TeSys GV

Catalogue 2017
Motor circuit breakers

schneider-electric.com/TeSys

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Green Premium™

Endorsing eco-friendly products in the industry

Green Premium™
Product

Green Premium is the only label that allows you to effectively develop and promote an environmental policy whilst preserving your business efficiency. This ecolabel guarantees compliance with up-to-date environmental regulations, but it does more than this.

Over 75% of Schneider Electric manufactured products have been awarded the Green Premium ecolabel

Discover what we mean by green …

Check your products!

Schneider Electric's Green Premium ecolabel is committed to offering transparency, by disclosing extensive and reliable information related to the environmental impact of its products:

RoHS

Schneider Electric products are subject to RoHS requirements at a worldwide level, even for the many products that are not required to comply with the terms of the regulation. Compliance certificates are available for products that fulfil the criteria of this European initiative, which aims to eliminate hazardous substances.

REACh

Schneider Electric applies the strict REACh regulation on its products at a worldwide level, and discloses extensive information concerning the presence of SVHC (Substances of Very High Concern) in all of its products.

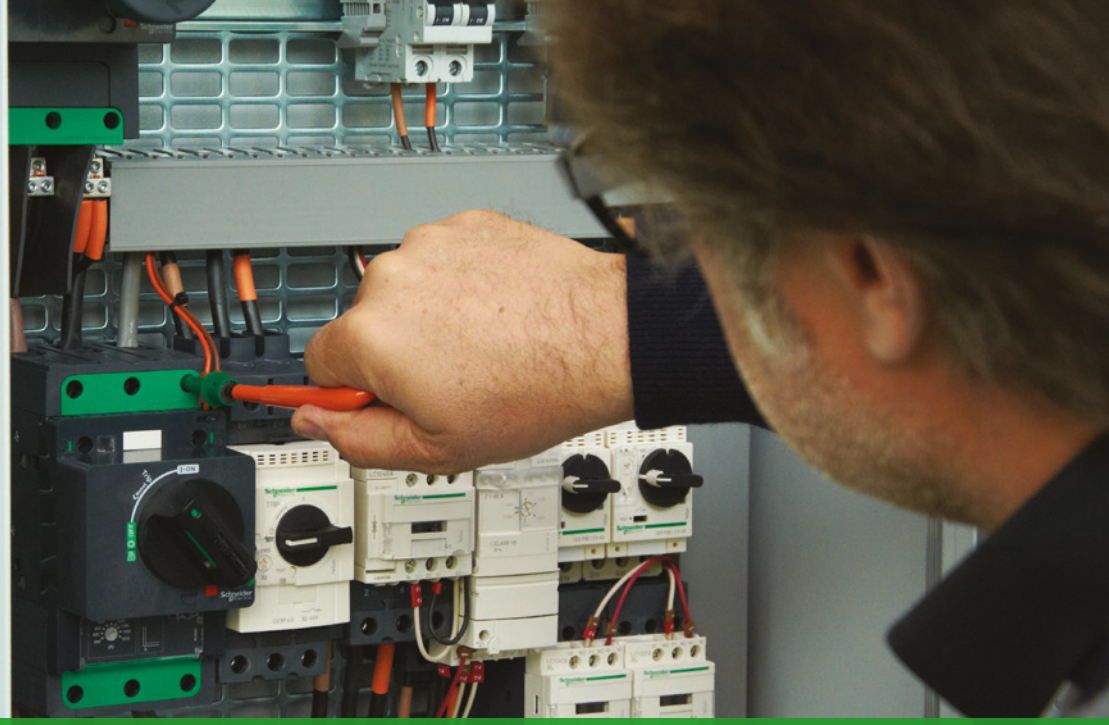
PEP: Product Environmental Profile

Schneider Electric publishes complete set of environmental data, including carbon footprint and energy consumption data for each of the lifecycle phases on all of its products, in compliance with the ISO 14025 PEP ecopassport program. PEP is especially useful for monitoring, controlling, saving energy, and/or reducing carbon emissions.

EoLI: End of Life Instructions

Available at the click of a button, these instructions provide:

- Recyclability rates for Schneider Electric products.
- Guidance to mitigate personnel hazards during the dismantling of products and before recycling operations.
- Parts identification for recycling or for selective treatment, to mitigate environmental hazards/ incompatibility with standard recycling processes.



New TeSys GV4

motor circuit breakers

New motor control and protection completing an established product family

TeSys range is the result of more than 90 years of Schneider Electric expertise and leadership.

We are proud to introduce a new family member: TeSys GV4, which gives you more advantages than ever. New TeSys GV4 is a compact and robust motor circuit breaker, up to 115 A with 100 kA breaking capacity, available with 3 kinds of protection: magnetic, electronic thermal magnetic, electronic thermal magnetic with advanced protections and alarming designed for demanding applications.

TeSys GV4 is also equiped with patented Everlink power connections, and may be equiped with a wide range of accessories, mainly: auxiliaries (1 OF, 1SD, 1 coil MN or MX), rotary handle (direct, front extended or side) and advanced alarming and fault differentiation module.

TeSys GV2 range

1993

TeSys GV3 range

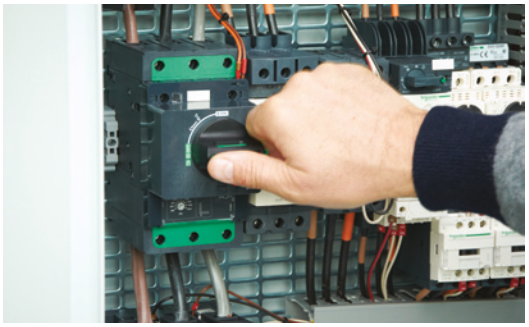
2007

New TeSys GV4 range

2017

New TeSys GV4

The safety of your applications is our first concern



I design and build machines.

Optimize your solution.

- Dual-class (10 and 20) and wide-range setting
- Benefit from working with one single worldwide equipment provider (TeSys, PowerPact, Altivar, Modicon, etc) and multi-standard offer
- Secured connections with 2 holes EverLink for power and spring-type for control
- Ergonomic and robust rotary handle

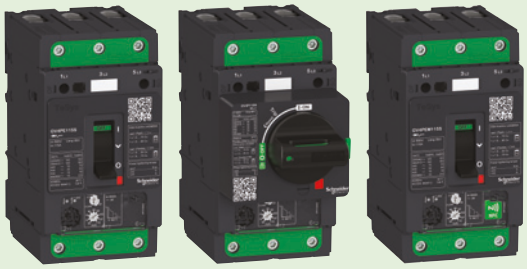
I design and built Motor Control Centers

Win more projects and ensure profitable margin.

- Save time cabling with EverLink connectors and spring-type auxiliaries
- Same frame from 2 to 115 A up to 100 kA
- Type 2 coordination ensured
- Extended rotary handle with accurate “Trip” indication

Circuit breakers
TeSys GV2, GV3, GV4 and GV7

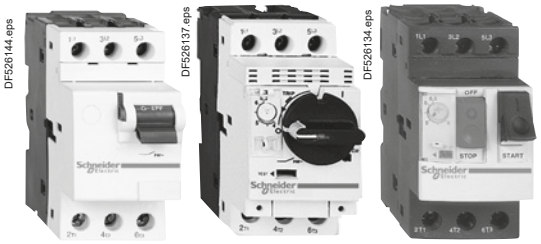
Circuit breakers - TeSys GV2, GV3, GV4 and GV7



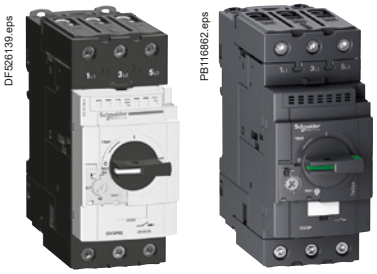
Technical Data for Designers page 55

TeSys protection components

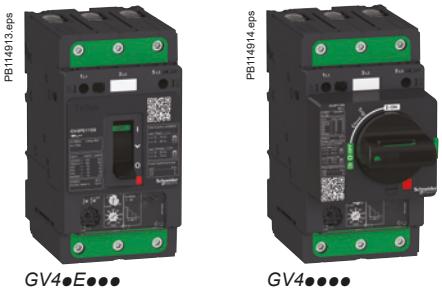
Motor circuit breakers GV2, GV3, GV4 and GV7



GV2LE *GV2P* *GV2ME*



GV3P *GV3P80*



GV4●E●●● *GV4●●●●*

GV7RE

Circuit breakers for motor protection and control

TeSys GV 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 110 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.

TeSys GV protection technologies

TeSys GV are carried with 3 variants:

- Magnetic detection: GV2LE, GV2L, GV3L, GV4L, GV4LE for protection against short-circuit.
- Thermal-magnetic: GV2ME, GV2P, GV3P, GV4P, GVAPE, GV7R for protection against short-circuits, overload, phase loss and phase unbalance.
- Advanced: 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.

GV2: 45 mm width, for motors up to 15 kW

The most commonly used circuit breaker. with a choice of about 100 auxiliaries and accessories. GV2 and TeSys D or K contactors can be easily assembled as a single block with one accessory.
The high GV2 electrical endurance (up to 100 000 manoeuvres) makes it very suitable for direct manual motor control, especially GV2ME (thermal-magnetic c.b., Ith up to 32 A).

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

GV3: 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.
Patended Everlink connectors provide everlasting connection (no re-tightening required).

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

GV4: 81 mm width, for motors up to 55 kW

State-of-the-art technology, GV4 is compact and robust. Electronic core of GV4P gives a great detection accuracy, with alarming and advanced protections for GV4PEM.
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).

GV7: 105 mm width, for motors up to 110 kW

GV7 magnetic + electronic detection provide high quality protection to high demanding appliances and power motors. Wide choice of auxiliaries/accessories for advanced applications.

TeSys protection components
Motor circuit breakers GV2, GV3, GV4 and GV7

GV2L

GV2LE

GV2P

GV2ME

GV3L

GV3P

GV4L

GV4P

GV4PEM

GV7RE

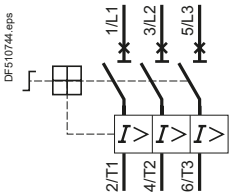
GV range overview

Molded case circuit breakers for motor protection and control

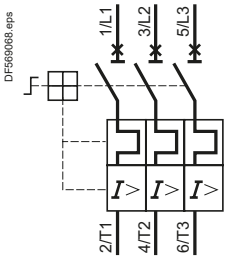
	Protection against			Range (kW / 415 V AC)	Control	Terminals	Dimensions without toggle (W x H x D)
	Short-circuits	Overload	Jam, ground fault, long start... (Multifunction - see page 4)				
GV2							
GV2L	●			0.09 to 15	Rotary handle	Screw clamp	44.5 x 89 x 66
GV2LE	●			0.06 to 15	Toggle	Screw clamp	44.5 x 89 x 66
GV2P	●	●		0.06 to 15	Rotary handle	Screw clamp	44.5 x 89 x 97
GV2ME	●	●		0.06 to 11	Push button	Screw clamp, lug or spring	44.5 x 89 c 67.2 (1)
GV3							
GV3L	●			11 to 45	Rotary handle	Lug, EverLink (BTR screw)	55 x 132 x 136 (with toggle)
GV3P	●	●		5.5 to 45			
GV4							
GV4L	●			0.25 to 55	Rotary handle	Lug, EverLink (BTR screw)	81 x 154 x 105
GV4LE	●				Toggle		
GV4P	●	●			Rotary handle		
GV4PE	●	●			Toggle		
GV4PEM	●	●	●		Toggle		
GV7							
GV7R	●	●		55 to 110	Toggle	Lug, screw clamp	105 x 161 x 111 (2) (with toggle)

(1) 44.5 x 101 x 82 mm for GV2ME●●3.
(2) 105 x 161 x 126 mm for GV7R●220.

TeSys protection components
Motor circuit breakers GV2, GV3, GV4 and GV7

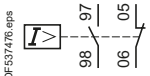


Thermal protection circuit breaker (with rotary control)



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 (GV4P and GV7).
The magnetic tripping threshold is not adjustable, except on GV4L, and is a fixed ratio of the maximum setting current In.

Overload protection (thermal magnetic circuit breakers)
It provides a protection of the motor against overload. A 5% current increase over In will rise temperature of the motor by 10°, and so will divide its life expectancy by 2. This protection is obtained by means of a thermal element incorporated in the motor circuit breaker, or by sensors for electronic products (GV4P and GV7).
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 protecting 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.

TeSys protection components
Motor circuit breakers GV2, GV3, GV4 and GV7

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Advanced protections embedded on GVAPEM (multifunction)

In addition to basic protections, GV4PEM 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 an application on Android smartphone through NFC (near field communication).

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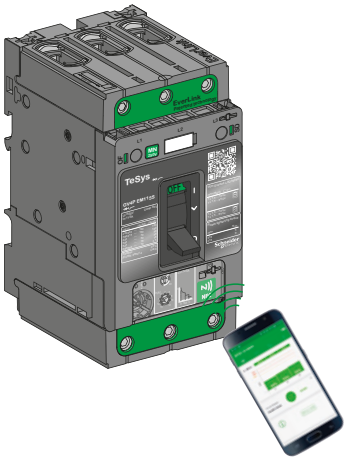

- with Ecoreach software on a computer connected to the test socket through a configuration and maintenance module

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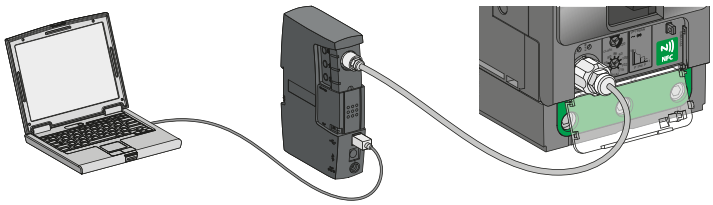
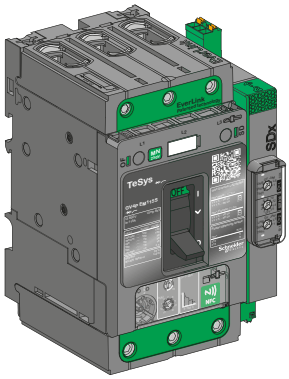


Remote indications:
GV4PEM circuit breaker may be equipped with an SDx alarming / fault differentiation module to prevent to trip or to identify the type of fault after a trip (see page 38).

DB424931.eps



TeSys protection components
Motor circuit breakers GV2, GV3, GV4 and GV7

EverLink technology for TeSys GV3 and GV4

TeSys GV3 and GV4 features a cable connection method with patented creep-compensating technology built directly into the terminal — EverLink:
- With EverLink connectors, save space and time during panel assembly.
- Bare cable connections are as safe as compression lug ones.

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EverLink terminals, with BTR screws

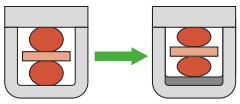
No overheating connections - EverLink creep-compensated terminals for GV3 and GV4

The EverLink patented technology for terminals dramatically reduces the risk of loose bare cables due to copper creeping. Vibration withstand is improved and periodic re-tightening is no longer needed.

EverLink® Long lasting connection quality

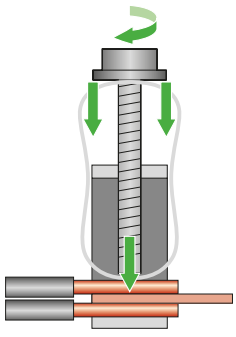
The clamp connectors which don't need re-tightening.

Creeping phenomena

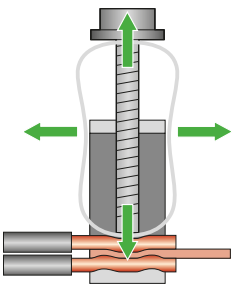


Copper conductors are subject to creep with the time, reducing the contact pressure in conventional clamps

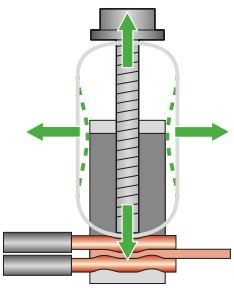
During the tightening a force is applied on the conductors and on a spring



Maintaining of cables assured by pressure of spring and crimping of conductor on the contact plate

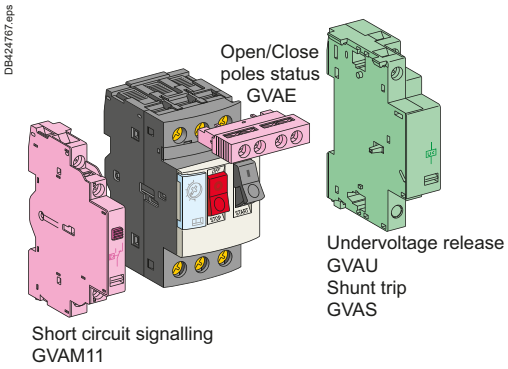


The spring compensates for cable conductor creep. Tightening force is assured.

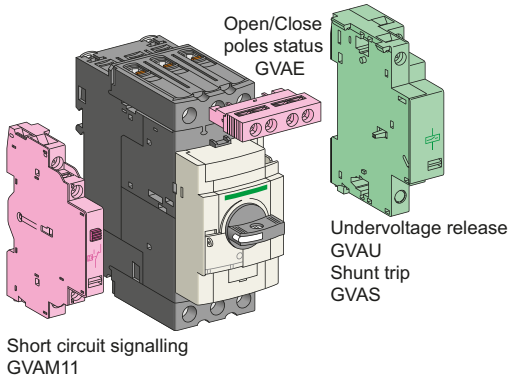


TeSys protection components
Motor circuit breakers GV2, GV3, GV4 and GV7

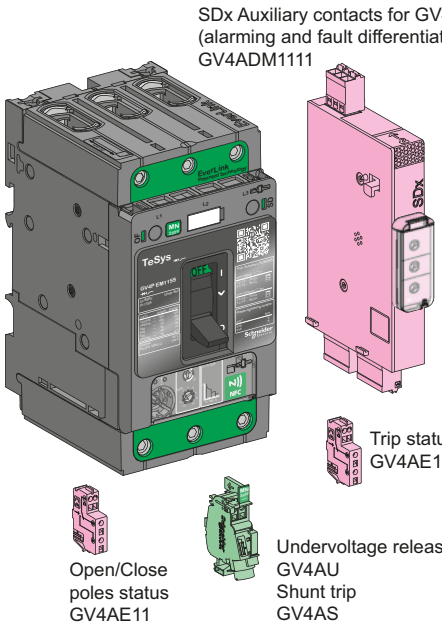
Auxiliary functions provided by add-on blocks



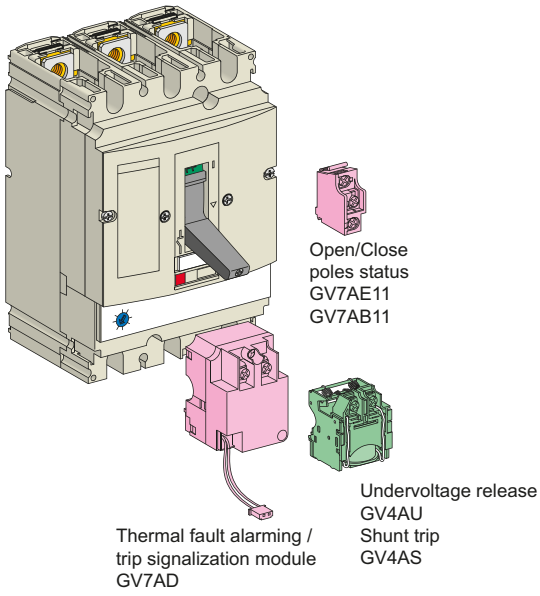
GV2



GV3



GV4



GV7

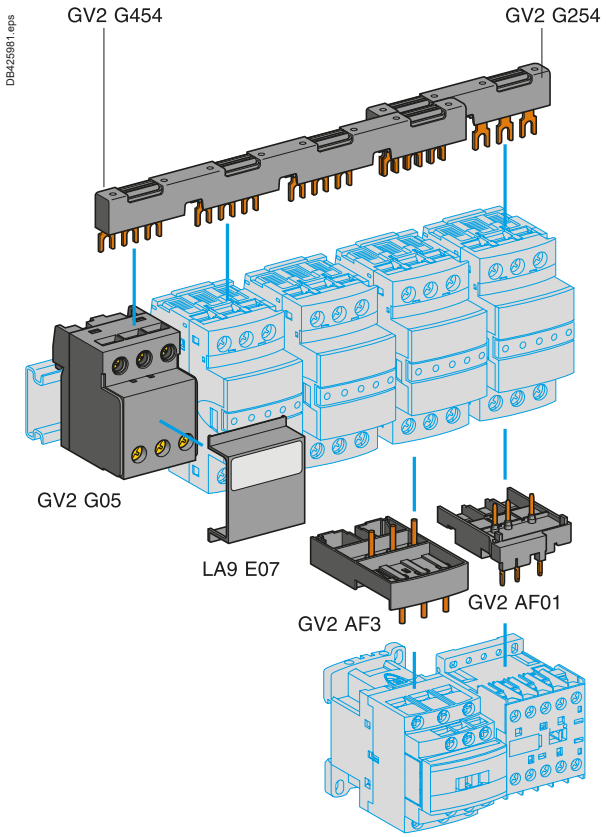
Auxiliary contacts add-on blocks
For control, alarms, automatic actions:
- **Instantaneous** indication of the position of the circuit breaker contacts
- **Trip indication**,
- **Alarming**

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

TeSys protection components
Motor circuit breakers GV2, GV3, GV4 and GV7

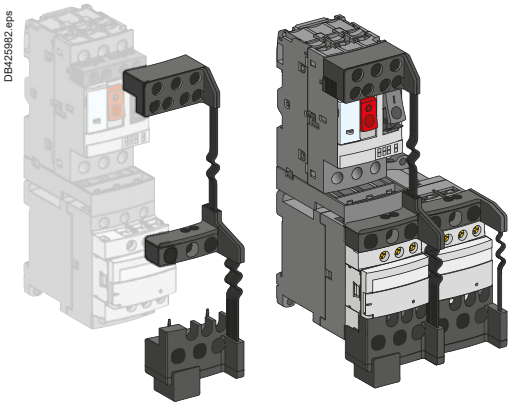
Compact power circuits wiring with of GV2 + TeSys D contactors (1)

Busbars and combination blocks
Power busbars and combinations blocks provide a compact solution for assembling a group of motor starters. Theysave wiring time and provide a clear finish aspect.
These solutions are available for GV2 circuit breakers + TeSys D contactors

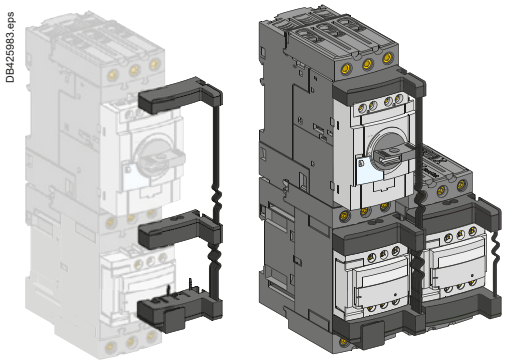


Quick control circuits wiring of GV2, GV3 + TeSys D contactors (1)

TeSys SoLink RJ45 connection modules
The LAD5C●● connection modules ensure compatibility of GV2, GV3 circuit breaker + Tesys D contactor assemblies with the RJ45 connection system. Require screw clamp terminals. Benefits are reduced wiring time, reliable connection.



SoLink for GV2 + TeSys D Direct, Reverse assemblies



SoLink for GV3 + TeSys D Direct, Reverse assemblies

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

TeSys GV2

0.06 to 15 kW

TeSys protection components

Magnetic motor circuit breakers GV2L

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GV2L10

Motor circuit breakers from 0.09 to 15 kW

GV2L: Control by rotary knob, connection by screw clamp terminals

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3									Magnetic protection rating	Tripping current Id ± 20 %	Use in association with thermal overload relay (class 10 A)	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		
0.09	★	★	–	–	–	–	–	–	0.4	5	LRD 03	**GV2L03**
0.12	★	★	–	–	–	0.37	★	★	0.63	8	LRD 04	**GV2L04**
0.18	★	★	–	–	–	–	–	–	0.63	8	LRD 04	**GV2L04**
–	–	–	–	–	–	0.55	★	★	1	13	LRD 05	**GV2L05**
0.25	★	★	–	–	–	–	–	–	1	13	LRD 05	**GV2L05**
–	–	–	–	–	–	0.75	★	★	1	13	LRD 06	**GV2L05**
0.37	★	★	0.37	★	★	–	–	–	1	13	LRD 05	**GV2L05**
0.55	★	★	0.55	★	★	1.1	★	★	1.6	22.5	LRD 06	**GV2L06**
–	–	–	0.75	★	★	–	–	–	1.6	22.5	LRD 06	**GV2L06**
0.75	★	★	1.1	★	★	1.5	4	100	2.5	33.5	LRD 07	**GV2L07**
1.1	–	–	–	–	–	–	–	–			LRD 08	**GV2L08**
1.5	★	★	1.5	★	★	3	4	100	4	51	LRD 08	**GV2L08**
–	–	–	–	–	–	–	–	–			LRD 08	**GV2L08**
2.2	★	★	3	★	★	4	4	100	6.3	78	LRD 10	**GV2L10**
3	★	★	4	10	100	5.5	4	100	10	138	LRD 12	**GV2L14**
4	–	–	–	–	–	–	–	–			LRD 14	**GV2L14**
–	–	–	–	–	–	7.5	4	100	10	138	LRD 14	**GV2L14**
–	–	–	–	–	–	9	4	100	14	170	LRD 16	**GV2L16**
5.5	50	50	7.5	10	75	11	4	100	14	170	LRD 16	**GV2L16**
7.5	50	50	9	10	75	15	4	100	18	223	LRD 21	**GV2L20**
9	50	50	11	10	75	18.5	4	100	25	327	LRD 22	**GV2L22**
11	50	50	15	10	75	–	–	–	25	327	LRD 22	**GV2L22**
15	50	50	18.5	10	75	22	4	100	32	416	LRD 32	**GV2L32**

(1) As % of Icu. Associated current limiter or fuses, where required. See characteristics page.
★) > 100 kA.

