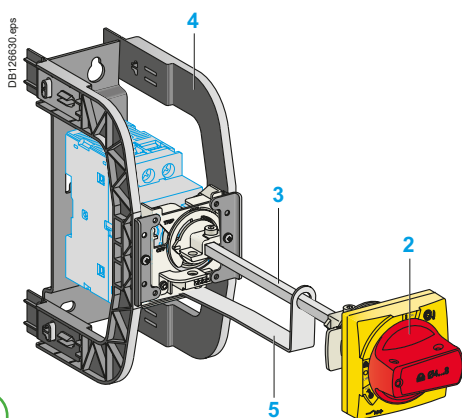
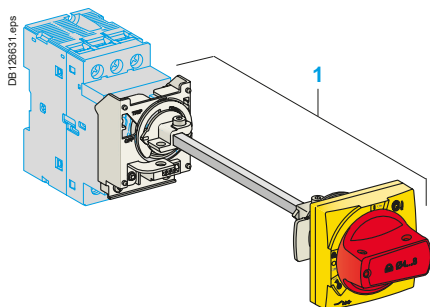
Accessories for circuit breakers with screw clamp connections			
Description	Application	Sold in lots of	Unit reference
Adapter plates	For mounting a GV2 by screw fixing	10	GV2AF02
	For mounting a GV2ME and contactor LC1D09...D38 with front faces aligned	1	LAD311
Height compensation plate	7.5 mm to align GV2ME-GV2LE and GV2P-GV2L and allow the use of a common GV2G... busbar	10	GV1F03
Combination blocks	Between GV2 and contactor LC1K or LP1K	10	GV2AF01
	Between GV2 and contactor LC1D09...D38	10	GV2AF3
	Between GV2 mounted on LAD311 and contactor LC1D09...D38	10	GV2AF4
Motor starter adapter plate	With 3-pole connection for mounting a GV2 and a contactor LC1D09...D25	1	GK2AF01

Description	Application	Pitch mm	Reference
Sets of 3-pole le = 63 A busbars	2 tap-offs	45	GV2G245
		54	GV2G254
		72	GV2G272
	3 tap-offs	45	GV2G345
		54	GV2G354
		72	GV2G372
	4 tap-offs	45	GV2G445
		54	GV2G454
		72	GV2G472
	5 tap-offs	54	GV2G554

Description	le A	Application	Sold in lots of	Unit reference
Protective end cover	-	For unused busbar outlets	5	GV1G10
Terminal block for supply to one or more GV2G busbar sets	63	Connection from the top	1	GV1G09
	63	Can be fitted with current limiter GV1L3 (GV2ME and GV2P)	1	GV2G05
Cover for terminal block	-	For mounting in modular panels	10	LA9E07
Flexible 3-pole connection for connecting a GV2 to a contactor LC1D09...D25	25	Centre distance between mounting rails: 100...120 mm	10	GV1G02
"Large Spacing" adapter UL 60947-4-1 type E	-	For GV2P... (except 32 A)	1	GV2GH7
Clip-in marker holders (supplied with each circuit breaker)	-	For GV2P, GV2L, GV2LE and GV2RT (8 x 22 mm)	100	LA9D92



Motor circuit breakers



Extended Rotary Handle

Allows a circuit breaker or a starter-controller installed in back of an enclosure to be operated from the front of the enclosure.

A rotary handle can be black or red/yellow, IP54 or IP65. It includes a function for locking the circuit breaker or the starter in the O (Off) for red/yellow handle, in the O (Off) or I (On) for black handle, by means of up to 3 padlocks with a shank diameter of 4 to 8 mm. The extended shaft must be adjusted to use in different size enclosures. The IP54 rotary handle is fixed with a nut (Ø22) to make easier the assembling. The new Laser Square tool brings the accuracy to align the circuit breaker and the rotary handle.

Padlockable external operators for ref. GV2P and GV2L

Description

- 1 Kit handle + mounting system
- 2 Universal handle
- 3 Shaft
- 4 Bracket
- 5 Shaft support plate for deep enclosure
- 6 Retrofit accessory
- 7 Laser Square accessory

Kit handle + mounting system

Description	Item	Reference
For GV2P/L	Black handle, front plate, with trip status, IP 54	1 GV2APN01
	Red handle, front plate, with trip status, IP 54	1 GV2APN02
	Black handle, front plate, without trip status, IP 65	1 GV2APN03
	Red handle, front plate, without trip status, IP 65	1 GV2APN04
For GV2LE	Padlocking in "On" and "Off" position	- GV2AP03
	Black handle, blue front plate, IP 54	

Universal handle

For GV2P/L	Black handle, with trip status, IP54	2 GVAPB54
	Red handle, with trip status, IP54	2 GVAPR54
	Red handle, without trip status, IP65	2 GVAPR65

External handle protection frame

For GV2P/L	Yellow frame	1 GVAPYPHP
	Black frame	1 GVAPBPHP

Shaft

For GV2P/L	L = 315 mm	3 GVAPA1
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Bracket

For GV2P/L		4 GVAPH02
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Shaft support plate for deep enclosure

For GV2P/L	Depth ≥ 250 mm	5 GVAPK11
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Retrofit accessory

For GV2P/L		6 GVAPP1
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Laser Square accessory

For GV2P/L		7 GVAPL01
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Sticker

Sticker	Sold in lots of	
For German	10	- GVAPSDE
For Chinese	10	- GVAPSCN
For Portuguese	10	- GVAPSPT
For Italian	10	- GVAPSIT

Padlocking device

Description	Reference
For all GV2 device	For use with up to 4 padlocks, Ø6 mm shank max. (padlocks not included)
	GV2V03

TeSys Deca - Frame 3 11 to 45 kW



Motor
circuit
breakers

PG121097/ir



GV3L25



Motor
circuit
breakers

Motor circuit breakers from 11 to 45 kW

Deca - Frame 3 (ref. GV3L): control by rotary knob, connection by EverLink® BTR screw connectors

Standard power ratings of 3-phase motors
50/60 Hz in category AC-3

400/415 V			500 V			690 V			Magnetic protection rating	Tripping current I _d ± 20 %	Use in association with thermal overload relay (class 10 A)	Reference
P	Icu	Ics ⁽¹⁾	P	Icu	Ics ⁽¹⁾	P	Icu	Ics ⁽¹⁾				
kW	kA		kW	kA		kW	kA		A	A		
11	100	100	15	12	50	18.5	6	50	25	350	LRD325	GV3L25
15	100	100	18.5	12	50	22	6	50	32	448	LRD332	GV3L32
18.5	50	100	22	12	50	37	6	50	40	560	LRD340	GV3L40
22	50	100	30	12	50	45	6	50	50	700	LRD350	GV3L50
30	50	100	37	12	50	55	6	50	65	910	LRD365	GV3L65
37	50	60	45	12	50	55	6	50	73	1120	LRD380	GV3L73
45	50	60	45	12	50	55	6	50	80	1120	LRD380	GV3L80 ⁽²⁾

Connection by lugs

To order these circuit breakers with connection by lugs, add the digit **6** to the end of reference selected above.

Example: ref. **GV3L32** becomes **GV3L326**.

⁽¹⁾ As % of Icu. Associated current limiter or fuses, where required.

⁽²⁾ 750 A Lock Rotor Current max.

★ > 100 kA.



GV3P80



GV3P651



GV3P736

Motor circuit breakers up to 45 kW / 400 V

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3									Setting range of thermal trips ⁽²⁾	Magnetic tripping current I _d ± 20 %	Reference
400/415 V			500 V			690 V					
P	I _{cu}	I _{cs} ⁽¹⁾	P	I _{cu}	I _{cs} ⁽¹⁾	P	I _{cu}	I _{cs} ⁽¹⁾			
kW	kA	%	kW	kA	%	kW	kA	%	A	A	
Deca - Frame 3 (ref. GV3P): control by rotary knob											
Connection by EverLink® BTR screw connectors ⁽³⁾											
5.5	100	100	7.5	12	50	11	6	50	9...13	182	GV3P13
7.5	100	100	9	12	50	15	6	50	12...18	252	GV3P18
11	100	100	15	12	50	18.5	6	50	17...25	350	GV3P25
15	100	100	18.5	12	50	22	6	50	23...32	448	GV3P32
18.5	50	100	22	12	50	37	6	50	30...40	560	GV3P40
22	50	100	30	12	50	45	6	50	37...50	700	GV3P50
30	50	100	45	12	50	55	6	50	48...65	910	GV3P65
37	50	60	45	12	50	55	6	50	62...73	1120	GV3P73
45	50	60	45	12	50	55	6	50	70...80	1120	GV3P80 ⁽⁴⁾

Connection by EverLink® BTR screw connectors, for assembly with a contactor

To assemble a GV3P32 to P73 circuit breaker with an LC1D40A to D73A contactor, it is possible to use the circuit breaker supplied without downstream EverLink® power terminal block. To order this product, add the digit 1 to the end of the references selected above. Example: ref. GV3P73 becomes GV3P731. Do not use direct mounting between GV3P80 and LC1D80A because of potential overheating, use cable link.

Connection by lugs

To order thermal magnetic circuit breakers with connection by lugs, add the digit 6 to the end of reference selected above. Example: GV3P25 becomes GV3P256.

Motor circuit breakers up to 40 HP / 460 V, UL 60947-4-1 type E
Deca - Frame 3 - ref. GV3P13 (5) to GV3P65 (5)

To obtain a motor-circuit breaker GV3P, UL 60947-4-1 type E, use the following with the circuit breaker:

- a "Large Spacing" cover GV3G66,
- a short-circuit signalling contact GVAM11.

Motor circuit breakers from 7.5 to 50 HP / 460 V, with screw clamp terminals
Deca - Frame 3 (ref. GV3P) with rotary handle

Thermal setting (A)	Maximum Horsepower ratings ⁽⁶⁾						Reference
	Single-Phase		Three-Phase				
	115 V	230 V	200 V	230 V	460 V	575 V	
9...13	1/2	1.5	3	3	7.5	10	GV3P13
12...18	3/4	2	3	5	7.5	10	GV3P18
17...25	1.5	3	5	7.5	15	20	GV3P25
23...32	2	3	7.5	7.5	20	25	GV3P32
30...40	3	5	10	10	25	30	GV3P40
37...50	3	7.5	10	10	30	40	GV3P50
48...65	3	10	15	15	40	50	GV3P65
62...73	5	15	20	25	50	60	GV3P73

Deca - Frame 3 - ref. GV3P13 to GV3P65 - with connection by lugs (5)

To obtain a motor-circuit breaker ref. GV3P, UL 60947-4-1 type E, with connection by lugs, add the digit 6 to the end of reference selected above and use the following with the circuit breaker:

- two IP 20 covers LAD96570,
- a short-circuit signalling contact GVAM11.

(1) As % of Icu.

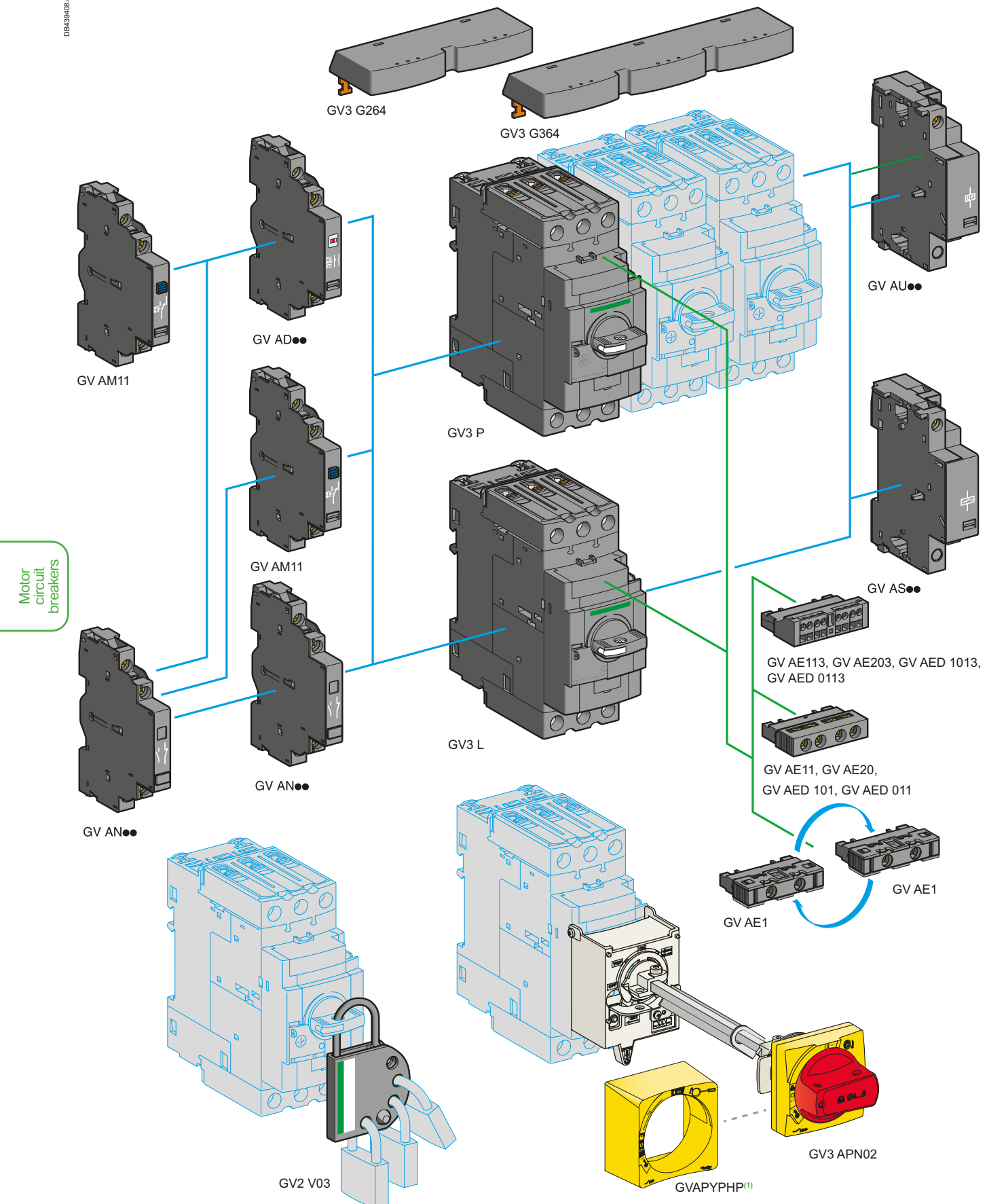
(2) The thermal trip setting must be within the range marked on the graduated knob.

(3) BTR screws: hexagon socket head. Require use of an insulated Allen key, in compliance with local wiring regulations.

(4) For applications with stable full load current with maximum 80 A and Lock Rotor Current maximum 750 A.

(5) Accessories: see page B6/30.

(6) 3P FLA corresponding values: see page A5/84.



(1) Standard front plate must be removed from the assembly and replaced by Protective front plate (GVAPYPHP).

Contact blocks					
Description	Mounting	Maximum number	Type of contacts	Sold in lots of	Unit reference
Instantaneous auxiliary contacts	Front	1	N/O or N/C ⁽¹⁾	10	GVAE1
			N/O + N/C	10	GVAE11 ⁽²⁾
			N/O + N/O	10	GVAE20 ⁽²⁾
	Side (LH)	2	N/O + N/C	1	GVAE11 ⁽²⁾
			N/O + N/O	1	GVAE20 ⁽²⁾
Fault signalling contact + instantaneous auxiliary contact	Front	1	N/O (fault)	+ N/O	GVAED101 ⁽²⁾
			N/O (fault)	+ N/C	GVAED011 ⁽²⁾
	Side ⁽³⁾ (LH)	1	N/O (fault)	+ N/O	GVAED1010
				+ N/C	GVAED1001
			N/C (fault)	+ N/O	GVAED0110
				+ N/C	GVAED0101
Short-circuit signalling contact	Side (LH)	1	C/O common point	1	GVAED11

Electric trips - undervoltage or shunt ⁽⁴⁾			
Mounting	Voltage		Reference
Side (1 block on RH side of circuit breaker)	24 V	50 Hz	GVA•025
		60 Hz	GVA•026
	48 V	50 Hz	GVA•055
		60 Hz	GVA•056
	100	50 Hz	GVA•107
	100...110 V	60 Hz	GVA•107
	110...115 V	50 Hz	GVA•115
		60 Hz	GVA•116
	120...127 V	50 Hz	GVA•125
	127 V	60 Hz	GVA•115
	200 V	50 Hz	GVA•207
	200...220 V	60 Hz	GVA•207
	220...240 V	50 Hz	GVA•225
		60 Hz	GVA•226
	380...400 V	50 Hz	GVA•385
		60 Hz	GVA•386
	415...440 V	50 Hz	GVA•415
	415 V	60 Hz	GVA•416
	440 V	60 Hz	GVA•385
	480 V	60 Hz	GVA•415
	500 V	50 Hz	GVA•505
	600 V	60 Hz	GVA•505

Accessories			
Description			Reference
Set of 3-pole busbars I_e = 115 A Pitch: 64 mm	2 tap-off	GV3P•• and GV3L••	GV3G264
	3 tap-off	GV3P•• and GV3L••	GV3G364
Cover "Large Spacing" UL 60947-4-1 type E (Only one cover required on supply side)		GV3P••	GV3G66

- (1) Choice of N/C or N/O contact operation, depending on which way round the reversible block is mounted.
- (2) Contact blocks available in version with spring terminal connections. Add a figure 3 at the end of the references selected above.
Example: **GVAED101** becomes **GVAED1013**.
- (3) The **GVAD••** is always mounted next to the circuit breaker.
- (4) To order an undervoltage trip: replace the dot (•) in the reference with a **U**, example: **GVAU025**.
To order a shunt trip: replace the dot (•) in the reference with an **S**, example: **GVAS025**.

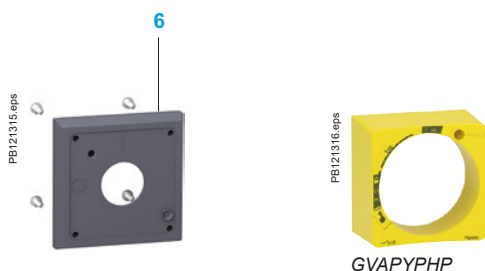
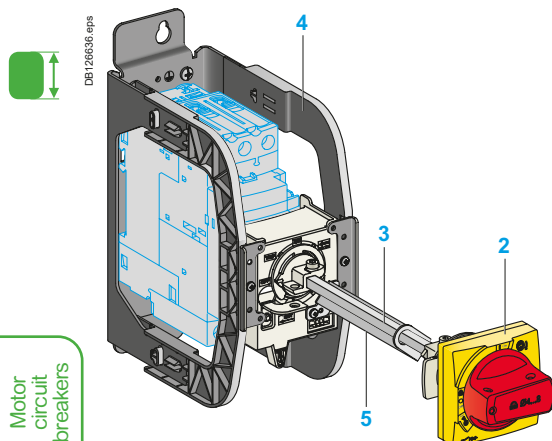
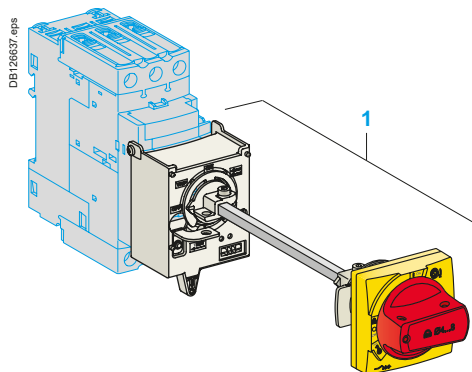
Torque limiting breakaway bits		
Description	Sold in lots of	Reference
5 N.m Yellow	6	LV426992
9 N.m Green	6	LV426990



GV3G66



Limited torque throwaway bits



Extended Rotary Handle

Allows a circuit breaker or a starter-controller installed in back of an enclosure to be operated from the front of the enclosure.

A rotary handle can be black or red/yellow, IP54 or IP65. It includes a function for locking the circuit breaker or the starter in the O (Off) or I (On) position (depending of the type of rotary handle) by means of up to 3 padlocks with a shank diameter of 4 to 8 mm. The extended shaft must be adjusted to use in different size enclosures. The IP54 rotary handle is fixed with a nut (Ø22) to make easier the assembling. The new Laser Square tool brings the accuracy to align the circuit breaker and the rotary handle.

Padlockable external operators for Deca - Frame 3

Description

- 1 Kit handle + mounting system
- 2 Universal handle
- 3 Shaft
- 4 Bracket
- 5 Shaft support plate for deep enclosure
- 6 Retrofit accessory
- 7 Laser Square accessory

Kit handle + mounting system

Description	Item Reference
For GV3P/L Black handle, front plate, with trip status, IP 54	1 GV3APN01
Red handle, front plate, with trip status, IP 54	1 GV3APN02
Black handle, front plate, without trip status, IP65	1 GV3APN03
Red handle, front plate, without trip status, IP 65	1 GV3APN04

Universal handle

For GV3P/L Black handle, with trip status, IP54	2 GVAPB54
Red handle, with trip status, IP54	2 GVAPR54
Red handle, without trip status IP65	2 GVAPR65

External handle protection frame

For GV2P/L Yellow frame	1 GVAPYPHP
Black frame	1 GVAPBPHP

Shaft

For GV3P/L L = 315 mm	3 GVAPA1
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Shaft support plate for deep enclosure

For GV3P/L Depth ≥ 300 mm	5 GVAPK12
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Retrofit accessory

For GV3P/L	6 GVAPP1
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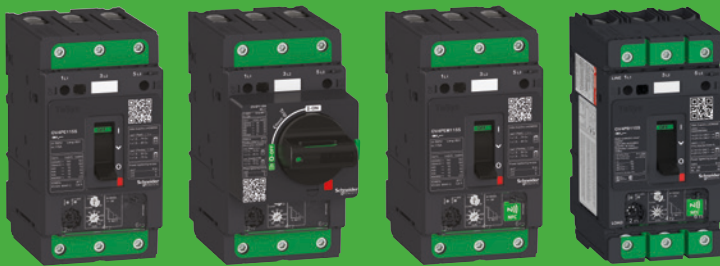
Laser Square accessory

For GV3P/L	7 GVAPL01
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Sticker	Sold in lots of
Warning label For German	10 - GVAPSDE
For Chinese	10 - GVAPSCN
For Portuguese	10 - GVAPSPT
For Italian	10 - GVAPSIT

TeSys Deca - Frame 4

0.25 to 55 kW - 1/2 to 60 HP



Motor
circuit
breakers

Protection

TeSys Deca - Frame 4 motor circuit breakers covers motor protection from 0.25 to 55 kW at 415 V AC (from 0.8 to 115 A) in one frame and are available in 3 breaking capacities: 25, 50 and 100 kA at 415 V AC IEC (15, 35, 65 kA at 480 V UL).

TeSys Deca - Frame 4 motor circuit breakers are available with 3 types of protection:

- Magnetic ref. GV4L: to be used with an overload relay or a drive
- Thermal magnetic ref. GV4P: electronic protection with wide range setting, dual class (10 & 20)
- Multifunction motor protection ref. GV4PEM: ref. GV4P with adjustable advanced protections and possibility to have a side module SDx for alarming and motor functional fault differentiation.

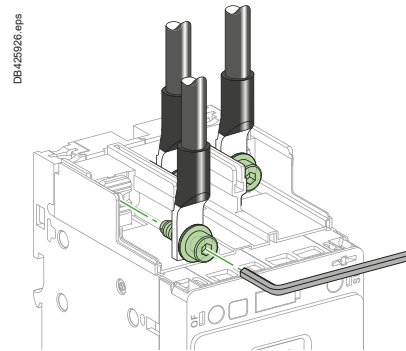
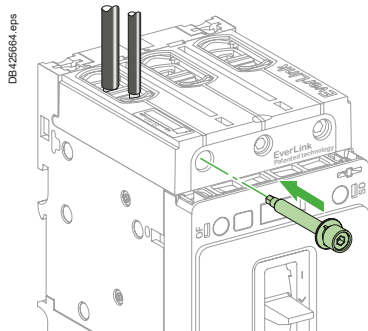
Power connection

TeSys Deca - Frame 4 motor circuit breaker come in standard with 2-holes EverLink™ power connectors with creep ⁽¹⁾ compensation for bare copper cables. This Schneider Electric patented technique makes it possible to achieve accurate and durable tightening torque in order to avoid cable creep.

Products may be delivered with connectors for bars or cables with compression lugs (except ref. GV4PB).

Whatever, the connectors are field interchangeable and can be removed for the installation of one of both.

And to tight at the right torque power connections particularly in the field, torque limiting breakaway bits may be used.



Mounting

TeSys Deca - Frame 4 motor circuit breaker can be mounted on a backplate or on a DIN rail (35 or 75 mm).

Handle

TeSys Deca - Frame 4 motor circuit breaker can be ordered with a toggle or a direct rotary handle (except for ref. GV4P Multifunction).

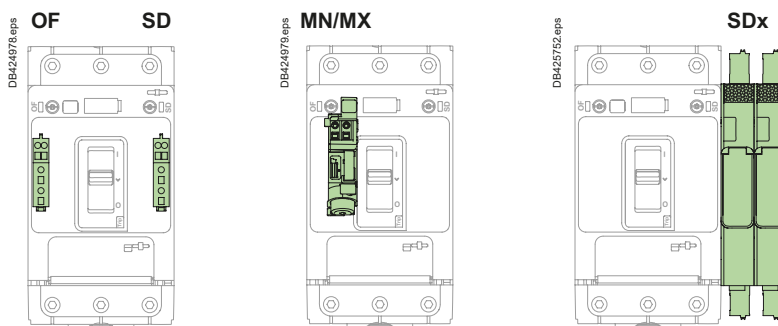
It is also possible to equip a toggle one with a direct rotaty handle, or a front extended one, or a side one.

Auxiliaries

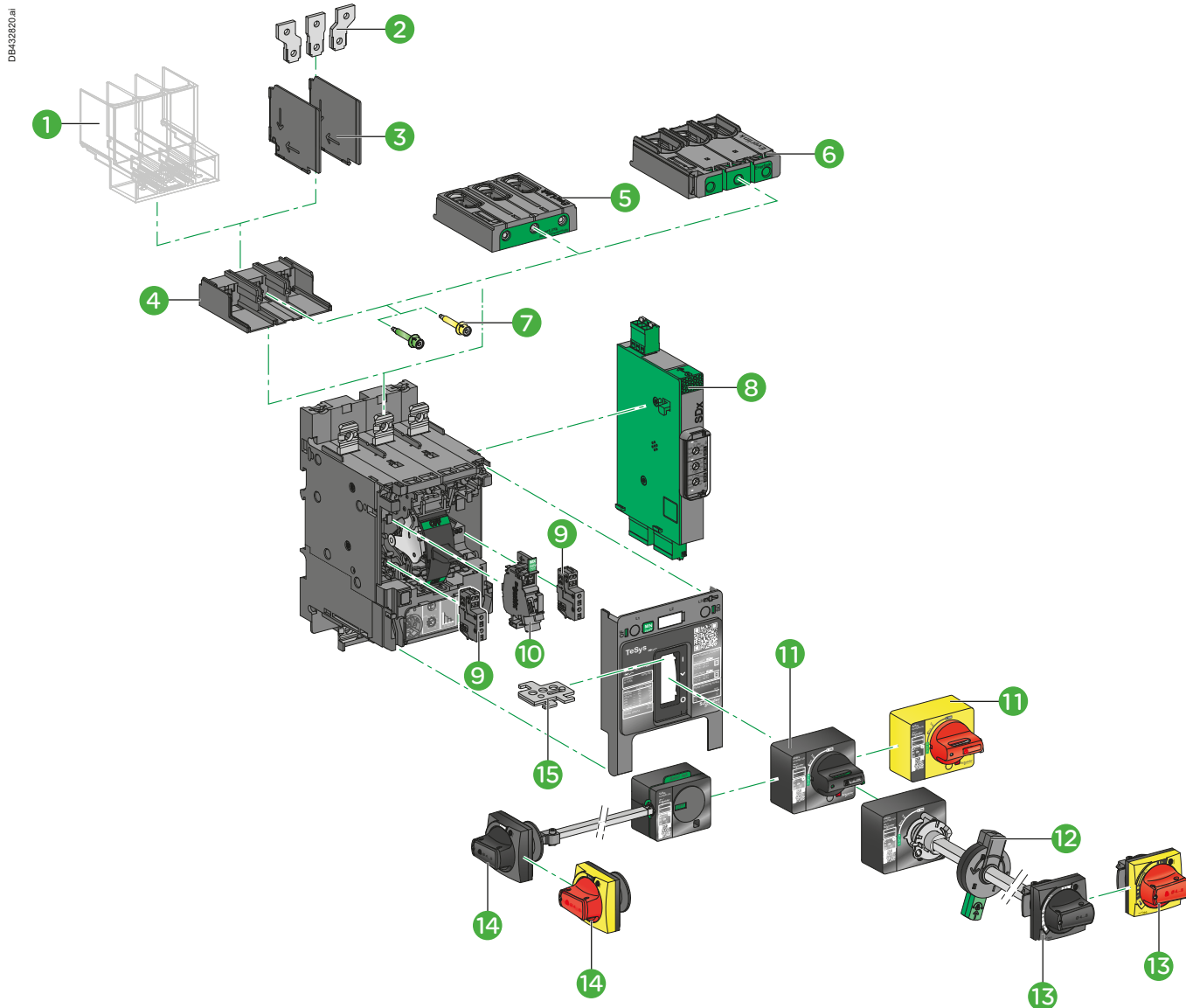
TeSys Deca - Frame 4 circuit breakers can be equipped with an open/close (OF) contact and a trip indication (SD) contact. These contacts are common point changeover type, with a normally open (NO) and a normally closed (NC) contact. TeSys Deca - Frame 4 motor circuit breaker may be equipped too with an MN (undervoltage release) or MX (shunt trip) coil.

Ref. GV4P Multifunction circuit breakers can be equipped with 1 or 2 SDx module(s) in order to have alarming and motor functional fault differentiation (SDx - See page B6/44)

Auxiliaries have spring connections for cables up to 1.5 mm².



⁽¹⁾ Creep: normal crushing phenomenon of conductors, that is accentuated over time.



- 1 Long terminal shield **LAD96590**
- 2 Terminal spreaders **LV426940**
- 3 Interphases barriers **LV426920**
- 4 Crimp lug connector **GV4LUG**
- 5 EverLink® connector **LAD96595**
- 6 Everlink® terminals and large spacing cover **GV4G66 + LAD96595**
- 7 Torque limiting breakaway bits **LV42699●**
- 8 SDx alarming/fault differentiation module **GV4ADM1111** (only with GV4PEM)
- 9 Auxiliary contact block for OF or SD function **GV4AE11**
- 10 - MN undervoltage release **GV4AU●●**
- MX shunt trip **GV4AS●●**
- 11 Direct mounting black or red on yellow bezel rotary handle **GV4ADN01/ GV4ADN02**
- 12 Open door shaft operator (for front extended rotary handle) **LV426937**
- 13 Front extended rotary handle kit with red handle on yellow bezel or black handle **GV4APN01/ GV4APN02 /GV4APN04**
- 14 Side rotary handle kit with red handle on yellow bezel or black handle **LV426935/LV426936**.
- 15 Toggle locking device **29370**



GV4L



GV4LE

Ref.



Motor
circuit
breakers

Standard version

Protection

Setting is made using dial.

Trip class (class)

Ref. GV4L can be used with class 5, 10 or 20 relay.

Short circuit protection (Ii)

Protection with an adjustable pick-up $I_i = 6$ to $14 I_n$. Settings are made in amperes.

Standards and certifications

IEC/EN 60947-1, IEC/EN 60947-2, CCC, EAC.

Magnetic motor circuit breakers from 0.25 to 55 kW													
Standard power ratings of 3-phase motors - 50 / 60 Hz									In A	Magnetic setting range (Ii) A	Use in association with overload relay Class 10 or 20	Reference with EverLink terminals	
400/415 V			500 V			690 V						with toggle	with rotary handle
P kW	Icu kA	Ics ⁽¹⁾ %	P kW	Icu kA	Ics ⁽¹⁾ %	P kW	Icu kA	Ics ⁽¹⁾ %					
0.25... 0.75	25	100	0.37... 1.1	10	100	0.55... 1.5	-	-	2	12... 28	LRD05 (0.63... 1A) LRD06 (1... 1.6A) LRD07 (1.6... 2.5A)	-	-
	50	100		25	100		8	25				GV4LE02N	GV4L02N
	100	100		30	100		10	25				GV4LE02S	-
0.55... 1.5	25	100	0.75... 1.5	10	100	1.1... 2.2	-	-	3,5	21... 49	LRD07 (1.6... 2.5A) LRD08 (2.5... 4A)	-	-
	50	100		25	100		8	25				GV4LE03N	GV4L03N
	100	100		30	100		10	25				GV4LE03S	-
1.5... 3	25	100	2.2... 4	10	100	3... 7.5	-	-	7	42... 98	LRD08 (2.5... 4A) LRD10 (4... 6A)	-	-
	50	100		25	100		8	25				GV4LE07N	GV4L07N
	100	100		30	100		10	25				GV4LE07S	-
3... 5.5	25	100	3... 7.5	10	100	5.5... 11	-	-	12,5	75... 175	LRD12 (5.5... 8A) LRD14 (7... 10A) LRD313 (9... 13A)	-	-
	50	100		25	100		8	25				GV4LE12N	GV4L12N
	100	100		30	100		10	25				GV4LE12S	-
5.5... 11	25	100	7.5... 15	10	100	7.5... 18.5	-	-	25	150... 350	LRD318 (12... 18A) LRD325 (17... 25A)	GV4LE25B	GV4L25B
	50	100		25	100		8	25				GV4LE25N	GV4L25N
	100	100		30	100		10	25				GV4LE25S	-
11... 22	25	100	15... 30	10	100	18.5... 45	-	-	50	300... 700	LRD332 (23... 32A) LRD340 (30... 40A) LRD350 (37... 50A)	GV4LE50B	GV4L50B
	50	100		25	100		8	25				GV4LE50N	GV4L50N
	100	100		30	100		10	25				GV4LE50S	-
18.5... 37	25	100	22... 55	10	100	30... 55	-	-	80	480... 1120	LRD365 (48... 65A) LRD363 (63... 80A)	GV4LE80B	GV4L80B
	50	100		25	100		8	25				GV4LE80N	GV4L80N
	100	100		30	100		10	25				GV4LE80S	GV4L80S
30... 55	25	100	30... 75	10	100	45... 90	-	-	115	690... 1610	LR9D5567 (60... 100A) LR9F5367 (60... 100A) LR9D5369 (90... 150A) LR9F5369 (90... 150A)	GV4LE115B	GV4L115B
	50	100		25	100		8	25				GV4LE115N	GV4L115N
	100	100		30	100		10	25				GV4LE115S	GV4L115S

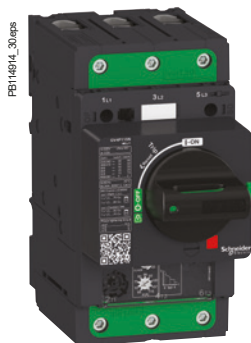


Motor circuit breakers

Connection by lugs

To order circuit breakers with connection by lugs, add the digit **6** to the end of reference selected above. Example: ref. **GV4LE02N** becomes **GV4LE02N6**.

(1) As % of Icu.



GV4P



GV4PE

Ref.



Motor
circuit
breakers

Standard version

Protection

Settings are made using dials.

Overload or thermal protection (Ir)

Inverse-time thermal protection against overloads with adjustable pick-up Ir.

Wide range setting made in amperes.

The tripping curve for the thermal protection, which indicates the time delay tr before tripping, is defined by the selected trip class.

Trip class (class)

The class is selected as a function of the normal motor starting time.

■ Class 10: starting time less than 10 s.

■ Class 20: starting time less than 20 s.

For a given class, it is necessary to check that all motor-feeder components are sized to carry the 7.2 Ir starting current without excessive temperature rise during the time corresponding to the class.

Short time delay protection (Isd)

Short time delay protection (around 100 ms) to let through motor starting currents, but to protect cables and motor starter devices and allow not to oversize them (particularly usefull for wide range settings circuit breakers).

Fixed pick-up $I_{sd} = 13 I_r$.

Short-circuit protection (Ii)

Instantaneous protection with non-adjustable pick-up $I_i = 17 I_n$.

Phase unbalance or phase loss (Iunbal, tunbal)

This function opens the circuit breaker if a phase unbalance occurs:

■ that is greater than the 30 % of Irms (fixed pick-up): **Iunbal**

■ following the non-adjustable time delay (**tunbal**) equal to:

□ 0.7 s during starting

□ 4 s during normal operation.

Phase loss is an extreme case of phase unbalance and leads to tripping under the same conditions.

Ground-fault protection (Ig, tg)

Residual type ground-fault protection:

■ fixed pick-up $I_g = I_n$

■ fixed time delay $t_g = 0.1$ s.

Indications

Front indications

■ Green "Ready" LED: flashes slowly when the circuit breaker is ready to trip in the event of an abnormal deviation in engine operating conditions.

■ Red alarm LED: goes ON when the thermal image of the motor is greater than 95 % of the permissible temperature rise.

Standards and certifications

IEC/EN 60947-1, IEC/EN 60947-2, IEC/EN 60947-4-1, UL 60497-4-1, CSA 22.2 n° 60497-4-1, CCC, EAC, CSA (cCSAus).

Thermal magnetic motor circuit breakers from 0.25 to 55 kW											
Standard power ratings of 3-phase motors - 50 / 60 Hz in category AC-3									Thermal setting range (Ir)	Reference with EverLink terminals	
400/415 V			500 V			690 V					
P kW	Icu kA	Ics ⁽¹⁾ %	P kW	Icu kA	Ics ⁽¹⁾ %	P kW	Icu kA	Ics ⁽¹⁾ %	A	with toggle	with rotary handle
0.25... 0.75	25	100	0.37... 1.1	10	100	0.55... 1.5	-	-	0.8... 2	-	-
	50	100		25	100		8	25		GV4PE02N	GV4P02N
	100	100		30	100		10	25		GV4PE02S	-
0.55... 1.5	25	100	0.75... 1.5	10	100	1.1... 2.2	-	-	1.4... 3.5	-	-
	50	100		25	100		8	25		GV4PE03N	GV4P03N
	100	100		30	100		10	25		GV4PE03S	-
1.5... 3	25	100	2.2... 4	10	100	3... 7.5	-	-	2.9... 7	-	-
	50	100		25	100		8	25		GV4PE07N	GV4P07N
	100	100		30	100		10	25		GV4PE07S	-
3... 5.5	25	100	3... 7.5	10	100	5.5... 11	-	-	5... 12.5	-	-
	50	100		25	100		8	25		GV4PE12N	GV4P12N
	100	100		30	100		10	25		GV4PE12S	-
5.5... 11	25	100	7.5... 15	10	100	7.5... 18.5	-	-	10... 25	GV4PE25B	GV4P25B
	50	100		25	100		8	25		GV4PE25N	GV4P25N
	100	100		30	100		10	25		GV4PE25S	-
11... 22	25	100	15... 30	10	100	18.5... 45	-	-	20... 50	GV4PE50B	GV4P50B
	50	100		25	100		8	25		GV4PE50N	GV4P50N
	100	100		30	100		10	25		GV4PE50S	-
22... 37	25	100	30... 55	10	100	37... 55	-	-	40... 80	GV4PE80B	GV4P80B
	50	100		25	100		8	25		GV4PE80N	GV4P80N
	100	100		30	100		10	25		GV4PE80S	GV4P80S
37... 55	25	100	45... 75	10	100	75... 90	-	-	65... 115	GV4PE115B	GV4P115B
	50	100		25	100		8	25		GV4PE115N	GV4P115N
	100	100		30	100		10	25		GV4PE115S	GV4P115S

Thermal magnetic motor circuit breakers from 3/4 to 75 HP / 480 V														
Single-Phase 120 V				3-Phase								Rating A	Reference with EverLink terminals	
Power HP	FLA A	Power Hp	FLA A	Power Hp	FLA A	Power Hp	FLA A	Power Hp	FLA A	Power Hp	FLA A		with toggle	with rotary handle
-	-	1/10	1.5	-	-	-	-	3/4	1.6	1	1.7		-	-
1/10	3	1/4	2.9	1/2	2.4	3/4	3.2	2	3.4	2	2.7	3.5	GV4PE02N	GV4P02N
													GV4PE02S	-
													GV4PE03N	GV4P03N
1/4	5.8	3/4	6.9	1-1/2	6.6	2	6.8	3	4.8	5	6.1	7	GV4PE03S	-
													GV4PE07N	GV4P07N
													GV4PE07S	-
1/2	9.8	1-1/2	10	3	10.6	3	9.6	7-1/2	11	10	11	12.5	GV4PE12N	GV4P12N
													GV4PE12S	-
													GV4PE25B	GV4P25B
1-1/2	20	3	17	5	16.7	7-1/2	22	15	21	20	22	25	GV4PE25N	GV4P25N
													GV4PE25S	-
													GV4PE50B	GV4P50B
3	34	7-1/2	40	10	30.8	15	42	30	40	40	41	50	GV4PE50N	GV4P50N
													GV4PE50S	-
													GV4PE80B	GV4P80B
7-1/2	80	15	68	25	74.8	30	80	60	77	75	77	80	GV4PE80N	GV4P80N
													GV4PE80S	GV4P80S
													GV4PE115B	GV4P115B
10	100	20	88	30	88	40	104	75	96	100	99	115	GV4PE115N	GV4P115N
													GV4PE115S	GV4P115S

Connection by lugs

To order circuit breakers with connection by lugs, add the digit **6** to the end of reference selected above. Example: **GV4PE02N** becomes **GV4PE02N6**.

⁽¹⁾ As % of Icu.

Characteristics:
pages B6/120 to B6/123

Curves:
pages B6/129 to B6/131

Dimensions, schemes:
pages B6/134, B6/135, B6/137



GV4PEM

Advanced version

Basic protection

Settings are made using dials.

Overloads or thermal protection (I_r)

Inverse-time thermal protection against overloads with adjustable pick-up I_r.

Wide range setting made in amperes.

The tripping curve for the thermal protection, which indicates the time delay t_r before tripping, is defined by the selected trip class.

Trip class (class)

The class is selected as a function of the normal motor starting time.

■ Class 10: starting time less than 10 s.

■ Class 20: starting time less than 20 s.

For a given class, it is necessary to check that all motor-feeder components are sized to carry the 7.2 I_r starting current without excessive temperature rise during the time corresponding to the class.

Short-circuit protection (I_i)

Instantaneous protection with non-adjustable pick-up I_i = 17 I_n.

Advanced protection

Settings are made with an Android smartphone with dedicated application and using wireless NFC (Near Field Communication), or a computer with EcoStruxure Power Commission software and the configuration/maintenance tool kit ("Maintenance case" TRV00910).

The LV434206 pocket battery allows the GV4PEM controller to be powered for adjustments and tests when no internal source is available.

Short time delay protection (I_{sd})

Short time delay protection (around 100 ms) to let through motor starting currents, but to protect cables and motor starter devices and allow not to oversize them (particularly usefull for wide range settings circuit breakers).

Adjustable pick-up I_{sd} = 5...13 I_r (13 by default).

Phase unbalance or phase loss (I_{unbal}, t_{unbal})

This function opens the circuit breaker if a phase unbalance occurs:

■ that is greater than the 10...40 % of I_{rms} (30% by default): I_{unbal}

■ following a time delay (t_{unbal}) equal to:

□ 0.7 s during starting (non adjustable)

□ 1...10 s during normal operation (4 s by default).

Phase loss is an extreme case of phase unbalance and leads to tripping under the same conditions.

Ground-fault protection (I_g, t_g)

Residual type ground-fault protection, with OFF position:

■ adjustable pick-up I_g:

□ 0.7...1 I_n for products with nominal current from 2 to 50 A

□ 0.4...1 I_n for products with nominal current from 80 to 115 A

■ adjustable time delay t_g 0.1...0.4 s.

Jam (I_{jam}, t_{jam})

This function detects locking of the motor shaft caused by the load, with OFF position (OFF by default). During motor starting the function is disabled.

During normal operation, it causes tripping:

■ above the I_{jam} pick-up that can be fine-adjusted from 1.5 to 8 I_r

■ in conjunction with the t_{jam} time delay that can be adjusted from 1 to 30 s.

Long start (I_{long}, t_{long})

This protection supplements thermal protection (class). It is used to optimize the protection according to the starting parameters, with OFF position (OFF by default).

It detects abnormal motor starting i.e. when the starting current remains too high or too low with respect to a pick-up value and a time delay.

It causes tripping:

■ in relation with a I_{long} pick-up that can be fine-adjusted from 1.5 to 8 I_r

■ in conjunction with the t_{long} time delay that can be adjusted from 1 to 200 s.

Indications

Front indications

■ Green "Ready" LED: flashes slowly when the circuit breaker is ready to trip in the event of an abnormal deviation in engine operating conditions.

■ Red alarm LED: goes ON when the thermal image of the motor is greater than 95 % of the permissible temperature rise.

Remote indications via SDx module

See description on page B6/44.

Standards and certifications

IEC/EN 60947-1, IEC/EN 60947-2, IEC/EN 60947-4-1, UL 60497-4-1, CSA 22.2 n° 60497-4-1, CCC, EAC, CSA (cCSAus).

Advanced thermal magnetic motor circuit breakers from 0.25 to 55 kW										
Standard power ratings of 3-phase motors - 50 / 60 Hz in category AC-3									Thermal setting range (I _r)	"Reference with EverLink terminals" with toggle
400/415 V			500 V			690 V				
P kW	I _{cu} kA	I _{cs} ⁽¹⁾ %	P kW	I _{cu} kA	I _{cs} ⁽¹⁾ %	P kW	I _{cu} kA	I _{cs} ⁽¹⁾ %	A	
0.25... 0.75	25	100	0.37... 1.1	10	100	0.55... 1.5	-	-	0.8... 2	-
	50	100		25	100		8	25		GV4PEM02N
	100	100		30	100		10	25		GV4PEM02S
0.55... 1.5	25	100	0.75... 1.5	10	100	1.1... 2.2	-	-	1.4... 3.5	-
	50	100		25	100		8	25		GV4PEM03N
	100	100		30	100		10	25		GV4PEM03S
1.5... 3	25	100	2.2... 4	10	100	3... 7.5	-	-	2.9... 7	-
	50	100		25	100		8	25		GV4PEM07N
	100	100		30	100		10	25		GV4PEM07S
3... 5.5	25	100	3... 7.5	10	100	5.5... 11	-	-	5... 12.5	-
	50	100		25	100		8	25		GV4PEM12N
	100	100		30	100		10	25		GV4PEM12S
5.5... 11	25	100	7.5... 15	10	100	7.5... 18.5	-	-	10... 25	GV4PEM25B
	50	100		25	100		8	25		GV4PEM25N
	100	100		30	100		10	25		GV4PEM25S
11... 22	25	100	15... 30	10	100	18.5... 45	-	-	20... 50	GV4PEM50B
	50	100		25	100		8	25		GV4PEM50N
	100	100		30	100		10	25		GV4PEM50S
22... 37	25	100	30... 55	10	100	37... 55	-	-	40... 80	GV4PEM80B
	50	100		25	100		8	25		GV4PEM80N
	100	100		30	100		10	25		GV4PEM80S
37... 55	25	100	45... 75	10	100	75... 90	-	-	65... 115	GV4PEM115B
	50	100		25	100		8	25		GV4PEM115N
	100	100		30	100		10	25		GV4PEM115S


 Motor
circuit
breakers

Connection by lugs

To order circuit breakers with connection by lugs, add the digit **6** to the end of reference selected above. Example: **GV4PE02N** becomes **GV4PE02N6**.

⁽¹⁾ As % of I_{cu}.



GV4PB

Advanced version

Ref. GV4PB is based on GV4PEM with specific tripping curve to follow UL489 SH supplement. It is designed with a large space connector in order to increase creepage and clearance distance.

Basic protection

Settings are made using dials.

Overloads or thermal protection (Ir)

Inverse-time thermal protection against overloads with adjustable pick-up Ir. Wide range setting made in amperes.

The tripping curve for the thermal protection, which indicates the time delay tr before tripping, is defined by the selected trip class.

Trip class (class)

The class is selected as a function of the normal motor starting time. It corresponds to the value of the tripping time delay for a current of 600 % of the rated tripping current according to UL489, SH supplement.

The rated tripping current is selected as 125 % of the dial value.

■ Class 10: starting time less than 10 s.

■ Class 20: starting time less than 20 s.

For a given class, it is necessary to check that all motor-feeder components are sized to withstand the 7.5 Ir starting current without excessive temperature rise during the time corresponding to the class.

Short-circuit protection (Ii)

Instantaneous protection with non-adjustable pick-up Ii=17 In.