TeSys protection components

Magnetic motor circuit breakers GV2LE

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GV2LE10

Magnetic motor circuit breakers from 0.06 to 15 kW

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 Id ± 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	LR2 K0302	**GV2LE03**
0.09	★	★	**–**	–	–	**–**	–	–	0.4	5	LR2 K0304	**GV2LE03**
0.12	★	★	**–**	–	–	**0.37**	★	★	0.63	8	LR2 K0304	**GV2LE04**
0.18	★	★	**–**	–	–	**–**	–	–	0.63	8	LR2 K0305	**GV2LE04**
–	–	–	**–**	–	–	**0.55**	★	★	1	13	LR2 K0305	**GV2LE05**
0.25	★	★	**–**	–	–	**–**	–	–	1	13	LR2 K0306	**GV2LE05**
–	–	–	**–**	–	–	**0.75**	★	★	1	13	LR2 K0306	**GV2LE05**
0.37	★	★	**0.37**	★	★	**–**	–	–	1	13	LR2 K0306	**GV2LE05**
0.55	★	★	**0.55**	★	★	**1.1**	★	★	1.6	22.5	LR2 K0307	**GV2LE06**
–	–	–	**0.75**	★	★	**–**	–	–	1.6	22.5	LR2 K0307	**GV2LE06**
0.75	★	★	**1.1**	★	★	**1.5**	3	75	2.5	33.5	LR2 K0308	**GV2LE07**
1.1	★	★	**–**	–	–	**–**	–	–	2.5	33.5	LR2 K0308	**GV2LE07**
1.5	★	★	**1.5**	★	★	**3**	3	75	4	51	LR2 K0310	**GV2LE08**
–	–	–	**2.2**	★	★	**–**	–	–	4	51	LR2 K0312	**GV2LE08**
2.2	★	★	**3**	50	100	**4**	3	75	6.3	78	LR2 K0312	**GV2LE10**
3	★	★	**4**	10	100	**5.5**	3	75	10	138	LR2 K0314	**GV2LE14**
4	★	★	**5.5**	10	100	**–**	–	–	10	138	LR2 K0316	**GV2LE14**
–	–	–	**–**	–	–	**7.5**	3	75	10	138	LRD 14	**GV2LE14**
–	–	–	**–**	–	–	**9**	3	75	14	170	LRD 16	**GV2LE16**
5.5	15	50	**7.5**	6	75	**11**	3	75	14	170	LR2 K0321	**GV2LE16**
7.5	15	50	**9**	6	75	**15**	3	75	18	223	LRD 21	**GV2LE20**
9	15	40	**11**	4	75	**18.5**	3	75	25	327	LRD 22	**GV2LE22**
11	15	40	**15**	4	75	**–**	–	–	25	327	LRD 22	**GV2LE22**
15	10	50	**18.5**	4	75	**22**	3	75	32	416	LRD 32	**GV2LE32**

(1) As % of Icu.
★) > 100 kA.

TeSys protection components

Thermal-magnetic motor circuit breakers GV2ME

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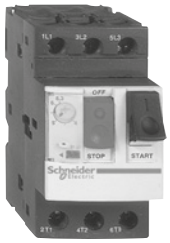

GV2ME10

Motor circuit breakers from 0.06 to 15 kW / 400 V, with screw clamp terminals

GV2ME with pushbutton control

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3									Setting range of thermal trips (2)	Magnetic tripping current Id ± 20 %	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	
–	–	–	–	–	–	**–**	–	–	0.1…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…16	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: **GV2ME08** becomes **GV2ME086**.

Thermal magnetic circuit breakers GV2 ME with built-in auxiliary contact block

With instantaneous auxiliary contact block (composition, see page 14):

■ GV AE1, add suffix **AE1TQ** to the motor circuit breaker reference selected above.
Example: **GV2ME01AE1TQ**.
■ GV AE11, add suffix **AE11TQ** to the motor circuit breaker reference selected above.
Example: **GV2ME01AE11TQ**.
■ GV AN11, 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 Icu.
(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.

TeSys protection components

Thermal-magnetic motor circuit breakers GV2ME

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GV2ME●●3

Motor circuit breakers from 0.06 to 11 kW, with spring terminal connections

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 Id ± 20 %	Reference
400/415 V			500 V					
P	Icu	Ics (2)	P	Icu	Ics (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 **0.18**	★ ★	★ ★	–	–	–	0.40…0.63	8	**GV2ME043**
0.25 **0.37**	★ ★	★ ★	**0.37**	★	★	0.63…1	13	**GV2ME053**
0.37 **0.55**	★ ★	★ ★	**0.37** **0.55** **0.75**	★ ★ ★	★ ★ ★	1…1.6	22.5	**GV2ME063**
0.75	★	★	**1.1**	★	★	1.6…2.5	33.5	**GV2ME073**
1.1 **1.5**	★ ★	★ ★	**1.5** **2.2**	★ ★	★ ★	2.5…4	51	**GV2ME083**
2.2	★	★	**3**	50	100	4…6.3	78	**GV2ME103**
3 **4**	★ ★	★ ★	**4** **5.5**	10 10	100 100	6…10	138	**GV2ME143**
5.5	15	50	**7.5**	6	75	9…14	170	**GV2ME163**
7.5	15	50	**9**	6	75	13…18	223	**GV2ME203**
9 **11**	15 15	40 40	**11**	4	75	17…23	327	**GV2ME213**
11	15	40	**15**	4	75	20…25	327	**GV2ME223**

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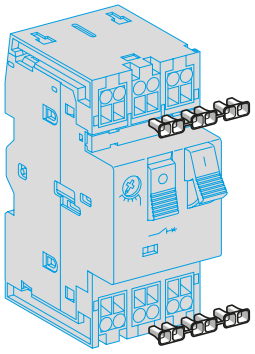

LA9 D99

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 mm²	20	**LA9D99**

*(1) For connection of conductors from 1 to 1.5 mm², the use of an **LA9 D99** 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.

TeSys protection components

Thermal-magnetic motor circuit breakers GV2P

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GV2P10

Motor circuit breakers from 0.06 to 15 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 Id ± 20 %	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	
GV2 P: 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.
Exemple; 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 500 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

GV2 (3)

To obtain a GV2 **P** motor circuit breaker, UL 60947-4-1 type E, use the following with the circuit breaker:
■ a “Large Spacing” adapter **GV2GH7.**

(1) As % of Icu.
(2) The thermal trip setting must be within the range marked on the graduated knob.
(3) Accessory: see page 16.
★ > 100 kA.

TeSys protection components

Thermal-magnetic circuit breakers GV2RT

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GV2RT

For motors with high current peak on starting

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

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			
kW	kW	kW	kW	kW	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	Reference
Padlockable external operator (IP 54) black handle, blue legend plate	**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 GV2 ME motor circuit breakers, see page 17.

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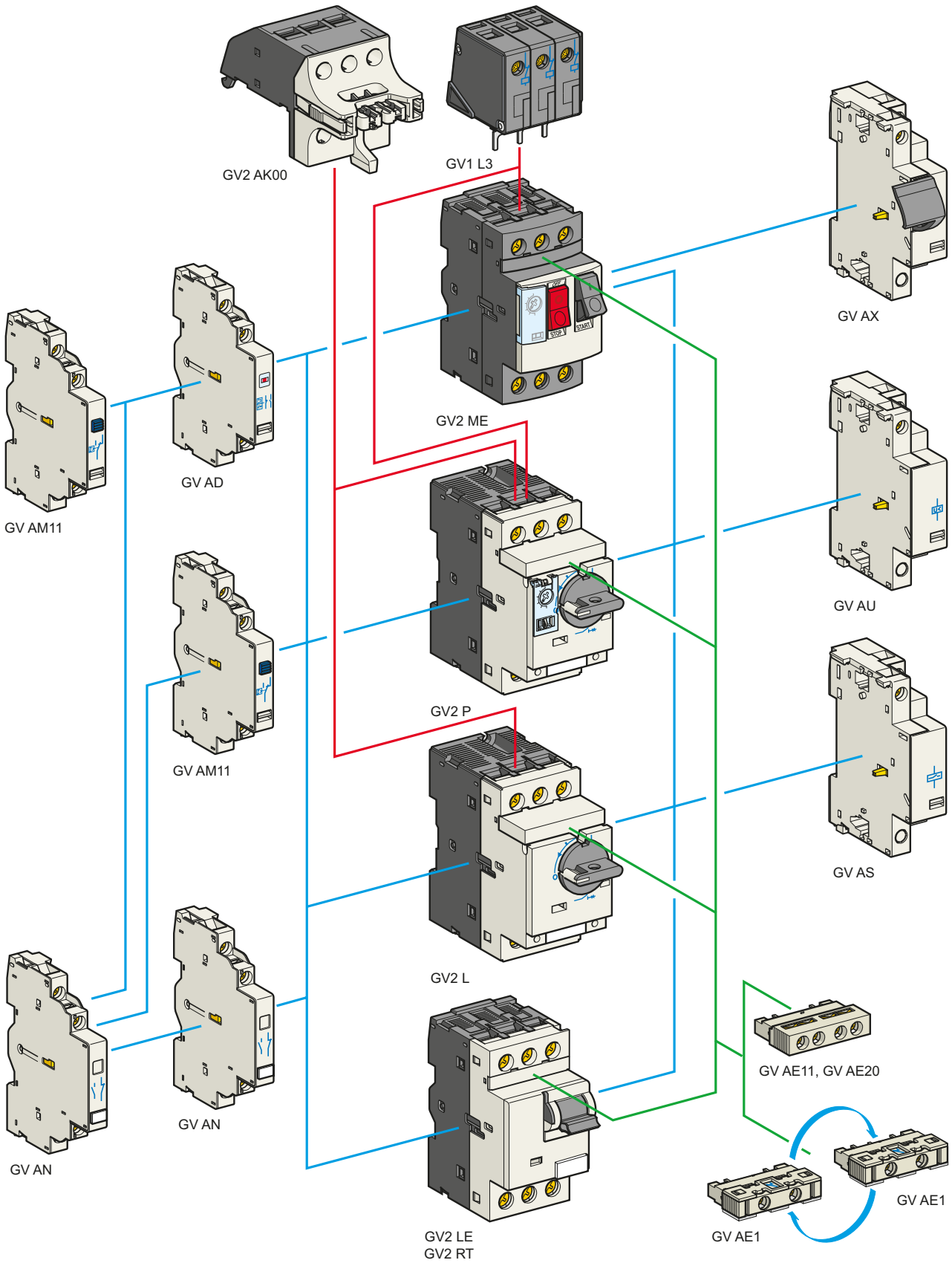


TeSys protection components

Thermal-magnetic and magnetic motor circuit breakers GV2 with screw clamp connections

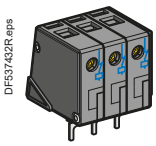
Add-on blocks and accessories

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

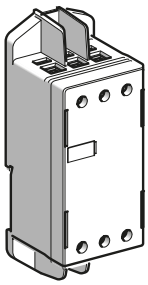
Mounting	Voltage		Reference
Undervoltage or shunt trips (4)			
Side (1 block on RH side of circuit breaker)	24 V	50 Hz	**GVA●025**
		60 Hz	**GVA●026**
	48 V	50 Hz	**GVA●055**
		60 Hz	**GVA●056**
	100 V	50 Hz	**GVA●107**
	100…110 V	60 Hz	**GVA●107**
	110…115 V	50 Hz	**GVA●115**
		60 Hz	**GVA●116**
	120…127 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 GV2 ME) Safety device for dangerous machines conforming to INRS and VDE 0113			
Side (1 block on RH side of circuit breaker GV2 ME)	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**



GV1L3

Limiter blocks

Description	Mounting	Maximum number	Reference
Visible isolation block (5)	Front (1)	1	**GV2AK00 (6)**
Limiters	At top (GV2ME and GV2P)	1	**GV1L3**
	Independent	1	**LA9LB920**



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 **GV AD** 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**.*
*Visible isolation block **GV2 AK00** cannot be used with motor circuit breakers GV2 P32 and GV2 L32 (Ith max = 25 A).*
(6) Ie Max = 32 A.

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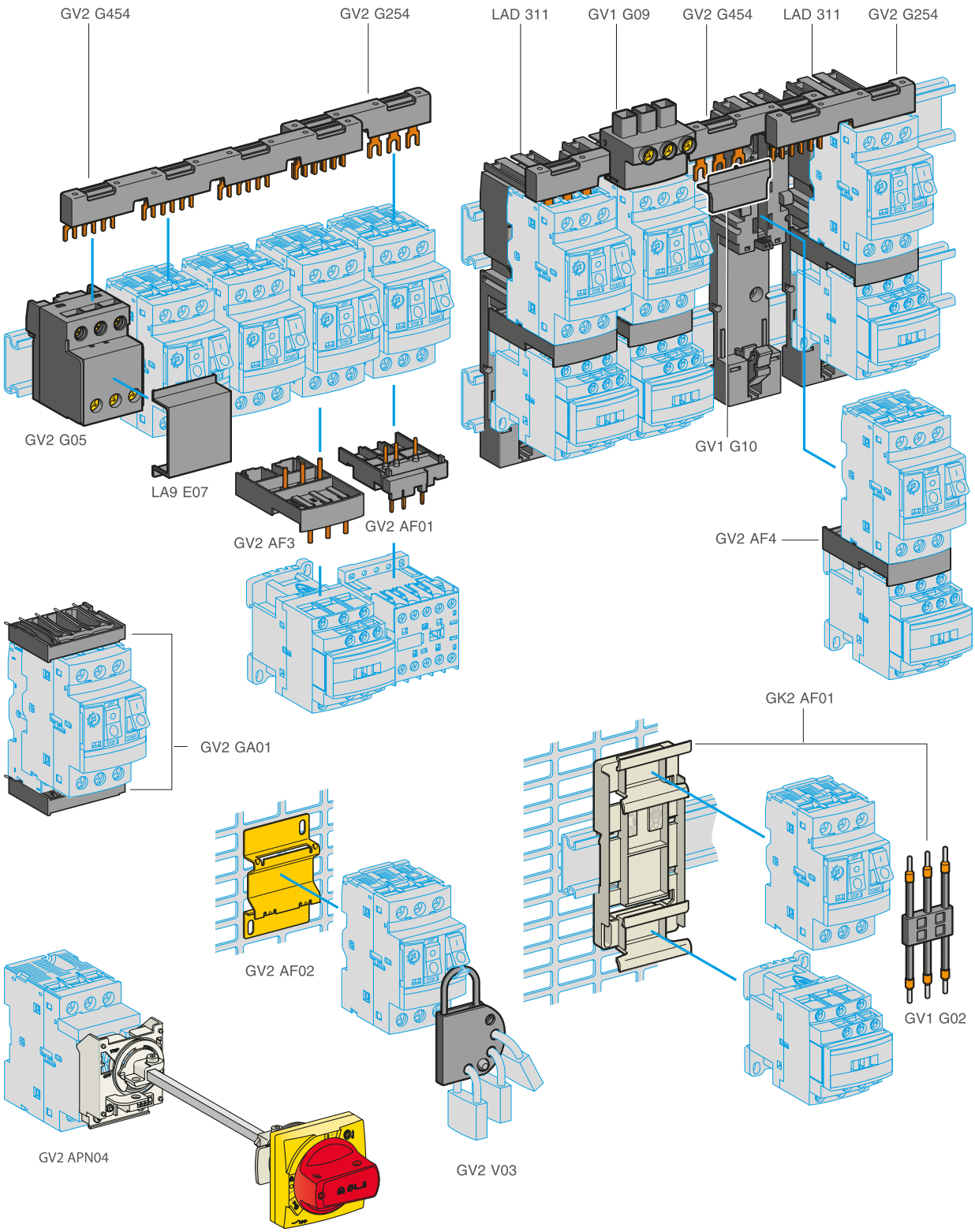

TeSys protection components

Thermal-magnetic and magnetic motor circuit breakers GV2 with screw clamp connections

Accessories

Accessories

Description	Application	Sold in lots of	Unit reference
Adapter plates	For mounting a GV2ME or GV2LE 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	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	Reference
		mm	
Sets of 3-pole Ie = 63 A busbars	2 tap-offs	45	**GV2G245**
		54	**GV2G254**
		72	**GV2G272**
	3 tap-offs	45	**GV2G345**
		54	**GV2G354**
	4 tap-offs	45	**GV2G445**
		54	**GV2G454**
		72	**GV2G472**
	5 tap-offs	54	**GV2G554**

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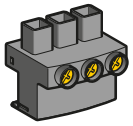
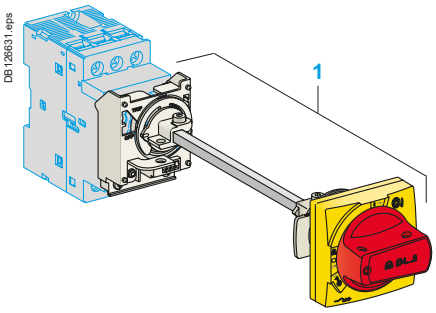


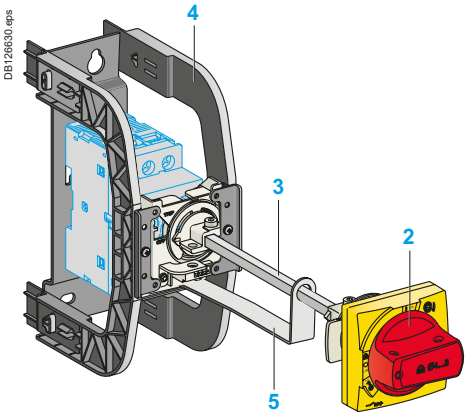
GV1 G09

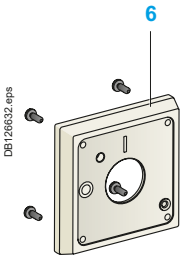
Description	Ie	Application	Sold in lots of	Unit reference
	A			
Protective end cover	-	For unused busbar outlets	5	**GV1G10**
Terminal block for supply to one or more GV2 G busbar sets	63	Connection from the top	1	**GV1G09**
	63	Can be fitted with current limiter GV1 L3 (GV2ME and GV2P)	1	**GV2G05**
Cover for terminal block	-	For mounting in modular panels	10	**LA9E07**
Flexible 3-pole connection for connecting a GV2 to a contactor LC1-D09…D25	25	Centre distance between mounting rails: 100…120 mm	10	**GV1G02**
Set of connections upstream/downstream	16	For connecting GV2 ME to a printed circuit board	10	**GV2GA01**
"Large Spacing" adapter UL 60947-4-1 type E	-	For GV2 P●●H7 (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**

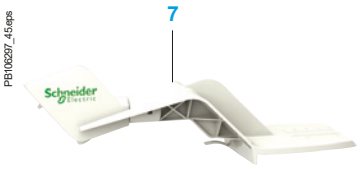
TeSys protection components

Thermal-magnetic and magnetic motor circuit breakers GV2 with screw clamp connections









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 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 Black handle, blue front plate, IP 54	-	**GV2AP03**
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**
	Black handle, without trip status, IP 65	1	**GVAPB65**
Shaft			
For GV2P/L	L = 315 mm	3	**GVAPA1**
Bracket			
For GV2P/L		4	**GVAPH02**
Shaft support plate for deep enclosure			
For GV2P/L	Depth ⩾ 250 mm	5	**GVAPK11**
Retrofit accessory			
For GV2P/L		6	**GVAPP1**
Laser Square accessory			
For GV2P/L		7	**GVAPL01**

Sticker		Sold in lots of		
Warning label	For French	10	-	**GVAPSFR**
	For English	10	-	**GVAPSEN**
	For German	10	-	**GVAPSDE**
	For Spanish	10	-	**GVAPSES**
	For Chinese	10	-	**GVAPSCN**
	For Portuguese	10	-	**GVAPSPT**
	For Russian	10	-	**GVAPSRU**
	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 GV3

11 to 45 kW

TeSys protection components

Magnetic motor circuit breakers GV3L

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GV3L65

Motor circuit breakers from 0.09 to 45 kW

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									Magnetic protection rating	Tripping current Id ± 20 %	Use in association with thermal overload relay (class 10 A)	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		
11	100	100	**15**	12	50	**18.5**	6	50	25	350	LRD 325	**GV3L25**
15	100	100	**18.5**	12	50	**22**	6	50	32	448	LRD 332	**GV3L32**
18.5	50	100	**22**	12	50	**37**	6	50	40	560	LRD 340	**GV3L40**
22	50	100	**30**	12	50	**45**	6	50	50	700	LRD 350	**GV3L50**
30	50	100	**37**	12	50	**55**	6	50	65	910	LRD 365	**GV3L65**
37	50	60	**45**	12	50	**55**	6	50	73	1120	LRD 380	**GV3L73** (2)
45	50	60	**45**	12	50	**55**	6	50	80	1100	LRD 380	**GV3L80** (2)(3)

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

To assemble a **GV3L25** to **L73** circuit breaker with an **LC1D40A** to **D80A** 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: **GV3L73** becomes **GV3L731**. Do not use direct mounting between **GV3L80** and **LC1D80A** because of potential overheating, use cable link.

Connection by lugs

To order these circuit breakers with connection by lugs, add the digit **6** to the end of reference selected above. Example: **GV3L32** becomes **GV3L326**.

(1) As % of Icu. Associated current limiter or fuses, where required. See characteristics page 24.
(2) Available Q4 2017.
(3) 750 A peak current max.
★ > 100 kA.

TeSys protection components

Thermal-magnetic motor circuit breakers GV3P

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GV3P651

PB116862.tif

GV3P80

Motor circuit breakers from 0.06 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 Id ± 20 %	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	
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** (4)
45	50	60	**45**	12	50	**55**	6	50	70...80	1120	**GV3P80** (4)(5)

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

To assemble a **GV3P13** 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: **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: **GV3P18** becomes **GV3P186**.