Advanced protection (same as ref. GV4PEM)

Settings are made with:

■ Android smartphone using wireless NFC (Near Field Communication), or EcoStruxure Power Device App. computer + EcoStruxure Power Commission software and configuration/maintenance tool kit TRV00910

■ LV434206 pocket battery, allows the GV4PB controller to be powered for adjustment and test. LV434206 pocket battery needs to be connected to the GV4PB controller to set the advanced protection.

Short time delay protection (Isd)

Short time delay protection (around 100 ms) to let through motor starting currents, but to protect cables and motor starter devices and allow not to oversize them (particularly usefull for wide range settings circuit breakers).

Adjustable pick-up Isd = 5...13 Ir (13 by default).

Phase unbalance or phase loss (Iunbal, tunbal)

This function opens the circuit breaker if a phase unbalance occurs:

■ that is greater than the 10...40 % of Irms (30 % by default): **Iunbal**

■ following a time delay (**tunbal**) equal to:

□ 0.7 s during starting (non adjustable)

□ 1...10 s during normal operation (4 s by default).

Phase loss is an extreme case of phase unbalance and leads to tripping under the same conditions.

Ground-fault protection (I_g, t_g)

Residual type ground-fault protection, with OFF position:

■ adjustable pick-up I_g:

□ 0.7...1 In for products with nominal current from 2 to 50 A

□ 0.4...1 In for products with nominal current from 80 to 115 A

■ adjustable time delay t_g 0.1...0.4 s.

Jam (I_{jam}, t_{jam})

This function detects locking of the motor shaft caused by the load, with OFF position (OFF by default). During motor starting the function is disabled.

During normal operation, it causes tripping:

■ above the I_{jam} pick-up that can be fine-adjusted from 1.5 to 8 Ir

■ in conjunction with the t_{jam} time delay that can be adjusted from 1 to 30 s.

Long start (I_{long}, t_{long})

This protection supplements thermal protection (class). It is used to optimize the protection according to the starting parameters, with OFF position (OFF by default). It detects abnormal motor starting i.e. when the starting current remains too high or too low with respect to a pick-up value and a time delay.

It causes tripping:

■ in relation with a I_{long} pick-up that can be fine-adjusted from 1.5 to 8 Ir

■ in conjunction with the t_{long} time delay that can be adjusted from 1 to 200 s.

Indications

Front indications

■ Green "Ready" LED: flashes slowly when the circuit breaker is ready to trip in the event of an abnormal deviation in engine operating conditions.

■ Red alarm LED: goes ON when the thermal image of the motor is greater than 95 % of the permissible temperature rise

Remote indications via SDx module

See description on page B6/44.

Conforming to standards:

IEC/EN 60947-2, IEC/EN 60947-4-1

Product certifications:

UL 489, CSA C22.2 n°5.

GV4PB - selection according to Short Circuit Current Rating (SCCR)

240 V AC SCCR kA	480Y/277 V AC SCCR kA	600Y/347 V AC SCCR kA	Reference
35	18	14	GV4PB...B ⁽¹⁾
65	35	18	GV4PB...N
100	65	25	GV4PB...S

(1) Example: GV4PB07S, GV4PB115S.

GV4PB thermal magnetic motor circuit breakers - selection according to FLA

3P 200 V FLA A	3P 230 V FLA A	3P 460 V FLA A	Rated %	Dial range A	Reference		
-	-	1.6	100	0.8 to 2		GV4PB02N	GV4PB02S
2.5	2.2	3	100	1.4 to 3.5		GV4PB03N	GV4PB03S
4.8	4.2	4.8	100	2.9 to 7		GV4PB07N	GV4PB07S
7.8	9.6	7.6	100	5 to 12.5		GV4PB12N	GV4PB12S
17.5	22	21	100	10 to 25	GV4PB25B	GV4PB25N	GV4PB25S
48	42	40	100	20 to 50	GV4PB50B	GV4PB50N	GV4PB50S
62	54	52	80	40 to 80	GV4PB80B	GV4PB80N	GV4PB80S
92	80	77	80	65 to 115	GV4PB115B	GV4PB115N	GV4PB115S

Connection by lugs

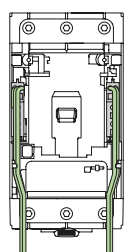
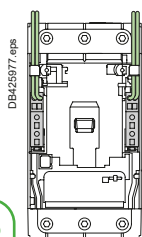
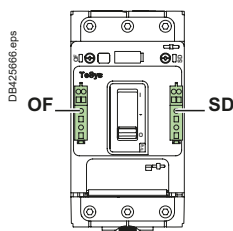
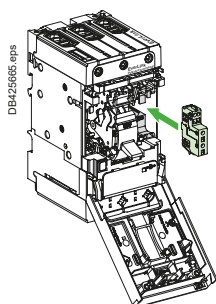
Please order GV4LUG accessory and LV426920 interphase barriers or LAD96590 terminal shield.



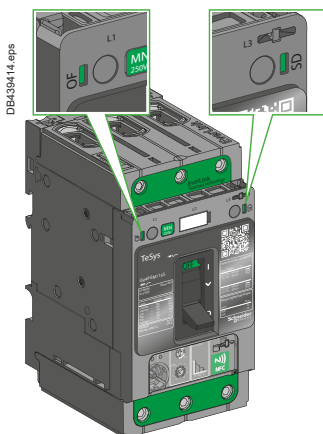
Motor
circuit
breakers



GV4AE11 auxiliary contact block



Pluggable auxiliary contact - OF or SD is dependent on cavity. Multiple internal wiring possibilities, even with long terminal shields



Visible presence of auxiliary contact block in OF or SD cavity

Auxiliary contact blocks

Auxiliary contacts give an indication of the circuit breaker status.

They can be used for remote visual signaling, alarming, electrical locking, relay activation, etc...

An auxiliary contact block provides one changeover contact with common point for OF or SD function, depending on the breaker cavity where it is inserted.

Auxiliary contact - Open/Close OF function

Indicates Open/Closed position of the circuit breaker contacts.

Auxiliary contact - Trip alarm SD function

■ Indicates that the circuit breaker has tripped due to:

- Electrical fault (overload, short circuit, ...)
- shunt trip
- undervoltage release
- "push-to-trip" button.

■ Resets when circuit breaker is reset.

Electrical characteristic

Characteristics

Rated thermal current (A)	5				
Minimum load	2 mA at 17 V DC				
Utilization cat. (IEC 60947-5-1)	AC12	AC15	DC12	DC13	DC14
Operational current (A)					
24 V AC/DC	5	5	5	2.5	1
48 V AC/DC	5	5	2.5	1.2	0.2
110...127 V AC / 110 V DC	5	4	0.6	0.35	0.05
220/240 V AC	5	3	-	-	-
250 V DC	-	-	0.3	0.05	0.03
380/440 V AC	5	2.5	-	-	-
660/690 V AC	5	0.11	-	-	-

Pilot duty B600 according UL508 and CSA 22.2 n°14.

Installation and connection

■ Auxiliary contact blocks snap into left (for OF function) and right (for SD function) cavities behind the front accessory cover of the circuit breaker and their presence is visible on the front face through green flags.

■ One model serves for all indication functions depending on where it is fitted in the circuit breaker.

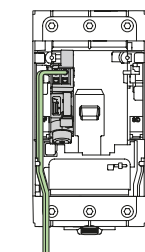
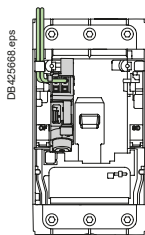
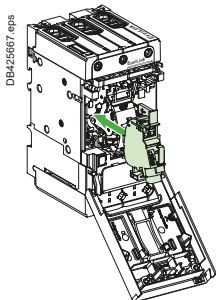
■ Each NO and NC spring terminal may be connected by one 0.5...1.5 mm² flexible copper wire and by two for the common point.

■ Wires can be exited out of any of the four corners of the breaker under the accessory cover.

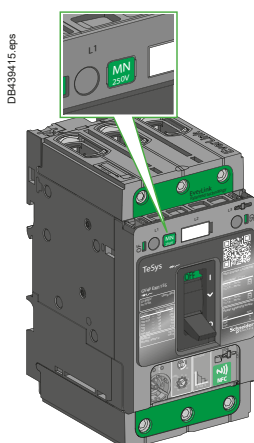
Description	Maximum number	Mounting	Type of contacts	Sold in lots of	Reference
Auxiliary contact block for OF or SD indication	2 (1 OF + 1 SD)	Internal plug-in	NO + NC	1	GV4AE11



GV4AS137 shunt trip



MN or MX plugged into cavity.
Multiple internal wiring possibilities, even with long terminal shields



Visible presence of MN undervoltage release in circuit breaker cavity, visible rated voltage through the window.

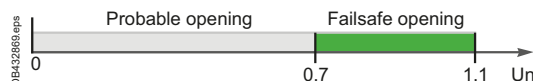
MX shunt trip, MN undervoltage release

MX and MN trip the circuit breaker on a control signal. They are mainly used for remote and emergency-off commands.

It is advised to test the system every six months.

MX shunt trip

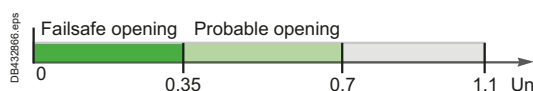
- Trips the circuit breaker when the control voltage rises above 70 % of its rated voltage (U_n).
- Impulse type ≥ 20 ms or maintained control signals.
- Shunt trip 110...130 V AC is suitable for ground-fault protection when combined with a Class I ground-fault sensing element.
- Continuous duty rated coil ⁽¹⁾.



Opening conditions of the MX release.

MN undervoltage release

- Trips the circuit breaker when the control voltage drops below 35 % of its rated voltage.
- Between 35 % and 70 % of the rated voltage opening is only probable.
- Above 70 % of the rated voltage, opening does not take place.
- Continuous duty rated coil.
- Circuit breaker closing is possible only if the voltage exceeds 85 % of the rated voltage. If an undervoltage condition exists, operation of the closing mechanism of the circuit breaker will not permit the main contacts to touch, even momentarily. This is commonly called "Kiss Free".



Opening conditions of the MN release.



Closing conditions of the MN release.

Installation, connection

Accessories snap into cavities under the circuit breaker front accessory cover. Spring-type terminals in order to insure a fast and reliable connection to 0.5...1.5 mm² flexible copper wire (one per terminal).

Operation

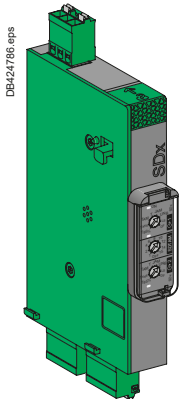
Circuit breaker must be locally reset after trip by shunt trip (MX) or undervoltage release (MN). Tripping by MX or MN has priority over manual closing; in the presence of a standing trip order such an action does not result in main contacts closing, even temporarily.

Description	Maximum number	Mounting	Voltage	Reference
MX Shunt trip	1	Internal, plug-in	24 V~ 50/60 Hz, 24 V---	GV4AS027
			48 V~ 50/60 Hz, 48 V---	GV4AS057
			110-130 V~ 50/60 Hz 125 V---	GV4AS137
			220-240 V~ 50 Hz, 208-240 V~ 60 Hz, 277 V 60 Hz	GV4AS287
			380-415 V~ 50 Hz, 440-480 V~ 60 Hz	GV4AS487
MN undervoltage release	1	Internal, plug-in	24 V~ 50/60 Hz, 24 V---	GV4AU027
			48 V~ 50/60 Hz, 48 V---	GV4AU057
			110-130 V~ 50/60 Hz 125 V---	GV4AU137
			220-240 V~ 50 Hz, 208-240 V~ 60 Hz	GV4AU247
			277 V~ 60 hZ	GV4AU286
			380-415 V~ 50 Hz	GV4AU415
			440-480 V~ 60 Hz	GV4AU486

⁽¹⁾ Except for MX 24 V AC/DC (in case of continuous activation, may generate some minor perturbation in sensitive environment).



Motor circuit breakers



GV4ADM1111 SDx contact module



Motor circuit breakers

SDx contact module for GV4PEM, GV4PB (Multifunction)

The SDx provides alarming and functional fault differentiation for GV4PEM, GV4PB (Multifunction) circuit breaker. This module has 2 NO/NC outputs dry contacts which can be assigned with one of the 8 following SD status:

- **SDT95%** overload alarm: thermal image of the motor is greater than 95 % of the permissible temperature rise.
- **SDTxxs** overload alarm: circuit breaker will trip in xx seconds with the same load. xx is adjustable between 10 to 40 seconds (default 20 seconds) on the circuit breaker itself through NFC or a computer with EcoStruxure Power Commission software and an interface module (TRV00911).
- **SDTAM** overload alarm just before tripping: in the event of a phase unbalance, overload, or on a jam fault, this output is activated to open the contactor and avoid circuit breaker tripping. In that case, contact can be manually or automatically reseted after an adjustable cooling time from 1 to 15 minutes. If after a 400 ms delay the motor is not stopped, the circuit breaker will trip.
- **SDT** overload trip indication: circuit breaker has tripped due to an overload fault
- **SDJAM** jam trip indication: circuit breaker has tripped due to a jam fault
- **SDUNB** phase unbalance trip indication: circuit breaker has tripped due to an unbalance fault
- **SDLS** long start trip indication: circuit breaker has tripped due to a long start fault
- **SDGF** ground-fault trip indication: circuit breaker has tripped due to a ground-fault.

Outputs are automatically reseted either when alarm disappears or when the circuit breaker is restarted.

Output characteristics

- 2 NO/NC dry contacts
- 24...250 V AC/DC
- Minimum load: 2 mA under 24 V DC
- Max load: 5 A
- AC15 (230 V max - 400 VA)
- DC13 (24 V - 50 W)

Power characteristics

- 24...240 V AC/DC

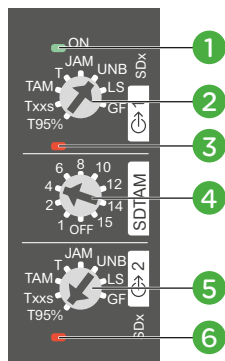
Contact rating (per UL/CSA B300 & R300)

Standard	Rated Voltage Ue	Operational Current Ie	Make VA	Break VA	Ithe A
B300	120 V AC	3	3600	360	5
	240 V AC	1.5			
R300	125 V DC	0.22	28	28	1
	250 V DC	0.1			

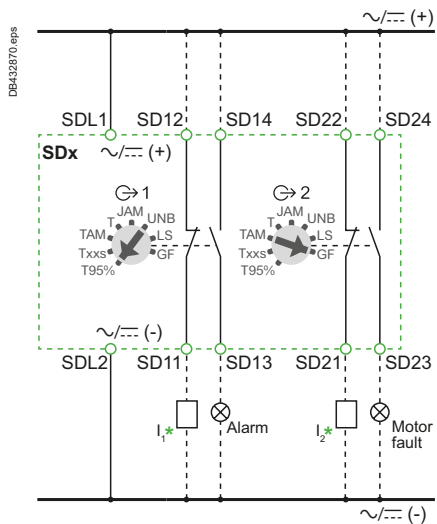
The rated operational current I_e (A), the rated operational voltage U_e (V) and the break apparent power B (V.A) are correlated by the formula $B = U_e \cdot I_e$; with $I_e \leq I_{the}$.

Installation, connection, settings and indication

The SDx module is clipped on the right side of the circuit breaker. Each removable spring terminal can be connected by one 0.5... 1.5 mm² copper wire. Settings and indications are available on the front face.

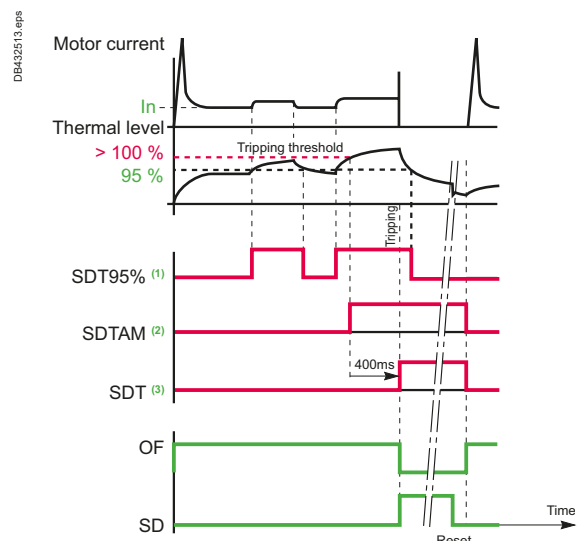


- 1 Green led lighted when the module is powered.
- 2 Output 1: SD status assignment.
- 3 Red led lighted when output 1 is activated.
- 4 Cooling time setting before automatic restart (OFF - 1...15 min).
- 5 Output 2: SD status assignment.
- 6 Red led lighted when output 2 is activated.



* I1, I2: PLC digital inputs - used as alarm inputs, as an example.

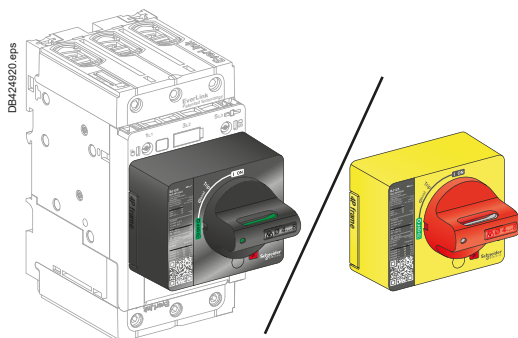
SDx wiring diagram



GV4PEM curves
SDx modules curves
Aux. contacts curves

- (1) SDT95% (= 95% overload)
- (2) SDTAM (overload tripping pre alarm) here not connected to any contactor coil
- (3) SDT (= tripping on thermal fault)

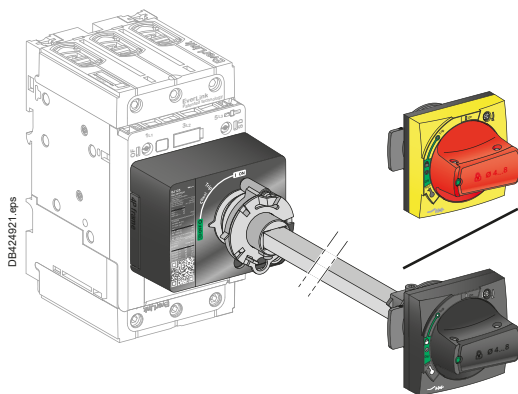
Description	Mounting	Maximum number	Type of contacts	Unit reference
SDx: alarming / fault differentiation module	Side	2	N/O / N/C	GV4ADM1111



Direct mounting rotary handle



GV4ADN02 direct mounting rotary handle



Front extended rotary handle (door-mounting)



GV4APN01 front extended rotary handle kit



GVAPL01 laser tool

Dimensions:
pages B6/134 to B6/136

Direct mounting rotary handles

Installation

The direct mounting rotary handle has to be mounted by 3 screws on the front accessory cover.

Operation

The direct mounting rotary handle maintains:

- suitability for isolation
- indication of the three positions OFF (O), ON (I) and tripped (Trip)
- access to the "push-to-trip" button
- visibility and access to the trip unit.

Device padlocking

The circuit breaker may be locked in the OFF position by using one to three padlocks (not supplied) or in ON position after customer modification of the rotary handle before installation, padlock shackle Ø4-8 mm. Locking in the ON position does not prevent the circuit breaker from tripping if a circuit or motor malfunction occurs. In this case, the handle remains in the ON position after the circuit breaker trips. Unlocking is required for the handle to go to the tripped then the OFF position.

Variations: door locking

Door locking built-in functionality can be activated by the customer to prevent opening the door when the circuit breaker is ON or in trip position. For exceptional situations, door locking can be temporarily disabled with a tool by qualified personnel to open the door when the circuit breaker is closed.

Description	Type	Degree of protection	Reference
Direct mounting rotary handle	Black handle	IP40	GV4ADN01
	Red handle on yellow bezel (VDE standard, for machine control)	IP40	GV4ADN02

Front extended rotary handles

Installation

The door-mounted (extended) rotary handle is made up of:

- a unit that has to be screwed on the front accessory cover of the circuit breaker
- an assembly (handle mechanism and front plate) on the door that is always secured in the same position, whether the circuit breaker is installed vertically or horizontally
- an adjustable extension shaft.

The handle mechanism is fixed with a nut (Ø22 mm) to make assembly easier. The Laser Square tool (GVAPL01) can be used to accurately align the hole on the door with the circuit breaker.

Operation when door is closed

The door mounted handle makes it possible to operate a circuit breaker installed in an enclosure from the front. The door mounted operating handle maintains:

- suitability for isolation
- indication of the three positions OFF (O), ON (I) and tripped (Trip)
- visibility and access to trip unit when the door is open
- degree of protection of the handle on the door: IP54 or IP65 as per IEC 60529.

Mechanical door locking when device closed

A standard feature of the extended rotary handle is a locking function, built into the shaft, that disables door opening when the circuit breaker is in the ON or tripped positions.

Door locking can be temporarily disabled with a tool by qualified personnel to open the door without opening the circuit breaker. This operation is not possible if the handle is locked by a padlock.

Device and door padlocking

Padlocking locks the circuit breaker handle and disables door opening:

- standard situation, in the OFF position, using 1 to 3 padlocks, shackle Ø4-8 mm, padlocks are not supplied
- for the black handle, with a voluntary modification of the door handle (to be done by the customer during installation), in the ON and OFF positions. Locking in the ON position does not prevent the circuit breaker from tripping if a circuit or motor malfunction occurs. In this case, the handle remains in the ON position after the circuit breaker trips. Unlocking is required for the handle to go to the tripped then the OFF position.

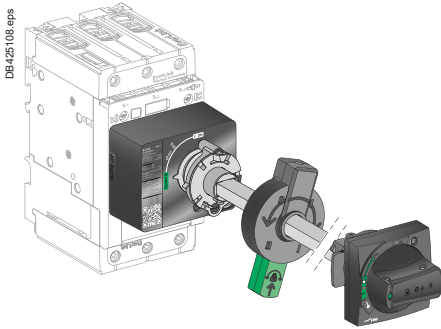
Shaft length

The shaft length is the distance between the back of the circuit breaker and the door:

- minimum shaft length is 214 mm
- maximum shaft length is 627 mm
- shaft length must be adjusted.



Motor circuit breakers



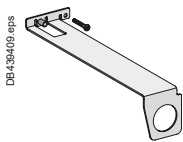
Open door shaft operator mounted on front extended rotary handle assembly



GV4APN01
Front extended rotary handle kit



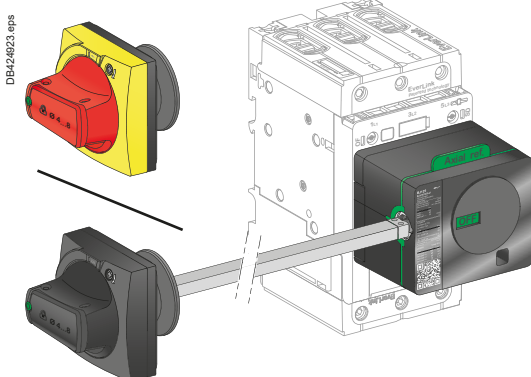
LV426937
Open door shaft operator



LV426938
Support arm for extended rotary handle



GVAPL01 - Laser tool



Side extended rotary handle (cover mounting)



LV426936 - Side rotary handle kit



LV426998, LV426997 - Universal handles

Front extended rotary handles (cont.)

Operation when door is opened

An open door shaft operator can be used to operate the circuit breaker when door is opened. This accessory complies with UL508 A.

The indication of the three positions OFF (O), ON (I) and tripped (Trip) is visible on the circuit breaker.

The circuit breaker itself may be locked in OFF position when the door is opened by 1 padlock / lockout hasp, shackle Ø4-8 mm.

Description	Type	Degree of protection	Reference
Front extended rotary handle kit	Black handle	IP54	GV4APN01
	Red handle on yellow bezel	IP54	GV4APN02
		IP65	GV4APN04
Open door shaft operator			LV426937
Support arm for extended rotary handle			LV426938
Laser tool			GVAPL01
Spare part: GV4 universal handle (for replacement of front. ext. or side rotary handle)	Black handle	IP54	LV426997
	Red handle on yellow bezel	IP54	LV426998
		IP65	LV426999

Side rotary handles (left or right)

Installation

The side-mounted rotary handle is made up of:

- a unit that has to be screwed on the front accessory cover of the circuit breaker
 - an assembly (handle and front plate) on the side (left or right) of the enclosure
 - an adjustable extension shaft
- The handle mechanism is fixed with a nut (Ø22 mm) to make assembly easier.

Operation

The side mounted rotary handle makes it possible to operate circuit breakers installed in enclosure from the side. The side mounted rotary handle maintains:

- suitability for isolation
- indication of the three positions OFF (O), ON (I) and tripped (Trip). Moreover, the position is visible on the circuit breaker itself
- visibility and access to trip unit when the door is open
- degree of protection of the handle on the side: IP54 or IP65 as per IEC 529.

Device padlocking

The circuit breaker may be locked in the OFF position, or, for the black rotary handle only, in ON position after voluntary modification of the side handle (to be done by the customer during installation), by using one to three padlocks, padlock shackle Ø4-8 mm ; padlocks are not supplied.

Locking in the ON position does not prevent free circuit breaker from tripping if a circuit or motor malfunction occurs. In this case, the handle remains in the ON position after the circuit breaker tripping. Unlocking is required to go to the tripped then the OFF position.

Shaft length

The shaft length is the distance between the side of the circuit breaker and the side of the enclosure:

- minimum shaft length is 45 mm
- maximum shaft length is 480 mm
- shaft length must be adjusted.

Description	Type	Degree of protection	Reference
Side rotary handle kit	Black handle	IP54	LV426935
	Red handle on yellow bezel (VDE standard, for machine control)	IP54 ⁽¹⁾	LV426936
Spare part: GV4 universal handle (for replacement of front. ext. or side rotary handle)	Black handle	IP54	LV426997
	Red handle on yellow bezel	IP54	LV426998
		IP65	LV426999

⁽¹⁾ IP65 possible with LV426935 kit (Black handle not used) + LV426999 Red handle on yellow bezel universal handle.

Handle padlocking devices

Padlocking systems can receive up to three padlocks with diameters of 5-8 mm (4-8 mm for rotary handles); padlocks not supplied. Locking in the OFF position guarantees isolation as per IEC 60947-2.

Direct rotary handle padlocking

By padlock – No accessory required.

- Lock in OFF position.
- Lock in ON position with simple mechanism modification.

Front Extended /Side rotary handle padlocking

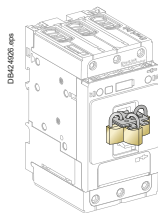
By padlock – No accessory required.

- Lock in OFF position.
 - Lock in ON position with simple mechanism modification (black handle only).
- Door opening prevented.

Toggle handle padlocking

By padlock – removable toggle locking device required **29370**.

- Lock in OFF position.



3 padlocks mounted on 29370 toggle locking device



29370 removable toggle locking device

Description	Reference
Removable toggle locking device for 1 to 3 padlocks	29370

Sealing devices

Control type	■ Front removal. ■ Access to auxiliaries.	■ Access to settings and test connector.
--------------	--	--

Toggle		
Rotary handle		

Description	Reference
Bag of 6 leads + 6 sealing accessories	LV429375



LV429375 leads + sealing accessories

Motor
circuit
breakers



PB121333.eps
LAD96595
EverLink connector



PB121334.eps
GV4LUG
crimped lug connector



PB121343.eps
LV426920
interphase barriers



PB121342.eps
LV426990
9 N.m green throwaway bits



PB121336.eps
LAD96590
transparent terminal shield



PB121344.eps
LV426940
spreader 3-pole



PB121341.eps
LV426992
5 N.m yellow throwaway bits



PB121338.eps
LV434206
pocket battery



PB121337.eps
TRV00910
maintenance case



PB121335.eps
TRV00911
Spare USB maintenance interface



PB121340.eps
TRV00915
spare power supply
110-240 V AC



PB121339.eps
TRV00917
spare GV4PEM cord for
USB maintenance interface

EverLink power connection

Description	Reference
EverLink connector	LAD96595

Crimp lug/busbar connection

Description	Sold in lots of	Reference
Crimped lug connector + screws	1	GV4LUG
Transparent terminal shield for crimped lug connector	1	LAD96590
Interphase barriers	6	LV426920
Spreader 3-pole	To increase the pitch to 35 mm	LV426940

Limited torque throwaway bits

Description	Sold in lots of	Reference
Green - 9 N.m	6	LV426990
Yellow - 5 N.m	6	LV426992

Note: torque limiting breakaway bits may be used, particularly in the field, to tighten at the right torque EverLink™ or compression lug power connections.

Test tool, software, demo for GV4PEM

Test tool

Pocket battery	LV434206
Allows the ref. GV4PEM or GV4PB controller to be powered for adjustments and tests when no internal source is available.	

Maintenance case	TRV00910
Comprising:	

- USB maintenance interface
- Power supply
- GV4PEM cord
- USB cord
- RJ45/RJ45 male cord

Spare USB maintenance interface	TRV00911
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USB interface spare power supply, 110-240 V AC, with 4 different socket adapters	TRV00915
--	----------

Spare cord for connecting GV4PEM to USB maintenance interface	TRV00917
---	----------

Software

Configuration and setting software EcoStruxure Power Commission	Free download
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TeSys Giga - Frame 5, 6 55 to 250 kW



Motor
circuit
breakers



GV5P220F

Thermal-magnetic circuit breakers Frame 5 with screw clamp terminals up to 110 kW ⁽¹⁾

Control by direct rotary handle

Standard power ratings of 3-phase motors
50/60 Hz in category AC-3

400/415 V			500 V			660/690 V			Thermal setting range (Ir)	Reference	Weight
P	Icu	Ics ⁽²⁾	P	Icu	Ics ⁽²⁾	P	Icu	Ics ⁽²⁾			
kW	kA	%	kW	kA	%	kW	kA	%	A		kg
55...75	36	100	75...90	30	100	90...110	8	100	70...150	GV5P150F GV5P150H	2.4
	70	100		50	100		10	100			
90...110	36	100	110	30	100	110...132	8	100	100...220	GV5P220F GV5P220H	2.6
	70	100		50	100		10	100			

⁽¹⁾ Breakers have to be used with suitable rating of contactors, as defined in section A6.

⁽²⁾ As % of Icu.



GV6P320F

Thermal-magnetic circuit breakers Frame 6 with screw clamp terminals up to 250 kW ⁽¹⁾

Control by direct rotary handle

Standard power ratings of 3-phase motors
50/60 Hz in category AC-3

400/415 V			500 V			660/690 V			Thermal setting range (Ir)	Reference	Weight
P	Icu	Ics ⁽²⁾	P	Icu	Ics ⁽²⁾	P	Icu	Ics ⁽²⁾			
kW	kA	%	kW	kA	%	kW	kA	%	A		kg
132...160	36	100	160...200	25	100	200...250	10	100	160...320	GV6P320F GV6P320H	6.5
	70	100		50	100		10	100			
200...250	36	100	250...315	25	100	315...400	10	100	250...500	GV6P500F GV6P500H	6.7
	70	100		50	100		10	100			

⁽¹⁾ Breakers have to be used with suitable rating of contactors, as defined in section A6.

⁽²⁾ As % of Icu.

Thermal-magnetic circuit breakers Frame 5/6 with screw clamp terminals ⁽¹⁾

Control by direct rotary handle

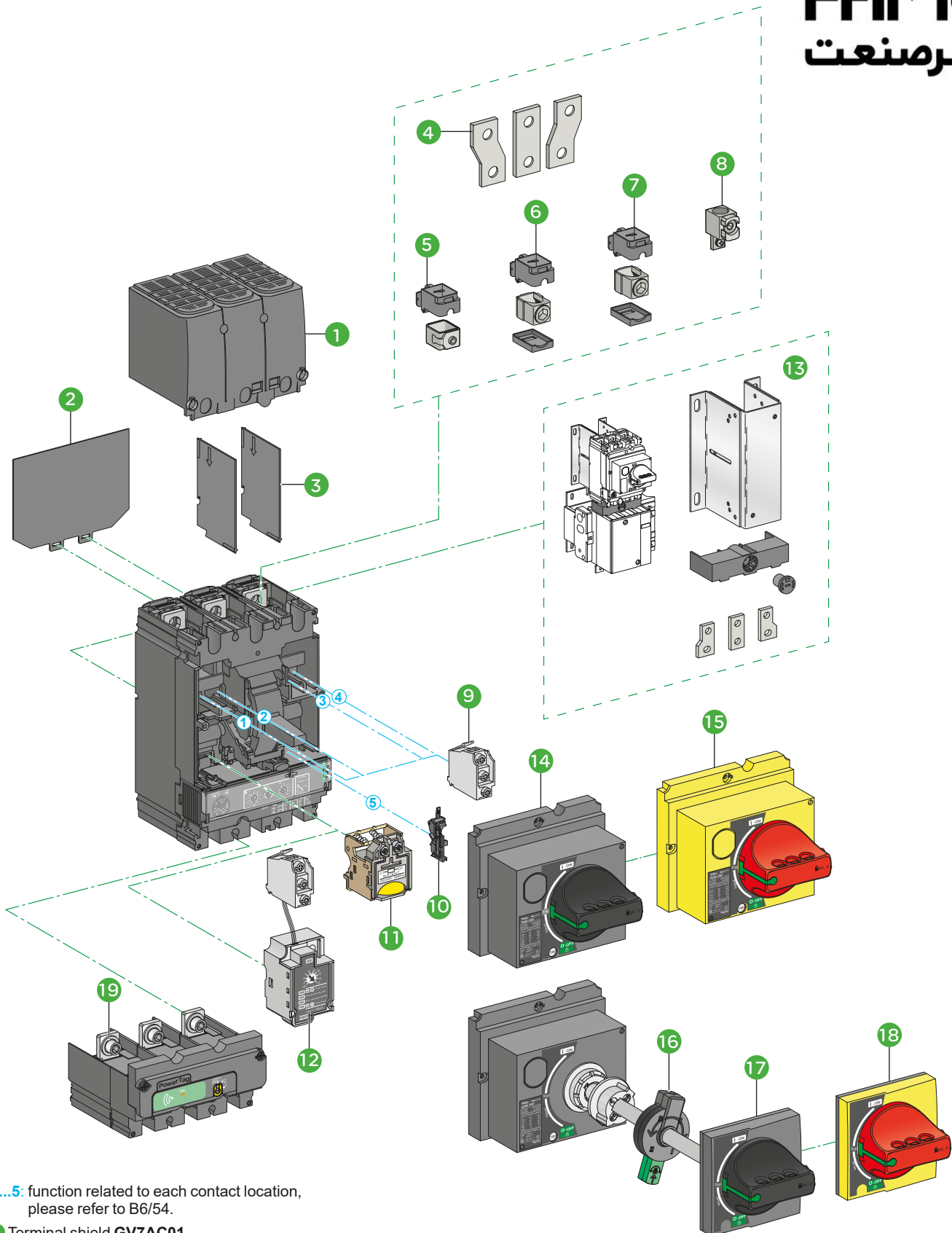
Thermal setting	3-Phase			Standard breaking capacity	High breaking capacity
	230 V	460 V	575 V		
A	HP	HP	HP	Reference	Reference
90...150	50	100	150	GV5P150F	GV5P150H
133...220	75	150	200	GV5P220F	GV5P220H
160...320	125	250	300	GV6P320F	GV6P320H
250...500	150	350	500	GV6P500F	GV6P500H

⁽¹⁾ Breakers have to be used with suitable rating of contactors, as defined in section A6.



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Motor
circuit
breakers

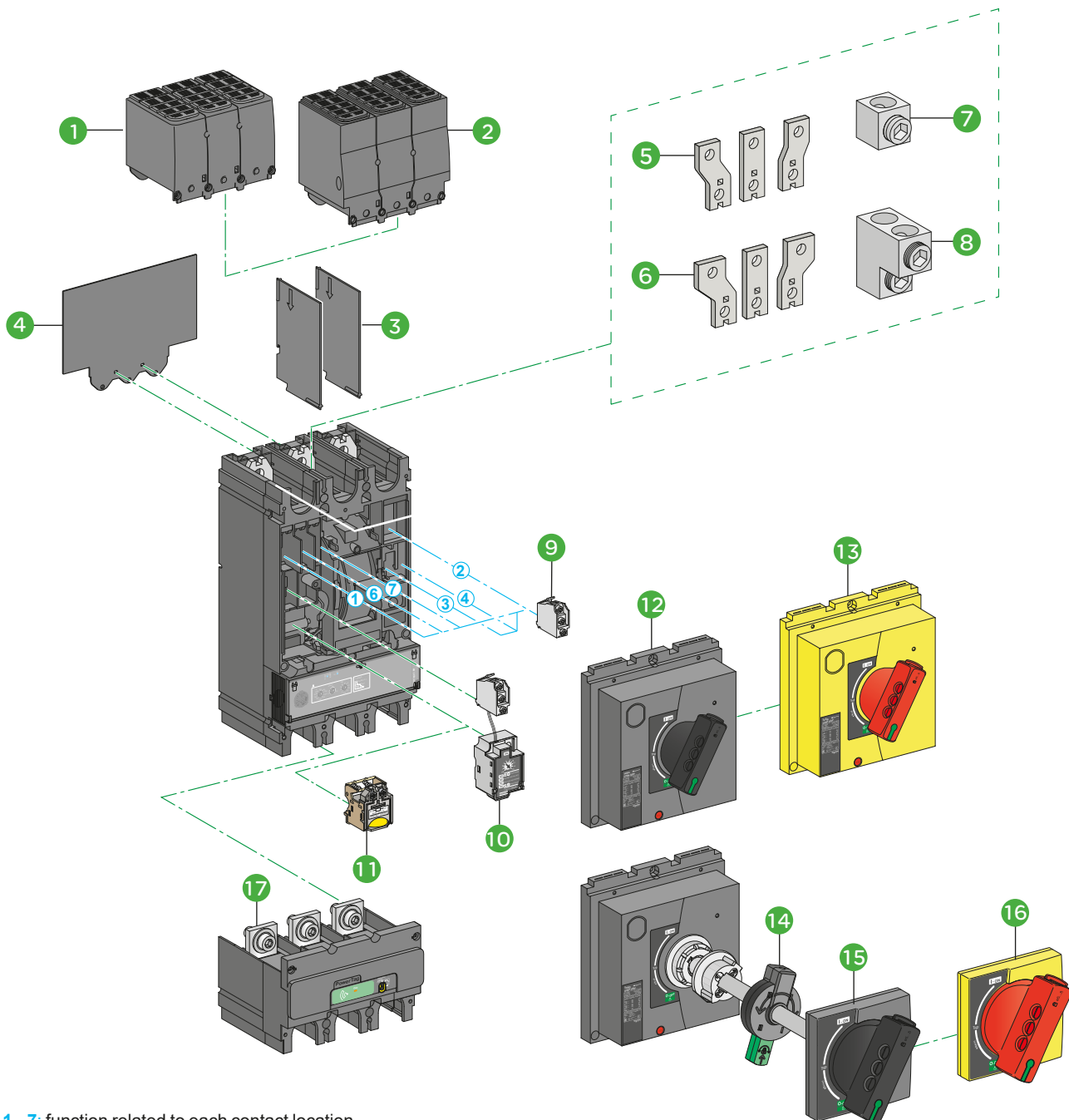


1...5: function related to each contact location, please refer to B6/54.

- ① Terminal shield **GV7AC01**
- ② Insulating screen **GV7AC05**
- ③ Interphase barriers **GV7AC04**
- ④ Spreaders 45 mm **GV7AC03**
- ⑤ Steel connector **GV7AC021** (1.5-95 mm²)
- ⑥ Aluminum connector **LV429227** (25-95 mm²)
- ⑦ Aluminum connector **GV7AC022** (120-185 mm²)
- ⑧ Aluminum connector **LV429244** (120-240 mm²)
- ⑨ OF, SD, or SDE indication contacts **29450** (standard) / **29452** (for low level)
- ⑩ SDE adapter **LV429451**
- ⑪ UVR or SHT voltage release **LV42940●/LV42938●**
- ⑫ SDTAM thermal fault module **LV429424**
- ⑬ Combination kit for contactor **GV7AC06/GV7AC08**

- ⑭ Direct rotary handle black **GV5AP03** (shipped with the device)
- ⑮ Direct rotary handle red on yellow bezel **GV7AP04**
- ⑯ Open door shaft operator **LV426937**
- ⑰ Extended rotary handle black **GV7AP01**
- ⑱ Extended rotary handle red on yellow bezel **GV7AP02**
- ⑲ PowerTag M250 wireless energy sensor **LV434020**

DB 4328 14, all



Motor
circuit
breakers

1...7: function related to each contact location,
please refer to B6/54.

- 1 Terminal shield 45 mm **LV432593**
- 2 Terminal shield 52.5 mm **LV432595**
- 3 Interphase barriers **LV432570**
- 4 Insulating screen **LV432578**
- 5 Spreader 52.5 mm **LV432490**
- 6 Spreader 70 mm **LV432492**
- 7 Aluminum connector **LV432479** (1 x 35-300 mm²)
- 8 Aluminum connector **LV432481** (2 x 35-300 mm²)
- 9 OF, SD, or SDE indication contacts **29450** (standard) / **29452** (for low level)
- 10 SDTAM thermal fault module **LV429424**
- 11 UVR or SHT voltage releases **LV429400** / **LV429380**
- 12 Direct rotary handle black **GV6AP03** (shipped with the device)
- 13 Direct rotary handle red on yellow bezel **LV432599**
- 14 Open door shaft operator **LV426937**
- 15 Extended rotary handle black **LV432598**
- 16 Extended rotary handle red on yellow bezel **LV432600**
- 17 PowerTag M630 wireless energy sensor **LV434022**

Add-on auxiliary contacts - OF contacts

These allow remote indication of the circuit breaker contact states. They can be used for signalling, electrical locking, relaying, etc. They are available in two versions: standard and low level. They include a terminal block and the auxiliary circuits leave the circuit breaker through a hole provided for this purpose.

They perform the following functions, depending on where they are located in the circuit breaker:

Location	Function	Application
1 and/or 4 (GV5) 1 and/or 4, 6, 7 (GV6)	C/O contact	Indicates the position of the circuit breaker poles.
2	Trip indication	Indicates that the circuit breaker has tripped due to an overload, a short-circuit, a differential fault or the operation of a voltage trip (undervoltage or shunt trip), or of the "push to trip" test button. It resets when the circuit breaker is reset.
3	Electrical fault indication	Indicates that the circuit breaker has tripped due to an overload, a short-circuit or a differential fault. It resets when the circuit breaker is reset.
5	Adapter for electrical fault indication	This accessory is mandatory for GV5 to provide electrical fault indication.

Type	Reference
Standard	29450
Low level	29452
Adapter for electrical fault indication	LV429451

Thermal fault module - SDTAM

GV5/ GV6 can be equipped with thermal fault module. This module have:

- a contact to indicate overload fault in the circuit-breaker
- a contact to open the contactor. In the event of overload or phase unbalance, this output is activated 400 ms before circuit-breaker tripping to open the contactor and avoid circuit breaker tripping.

Voltage	Reference
24...415 V AC/DC	LV429424 ⁽¹⁾

Electric trips

These allow the circuit breaker to be tripped via an electrical control signal.

- Undervoltage release (UVR) - LV42940●
- Trips the circuit breaker when the control voltage drops below 35 % of its rated voltage.
- Between 35 % and 70 % of the rated voltage opening is possible but not guaranteed.
- Above 70 % of the rated voltage, opening does not take place.
- Continuous duty rated coil.
- Circuit breaker closing is possible only if the voltage exceeds 85 % of the rated voltage.
- Shunt trip (SHT) - LV42938●
- Trips the circuit breaker when the control voltage rises above 0.7 times the rated voltage.
- Impulse type ≥ 20 ms or maintained control signals.
- Operation (LV42940● or LV42938●)
- When the circuit breaker has been tripped by an UVR or by a SHT, it must be reset either locally.
- Tripping has priority over manual closing: if a tripping order is present, manual action does not result in closing, even temporarily, of the contacts.
- Durability: 50 % of the mechanical durability of the circuit breaker.

Type	Voltage	Reference
Undervoltage trip	220...240 V, 50/60 Hz	LV429407
Shunt trip	110...130 V, 50/60 Hz	LV429386
	220...240 V, 50/60 Hz	LV429387

⁽¹⁾ LV429429 takes the place of the UVR/SHT electric trip coil and an auxiliary contact (C/O contact 1).



Cabling accessories

Cable connectors: The connectors for Frame 5 snap directly on to the device terminals or are secured by clips to right-angle and straight terminal extensions as well as spreaders. Frame 6 connectors are screwed directly to the device terminals.

Spreaders: Spreaders may be used to increase the pitch from 35 mm to 45 mm for Frame 5. The 45 mm pitch can be increased to 52.5 or 70 mm for Frame 6.

Long terminal shields: They are used for front connection with cables or insulated bars. They comprise two parts assembled with captive screws, forming an IP40 cover. The top part is equipped with sliding grids with break marks for precise adaptation to cables or insulated bars. The rear part completely blocks off the connection zone. Partially cut squares can be removed to adapt to all types of connection for cables with lugs or copper bars. Long terminal shields may be mounted upstream and downstream of the breaker.

Phase barriers: These interphase barriers are used for maximum insulation at the power-connection points.

Insulating screens: These are fitted at the rear of the device which provides insulation. Their use is mandatory for devices with spreaders, installed on backplates, when terminal shields are not used.

Frame 5 Combination kits: These kits allow link between the circuit breaker and the contactor. The cover provides protection against direct finger contact. The kit comprises links, a protective shield and a depth adjustable metal bracket for the breaker.

Description	Application	Sold in lots of	Unit reference GV5	Unit reference GV6
Steel connectors (set of 3)	1.5...95 mm ² ≤ 150 A	1	GV7AC021	—
Aluminium connectors (set of 3)	25...95 mm ² ≤ 220 A	1	LV429227	
	120...185 mm ² ≤ 220 A	1	GV7AC022	
	120...240 mm ² ≤ 220 A	1	LV429244	
	35...300 mm ²	1		LV432479
Spreader 3-pole ⁽¹⁾	2 x 35...300 mm ²	1		LV432481
	35...45 mm pole pitch	1	GV7AC03	
	52.5 mm pole pitch	1		LV432490
Long terminal shield (IP40) ⁽¹⁾	70 mm pole pitch	1		LV432492
	35 mm pole pitch	1	GV7AC01	
	45 mm pole pitch	1		LV432593
Phase barriers (set of 6)	52.5 mm pole pitch	1		LV432595
		1	GV7AC04	LV432570
Insulating screens (set of 2)	45 mm	1	GV7AC05	
	70 mm			LV432578
Combination Kits ⁽²⁾				
For contactor LC1F115...F185	Connection kits between breaker and contactor	1	GV7AC06	
For contactor LC1D115 and D150		1	GV7AC08	

Direct rotary handle

The circuit breaker is always supplied direct rotary handle (black handle, black plate) as standard and it provides IP40 protection. The other type handles can be used by replacing this direct rotary handle. It includes a device for locking the circuit breaker in the O (Off) position by means of up to 3 padlocks with a shackle diameter of 5 to 8 mm (padlocks not included). A MCC conversion accessory allows the direct rotary handle to be mounted on the enclosure door. In this case, the door cannot be opened if the circuit breaker is in the "ON" position. Circuit breaker closing is inhibited if the enclosure door is open and prevents the device from being closed if the door is open.

Description	Type	Sold in lots of	Unit reference GV5	Unit reference GV6
Direct rotary handle	Black handle, black legend plate	1	GV5AP03	GV6AP03
	Red handle, yellow legend plate	1	GV7AP04	LV432599
MCC conversion accessory	Four mounting direct rotary handle on enclosure door	1	GV7AP05	LV432606

Extended rotary handle

Allows to operate a circuit breaker from the front of the switch board, which's installed in the back of an enclosure, which provides IP55 protection. It comprises:

- a unit which is screwed onto the front accessory cover of the circuit breaker,
- an assembly (handle mechanism and front plate) to be fitted on the enclosure door,
- an extension shaft which must be adjusted.
- The distance minimum and maximum distances between the mounting surface and the door are
 - 185...600 mm for Frame 5
 - 209...600 mm for Frame 6

It includes a device for locking the circuit breaker in the O (Off) position by means of up to 3 padlocks with a shackle diameter of 5 to 8 mm (padlocks not included) and disables opening enclosure door.

Description	Type	Sold in lots of	Unit reference GV5	Unit reference GV6
Extended rotary handle	Black handle, black legend plate	1	GV7AP01	LV432598
	Red handle, yellow legend plate	1	GV7AP02	LV432600

⁽¹⁾ Terminal shields cannot be used together with spreaders.

⁽²⁾ The kit comprises links, a protective shield and a depth adjustable metal bracket for the breaker.