Motor circuit breakers up to 50 hp / 600 V, UL 60947-4-1 type E

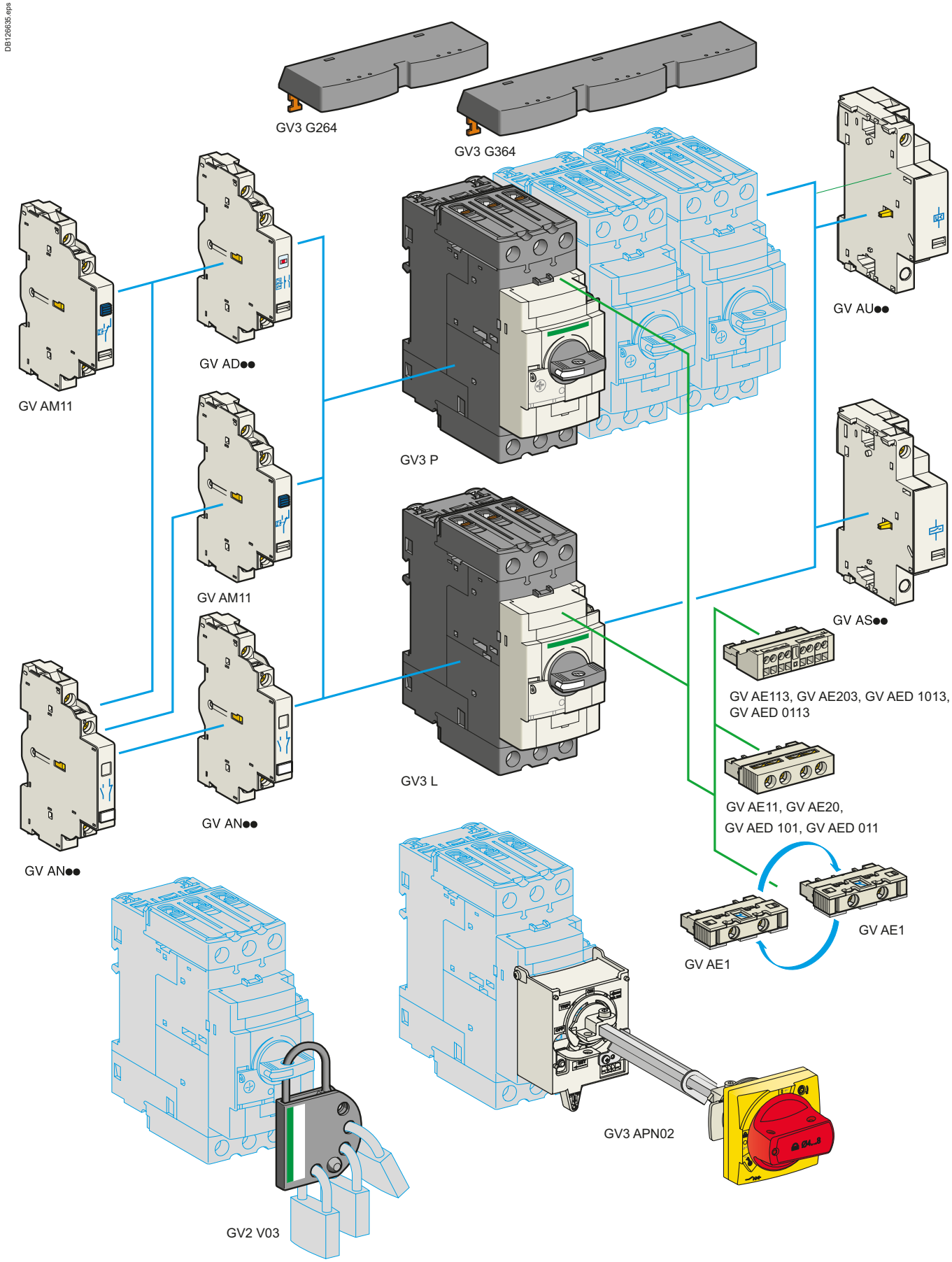
GV3 (6)

To obtain a motor-circuit breaker GV3**P**, UL 60947-4-1 type E, use the following with the circuit breaker:
- a "Large Spacing" cover **GV3G66**,
- a short-circuit signalling contact **GVAM11**.

GV3 with connection by lugs (6)

To obtain a motor-circuit breaker GV3**P**, 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) Available Q4 2017.
(5) 750 A peak current max.
(6) Accessories: see page 25.
★ > 100 kA.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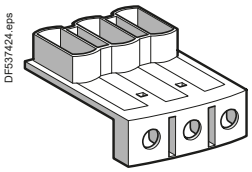
GV3 G264
GV3 G364
GV AU●●
GV AD●●
GV AM11
GV3 P
GV AM11
GV AS●●
GV AE113, GV AE203, GV AED 1013,
GV AED 0113
GV3 L
GV AE11, GV AE20,
GV AED 101, GV AED 011
GV AN●●
GV AN●●
GV AE1
GV AE1
GV3 APN02
GV2 V03

TeSys protection components

Thermal-magnetic motor circuit breakers GV3P and GV3L

Add-on blocks and accessories



GV3G66

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	**GVAN11** (2)
			N/O + N/O		1	**GVAN20** (2)
Fault signalling contact + instantaneous auxiliary contact	Front	1	N/O (fault)	+ N/O	1	**GVAED101** (2)
			N/O (fault)	+ N/C	1	**GVAED011** (2)
	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 - undervotlage 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 **Ie = 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**.*

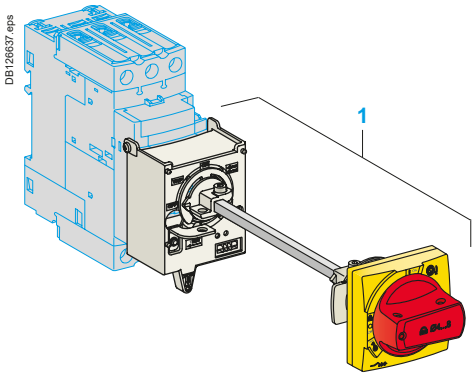
Limited torque throwaway bits

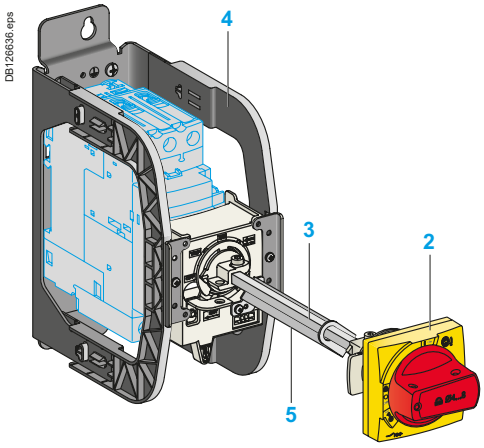
Torque limiting breakaway bits

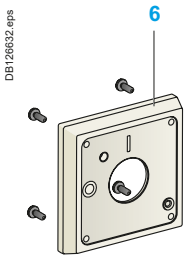
Description	Sold in lots of	Reference
5 N.m Yellow	6	**LV426992**
9 N.m Green	6	**LV426990**

TeSys protection components

Thermal-magnetic motor circuit breakers GV3P and GV3L







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 accurency to align the circuit breaker and the rotary handle.

Padlockable external operators for GV3 and GV3L

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**
	Black handle, without trip status, IP65		2	**GVAPB65**
	Red handle, without trip status IP65		2	**GVAPR65**
Shaft				
For GV3P/L	L = 315 mm		3	**GVAPA1**
Bracket				
For GV3P/L			4	**GVAPH03**
Shaft support plate for deep enclosure				
For GV3P/L	Depth ≥ 300 mm		5	**GVAPK12**
Retrofit accessory				
For GV3P/L			6	**GVAPP1**
Laser Square accessory				
For GV3P/L			7	**GVAPL01**
Sticker		**Sold in lots of**		
Warning label	For French	10	-	**GVAPSFR**
	For English	10	-	**GVAPSEN**
	For German	10	-	**GVAPSDE**
	For Spanish	10	-	**GVAPSES**
	For Chinese	10	-	**GVAPSCN**
	For Portuguese	10	-	**GVAPSPT**
	For Russian	10	-	**GVAPSRU**
	For Italian	10	-	**GVAPSIT**

TeSys GV4

0.25 to 55 kW

Protection

TeSys GV4 motor circuit breaker covers motor protection from 0.25 to 55 kW at 415 V AC (from 0.8 to 115 A) in one frame and is available in 3 breaking capacities: 25, 50 and 100 kA at 415 V AC IEC (15, 35, 65 kA at 480 V UL).

Tesys GV4 is available with 3 types of protection:
- Magnetic GV4L: to be used with an overload relay or a drive
- Thermal magnetic GV4P: electronic protection with wide range setting, dual class (10 & 20)
- Multifunction motor protection GV4PEM: GV4P with adjustable advanced protections and possibility to have a side module SDx for alarming and fault differentiation.

Power connections

TeSys GV4 comes in standard with 2-holes EverLink™ power connectors with creep (1) compensation for bare copper cables. This Schneider Electric patended technique makes it possible to achieve accurate and durable tightening torque in order to avoid cable creep.
Products may be delivered too with connectors for bars or cables with compression lugs.
Whatever, the connectors are field interchangeables 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.

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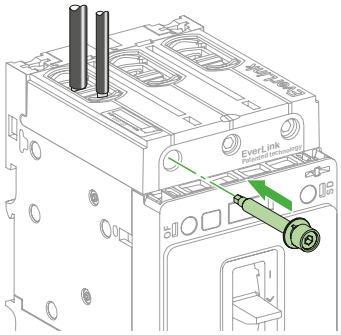

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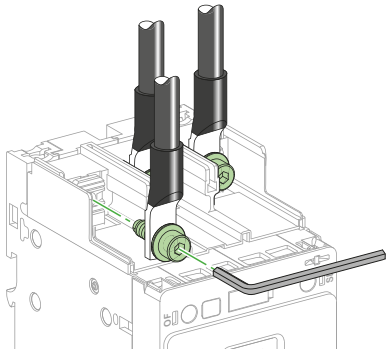

Mounting

TeSys GV4 can be mounted on a backplate or on a DIN rail (35 or 75 mm).

Handle

TeSys GV4 can be ordered with a toggle or a direct rotary handle (except for 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 GV4 circuit breakers can be equiped with an open/close (OF) contact and a trip indication (SD) contact. These contacts are common point changeover type, with a normaly open (NO) and a normaly closed (NC) contact.
TeSys GV4 may be equiped too with an MN (undervoltage release) or MX (shunt trip) coil.

GV4P Multifunction circuit breakers can be equiped with 1 or 2 SDx module(s) in order to have alarming and fault differentiation (SDx - See page 38)

Auxiliaries have spring connections for cables up to 1.5 mm².

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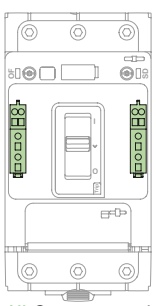
OF **SD**



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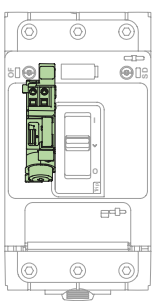
MN/MX



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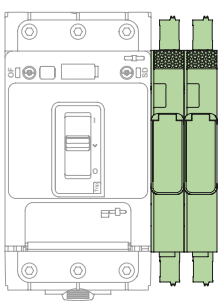
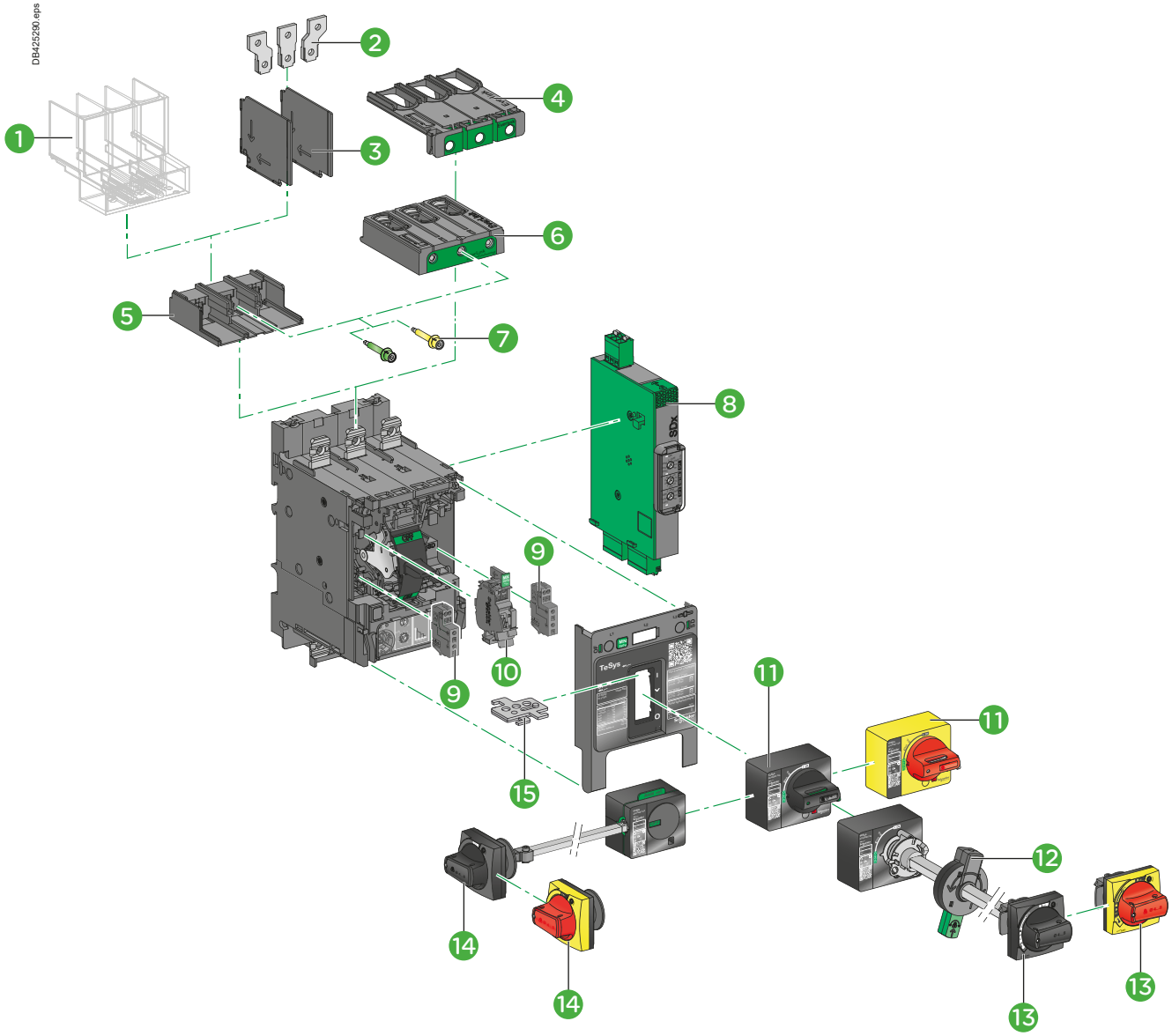
SDx



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

TeSys protection components

TeSys GV4 overview



1 Long terminal shield **LAD96590**
2 Terminal spreaders **LV426940**
3 Interphases barriers **LV426920**
4 Large spacing cover for EverLink connector **GV4G66**
5 Crimp lug connector **GV4LUG**
6 EverLink® connector **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**

TeSys protection components

Magnetic motor circuit breakers GV4L and GV4LE

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GV4L

PB114909.eps

GV4LE

Protection

Setting is made using dial.

Trip class (class)
GV4 L can be used with class 5, 10 or 20 relay.

Short circuit protection (Ii)
Protection with an adjustable pick-up **Ii = 6 to 14 In**. Settings are made in amperes.

Standards and certifications
IEC/EN 60947-1, IEC/EN 60947-2, CCC, EAC.

TeSys protection components

Magnetic motor circuit breakers GV4L and GV4LE

Magnetic motor circuit breakers from 0.25 to 55 kW

Standard power ratings of 3-phase motors - 50 / 60 Hz									In	Magnetic setting range (Ii)	Use in association with overload relay Class 10 or 20	Reference with EverLink terminals	
400/415 V			500 V			690 V							
P	Icu	Ics (1)	P	Icu	Ics (1)	P	Icu	Ics (1)				with toggle	with rotary handle
kW	kA	%	kW	kA	%	kW	kA	%	A	A			
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) LRD3363 (63... 80A)	**GV4LE80B**	**GV4L80B**
	50	100		25	100		8	25				**GV4LE80N**	**GV4L80N**
	100	100		30	100		10	25				**GV4LE80S**	-
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**	-

Connection by lugs

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

(1) As % of Icu.

TeSys protection components

Thermal-magnetic motor circuit breakers GV4P and GV4PE

PB114914_30.eps

GV4P

PB114913.eps

GV4PE

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 **Isd = 13 Ir.**

Short-circuit protection (Ii)
Instantaneous protection with non-adjustable pick-up **Ii=17 In**.

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 **Ig = In**
- fixed time delay **tg = 0.1 s**

Indications

Front indications
- Green “Ready” LED: flashes slowly when the circuit breaker is ready to trip in the event of a fault.
- 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).

TeSys protection components

Thermal-magnetic motor circuit breakers GV4P and GV4PE

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	Icu	Ics (1)	P	Icu	Ics (1)	P	Icu	Ics (1)		with toggle	with rotary handle
kW	kA	%	kW	kA	%	kW	kA	%	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		**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**	-
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**	-

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.

TeSys protection components

Thermal-magnetic motor circuit breakers GV4PEM

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GV4PEM

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.
- 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-circuit protection (Ii)
Instantaneous protection with non-adjustable pick-up **Ii=17 In**.

Advanced protection

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

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 (Ig, tg)
Residual type ground-fault protection, with OFF position:
- adjustable pick-up **Ig**:
  - 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 **tg** 0.1...0.4 s.

Jam (Ijam, tjam)
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 **Ijam** pick-up that can be fine-adjusted from 1.5 to 8 Ir
- in conjunction with the **tjam** time delay that can be adjusted from 1 to 30 s.

Long start (Ilong, tlong)
This protection supplements thermal protection (class). It is used to better adjust protection 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 **Ilong** pick-up that can be fine-adjusted from 1.5 to 8 Ir
- in conjunction with the **tlong** 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 a fault.
- 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 38.

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).

TeSys protection components

Thermal-magnetic motor circuit breakers GV4PEM

Thermal magnetic motor circuit breakers from 0.25 to 55 kW

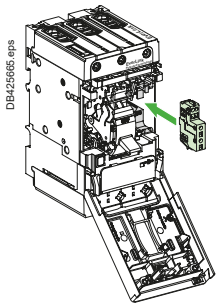
Standard power ratings of 3-phase motors - 50 / 60 Hz in category AC-3									Thermal setting range (Ir)	"Reference with EverLink terminals"
400/415 V			500 V			690 V				
P	Icu	Ics [1]	P	Icu	Ics [1]	P	Icu	Ics [1]		with toggle
kW	kA	%	kW	kA	%	kW	kA	%	A	
0.25... 0.75	25	100	0.37... 1.1	10	100	0.55... 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

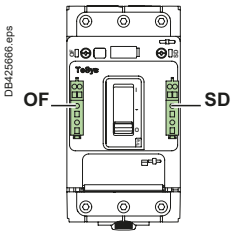
Connection by lugs

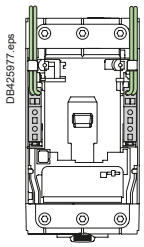
To order circuit breakers with connection by lugs, add the digit **6** to the end of reference selected above. Example: **GV4PE02N** becomes **GV4PE02N6**.

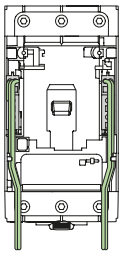
(1) As % of Icu.

GV4AE11 auxiliary contact block

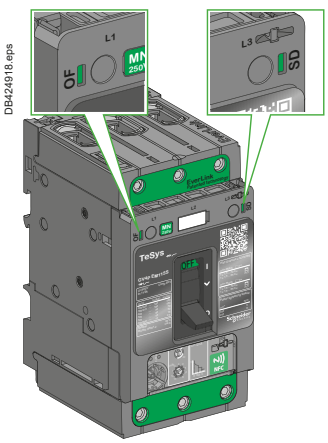








Pluggable auxiliary contact - OF or SD is dependent on cavity. Multiple internal wiring possibilities, even with long terminal shields



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**

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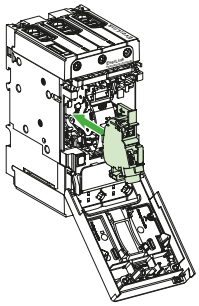
GV4AS137 shunt trip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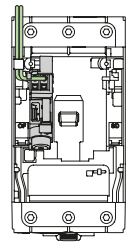
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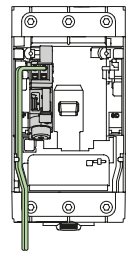
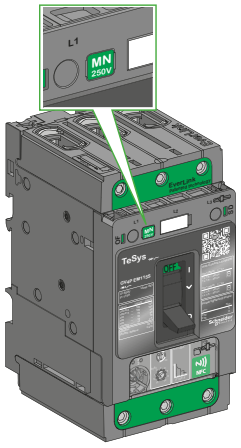


MN or MX plugged into cavity. Multiple internal wiring possibilities, even with long terminal shields



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

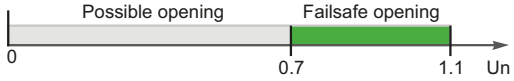
MX shunt trip, MN undervoltage release

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 (Un).
- 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 groundfault sensing element.
- Continuous duty rated coil (1).



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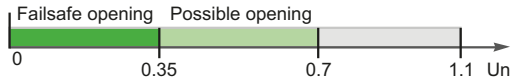
Opening conditions of the MX release.

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 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. 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".



DB421269.eps

Opening conditions of the MN release.

DB421270.eps

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

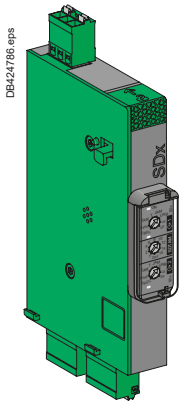
Circuit breaker must be locally reset after trip by shunt trip (MX) or undervoltage release (MN).Tripping by MX or MN has priority over manual closing; in the presence of a standing trip order such an action does not result in main contacts closing, even temporarily.

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).

TeSys protection components

SDx contact module for GV4PEM circuit breaker



GV4ADM1111 SDx contact module

SDx contact module for GV4PEM (Multifunction)

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

- SD**T95%** overload alarm: thermal image of the motor is greater than 95 % of the permissible temperature rise.
- SD**Txxs** 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 Ecoreach software and an interface module (TRV00911).
- SD**TAM** 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.
- SD**T** overload trip indication: circuit breaker has tripped due to an overload fault
- SD**JAM** jam trip indication: circuit breaker has tripped due to a jam fault
- SD**UNB** phase unbalance trip indication: circuit breaker has tripped due to an unbalance fault
- SD**LS** long start trip indication: circuit breaker has tripped due to a long start fault
- SD**GF** ground fault trip indication: circuit breaker has tripped due to a ground fault.

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

Output characteristics

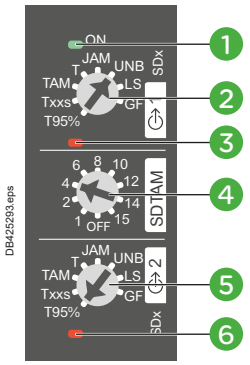
- 2 NO/NC dry contacts
- 24...250 V AC/DC
- 2 mA...5 A max
- AC15 (230 V max - 400 VA)
- DC13 (24 V - 50 W)

Power characteristics

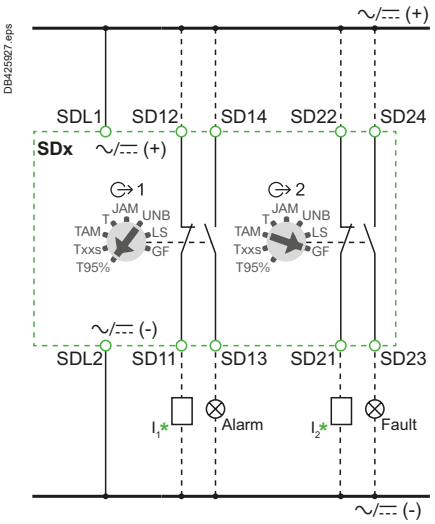
- 24...240 V AC/DC

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.

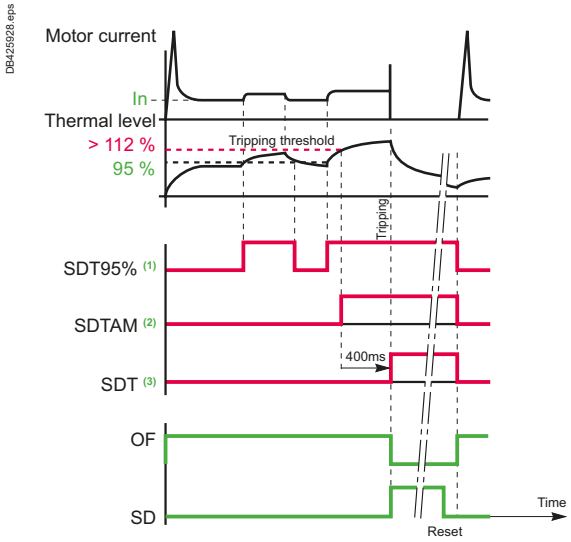


1. Green led lighted when the module is powered.
2. Output 1: SD status assignment.
3. Red led lighted when output 1 is activated.
4. Cooling time setting before automatic restart (OFF – 1…15 min).
5. Output 2: SD status assignment.
6. Red led lighted when output 2 is activated.



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

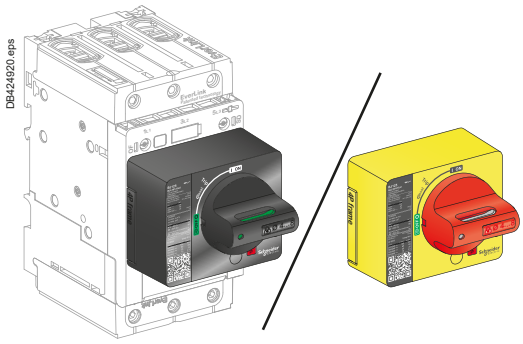
SDx wiring diagram



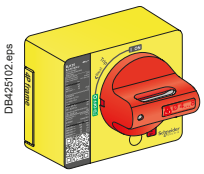
GV4PEM curves
SDx modules curves
Aux. contacts curves

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

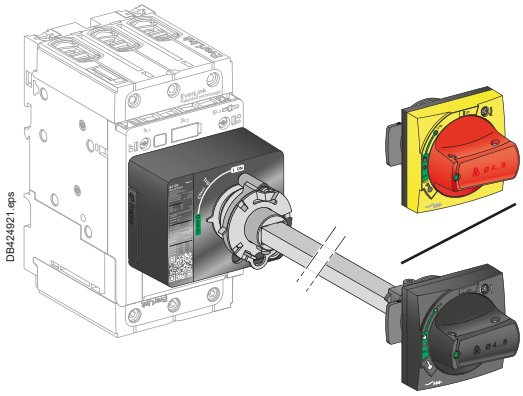
Description	Mounting	Maximum number	Type of contacts	Unit reference
SDx: alarming / fault differentiation module	Side	2	N/O / N/C	**GV4ADM1111**



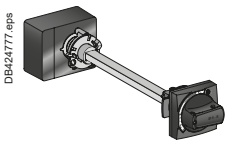
Direct mounting rotary handle



GV4ADN02 direct mounting rotary handle



Front extended rotary handle (door-mounting)



GV4APN01 front extended rotary handle kit

GVAPL01 laser tool

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 fault 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 personel 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 529.

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 fault 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.

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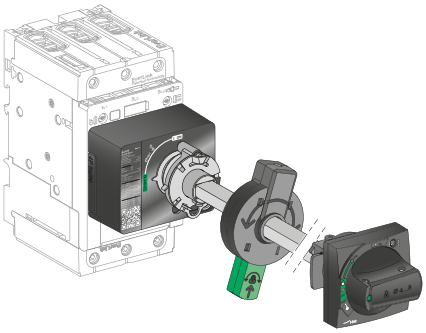

Open door shaft operator mounted on front extended rotary handle assembly

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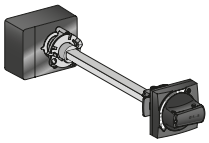

GV4APN01 front extended rotary handle kit

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LV426937 open door shaft operator

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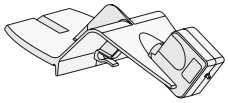

GVAPL01 laser tool

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**
Laser tool			**GVAPL01**
GV4 universal handle (spare for front ext. & side rotary handle)	Black handle	IP54	**LV426997**
	Red handle on yellow bezel	IP54	**LV426998**
		IP65	**LV426999**

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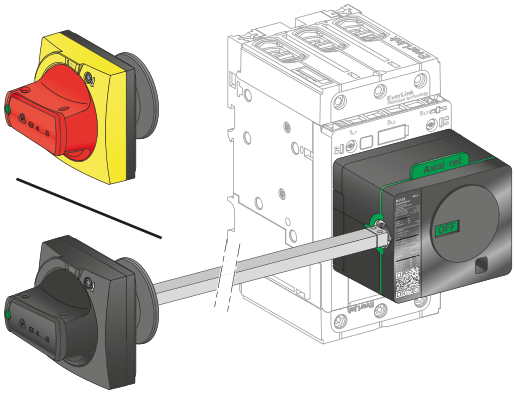

Side extended rotary handle (cover mounting)

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 fault 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.

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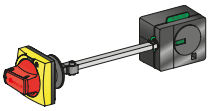

LV426936 side rotary handle kit

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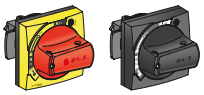


LV426998, LV426997 universal handles

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**
GV4 universal handle (spare for front ext. & 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.

TeSys protection components

Locks and sealing accessories

Handle padlocking devices

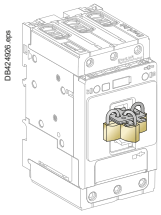
Padlocking systems can receive up to three padlocks with diameters of 5-8 mm (4-8 mm for rotary handles); padlocks not supplied. Locking in the OFF position guarantees isolation as per IEC 60947-2.

Direct rotary handle padlocking
By padlock – No accessory required.
- Lock in OFF position.
- Lock in ON position with simple mechanism modification.

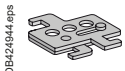
Front Extended /Side rotary handle padlocking
By padlock – No accessory required.
- Lock in OFF position.
- Lock in ON position with simple mechanism modification (black handle only).

Door opening prevented.

Toggle handle padlocking
By padlock – removable toggle locking device required **29370**.
- Lock in OFF position.



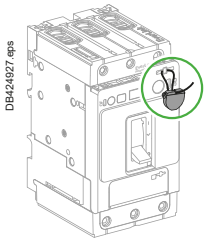
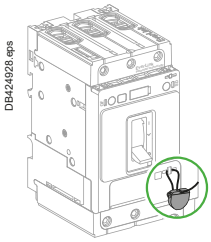
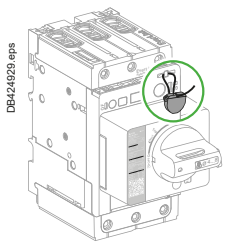
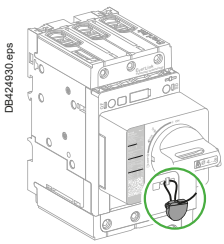
3 padlocks mounted on 29370 toggle locking device



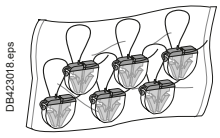
29370 removable toggle locking device

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		

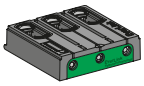
Description	Reference
Bag of 6 leads + 6 sealing accessories	**LV429375**



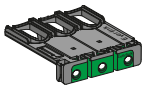
LV429375 leads + sealing accessories

TeSys protection components

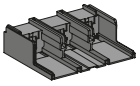
Cabling, test accessories, softwares



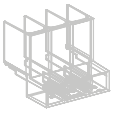
LAD96595
EverLink connector



GV4G66
large spacing cover for EverLink connector



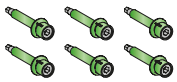
GV4LUG
crimped lug connector



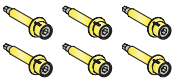
LAD96590
transparent terminal shield

LV426920
interphase barriers

LV426940
spreader 3-pole



LV426990
9 N.m green throwaway bits

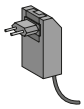


LV426992
5 N.m yellow throwaway bits

LV434206
pocket battery

TRV00910
maintenance case

TRV00911
Spare USB maintenance interface



TRV00915
spare power supply 110-240 V AC

TRV00917
spare GV4PEM cord for USB maintenance interface

EverLink power connection

Description	Reference
EverLink connector	**LAD96595**
Large spacing cover for EverLink connector	**GV4G66**

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	1	**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**
Maintenance case	**TRV00910**
Comprising: ■ USB maintenance interface ■ Power supply ■ GV4PEM cord ■ USB cord ■ RJ45/RJ45 male cord	
Spare USB maintenance interface	**TRV00911**
Spare power supply 110-240 V AC	**TRV00915**
Spare GV4PEM cord for USB maintenance interface	**TRV00917**

Software

Configuration and setting software Ecoreach	**Free download**

TeSys GV7

55 to 110 kW

TeSys protection components

Thermal-magnetic motor circuit breakers GV7R

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GV7RS220

Thermal-magnetic circuit breakers GV7R with screw clamp terminals up to 110 kW

Control by rocker lever

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3									Setting range of thermal trips	Reference	Weight
400/415 V			500 V			660/690 V					
P	Icu	Ics (1)	P	Icu	Ics (1)	P	Icu	Ics (1)			
kW	kA	%	kW	kA	%	kW	kA	%	A		kg
55 **75**	35 35	100 100	**75** **90**	30 30	100 100	**90** **110**	8 8	100 100	90…150	**GV7RE150**	2.020
55 **75**	70 70	100 100	**75** **90**	50 50	100 100	**90** **110**	10 10	100 100	90…150	**GV7RS150**	2.020
90 **110**	35 35	100 100	**110** **132** **160**	30 30 30	100 100 100	**160** **200**	8 8	100 100	132…220	**GV7RE220**	2.350
90 **110**	70 70	100 100	**110** **132** **160**	50 50 50	100 100 100	**160** **200**	10 10	100 100	132…220	**GV7RS220**	2.350

(1) As % of Icu.

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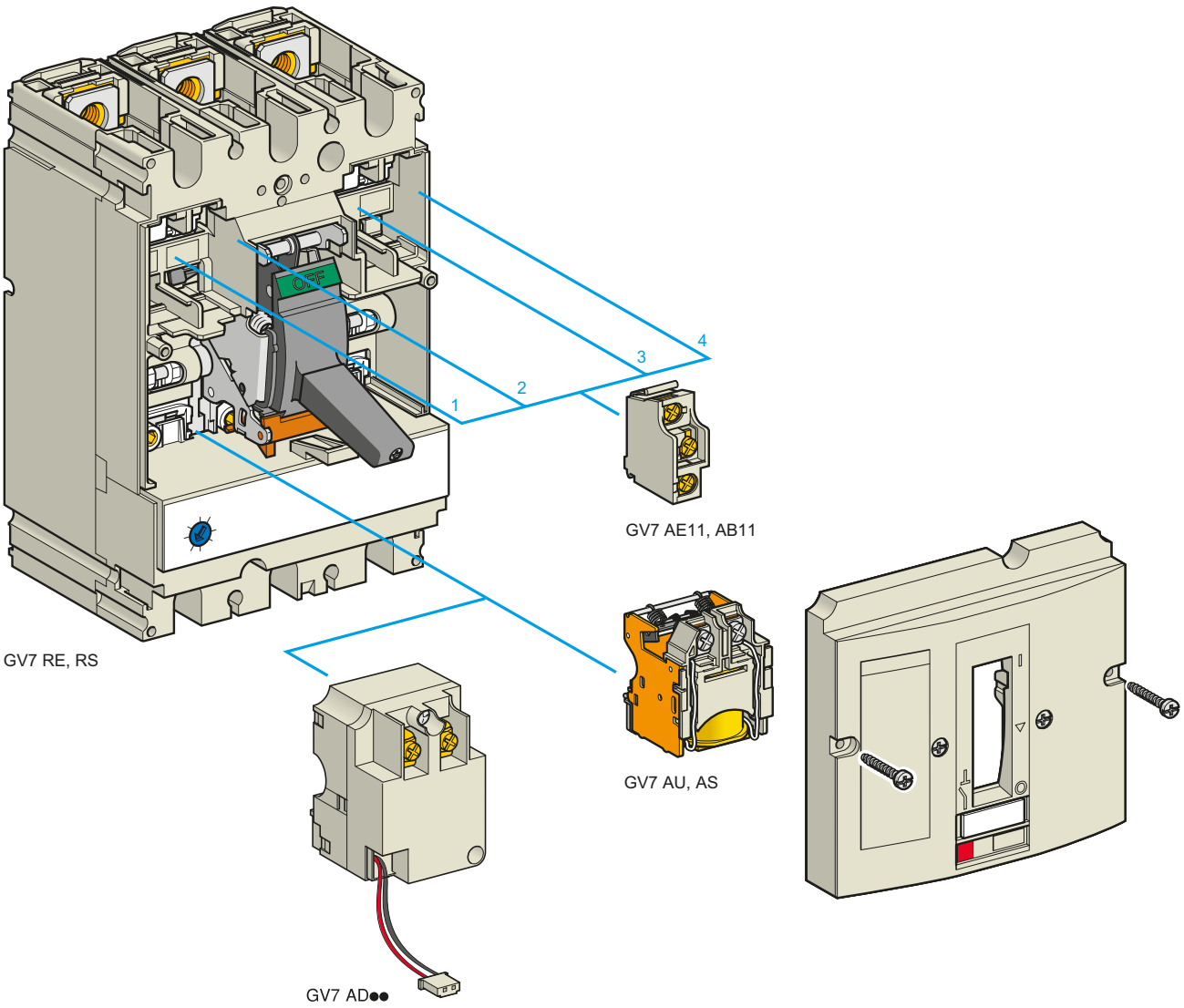

Add-on auxiliary contacts

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	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.

Type	Reference
Standard	**GV7AE11**
Low level	**GV7AB11**

Fault discrimination devices

These make it possible to:
- either differentiate a thermal fault from a magnetic fault,
- or open the contactor only in the event of a thermal fault.

Voltage	Reference
~ 24...48 and ⎓ 24…72 V	**GV7AD111** (1)
~ 110…240 V	**GV7AD112** (1)

Electric trips

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

■ Undervoltage trip GV7 AU
□ Trips the circuit breaker when the control voltage drops below the tripping threshold, which is between 0.35 and 0.7 times the rated voltage.
□ Circuit breaker closing is only possible if the voltage exceeds 0.85 times the rated voltage.
Circuit breaker tripping by a GV7 AU trip meets the requirements of IEC 60947-2.

■ Shunt trip GV7 AS
Trips the circuit breaker when the control voltage rises above 0.7 times the rated voltage.

■ Operation (GV7 AU or GV7 AS)
□ When the circuit breaker has been tripped by a GV7 AU or AS, it must be reset either locally or by remote control. (For remote control, please consult your Regional Sales Office).
□ Tripping has priority over manual closing: if a tripping instruction 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	48 V, 50/60 Hz	**GV7AU055** (1)
	110…130 V, 50/60 Hz	**GV7AU107** (1)
	200…240 V, 50/60 Hz	**GV7AU207** (1)
	380…440 V, 50/60 Hz	**GV7AU387** (1)
	525 V, 50 Hz	**GV7AU525** (1)
Shunt trip	48 V, 50/60 Hz	**GV7AS055** (1)
	110…130 V, 50/60 Hz	**GV7AS107** (1)
	200…240 V, 50/60 Hz	**GV7AS207** (1)
	380…440 V, 50/60 Hz	**GV7AS387** (1)
	525 V, 50 Hz	**GV7AS525** (1)

(1) For mounting of a GV7AD or a GV7AU or AS.

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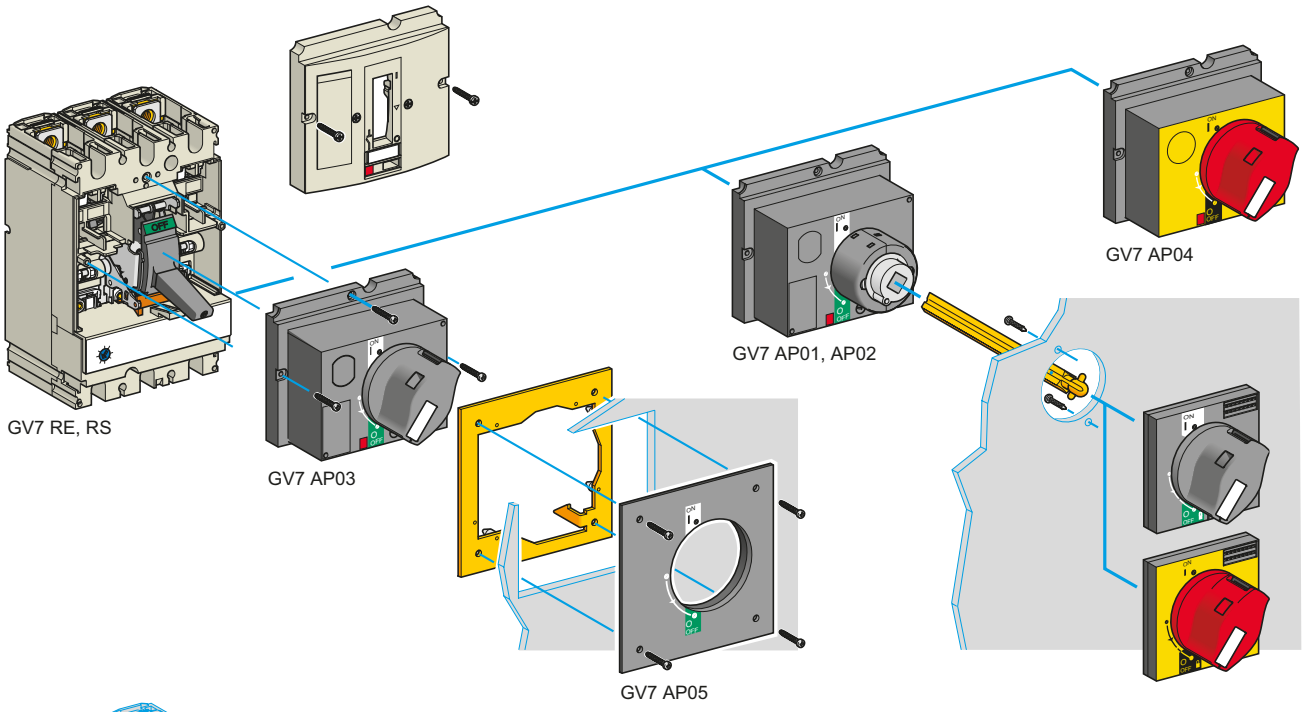
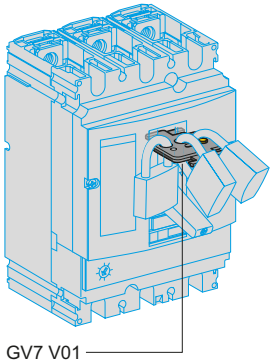
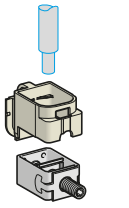
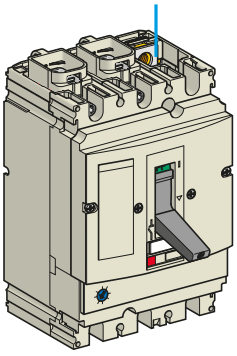
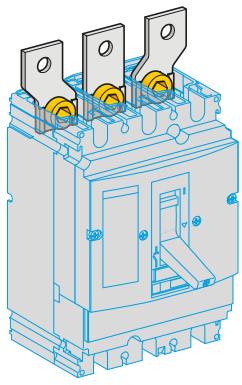
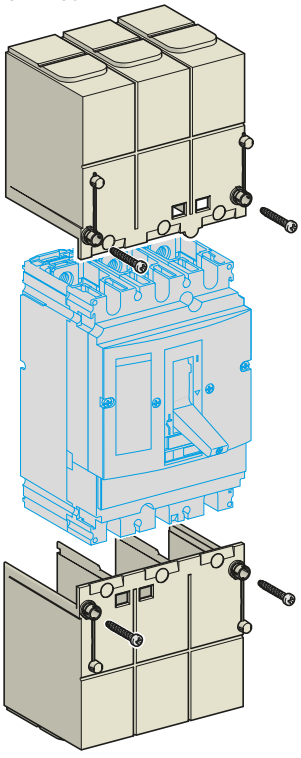


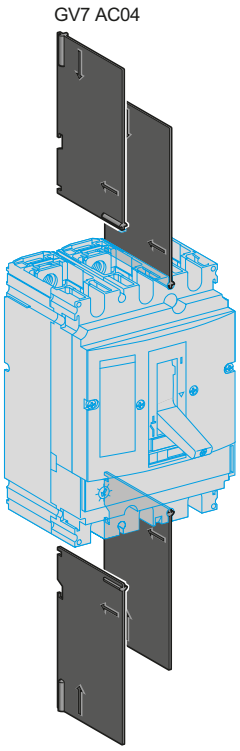








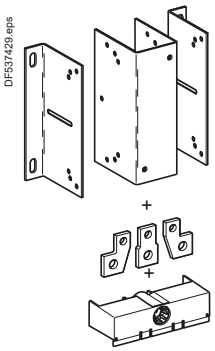




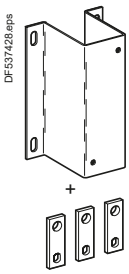
TeSys protection components

Thermal-magnetic motor circuit breakers GV7R with screw clamp connections

Accessories



GV7AC07



GV7AC08

Cabling accessories

Description	Application	For use on contactors	Sold in lots of	Unit reference
Clip-on connectors for GV7 R	Up to 150 A, 1.5…95 mm²	–	3	**GV7AC021**
	Up to 220 A, 1.5…185 mm²	–	3	**GV7AC022**
Spreader 3-pole (1)	To increase the pitch to 45 mm	–	1	**GV7AC03**
Terminal shields IP 405 (1)	Supplied with sealing accessory	–	1	**GV7AC01**
Phase barriers	Safety accessories used when fitting of shields is impossible	–	2	**GV7AC04**
Insulating screens	Ensure insulation between the connections and the backplate	–	2	**GV7AC05**
Kits for combination with contactor (2)	Allowing link between the circuit breaker and the contactor. The cover provides protection against direct finger contact	LC1F115…F185	1	**GV7AC06**
		LC1F225 and F265	1	**GV7AC07**
		LC1D115 and D150	1	**GV7AC08**

Direct rotary handle

Replaces the circuit breaker front cover; secured by screws. It includes a device for locking the circuit breaker in the O (Off) position by means of up to 3 padlocks with a shank diameter of 5 to 8 mm (padlocks not included). A 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.

Description	Type	Degree of protection	Reference
Direct rotary handle	Black handle, black legend plate	IP 40	**GV7AP03**
	Red handle, yellow legend plate	IP 40	**GV7AP04**
Adapter plate (3)	Four mounting direct rotary handle on enclosure door	IP 43	**GV7AP05**

Extended rotary handle

Allows a circuit breaker installed in the back of an enclosure to be operated from the front of the enclosure.
It comprises:
- a unit which screws onto the front cover of the circuit breaker,
- an assembly (handle and front plate) to be fitted on the enclosure door,
- an extension shaft which must be adjusted (distance between the mounting surface and the door: 185 mm minimum, 600 mm maximum). It includes a device for locking the circuit breaker in the O (Off) position by means of up to 3 padlocks with a shank diameter of 5 to 8 mm (padlocks not included). This prevents the enclosure door from being opened.

Description	Type	Degree of protection	Reference
Extended rotary handle	Black handle, black legend plate	IP 55	**GV7AP01**
	Red handle, yellow legend plate	IP 55	**GV7AP02**

Locking device

Allows circuit breakers not fitted with a rotary handle to be locked in the O (Off) position by means of up to 3 padlocks with a shank diameter of 5 to 8 mm (padlocks not included).

Description	Application	Reference
Locking device	For circuit breaker not fitted with a rotary handle	**GV7V01**

(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.
(3) This conversion accessory makes it impossible to open the door if the device is closed and prevents the device from being closed if the door is open.

TeSys GB2

0.5 to 20 A

(for equipment and control circuits)

Protection components

Thermal-magnetic circuit breakers TeSys GB2 for the protection of industrial equipment control circuits

Presentation

GB2 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.

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.

GB2 CS

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	Primary (1)		Secondary			
VA	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	GB2DB07	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.*

Protection components

Thermal-magnetic circuit breakers TeSys GB2 for the protection of industrial equipment control circuits

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GB2CB●●

Circuit breakers with magnetic tripping threshold: 12 to 16 In

Single-pole

Conventional rated thermal current Ith (1)	Magnetic tripping current Id ± 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**

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GB2CD●●

Single-pole + neutral

Conventional rated thermal current Ith (1)	Magnetic tripping current Id ± 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**

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GB2DB●●

2-pole

Conventional rated thermal current Ith (1)	Magnetic tripping current Id ± 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.

Protection components

Thermal-magnetic circuit breakers TeSys GB2 for the protection of industrial equipment control circuits

Circuit breakers with magnetic tripping threshold: 5 to 7 In

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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 GB2-CB, DB and CS

Description	Sold in lots of	Unit reference
Busbar set for supply to 10 GB2 DB or 20 GB2 CB or GB2 CS with 2 connectors	1	**GB2G210**
Supply connector	10	**GB2G01**

TeSys GV, GB

Technical Data for Designers

Contents

TeSys GV2

0.06 to 15 kW

Environment

Circuit breaker type				GV2L	GV2LE	GV2ME	GV2P	GV2 RT
Conforming to standards				IEC/EN 60947-4-1, IEC/EN 60947-2				
						UL60947-4-1 (1), CSA C22.2 n°60947-4-1		
Product certifications				CCC, EAC, BV, LROS, DNV-GL, RINA	CCC, EAC, BV, RINA	CCC, UL, CSA, EAC, ATEX, BV, LROS, DNV-GL, RINA	CCC, UL, CSA, EAC, ATEX, BV, LROS, DNV-GL, RINA	CCC, UL, CSA, EAC, BV, LROS
Protective treatment				"TH"				
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 60695-2-1		°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				
Sensitivy to phase failure				Yes, conforming to IEC 60947-4-1 § 7-2-1-5-2				

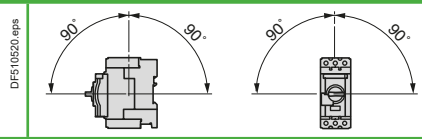
Technical characteristics

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, CSA C 22.2 n° 60947-4-1	V	-	-	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	0.16...32	0.40...23
Rated duty	Conforming to IEC 60947-4-1		Continuous duty				

(1) UL 60947-4-1 type E for GV2P●●H7.
(2) 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.
(3) For operation up to 70 °C, please consult your Regional Sales Office.