LV432479



LV432490



LV432593



GV7AC04



GV6AP03



LV432599



GV7AP02

Dimensions:
page B6/149

Front extended rotary handles (cont.)

Operation when door is opened

An open door shaft operator can be used to operate the circuit breaker when door is opened. This accessory complies with UL508 A.

The indication of the three positions OFF (O), ON (I) and tripped (Trip) is visible on the circuit breaker.

The circuit breaker itself may be locked in OFF position when the door is opened by 1 padlock / lockout hasp, shackle Ø4-8 mm.



LV426937
Open door shaft operator

Description	Reference
Open door shaft operator	LV426937
Laser tool	GVAPL01



GVAPL01 Laser tool

Other accessories

Bag of 6 tamper seals + 6 cover caps (1 large, 5 small) for screw heads

LV429375



LVA429375
Sealing accessories

PowerTag Measurement module

Wireless-communication module

PowerTag is directly mounted on the bottom side of the circuit breaker.

It provides capability to measure energy, monitor voltage loss, and trigger alarms.

It then delivers useful data to a concentrator for monitoring and diagnosis of the associated circuit breaker.

In addition to monitoring and alarming, PowerTag solution provides a complete knowledge of real time electrical values with a rich and accurate data transfer every 5 seconds.

PowerTag energy sensors can be quickly and easily installed in new or existing panels at any time. Compared to traditional metering solutions, installation time and commissioning are much shorter with no wiring, hence an error proof high density solution and a built-in class 1 accuracy.

Functions

PowerTag energy sensor measures the following values in accordance with the IEC 61557-12 standard:

- Energy (4 quadrants):
 - ☐ Active energy (Wh): total and partial, delivered and received
 - ☐ Active energy per phase (Wh): total
 - ☐ Reactive energy (VARh): partial, delivered and received
- Power:
 - ☐ Active power (W): total and per phase
 - ☐ Reactive power (VAR): total
 - ☐ Apparent power (VA): total
- Voltages (V): phase-to-phase (U12, U23, U31) and phase-to-neutral (V1N, V2N, V3N)
- Currents (A): per phase (I1, I2, I3)
- Frequency
- Power factor
- Voltage loss alarm:
 - ☐ PowerTag energy sensor sends a "voltage loss" alarm and the current-per-phase value before being de-energized
 - ☐ At "voltage loss", PowerTag adds an overload alarm if the current is higher than the rated current of the associated protective device.

Note: functions listed above depend on concentrators/gateways.

Description	Reference
PowerTag M250 3P: suitable for Frame 5 up to 220 A	LV434020
PowerTag M630 3P: suitable for Frame 6 up to 500 A	LV434022

PowerLogic™ Energy measurement solutions

Motor
circuit
breakers



PowerTag Energy

It is a wireless-communication energy sensor dedicated to:

- Energy Management
- Load Monitoring
- Power Availability applications.

It provides a class 1 solution to monitor energy at any level of a distribution panel, from load to main incomer.

Thanks to the wireless communication between PowerTag Energy Sensors and PowerTag Energy Link gateway, the solution can be quickly and easily installed in new or existing panels.

Main features

Real time measurement (saved in the sensors):

- U, V, I (up to 2000 A)
- P, PF and energy values
- Diagnostics, alarming.

PowerTag Energy - Main components

Measurement - PowerTag Energy sensors

Voltages and currents are measured and processed by a sensor:

- 1 PowerTag Energy Monoconnect: directly mounted on the device terminals, upstream (Acti9, Multi9 only) or downstream (Acti9, Multi9, TeSys Deca - Frame 5, 6 circuit breakers)
- 2 PowerTag Energy Phase Neutral: sensor is crossed by the conductors, voltage pickup connector mounted on device terminals
- 3 PowerTag Energy Flex: sensor is crossed by the conductors
- 4 PowerTag Energy Rope: fixed on bar conductors.

Processing and communication – PowerTag Energy Link

The system works with a concentrator or a gateway:

- to collect data from the sensors
- to process data
- to provide additional alarms
- and make them available via Ethernet.



PowerTag Energy Link

Motor circuit breakers



Connection (voltage and current)

Upstream

Downstream

Preferred installation to take full benefit of voltage loss alarming in diagnosing the load

Features

- Energy management: consumption in kWh
- Load monitoring: real-time measurements
- Energy management: consumption in kWh
- Load monitoring: real-time measurements
- Power availability: voltage loss alarming

Note:

In combination with a contactor, Variable Speed Drive or motor starter: PowerTag Energy can ONLY be installed UPSTREAM of these devices. Select the PowerTag Energy devices, check the possible mounting positions in the PowerLogic – PowerTag Energy - Selection guide.



Scan or Click to download:

> PowerLogic - PowerTag Energy - Selection guide





Communication between PowerTag Energy Flex 63 A and PowerTag Link ref. A9XMWD20



A9MEM1573
PowerTag Flex 63 A (terminals are for voltage measurement)

Energy measurement – PowerLogic

PowerTag Energy Flex 63 A (F63)

As per IEC 61557-12 PMD-II/DD/K55/1 standard:
with its flex design this PowerTag Energy can be used below a **Deca Motor circuit breakers Frame 2, 3-type (ref. GV2●●●, GV3●●●)** up to 63 A on 3P or 3P + N networks. The voltage picking is done by mean of 3 (3P) or 4 (3P + N) terminals. The shapes for brackets allow to mount and maintain it where needed in a panel.

Main characteristics

PowerTag Energy measures the following values in accordance with the IEC 61557-12 standard PMD-I/DD/K55/1.

Energy:

■ Active energy (kWh): total and partial, delivered and received.

Real-time measurement values:

■ Voltages (V): phase-to-phase and phase-to-neutral

■ Currents (A): per phase.

■ Power:

□ Active power (W): total and per phase

□ Apparent power (VA): total

■ Power factor.

Voltage loss alarms:

■ PowerTag Energy sends a 'voltage loss' alarm and the current-per-phase value before being de-energized

■ At 'voltage loss', PowerTag Energy adds an overload alarm if the current is higher than the rated current of the associated protective device.

Note: functions listed above depends on Concentrator/Gateway.

Description	Reference
PowerTag Energy Flex 63 A 3P	A9MEM1573
PowerTag Energy Flex 63 A 3P+N	A9MEM1570

Installation

Neutral picking shall be connected to have phase-to-neutral voltages, energy per phase and power per phase provided.

The existing PowerTag cable ends have been designed for screw terminals for 16 mm².

To adapt PowerTag F63 to the different types of product terminals, it is possible to replace the PowerTag Energy voltage measurement terminals by other cable ends for WG22/0.33 mm² wire.



Motor
circuit
breakers



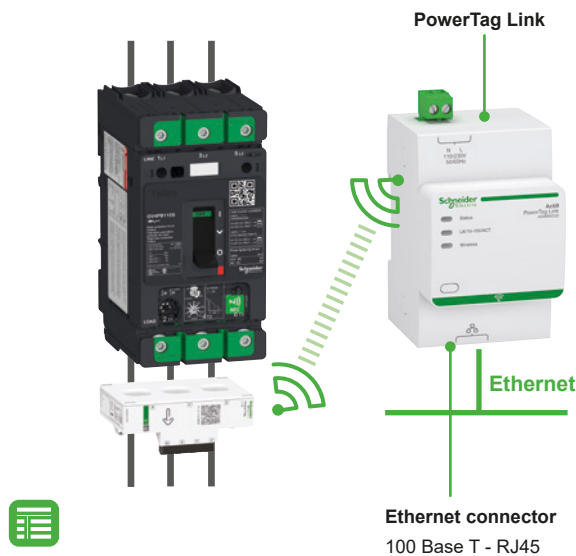
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> PowerLogic - PowerTag Energy - Selection guide

PowerLogic™ Energy measurement solutions

PowerTag™ Energy Flex 160 A

Use with TeSys Deca - Frame 4 Motor circuit breakers



Communication between PowerTag Energy Flex 160 A and PowerTag Link ref. A9XMWD20

Motor circuit breakers

PG121658.eps



PowerTag Energy Flex 160 A
Ref. A9MEM1580

Energy measurement – PowerLogic

PowerTag Energy Flex 160 A (F160)

As per IEC 61557-12 PMD-II/DD/K70/1 standard: with its flex design this PowerTag Energy can be used below a **Deca motor circuit breaker Frame 4 - type (ref GV4●●●●)** up to 160 A on 3P or 3P + N networks. Its removable spring connector for voltage picking facilitates its installation, and shapes for brackets allows to mount and maintain it where needed in a panel.

Main characteristics

PowerTag Energy Flex 160 A measures the following values in accordance with the IEC 61557-12 standard PMD-II/DD/K70/1.

■ Energy (4 quadrants):

- ☐ Active energy (kWh): total and partial, delivered and received
- ☐ Active energy per phase (kWh): total and partial, delivered and received
- ☐ Reactive energy (kVARh): total and partial, delivered and received
- ☐ Reactive energy per phase (kVARh): total and partial, delivered and received
- ☐ Apparent energy (kVAh): total and partial
- ☐ Apparent energy per phase (kVAh): total and partial.

■ Real-time measurement values:

- ☐ Voltages (V): phase-to-phase (U12, U23, U31) and phase-to-neutral (V1N, V2N, V3N)
- ☐ Currents (A): per phase (I1, I2, I3), calculated neutral current when connected (IN)
- ☐ Power:
- Active power (W): total and per phase
- Reactive power (VAR): total and per phase
- Apparent power (VA): total and per phase
- ☐ Frequency (Hz).
- ☐ Power factor: total and per phase.

■ Voltage loss alarms:

- ☐ PowerTag Energy Flex sensor sends a 'voltage loss' alarm and the current-per phase value before being de-energized.
- ☐ At 'voltage loss', PowerTag Energy Flex adds an overload alarm if the current is higher than the rated current of the associated protective device.

Note: functions listed above depends on Concentrator/Gateway.

Description	Reference
PowerTag Energy Flex 160 A 3P / 3P+N	A9MEM1580

Installation

PowerTag Energy Flex 160 A can be installed in a panel directly on cables or busbars, associated to a product or not. Voltage pickings removable spring terminal has to be wired by 1 copper wire per phase with following characteristics:

Wire range

Solid	Stranded	Stranded with terminals ends
0.2...1.5 mm ²	0.2...2.5 mm ²	0.25...1.5 mm ²
24...16 AWG	24...14 AWG	24...16 AWG

If phase-to-neutral voltages, energy per phase and power per phase are needed, then a Neutral picking cable must be connected between the spring-type connector of the PowerTag Energy Flex and a Neutral in the control panel.

PowerTag Energy Flex 160 A is mainly advised for ComPact NSXm, ComPact INS160, Acti9 NG125, Acti9 C120, PowerPact B, TeSys Deca - Frame 4 - type circuit breaker, and all other devices with a rating between 63 A and 160 A.



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> PowerLogic - PowerTag Energy - Selection guide



Communication between PowerTag Monoconnect M630 and PowerTag Link ref. A9XMWD20

Energy measurement – PowerLogic

PowerTag Energy Monoconnect 250 A (M250) PowerTag Energy Monoconnect 630 A (M630)

As per IEC 61557-12 PMD-II/DD/K70/1 standard:

PowerTag Energy Monoconnect is directly mounted on the bottom side of a **TeSys Deca - Frame 4 or 5 circuit breaker**, for 3P and 3P+N electrical networks. Thanks to its integrated design, it does not require any specific wiring, and is compatible with the same connection accessories than the device it is mounted on. In addition to monitoring and alarming, PowerTag solution provides a complete knowledge of real time electrical values with a rich and accurate data transfer every 5 seconds.

PowerTag Energy sensors can be quickly and easily installed in new or existing panels at any time. Compared to traditional metering solutions, installation time and commissioning are much shorter with no wiring, hence an error proof high density solution and a built-in class 1 accuracy.

Functions

PowerTag Energy sensor measures the following values in accordance with the IEC 61557-12 standard.

- Energy (4 quadrants):
 - Active energy (kWh): total and partial, delivered and received
 - Active energy per phase (kWh): total
 - Reactive energy (kVARh): partial, delivered and received.
- Real-time measurement values:
 - Voltages (V): phase-to-phase (U12, U23, U31) and phase-to-neutral (V1N, V2N, V3N)
 - Currents (A): per phase (I1, I2, I3).
- Power:
 - Active power (W): total and per phase
 - Reactive power (VAR): total
 - Apparent power (VA): total.
- Frequency (Hz)
- Power factor
- Voltage loss alarm:
 - PowerTag Energy sends a "voltage loss" alarm and the current-per-phase value before being de-energized
 - At 'voltage loss', PowerTag adds an overload alarm if the current is higher than the rated current of the associated protective device.

Note: functions listed above depends on Concentrators/Gateways.



Motor
circuit
breakers



LV434020



LV434022

Description	Reference
PowerTag Monoconnect M250 3P: suitable for GV5 up to 220 A	LV434020
PowerTag Monoconnect M630 3P: suitable for GV6 up to 500 A	LV434022

Installation

The module is self-powered and is installed for fixed devices directly on the bottom side of the circuit breaker or Vigi add-on terminals. For plug-in devices, it has to be installed on the base itself, top or bottom.

PowerTag Energy M250/M630 3P has to be used with 3P devices, and an external neutral voltage tap is provided in case of the installation has a neutral to provide phase-to-neutral voltages, active energy per phase and power per phase.

PowerTag Energy M250/M630 3P + N has to be used with 4P devices and with ComPact INS/INV switches.

In case of retrofit, following points have to be checked:

- Clearance to be able to add PowerTag Energy module and to respect bending radius of cables.
- Condition of power connectors: to be replaced if damaged.
- Tightening torques depending on the connector used.



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Energy measurement – PowerLogic

PowerTag Link

Ethernet connection concentrator (Modbus TCP/IP) for wireless devices with data display web pages.

The associated PowerTag Energy sensors allow alarms to be managed via email for terminal loads, and energy, power, current and voltage to be measured accurately in real time.

The associated PowerTag Control modules are designed to monitor and control a circuit and notify wirelessly to the concentrator the information status of a contact (OF, SD, CT or TL position indication...).

The associated PowerTag Link Display allows user to visualize data from energy sensors connected to the gateway.

The entire system can easily be installed in existing LV equipments using Multi9/Acti9/Compact NSX type circuit breakers, TeSys and competitor's devices.

Data transmitted:

- Total and partial energy
- Active, apparent and reactive power, phase-to-phase and phase-to-neutral voltage
- Currents I1, I2, I3
- Power factor (cos φ)
- Voltage loss and overload information
- Control order to a circuit
- Information status of a contact.

Functions

PowerTag Link permits:

- Concentration of PowerTag Energy wireless sensor data
- Ethernet connection via the RJ45 port
- Load monitoring:
 - alarm sent by the energy sensor in the event of a voltage loss,
 - pre-alarms on predefined thresholds (50 %, 80 %) or customized thresholds (thresholds on currents, power, voltages and cumulative energies),
 - load running time counter,
 - power synthesis (kW),
 - Alarm management on current/voltage/load level thresholds by e-mail,
 - Send control orders to PowerTag Control output to operate a load remotely and get oad status thanks to feedback loop on associated input,
 - Collect status of contact from PowerTag Control input,
 - Display of alarms and pre-alarms on PowerTag Link embedded web pages,
 - Easy integration into system with Com'X 200, Com'X 510 and other Schneider Electric software and third-party Building Management Systems (BMS) thanks to EcoStruxure Power Commission report in pdf format. This report provides dynamically all the Modbus registers and associated meanings for an easy integration into the system,
 - Remote metering capability using the PowerTag Link monitoring page,
 - Send measured data and alarms to the PowerTag Link Display that can be installed locally.

Description

PowerTag Link

Reference

A9XMWD2

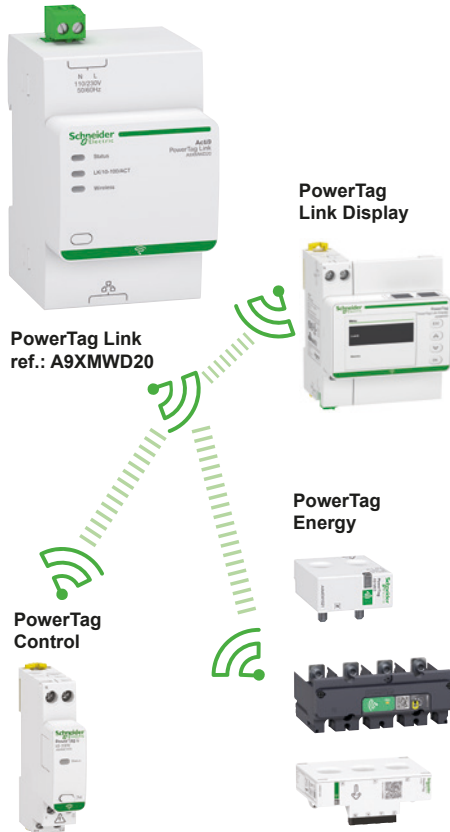
Installation

- On DIN rail (width 54 mm).
- 230 V AC power supply.

Testing and start-up

Pairing of wireless devices must be performed via the EcoStruxure Power Commission software, freely available by downloading.

- The software makes it possible, in particular, to attribute to each circuit a name, a use and the current rating (useful for alarms).



Commissioning software: EcoStruxure Power Commission⁽¹⁾

- Configuration and communication test of wireless devices
- Editing of a complete test report (pdf) with the Modbus communication registers for easy integration into a supervision system
- Windows XP, Windows 7, Windows 8 and Windows 10 compatible
- Downloadable from:
https://www.schneider-electric.com/ww/en/download/document/Ecoreach_Installer

(1) new name of Ecoreach software.



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TeSys Modular circuit breakers

0.5 to 20 A

(for equipment and control circuits)

Motor
circuit
breakers

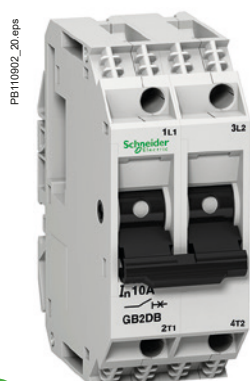




GB2CB



GB2CD



GB2DB



GB2CS

Motor
circuit
breakers

Introduction

Modular thermal-magnetic circuit breakers protect and isolate the control circuits of industrial equipment with contactor coils, transformers....

They protect and isolate single-phase auxiliary circuits such as solenoid valves, electro-brakes, battery chargers, supplied from the control circuit voltage.

Ref. GB2CB, GB2CD, GB2DB

12 ratings are available, from 0.5 to 20 A, in single-pole (GB2CB), single-pole + neutral (GB2CD) and 2-pole (GB2DB) versions.

They have a magnetic tripping threshold set at between 12 and 16 In to withstand the current peaks generated by many industrial components.

Ref. GB2CS

2 ratings are available, 0.5 and 1 A, in single-pole version.

The magnetic tripping threshold is set between 5 and 7 In.

Functions, installation

Clip-on fixing onto all types of 35 mm rails, on rails and on Telequick mounting plates.

Upstream and downstream marking by means of AB1 clip-in markers.

Clear indication of "I" and "O" positions on the operator.

Tamper-proof device which requires no special maintenance (fixed magnetic and thermal tripping thresholds).

Selection for the protection of circuits supplied by transformers

Single-phase transformers.

Magnetising peak: 20 In.

Operation of magnetic trips: 13 In.

Power VA	Primary ⁽¹⁾		Secondary			
	220/240 V	380/415 V	24 V	48 V	110 V	220 V
40	GB2DB05	GB2DB05	GB2CD07	GB2CD06	GB2CD05	GB2CD05
63	GB2DB05	GB2DB05	GB2CD08	GB2CD07	GB2CD06	GB2CD05
100	GB2DB06	GB2DB05	GB2CD10	GB2CD07	GB2CD06	GB2CD05
160	GB2DB07	GB2DB06	GB2CD14	GB2CD09	GB2CD07	GB2CD06
250	GB2DB07	GB2DB06	GB2CD16	GB2CD12	GB2CD08	GB2CD07
400	GB2DB08		GB2CD22	GB2CD14	GB2CD09	GB2CD07
630	GB2DB10	GB2DB08	—	GB2CD21	GB2CD12	GB2CD08
1000	GB2DB14	GB2DB09	—	—	GB2CD16	GB2CD10
1600	GB2DB20	GB2DB14	—	—	—	GB2CD14
2000	GB2DB21	GB2DB14	—	—	GB2CD22	GB2CD16
2500	GB2DB22	GB2DB20	—	—	—	GB2CD20
3000	GB2DB22	GB2DB20	—	—	—	GB2CD21
4000	—	GB2DB21	—	—	—	GB2CD22
5000	—	GB2DB22	—	—	—	—

⁽¹⁾ If the breaking capacity of the GB2 is insufficient, use a GV2RT with 2 poles connected in series.

PB110899_20.eps



GB2CB●●

PB110901_20.eps



GB2CD●●

PB110902_20.eps



GB2DB●●

Circuit breakers with magnetic tripping threshold: 12 to 16 In

Single-pole

Conventional rated thermal current I _{th} ⁽¹⁾	Magnetic tripping current I _d ± 20 %	Sold in lots of	Unit reference
A	A		
0.5	6.6	6	GB2CB05
1	14	6	GB2CB06
2	26	6	GB2CB07
3	40	6	GB2CB08
4	52	6	GB2CB09
5	66	6	GB2CB10
6	83	6	GB2CB12
8	108	6	GB2CB14
10	138	6	GB2CB16
12	165	6	GB2CB20
16	220	6	GB2CB21
20	270	6	GB2CB22

Single-pole + neutral

Conventional rated thermal current I _{th} ⁽¹⁾	Magnetic tripping current I _d ± 20 %	Sold in lots of	Unit reference
A	A		
0.5	6.6	6	GB2CD05
1	14	6	GB2CD06
2	26	6	GB2CD07
3	40	6	GB2CD08
4	52	6	GB2CD09
5	66	6	GB2CD10
6	83	6	GB2CD12
8	108	6	GB2CD14
10	138	6	GB2CD16
12	165	6	GB2CD20
16	220	6	GB2CD21
20	270	6	GB2CD22

2-pole

Conventional rated thermal current I _{th} ⁽¹⁾	Magnetic tripping current I _d ± 20 %	Sold in lots of	Unit reference
A	A		
0.5	6.6	3	GB2DB05
1	14	3	GB2DB06
2	26	3	GB2DB07
3	40	3	GB2DB08
4	50	3	GB2DB09
5	66	3	GB2DB10
6	83	3	GB2DB12
8	108	3	GB2DB14
10	138	3	GB2DB16
12	165	3	GB2DB20
16	220	3	GB2DB21
20	270	3	GB2DB22

(1) Conforming to IEC 60947-1.



Motor
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Circuit breakers with magnetic tripping threshold: 5 to 7 In



GB2CS●●

Single-pole			
Conventional rated thermal current Ith ⁽¹⁾	Magnetic tripping current Id ± 20 %	Sold in lots of	Unit reference
A	A		
0.5	3.3	6	GB2CS05
1	6	6	GB2CS06

(1) Conforming to IEC 60947-1.

Accessories for circuit breakers ref. GB2-CB, DB and CS



GB2G210

Description	Sold in lots of	Unit reference
Busbar set for supply to 10 GB2 DB or 20 GB2CB or GB2CS with 2 connectors	1	GB2G210

29450	GV2L16	GV2ME323S	GV3P736
29452	GV2L20	GV2ME326	GV3P80
GB2CB05	GV2L22	GV2ME32AP	GV3PC01
GB2CB06	GV2L32	GV2P01	GV3PC02
GB2CB07	GV2LE03	GV2P02	GV4ADM1111
GB2CB08	GV2LE04	GV2P03	GV4ADN01
GB2CB09	GV2LE05	GV2P04	GV4ADN02
GB2CB10	GV2LE06	GV2P05	GV4AE11
GB2CB12	GV2LE07	GV2P06	GV4APN01
GB2CB14	GV2LE08	GV2P07	GV4APN02
GB2CB16	GV2LE10	GV2P08	GV4APN04
GB2CB20	GV2LE14	GV2P10	GV4AS027
GB2CB21	GV2LE16	GV2P14	GV4AS057
GB2CB22	GV2LE20	GV2P16	GV4AS137
GB2CD05	GV2LE22	GV2P20	GV4AS287
GB2CD06	GV2LE32	GV2P21	GV4AS487
GB2CD07	GV2ME01	GV2P22	GV4AU027
GB2CD08	GV2ME013	GV2P32	GV4AU057
GB2CD09	GV2ME016	GV2PC01	GV4AU137
GB2CD10	GV2ME01AP	GV2PC02	GV4AU247
GB2CD12	GV2ME02	GV2RT03	GV4AU286
GB2CD14	GV2ME023	GV2RT04	GV4AU415
GB2CD16	GV2ME02AP	GV2RT05	GV4AU486
GB2CD20	GV2ME03	GV2RT053	GV4G66
GB2CD21	GV2ME033	GV2RT06	GV4L02N
GB2CD22	GV2ME036	GV2RT07	GV4L02N6
GB2CS05	GV2ME03AP	GV2RT073	GV4L03N
GB2CS06	GV2ME04	GV2RT08	GV4L03N6
GB2DB05	GV2ME043	GV2RT10	GV4L07N
GB2DB06	GV2ME046	GV2RT14	GV4L07N6
GB2DB07	GV2ME04AP	GV2RT16	GV4L115B
GB2DB08	GV2ME05	GV2RT20	GV4L115B6
GB2DB09	GV2ME053	GV2RT21	GV4L115N
GB2DB10	GV2ME056	GV2SN14	GV4L115N6
GB2DB12	GV2ME05AP	GV2SN15	GV4L115S
GB2DB14	GV2ME06	GV2SN17	GV4L12N
GB2DB16	GV2ME063	GV2SN35	GV4L12N6
GB2DB20	GV2ME066	GV2SN37	GV4L25B
GB2DB21	GV2ME06AP	GV2V03	GV4L25B6
GB2DB22	GV2ME07	GV3A02	GV4L25N
GB2G210	GV2ME073	GV3A03	GV4L25N6
GK2AF01	GV2ME076	GV3A08	GV4L50B
GK2AX50	GV2ME07AP	GV3A09	GV4L50B6
GV1F03	GV2ME08	GV3APK01	GV4L50N
GV1G02	GV2ME083	GV3APN01	GV4L50N6
GV1L3	GV2ME086	GV3D22	GV4L80B
GV1V02	GV2ME08AP	GV3G66	GV4L80B6
GV2AF01	GV2ME10	GV3L25	GV4L80N
GV2AF02	GV2ME103	GV3L32	GV4L80N6
GV2AF3	GV2ME106	GV3L326	GV4L80S
GV2AF4	GV2ME10AP	GV3L40	GV4LE02N
GV2AF5	GV2ME14	GV3L50	GV4LE02N6
GV2AK00	GV2ME143	GV3L65	GV4LE02S
GV2AP01	GV2ME146	GV3L73	GV4LE02S6
GV2AP02	GV2ME14AP	GV3L80	GV4LE03N
GV2AP03	GV2ME16	GV3P13	GV4LE03N6
GV2AP04	GV2ME163	GV3P18	GV4LE03S
GV2APK01	GV2ME166	GV3P25	GV4LE03S6
GV2APN01	GV2ME16AP	GV3P256	GV4LE07N
GV2APN02	GV2ME20	GV3P32	GV4LE07N6
GV2APN03	GV2ME203	GV3P321	GV4LE07S
GV2APN04	GV2ME206	GV3P40	GV4LE07S6
GV2CP21	GV2ME20AP	GV3P401	GV4LE115B
GV2GH7	GV2ME21	GV3P406	GV4LE115B6
GV2L03	GV2ME213	GV3P50	GV4LE115N
GV2L04	GV2ME216	GV3P501	GV4LE115N6
GV2L05	GV2ME21AP	GV3P506	GV4LE115S
GV2L06	GV2ME22	GV3P65	GV4LE115S6
GV2L07	GV2ME223	GV3P651	GV4LE12N
GV2L08	GV2ME226	GV3P656	GV4LE12N6
GV2L10	GV2ME22AP	GV3P73	GV4LE12S
GV2L14	GV2ME32	GV3P731	GV4LE12S6

Motor
circuit
breakers

This document is current. Click on the product reference to get the most recent availability status (hyperlink to se.com product datasheet). If your product variant is no longer available, please consult your distributor or regional sales office.

GV4LE25B	GV4PB25S	GV4PEM07S6	GVAE20
GV4LE25B6	GV4PB50B	GV4PEM115B	GVAE203
GV4LE25N	GV4PB50N	GV4PEM115B6	GVAED011
GV4LE25N6	GV4PB50S	GV4PEM115N	GVAED0113
GV4LE25S	GV4PB80B	GV4PEM115N6	GVAED101
GV4LE25S6	GV4PB80N	GV4PEM115S	GVAED1013
GV4LE50B	GV4PB80S	GV4PEM115S6	GVAM11
GV4LE50B6	GV4PE02N	GV4PEM12N	GVAN11
GV4LE50N	GV4PE02N6	GV4PEM12N6	GVAN113
GV4LE50N6	GV4PE02S	GV4PEM12S	GVAN20
GV4LE50S	GV4PE02S6	GV4PEM12S6	GVAN203
GV4LE50S6	GV4PE03N	GV4PEM25B	GVAPA2
GV4LE80B	GV4PE03N6	GV4PEM25B6	GVAPBPHP
GV4LE80B6	GV4PE03S	GV4PEM25N	GVAPH02
GV4LE80N	GV4PE03S6	GV4PEM25N6	GVAPK11
GV4LE80N6	GV4PE07N	GV4PEM25S	GVAPYPHP
GV4LE80S	GV4PE07N6	GV4PEM25S6	GVAS025
GV4LE80S6	GV4PE07S	GV4PEM50B	GVAS026
GV4LUG	GV4PE07S6	GV4PEM50B6	GVAS055
GV4P02N	GV4PE115B	GV4PEM50N	GVAS115
GV4P02N6	GV4PE115B6	GV4PEM50N6	GVAS116
GV4P03N	GV4PE115N	GV4PEM50S	GVAS207
GV4P03N6	GV4PE115N6	GV4PEM50S6	GVAS225
GV4P07N	GV4PE115S	GV4PEM80B	GVAS226
GV4P07N6	GV4PE115S6	GV4PEM80B6	GVAS385
GV4P115B	GV4PE12N	GV4PEM80N	GVAS415
GV4P115B6	GV4PE12N6	GV4PEM80N6	GVAU025
GV4P115N	GV4PE12S	GV4PEM80S	GVAU055
GV4P115N6	GV4PE12S6	GV4PEM80S6	GVAU115
GV4P115S	GV4PE25B	GV5AP03	GVAU116
GV4P12N	GV4PE25B6	GV5P150F	GVAU125
GV4P12N6	GV4PE25N	GV5P150H	GVAU207
GV4P25B	GV4PE25N6	GV5P220F	GVAU225
GV4P25B6	GV4PE25S	GV5P220H	GVAU226
GV4P25N	GV4PE25S6	GV6AP03	GVAU385
GV4P25N6	GV4PE50B	GV6P320F	GVAU386
GV4P50B	GV4PE50B6	GV6P320H	GVAU415
GV4P50B6	GV4PE50N	GV6P500F	GVAU416
GV4P50N	GV4PE50N6	GV6P500H	GVAU505
GV4P50N6	GV4PE50S	GV7AC01	GVAX115
GV4P80B	GV4PE50S6	GV7AC021	GVAX116
GV4P80B6	GV4PE80B	GV7AC022	GVAX225
GV4P80N	GV4PE80B6	GV7AC03	GVAX226
GV4P80N6	GV4PE80N	GV7AC04	GVAX385
GV4P80S	GV4PE80N6	GV7AC05	GVAX386
GV4PB02N	GV4PE80S	GV7AC06	GVAX415
GV4PB02S	GV4PE80S6	GV7AC08	LA9E07
GV4PB03N	GV4PEM02N	GV7AP01	LAD311
GV4PB03S	GV4PEM02N6	GV7AP02	LAD96590
GV4PB07N	GV4PEM02S	GV7AP04	LAD96595
GV4PB07S	GV4PEM02S6	GV7AP05	LV429385
GV4PB115B	GV4PEM03N	GVAD0101	LV429386
GV4PB115N	GV4PEM03N6	GVAD0110	LV429387
GV4PB115S	GV4PEM03S	GVAD1001	LV429388
GV4PB12N	GV4PEM03S6	GVAD1010	LV429405
GV4PB12S	GV4PEM07N	GVAE1	LV429406
GV4PB25B	GV4PEM07N6	GVAE11	LV429407
GV4PB25N	GV4PEM07S	GVAE113	LV429408

Technical Data for Designers

Deca - Frame 2:

- > characteristicsB6/72 to B6/76
- > curvesB6/77 to B6/86
- > characteristics - accessoriesB6/87 to B6/89
- > dimensions, schemesB6/90 to B6/99

Deca - Frame 3:

- > characteristicsB6/102 to B6/105
- > curvesB6/106 to B6/111
- > characteristics - accessoriesB6/112 to B6/114
- > dimensions, schemesB6/115 to B6/117

Deca - Frame 4:

- > characteristicsB6/120 to B6/123
- > curvesB6/124 to B6/131
- > characteristics - accessoriesB6/132 to B6/133
- > dimensions, schemesB6/134 to B6/137

Giga - Frame 5 - Frame 6:

- > characteristicsB6/140
- > curvesB6/141 to B6/143
- > characteristics - accessoriesB6/144 to B6/145
- > dimensions, schemesB6/146 to B6/152

PowerTag Energy sensors:

- > PowerTag Energy Flex 63 AB6/154
- > PowerTag Energy Flex 160 AB6/155
- > PowerTag Energy Monoconnect 250 AB6/156
- > PowerTag Energy LinkB6/157

Modular:

- > characteristicsB6/160 to B6/162
- > dimensions, schemesB6/163

TeSys Deca - Frame 2 0.06 to 15 kW



Motor
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Environment

Circuit breaker type			GV2L	GV2LE	GV2ME	GV2P	GV2RT
Conforming to standards			IEC/EN 60947-4-1, IEC/EN 60947-2				
Product certifications			CSA C22.2 n°60947-4-1 ⁽¹⁾ , UL 60947-4-1				
Climatic withstand			According to IACS E10				
Degree of protection (front face)	Conforming to IEC 60529	Open mounted	Against direct finger contact: IP20				
		In enclosure	IP65 with GV2PC01 GV2PC02 enclosure	-	IP41 with GV2M●01 IP55 with GV2M●02 enclosure	IP 65 with GV2PC01 GV2PC02 enclosure	-
Shock resistance	Conforming to IEC 60068-2-27		30 gn - 11 ms				
Vibration resistance	Conforming to IEC 60068-2-6		5 gn (5 to 150 Hz)				
Ambient air temperature	Storage		°C	-40...+80			
	Operation	Open mounted	°C	-20...+60			
		In enclosure	°C	-20...+40			
Temperature compensation	Open mounted		°C	-20...+60			
	In enclosure		°C	-20...+40			
Flame resistance	Conforming to IEC 60695-2-11		°C	960			
Maximum operating altitude			m	2000			
Suitable for isolation	Conforming to IEC 60947-1 § 7-1-6			Yes			
Resistance to mechanical impact			J	0.5 IK04			
Sensitivity to phase failure				Yes, conforming to IEC 60947-4-1 § 8-2-1-5-2 for GV2ME & GV2P			

Technical characteristics

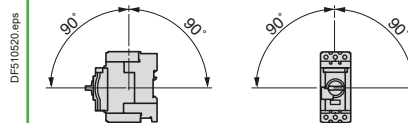
Circuit breaker type			GV2L	GV2LE	GV2ME	GV2P	GV2RT
Utilisation category	Conforming to IEC 60947-2		A				
	Conforming to IEC 60947-4-1		AC-3				
Rated operational voltage (Ue)	Conforming to IEC 60947-2		V	690			
Rated insulation voltage (Ui)	Conforming to IEC 60947-2		V	690			
Rated voltage	Conforming to UL 60947-4-1		V	-	600	600	600
	CSA C 22.2 n° 60947-4-1			480	600	600	600
Rated operational frequency	Conforming to IEC 60947-4-1 UL, CSA		Hz	50/60			
Rated impulse withstand voltage (U imp)	Conforming to IEC 60947-2		kV	6			
Total power dissipated per pole			W	1.8	2.5		
Mechanical durability (C.O.: Closing, Opening)			C.O.	100 000			
Electrical durability for AC-3/415V duty (C.O.: Closing, Opening)	415 V In		C.O.	100 000			
Duty class (maximum operating rate)			C.O./h	40	25		
Maximum conventional rated thermal current (Ith)	Conforming to IEC 60947-4-1		A	0.4...32	0.4...32	0.16...32	0.40...23
Rated duty	Conforming to IEC 60947-4-1			Continuous duty			

(1) GV2L03 to GV2L22, GV2LE03 to GV2LE22.

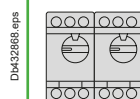
(2) UL 60947-4-1 type E for GV2P●● (except 32 A).

Mounting characteristics

Operating position
Without derating, in relation to normal vertical mounting plane ⁽¹⁾



Products side by side



When several products **GV2ME●●**, **GV2P●●**, **GV2RT●●** are mounted side by side, the thermal trip setting I_r maybe need to be adjusted up to $1.1 \times I_n$.

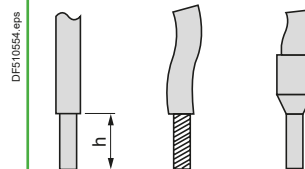
Do not exceed the maximum thermal setting I_r .

E.g: **GV2ME14**, thermal setting range: 6...10, do not adjust I_r above 10 A.

Connection characteristics

Connection to screw clamp terminals or spring terminals

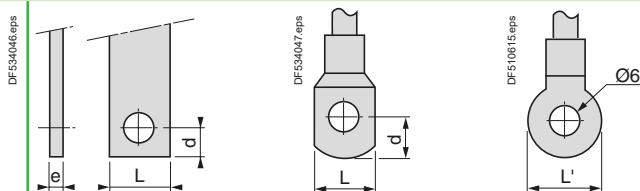
Bare cables



Circuit breaker type		GV2L		GV2LE		GV2ME		GV2P		GV2RT	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Connection to screw clamp terminals (Max. number of conductors x c.s.a.)	Solid cable	mm ²	2 x 1	2 x 6	2 x 1	2 x 6	2 x 1	2 x 6	2 x 1	2 x 6	2 x 6
	Flexible cable without cable end	mm ²	2 x 1.5	2 x 6	2 x 1.5	2 x 6	2 x 1.5	2 x 6	2 x 1.5	2 x 6	2 x 6
	Flexible cable with cable end	mm ²	2 x 1	2 x 4	2 x 1	2 x 4	2 x 1	2 x 4	2 x 1	2 x 4	2 x 4
Tightening torque		N.m	1.7								
Connection to spring terminals Number of conductors x c.s.a.	Solid cable	mm ²	—	—	—	2 x 1 ⁽²⁾	2 x 6	—	—	—	—
	Flexible cable without cable end	mm ²	—	—	—	2 x 1.5 ⁽²⁾	2 x 4	—	—	—	—

Connection by bars or lugs

Bars or lugs



Circuit breaker type		GV2ME●●6	
Pitch	Without spreaders	mm	13.5
	With spreaders	mm	—
Bars or cables with lugs	e	mm	≤ 6
	L	mm	≤ 9.5
	L'	mm	≤ 9.5
	d	mm	≤ 10
Screws	—	M4	
	Tightening torque	N.m	1.7
Bare cables (copper or aluminium) with connectors	Height (h)	mm	—
	C.s.a.	mm ²	—
	Tightening torque	N.m	—

⁽¹⁾ When mounting on a vertical rail, fit a stop to prevent any slippage.

⁽²⁾ For cross-sections 1 to 1.5 mm², the use of an **LA9D99** cable end reducer is recommended.

Breaking capacity of GV2L and GV2LE

Circuit breaker type				GV2LE										GV2L									
				03 to 06	07	08	10	14	16	20	22	32	03 to 05	06 & 07	08	10	14	16	20	22	32		
Rating			A	0.4 to 1.6	2.5	4	6.3	10	14	18	25	32	0.4 to 1	1.6 to 2.5	4	6.3	10	14	18	25	32		
Breaking capacity conforming to IEC 60947-2	230/240 V	Icu	kA	★	★	★	★	★	★	★	50	50	★	★	★	★	★	★	★	50	50		
		Ics % ⁽¹⁾		★	★	★	★	★	★	★	100	100	★	★	★	★	★	★	★	100	100		
	400/415 V	Icu	kA	★	★	★	★	★	15	15	15	10	★	★	★	★	★	★	50	50	50	50	
		Ics % ⁽¹⁾		★	★	★	★	★	50	50	40	50	★	★	★	★	★	50	50	50	50		
	440 V	Icu	kA	★	★	★	50	15	8	8	6	6	★	★	★	★	20	20	20	20	20		
		Ics % ⁽¹⁾		★	★	★	100	100	50	50	50	50	★	★	★	★	75	75	75	75	75		
	500 V	Icu	kA	★	★	★	50	10	6	6	4	4	★	★	★	★	10	10	10	10	10		
		Ics % ⁽¹⁾		★	★	★	100	100	75	75	75	75	★	★	★	★	100	75	75	75	75		
	690 V	Icu	kA	★	3	3	3	3	3	3	3	3	★	4	4	4	4	4	4	4	4		
		Ics % ⁽¹⁾		★	75	75	75	75	75	75	75	75	★	100	100	100	100	100	100	100	100		
	Associated fuses (if required) if Isc > breaking capacity Icu conforming to IEC 60947-2 amendment 1	230/240 V	aM	A	★	★	★	★	★	★	★	80	80	★	★	★	★	★	★	★	100	100	
			gG	A	★	★	★	★	★	★	★	100	100	★	★	★	★	★	★	★	125	125	
		400/415 V	aM	A	★	★	★	★	★	63	63	80	80	★	★	★	★	★	80	100	100	100	
			gG	A	★	★	★	★	★	80	80	100	100	★	★	★	★	★	100	125	125	125	
		440 V	aM	A	★	★	★	50	50	50	50	63	63	★	★	★	★	50	63	80	80	80	
			gG	A	★	★	★	63	63	63	63	80	80	★	★	★	★	63	80	100	100	100	
		500 V	aM	A	★	★	★	50	50	50	50	50	50	★	★	★	★	50	50	50	50	50	
			gG	A	★	★	★	63	63	63	63	63	63	★	★	★	★	63	63	63	63	63	
		690 V	aM	A	★	16	25	32	32	40	40	40	40	★	20	25	40	40	50	50	50	50	
			gG	A	★	20	32	40	40	50	50	50	50	★	25	32	50	50	63	63	63	63	
Cable protection against thermal stress in the event of short-circuit (PVC insulated copper cables) Minimum c.s.a. protected at 40 °C and at Isc max.		1 mm²		kA	●	●	●	≤10	≤6	(2)	(2)	(2)	(2)	●	●	●	≤10	≤6	(2)	(2)	(2)	(2)	
		1.5 mm²		kA	●	●	●	≤20	≤10	(2)	(2)	(2)	(2)	●	●	●	≤20	≤10	(2)	(2)	(2)	(2)	
	2.5 mm²			●	●	●	●	●	●	●	●	(2)	●	●	●	●	●	●	●	●	(2)		
	4...6 mm²			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		

* > 100 kA.
● Cable c.s.a. protected.
(1) As % of Icu.
(2) Cable c.s.a. not protected.

Ref.



Motor circuit breakers

Breaking capacity of GV2ME, GV2RT and GV2P																									
Circuit breaker type				GV2ME and GV2RT										GV2P											
				01 to 06	07	08	10	14	16	20	21 & 22	32	01 to 06	07	08	10	14	16	20	21 & 22	32				
Rating			A	0.1 to 1.6	2.5	4	6.3	10	14	18	23 & 25	32	0.1 to 1.6	2.5	4	6.3	10	14	18	23 & 25	32				
Breaking capacity conforming to IEC 60947-2	230/240 V	Icu	kA	★	★	★	★	★	★	★	★	50	50	★	★	★	★	★	★	★	★				
		Ics % ⁽¹⁾		★	★	★	★	★	★	★	★	100	100	★	★	★	★	★	★	★	★	★			
	400/415 V	Icu	kA	★	★	★	★	★	15	15	15	10	★	★	★	★	★	★	★	50	50	50			
		Ics % ⁽¹⁾		★	★	★	★	★	50	50	40	50	★	★	★	★	★	★	50	50	50				
	440 V	Icu	kA	★	★	★	50	15	8	8	6	6	★	★	★	★	★	★	50	20	20	20			
		Ics % ⁽¹⁾		★	★	★	100	100	50	50	50	50	★	★	★	★	★	★	75	75	75	75			
	500 V	Icu	kA	★	★	★	50	10	6	6	4	4	★	★	★	★	★	★	50	42	10	10	10		
		Ics % ⁽¹⁾		★	★	★	100	100	75	75	75	75	★	★	★	★	★	★	100	75	75	75	75		
	690 V	Icu	kA	★	3	3	3	3	3	3	3	3	★	8	8	6	6	6	4	4	4				
		Ics % ⁽¹⁾		★	75	75	75	75	75	75	75	75	★	100	100	100	100	100	100	100	100	100			
	Associated fuses (if required) if Isc > breaking capacity Icu conforming to IEC 60947-2	230/240 V	aM	A	★	★	★	★	★	★	★	80	80	★	★	★	★	★	★	★	★	★			
			gG	A	★	★	★	★	★	★	★	100	100	★	★	★	★	★	★	★	★	★	★		
		400/415 V	aM	A	★	★	★	★	★	63	63	80	80	★	★	★	★	★	★	★	100	100	100		
			gG	A	★	★	★	★	★	80	80	100	100	★	★	★	★	★	★	★	125	125	125		
		440 V	aM	A	★	★	★	50	50	50	50	63	63	★	★	★	★	★	★	50	63	80	80		
			gG	A	★	★	★	63	63	63	63	80	80	★	★	★	★	★	★	63	80	100	100		
500 V		aM	A	★	★	★	50	50	50	50	50	50	★	★	★	★	★	★	50	50	50	50	50		
		gG	A	★	★	★	63	63	63	63	63	63	★	★	★	★	★	★	63	63	63	63	63		
690 V		aM	A	★	16	25	32	32	40	40	40	40	★	20	25	40	40	50	50	50	50	50	50		
		gG	A	★	20	32	40	40	50	50	50	50	★	25	32	50	50	63	63	63	63	63	63		

* > 100 kA.

(1) As % of Icu.

Ref.



Motor circuit breakers

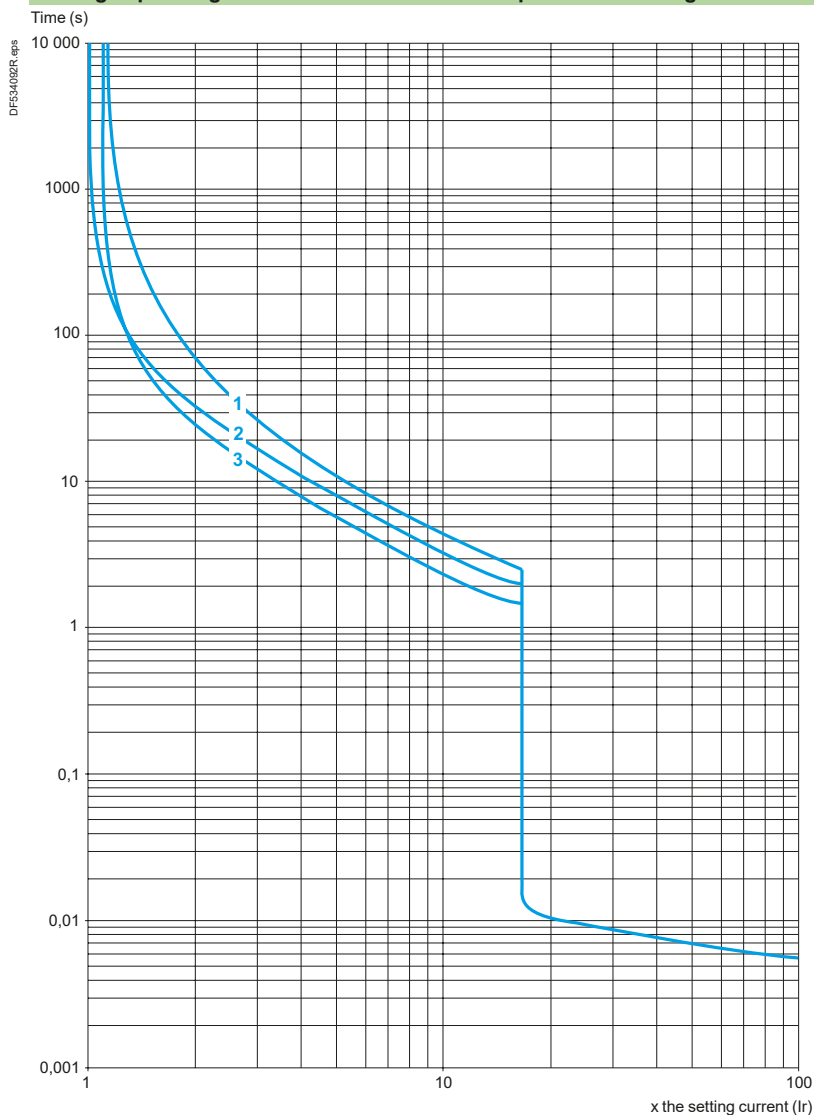
Breaking capacity of GV2ME, GV2RT and GV2P (used in association with current limiter GV1L3)

Circuit breaker type				GV2ME and GV2RT									
				01 to 06	07	08	10	14	16	20	21	22	32
Rating			A	0.1 to 1.6	2.5	4	6.3	10	14	18	23	25	32
Breaking capacity conforming to IEC 60947-2	230/240 V	Icu	kA	★	★	★	★	★	★	★	★	★	★
		Ics % ⁽¹⁾		★	★	★	★	★	★	★	★	★	★
	400/415 V	Icu	kA	★	★	★	★	★	100	100	100	100	100
		Ics % ⁽¹⁾		★	★	★	★	★	50	50	40	40	40
	440 V	Icu	kA	★	★	★	★	★	50	20	20	20	20
		Ics % ⁽¹⁾		★	★	★	★	★	75	75	75	75	75
	500 V	Icu	kA	★	★	★	★	50	42	10	10	10	10
		Ics % ⁽¹⁾		★	★	★	★	100	100	75	75	75	75
Circuit breaker type				GV2P									
Rating			A	01 to 06 0.1 to 1.6	07 2.5	08 4	10 6.3	14 10	16 14	20 18	21 23	22 25	32 32
Breaking capacity conforming to IEC 60947-2	230/240 V	Icu	kA	★	★	★	★	★	★	★	★	★	★
		Ics % ⁽¹⁾		★	★	★	★	★	★	★	★	★	★
	400/415 V	Icu	kA	★	★	★	★	★	★	★	★	★	★
		Ics % ⁽¹⁾		★	★	★	★	★	★	★	★	★	★
	440 V	Icu	kA	★	★	★	★	★	100	100	100	100	100
		Ics % ⁽¹⁾		★	★	★	★	★	50	50	50	50	50
	500 V	Icu	kA	★	★	★	★	100	100	100	100	100	100
		Ics % ⁽¹⁾		★	★	★	★	50	50	50	50	50	50
	690 V ⁽³⁾	Icu = Ics	kA	★	50	50	50	50	50	50	50	50	50
Circuit breaker type				GV2ME									
Rating			A	01 to 06 0.1 to 1.6	07 2.5	08 4	10 6.3	14 10	16 14	20 18	21 23	22 25	32 32
Cable protection against thermal stress in the event of short-circuit (PVC insulated copper cables)	Minimum c.s.a. protected at 40 °C at Isc max.	1 mm²		●	●	●	≤ 10 kA	≤ 6 kA	⁽²⁾	⁽²⁾	⁽²⁾	⁽²⁾	⁽²⁾
		1.5 mm²		●	●	●	≤ 20 kA	≤ 10 kA	⁽²⁾	⁽²⁾	⁽²⁾	⁽²⁾	⁽²⁾
		2.5 mm²		●	●	●	●	●	●	●	●	●	⁽²⁾
		4...6 mm²		●	●	●	●	●	●	●	●	●	●

★ > 100 kA.
● Cable c.s.a. protected.
⁽¹⁾ As % of Icu.
⁽²⁾ Cable c.s.a. not protected.
⁽³⁾ With limiter LA9LB920.

Tripping curves for GV2L or LE combined with thermal overload relay LRD or LR2K

Average operating times at 20 °C related to multiples of the setting current



- 1 3 poles from cold state
- 2 2 poles from cold state
- 3 3 poles from hot state

Ref.



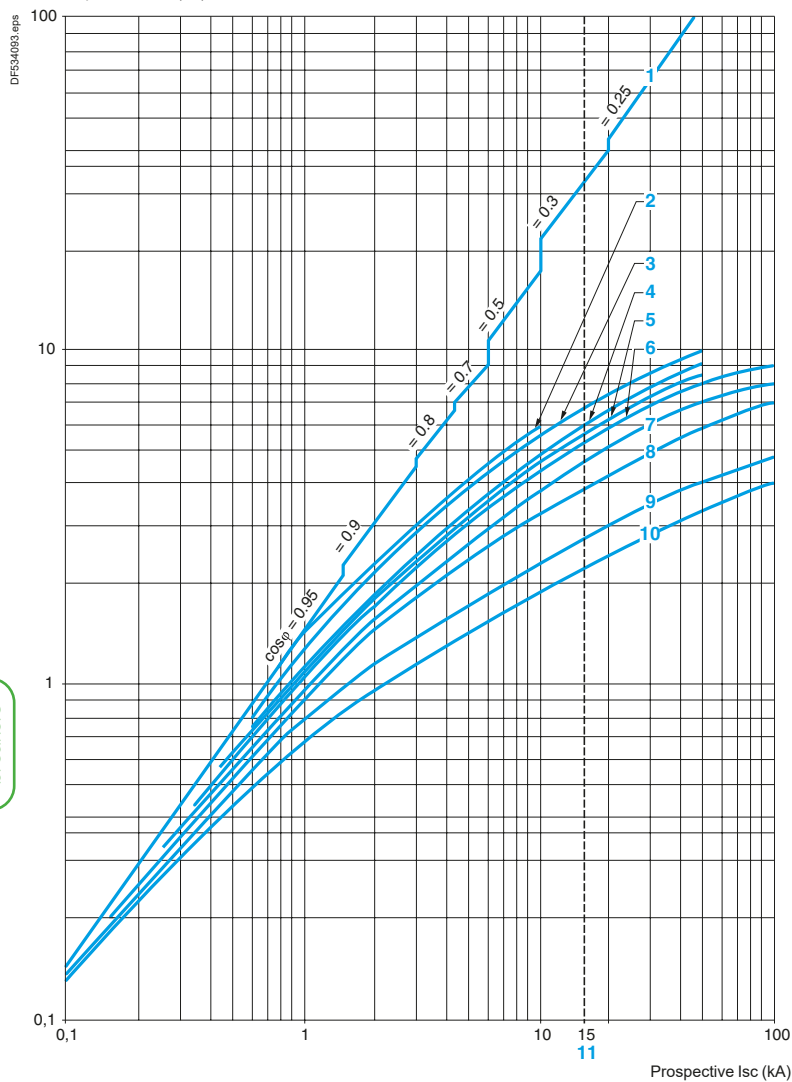
Motor
circuit
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Current limitation on short-circuit for GV2L and GV2LE only (3-phase 400/415 V)

Dynamic stress

$I_{peak} = f(\text{prospective } I_{sc}) \text{ at } 1.05 U_e = 435 \text{ V}$

Limited peak current (kA)



1 Maximum peak current

2 32 A

3 25 A

4 18 A

5 14 A

6 10 A

7 6.3 A

8 4 A

9 2.5 A

10 1.6 A

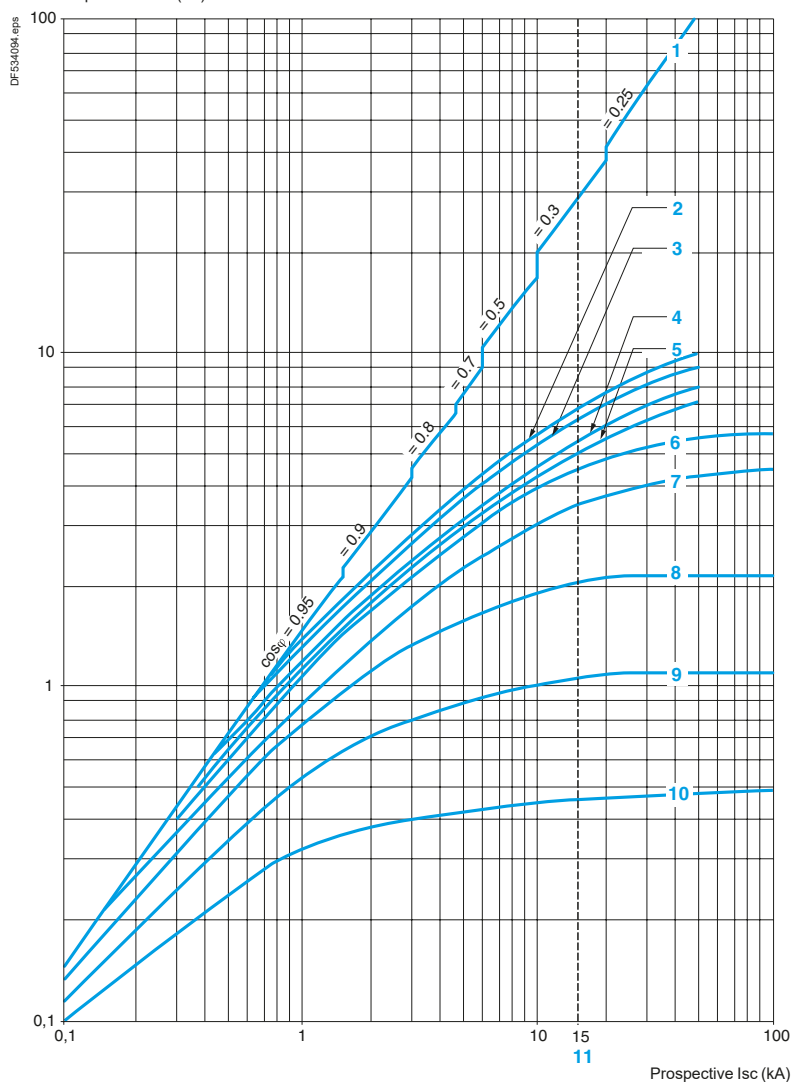
11 Limit of rated ultimate breaking capacity on short-circuit of GV2LE (14, 18, 23 and 25 A ratings).

Current limitation on short-circuit for GV2L and GV2LE + thermal overload relay LRD or LR2K (3-phase 400/415 V)

Dynamic stress

$I_{peak} = f(\text{prospective } I_{sc}) \text{ at } 1.05 U_e = 435 \text{ V}$

Limited peak current (kA)



1 Maximum peak current

2 32 A

3 25 A

4 18 A

5 14 A

6 10 A

7 6.3 A

8 4 A

9 2.5 A

10 1.6 A

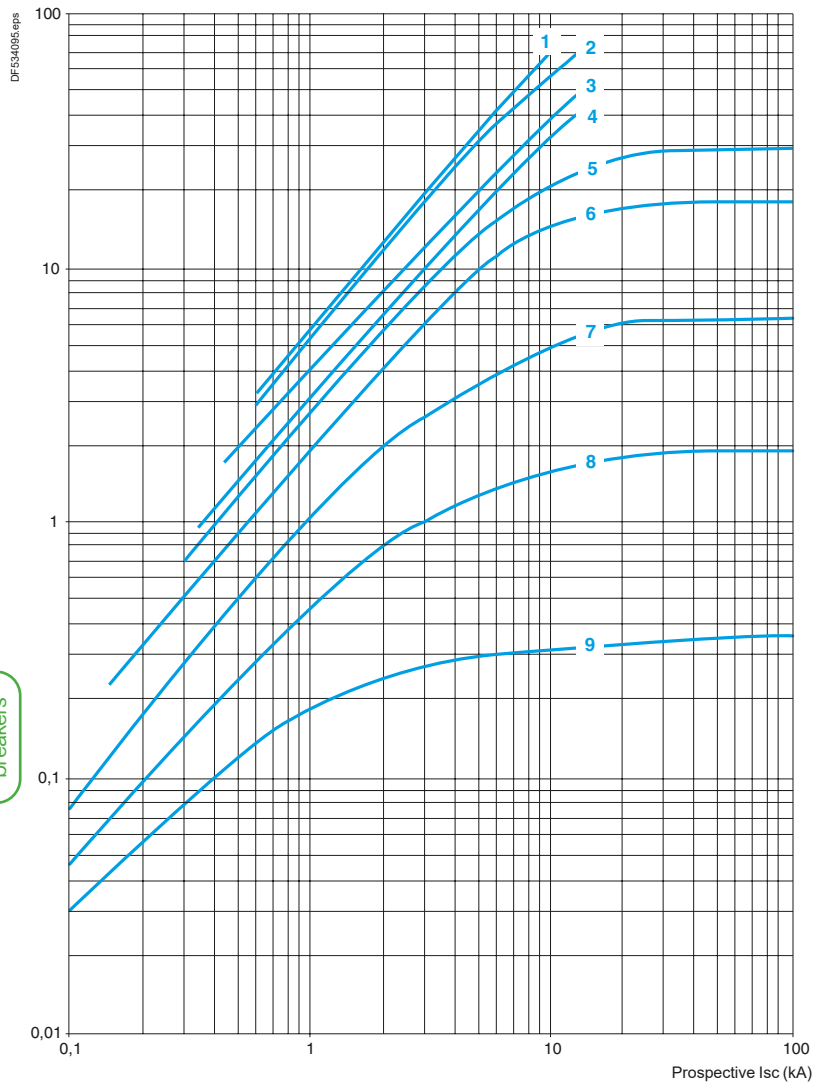
11 Limit of rated ultimate breaking capacity on short-circuit of GV2LE (14, 18, 23 and 25 A ratings).

Thermal limit on short-circuit for GV2LE only

Thermal limit in kA^2s in the magnetic operating zone

Sum of $I^2dt = f$ (prospective I_{sc}) at $1.05 U_e = 435 \text{ V}$

Sum of I^2dt (kA^2s)

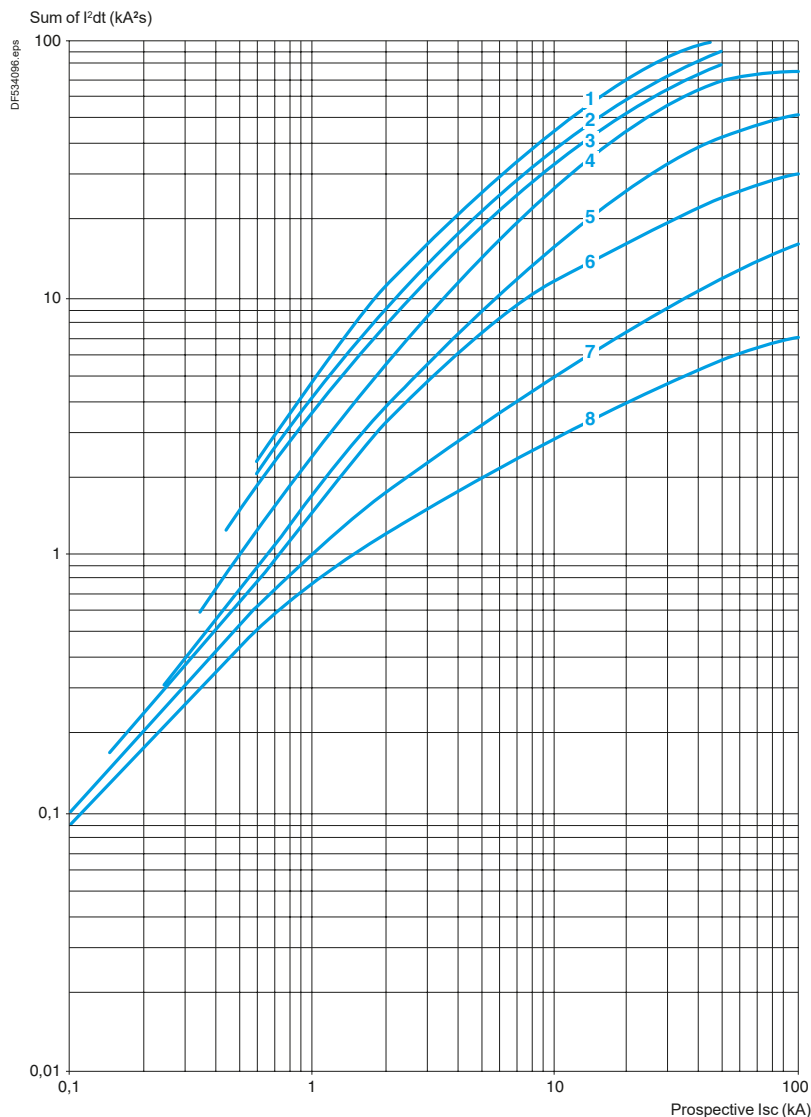


- 1 32 A
- 2 25 A
- 3 18 A
- 4 14 A
- 5 10 A
- 6 6.3 A
- 7 4 A
- 8 2.5 A
- 9 1.6 A

Thermal limit on short-circuit for GV2L only

Thermal limit in kA^2s in the magnetic operating zone

Sum of $I^2dt = f$ (prospective I_{sc}) at $1.05 U_e = 435 \text{ V}$



- 1 25 A and 32 A
- 2 18 A
- 3 14 A
- 4 10 A
- 5 6.3 A
- 6 4 A
- 7 2.5 A
- 8 1.6 A

Ref.



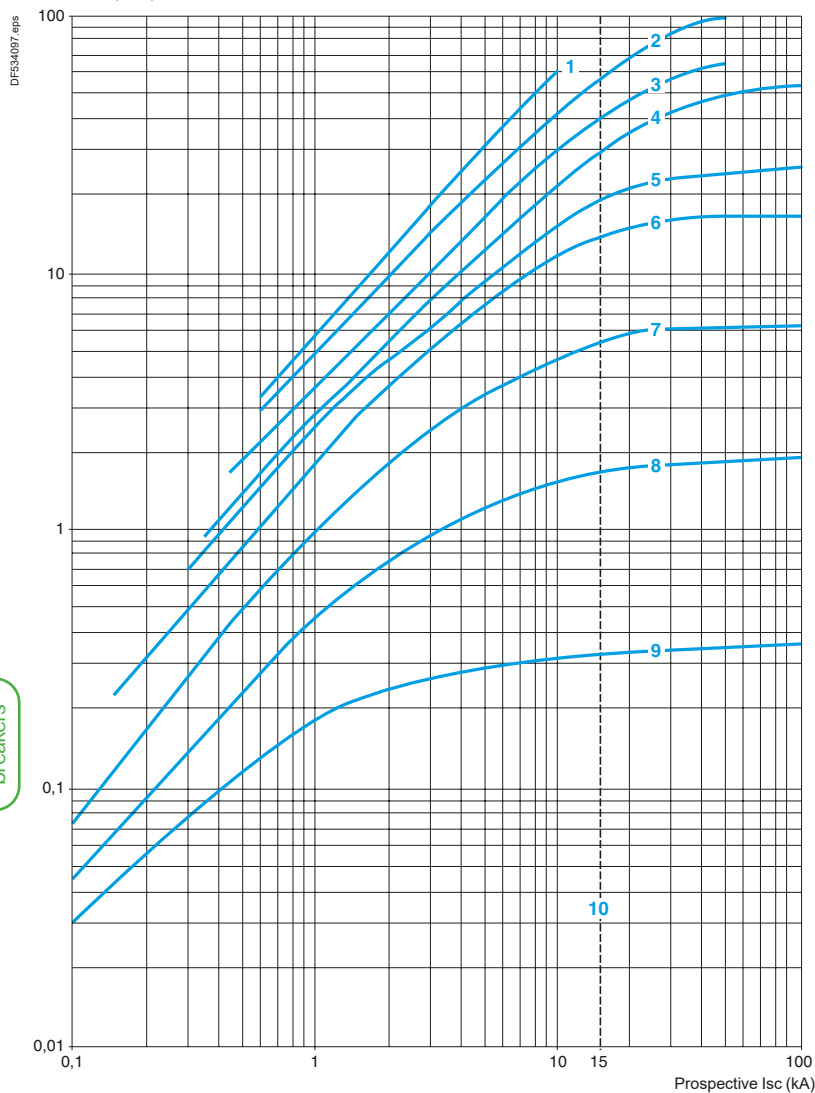
Motor
circuit
breakers

Thermal limit on short-circuit for GV2L and GV2LE + thermal overload relay LRD or LR2K

Thermal limit in kA²s in the magnetic operating zone

Sum of I²dt = f (prospective I_{sc}) at 1.05 U_e = 435 V

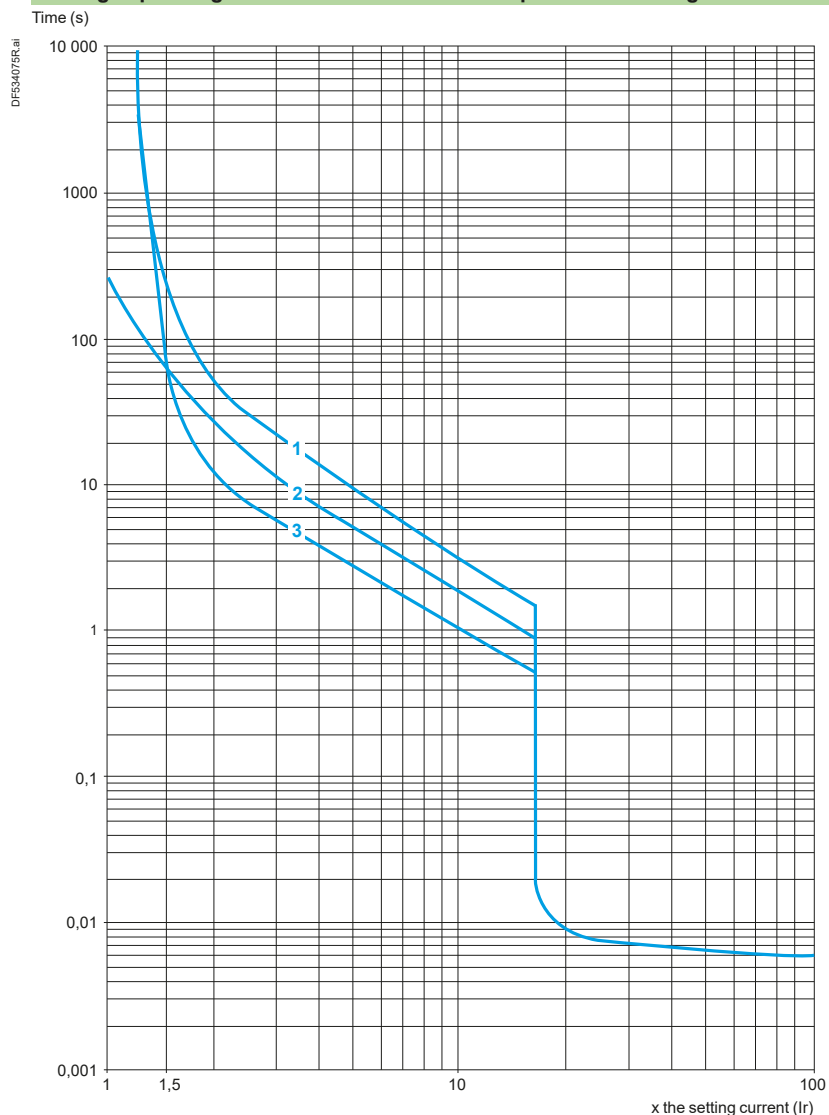
Sum of I²dt (kA²s)



- 1 32 A (GV2LE32)
- 2 25 A and 32 A (GV2L32)
- 3 18 A
- 4 14 A
- 5 10 A
- 6 6.3 A
- 7 4 A
- 8 2.5 A
- 9 1.6 A
- 10 Limit of rated ultimate breaking capacity on short-circuit of GV2LE (14, 18, 23 and 25 A ratings).

Thermal-magnetic tripping curves for GV2ME, GV2RT and GV2P

Average operating times at 20 °C related to multiples of the setting current



- 1 3 poles from cold state
- 2 2 poles from cold state
- 3 3 poles from hot state

Ref.



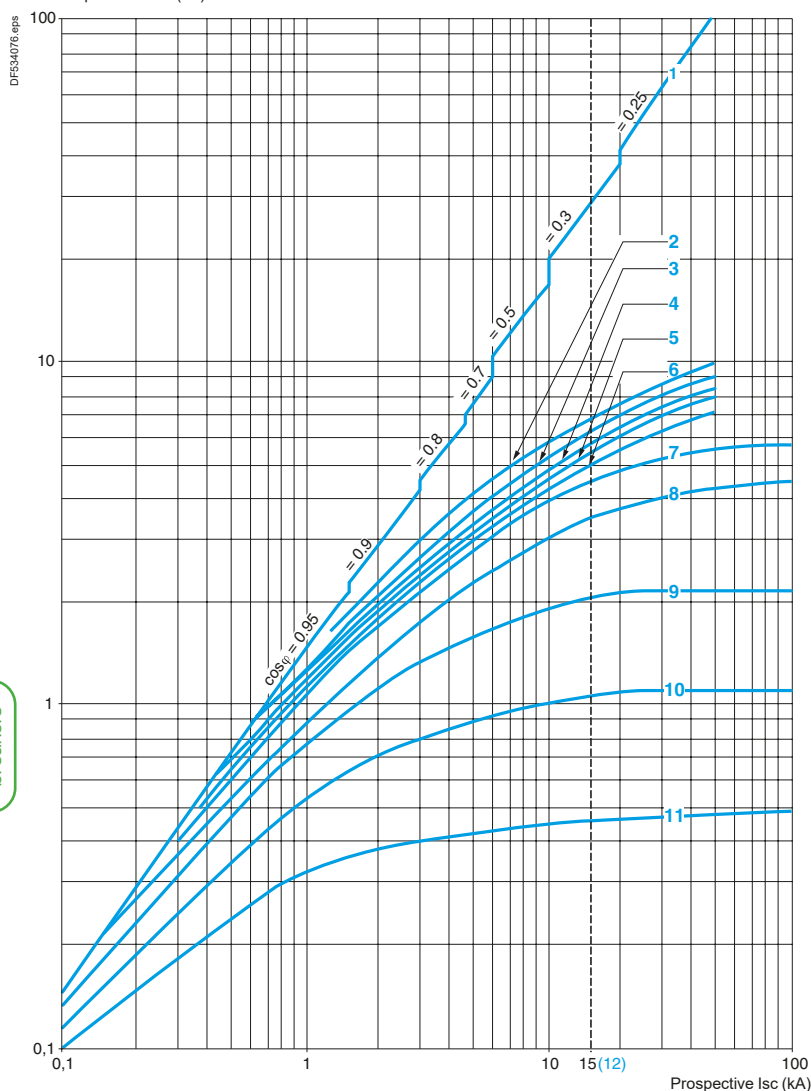
Motor
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Current limitation on short-circuit for GV2ME, GV2RT and GV2P (3-phase 400/415 V)

Dynamic stress

$I_{peak} = f(\text{prospective } I_{sc}) \text{ at } 1.05 U_e = 435 \text{ V}$

Limited peak current (kA)



1 Maximum peak current

2 24 - 32 A

3 20 - 25 A

4 17 - 23 A

5 13 - 18 A

6 9 - 14 A

7 6 - 10 A

8 4 - 6.3 A

9 2.5 - 4 A

10 1.6 - 2.5 A

11 1 - 1.6 A

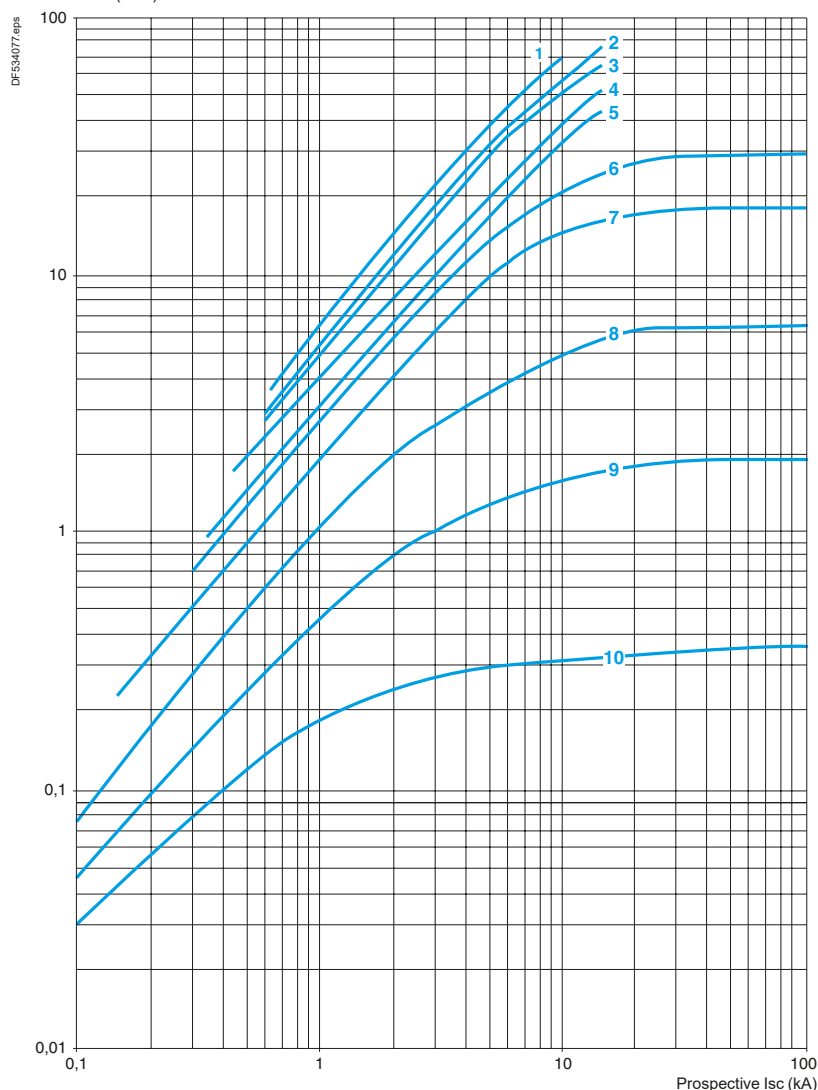
12 Limit of rated ultimate breaking capacity on short-circuit of GV2ME (14, 18, 23 and 25 A ratings)

Thermal limit on short-circuit for GV2ME and GV2RT

Thermal limit in kA^2s in the magnetic operating zone

Sum of $I^2dt = f$ (prospective I_{sc}) at $1.05 U_e = 435 V$

Sum of I^2dt (kA^2s)



- 1 24 - 32 A
- 2 20 - 25 A
- 3 17 - 23 A
- 4 13 - 18 A
- 5 9 - 14 A
- 6 6 - 10 A
- 7 4 - 6.3 A
- 8 2.5 - 4 A
- 9 1.6 - 2.5 A
- 10 1 - 1.6 A

Ref.

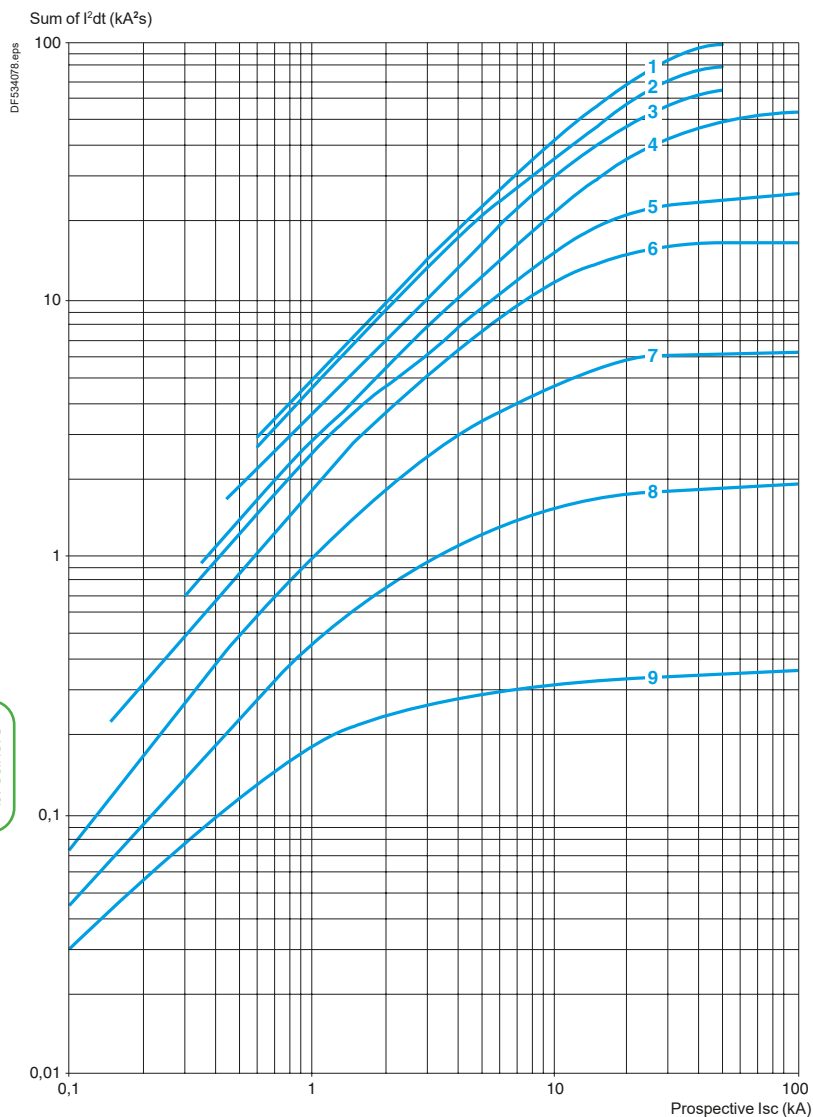


Motor
circuit
breakers

Thermal limit on short-circuit for GV2P

Thermal limit in kA²s in the magnetic operating zone

Sum of I²dt = f (prospective I_{sc}) at 1.05 U_e = 435 V



- 1 20 - 25 A, 24 - 32 A
- 2 17 - 23 A
- 3 13 - 18 A
- 4 9 - 14 A
- 5 6 - 10 A
- 6 4 - 6.3 A
- 7 2.5 - 4 A
- 8 1.6 - 2.5 A
- 9 1 - 1.6 A

Characteristics of GV2 electric trips					
Type of trip			GVAU... MN undervoltage trip	GVAX... MN undervoltage trip for GV2ME - safety device for dangerous machines	GVAS... MX shunt trip
Rated insulation voltage (Ui)	Conforming to IEC 60947-1	V	690	500	690
	Conforming to UL 60947-4-1, CSA C22.2 n° 60947-4-1	V	600	-	600
Operational voltage (Ue)	Conforming to IEC 60947-1	V	0.85...1.1 Uc	0.85...1.1 Uc	0.7...1.1 Uc
Drop-out voltage		V	0.7...0.35 Uc	0.7...0.35 Uc	0.75...0.2 Uc
Inrush consumption	~	VA	12	12	14
Sealed consumption	~	VA	3.5	3.5	5
Operating time	Conforming to IEC 60947-1	ms	From the moment the voltage reaches its operational value until opening of the circuit breaker. 10...15		
On-load factor			100 %		
Cabling (screw clamp connection)	Number of conductors		2 or 4		
	Solid cable	mm ²	1...2.5		
	Flexible cable without cable end	mm ² AWG	0.75...2.5		
	Flexible cable with cable end	mm ²	0.75...2.5		
Tightening torque		N.m	1.4 max		
Mechanical durability (C.O.: Close - Open)		C.O.	30000 (GV2ME and GV2P)		

Ref.

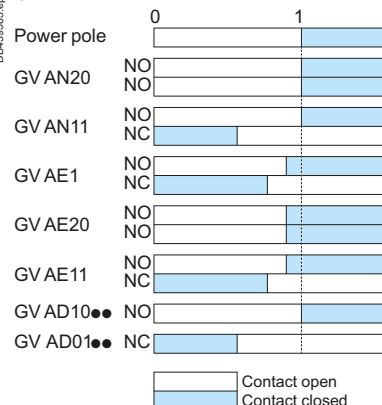


Motor
circuit
breakers

Type of contacts			Instantaneous auxiliary GVAN, GVAD								Fault signalling GVAD, GVAM11 ⁽¹⁾				Instantaneous auxiliary GVAE							
Rated insulation voltage (Ui) (associated insulation coordination)	Conforming to IEC 60947-1	V	690								690				250 (690 in relation to main circuit)							
	Conforming to UL 60947-4-1, CSA C22.2 n° 60947-4-1	V	600								300				300							
Conventional thermal current (Ith)	Conforming to IEC 60947-5-1	A	6								2.5				2.5							
	Conforming to UL 60947-5-1, CSA C22.2 n° 60947-5-1	A	5								1				1							
Mechanical durability (C.O.: Close - Open)		C.O.	100 000								1000				100 000							
Operational power and current conforming to IEC 60947-5-1. a.c. operation			AC-15/100 000 C.O.								AC-14/1000 C.O.				AC-15/100 000 C.O.							
	Rated operational voltage (Ue)	V	48	110 127	230 240	380 415	440	500	690	24	48	110 127	230 240	24	48	110 127	230 240					
Operation	Operational power, normal conditions	VA	300	500	720	850	650	500	414	36	48	72	72	48	60	120	120					
	Occasional breaking and making capacities, abnormal conditions	kVA	3	7	13	15	13	12	9	0.22	0.3	0.45	0.45	0.48	0.6	1.27	2.4					
	Rated operational current (Ie)	A	6	4.5	3.3	2.2	1.5	1	0.6	1.5	1	0.5	0.3	2	1.25	1	0.5					
Operational power and current conforming to IEC 60947-5-1. d.c.			DC-13/100 000 C.O.								DC-13/1000 C.O.				DC-13/100 000 C.O.							
	Rated operational voltage (Ue)	V	24	48	60	110	240 ⁽²⁾	—	—	24	48	60	—	24	48	60	—					
Operation	Operational power, normal conditions	W	140	240	180	140	120	—	—	24	15	9	—	24	15	9	—					
	Occasional breaking and making capacities, abnormal conditions	W	240	360	240	210	180	—	—	100	50	50	—	100	50	50	—					
	Rated operational current (Ie)	A	6	5	3	1.3	0.5	—	—	1	0.3	0.15	—	1	0.3	0.15	—					
Low power switching reliability of contact			GVAE: Number of failures for “n” million operating cycles (17 V-5 mA): = 10 ⁻⁶																			
Minimum operational conditions		V	17																			
		mA	5																			
Short-circuit protection			By GB2CB●● circuit breaker (rating according to operational current for Ue ≤ 415 V) or by gG fuse 10 A max												GB2CB06 or gG fuse 10 A max							
Cabling, screw clamp terminals	Number of conductors		1				2															
	Solid cable	mm²	1...2.5				1...2.5															
	Flexible cable without cable end	mm²	0.75...2.5				0.75...2.5															
	Flexible cable with cable end	mm²	0.75...1.5				0.75...1.5															
	Tightening torque	N.m	1.4 max				1.4 max															
Cabling, spring terminal connections			GVAN only																			
	Flexible cable without cable end	mm²	0.75...2.5				0.75...2.5				—				0.75...1.5							

Operation of instantaneous auxiliary contacts

GV2



(1) For application example of fault signalling contact and short-circuit signalling contact.

(2) Add an RC circuit type LA4D to the load terminals.

Operation of fault signalling contacts

GVAM11

Change of state following tripping on short-circuit.

GVAD10●● and GVAD01●●

Change of state following tripping on short-circuit, overload or undervoltage.

Characteristics of 3-pole busbars GV2G●●●							
			GV2G●●●				
Rated insulation voltage (Ui)	Conforming to IEC 60947-1	V	690				
Conventional thermal current (Ith)	Conforming to IEC 60439-1	A	63				
Rated operational current (Ie)		A	63				
Permissible peak current (I peak)		kA	11				
Permissible thermal limit (I²t)		kA²s	104				
Degree of protection	Conforming to IEC 60529		IP 20				
Terminal block			Yes				
Characteristics of terminal blocks GV2G05 and GV1G09 (for GV2ME and GV2P)							
Rated insulation voltage (Ui)	Conforming to IEC 60947-1	V	690				
Conventional thermal current (Ith)	Conforming to IEC 60439-1	A	63				
Rated operational current (Ie)		A	63	115			
Degree of protection	Conforming to IEC 60529		IP 20				
Connection	Solid cable	mm²	1 x 1.5 to 25 or 2 x 1.5 to 6				
	Flexible cable without cable end	mm²	1 x 1.5 to 16 or 2 x 1.5 to 4				
	Flexible cable with cable end	mm²	1 x 1.5 to 16 or 2 x 1.5 to 4				
	Flexible or solid cable AWG		1 AWG 4				
Tightening torque	Connector	N.m	2.2				
	Screw clamp terminals	N.m	1.7				
Characteristics of current limiters (GV2ME and GV2P)							
Type			GV1L3		LA9LB920		
Rated insulation voltage (Ui)	Conforming to IEC 60947-1	V	690		690		
Conventional thermal current (Ith)	Conforming to IEC 60947-1	A	63		63		
Rated operational current (Ie)		A	32		32		
Operating threshold		A	1500 (non adjustable threshold)		1000 (non adjustable threshold)		
Connection			1 conductor	2 conductors	1 conductor	2 conductors	
		Solid cable	mm²	1.5...25	1.5...10	1.5...25	1.5...10
		Flexible cable without cable end	mm²	1.5...25	2.5...10	1.5...25	1.5...10
		Flexible cable with cable end	mm²	1.5...16	1.5... 4	1.5...16	1.5... 4
Tightening torque		N.m	2.2				

Ref.



Motor
circuit
breakers

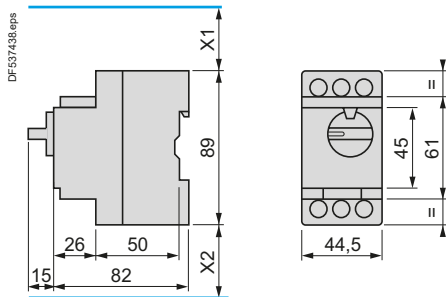
TeSys Power

Deca - Frame 2 Motor circuit breakers - Magnetic

Dimensions and mounting

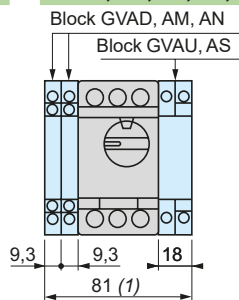
GV2L

Dimensions



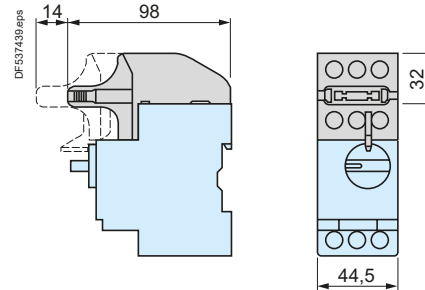
X1 Electrical clearance = 40 mm for $U_e \leq 415$ V, or 80 mm for $U_e = 440$ V, or 120 mm for $U_e = 500$ and 690 V.
X2 = 40 mm.

GVAD, AM, AN, AU, AS



(1) Maximum.

GV2AK00



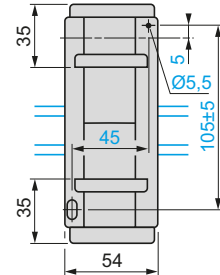
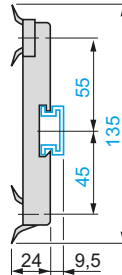
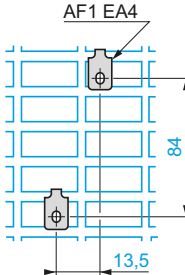
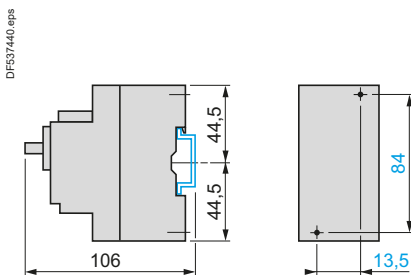
Mounting

On rail AM1DE200,
AM1ED200 (35 x 15)

Panel mounted

On pre-slotted mounting
plate AM1PA

Adapter plate GK2AF01

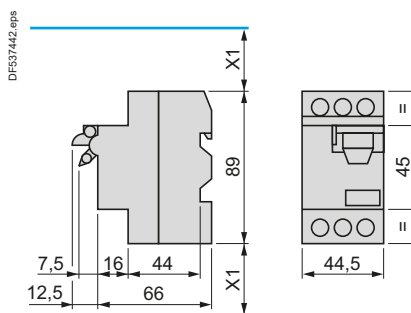


7.5 mm height compensation plate GV1F03



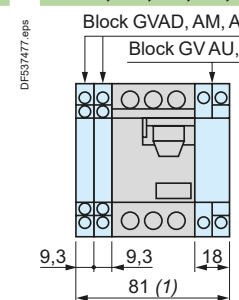
GV2LE

Dimensions



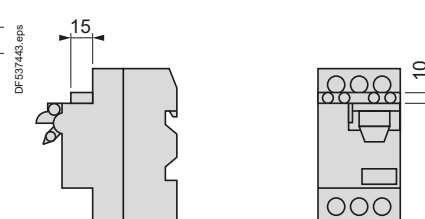
X1 Electrical clearance = 40 mm for $U_e \leq 690$ V.

GVAD, AM, AN, AU, AS



(1) Maximum.

GVAE



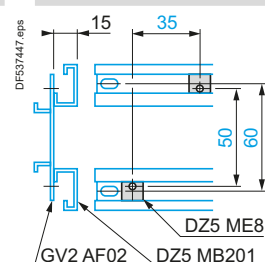
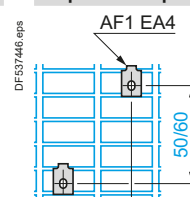
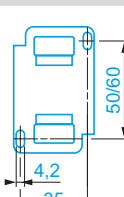
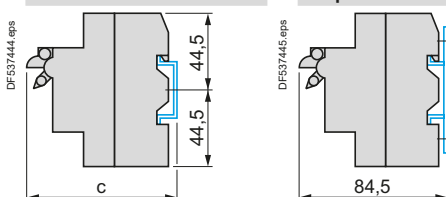
Mounting

On 35 mm rail

On panel with adapter plate GV2AF02

On pre-slotted plate AM1PA

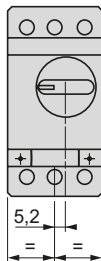
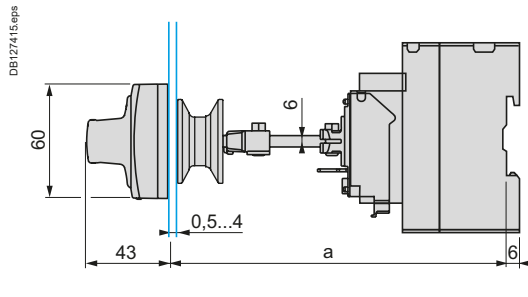
On rails DZ5MB201



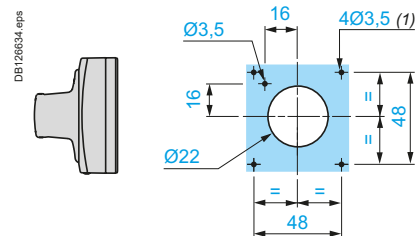
c = 80 on AM1DP200
(35 x 7.5) and 88 on
AM1DE200, ED200 (35 x 15)

Mounting

Mounting of external operator GV2APN01, GV2APN02 or GV2APN04 for motor circuit breakers GV2L

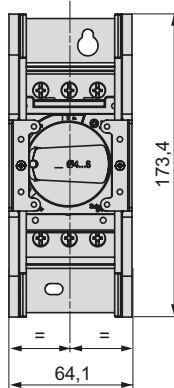
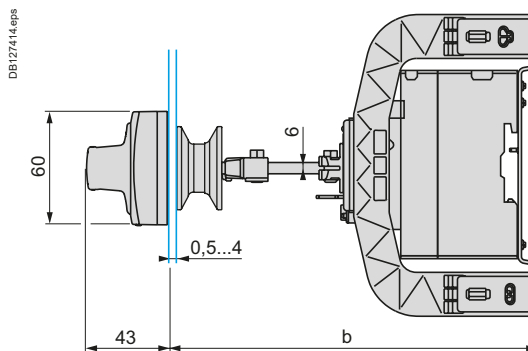


Door cut-out

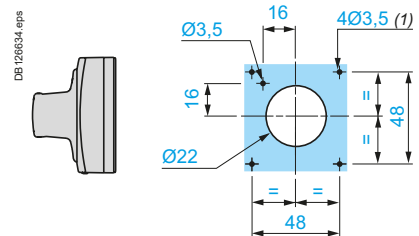


(1) For IP65 only.