Mounting characteristics

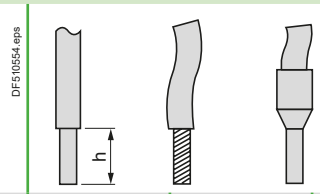
Operating position
Without derating, in relation to normal vertical mounting plane (1)



Connection characteristics

Connection to screw clamp terminals or spring terminals

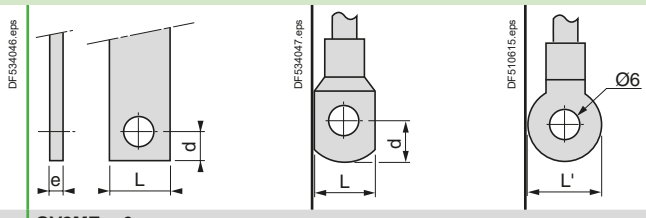
Bare cables



Circuit breaker type			GV2L		GV2LE		GV2ME		GV2P		GV2RT	
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Connection to screw clamp terminals (2) (Max. number of conductors x c.s.a.)	Solid cable	mm²	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 1	2 x 6
	Flexible cable without cable end	mm²	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 1.5	2 x 6
	Flexible cable with cable end	mm²	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 1	2 x 4
Tightening torque		N.m	1.7									
Connection to spring terminals Number of conductors x c.s.a.	Solid cable	mm²	–	–	–	–	2 x 1 (3)	2 x 6	–	–	–	–
	Flexible cable without cable end	mm²	–	–	–	–	2 x 1.5 (3)	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.	mm²	–
	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, **Ever**Link® 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.*

TeSys protection components

Magnetic motor circuit breakers GV2L and GV2LE

Breaking capacity of GV2L and GV2LE

Circuit breaker type				GV2 LE										GV2 L								
				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.

References: pages 9 to 20
Curves: pages 63 to 72
Dimensions: pages 76 to 85

TeSys protection components

Thermal-magnetic motor circuit breakers GV2ME and GV2P

Breaking capacity of GV2ME and GV2P

Circuit breaker type				GV2 ME									GV2 P								
				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
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
		gG	A	★	20	32	40	40	50	50	50	50	★	25	32	50	50	63	63	63	63

★ > 100 kA.
(1) As % of Icu.

References: pages 9 to 20
Curves: pages 63 to 72
Dimensions: pages 76 to 85

TeSys protection components

Thermal-magnetic motor circuit breakers GV2 ME and GV2P

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

Circuit breaker type				GV2ME									
				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

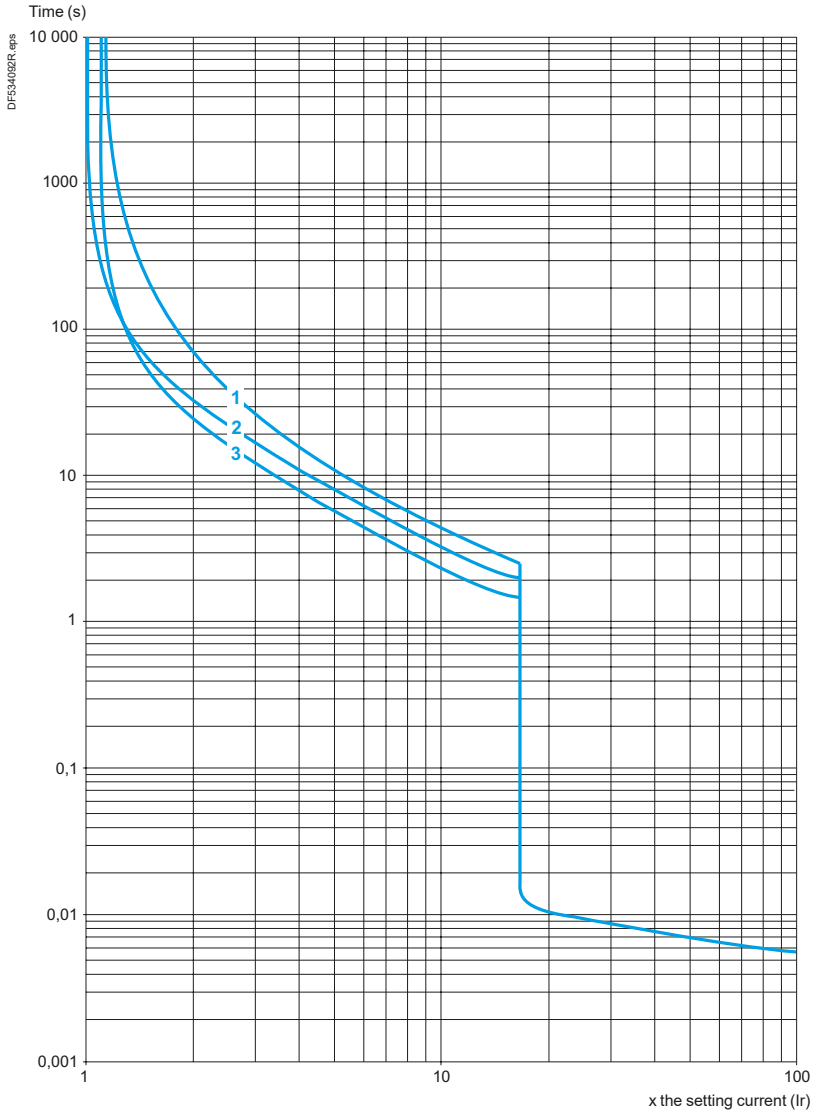
Circuit breaker type				GV2P									
				01 to 06	07	08	10	14	16	20	21	22	32
Rating			A	0.1 to 1.6	2.5	4	6.3	10	14	18	23	25	32
Breaking capacity conforming to IEC 60947-2	230/240 V	Icu	kA	★	★	★	★	★	★	★	★	★	★
		Ics % (1)		★	★	★	★	★	★	★	★	★	★
	400/415 V	Icu	kA	★	★	★	★	★	★	★	★	★	★
		Ics % (1)		★	★	★	★	★	★	★	★	★	★
	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									
				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
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



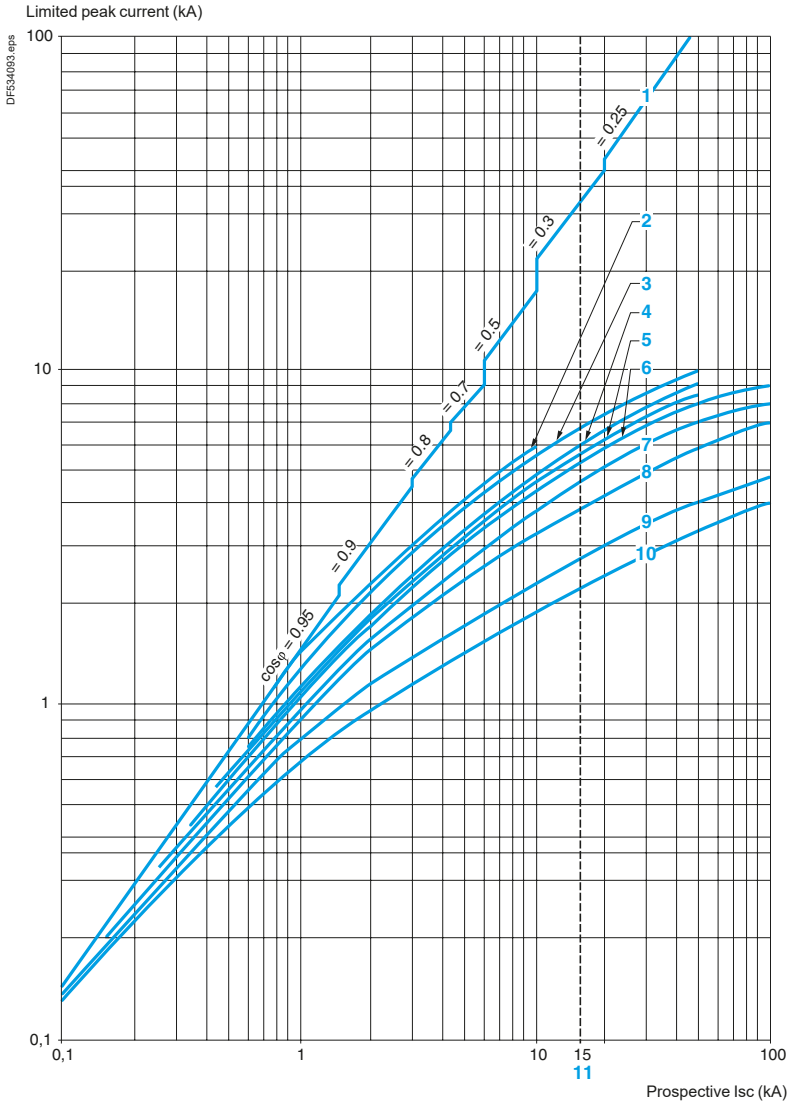
1 3 poles from cold state
2 2 poles from cold state
3 3 poles from hot state

References:
pages 9 to 20
Characteristics:
pages 58 to 62
Dimensions:
pages 76 to 85

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

Dynamic stress

I peak = f (prospective Isc) at 1.05 Ue = 435 V

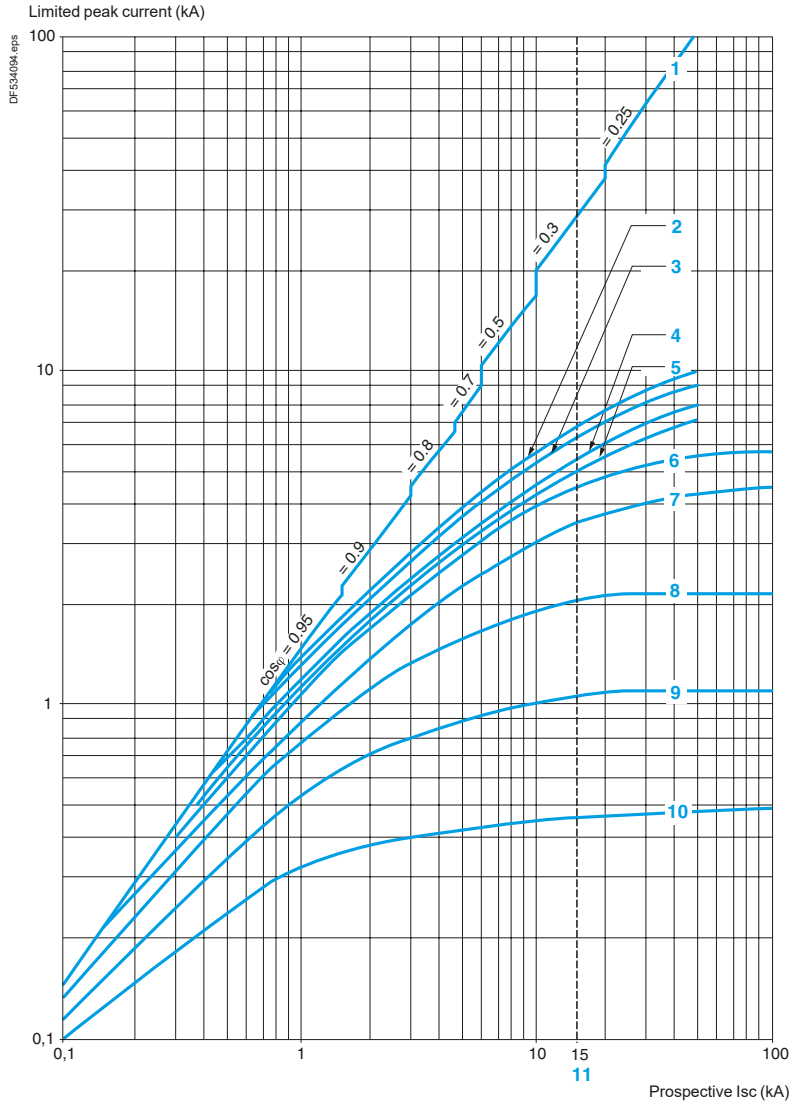


1 Maximum peak current
2 32 A
3 25 A
4 18 A
5 14 A
6 10 A
7 6.3 A
8 4 A
9 2.5 A
10 1.6 A
11 Limit of rated ultimate breaking capacity on short-circuit of GV2LE (14, 18, 23 and 25 A ratings).

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 (prospective Isc) at 1.05 Ue = 435 V

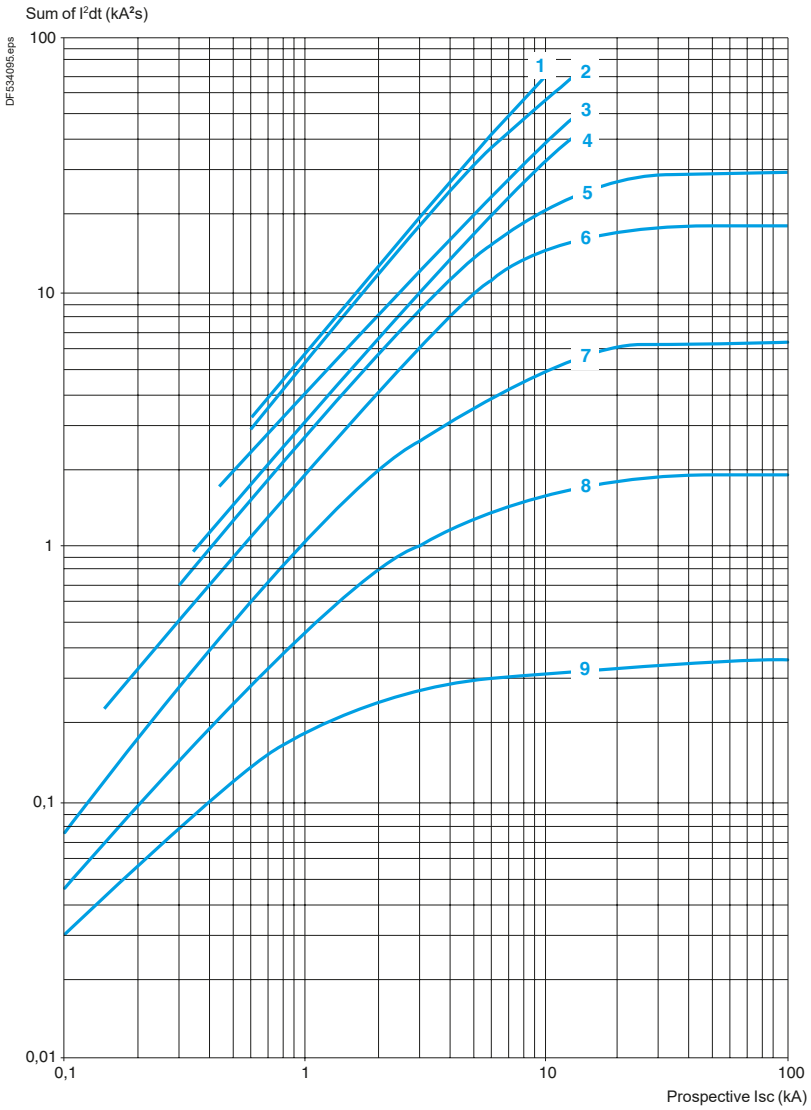


1 Maximum peak current
2 32 A
3 25 A
4 18 A
5 14 A
6 10 A
7 6.3 A
8 4 A
9 2.5 A
10 1.6 A
11 Limit of rated ultimate breaking capacity on short-circuit of GV2LE (14, 18, 23 and 25 A ratings).

Thermal limit on short-circuit for GV2LE only

Thermal limit in kA²s in the magnetic operating zone

Sum of I²dt = f (prospective Isc) at 1.05 Ue = 435 V

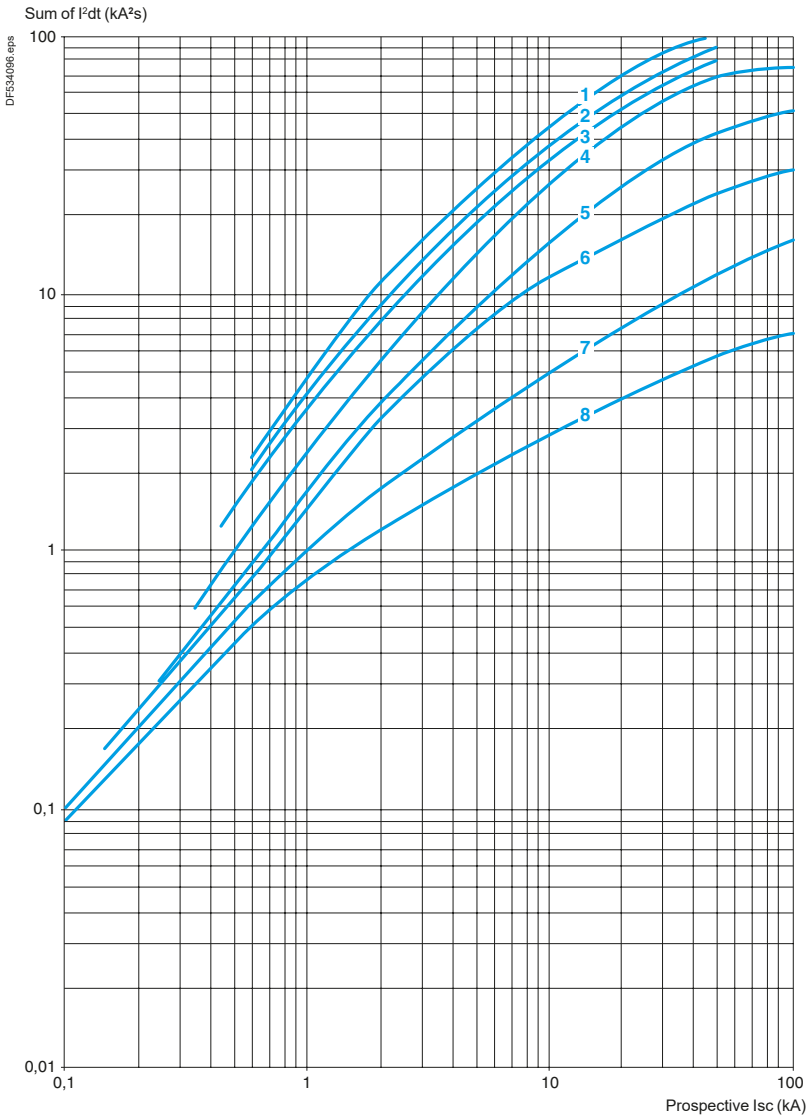


1 32 A
2 25 A
3 18 A
4 14 A
5 10 A
6 6.3 A
7 4 A
8 2.5 A
9 1.6 A

Thermal limit on short-circuit for GV2L only

Thermal limit in kA²s in the magnetic operating zone

Sum of I²dt = f (prospective Isc) at 1.05 Ue = 435 V

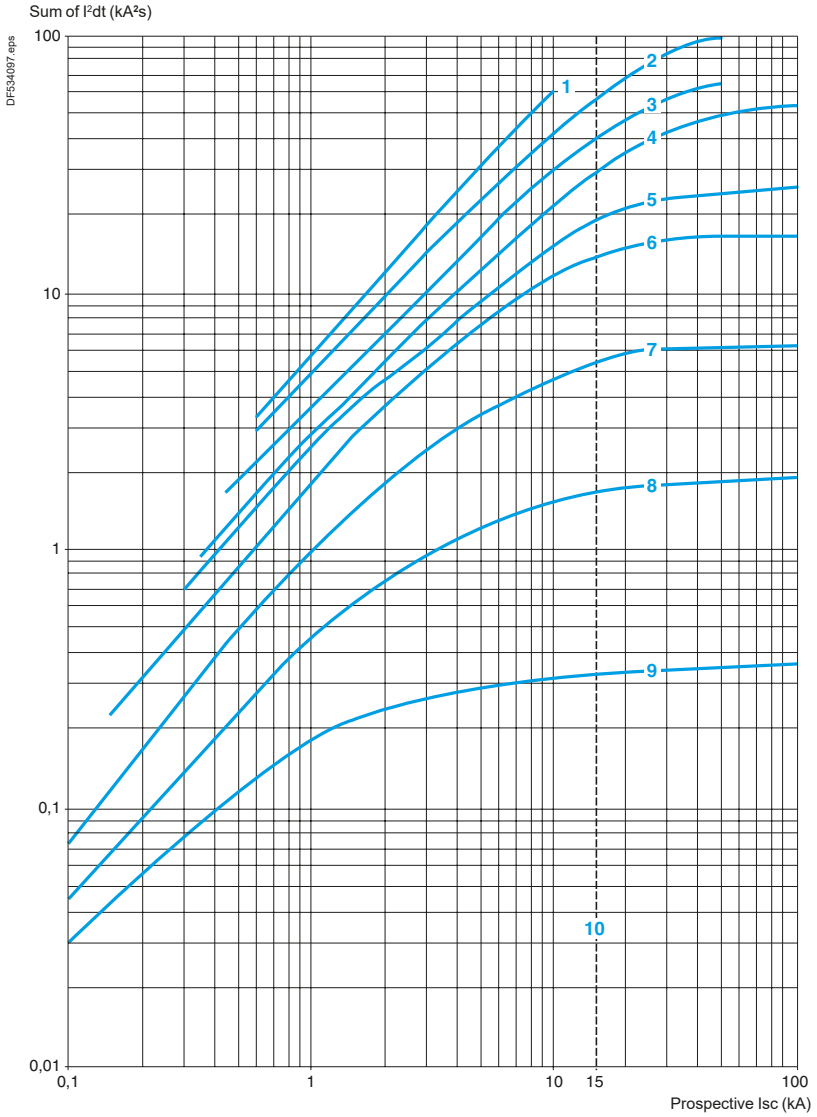


1 25 A and 32 A
2 18 A
3 14 A
4 10 A
5 6.3 A
6 4 A
7 2.5 A
8 1.6 A

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 Isc) at 1.05 Ue = 435 V

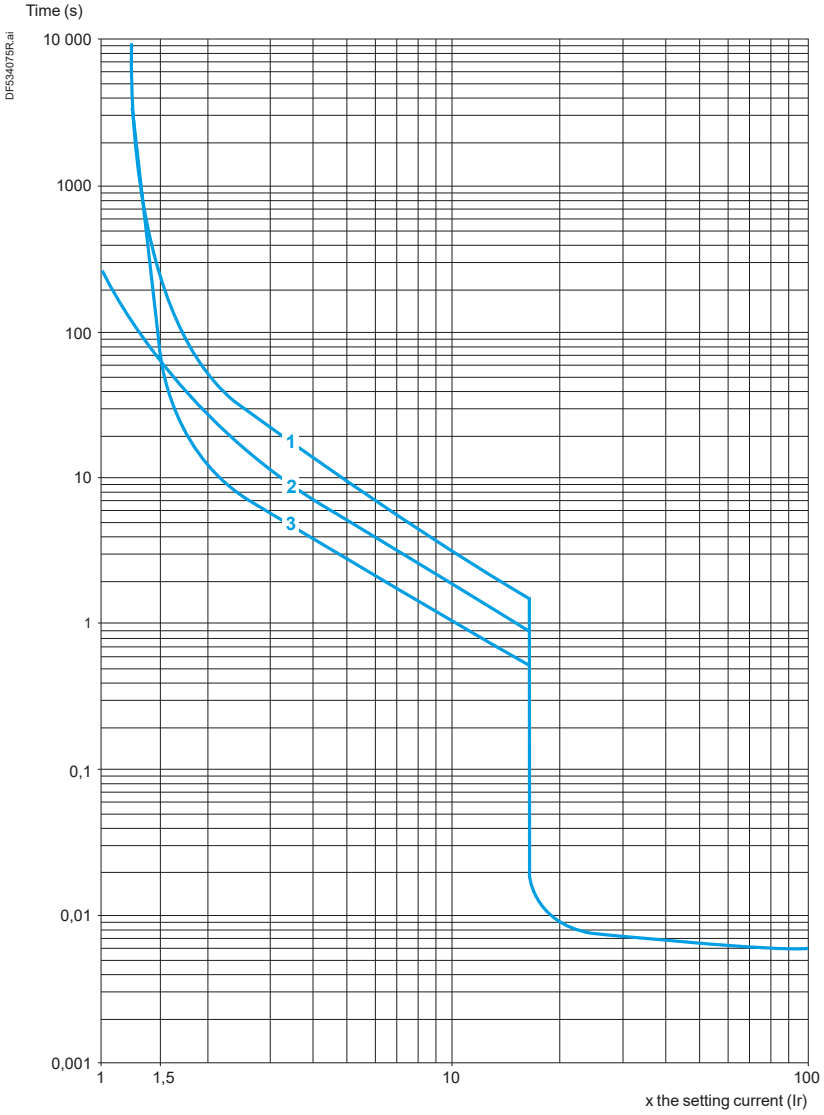


1 32 A (GV2LE32)
2 25 A and 32 A (GV2L32)
3 18 A
4 14 A
5 10 A
6 6.3 A
7 4 A
8 2.5 A
9 1.6 A
10 Limit of rated ultimate breaking capacity on short-circuit of GV2 LE (14, 18, 23 and 25 A ratings).

References: pages 9 to 20
Characteristics: pages 58 to 62
Dimensions: pages 76 to 85

Thermal-magnetic tripping curves for GV2ME and GV2P

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

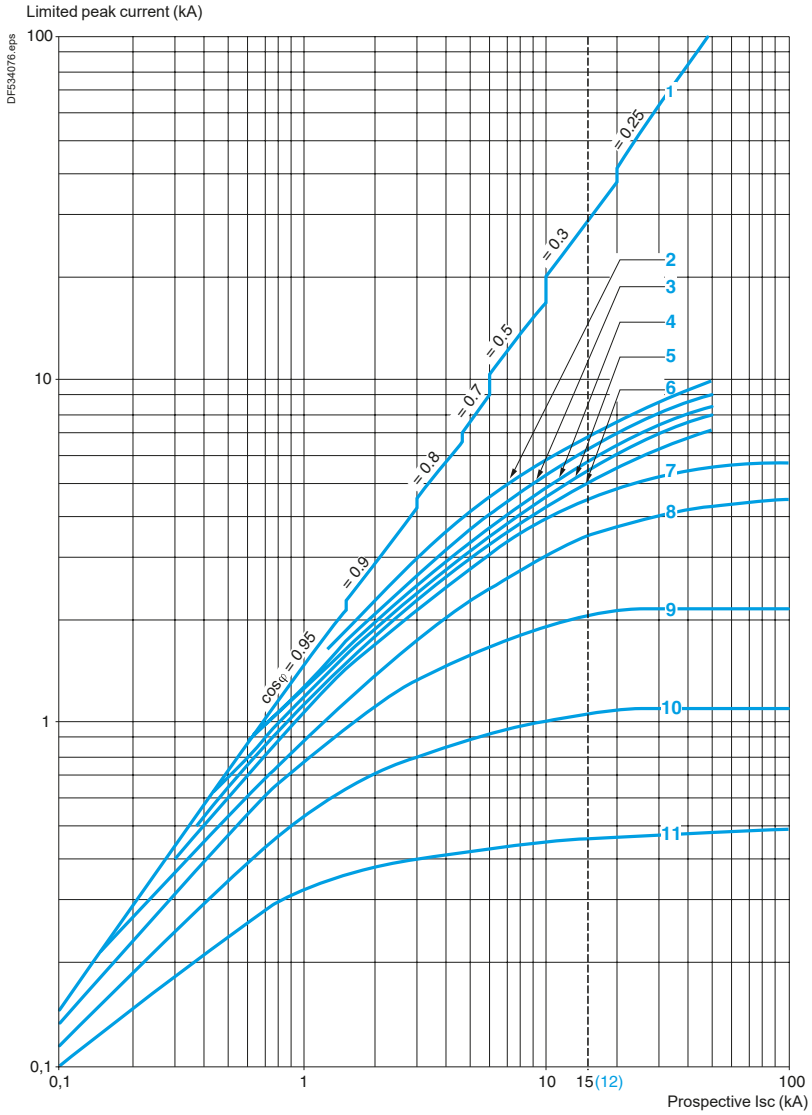


1 3 poles from cold state
2 2 poles from cold state
3 3 poles from hot state

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

Dynamic stress

I peak = f (prospective Isc) at 1.05 Ue = 435 V

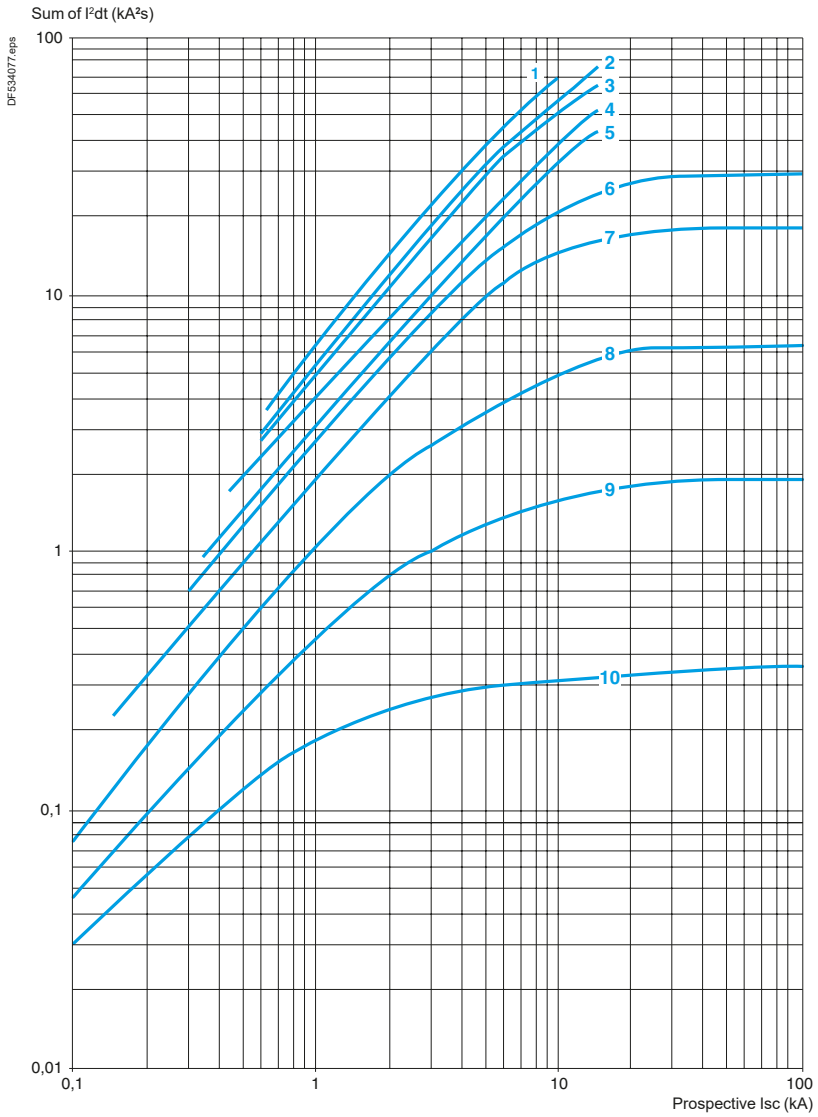


1 Maximum peak current
2 24 -32 A
3 20 -25 A
4 17 -23 A
5 13 -18 A
6 9 -14 A
7 6 -10 A
8 4 -6.3 A
9 2.5 -4 A
10 1.6 -2.5 A
11 1 -1.6 A
12 Limit of rated ultimate breaking capacity on short-circuit of GV2ME (14, 18, 23 and 25 A ratings)

Thermal limit on short-circuit for GV2ME

Thermal limit in kA²s in the magnetic operating zone

Sum of I²dt = f (prospective Isc) at 1.05 Ue = 435 V

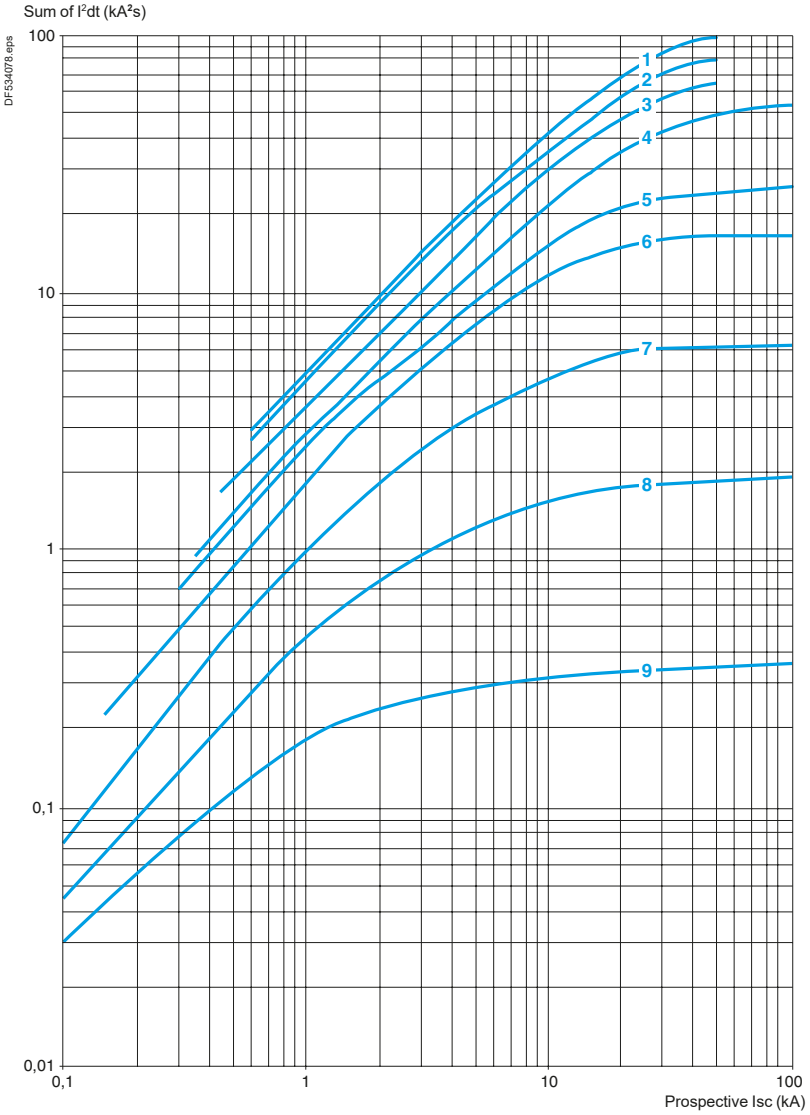


1 24 -32 A
2 20 -25 A
3 17 -23 A
4 13 -18 A
5 9 -14 A
6 6 -10 A
7 4 -6.3 A
8 2.5 -4 A
9 1.6 -2.5 A
10 1 -1.6 A

Thermal limit on short-circuit for GV2P

Thermal limit in kA²s in the magnetic operating zone

Sum of I²dt = f (prospective Isc) at 1.05 Ue = 435 V



1 24 -32 A
1 20 -25 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 GV2 mE - safety device for dangerous machines	GVAS●●● MX shunt trip
Rated insulation voltage (Ui)	Conforming to IEC 60947-1	**V**	690	500	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	0.85...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 (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.**	30000 (GV2ME and GV2P)		

References: pages 9 to 20
Characteristics: pages 58 to 62
Dimensions: pages 76 to 85

TeSys protection components

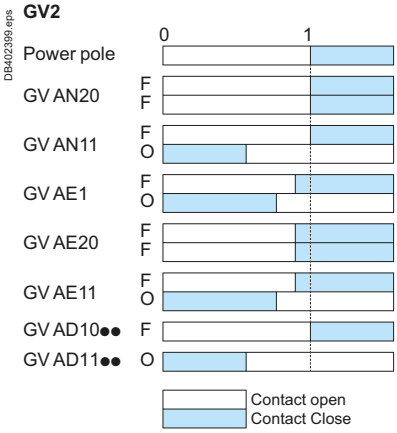
Thermal-magnetic motor circuit breakers GV2

Auxiliary contacts

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 CSA C22-2 n° 14 and UL 508	V	600							300				300			
Conventional thermal current (Ith)	Conforming to IEC 60947-5-1	A	6							2.5				2.5			
	Conforming to CSA C22-2 n° 14 and UL 508	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	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** (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			**GV AE**: Number of failures for “n” million operating cycles (17 V-5 mA): = 10^{-6}														
Minimum operational conditions d.c. operation		V	17														
		mA	5														
Short-circuit protection			By **GB2 CB●●** circuit breaker (rating according to operational current for Ue ⩽ 415 V) or by gG fuse 10 A max											**GB2 CB06** 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			**GV AN** 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



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, see page 114.
(2) Add an RC circuit type LA4 D to the load terminals, see page 114.

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 (I^2t)		kA^2s	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	mm^2	1 x 1.5 to 25 conductor or 2 x 1.5 to 6 conductors	
	Flexible cable without cable end	mm^2	1 x 1.5 to 16 conductor or 2 x 1.5 to 4 conductors	
	Flexible cable with cable end	mm^2	1 x 1.5 to 10 conductor or 2 x 1.5 to 2 conductors	
	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	rms current	A	1500 (non adjustable threshold)		1000 (non adjustable threshold)	
Connection			1 conductor	2 conductors	1 conductor	2 conductors
	Solid cable	mm^2	1.5…25	1.5…10	1.5…25	1.5…10
	Flexible cable without cable end	mm^2	1.5…25	2.5…10	1.5…25	1.5…10
	Flexible cable with cable end	mm^2	1.5…16	1.5… 4	1.5…16	1.5… 4
Tightening torque		N.m	2.2			

References: pages 9 to 20
Characteristics: pages 58 to 62
Dimensions: pages 76 to 85

GV2L

Dimensions

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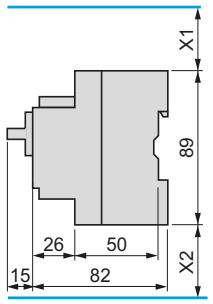
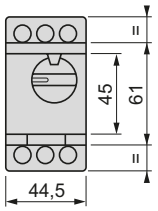
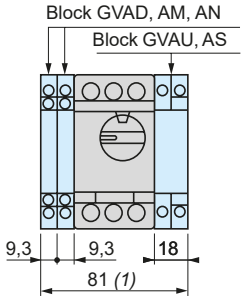




X1 Electrical clearance = 40 mm for Ue ⩽ 415 V, or 80 mm for Ue = 440 V, or 120 mm for Ue = 500 and 690 V.
X2 = 40 mm.

GVAD, AM, AN, AU, AS



(1) Maximum.

GV2AK00

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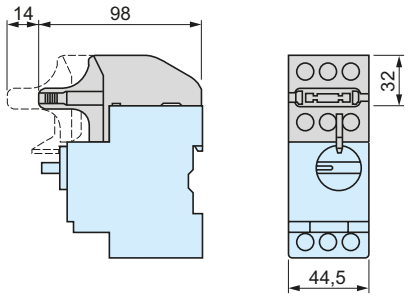

Mounting

On rail AM1 DE200, AM1 ED200 (35 x 15)

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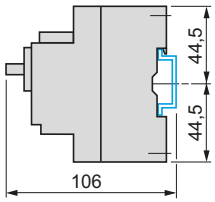
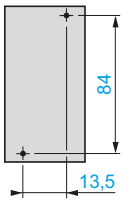
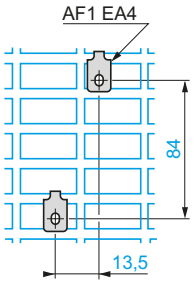


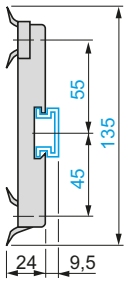
Panel mounted

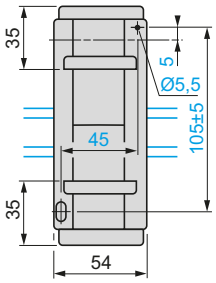


On pre-slotted mounting plate AM1 PA



Adapter plate GK2AF01





7.5 mm height compensation plate GV1F03

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GV2LE

Dimensions

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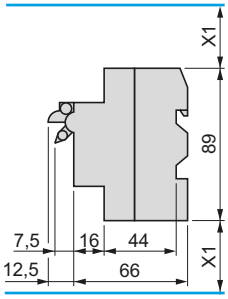

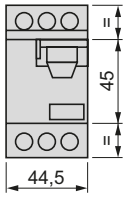

X1 Electrical clearance = 40 mm for Ue ⩽ 690 V.

GVAD, AM, AN, AU, AS

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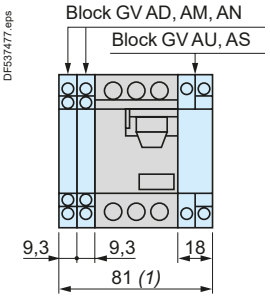
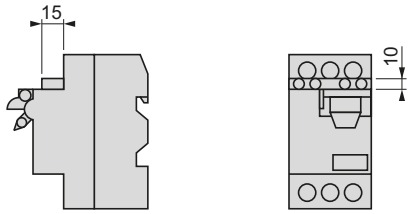


(1) Maximum.

GVAE

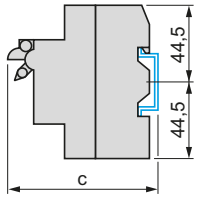
DF537443.eps



Mounting

On 35 mm ⎓ rail

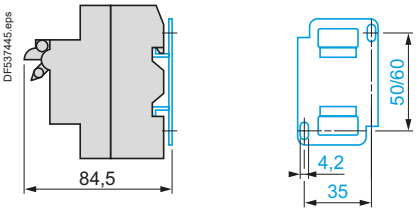
DF537444.eps



c = 80 on AM1 DP200 (35 x 7.5) and 88 on AM1 DE200, ED200 (35 x15)

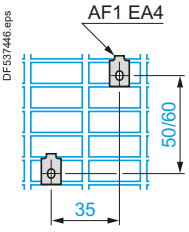
On panel with adapter plate GV2 AF02

DF537445.eps



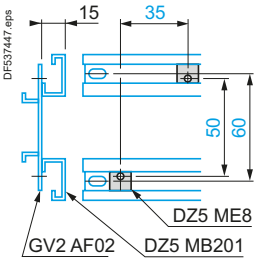
On pre-slotted plate AM1 PA

DF537446.eps



On rails DZ5 MB201

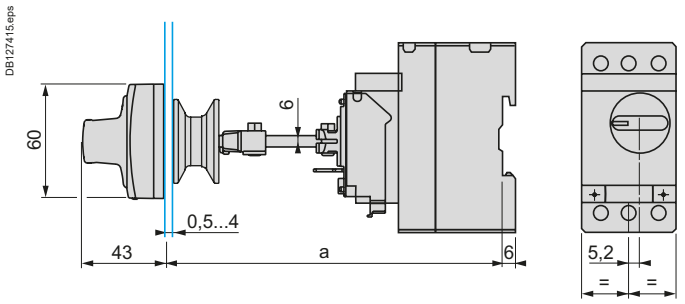
DF537447.eps



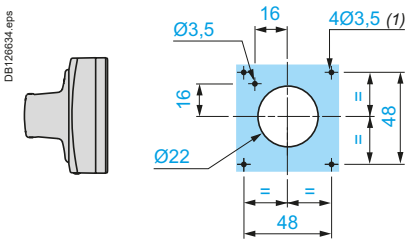
References: pages 9 to 20
Characteristics: pages 58 to 62
Curves: pages 63 to 72

Mounting

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

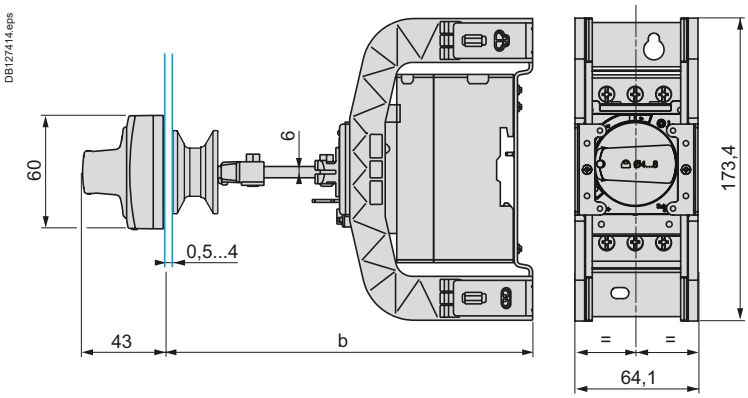


Door cut-out

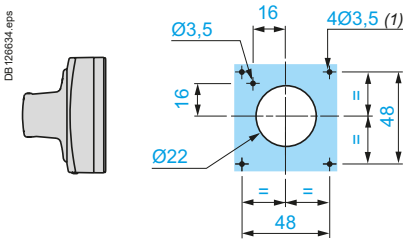


(1) For IP65 only.

Mounting of external operator GVAPH02 for motor circuit breakers GV2L



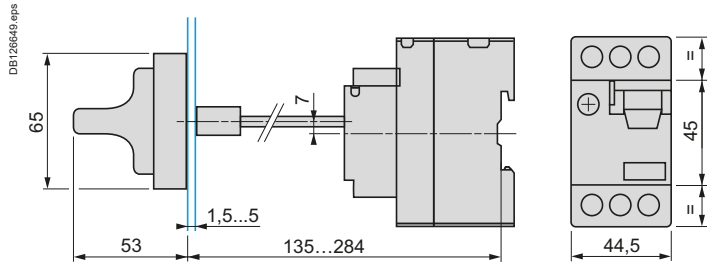
Door cut-out



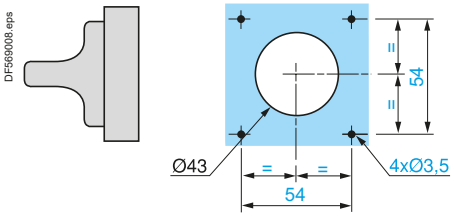
(1) For IP65 only.

	a		b	
	Mini	Maxi	Mini	Maxi
GV2 APN●●	140	250		
GV2 APN●● + GV APH02			151	250
GV2 APN●● + GV APK11	250	434	-	-
GV2 APN●● + GV APH02 + GV APK11	-	-	250	445

Mounting of external operator GV2AP03 for GV2LE



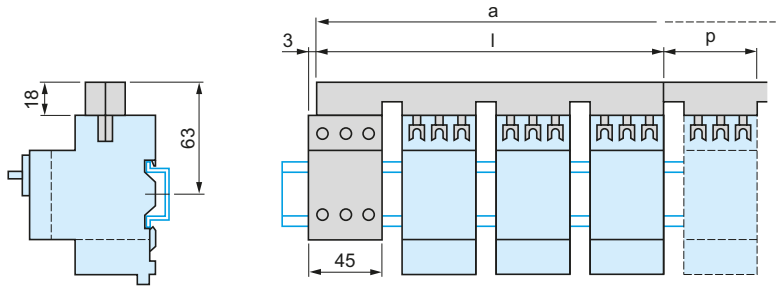
Door cut-out



GV2L and GV2LE

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

DF537451.eps



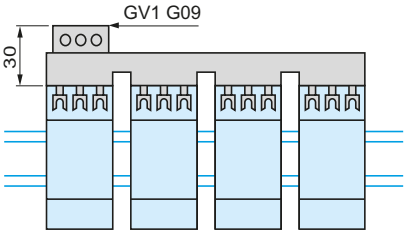
	l	p
GV2G445 (4 x 45 mm)	179	45
GV2G454 (4 x 54 mm)	206	54
GV2G472 (4 x 72 mm)	260	72

	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 for GV2L and GV2LE

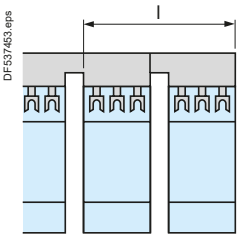
Sets of busbars GV2G●●● with term. block GV1G09

DF537452.eps



Sets of busbars GV2G245, GV2G254, GV2GR272

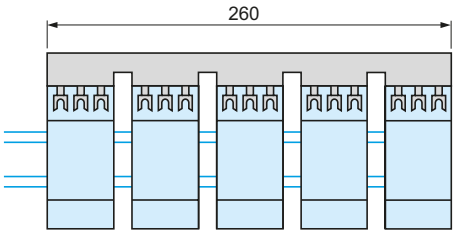
DF537453.eps



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

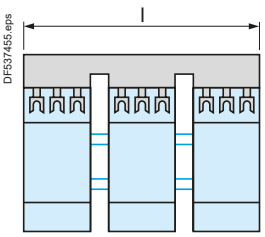
Set of busbars GV2G554

DF537454.eps



Sets of busbars GV2G345 and GV2G354

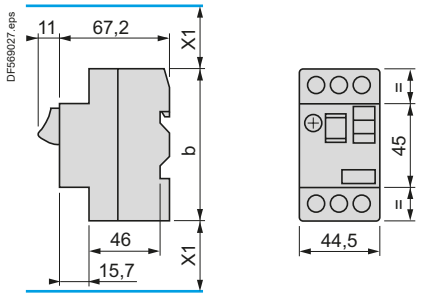
DF537455.eps



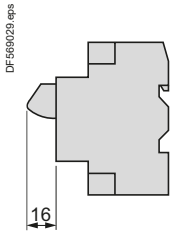
	l
GV2G345 (3 x 45 mm)	134
GV2G354 (3 x 54 mm)	152