Mounting of external operator GVAPH02 for motor circuit breakers GV2L



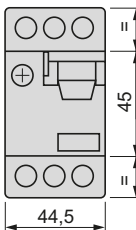
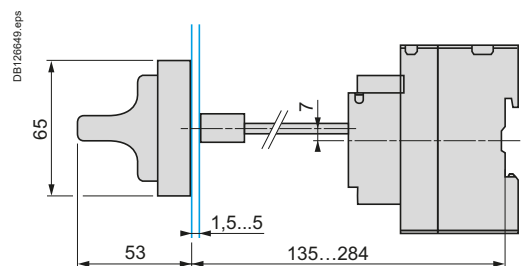
Door cut-out



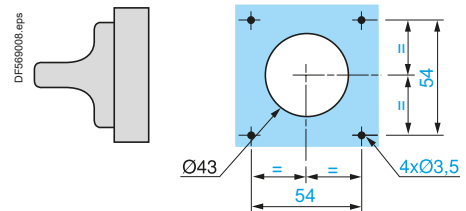
(1) For IP65 only.

	a		b	
	Mini	Maxi	Mini	Maxi
GV2APN●●	140	250		
GV2APN●● + GVAPH02			151	250
GV2APN●● + GVAPK11	250	434	-	-
GV2APN●● + GVAPH02 + GVAPK11	-	-	250	445

Mounting of external operator GV2AP03 for GV2LE

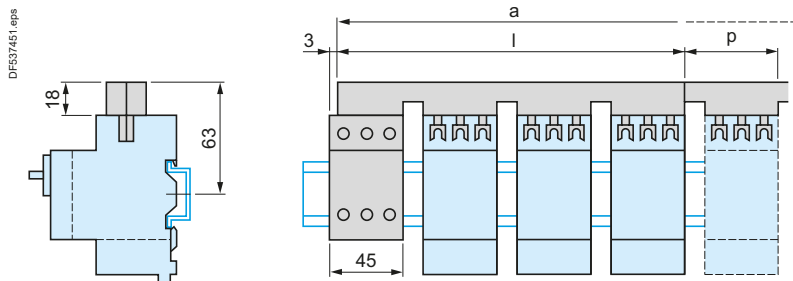


Door cut-out



GV2LE

Sets of busbars GV2G445, GV2G454, GV2G472, with terminal block GV2G05



	l	p
GV2G445 (4 x 45 mm)	179	45
GV2G454 (4 x 54 mm)	206	54
GV2G472 (4 x 72 mm)	260	72

Ref.



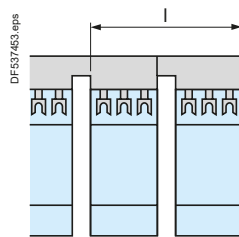
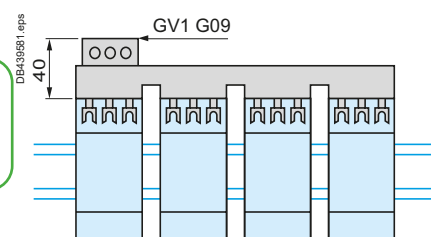
	a			
Number of tap-offs	5	6	7	8
GV2G445	224	269	314	359
GV2G454	260	314	368	422
GV2G472	332	404	476	548

Sets of busbars GV2LE

Sets of busbars GV2G... with term. block GV1G09

Sets of busbars GV2G245, GV2G254, GV2GR272

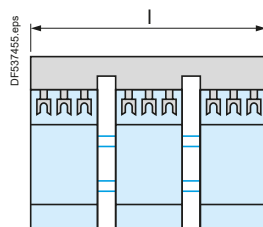
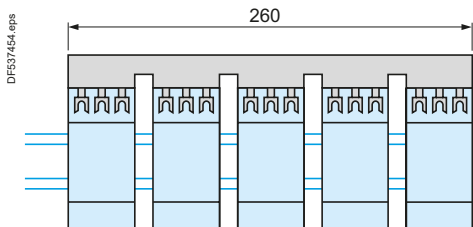
Motor circuit breakers



	l
GV2G245 (2 x 45 mm)	89
GV2G254 (2 x 54 mm)	98
GV2G272 (2 x 72 mm)	116

Set of busbars GV2G554

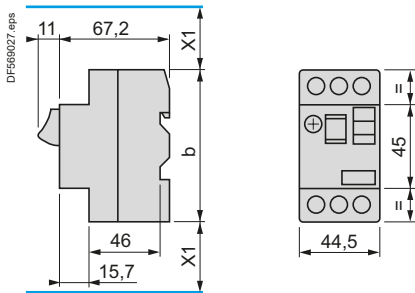
Sets of busbars GV2G345 and GV2G354



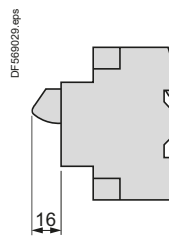
	l
GV2G345 (3 x 45 mm)	134
GV2G354 (3 x 54 mm)	152

Dimensions

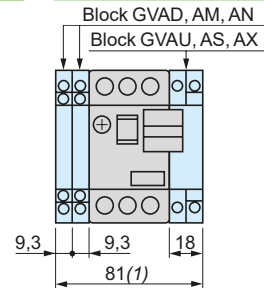
GV2ME



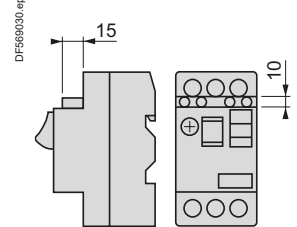
GVAX



GVAD, AM, AN, AU, AS, AX



GVAE



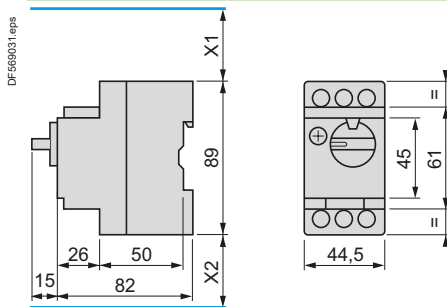
b

GV2ME●●	89
GV2ME●●3	101

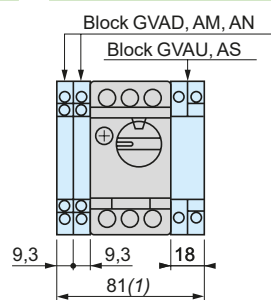
(1) Maximum.

X1 Electrical clearance = 40 mm for $U_e \leq 690$ V

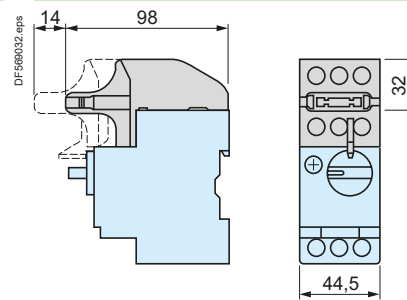
GV2P



GVAD, AM, AN, AU, AS



GV2AK00

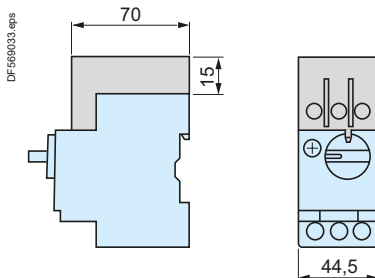


(1) Maximum.

X1 Electrical clearance = 40 mm for $U_e \leq 415$ V, or 80 mm for $U_e = 440$ V, or 120 mm for $U_e = 500$ and 690 V

X2 = 40 mm

GV2GH7



Mounting

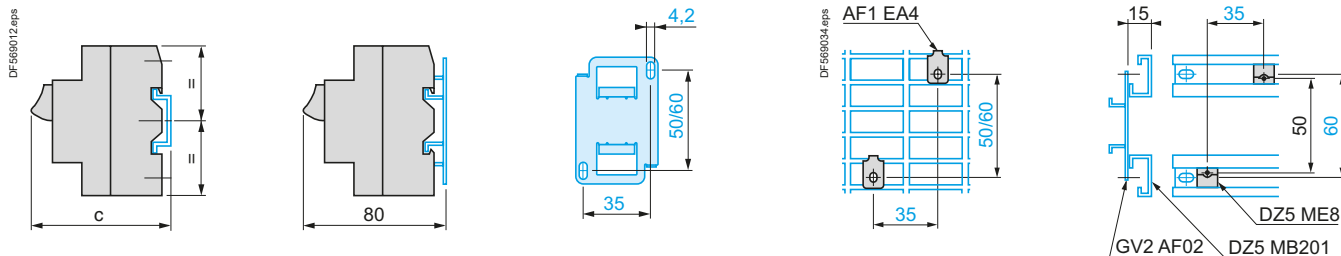
GV2ME

On 35 mm rail

On panel with adapter plate GV2AF02

On pre-slotted plate AM1PA

On rails DZ5MB201



c = 78.5 on AM1 DP200 (35 x 7.5)
c = 86 on AM1 DE200, ED200 (35 x 15)

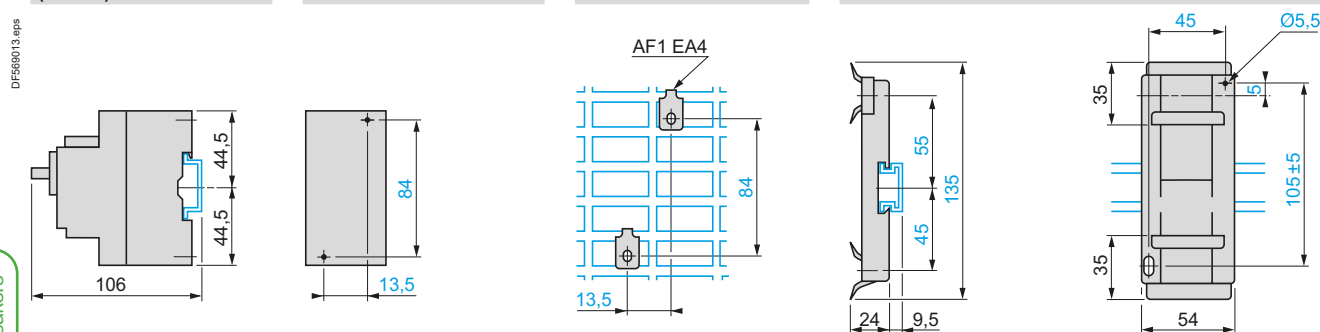
GV2P

On rail AM1DE200, ED200 (35 x 15)

Panel mounted

On pre-slotted plate AM1PA

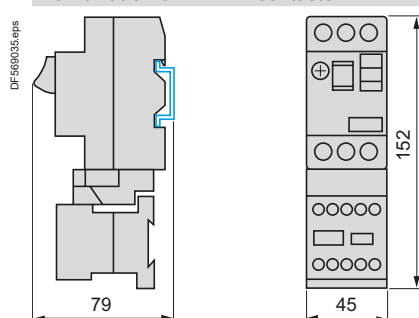
Adapter plate GK2AF01



Dimensions

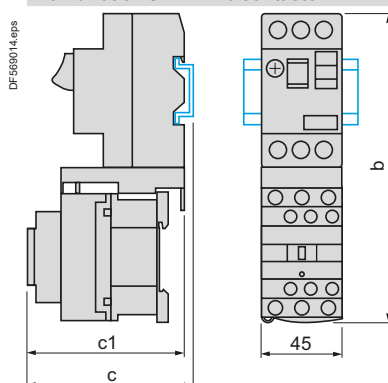
GV2AF01

Combination GV2ME + k contactor

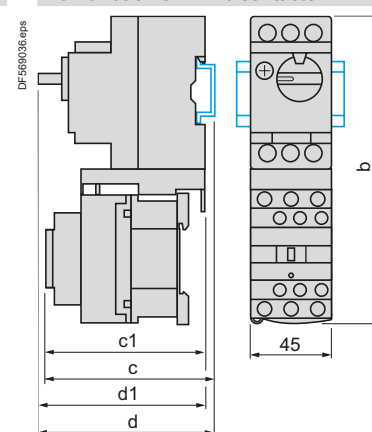


GV2AF3

Combination GV2ME + d contactor



Combination GV2P + d contactor



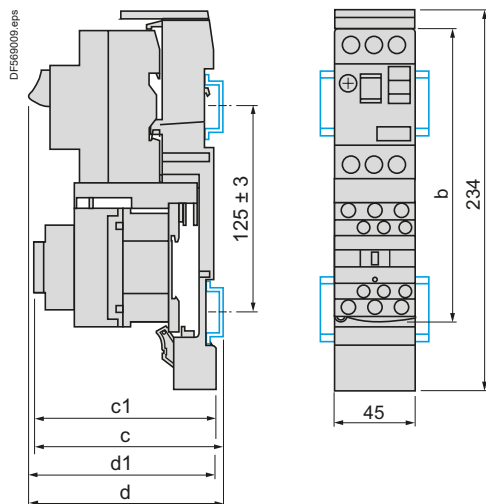
GV2ME +	LC1D09 ...D18	LC1D25 and D32
b	176.4	186.8
c1	94.1	100.4
c	99.6	105.9

GV2P +	LC1D09 ...D18	LC1D25 and D32
b	176.4	186.8
c1	100.1	106.4
c	105.6	111.9
d1	95	95
d	100.5	100.5

Dimensions

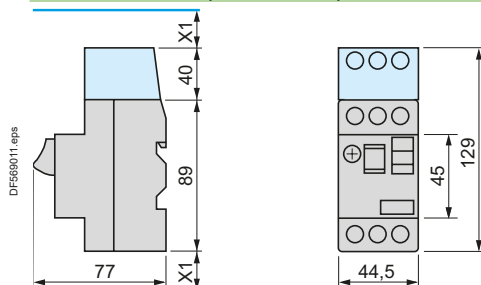
GV2AF4 + LAD311

Combination GV2ME + d contactor



GV2ME +	LC1D09...D18	LC1D25 and D32
b	176.4	186.8
c1	130.1	136.4
c	135.6	141.9
d1	107	107
d	112.5	112.5

GV2ME + GV1L3 (current limiter)



$X1 = 10 \text{ mm}$ for $U_e = 230 \text{ V}$
or 30 mm for $230 \text{ V} < U_e \leq 690 \text{ V}$

7.5 mm height compensation plate GV1F03



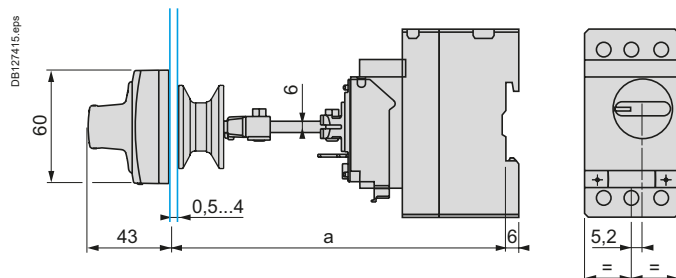
Ref.



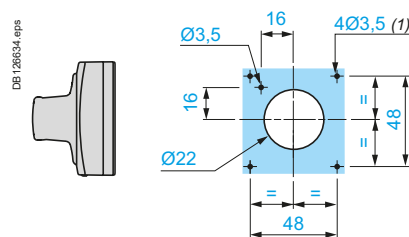
Motor
circuit
breakers

Mounting

Mounting of external operator GV2APN01, GV2APN02 or GV2APN04 for motor circuit breakers GV2P

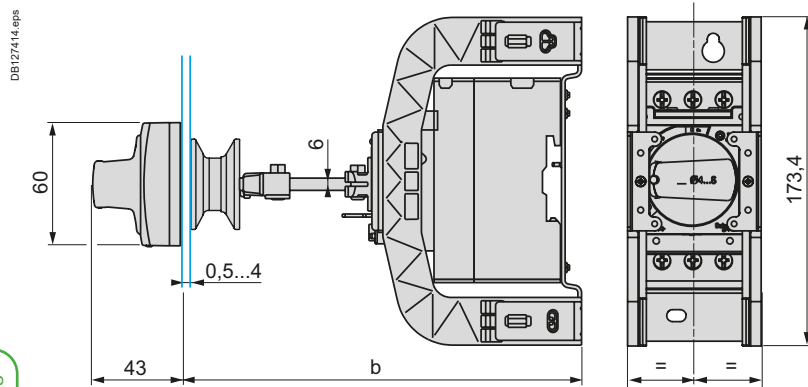


Door cut-out

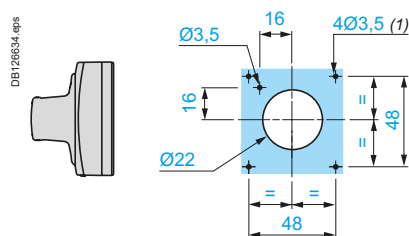


(1) For IP65 only.

Mounting of external operator GVAPH02 for motor circuit breakers GV2P



Door cut-out



(1) For IP65 only.

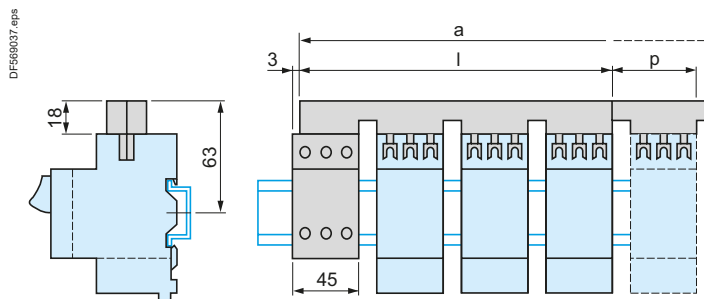
Ref.

Motor
circuit
breakers

	a		b	
	Mini	Maxi	Mini	Maxi
GV2APN●●	140	250		
GV2APN●● + GVAPH02			151	250
GV2APN●● + GVAPK11	250	434	-	-
GV2APN●● + GVAPH02 + GVAPK11	-	-	250	445

GV2ME, GV2P

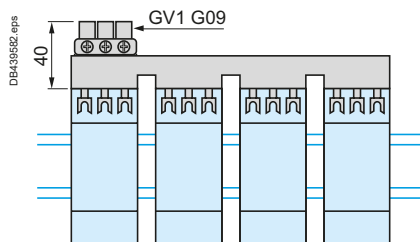
Sets of busbars GV2G445, GV2G454, GV2G472, with terminal block GV2G05



	l	p
GV2G445 (4 x 45 mm)	179	45
GV2G454 (4 x 54 mm)	206	54
GV2G472 (4 x 72 mm)	260	72

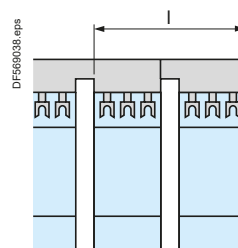
Number of tap-offs	a			
	5	6	7	8
GV2G445	224	269	314	359
GV2G454	260	314	368	422
GV2G472	332	404	476	548

Sets of busbars GV2G●●● with terminal block GV1G09

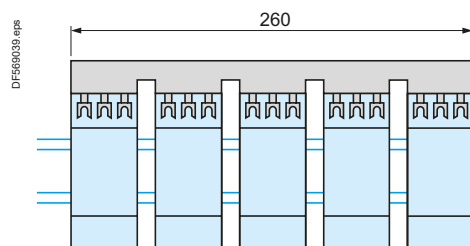


	l
GV2G245 (2 x 45 mm)	89
GV2G254 (2 x 54 mm)	98
GV2G272 (2 x 72 mm)	116

Sets of busbars GV2G245, GV2G254, GV2G272

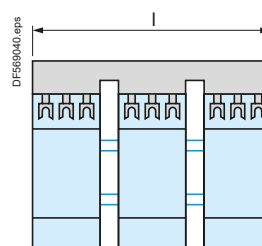


Sets of busbars GV2G554



	l
GV2G345 (3 x 45 mm)	134
GV2G354 (3 x 54 mm)	152

Sets of busbars GV2G345 and GV2G354

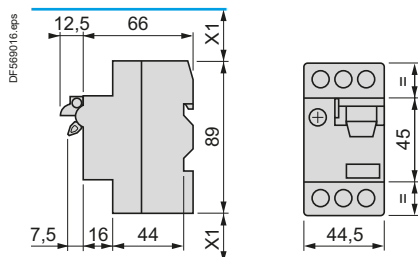


Ref.

Motor
circuit
breakers

GV2RT

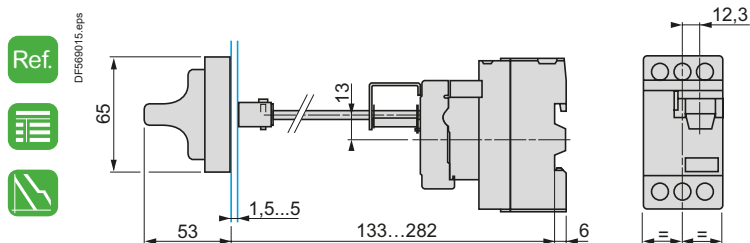
Dimensions



X1: Electrical clearance = 40 mm for $U_e < 690$ V

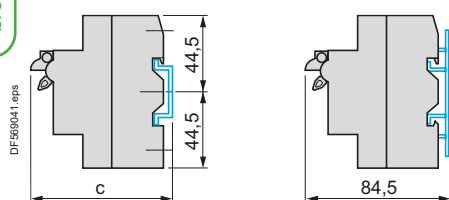
Mounting

Mounting of external operator GV2AP03

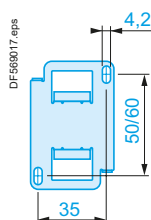


Motor
circuit
breakers

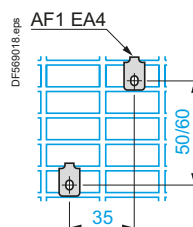
On 35 mm rail



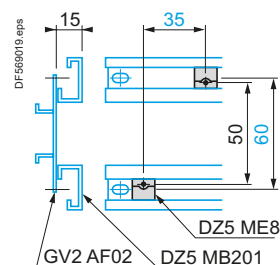
On panel with adapter plate GV2AF02



On pre-slotted plate AM1PA



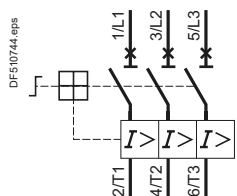
On rails DZ5MB



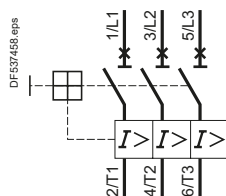
c = 80 on AM1DP200 (35 x 7.5)
c = 88 on AM1DE200, ED200 (35 x 15)

Schemes

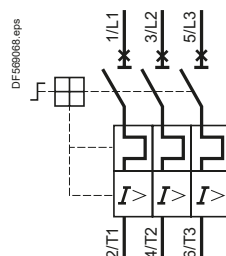
GV2L●●



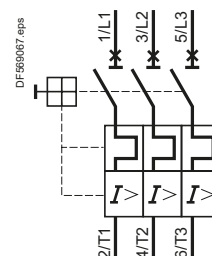
GV2LE●●



GV2P●●

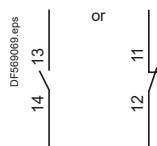


GV2ME●● and GV2RT

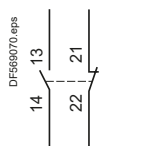


Front mounting add-on contact blocks Instantaneous auxiliary contacts

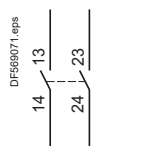
GVAE1



GVAE11

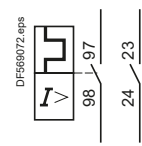


GVAE20

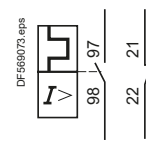


Front mounting add-on contact blocks Instantaneous auxiliary contacts and fault signalling contacts

GVAED101

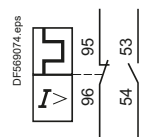


GVAED011

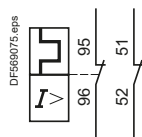


Side mounting add-on contact blocks Instantaneous auxiliary contacts and fault signalling contacts

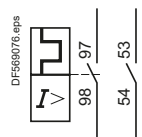
GVAD0110



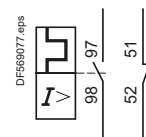
GVAD0101



GVAD1010

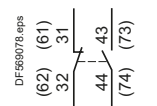


GVAD1001

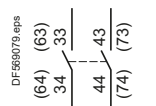


Instantaneous auxiliary contacts

GVAN11

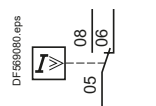


GVAN20



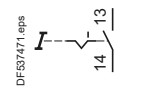
Short-circuit signalling contacts

GVAM11

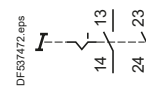


Start-Stop signalling contact blocks

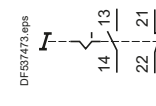
GK2AX10



GK2AX20

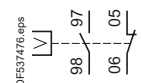


GK2AX50



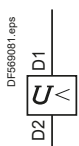
Fault signaling contact blocks

GK2AX52



Voltage trips

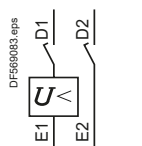
GVAU●●●



GVAS●●●

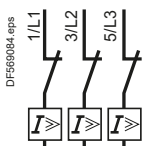


GVAX●●●

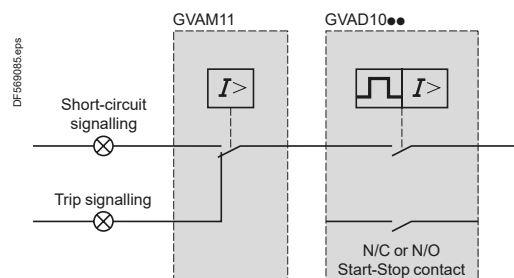


Current limiter

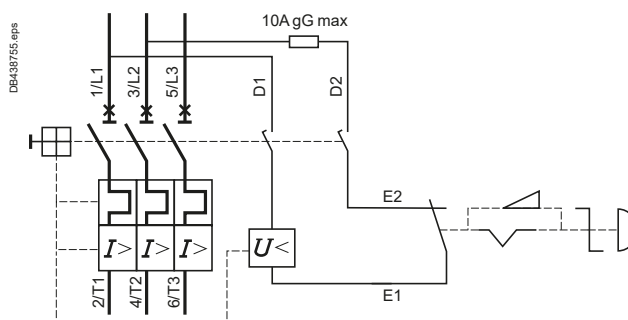
GV1L3



Use of fault signalling contact and short-circuit signalling contact



Connection of undervoltage trip for dangerous machines (conforming to INRS) on GV2ME only



TeSys Deca - Frame 3 5 to 45 kW



Motor
circuit
breakers

Environment

Circuit breaker type			GV3L	GV3P
Conforming to standards			IEC/EN 60947-4-1 IEC/EN 60947-2 UL 60947-4-1 CSA C22.2 n° 60947-4-1	IEC/EN 60947-4-1 IEC/EN 60947-2 UL 60947-4-1 CSA C22.2 n° 60947-4-1
Product certifications			CCC, EAC, BV, LROS, DNV-GL, ABS, UL ⁽¹⁾ , CSA ⁽²⁾ , UKCA	CCC, UL, CSA, EAC, ATEX, BV, LROS, DNV-GL, ABS, UKCA
Climatic withstand			According to IACS E10	
Degree of protection (front face)	Conforming to IEC 60529	Open mounted	Against direct finger contact: IP20	
		In enclosure	- GV3PC01 and GV3PC02 : IP55	
Shock resistance	Conforming to IEC 60068-2-27		On: 15 gn -11 ms (On: 5 gn -11 ms for GV3L73, GV3L80, GV3P73, GV3P80) Off: 30 gn -11 ms	
Vibration resistance ⁽³⁾	Conforming to IEC 60068-2-6		4 gn (5...300 Hz)	
Ambient air temperature	Storage		°C	-40...+80
	Operation	Open mounted	°C	-20...+60 ⁽³⁾
Temperature compensation		In enclosure	°C	-
		Open mounted	°C	-20...+40
		In enclosure	°C	-20...+60
Flame resistance	Conforming to IEC 60695-2-11		°C	960
Maximum operating altitude			m	3000
Suitable for isolation	Conforming to IEC 60947-1 § 7-1-6		Yes	-
Resistance to mechanical impact			J	-
				10 IK09 (in enclosure)
Sensitivity to phase failure			Yes, conforming to IEC 60947-4-1 § 8-2-1-5-2 for GV3P	

Technical characteristics

Circuit breaker type			GV3L	GV3P
Utilisation category	Conforming to IEC 60947-2		A	-
	Conforming to IEC 60947-4-1		-	AC-3
Rated operational voltage (U _e)	Conforming to IEC 60947-2	V	690	
Rated insulation voltage (U _i)	Conforming to IEC 60947-2	V	690	
Rated voltage	Conforming to UL 60947-4-1, CSA C 22.2 n° 60947-4-1	V		600
Rated operational frequency	Conforming to IEC 60947-4-1 UL, CSA	Hz	50/60	
Rated impulse withstand voltage (U _{imp})	Conforming to IEC 60947-2	kV	6	
Total power dissipated per pole		W	8	
Mechanical durability (C.O.: Close, Open)		C.O.	50 000	
Electrical durability for AC-3 duty	415 V In	C.O.	50 000 (20 000 for GV3L73, GV3P73, GV3L80, GV3P80)	
Duty class (maximum operating rate)		C.O./h	25	
Maximum conventional rated thermal current (I _{th})	Conforming to IEC 60947-4-1	A	-	13 to 80
Rated duty	Conforming to IEC 60947-4-1			Continuous duty
Operating threshold of magnetic trips			14 I max	

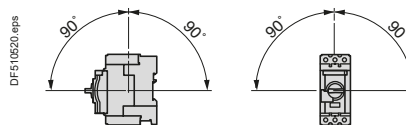
⁽¹⁾ For GV3L25 to 73, may be followed by 6 or 1.

⁽²⁾ For GV3L, GV3L25 to GV3L73 may be followed by 6 or 1 for use in conjunction with certified overload relay.

⁽³⁾ Leave a space of 9 mm between 2 circuit breakers: either an empty space, or side mounting add-on contact blocks. Side by side mounting is possible up to 40 °C.

Mounting characteristics

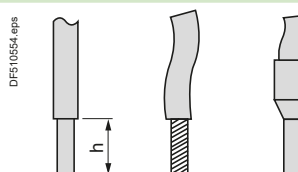
Operating position
Without derating, in relation to normal vertical mounting plane ⁽¹⁾



Connection characteristics

Connection to screw clamp terminals or spring terminals

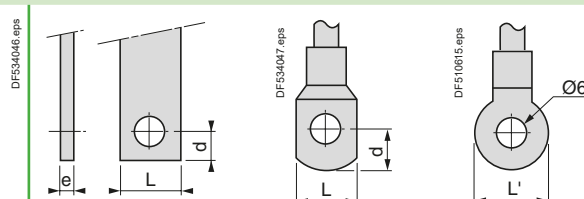
Bare cables



Circuit breaker type			GV3L		GV3P	
Connection to screw clamp terminals ⁽²⁾ (Max. number of conductors x c.s.a.)			Min.	Max.	Min.	Max.
	Solid cable	mm ²	2 x 1	1 x 25 and 1 x 35	2 x 1	1 x 25 and 1 x 35
	Flexible cable without cable end	mm ²	2 x 1	1 x 25 and 1 x 35	2 x 1	1 x 25 and 1 x 35
	Flexible cable with cable end	mm ²	2 x 1	1 x 25 and 1 x 35	2 x 1	1 x 25 and 1 x 35
Tightening torque		N.m	5	5: 25 mm ² 8: 35 mm ²	5	5: 25 mm ² 8: 35 mm ²

Connection by bars or lugs

Bars or lugs



Circuit breaker type		GV3L●●6		GV3P●●6	
Pitch	Without spreaders	mm	17.5		
	With spreaders	mm	—		
Bars or cables with lugs	e	mm	≤ 6		
	L	mm	≤ 13.5		
	L'	mm	≤ 16.5		
	d	mm	≤ 10		
Screws			M6		
	Tightening torque	N.m	6		
Bare cables (copper or aluminium) with connectors	Height (h)	mm	—		
	C.s.a.	mm ²	—		
	Tightening torque	N.m	—		

(1) When mounting on a vertical rail, fit a stop to prevent any slippage.

(2) For motor circuit breakers **GV3P**: BTR hexagon socket head screws, **EverLink**® system. Require use of an insulated Allen key, in compliance with local electrical wiring regulations.

(3) For cross-sections 1 to 1.5 mm², the use of an **LA9D99** cable end reducer is recommended.

Breaking capacity of GV3L

Type				GV3L25	GV3L32	GV3L40	GV3L50	GV3L65	GV3L73	GV3L80
Breaking capacity of the circuit-breaker only or of the circuit-breaker combined with a thermal overload relay	230/240 V	Icu	kA	100	100	100	100	100	65	65
		Ics % ⁽¹⁾		100	100	100	100	100	100	100
	400/415 V	Icu	kA	100	100	50	50	50	50	50
		Ics % ⁽¹⁾		100	100	100	100	100	60	60
	440 V	Icu	kA	50	50	50	50	50	50	50
		Ics % ⁽¹⁾		100	100	100	100	100	60	60
	500 V	Icu	kA	12	12	12	12	12	12	12
		Ics % ⁽¹⁾		50	50	50	50	50	50	50
	690 V	Icu	kA	6	6	6	6	6	6	6
		Ics % ⁽¹⁾		50	50	50	50	50	50	50
Associated fuses (if required) for use with circuit breaker only or circuit breaker combined with a thermal overload relay if Isc > breaking capacity	230/240 V	aM	A	★	★	★	★	★	★	★
		gG	A	★	★	★	★	★	★	★
	415 V	aM	A	★	★	★	★	125	125	125
		gG	A	★	★	★	★	160	160	160
	440 V	aM	A	63	80	125	125	125	125	125
		gG	A	80	100	160	160	160	160	160
	500 V	aM	A	63	63	63	63	80	80	80
		gG	A	80	80	80	80	100	100	100
	690 V	aM	A	50	50	50	50	63	63	63
		gG	A	63	63	63	63	80	80	80
Use of circuit breakers without fuses				Minimum cable length (in metres) limiting the maximum short-circuit current to 35 kA maximum.						
Cable c.s.a.			mm ²	≤ 25	35	50	70	95	- ⁽²⁾	- ⁽²⁾
Isc (rms) 3-phase, incoming (Ue = 415 V)	50 kA	m	5	6	8	10	13	- ⁽²⁾	- ⁽²⁾	- ⁽²⁾
	45 kA	m	5	5	7	8	10	- ⁽²⁾	- ⁽²⁾	- ⁽²⁾
	40 kA	m	5	5	5	5	8	- ⁽²⁾	- ⁽²⁾	- ⁽²⁾
	37 kA	m	5	5	5	5	5	- ⁽²⁾	- ⁽²⁾	- ⁽²⁾

★ Fuse not required: breaking capacity Icn > Isc.

(1) As % of Icu.

(2) Please consult your Regional Sales Office.

Breaking capacity of GV3P										
Motor circuit breaker type			GV3P							
Rating			A	13	18	25	32	40	50	65
			A	13	18	25	32	40	50	65
Breaking capacity conforming to IEC 60947-2	230/240 V	Icu	kA	100	100	100	100	100	100	100
		Ics % ⁽¹⁾		100	100	100	100	100	100	100
	400/415 V	Icu	kA	100	100	100	100	50	50	50
		Ics % ⁽¹⁾		100	100	100	100	100	100	60
	440 V	Icu	kA	50	50	50	50	50	50	50
		Ics % ⁽¹⁾		100	100	100	100	100	100	60
	500 V	Icu	kA	12	12	12	12	12	12	12
		Ics % ⁽¹⁾		50	50	50	50	50	50	50
	690 V	Icu	kA	6	6	6	6	6	6	6
		Ics % ⁽¹⁾		50	50	50	50	50	50	50
Associated fuses, if required if Isc > breaking capacity Icu	230/240 V	aM	A	*	*	*	*	*	*	*
		gG	A	*	*	*	*	*	*	*
	415 V	aM	A	*	*	*	*	125	125	125
		gG	A	*	*	*	*	160	160	160
	440 V	aM	A	63	80	125	125	125	125	125
		gG	A	80	100	160	160	160	160	160
	500 V	aM	A	63	63	63	63	80	80	80
		gG	A	80	80	80	80	100	100	100
	690 V	aM	A	50	50	50	50	63	63	63
		gG	A	63	63	63	63	80	80	80

* Fuse not required: breaking capacity Icn > Isc.
(1) As % of Icu.

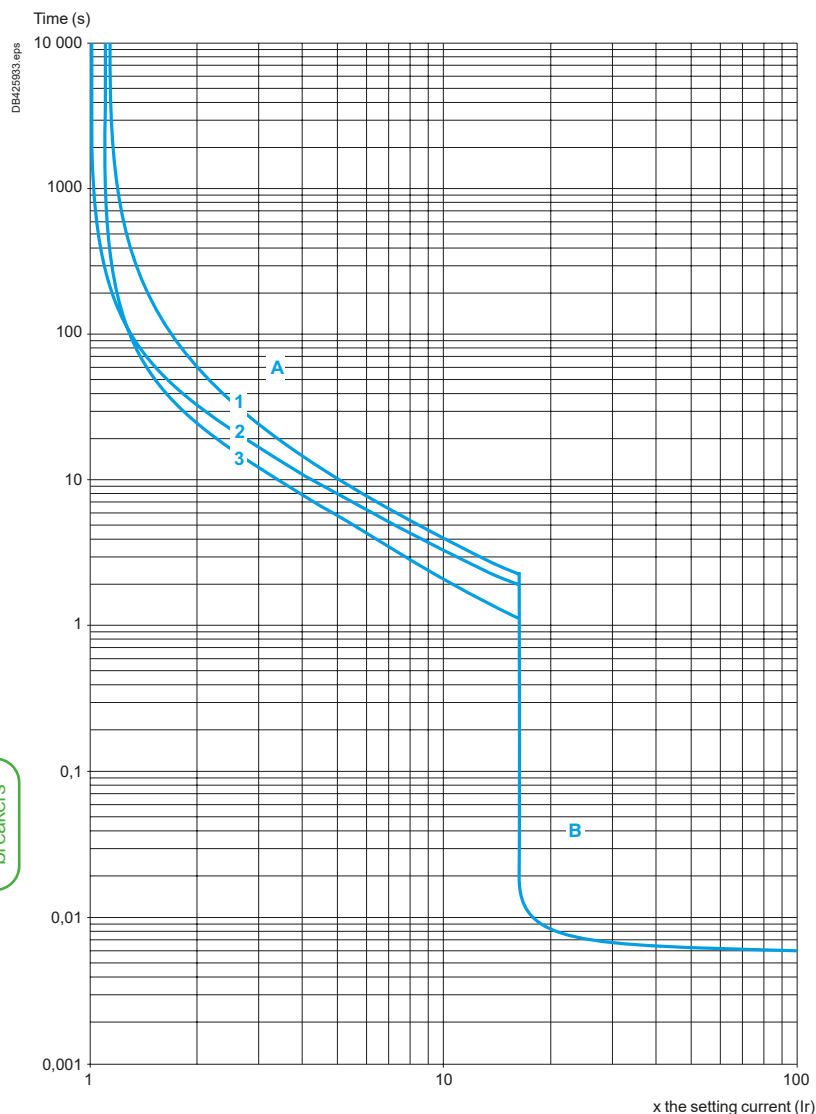
Ref.



Motor
circuit
breakers

Tripping curves for GV3L combined with thermal overload relay LRD33

Average operating time at 20 °C without prior current flow



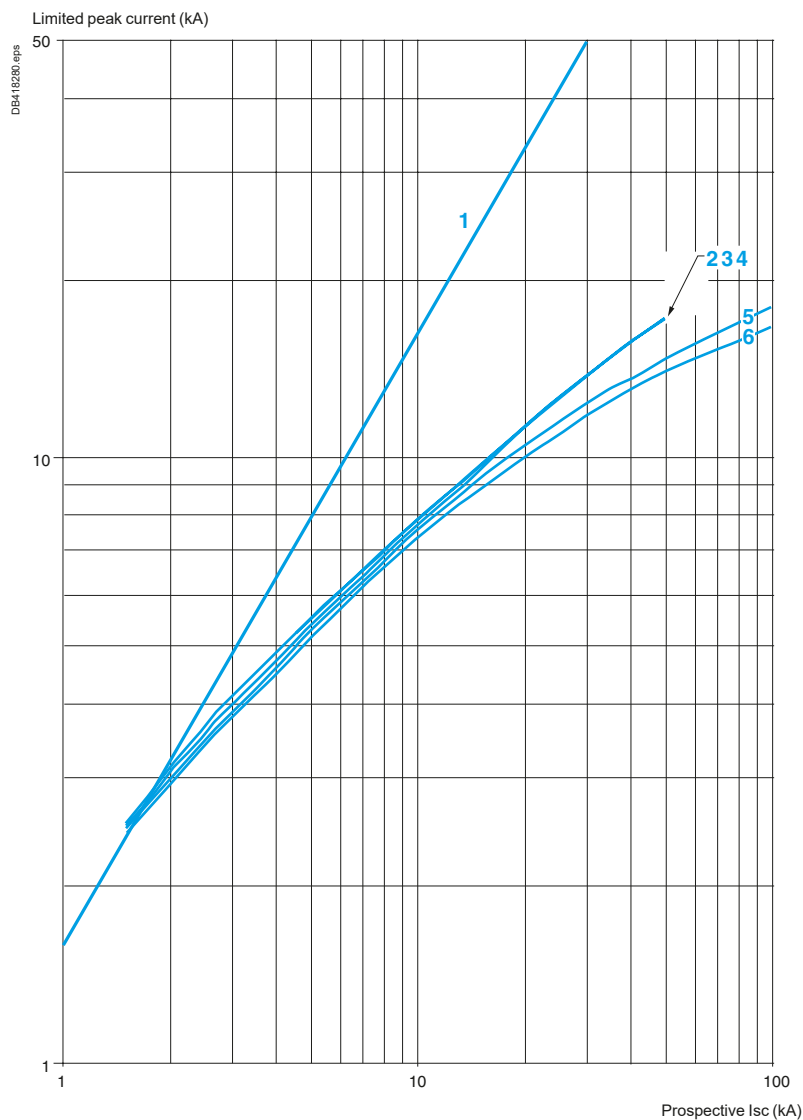
- 1 3 poles from cold state
- 2 2 poles from cold state
- 3 3 poles from hot state

- A Thermal overload relay protection zone
- B GV3L protection zone

Current limitation on short-circuit for GV3L (3-phase 400/415 V)

Dynamic stress

$I_{peak} = f(\text{prospective } I_{sc}) \text{ at } 1.05 U_e = 435 \text{ V}$



- 1 Maximum peak current
- 2 GV3L80 - GV3L73 - GV3L65
- 3 GV3L50
- 4 GV3L40
- 5 GV3L32
- 6 GV3L25

Ref.



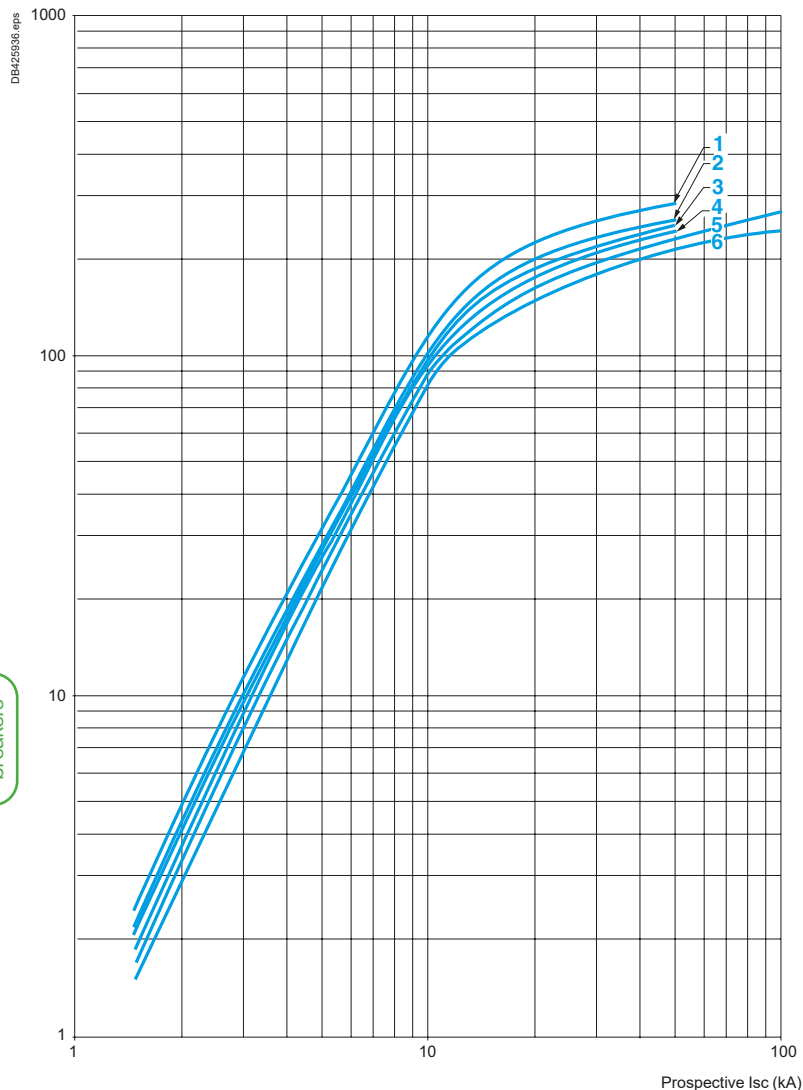
Motor
circuit
breakers

Thermal limit on short-circuit for GV3L

Thermal limit in kA^2S

Sum of $I^2dt = f$ (prospective I_{sc}) at $1.05 U_e = 435 \text{ V}$

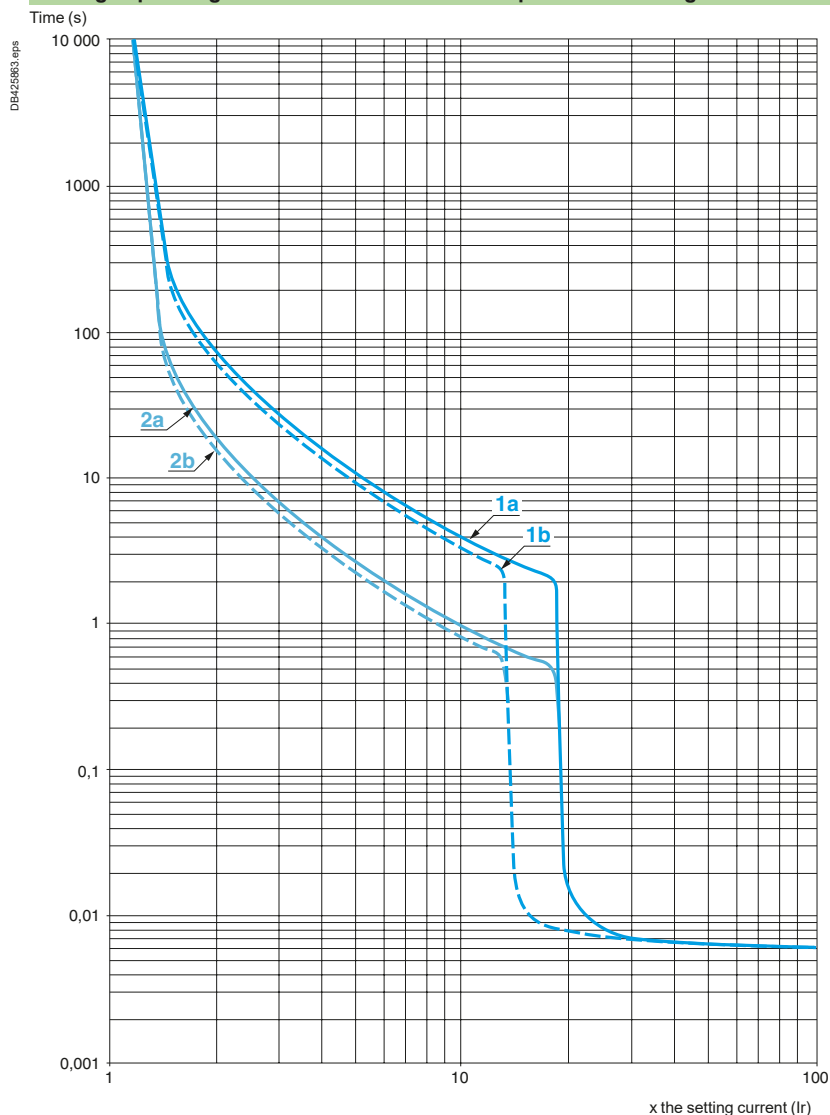
Sum of I^2dt (kA^2S)



- 1 GV3L73 - GV3L80
- 2 GV3L65
- 3 GV3L50
- 4 GV3L40
- 5 GV3L32
- 6 GV3L25

Thermal-magnetic tripping curves for GV3P

Average operating times at 20 °C related to multiples of the setting current



- 1a 3 poles from cold state (Ir mini.): GV3P
- 1b 3 poles from cold state (Ir maxi.): GV3P
- 2a 3 poles from hot state (Ir mini.): GV3P
- 2b 3 poles from hot state (Ir maxi.): GV3P

Ref.



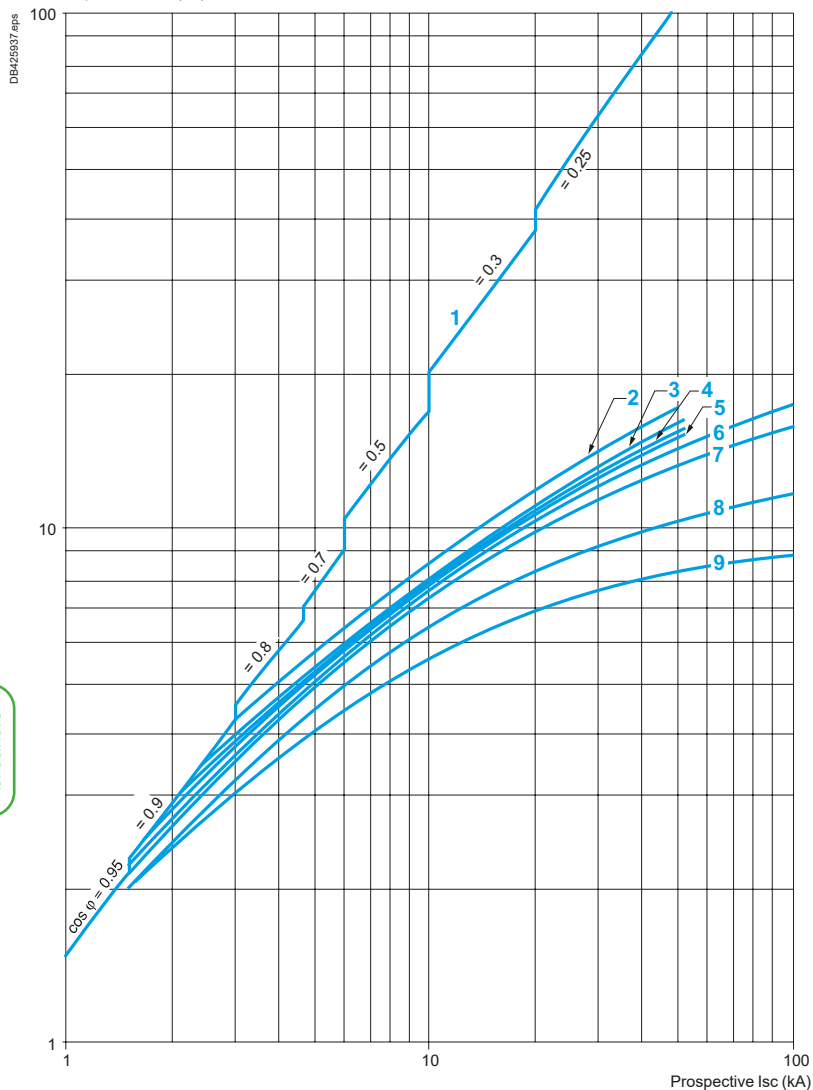
Motor
circuit
breakers

Current limitation on short-circuit for GV3P (3-phase 400/415 V)

Dynamic stress

$I_{peak} = f(\text{prospective } I_{sc}) \text{ at } 1.05 U_e = 435 \text{ V}$

Limited peak current (kA)



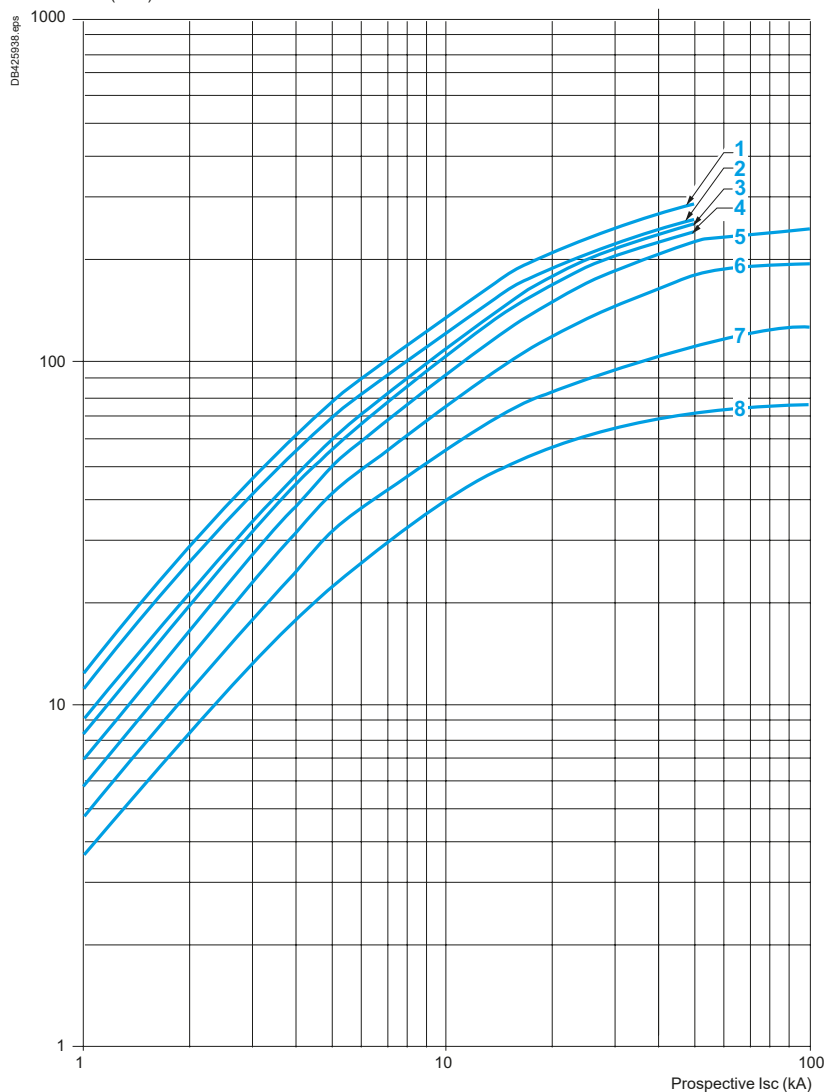
- 1 Maximum peak current
- 2 70-80 A (GV3P80); 62-73 A (GV3P73)
- 3 48-65 A (GV3P65)
- 4 37-50 A (GV3P50)
- 5 30-40 A (GV3P40)
- 6 23-32 A (GV3P32)
- 7 17-25 A (GV3P25)
- 8 12-18 A (GV3P18)
- 9 9-13 A (GV3P13)

Maximum thermal limit on short-circuit for GV3P

Thermal limit in kA^2s in the magnetic operating zone

Sum of $I^2dt = f$ (prospective I_{sc}) at $1.05 U_e = 435 \text{ V}$

Sum of I^2dt (kA^2s)



- 1 70-80 (GV3P80) - 62-73 (GV3P73)
- 2 48-65 A (GV3P65)
- 3 37-50 A (GV3P50)
- 4 30-40 A (GV3P40)
- 5 23-32 A (GV3P32)
- 6 17-25 A (GV3P25)
- 7 12-18 A (GV3P18)
- 8 9-13 A (GV3P13)

Ref.



Motor
circuit
breakers

Characteristics of GV3 electric trips

Type of trip			GVAU... MN undervoltage trip	GVAS... MX shunt trip
Rated insulation voltage (Ui)	Conforming to IEC 60947-1	V	690	690
	Conforming to CSA C22-2 n° 14, UL 508	V	600	600
Operational voltage (Ue)	Conforming to IEC 60947-1	V	0.85...1.1 Uc	0.7...1.1 Uc
Drop-out voltage		V	0.7...0.35 Uc	0.75...0.2 Uc
Inrush consumption	~	VA	12	14
Sealed consumption	~	VA	3.5	5
Operating time	Conforming to IEC 60947-1	ms	From the moment the voltage reaches its operational value until opening of the circuit breaker. 10...15	
On-load factor			100 %	
Cabling (spring connection)	Number of conductors		2 or 4	
	Solid cable	mm²	1...2.5	
	Flexible cable without cable end	mm² AWG	0.75...2.5	
	Flexible cable with cable end	mm²	0.75...2.5	
Tightening torque		N.m	1.4 max	
Mechanical durability (C.O.: Close - Open)		C.O.	10000 (GV3P and GV3L)	

Ref.

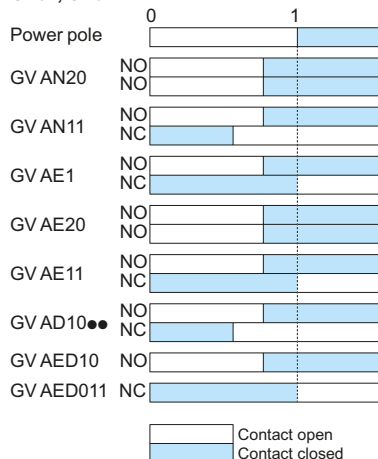


Motor
circuit
breakers

Type of contacts			Instantaneous auxiliary GVAN, GVAD								Fault signalling GVAD, GVAM11 ⁽¹⁾				Instantaneous auxiliary GVAE							
Rated insulation voltage (Ui) (associated insulation coordination)	Conforming to IEC 60947-1	V	690								690				250 (690 in relation to main circuit)							
	Conforming to UL 60947-4-1, CSA C22.2 n° 60947-4-1	V	600								300				300							
Conventional thermal current (Ith)	Conforming to IEC 60947-5-1	A	6								2.5				2.5							
	Conforming to UL 60947-5-1, CSA C22.2 n° 60947-5-1	A	5								1				1							
Mechanical durability (C.O.: Close - Open)		C.O.	100 000								1000				100 000							
Operational power and current conforming to IEC 60947-5-1. a.c. operation			AC-15/100 000 C.O.								AC-14/1000 C.O.				AC-15/100 000 C.O.							
	Rated operational voltage (Ue)	V	48	110	230	380	440	500	690	24	48	110	230	24	48	110	230					
Operation	Operational power, normal conditions	VA	300	500	720	850	650	500	400	36	48	72	72	48	60	120	120					
	Occasional breaking and making capacities, abnormal conditions	kVA	3	7	13	15	13	12	9	0.22	0.3	0.45	0.45	0.48	0.6	1.27	2.4					
	Rated operational current (Ie)	A	6	4.5	3.3	2.2	1.5	1	0.6	1.5	1	0.5	0.3	2	1.25	1	0.5					
Operational power and current conforming to IEC 60947-5-1. d.c.			DC-13/100 000 C.O.								DC-13/1000 C.O.				DC-13/100 000 C.O.							
	Rated operational voltage (Ue)	V	24	48	60	110	240	—	—	24	48	60	—	24	48	60	—					
Operation	Operational power, normal conditions	W	140	240	180	140	120	—	—	24	15	9	—	24	15	9	—					
	Occasional breaking and making capacities, abnormal conditions	W	240	360	240	210	180	—	—	100	50	50	—	100	50	50	—					
	Rated operational current (Ie)	A	6	5	3	1.3	0.5	—	—	1	0.3	0.15	—	1	0.3	0.15	—					
Low power switching reliability of contact			GVAE: Number of failures for “n” million operating cycles (17 V-5 mA): = 10 ⁻⁶																			
Minimum operational conditions d.c. operation		V mA	17 5																			
Short-circuit protection			By GB2CB●● circuit breaker (rating according to operational current for Ue ≤ 415 V) or by gG fuse 10 A max												GB2CB06 or gG fuse 10 A max							
Cabling, screw clamp terminals	Number of conductors		1				2															
	Solid cable	mm ²	1...2.5				1...2.5															
	Flexible cable without cable end	mm ²	0.75...2.5				0.75...2.5															
	Flexible cable with cable end	mm ²	0.75...1.5				0.75...1.5															
	Tightening torque	N.m	1.4 max				1.4 max															
Cabling, spring terminal connections			GVAN only												0.75...1.5							
	Flexible cable without cable end	mm ²	0.75...2.5				0.75...2.5				—				0.75...1.5							

Operation of instantaneous auxiliary contacts

GV3P, GV3L



Operation of fault signalling contacts

GVAM11

Change of state following tripping on short-circuit.

GVAD10●● and GVAD01●●

Change of state following tripping on short-circuit, overload or undervoltage.

(1) For application example of fault signalling contact and short-circuit signalling contact.

(2) Add an RC circuit type LA4D to the load terminals.

Characteristics of 3-pole busbars GV3G●●●

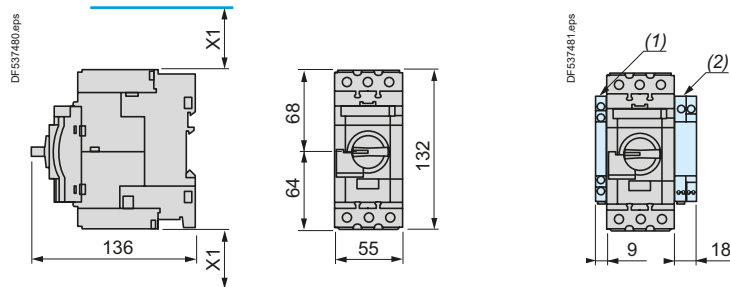
		GV3G●64	
Rated insulation voltage (Ui)	Conforming to IEC 60947-1	V	690
Conventional thermal current (Ith)	Conforming to IEC 60439-1	A	115
Rated operational current (Ie)		A	115
Permissible peak current (I peak)		kA	20
Permissible thermal limit (I ² t)		kA²s	300
Degree of protection	Conforming to IEC 60529		IP 20
Terminal block			—

Ref.


 Motor
circuit
breakers

GV3L, GV3P

Dimensions



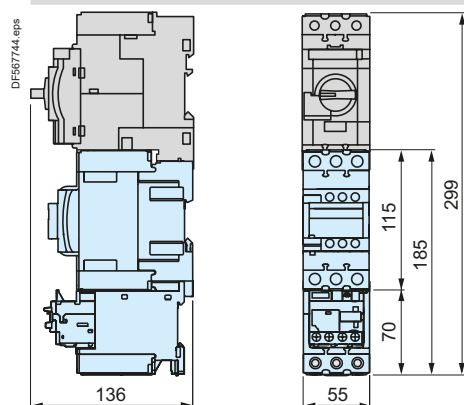
X1 = Electrical clearance (ISC max)
40 mm for $U_e \leq 500$ V, 50 mm for $U_e \leq 690$ V

(1) Blocks GVAN●●, GVAD●● and GVAM11.
(2) Blocks GV3AU●● and GV3AS●●.

Note: Leave a space of 9 mm between 2 circuit breakers: either an empty space or side-mounting add-on contact blocks.
Side by side mounting is possible up to 40 °C.

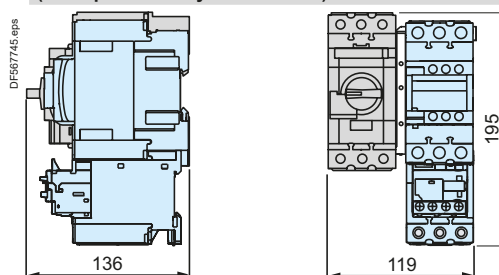
Mounting

Mounting with contactor LC1D40A...D80A and relay LR3D313...380 ^{(1) (2) (3)}

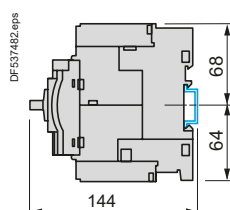


(1) Mountings with c.b. up to GV3L73, GV3P73.
(2) For GV3L80, GV3P80 use cable between components for dissipating heat. Consult online datasheets for values
(3) S-shape busbar system suitable up to 73 A.

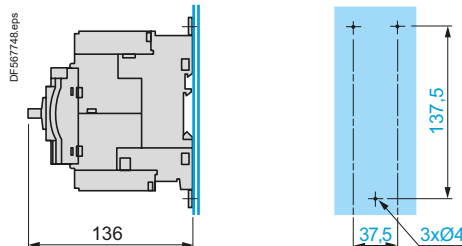
Side by side mounting with contactor LC1D40A...D73A (S-shape busbar system GV3S ⁽¹⁾)



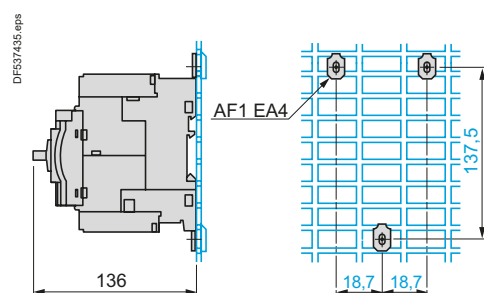
Mounting on rail AM1DE200 or AM1ED201



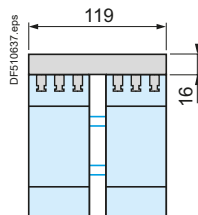
Panel mounting, using M4 screws



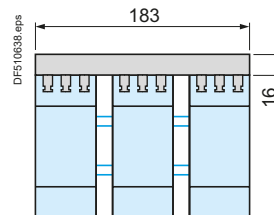
Mounting on pre-slotted plate AM1PA



Set of busbars GV3G264

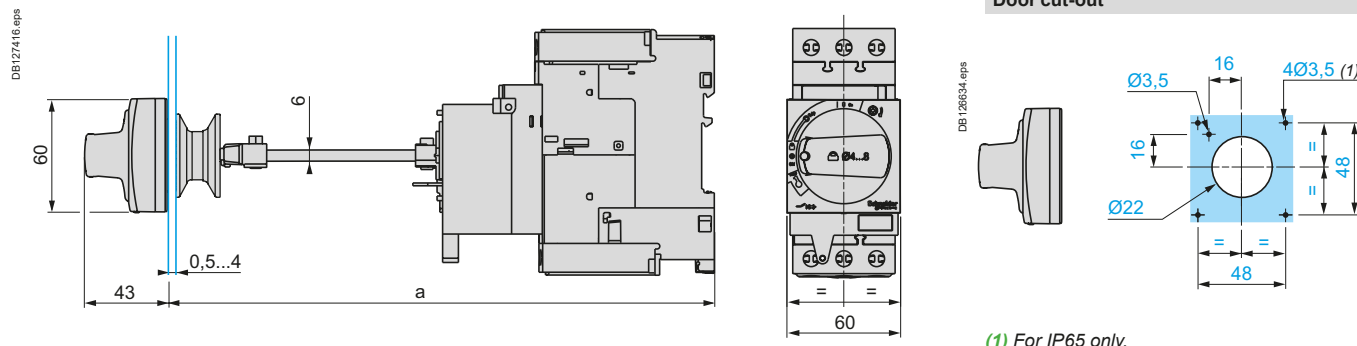


Set of busbars GV3G364



Mounting

Mounting of external operator GV3APN01, GV3APN02 or GV3APN04 for motor circuit breakers GV3L



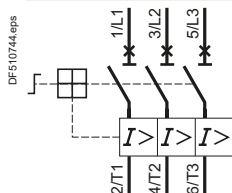
	a		b	
	Mini	Maxi	Mini	Maxi
GV3APN●●	189	300	-	-
GV3APN●● + GVAPK12	300	481		

Ref.

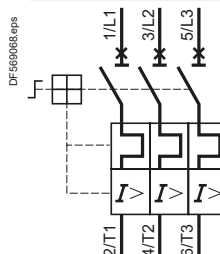
Motor
circuit
breakers

Schemes

GV3L●●



GV3P●●

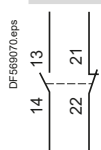


Front mounting add-on contact blocks Instantaneous auxiliary contacts

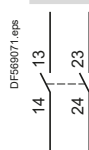
GVAE1



GVAE11

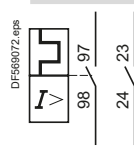


GVAE20

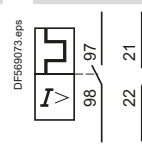


Front mounting add-on contact blocks Instantaneous auxiliary contacts and fault signalling contacts

GVAED101

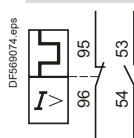


GVAED011

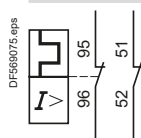


Side mounting add-on contact blocks Instantaneous auxiliary contacts and fault signalling contacts

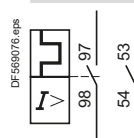
GVAD0110



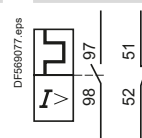
GVAD0101



GVAD1010

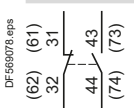


GVAD1001

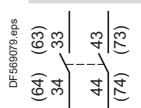


Instantaneous auxiliary contacts

GVAN11

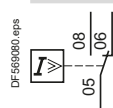


GVAN20



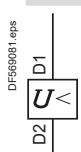
Short-circuit signalling contacts

GVAM11

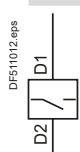


Voltage trips

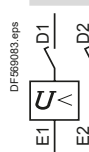
GVAU●●●



GVAS●●●

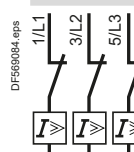


GVAX●●●

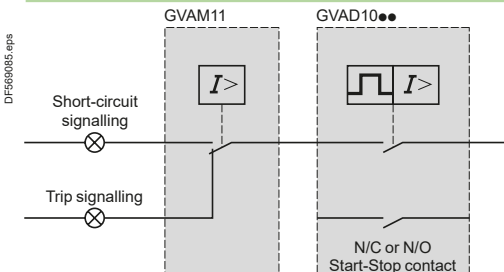


Current limiter

GV1L3

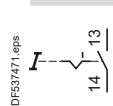


Use of fault signalling contact and short-circuit signalling contact

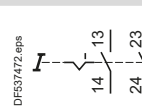


Start-Stop signalling contact blocks

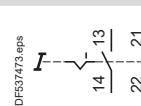
GK2AX10



GK2AX20

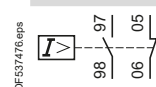


GK2AX50



Fault signalling contact blocks

GK2AX52



TeSys Deca - Frame 4

0.25 to 55 kW - 1/2 to 60 HP



Motor
circuit
breakers

Ref.



Motor
circuit
breakers

Environment								
Circuit breaker type			GV4L	GV4LE	GV4P	GV4PE	GV4PEM	GV4PB
Conforming to standards			IEC/EN 60947-1, IEC/EN 60947-2, IEC/EN 60947-4-1		IEC/EN 60947-1, IEC/EN 60947-2, IEC/EN 60947-4-1, UL 60497-4-1, CSA 22.2 n° 60497-4-1			IEC/EN 60947-2, IEC/ EN 60947-4-1
Product certifications			CCC, EAC, BV, EU-RO MR (1), UKCA		CCC, EAC, CSA (cCSAus), ATEX, BV, EU-RO MR (1), UKCA			UL 489, CSA C22.2 n°5, UKCA
Climatic withstand			According to IACS E10					
Degree of protection (front face)	Conforming to IEC 60529	Open mounted	IP 40 front face except on connection area. Connection area: - IP20 with EverLink connector - IP40 with crimp lug connector and terminal shield.					
		In enclosure (2)	DRH = IP40 ERH = IP54 or IP65					
Shock resistance	Conforming to IEC 60068-2-27		15g - 11 ms		15g - 11 ms			
Vibration resistance	Conforming to IEC 60068-2-6		2.0 to 13.2 Hz and amplitude ±1 mm 13.2 to 100 Hz acceleration 0.7 g					
Ambient air temperature	Storage	°C	-50...+85					
	Operation	°C	-25...+70					
Temperature compensation		°C	Non applicable		-25...+60 (3)			
Flame resistance	Conforming to IEC 60695-2-11	°C	960					
Maximum operating altitude		m	2000 without derating. Up to 5000 with derating					
Suitable for isolation	Conforming to IEC 60947-1 § 7-1-6		Yes					
Resistance to mechanical impact		J	IK07 (2J)					
Sensitivity to phase failure			No		Yes			
Technical characteristics								
Utilisation category	Conforming to IEC 60947-2		A		A			
	Conforming to IEC 60947-4-1		AC-3 (4)					
Rated operational voltage (Ue)	Conforming to IEC 60947-2	V	690					
Rated insulation voltage (Ui)	Conforming to IEC 60947-2	V	800					
Rated voltage	Conforming to CSA C22-2 n°1, UL 60947-4-1	V	Non applicable		600			
Rated operational frequency	Conforming to IEC 60947-4-1, UL, CSA	Hz	50/60					
Rated impulse withstand voltage (U imp)	Conforming to IEC 60947-2	kV	8					
Total power dissipated per pole		W	6.1		4.6			
Mechanical durability (C.O.: Closing, Opening)		C.O.	40000					
Electrical durability for AC-3/415V duty (C.O.: Closing, Opening)	415 V In	C.O.	5 000					
Duty class (maximum operating rate)		C.O./h	25					
Maximum conventional rated thermal current (Ith)	Conforming to IEC 60947-4-1	A	115					
Rated duty	Conforming to IEC 60947-4-1		Continuous duty					

(1) Refer to chapter on page A5/86 for details on Marine Classification Societies.

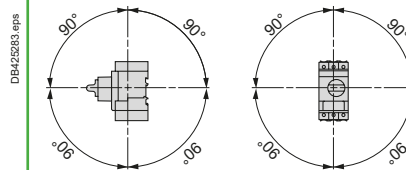
(2) DRH = with Direct Rotary Handle
ERH = with Extended Rotary Handle.

(3) For operation up to 70 °C, please consult your regional sales office.

(4) Up to 100 A.

Mounting characteristics

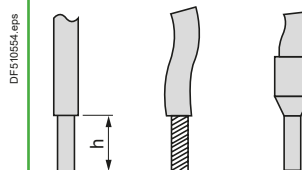
Operating position
Without derating, in relation to normal vertical mounting plane ⁽¹⁾



Power connection characteristics

Power connection by bare cables (EverLink connector)

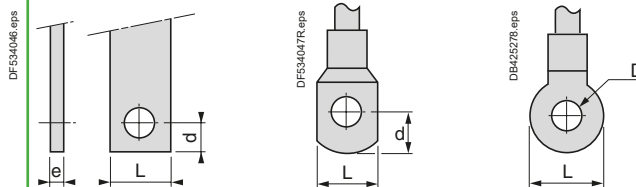
Bare cables



Connection to screw clamp terminals (Max. number of conductors x c.s.a.)			Min.	Max.
			Cu 1 x 1.5 + 1 x 2.5 Cu 2 x 14	Cu 1 x 70 + 1 x 95 Cu 1 x 2/0 + 1 x 3/0
Tightening torque	Solid cable	mm ² AWG	Cu 1 x 1.5 + 1 x 2.5 Cu 2 x 6	Cu 1 x 50 + 1 x 70 Cu 1 x 1/0 + 1 x 2/0
	Flexible cable without cable end	mm ² AWG	Cu 1 x 1.5 + 1 x 2.5 Cu 2 x 6	Cu 1 x 50 + 1 x 70 Cu 1 x 1/0 + 1 x 2/0
	Flexible cable with cable end	mm ² AWG	Cu 1 x 1.5 + 1 x 2.5 Cu 2 x 6	Cu 1 x 50 + 1 x 70 Cu 1 x 1/0 + 1 x 2/0
Stripping length (h)	Solid cable	mm	5 ≤ 10 mm ² / 8 AWG 9 ≥ 16 mm ² / 6 AWG	20

Power connection by bars or lugs

Bars or lugs



Pitch	Without spreaders	mm	27
	With spreaders	mm	35
Bars or cables with lugs	e	mm	≤ 8
	L	mm	≤ 20
	d	mm	≤ 7
	D	mm	6.4
M6 Screws	Tightening torque	N.m	5 ≤ 10 mm ² / 8 AWG 9 ≥ 16 mm ² / 6 AWG

(1) When mounting on a vertical rail, fit a stop to prevent any slippage.

Ref.



Motor
circuit
breakers

Breaking capacity of GV4L and GV4LE																							
Circuit breaker type				GV4L●●●B GV4LE●●●B				GV4L●●●N GV4LE●●●N								GV4LE●●●S							
Rating			A	25	50	80	115	2	3.5	7	12.5	25	50	80	115	2	3.5	7	12.5	25	50	80	115
Breaking capacity conforming to IEC 60947-2	230/240 V	Icu	kA	50				100								120							
		Ics % ⁽¹⁾	100				100								100								
	400/415 V	Icu	kA	25				50								100							
		Ics % ⁽¹⁾	100				100								100								
	440 V	Icu	kA	20				50								70							
		Ics % ⁽¹⁾	100				100								100								
	500 V	Icu	kA	10				25								30							
		Ics % ⁽¹⁾	100				100								100								
	525 V	Icu	kA	-				15								18							
		Ics % ⁽¹⁾	-				100								100								
	690 V	Icu	kA	-				8								10							
		Ics % ⁽¹⁾	-				25								25								

⁽¹⁾ As % of Icu.

Ref.



Motor
circuit
breakers

Breaking capacity of GV4P, GV4PE, GV4PB●●●B																							
Circuit breaker type				GV4P●●●B GV4PE●●●B GV4PEM●●●B GV4PB●●●B				GV4P●●●N GV4PE●●●N GV4PEM●●●N GV4PB●●●N								GV4P●●●S GV4PE●●●S GV4PEM●●●S GV4PB●●●S							
Rating			A	25	50	80	115	2	3.5	7	12.5	25	50	80	115	2	3.5	7	12.5	25	50	80	115
Breaking capacity conforming to IEC 60947-2	230/240 V	Icu	kA	50				100								120							
		Ics % ⁽¹⁾	100				100								100								
	400/415 V	Icu	kA	25				50								100							
		Ics % ⁽¹⁾	100				100								100								
	440 V	Icu	kA	20				50								70							
		Ics % ⁽¹⁾	100				100								100								
	500 V	Icu	kA	10				25								30							
		Ics % ⁽¹⁾	100				100								100								
	525 V	Icu	kA	-				15								18							
		Ics % ⁽¹⁾	-				100								100								
	690 V	Icu	kA	-				8								10							
		Ics % ⁽¹⁾	-				25								25								
Breaking capacity conforming to UL 60947-4-1 and CSA 22.2 n° 60947-4-1	120 V	kA	35				65								100								
	208 V	kA	35				65								100								
	240 V	kA	35				65								100								
	480Y / 277 V	kA	18				35								65								
	480 V ⁽²⁾	kA	18				35								65								
	600Y / 347 V	kA	14				18								25								
	600 V ⁽²⁾	kA	14				18								25								

⁽¹⁾ As % of Icu.

⁽²⁾ Except for MCC suitable for TAP conductor protection, in motor group installation and GV4PB.

Ref.



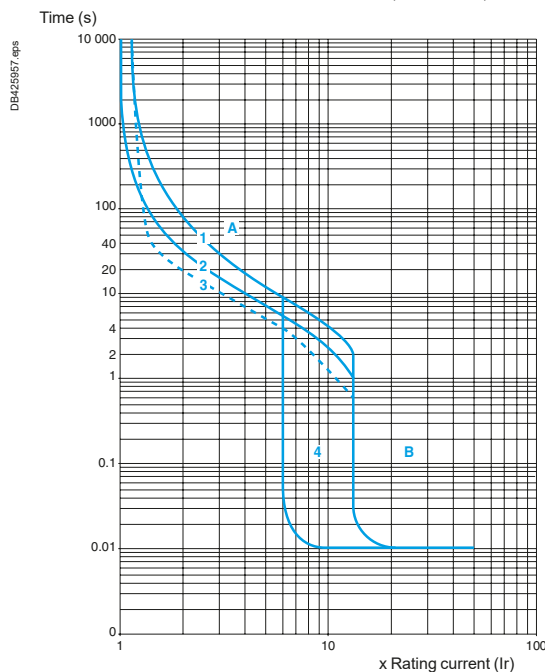
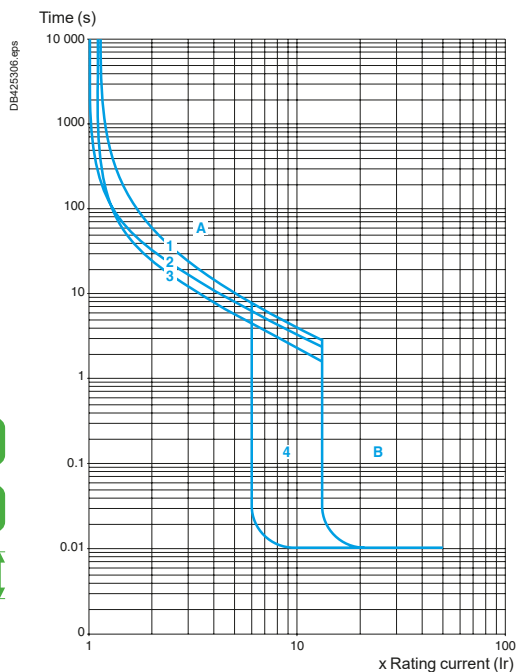
Motor
circuit
breakers

Tripping curves for GV4L and GV4LE combined with thermal overload relay LRD or LR9

Average operating times at 20 °C related to multiples of the setting current

GV4L02 and GV4LE02 to 12 with LRD05 to LRD14,
GV4L80 and GV4LE80 with LRD3363

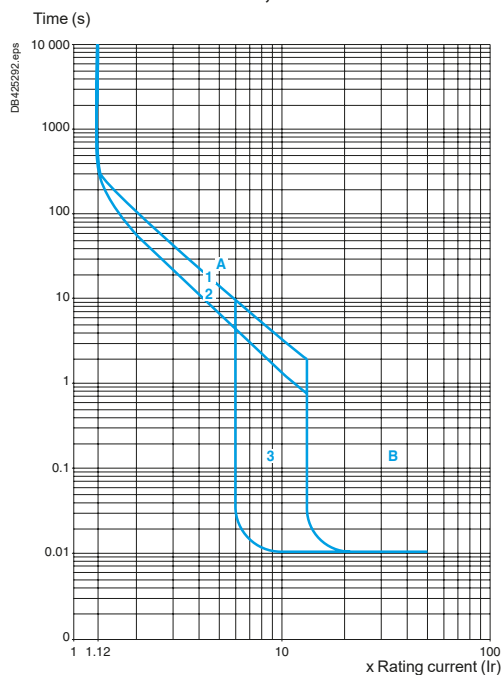
GV4L25 AND GV4LE25 with LRD318, LRD325
GV4L50 AND GV4LE50 with LRD332, LRD340, LRD350



- 1 3 poles from cold state
 - 2 2 poles from cold state
 - 3 3 poles from hot state
 - 4 6 ... 14 Ir
- A Thermal overload relay protection zone
 - B GV4L protection zone

- 1 3 poles from cold state
 - 2 2 poles from cold state
 - 3 3 poles from hot state
 - 4 6 ... 14 Ir
- A Thermal overload relay protection zone
 - B GV4L protection zone

GV4L115 and GV4LE115 with class 10 LR9F5367, LR9D5369
and class 20 LR9D5567, LR9F5569



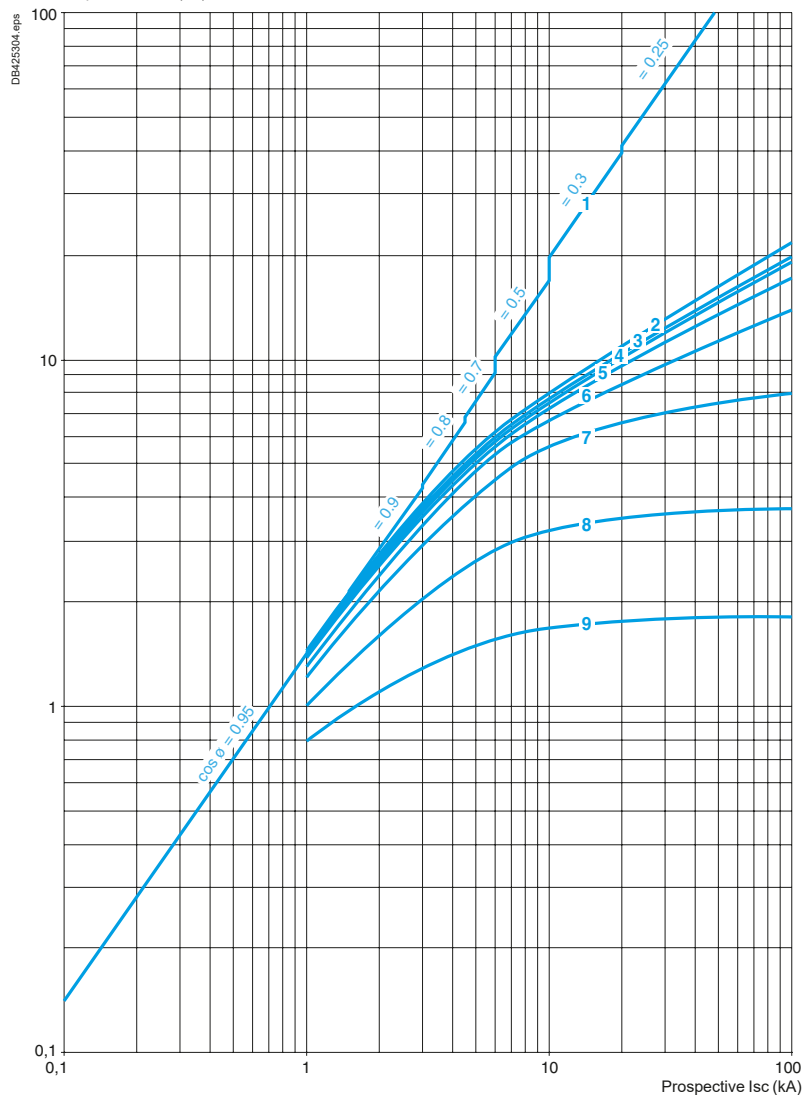
- 1 Cold state curve
- 2 Hot state curve
- 3 6 ... 14 Ir

Current limitation on short-circuit for GV4L, GV4LE (3-phase 400/415 V)

Dynamic stress

$I_{peak} = f(\text{prospective } I_{sc}) \text{ at } 1.05 U_e = 435 \text{ V}$

Limited peak current (kA)



- 1 Maximum peak current
- 2 GV4L115
- 3 GV4L80
- 4 GV4L50
- 5 GV4L25
- 6 GV4L12
- 7 GV4L07
- 8 GV4L03
- 9 GV4L02

Ref.

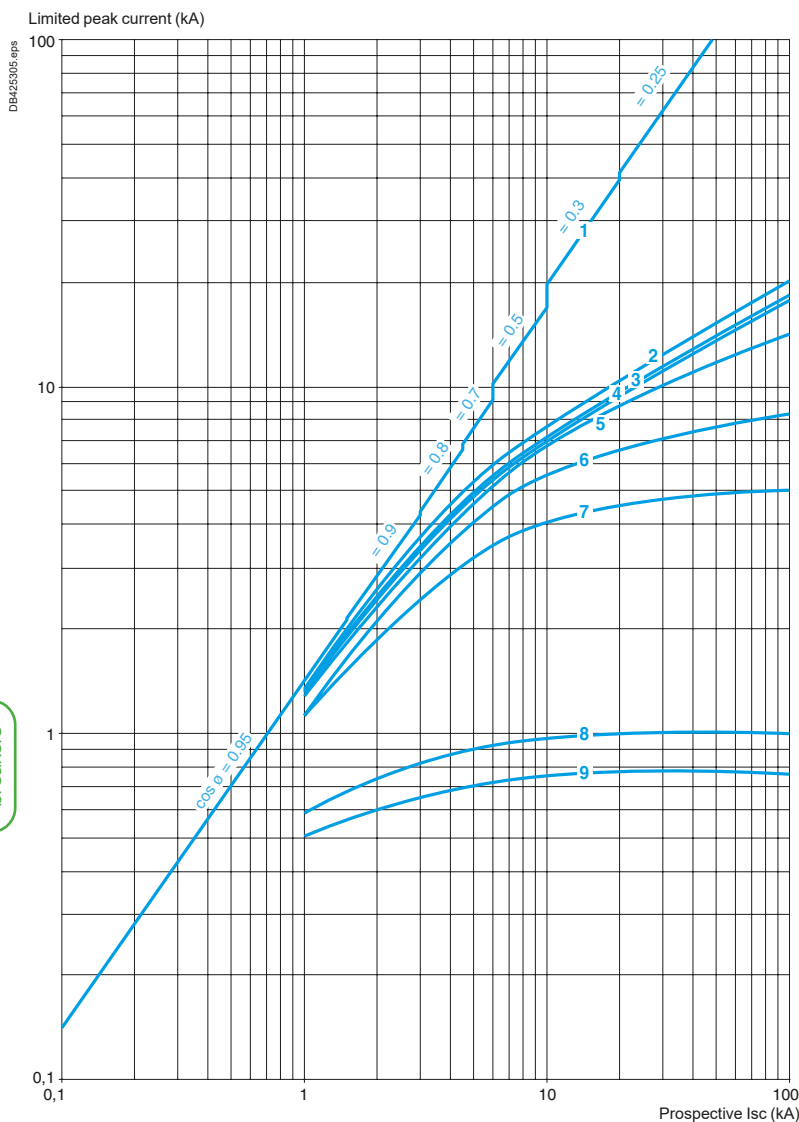


Motor
circuit
breakers

Current limitation on short-circuit for GV4L, GV4LE + thermal overload relay LRD or LR9 (3-phase 400/415 V)

Dynamic stress

$I_{peak} = f(\text{prospective } I_{sc}) \text{ at } 1.05 U_e = 435 \text{ V}$



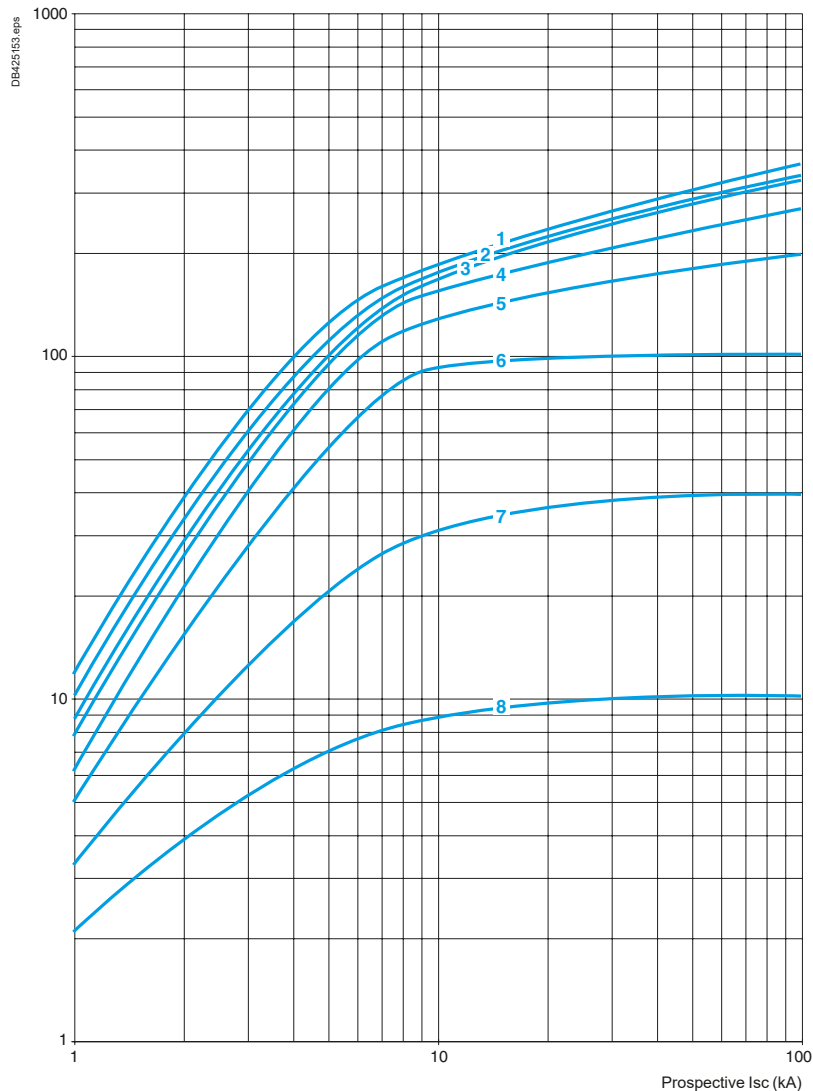
- 1 Maximum peak current
- 2 GV4L115 + LR9D5367 or LR9F5367
- 3 GV4L80 + LRD3361
- 4 GV4L50 + LRD340
- 5 GV4L25 + LRD325
- 6 GV4L12 + LRD313
- 7 GV4L07 + LRD12
- 8 GV4L03 + LRD07
- 9 GV4L02 + LRD07

Thermal limit on short-circuit for GV4L, GV4LE

Thermal limit in kA^2S

Sum of $\text{kA}^2\text{S} = f$ (prospective I_{sc}) at $1.05 U_e = 435 \text{ V}$

Sum of $I^2 dt$ (kA^2S)



- 1 GV4L115
- 2 GV4L80
- 3 GV4L50
- 4 GV4L25
- 5 GV4L12
- 6 GV4L07
- 7 GV4L03
- 8 GV4L02

Ref.