Dimensions

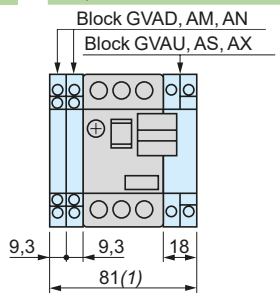
GV2ME



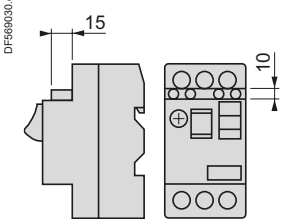
GVAX



GVAD, AM, AN, AU, AS, AX



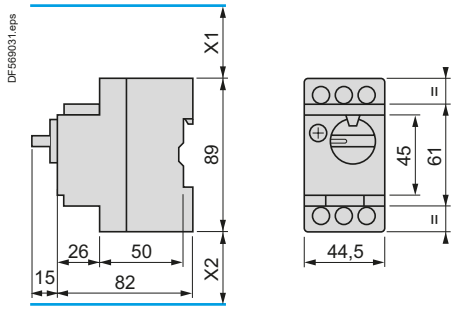
GVAE



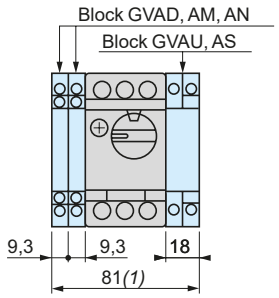
	b
GV2ME●●	89
GV2ME●●3	101

(1) Maximum.
X1 Electrical clearance = 40 mm for Ue ≤ 690 V

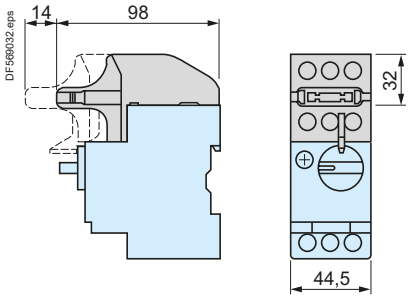
GV2P



GVAD, AM, AN, AU, AS

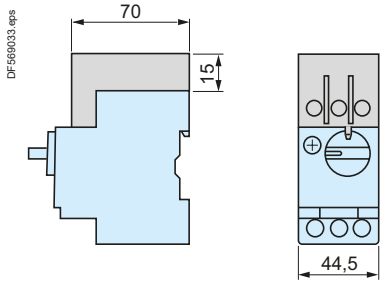


GV2AK00



(1) Maximum.
X1 Electrical clearance = 40 mm for Ue ≤ 415 V, or 80 mm for Ue = 440 V, or 120 mm for Ue = 500 and 690 V
X2 = 40 mm

GV2GH7



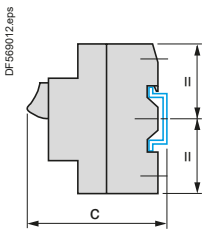
TeSys protection components

Thermal-magnetic motor circuit breakers GV2ME and GV2P

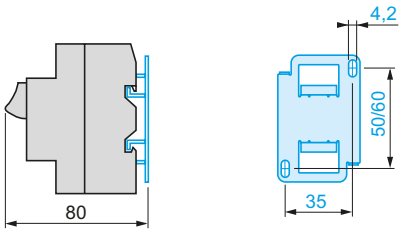
Mounting

GV2ME

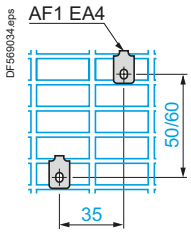
On 35 mm ⊔ rail



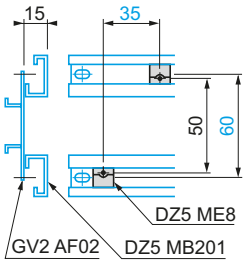
On panel with adapter plate GV2AF02



On pre-slotted plate AM1 PA



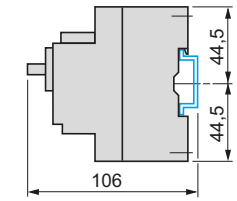
On rails DZ5 MB201



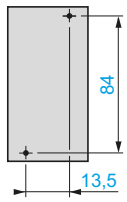
c = 78.5 on AM1 DP200 (35 x 7.5)
c = 86 on AM1 DE200, ED200 (35 x 15)

GV2P

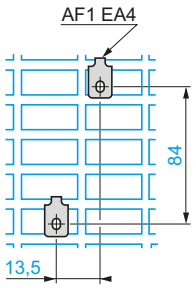
On rail AM1 DE200, ED200 (35 x 15)



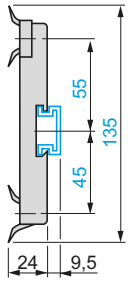
Panel mounted

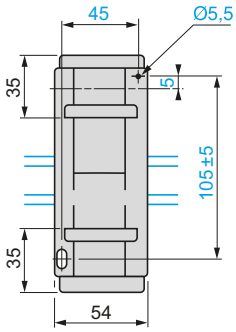


On pre-slotted plate AM1 PA



Adapter plate GK2AF01

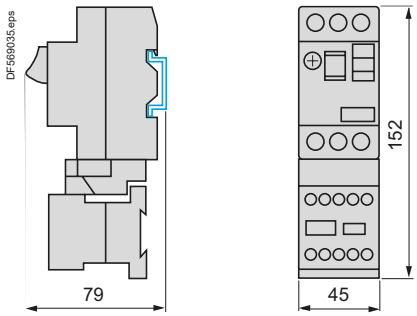




Dimensions

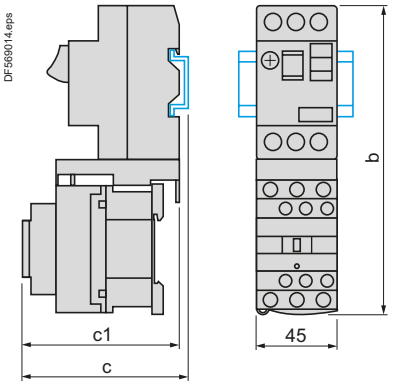
GV2AF01

Combination GV2ME + TeSys k contactor

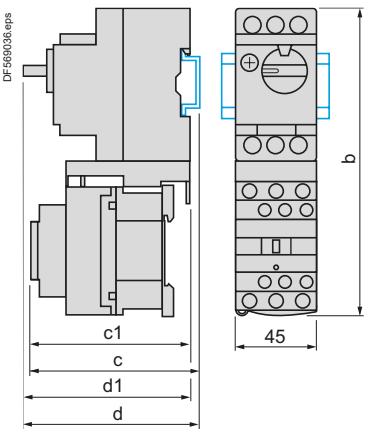


GV2AF3

Combination GV2ME + TeSys d contactor



Combination GV2P + TeSys d contactor



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

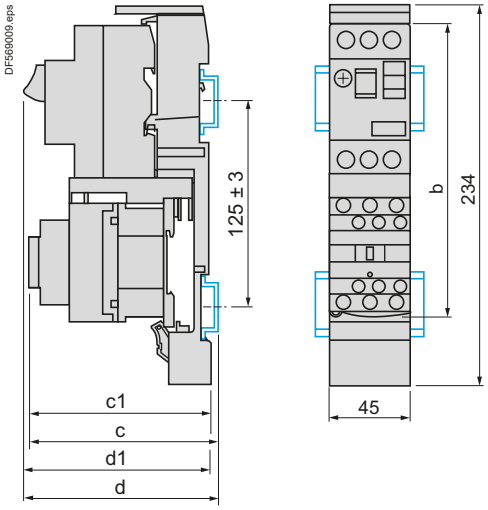
GV2P +	LC1D09 …D18	LC1D25 and D32
b	176.4	186.8
c1	100.1	106.4
c	105.6	111.9
d1	95	95
d	100.5	100.5

References: pages 9 to 20
Characteristics: pages 58 to 62
Curves: pages 63 to 72

Dimensions

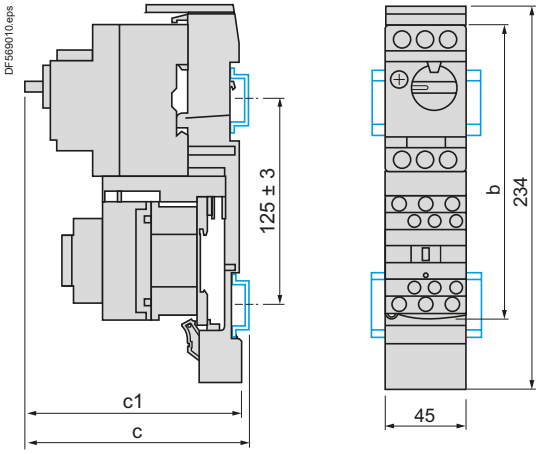
GV2AF4 + LAD311

Combination GV2ME + TeSys d contactor



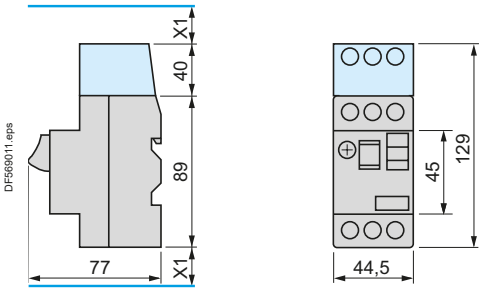
GV2ME +	LC1D09…D18	LC1D25 and D32
b	176.4	186.8
c1	103.1	136.4
c	135.6	141.9
d1	107	107
d	112.5	112.5

Combination GV2P + TeSys d contactor



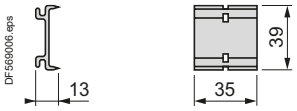
GV2P +	LC1D09…D18	LC1D25 and D32
b	176.4	186.8
c1	136.5	142.4
c	141.6	147.9

GV2ME + GV1L3 (current limiter)



X1 = 10 mm for Ue = 230 V
or 30 mm for 230 V < Ue ≤ 690 V

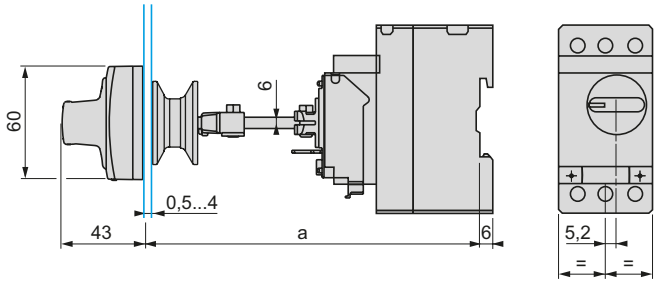
7.5 mm height compensation plate GV1F03



Mounting

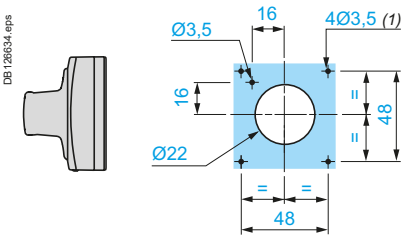
Mounting of external operator GV2APN01, GV2APN02 or GV2APN04 for motor circuit breakers GV2P

DB127415.eps



Door cut-out

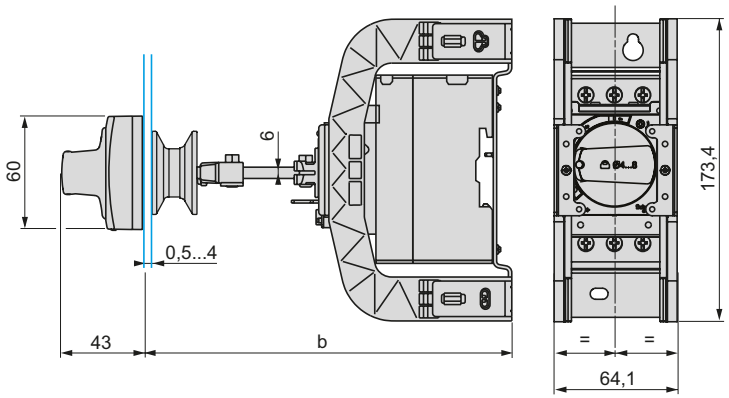
DB126634.eps



(1) For IP65 only.

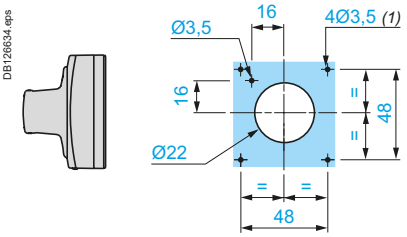
Mounting of external operator GVAPH02 for motor circuit breakers GV2P

DB127414.eps



Door cut-out

DB126634.eps



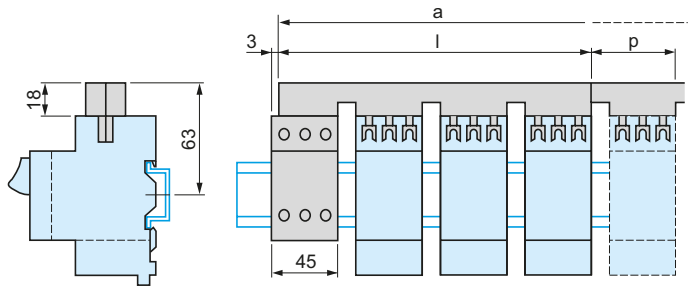
(1) For IP65 only.

	a		b	
	Mini	Maxi	Mini	Maxi
GV2APN●●	140	250		
GV2APN●● + GVAPH02			151	250
GV2APN●● + GVAPK11	250	434	-	-
GV2APN●● + GVAPH02 + GV APK11	-	-	250	445

GV2ME, GV2P

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

DF569037.eps

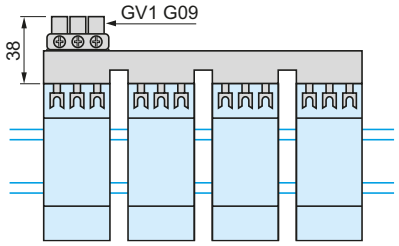


	l	p
GV2G445 (4 x 45 mm)	179	45
GV2G454 (4 x 54 mm)	206	54
GV2G472 (4 x 72 mm)	260	72

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

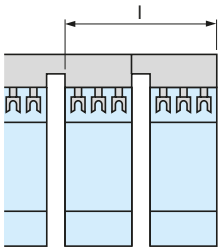
Sets of busbars GV2G●●● with terminal block GV1G09

DF569028.eps



Sets of busbars GV2G245, GV2G254, GV2G272

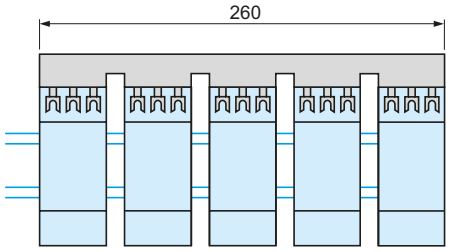
DF569038.eps



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

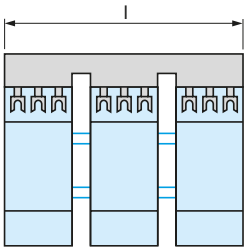
Sets of busbars GV2G554

DF569039.eps



Sets of busbars GV2G345 and GV2G354

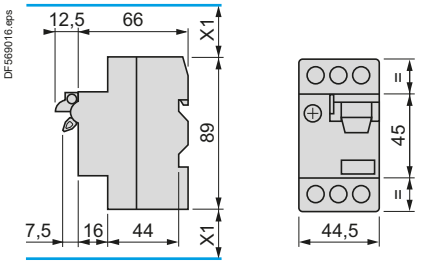
DF569040.eps



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

GV2RT

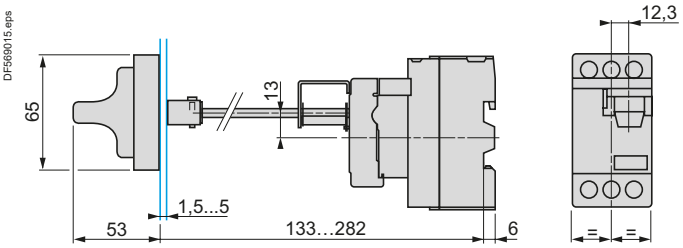
Dimensions



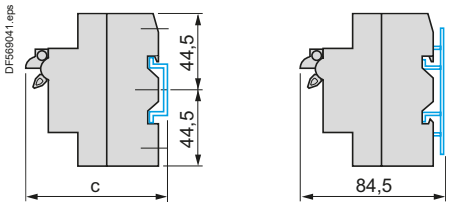
X1: Electrical clearance = 40 mm for Ue < 690 V

Mounting

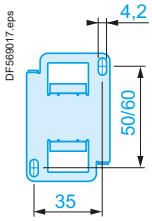
Mounting of external operator GV2AP03



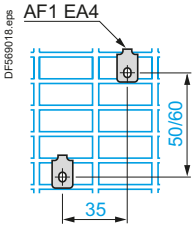
On 35 mm ⎓ rail



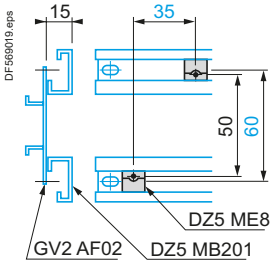
On panel with adapter plate GV2AF02



On pre-slotted plate AM1 PA



On rails DZ5 MB



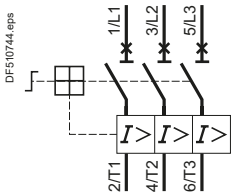
c = 80 on AM1 DP200 (35 x 7.5)
c = 88 on AM1 DE200, ED200 (35 x 15)

TeSys protection components

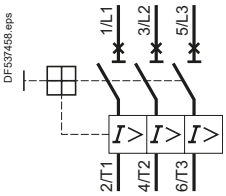
Thermal-magnetic motor circuit breakers GV2L, GV2LE, GV2ME, GV2P, GV2RT

Schemes

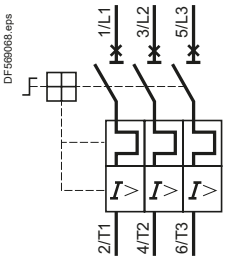
GV2L●●



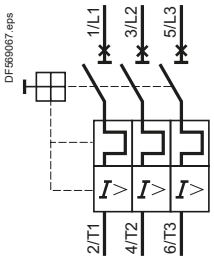
GV2LE●●



GV2P●●

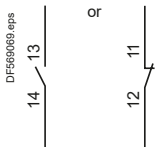


GV2ME●● and GV2RT

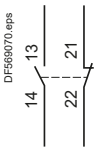


Front mounting add-on contact blocks Instantaneous auxiliary contacts

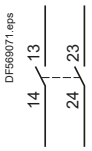
GVAE1



GVAE11

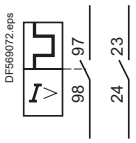


GVAE20

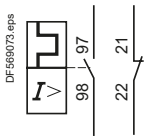


Front mounting add-on contact blocks Instantaneous auxiliary contacts and fault signalling contacts

GVAED101

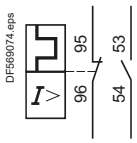


GVAED011

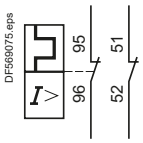


Side mounting add-on contact blocks Instantaneous auxiliary contacts and fault signalling contacts

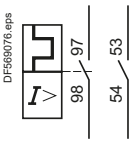
GVAD0110



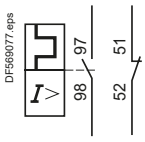
GVAD0101



GVAD1010

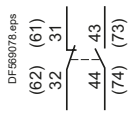


GVAD1001

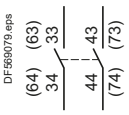


Instantaneous auxiliary contacts

GVAN11

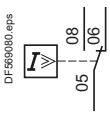


GVAN20



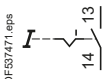
Short-circuit signalling contacts

GVAM11

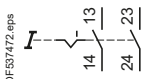


Start-Stop signalling contact blocks

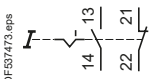
GK2AX10



GK2AX20

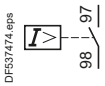


GK2AX50

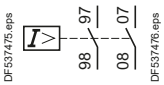


Fault signaling contact blocks

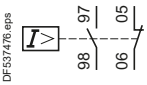
GK2AX12



GK2AX22

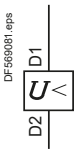


GK2AX52

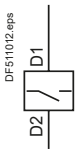


Voltage trips

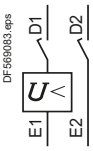
GVAU●●●



GVAS●●●

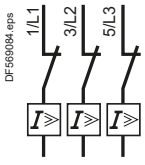


GVAX●●●

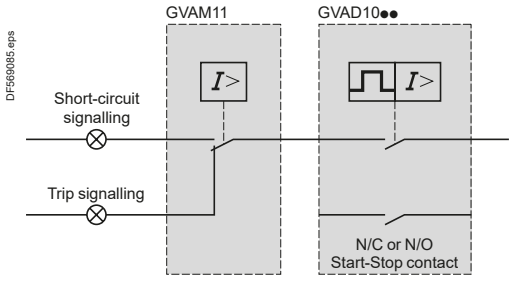


Current limiter

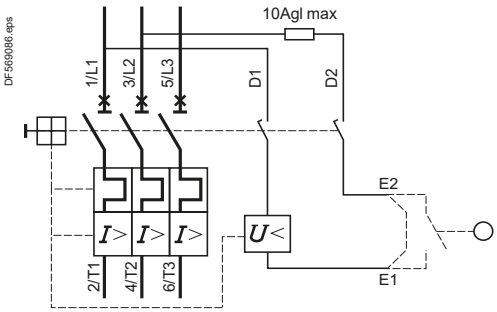
GV1L3



Use of fault signalling contact and short-circuit signalling contact



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



References: pages 9 to 20
Characteristics: pages 58 to 62
Curves: pages 63 to 72

TeSys GV3

5 to 45 kW

Environment

Circuit breaker type				GV3L	GV3P
Conforming to standards				IEC/EN 60947-4-1 IEC/EN 60947-2	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	CCC, UL, CSA, EAC, ATEX, BV, LROS, DNV-GL, ABS
Protective treatment				"TH"	"TC"
Degree of protection (front face)	Conforming to IEC 60529	Open mounted		Against direct finger contact: IP20	
		In enclosure		-	**GV3 PC01** and **GV3 PC02**: IP55
Shock resistance	Conforming to IEC 60068-2-27			On: 15 gn -11 ms Off: 30 gn -11 ms	
Vibration resistance (1)	Conforming to IEC 60068-2-6			4 gn (5…300 Hz)	
Ambient air temperature	Storage		°C	-40…+80	
	Operation	Open mounted	°C	-20…+60 (2)	
		In enclosure	°C	–	-20…+40
Temperature compensation		Open mounted	°C	–	-20…+60
		In enclosure	°C	–	-20…+40
Flame resistance	Conforming to IEC 60695-2-1		°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 § 7-2-1-5-2	

Technical characteristics

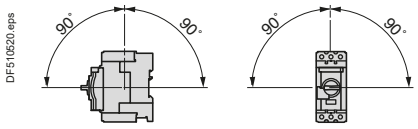
Circuit breaker type			GV3L	GV3P
Utilisation category	Conforming to IEC 60947-2		A	–
	Conforming to IEC 60947-4-1		–	AC-3
Rated operational voltage (Ue)	Conforming to IEC 60947-2	V	690	
Rated insulation voltage (Ui)	Conforming to IEC 60947-2	V	690	
Rated voltage	Conforming to UL 60947-4-1, CSA C 22.2 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	50 000 (20 000 for GV3P73, GV3P80)
Duty class (maximum operating rate)		C.O./h	25	
Maximum conventional rated thermal current (Ith)	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) In case of vibration above 3 gn on contactor with electronic coil (TeSys D Green) and direct mounting with LRD relay, it is recommended to mount the devices separately by screws on metal plate.
(2) 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.