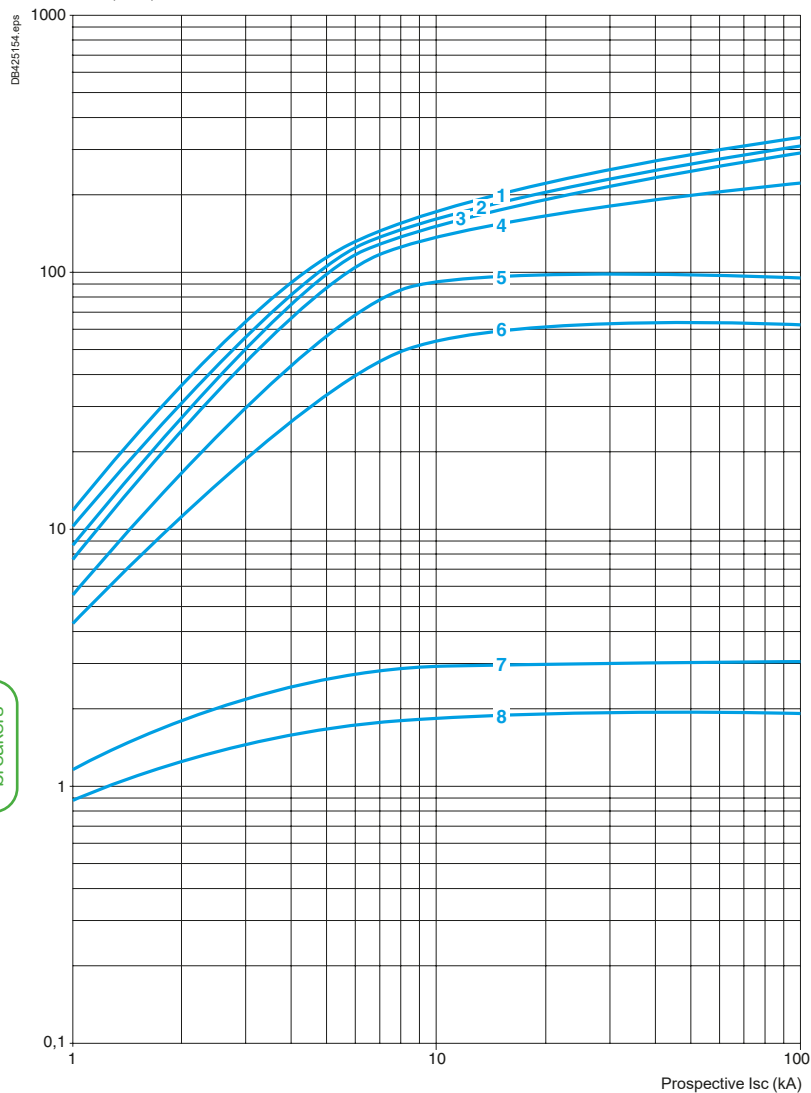
Motor
circuit
breakers

Thermal limit on short-circuit for GV4L, GV4LE + thermal overload relay LRD or LR9

Thermal limit in kA^2S in the magnetic operating zone

Sum of $kA^2S = f$ (prospective I_{sc}) at 1.05 $U_e = 435 V$

Sum of I^2dt (kA^2S)

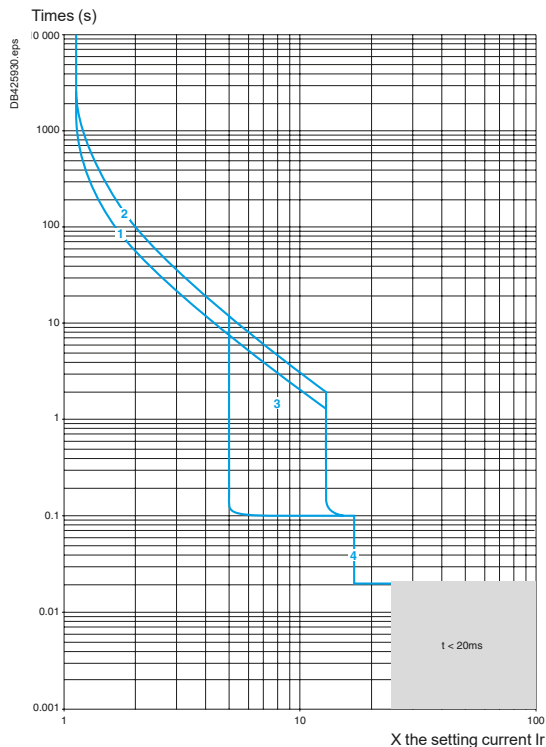


- 1 GV4L115 + LR9D5367 or LR9F5367
- 2 GV4L80 + LRD3361
- 3 GV4L50 + LRD340
- 4 GV4L25 + LRD325
- 5 GV4L12 + LRD313
- 6 GV4L07 + LRD12
- 7 GV4L03 + LRD07
- 8 GV4L02 + LRD07

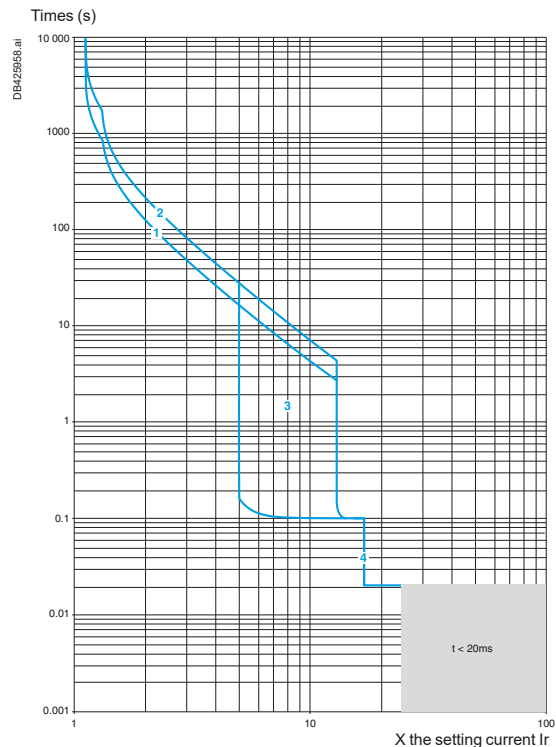
Thermal-magnetic tripping curves for GV4P, GV4PE, GV4PEM, GV4PB

Average operating times at 20 °C related to multiples of the setting current

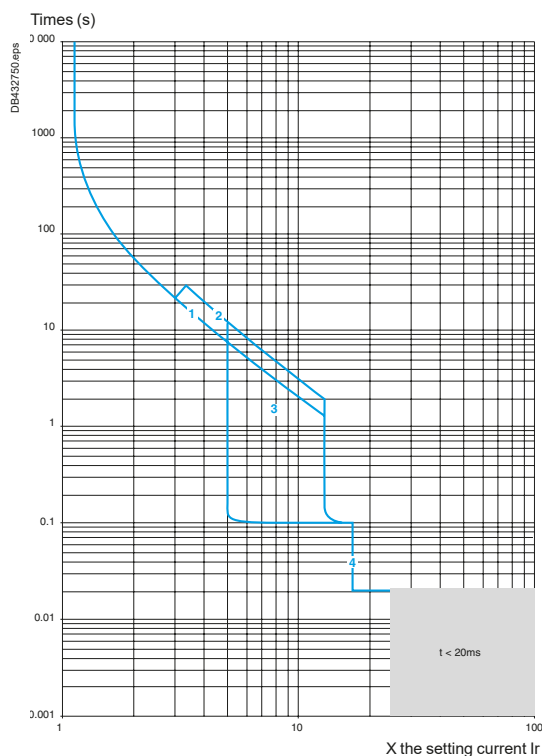
GV4P, GV4PE, GV4PEM



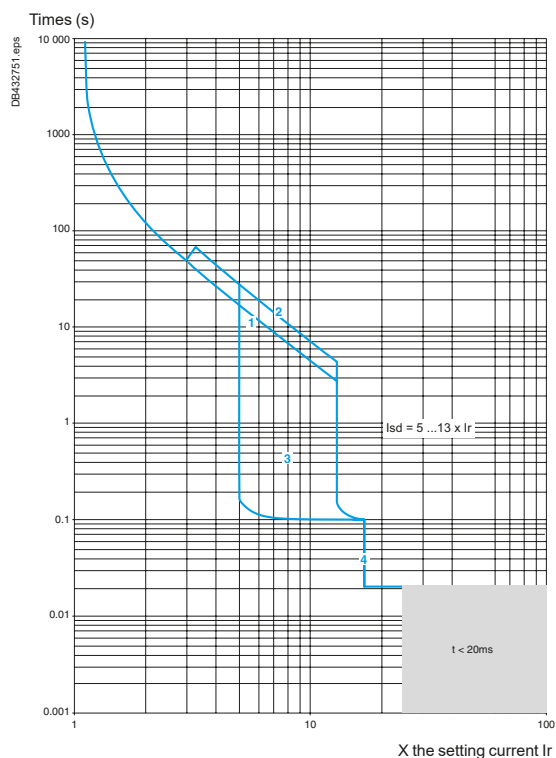
GV4P, GV4PE, GV4PEM



GV4PB



GV4PB



Hot state

- 1 Class 10
- 2 Class 20
- 3 Isd = 13 x Ir (GV4P - GV4PE); Isd = 5...13 x Ir (GV4PEM - GV4PB)
- 4 Ii = 17 Ir

Cold state

- 1 Class 10
- 2 Class 20
- 3 Isd = 13 x Ir (GV4P - GV4PE); Isd = 5...13 x Ir (GV4PEM - GV4PB)
- 4 Ii = 17 Ir

References:
pages B6/37 to B6/41

Characteristics:
pages B6/120 to B6/123

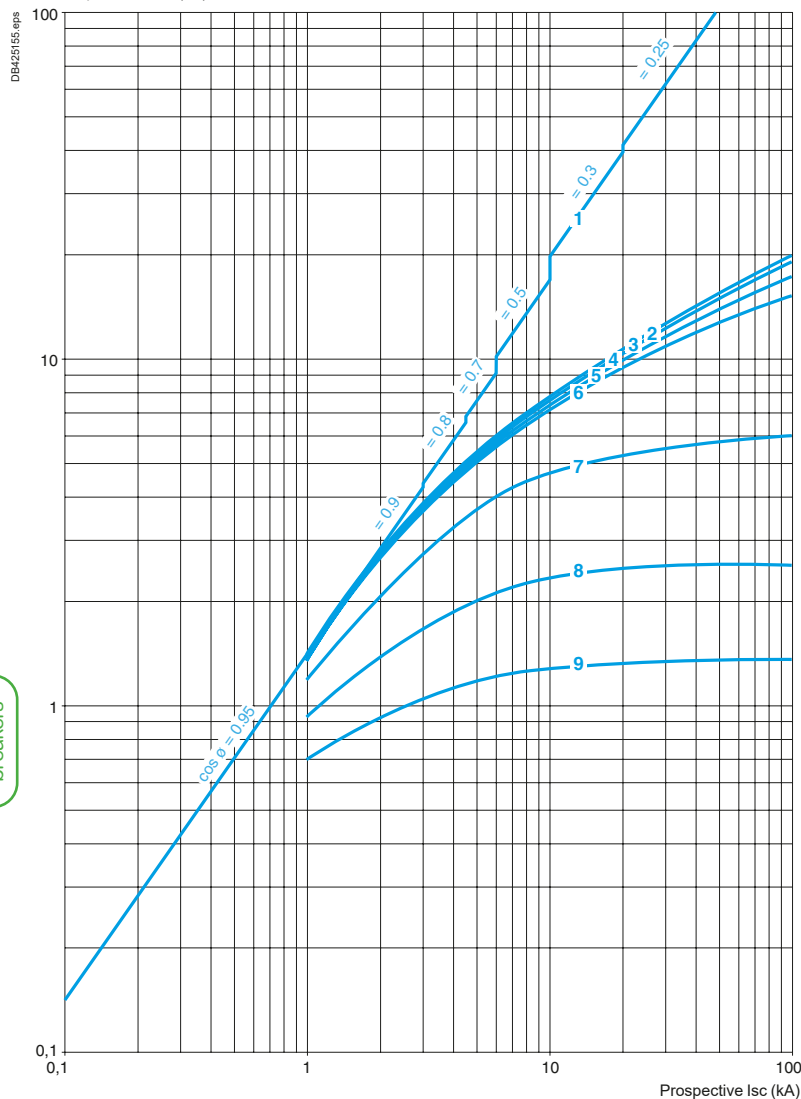
Dimensions, schemes:
pages B6/134 to B6/137

Current limitation on short-circuit for GV4P, GV4PE, GV4PEM, GV4PB (3-phase 400/415 V)

Dynamic stress

$I_{peak} = f(\text{prospective } I_{sc}) \text{ at } 1.05 U_e = 435 \text{ V}$

Limited peak current (kA)

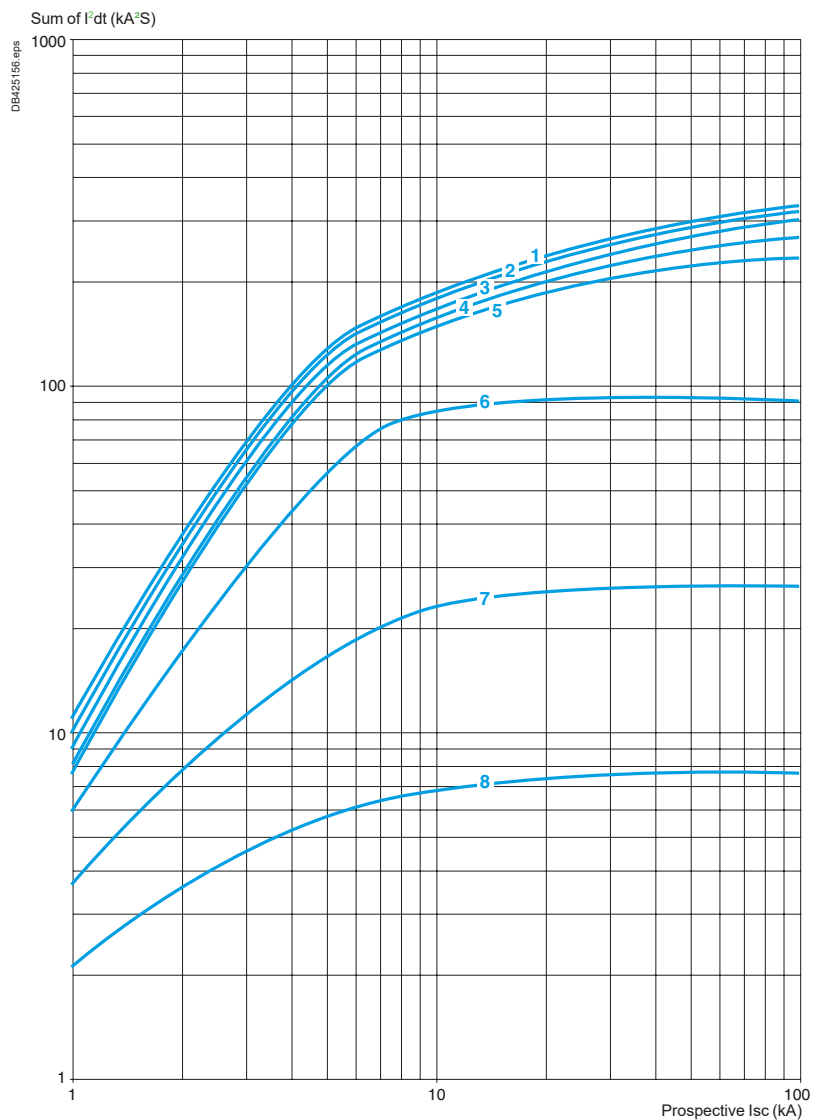


- 1 Maximum peak current
- 2 GV4P115
- 3 GV4P80
- 4 GV4P50
- 5 GV4P25
- 6 GV4P12
- 7 GV4P07
- 8 GV4P03
- 9 GV4P02

Thermal limit on short-circuit for GV4P, GV4PE, GV4PEM, GV4PB

Thermal limit in kA^2s in the magnetic operating zone

Sum of $I^2dt = f$ (prospective I_{sc}) at $1.05 U_e = 435 \text{ V}$



- 1 GV4P115
- 2 GV4P80
- 3 GV4P50
- 4 GV4P25
- 5 GV4P12
- 6 GV4P07
- 7 GV4P03
- 8 GV4P02

Ref.



Motor
circuit
breakers

Characteristics of electric trips

Type of trip		GV4AU... MN (undervoltage release)							
Rated insulation voltage (Ui)	Conforming to IEC 60947-1	V	= Ue						
Operational voltage (Ue)	Conforming to IEC 60947-1	V	24 V AC/DC	48 V AC/DC	110-130 V AC 125 V DC	208-240 V 60 Hz 220-240 V 50 Hz	277 V 60 Hz	380-415 V 60 Hz	440-480 V 60 Hz
Inrush consumption		VA	< 7 VA < 2 W	< 7 VA < 2 W	< 7 VA < 2 W	< 7 VA	< 7 VA	< 7 VA	< 7 VA
Sealed consumption		VA	< 7 VA < 2 W	< 7 VA < 2 W	< 7 VA < 2 W	< 7 VA	< 7 VA	< 7 VA	< 7 VA
Operating time	Conforming to IEC 60947-1	ms	< 50						
On-load factor			100 %						
Cabling (spring connection)	Number of conductors		1 per terminal						
	Solid cable	mm ²	No solid cable allowed						
	Flexible cable without cable end	mm ² AWG	Cu 0.5 mm ² to 1.5 mm ² Cu 20AWG to 16AWG						
	Flexible cable with cable end	mm ²	No cable with cable end allowed						
Tightening torque		N.m	NA						
Mechanical durability (C.O.: Close - Open)		C.O.	20000						

Ref.

Characteristics of electric trips

Type of trip		GV4AS... MX (Shunt trip)					
Rated insulation voltage (Ui)	Conforming to IEC 60947-1	V	= Ue				
Operational voltage (Ue)	Conforming to IEC 60947-1	V	24 V AC/DC	48 V AC/DC	110-130 V AC 125 V DC	208-240 V 60 Hz 220-240 V 50 Hz	380-415 V 50 Hz 440-480 V 60 Hz
Inrush consumption		VA	< 6 VA < 10 W	< 6 VA < 10 W	< 6 VA < 10 W	< 6 VA	< 6 VA
Sealed consumption		VA	< 4 VA < 1 W	< 4 VA < 1 W	< 4 VA < 1 W	< 4 VA	< 4 VA
Operating time	Conforming to IEC 60947-1	ms	< 50				
On-load factor			100 %				
Cabling (spring connection)	Number of conductors		1 per terminal				
	Solid cable	mm ²	No solid cable allowed				
	Flexible cable without cable end	mm ² AWG	Cu 0.5 mm ² to 1.5 mm ² Cu 20AWG to 16AWG				
	Flexible cable with cable end	mm ²	No cable with cable end allowed				
Tightening torque		N.m	NA				
Mechanical durability (C.O.: Close - Open)		C.O.	20000				

Motor circuit breakers

Auxiliary contact characteristics														
Type of contacts			Auxiliary contact block GV4AE11						SDx contact module for GV4PEM , GV4PB, GV4ADM1111					
Rated insulation voltage(Ui)	Conforming to IEC 60947-1	V	690						250					
	Conforming to CSA C22-2 n°14 UL 508	V	-						-					
Conventional thermal current (Ith)	Conforming to IEC 60947-5-1	A	5						5					
	Conforming to CSA C22-2 n°14 UL 508	A	5						5					
Mechanical durability (C.O.: Close - Open)		C.O.	40 000						100 000					
Operational power and current conforming to IEC 60947-5-1 a.c. operation	Rated operational voltage (Ue)	V	24	48	110/ 127	230/ 240	380/ 440	660/ 690	48	110	230/ 240	380/ 415	440	690
	Operational power (AC12)	VA	120	240	635	1200	2200	3450			400			
	Occasional breaking and making capacities	kVA	1.2	2.4	6.35	12	22	34.5						
	Operational current (Ie)	AC-12	A	5	5	5	5	5	5					
		AC-15	A	5	5	4	3	2.5	0.1		3	1.5		
Operational power and current conforming to IEC 60947-5-1 d.c. operation	Rated operational voltage (Ue)	V	24	48	110	250			24	48	60	110	250	
	Operational power (DC12)	W	120	120	66	75			50					
	Occasional breaking and making capacities	W	1200	1200	660	750								
	Rated operational current (Ie)	DC-12	A	5	2.5	0.6	0.3							
		DC-13	A	2.5	1.2	0.35	0.05			2			0.22	0.11
		DC-14	A	1	0.2	0.05	0.03							
Low power switching reliability of contact			10 ⁻⁶ at 17 V / 2 mA											
Minimum operational conditions d.c. operation		V	17											
		mA	2											
Short-circuit protection			5 A fuse gG conforming to IEC 60947-5-1											
Spring terminals cabling	Number of conductors		1 per hole											
	Solid cable	mm ²	-						0.2 to 1.5					
	Flexible cable without cable end	mm ²	0.5 to 1.5						0.2 to 2.5					
	Flexible cable with cable end	mm ²	-						0.25 to 1.5					

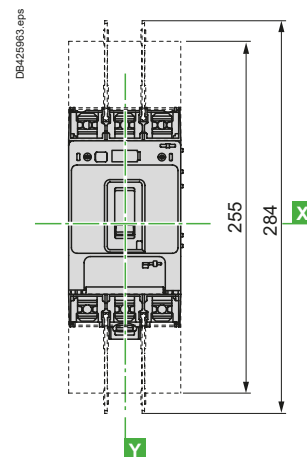
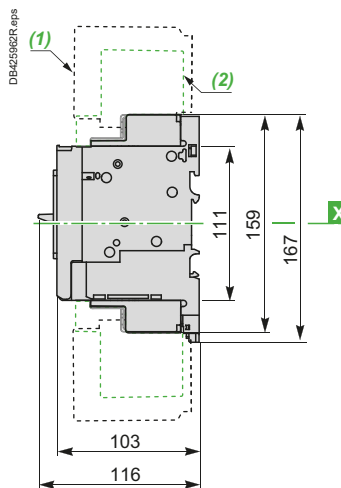
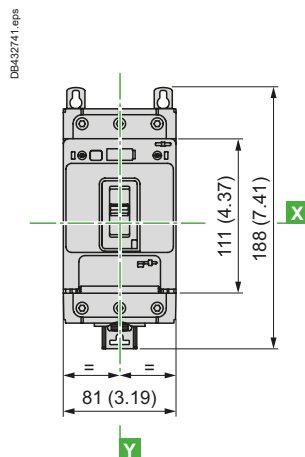
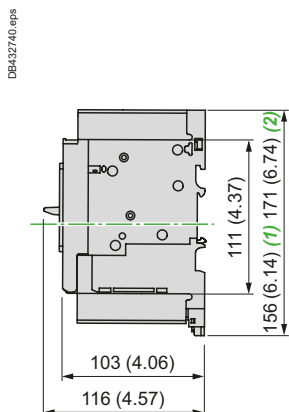
Ref.

Motor circuit breakers

GV4 with toggle: GV4LE, GV4PE, GV4PEM, GV4PB

With EverLink® connector

With crimp lug connector



Ref.

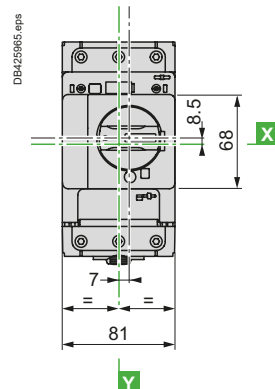
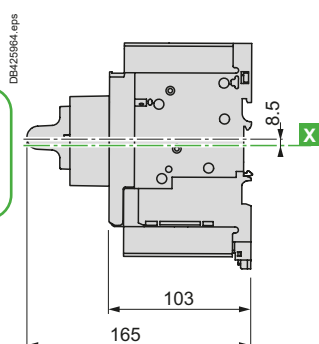
- (1) GV4LE, GV4PE, GV4PEM.
(2) GV4PB.

- (1) Interphases barriers.
(2) Long terminal shield.

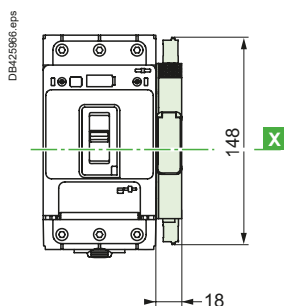
GV4 with rotary handle: GV4L, GV4P, or GV4LE, GV4PE, GV4PEM, GV4PB with GV4ADN01, GV4ADN02 direct mounting rotary handle

Dimensions

Motor circuit breakers

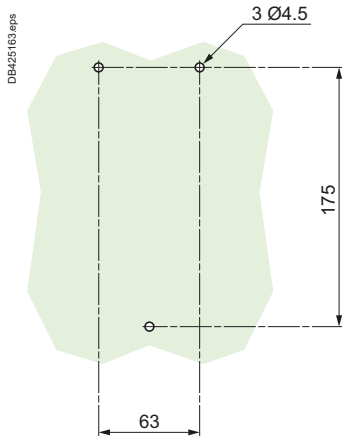


SDx module

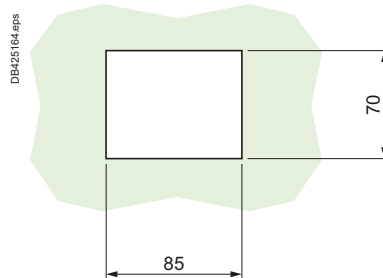


GV4L, GV4P, GV4LE, GV4PE, GV4PEM, GV4PB

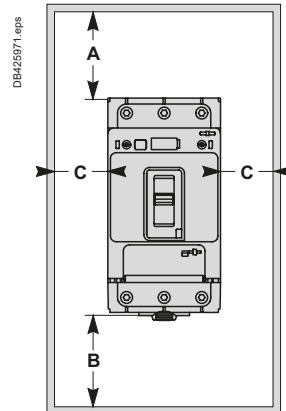
Panel mounting with M4 screws



Door cut-out for rotary handle



Minimum safety clearance



Toggle-type, rotary handle-type:
identical clearance values.

Safety clearance (mm)

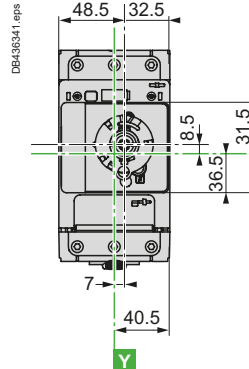
	Painted sheet metal			Bare sheet metal		
	A	B	C	A	B	C
No accessory	30	0	0	40	0	5
Interphase barriers	0	0	0	0	0	5
Long terminal shield	0	0	0	0	0	5

Ref.



Motor
circuit
breakers

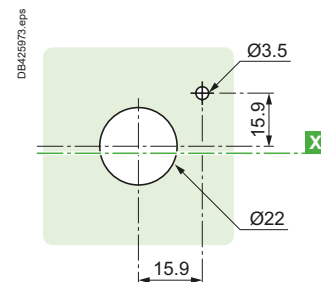
Front extended rotary handle GV4APN01, GV4APN02, GV4APN04



Motor circuit breakers

[illegible]

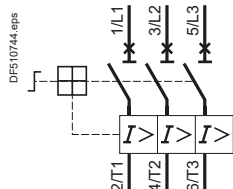
IP54, door/side panel cut-out



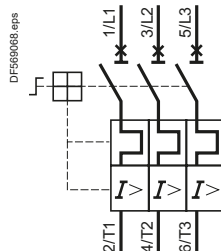
روبروی پالایشگاه نفت پارس، پلاک ۱۲

Magnetic motor circuit breakers

GV4L, GV4LE



GV4P, GV4PE, GV4PEM, GV4PB

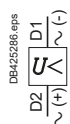


Accessories

Electrical trips

MN GV4AU●●●

MX GV4AS●●●



GV4AE11 auxiliary contacts

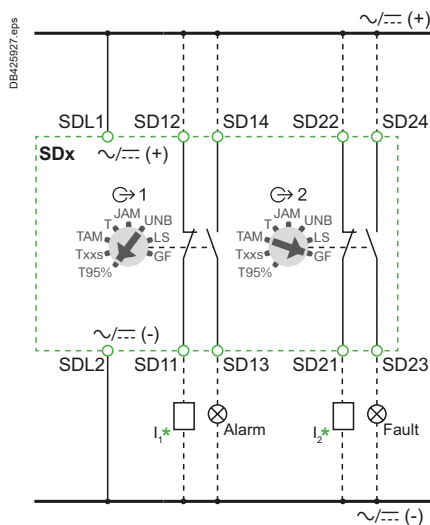
Used as OF contact

Used as SD contact



Side mounting add-on contact blocks

Instantaneous auxiliary contacts and fault signalling contacts



* I1, I2: PLC digital inputs - used as alarm inputs, as an example.

Ref.



Motor
circuit
breakers

TeSys Giga - Frame 5, 6 55 to 250 kW



Motor
circuit
breakers

Environment

Circuit breaker type			GV5P/ GV6P
Conforming to standards			IEC/EN 60947-4-1 IEC/EN 60947-2 UL 60947-4-1 CSA C22.2 n° 60947-4-1
Product certifications			CB, UKCA, UL, CSA, EAC, DNV-GL ⁽¹⁾
Climatic withstand			According to IACS E10
Degree of protection (front face)	Conforming to IEC 60529	Bare circuit breaker with terminal shields Installed in switchboard	IP40 with direct rotary handle IP40 with direct rotary handle / IP43 with MCC conversion accessory/ IP55 with extended rotary handle
Shock resistance	Conforming to IEC 60068-2-27		15 gn -11 ms
Vibration resistance	Conforming to IEC 60068-2-6		2.5 gn (25 Hz)
Ambient air temperature	Storage in packing		°C -50...+85
	Operation	Open mounted	°C -25... +70
		In enclosure	°C -25...+70
Flame resistance	Conforming to IEC 60695-2-11		°C 960
Maximum operating altitude			m 2000
Suitable for isolation	Conforming to IEC 60947-1 § 7-1-6		Yes
Resistance to mechanical impact			J 0.5
Sensitivity to phase failure			Yes

Technical characteristics

Circuit breaker type		GV5P150	GV5P220	GV6P320	GV6P500
Utilisation category	Conforming to IEC 60947-2	A			
	Conforming to IEC 60947-4-1	AC-3			
Rated operational voltage (Ue)	Conforming to IEC 60947-2	V 690			
Rated insulation voltage (Ui)	Conforming to IEC 60947-2	V 800			
Rated voltage	Conforming to UL 60947-4-1, CSA C22.2 n° 60947-4-1	V 600			
Rated operational frequency	Conforming to IEC 60947-4-1 UL, CSA	Hz 50/60			
Rated impulse withstand voltage (U imp)	Conforming to IEC 60947-2	kV 8			
Total power dissipated per pole		W 9.2	17.6	19.2	39.7
Mechanical durability (C.O.: Close, Open)		C.O. 40 000	20 000	15 000	15 000
Electrical durability for AC-3 duty	400/415 V (In)	C.O. 20 000	10 000	6 000	4 000
Duty class (maximum operating rate)		C.O./h 25			
Maximum conventional rated thermal current (Ith)	Conforming to IEC 60947-4-1	A 70...150	100...220	160...320	250...500
Rated duty	Conforming to IEC 60947-4-1	Continuous duty			

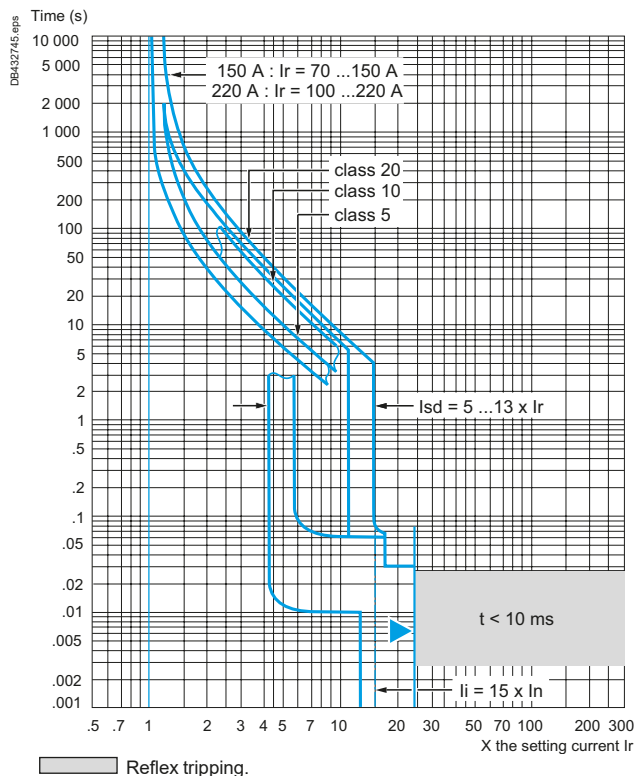
⁽¹⁾ EAC & DNV-GL certifications are in progress. Please check with your nearest sales office for more details.

Ref.


 Motor
circuit
breakers

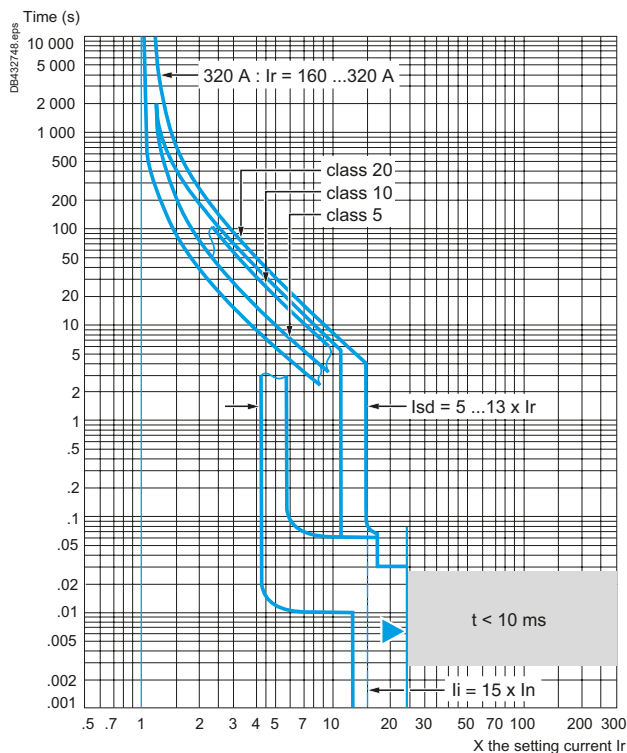
Thermal-magnetic tripping curves for GV5P

MicroLogic 2.2 M - 150/220 A

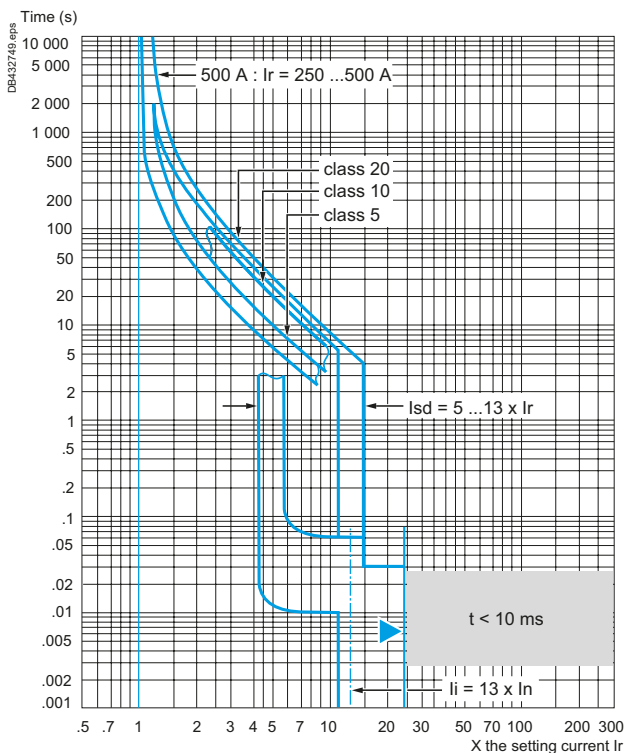


Thermal-magnetic tripping curves for GV6P

MicroLogic 2.3 M - 320 A



MicroLogic 2.3 M - 500 A

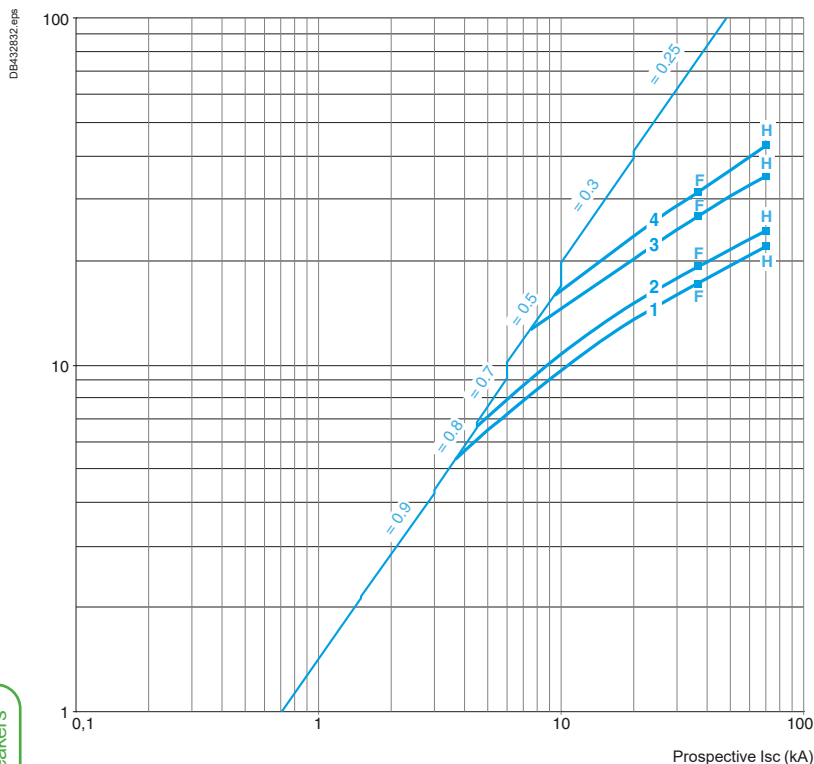


Current limitation on short-circuit (3-phase 400 - 415 V)

Dynamic stress

For GV5P/6P...F/H type

Limited peak current (kA)

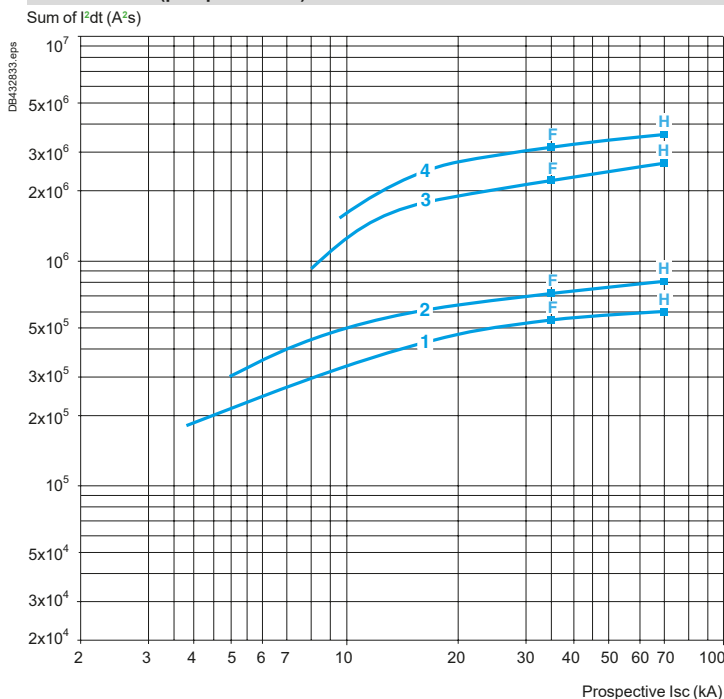


- 1 GV5P150F/H
- 2 GV5P220F/H
- 3 GV6P320F/H
- 4 GV6P500F/H

Maximum thermal limit on short-circuit

Thermal limit in kA^2s in the magnetic operating zone

Sum of $I^2dt = f$ (prospective I_{sc}) at $1.05 U_e = 435 \text{ V}$



- 1 GV5P150F/H
- 2 GV5P220F/H
- 3 GV6P320F/H
- 4 GV6P500F/H

Ref.



Motor
circuit
breakers

Characteristics of GV5P/GV6P electric trips

Type of trip			LV42940● undervoltage trip	LV42938● shunt trip
Rated insulation voltage (Ui)	Conforming to IEC 60947-1	V	690	690
	Conforming to CSA C22-2 n° 14, UL 508	V	600	600
Operational voltage (Ue)	Conforming to IEC 60947-1	V	0.85...1.1 Uc	0.7...1.1 Uc
Drop-out voltage		V	0.7...0.35 Uc	0.7...0.35 Uc
Inrush consumption	~	VA	< 10	
Sealed consumption	~	VA	< 5	
Operating time	Conforming to IEC 60947-1	ms	From the moment the voltage reaches its operational value until opening of the circuit breaker. < 50	
On-load factor			100 %	
Cabling	Number of conductors		1	
	Solid cable	mm²	1.5	
	Flexible cable without cable end	mm²	1.5	
	Flexible cable with cable end	mm²	1	
Tightening torque		N.m	1.2	
Mechanical durability (C.O.: Close - Open)		C.O.	50 % of the mechanical durability of the circuit breaker.	

Characteristics of GV5P/GV6P thermal fault module

Type of trip			LV429424 ⁽¹⁾
Operational voltage (Ue)	Conforming to IEC 60947-1	V	24 to 415 V AC/ DC
Conventional thermal current (Ith)	Conforming to IEC 60947-5-1	A	80 mA max.

(1) LV429424 takes the place of the AU/AS electric trip coil and an auxiliary contact.

Ref.


 Motor
circuit
breakers

Auxiliary contact characteristics															
Type of contacts			29450							29452					
Rated insulation voltage(Ui) (associated insulation coordination)	Conforming to IEC 60947-1	V	690							690					
Conventional thermal current (Ith)	Conforming to IEC 60947-5-1	A	6							5					
Mechanical durability (C.O.: Close - Open)		C.O.	50 000							50 000					
Operational current conforming to IEC 60947-5-1 a.c. operation			AC-12 or AC-15. 50 000 C.O.							AC-12 or AC-15. 50 000 C.O.					
	Rated operational voltage (Ue)	V	24	48	110	220/ 240	380/ 440	690	24	48	110	230/ 240	380/ 415		
	Rated operational current (Ie)	AC-12	A	6	6	6	6	6	5	5	5	5	5		
		AC-15	A	6	6	5	4	2	0.1	3	3	2.5	2	1.5	
Operational current conforming to IEC 60947-5-1 d.c. operation			DC-12 or DC-14. 50 000 C.O.							DC-12 or DC-14. 50 000 C.O.					
	Rated operational voltage (Ue)	V	24		48		110	250	24		48		110	250	
	Rated operational current (Ie)	DC-12	A	6		2.5		0.6	0.3	5		2.5		0.6	0.3
		DC-14	A	1		0.2		0.05	0.03	1		0.2		0.05	0.03
Minimum operational conditions d.c. operation		V	24							4					
		mA	100							1					
Short-circuit protection			By GB2CB●● circuit breaker (rating according to operational current for Ue ≤ 415 V) or gG fuse, 10 A max.												
Cabling	Solid cable	mm ²	1 x 1.5 conductor							1 x 1.5 conductor					
	Flexible cable without cable end	mm ²	1 x 1.5 conductor							1 x 1.5 conductor					
	Flexible cable with cable end	mm ²	1 x 1.5 conductor							1 x 1.5 conductor					

Ref.

Motor
circuit
breakers

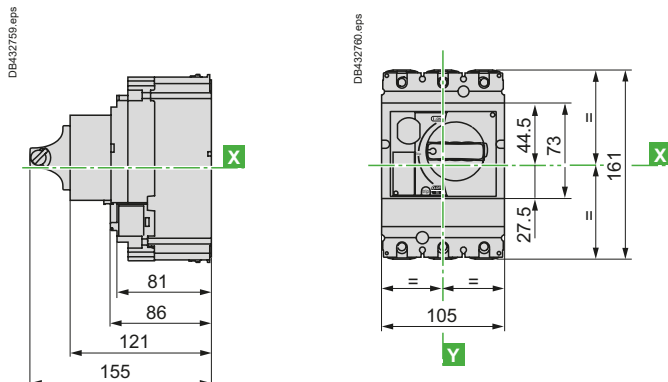
TeSys Power

Giga - Frame 5 - Frame 6 Motor circuit breakers

Dimensions and mounting

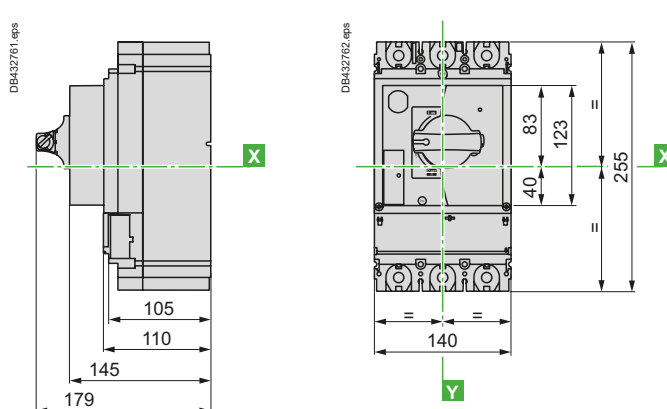
GV5P

Dimensions

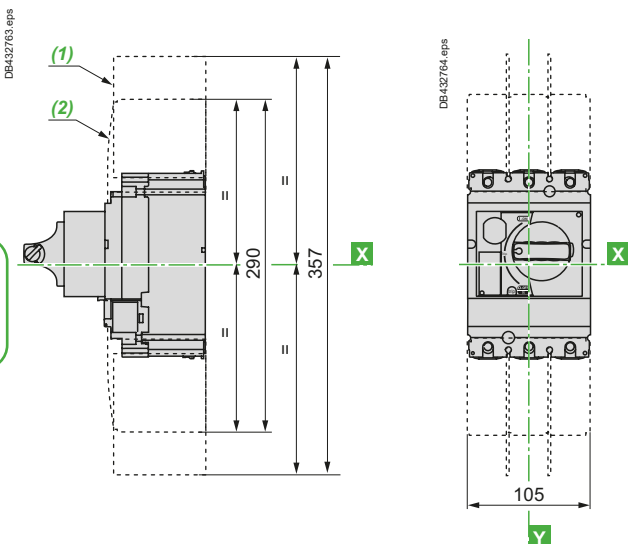


GV6P

Dimensions

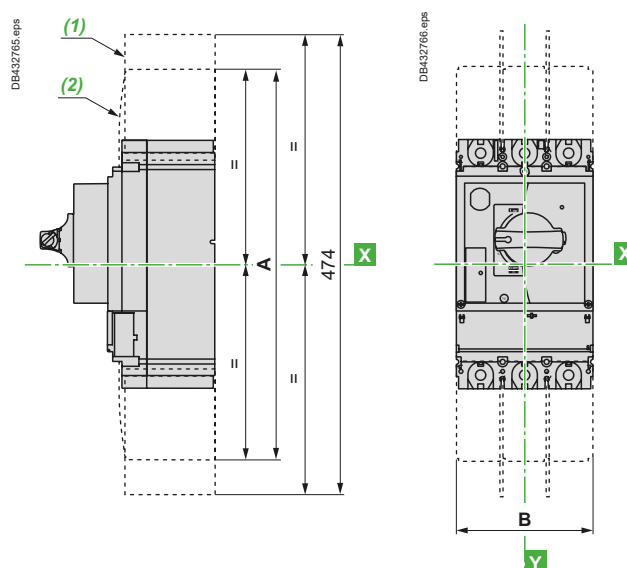


With long terminal shields or interphases barriers GV5P + GV7AC04/GV7AC01



- (1) Interphases barriers: **GV7AC04**.
(2) Terminal shield: **GV7AC01**.

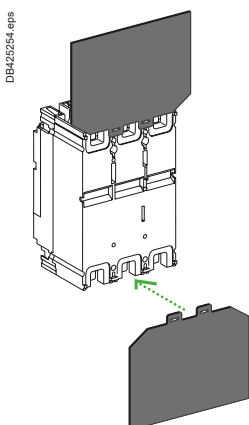
GV6P + LV432593 / LV432595 / LV432570



- (1) Interphases barriers: **LV432570**.
(2) Terminal shield: **LV432593 (45mm) / LV432595 (52.5mm)**.

	A	B
LV432593	400	140
LV432595	480	157.5

Insulating screen



Motor circuit breaker	GV5P + GV7AC05	GV6P + LV432578
3P W x H x thickness (mm)	140 x 105 x 1	203 x 175 x 1.5

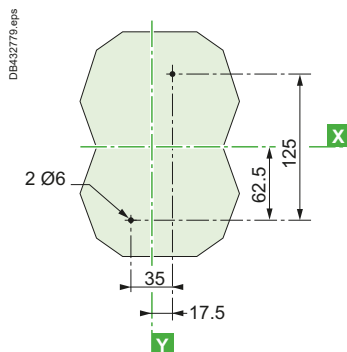
TeSys Power

Giga - Frame 5 - Frame 6 Motor circuit breakers

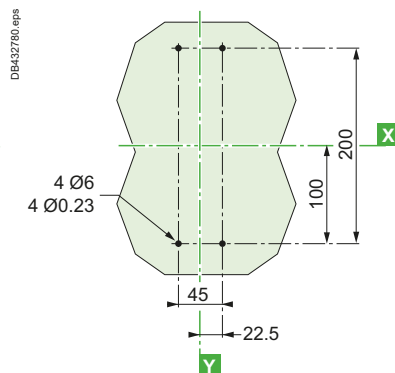
Dimensions and mounting

GV5P/GV6P

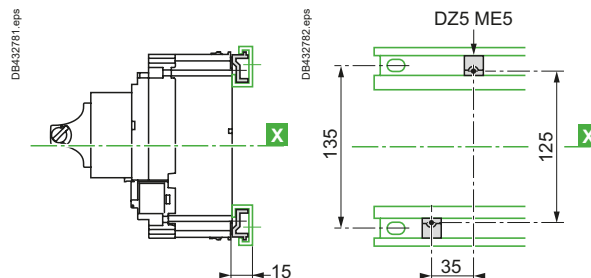
Panel mounting - GV5P



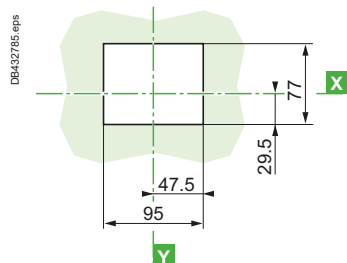
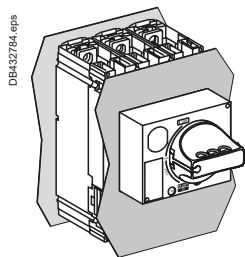
Panel mounting - GV6P



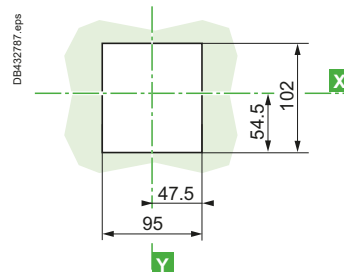
Mounting on 2 mounting rails for GV5P only



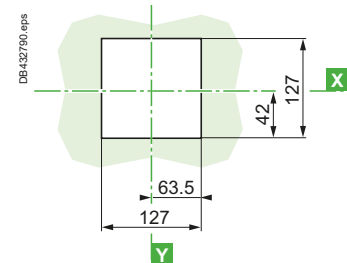
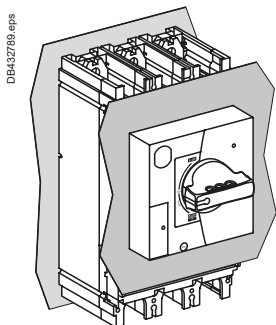
Door cut-out mounting GV5P



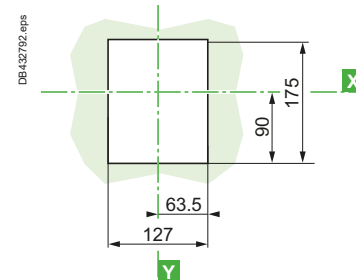
With access to trip unit



Door cut-out mounting GV6P

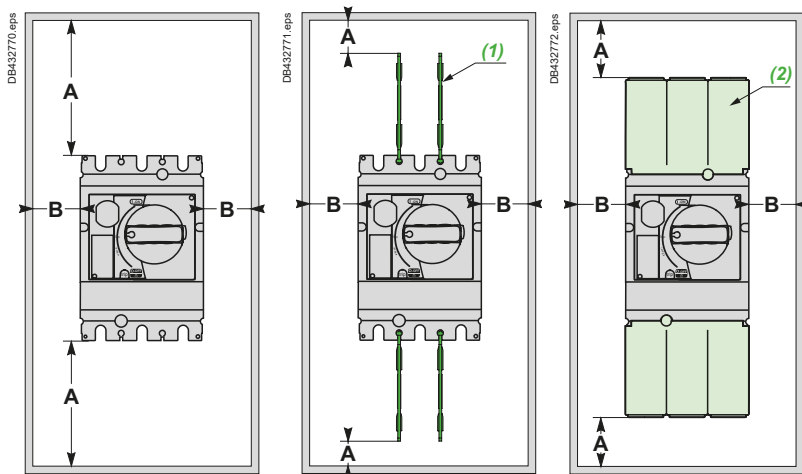


With access to trip unit



GV5P

Minimum electrical clearance

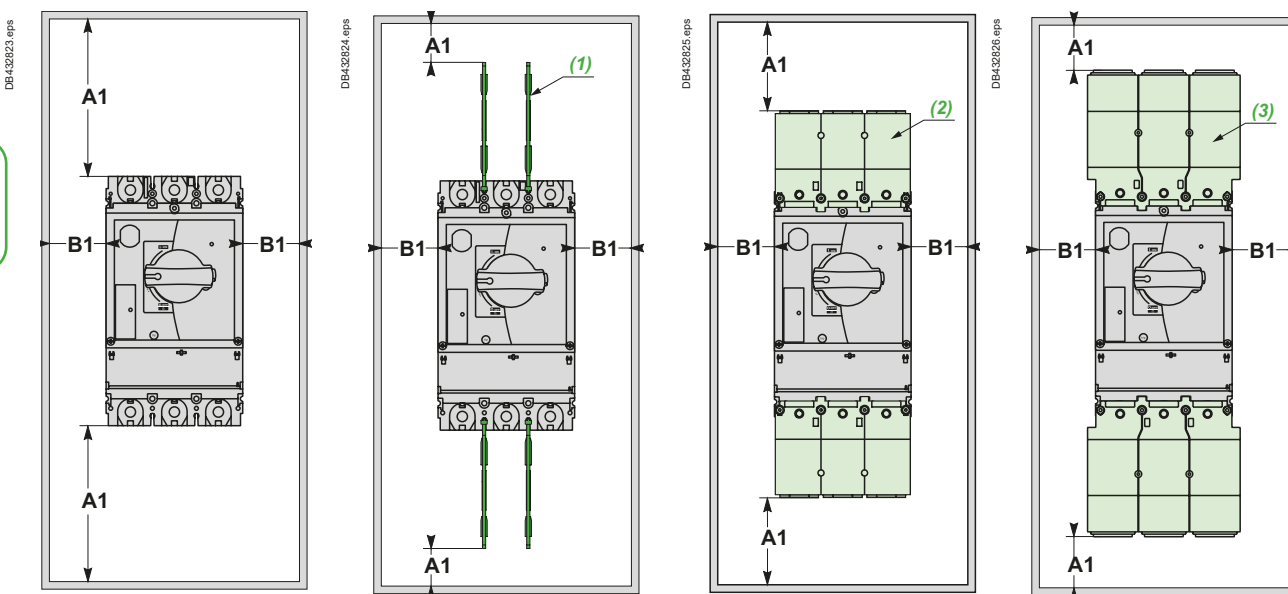


Clearance in mm

		Painted sheet metal		Bare metal plate	
		A	B	A	B
No accessories	$V \leq 500 V \sim$	30	0	40	20
	$V > 500 V \sim$	-	-	-	-
Interphases barriers ⁽¹⁾	$V \leq 500 V \sim$	0	0	10	20
	$V > 500 V \sim$	-	-	-	-
Terminal shield ⁽²⁾	$V \leq 500 V \sim$	0	0	10	10
	$V > 500 V \sim$	30	10	40	20

GV6P

Minimum electrical clearance

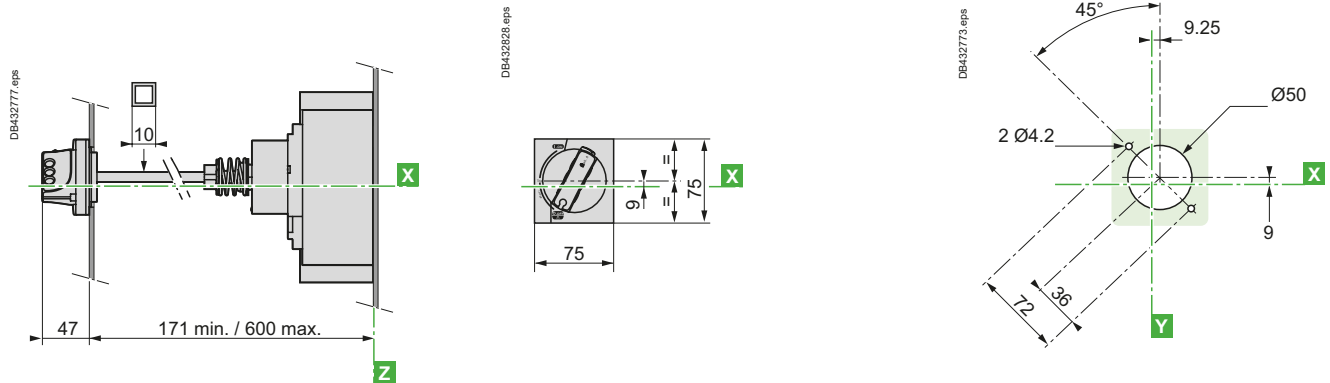


Clearance in mm

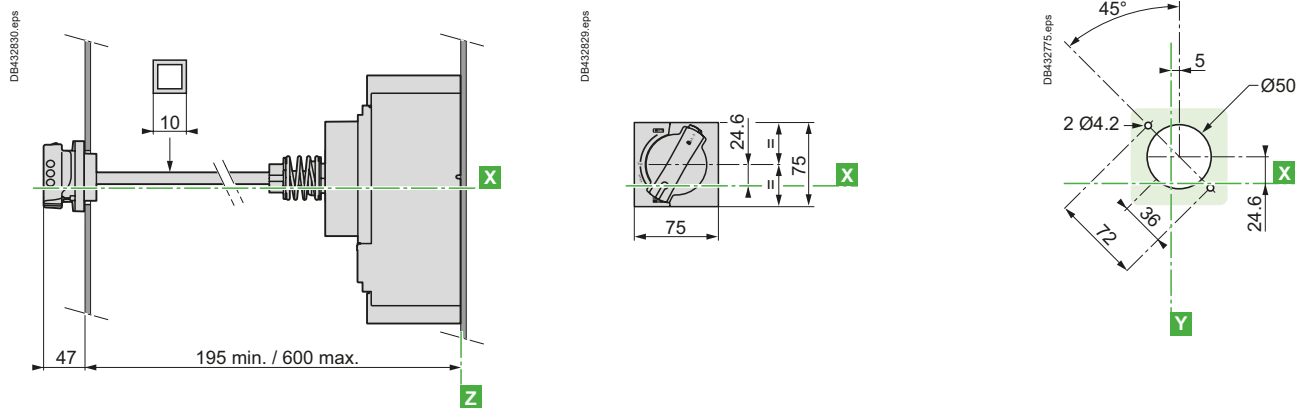
		Painted sheet metal		Bare sheet metal	
		A1	B1	A1	B1
No accessories	$V \leq 500 V \sim$	30	0	40	20
	$V > 500 V \sim$	-	-	-	-
Interphase barriers ⁽¹⁾	$V \leq 500 V \sim$	0	0	10	20
	$V > 500 V \sim$	-	-	-	-
Long terminal shield (LV432593) ⁽²⁾	$V \leq 500 V \sim$	30	0	40	10
	$V > 500 V \sim$	50	0	50	20
Long terminal shield (LV432595) ⁽³⁾	$V \leq 500 V \sim$	0	0	10	10
	$V > 500 V \sim$	30	0	30	20

GV5P/GV6P

GV5 with extended rotary handle GV7AP01/ GV7AP02

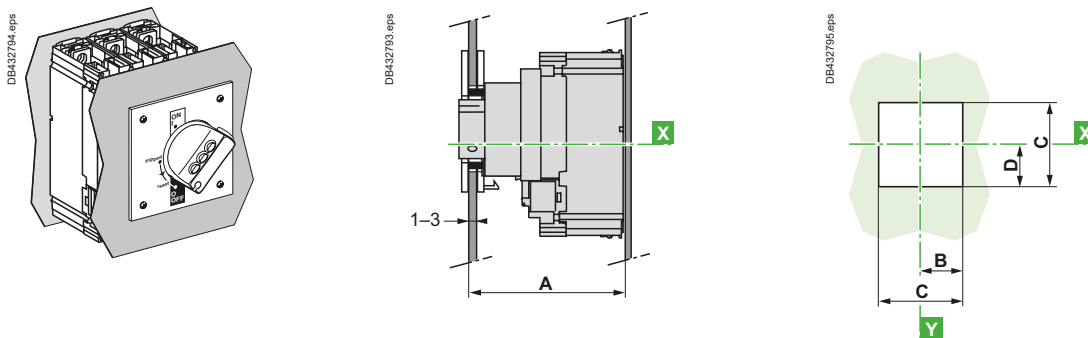


GV6 with extended rotary handle LV432598/ LV432600



GV5P/GV6P

MCC type direct rotary handle



	A	B	C	D
150/220 A	125 ±2	50	100	41
320/500 A	149 ±2	72.5	145	51

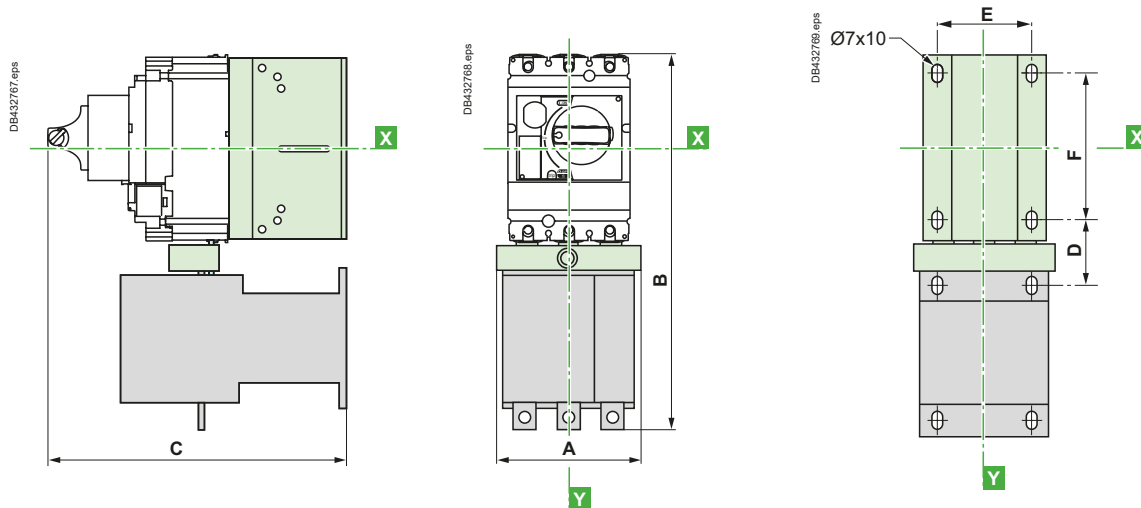
TeSys Power

Giga - Frame 5 - Frame 6 Motor circuit breakers

Dimensions and mounting

GV5P

Combination of GV5P and contactor LC1F●●●/LC1D●●● with kit GV7AC0●



	A	B	C	D	E	F
GV5P + LC1F115 + GV7AC06	119	334	243	44	85	120
GV5P + LC1F150 + GV7AC06	119	334	243	46	85	120
GV5P + LC1F185 + GV7AC06	119	338	249	48	85	120
GV5P + LC1D115 + GV7AC08	120	332	205	48	85	120
GV5P + LC1D150 + GV7AC08	120	332	205	48	85	120

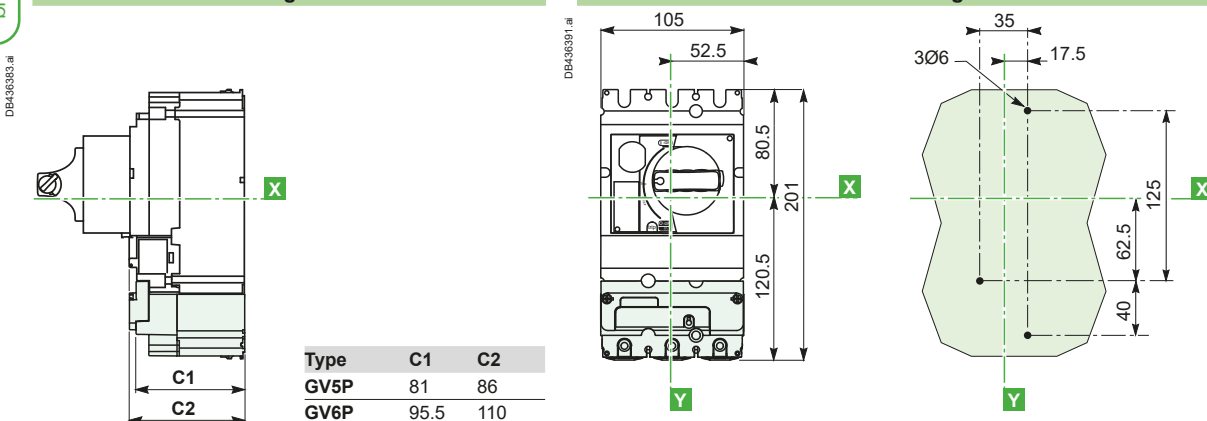
Minimum distance between 2 circuit breakers mounted side by side = 0

Motor circuit breakers

GV5P/GV6P

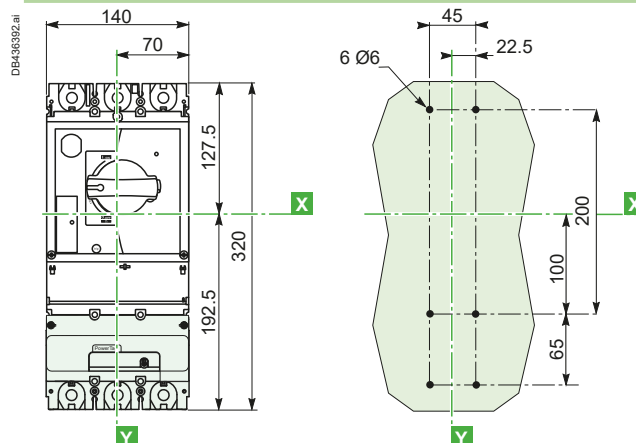
With additional PowerTag

GV5P with LV434020 / Panel mounting



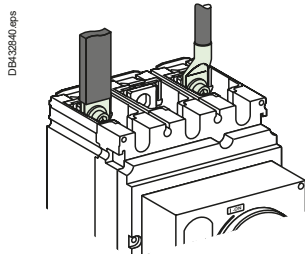
Type	C1	C2
GV5P	81	86
GV6P	95.5	110

GV6P with LV434022 / Panel mounting



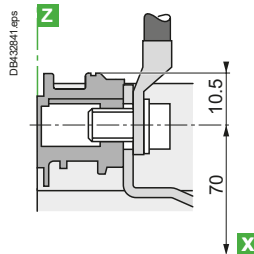
GV5P/GV6P

Front connection without accessories



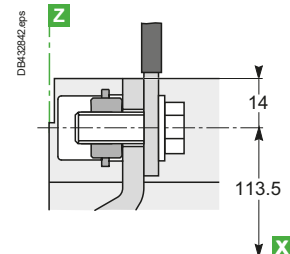
GV5P

Cables with lugs bars



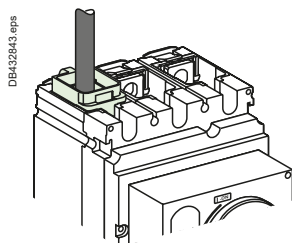
GV6P

Bars/cables with lugs

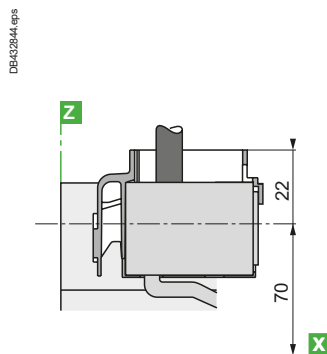


GV5P

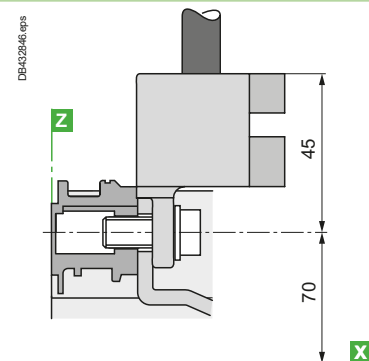
Bare-cables connectors



GV7AC021/LV429227/GV7AC022

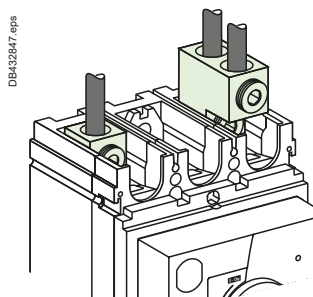


LV429244

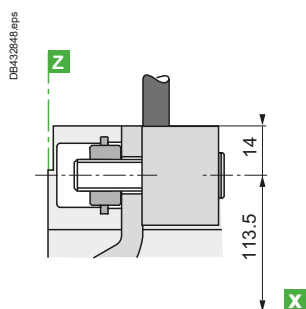


GV6P

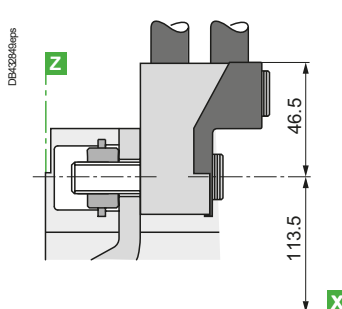
Bare-cables connectors



LV432479

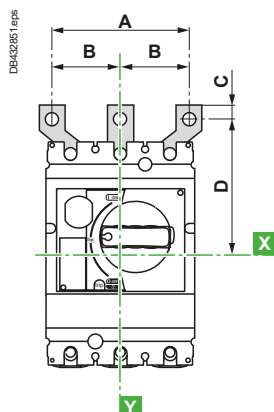
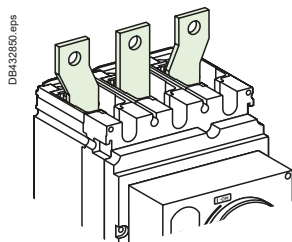


LV432481



GV5P/GV6P

Spreaders

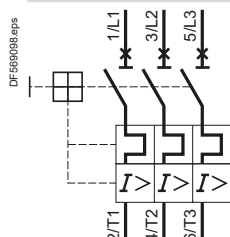


Type	A	B	C	D
GV5P/ Spreaders GV7AC03	114	45	11	100
GV6P/ Spreaders LV432490	135	52.5	15	152.5
GV6P/ Spreaders LV432492	170	70	15	166

Schemes

Motor circuit breakers

GV5P/ 6P



Add-on auxiliary contacts according to their location ⁽¹⁾

29450, 29452

Location 1 C/O contact



Location 2 Trip indication



Location 3 Electrical fault indication ⁽²⁾



Location 4 C/O contact



A self-adhesive label, supplied with the contact, can be affixed to the front face of the circuit-breaker to allow personalised marking according to the function of the contact or contacts.

⁽¹⁾ See pages B6/52 to B6/54.

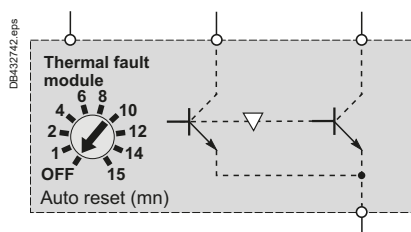
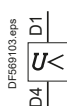
⁽²⁾ Adapter LV429451 is mandatory for electrical trip indication in GV5.

Electric trips

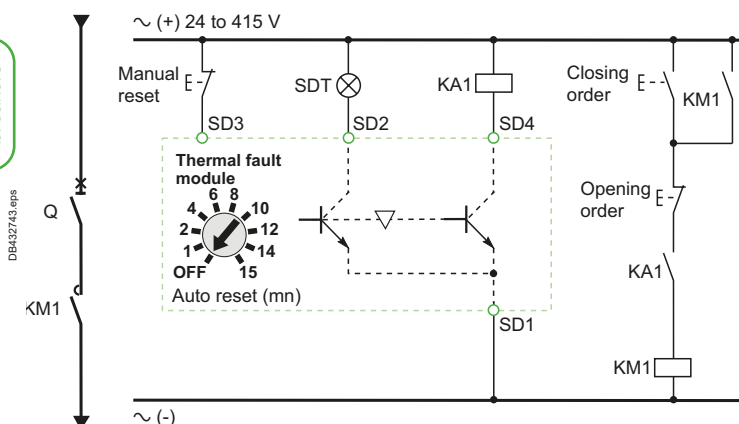
LV42940●

LV42938●

Thermal fault module LV429424



Recommended application schemes for LV429424



SD1, SD3: thermal fault module input power supply
SD2: over-load fault signal output. This output will stay-put until reset
SD4: contactor control output
SD2 and SD4: Static outputs: 24 to 415 V AC / V DC; 80 mA max
KM1: LC1D or LC1F contactor
KA1: CA2 or CAD type control relays
Terminals shown in green ● must be connected by customer.

PowerLogic™ Energy measurement solutions

Motor
circuit
breakers



Energy measurement – PowerLogic

PowerTag Energy Flex 63 A (F63)

Main characteristics

Rated voltage	3P	Un	Phase-to-phase	V	380... 415 V AC ± 20 %
	3P+N	Un	Phase-to-neutral	V	220... 240 V AC ± 20 %
			Phase-to-phase	V	380... 415 V AC ± 20 %
Frequency			Hz		50/60
Maximum current		I _{max}	A		63
Basic current		I _b	A		10
Saturation current			A		130
Maximum consumption		3P/3P+N	VA		≤ 2
Starting current		I _{st}	mA		40

Additional characteristics

Operating temperature	°C	-25 to +60
Storage temperature	°C	-40 to +85
Overvoltage category	As per IEC 61010-1	Cat. III
Measuring category	As per IEC 61010-2-030	Cat. III
Pollution degree		3
Altitude	m	≤ 2000
Degree of protection	Device only	IP20
	IK	05

Radio-frequency communication

ISM band 2.4 GHz	GHz	2.4 to 2.4835
Channels	As per IEEE 802.15.4	11 to 26
Isotropic Radiated Power	Equivalent (EIRP)	dBm
Maximum transmission time	ms	< 5
Channel occupancy	Messages sent every	s
		5 minimum

Characteristics of measuring functions

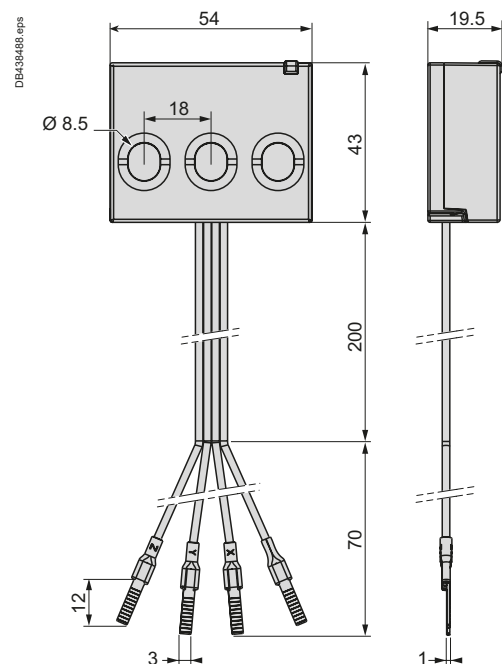
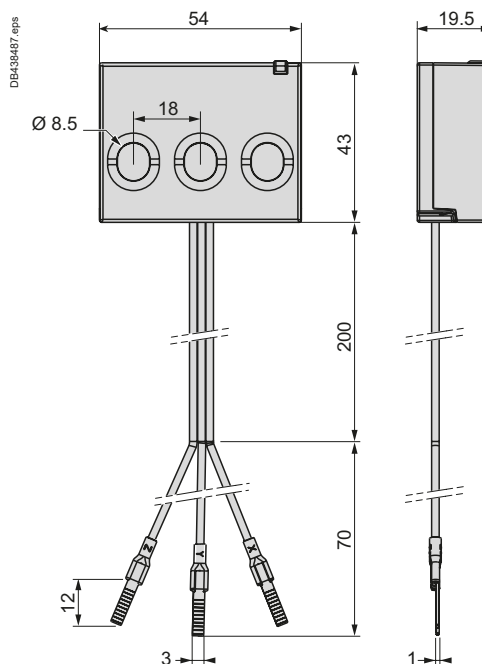
Function	Symbol	Performance category as per IEC 61557-12 (PMD-I/DD/K55/1)	Measuring range
		Class	
Active power	P	1	9 W to 63 kW
Active energy	E _a	1	Total and partial 0 to 99999999.9 kWh
Current	I	1	40 mA to 63 A
Voltage	U	0.5	Un ± 20 %
Power factor	PFA	1	0 to 1

Dimensions

A9MEM1573

3P

3P + N



Energy measurement – PowerLogic

PowerTag Energy Flex 160 A (F160)

Main characteristics (as per IEC 61557-12)

Rated voltage	Un	Phase-to-neutral	V	100...277 V AC ± 20 %
		Phase-to-phase		173...480 V AC ± 20 %
Frequency			Hz	50/60
Maximum current	I _{max}		A	160
Maximum operating current				1.2 x I _{max}
Saturation current				2 x I _{max}
Maximum consumption			VA	3
Starting current	I _{st}		mA	100
Basic current	I _b		A	25

Additional characteristic

Operating temperature		°C	-25 to +70
Storage temperature		°C	-40 to +85
Overvoltage category	As per IEC 61010-1		Cat. IV
Measuring category	As per IEC 61010-2-030		Cat. IV
Pollution degree			3
Altitude		m	Up to 2000 without derating ⁽¹⁾
Degree of protection device			IP20
			IK05

Radio-frequency communication

ISM band 2.4 GHz		GHz	2.4 to 2.4835
Channels	As per IEEE 802.15.4		11 to 26
Isotropic Radiated Power	Equivalent (EIRP)	dBm	0
Maximum transmission time		ms	< 5
Channel occupancy	For 1 device	s	messages sent every 5

Characteristics of measuring functions

Function	Symbol	Performance category as per IEC 61557-12 (PMD-II/DD/K70/1)		Measuring range
		Class	Measuring range	
Total active power (Active power per phase)	P	1	2.5 to 160 A	24 W (8 W) to 192 kW
Total reactive power (Reactive power per phase)	Q _A	2		30 VAR (10 VAR) to 192 kVAR
Total apparent power (Apparent power per phase)	S _A	2		38 VA (13 VA) to 192 kVA
Active Energy: per phase, total, partial, delivered and received	E _a	1		0 to 281.10 ⁹ kWh
Reactive energy: per phase, total, partial, delivered and received	E _{rA}	2		0 to 281.10 ⁹ kVARh
Apparent energy: per phase, total, partial	E _{apA}	2		0 to 281.10 ⁹ kVAh
Frequency	f	1	50 / 60 Hz ± 2 %	45 to 65 Hz
Phase current	I	1	5 to 160 A	100 mA to 320 A
Neutral current	I _{NC}	2		
Voltages (Line to Line)	U	0.5	Un ± 20 %	138 to 576 V AC
Power factor (per phase, total)	PF _A	1	From 0.5 inductive to 0.8 capacitive	-1 to 1

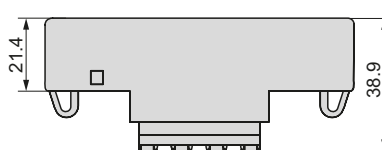
⁽¹⁾ Above 2000 m, please consult us.

Dimensions

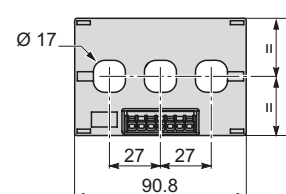
PowerTag Energy Flex 160 A



DB438489.eps



DB438480.eps



Energy measurement – PowerLogic

PowerTag Energy Monoconnect 250 A, 630 A

Main characteristics

Rated voltage	Un	Phase-to-neutral	V	230 V AC ± 20 %
		Phase-to-phase	V	400 V AC ± 20 %
Frequency			Hz	50/60
Maximum current	I _{max}		A	250/630
Maximum operating current				1.2 x I _{max}
Saturation current				2 x I _{max}
Maximum consumption			VA	3.7
Starting current	I _{st}		mA	160/400
Basic current	I _b		A	40/100

Additional characteristic

Operating temperature		°C	-25 to +70
Storage temperature		°C	-50 to +85
Overvoltage category	As per IEC 61010-1		Cat. IV
Measuring category	As per IEC 61010-2-030		Cat. III
Pollution degree			3
Altitude			Up to 2000 m without derating ⁽¹⁾
Degree of protection device			IP20 IK07

Radio-frequency communication

ISM band 2.4 GHz		GHz	2.4 to 2.4835
Channels	As per IEEE 802.15.4		11 to 26
Isotropic Radiated Power	Equivalent (EIRP)	dBm	0
Maximum transmission time		ms	< 5
Channel occupancy	For 1 device	s	messages sent every 5

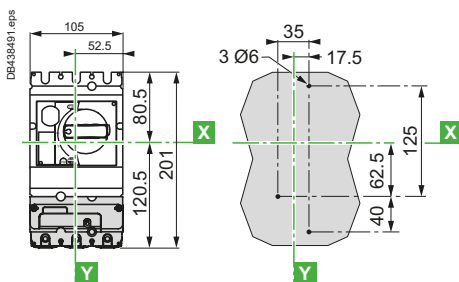
Characteristics of measuring functions

Function	Symbol	Performance category as per IEC 61557-12 (PMD-II/DD/K70/1)		Measuring range (250 A / 630 A)
		Class	Measuring range	
Total active power (Active power per phase)	P	1	4 to 250 A / 10 to 630 A	88 W (29 W) to 416 kW / 222 W (74 W) to 1048 kW
Total reactive power (Reactive power per phase)	Q _A	2		88 VAR to 416 kVAR / 221 VAR to 1048 kVAR
Total apparent power (Apparent power per phase)	S _A	2		88 VA to 416 kVA / 221 VA to 1048 kVA
Active Energy: per phase, total, partial, delivered and received	E _a	1		0 to 281.109 kWh
Reactive energy: per phase, total, partial, delivered and received	E _{rA}	2		0 to 281.109 kVARh
Frequency	f	1	45 to 55 Hz	45 to 65 Hz
Phase current	I	1	8 to 250 A / 20 to 630 A	160 mA to 500 A / 400 mA to 1260 A
Voltages (Line to Line)	U	0.5	Un ± 20 %	320 to 480 V AC
Power factor	PF _A	1	From 0.5 inductive to 0.8 capacitive	-1 to 1

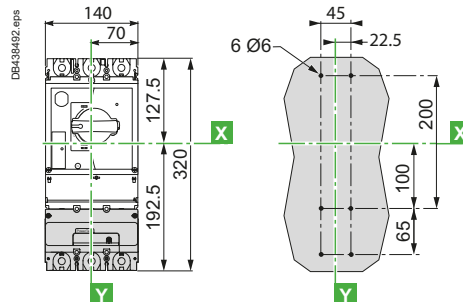
⁽¹⁾ Above 2000 m, please consult us.

Dimensions

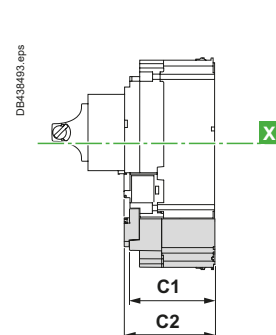
GV5P with LV434020 / Panel mounting



GV6P with LV434022 / Panel mounting



With additional PowerTag



Type	C1	C2
GV5P	81	86
GV6P	95.5	110

Energy measurement – PowerLogic

PowerTag Link

Main characteristics

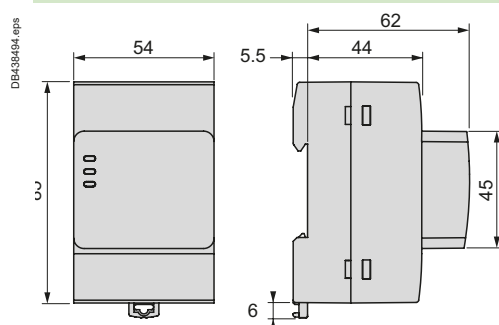
Supply voltage	Us	V	110/230 V AC ± 20 %, 2 A
Frequency		Hz	50/60
Power consumption		VA	5
Communication interface			Ethernet 10/100 BASE-T, Cable length ≤ 100 m Cat.6 STP
Wireless communication			Up to 20 or 100 PowerTag Energy sensors
Integrated connection type			DHCP client (Ethernet port)
Local indication	Product state		Green, orange and red LED
	Ethernet state (LAN ST)		Green, orange and red LED
Overvoltage category			III
Radio-frequency communication	ISM band 2.4 GHz	GHz	2.4 to 2.4835
Degree of protection (IEC 60529)	Device only		IP20
	Device in modular enclosure		IP40
Fire resistance			Insulation class II
Environment			650 °C, 30 s
			In compliance with the RoHS directive REACH Regulations

Additional characteristics

Operating temperature		°C	-25 to +60
Storage temperature		°C	-40 to +85
Pollution degree			2
Tropicalization (IEC 60068-2-30)			Treatment 2 (relative humidity of 93 % at 40°C)
Operating altitude		m	0 to 2000
Electromagnetic compatibility	Reference standards		
	Immunity		EN 55035
	Emissions		EN 55032
	Electromagnetic compatibility and Radio spectrum Matters (ERM)		EN 300328 EN 301489-1 EN 301489-17

Dimensions

PowerTag Link



Ref.

Motor
circuit
breakers

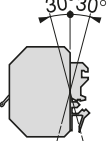
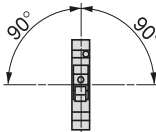
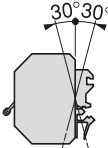
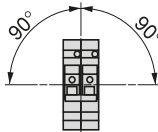
TeSys Modular circuit breakers

0.5 to 20 A
(for equipment and control circuits)

Motor
circuit
breakers



Environment

Circuit breaker type			GB2CB	GB2CD	GB2DB	GB2CS
Conforming to standards			IEC 60947-1, 947-2, EN 60947-1, 60947-2			
Product certifications			cCSAus ⁽¹⁾	cCSAus ⁽¹⁾	—	—
Degree of protection	Conforming to IEC 60529		IP 20			
Shock resistance	Conforming to IEC 60068-2-27		22 gn for 20 ms			
Vibration resistance	Conforming to IEC 60068-2-6		5 gn (5...110 Hz)			
Ambient air temperature around the device	Storage	°C	-40...+80			
	Operation	°C	-20...+60			
Flame resistance	Conforming to IEC 60695-2-11	°C	960			
Maximum operating altitude		m	3000			
Operating position	In relation to normal vertical mounting plane		DF54285 gpa     GB2CB,CD, CS GB2DB			
Cabling	Solid cable	mm ²	Minimum c.s.a.		Maximum c.s.a.	
	Flexible cable with cable end	mm ²	1 x 0.75		1 x 6 or 2 x 4	
Tightening torque		N.m	1.2		1 x 4 or 2 x 2.5	

Technical characteristics

Utilisation category	Conforming to IEC 60947-2		A			A			A			A		
Rated operational voltage (Ue)	Conforming to IEC 60947-2	V	250 ⁽²⁾			250			415			250 ⁽²⁾		
	Conforming to CSA C22-2 Nr 14 and UL 1077	V	277			277			—			—		
Rated operational frequency	Conforming to IEC 60947-2	Hz	50/60			50/60			50/60			50/60		
Rated impulse withstand voltage (U imp)	Conforming to IEC 60947-2	kV	4			4			4			4		
Total power dissipated per pole		W	2			2			2			1.9		
Mechanical and electrical durability	C.O.: Closing - Opening	C.O.	8000			8000			8000			8000		
Operational current correction coefficient (a or --)	According to the permissible ambient temperature	°C	-20	-10	0	+10	+20	+30	+40	+50	+60			
	Correction coefficient		1.2	1.15	1.1	1.05	1	0.95	0.90	0.85	0.80			
Tripping threshold	Of the magnetic trips		12...16 In			12...16 In			12...16 In			5...7 In		

(1) Except for GB2CB16, GB2CB22, GB2CD16, GB2CD22.

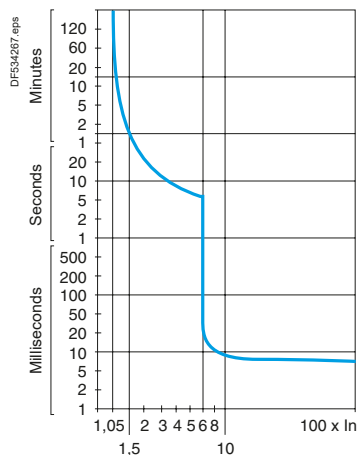
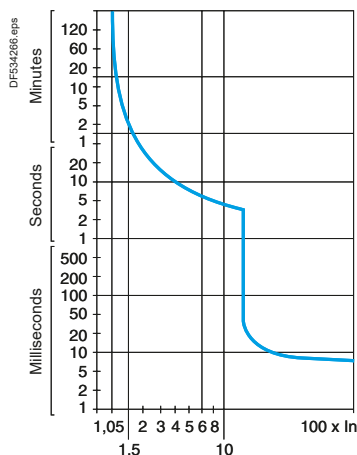
(2) Ue = 415 V when a GB2 circuit breaker is fitted on every live conductor.

Tripping curves

Average operating time at 20 °C without prior current flow (cold state)

GB2CB, GB2CD, GB2 DB

GB2CS



Circuit breaker type				GB2												
					CB05	CB06	CB07	CB08	CB09	CB10	CB12	CB14	CB16	CB20	CB21	CB22
Rating			A		0.5	1	2	3	4	5	6	8	10	12	16	20
Breaking capacity conforming to IEC 60947-2 ~ 50/60 Hz	110 V	Icu	kA		50	50	15	10	6	3	3	3	2	2	2	2
		Ics % ⁽¹⁾			100	50	50	50	50	75	75	75	75	75	75	75
	230/240 V	Icu	kA		50	50	15	3	3	2	1.5	1.5	1.5	1.5	1.5	1.5
		Ics % ⁽¹⁾			25	25	25	50	50	75	75	75	75	75	75	75
Associated fuses, if required if Isc > breaking capacity Icu conforming to IEC 60947-2	110 V	aM	A	*	*	20	25	25	40	40	50	50	63	63	63	63
		gG	A	*	*	25	32	32	50	50	63	63	80	80	80	80
	230/240 V	aM	A	*	*	16	20	20	32	32	40	40	50	50	50	50
		gG	A	*	*	25	32	32	40	40	50	50	63	63	63	63

Circuit breaker type				GB2												
					CD05	CD06	CD07	CD08	CD09	CD10	CD12	CD14	CD16	CD20	CD21	CD22
Rating			A		0.5	1	2	3	4	5	6	8	10	12	16	20
Breaking capacity conforming to IEC 60947-2 ~ 50/60 Hz	110 V	Icu	kA		50	50	15	10	6	3	3	3	2	2	2	2
		Ics % ⁽¹⁾			100	50	50	50	50	75	75	75	75	75	75	75
	230/240 V	Icu	kA		50	50	15	3	3	2	1.5	1.5	1.5	1.5	1.5	1.5
		Ics % ⁽¹⁾			25	25	25	50	50	75	75	75	75	75	75	75
Associated fuses, if required if Isc > breaking capacity Icu conforming to IEC 60947-2	110 V	aM	A	*	*	20	25	25	40	40	50	50	63	63	63	63
		gG	A	*	*	25	32	32	50	50	63	63	80	80	80	80
	230/240 V	aM	A	*	*	16	20	20	32	32	40	40	50	50	50	50
		gG	A	*	*	25	32	32	40	40	50	50	63	63	63	63

Circuit breaker type				GB2												
					DB05	DB06	DB07	DB08	DB09	DB10	DB12	DB14	DB16	DB20	DB21	DB22
Rating			A		0.5	1	2	3	4	5	6	8	10	12	16	20
Breaking capacity conforming to IEC 60947-2 ~ 50/60 Hz	110 V	Icu	kA		50	50	15	10	6	3	3	3	2	2	2	2
		Ics % ⁽¹⁾			100	50	50	50	50	75	75	75	75	75	75	75
	230/240 V	Icu	kA		50	50	15	3	3	2	1.5	1.5	1.5	1.5	1.5	1.5
		Ics % ⁽¹⁾			25	25	25	50	50	75	75	75	75	75	75	75
	400/415 V	Icu	kA		50	50	15	3	3	2	1.5	1.5	1.5	1.5	1.5	1.5
		Ics % ⁽¹⁾			25	25	25	50	50	75	75	75	75	75	75	75
	110 V	aM	A	*	*	20	25	25	40	40	50	50	63	63	63	63
		gG	A	*	*	25	32	32	50	50	63	63	80	80	80	80
Associated fuses, if required if Isc > breaking capacity Icu conforming to IEC 60947-2	230/240 V	aM	A	*	*	16	20	20	32	32	40	40	50	50	50	50
		gG	A	*	*	25	32	32	40	40	50	50	63	63	63	63
	400/415 V	aM	A	*	*	16	20	20	32	32	40	40	50	50	50	50
		gG	A	*	*	25	32	32	40	40	50	50	63	63	63	63

(1) As % of Icu.

★ Fuse not required. Breaking capacity Icu > Isc.

Ref.

Motor
circuit
breakers

Circuit breaker type				GB2												
				●●05	●●06	●●07	●●08	●●09	●●10	●●12	●●14	●●16	●●20	●●21	●●22	
Breaking capacity (Icu) conforming to IEC 60947-2 ---	24 V	kA		1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
	48 V	kA		1	1	1	1	1	1	1	1	—	—	—	—	
Operational current conforming to IEC 60947-5-1 ---	DC-12	24 V	A	0.5	1	2	3	4	5	6	8	10	12	16	20	
		48 V	A	0.5	1	2	3	4	5	6	8	10	12	16	20	
	DC-13	24 V	A	0.5	1	2	3	4	5	6	8	10	12	16	20	
		48 V	A	0.5	1	2	3	4	5	6	8	—	—	—	—	
Circuit breaker type				GB2												
			A	CS05						CS06						
Rating			A	0.5						1						
Breaking capacity conforming to IEC 60947-2 ~ 50/60 Hz	110 V	Icu	kA	50						50						
		Ics % ⁽¹⁾		100						100						
	230/240 V	Icu	kA	50						50						
		Ics % ⁽¹⁾		25						25						
	400/415 V ⁽²⁾	Icu	kA	50						50						
		Ics % ⁽¹⁾		25						25						
Breaking capacity (Icu) conforming to IEC 60947-2 ---	24 V	kA		1.5						1.5						
	48 V	kA		1						1						
Operational current conforming to IEC 60947-5-1 ---	DC-12	24 V	A	0.5						1						
		48 V	A	0.5						1						
	DC-13	24 V	A	0.5						1						
		48 V	A	0.5						1						
Maximum permissible line length for star-delta starting (length of cable containing 2 or more conductors)	With contactors LC●D09 ...D18	Operational voltage	V	48		110		230		48		110		230		
		C.s.a.	0.60 mm ²	m	⁽³⁾		31		365		6		85		230	
			0.75 mm ²	m	⁽³⁾		39		460		8		110		290	
			1 mm ²	m	⁽³⁾		52		610		10		145		380	
			1.5 mm ²	m	⁽³⁾		78		910		15		220		570	
			2.5 mm ²	m	⁽³⁾		130		1520		26		360		950	
			4 mm ²	m	⁽³⁾		200		2400		41		580		1500	
	With contactors LC●D25...D32	Operational voltage	V	48		110		230		48		110		230		
		C.s.a.	0.60 mm ²	m	⁽³⁾		⁽³⁾		230		⁽³⁾		56		230	
			0.75 mm ²	m	⁽³⁾		⁽³⁾		290		⁽³⁾		70		290	
			1 mm ²	m	⁽³⁾		⁽³⁾		390		⁽³⁾		95		380	
			1.5 mm ²	m	⁽³⁾		⁽³⁾		580		⁽³⁾		140		570	
			2.5 mm ²	m	⁽³⁾		⁽³⁾		970		⁽³⁾		230		950	
			4 mm ²	m	⁽³⁾		⁽³⁾		1500		⁽³⁾		375		1500	
	With contactors LC●D40...D80	Operational voltage	V	48		110		230		48		110		230		
		C.s.a.	0.60 mm ²	m	⁽³⁾		⁽³⁾		46		⁽³⁾		13		100	
			0.75 mm ²	m	⁽³⁾		⁽³⁾		60		⁽³⁾		17		130	
			1 mm ²	m	⁽³⁾		⁽³⁾		80		⁽³⁾		22		170	
			1.5 mm ²	m	⁽³⁾		⁽³⁾		120		⁽³⁾		34		250	
			2.5 mm ²	m	⁽³⁾		⁽³⁾		190		⁽³⁾		56		420	
			4 mm ²	m	⁽³⁾		⁽³⁾		310		⁽³⁾		90		680	

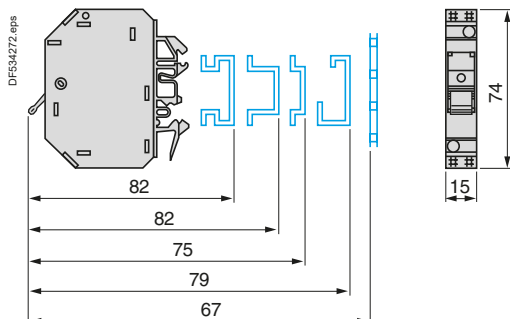
(1) As % of Icu.

(2) One GB2CS circuit breaker on each live conductor.

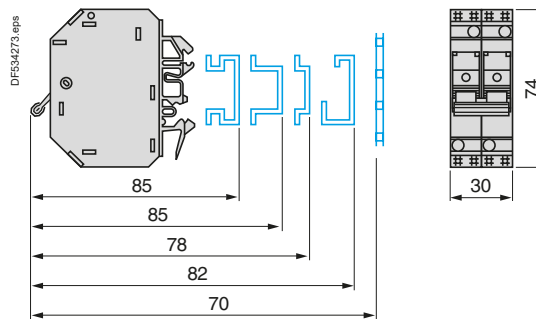
(3) Use relays.

Dimensions

GB2CB●●, GB2CD●●, GB2CS●●



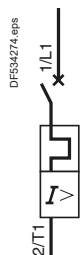
GB2DB●●



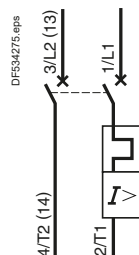
Marking: up to twelve AB1 R clip-in markers.

Schemes

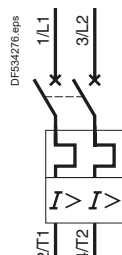
GB2CB●●



GB2CD●●



GB2DB●●



GB2CS●●



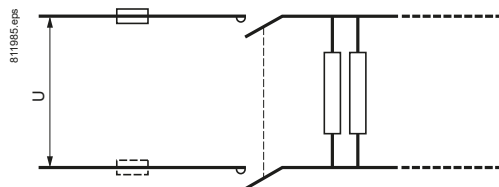
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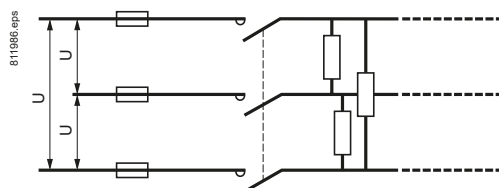
Motor
circuit
breakers

Heating (AC-7a)

Single-phase, 2-pole switching



3-phase switching



Heating by resistive elements or by infra-red radiators, convectors or radiators, heating ducts, industrial furnaces. The current peak between the hot and cold states must not exceed 2 to 3 In at the moment of switch-on.

Contactor selection according to power and required electrical life

Electrical durability (in operating cycles)	Maximum power (kW)					Contactor rating
	100 x 10 ³	150 x 10 ³	200 x 10 ³	500 x 10 ³	10 ⁶	
Single-phase switching 230 V (2-pole)	3.5	3	2.2	1	0.8	16 A
	5.4	4.6	3.5	1.6	1.2	25 A
	8.6	7.4	5.6	2.6	1.9	40 A
	13.6	11.6	8.8	4	3	63 A
	21.6	18.4	14	6.4	4.8	100 A
3-phase switching 400 V (3-pole)	10	9	6.5	3.2	2.2	16 A
	16	14	10	5	3.5	25 A
	26	22	17	7.5	6	40 A
	41	35	26.5	12	9	63 A
	64.8	55.2	42	19.2	14.4	100 A

Ref.



Contactors