References: pages 21 to 26
Curves: pages 92 to 97
Dimensions: pages 101 to 102
Schemes: pages 103

Mounting characteristics

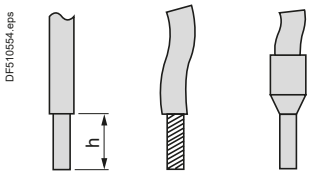
Operating position
Without derating, in relation to normal vertical mounting plane (1)



Connection characteristics

Connection to screw clamp terminals or spring terminals

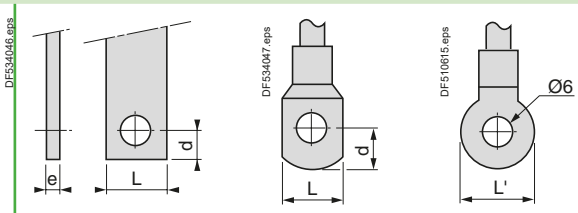
Bare cables



Circuit breaker type			GV3 L		GV3 P	
			Min.	Max.	Min.	Max.
Connection to screw clamp terminals (2) (Max. number of conductors x c.s.a.)	Solid cable	mm²	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	mm²	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	mm²	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 mm² 8: 35 mm²	5	5: 25 mm² 8: 35 mm²

Connection by bars or lugs

Bars or lugs



Circuit breaker type			GV3 L●●6	GV3 P●●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.	mm²	–	
	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, **Ever**Link® 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	100	100
		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.			**mm²**	**≤ 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)
		45 kA	**m**	5	5	7	8	10	- (2)	- (2)
		40 kA	**m**	5	5	5	5	8	- (2)	- (2)
		37 kA	**m**	5	5	5	5	5	- (2)	- (2)

★ *Fuse not required: breaking capacity Icn > Isc.*
(1) As % of Icu.
(2) Please consult your Regional Sales Office.

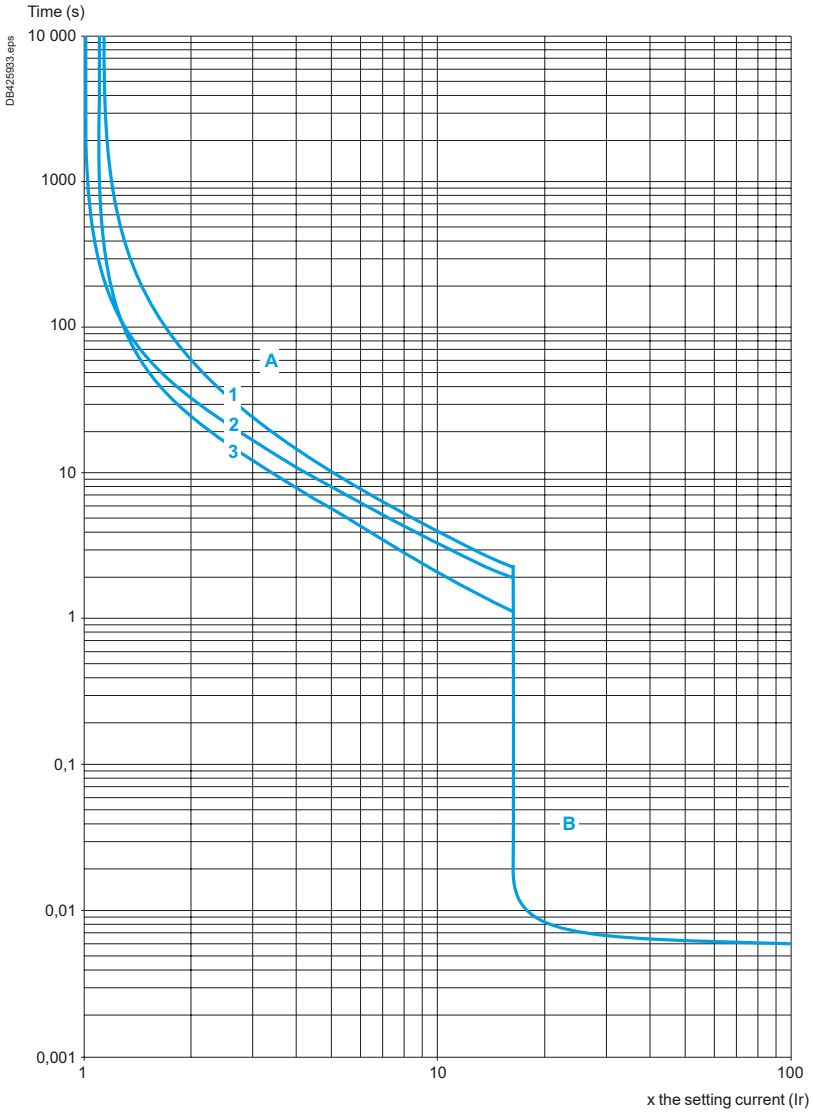
Breaking capacity of GV3P

Motor circuit breaker type				GV3P								
				13	18	25	32	40	50	65	73	80
Rating			A	13	18	25	32	40	50	65	73	80
Breaking capacity conforming to IEC 60947-2	230/240 V	Icu	kA	100	100	100	100	100	100	100	100	100
		Ics % (1)		100	100	100	100	100	100	100	100	100
	400/415 V	Icu	kA	100	100	100	100	50	50	50	50	50
		Ics % (1)		100	100	100	100	100	100	100	60	60
	440 V	Icu	kA	50	50	50	50	50	50	50	50	50
		Ics % (1)		100	100	100	100	100	100	100	60	60
	500 V	Icu	kA	12	12	12	12	12	12	12	12	12
		Ics % (1)		50	50	50	50	50	50	50	50	50
	690 V	Icu	kA	6	6	6	6	6	6	6	6	6
		Ics % (1)		50	50	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	125	125
		gG	A	★	★	★	★	160	160	160	160	160
	440 V	aM	A	63	80	125	125	125	125	125	125	125
		gG	A	80	100	160	160	160	160	160	160	160
	500 V	aM	A	63	63	63	63	80	80	80	80	80
		gG	A	80	80	80	80	100	100	100	100	100
	690 V	aM	A	50	50	50	50	63	63	63	63	63
		gG	A	63	63	63	63	80	80	80	80	80

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

Tripping curves for GV3L combined with thermal overload relay LRD33

Average operating time at 20 °C without prior current flow



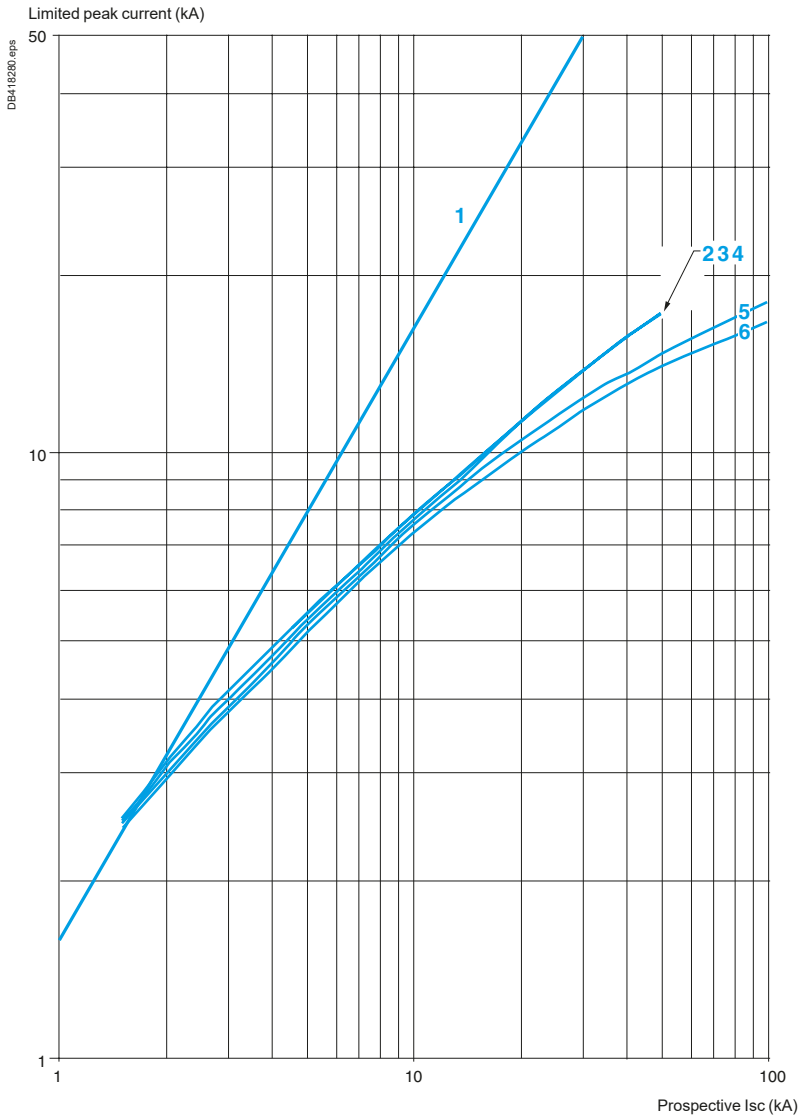
1 3 poles from cold state
2 2 poles from cold state
3 3 poles from hot state

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 (prospective Isc) at 1.05 Ue = 435 V

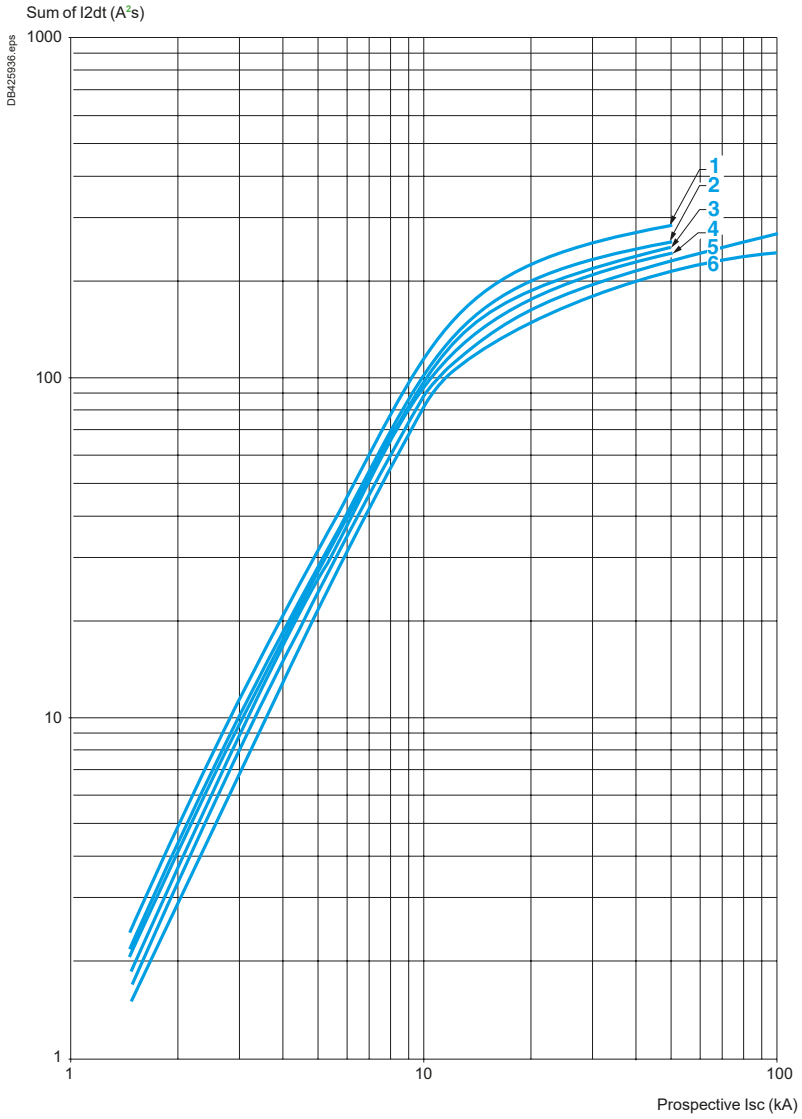


1 Maximum peak current
2 GV3L80 - GV3L73 - GV3L65
3 GV3L50
4 GV3L40
5 GV3L32
6 GV3L25

Thermal limit on short-circuit for GV3L

Thermal limit in A^2s

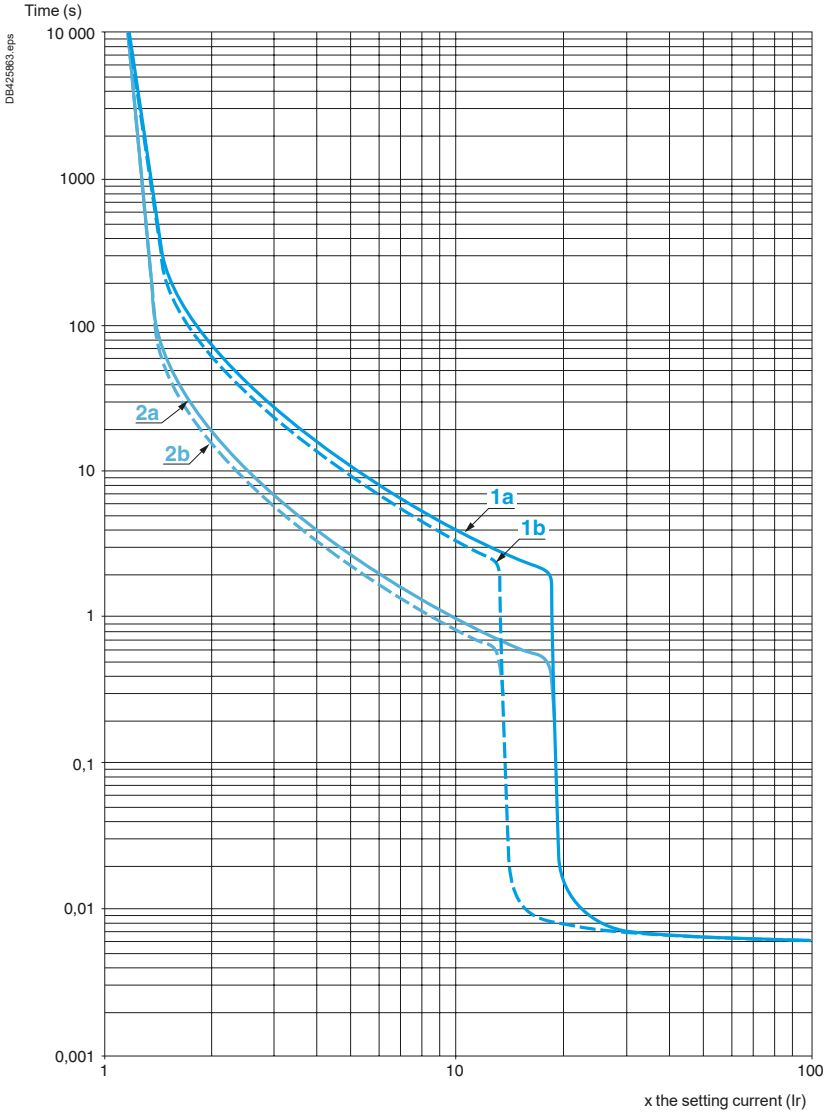
Sum of I^2dt = f (prospective Isc) at 1.05 Ue = 435 V



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

Thermal-magnetic tripping curves

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

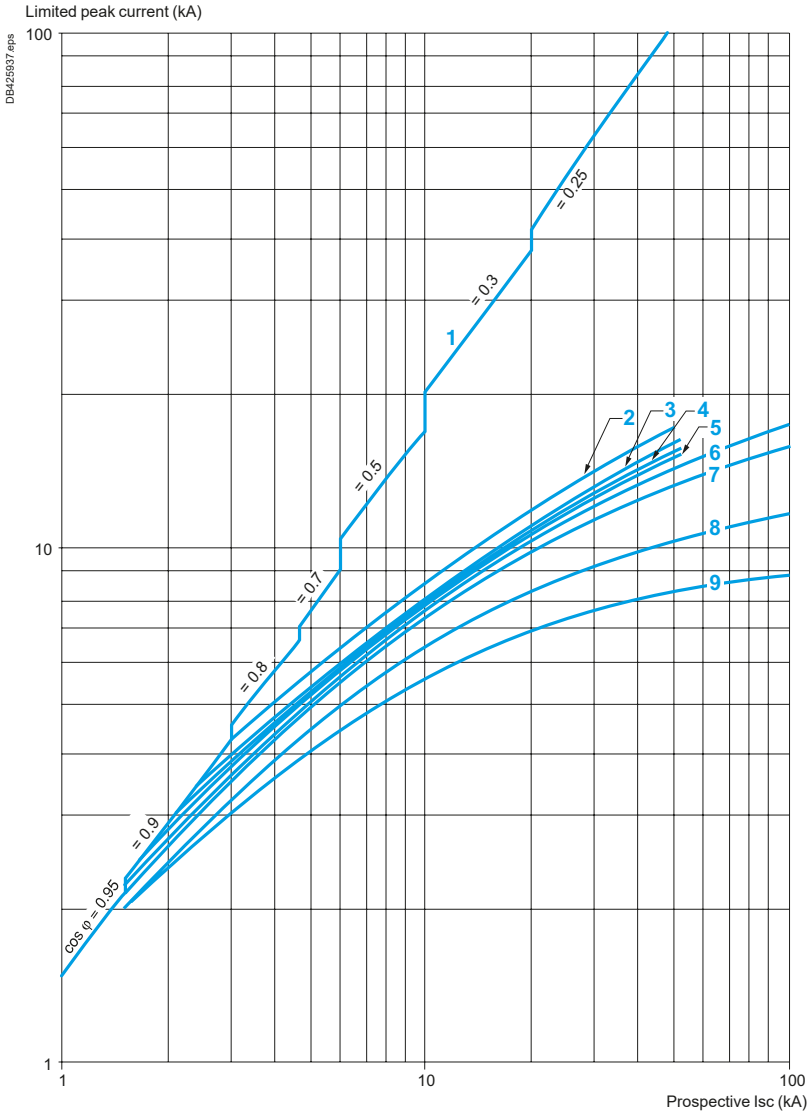


1a 3 poles from cold state (Ir mini.): GV3P
1b 3 poles from cold state (Ir maxi.): GV3P
2a 3 poles from hot state (Ir mini.): GV3P
2b 3 poles from hot state (Ir maxi.): GV3P

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

Dynamic stress

I peak = f (prospective Isc) at 1.05 Ue = 435 V

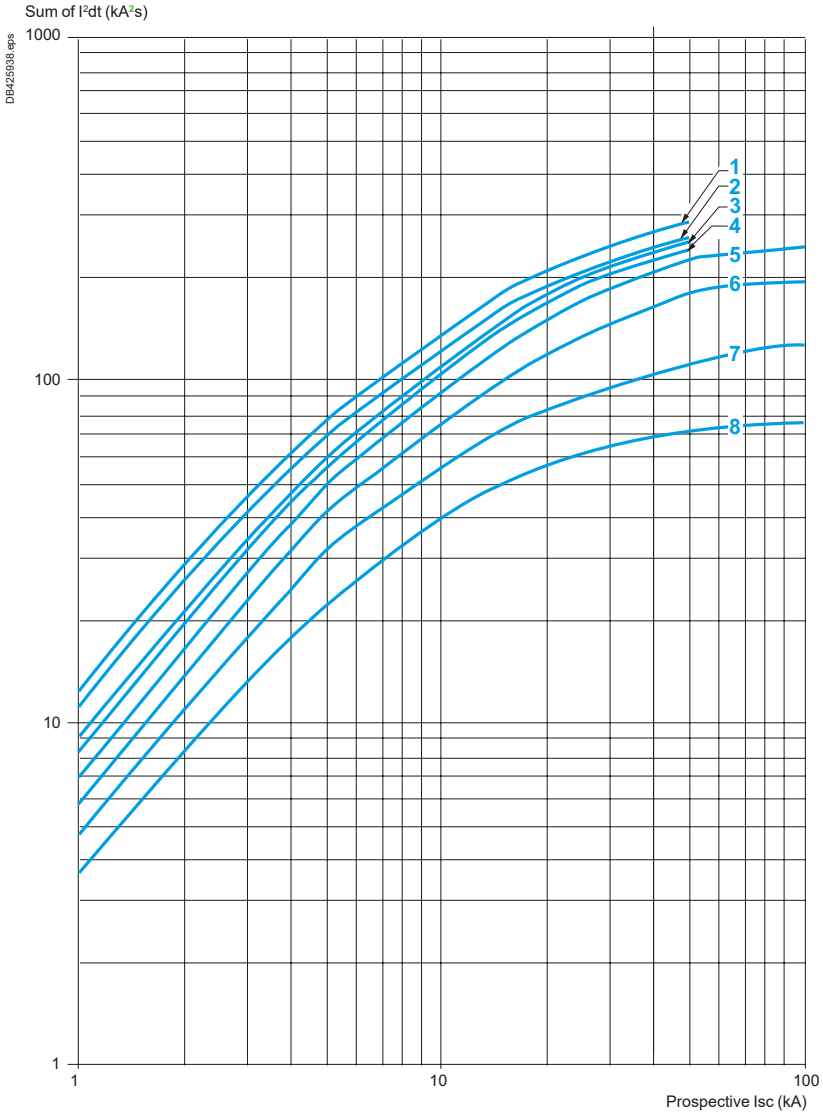


1 Maximum peak current
2 70-80 A (GV3P80); 62-73 A (GV3P73)
3 48-65 A (GV3P65)
4 37-50 A (GV3P50)
5 30-40 A (GV3P40)
6 23-32 A (GV3P32)
7 17-25 A (GV3P25)
8 12-18 A (GV3P18)
9 9-13 A (GV3P13)

Maximum thermal limit on short-circuit

Thermal limit in kA²s in the magnetic operating zone

Sum of I²dt = f (prospective Isc) at 1.05 Ue = 435 V



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)

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 (GV3 P and GV3 L)	

TeSys protection components

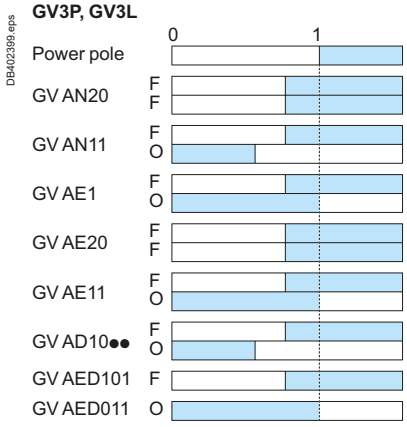
Motor circuit breakers GV3P, GV3L

Auxiliary contacts

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 CSA C22-2 n° 14 and UL 508	**V**	600							300				300			
Conventional thermal current (Ith)	Conforming to IEC 60947-5-1	**A**	6							2.5				2.5			
	Conforming to CSA C22-2 n° 14 and UL 508	**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	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** (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 d.c. operation		**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

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.

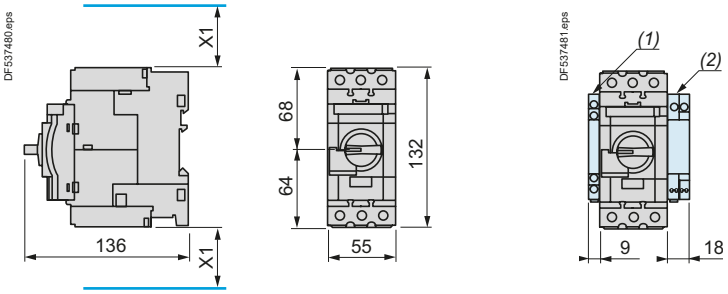
(1) For application example of fault signalling contact and short-circuit signalling contact, see page 114.
(2) Add an RC circuit type LA4 D to the load terminals, see page 114.

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^2t)		**kA^2s**	300
Degree of protection	Conforming to IEC 60529		IP 20
Terminal block			–

GV3L, GV3P

Dimensions



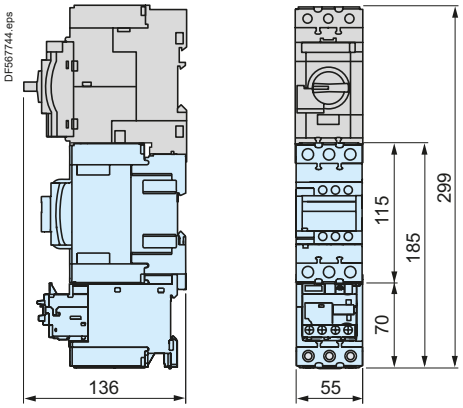
X1 = Electrical clearance (ISC max)
40 mm for Ue ⩽ 500 V, 50 mm for Ue ⩽ 690 V

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

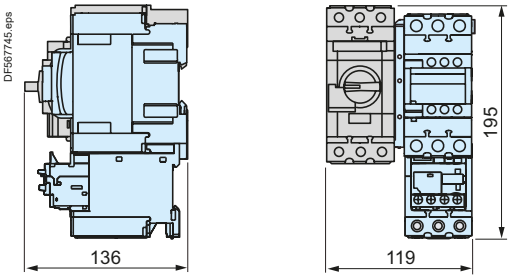
***Note:** Leave a space of 9 mm between 2 circuit breakers: either an empty space or side-mounting add-on contact blocks.*
Side by side mounting is possible up to 40 °C.

Mounting

Mounting with Tesys contactor LC1D40A…D80A and relay LR3D313…380 (1) (2) (3)

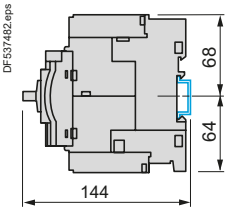


Side by side mounting with Tesys contactor LC1D40A…D80A (S-shape busbar system GV3S (1)**)**

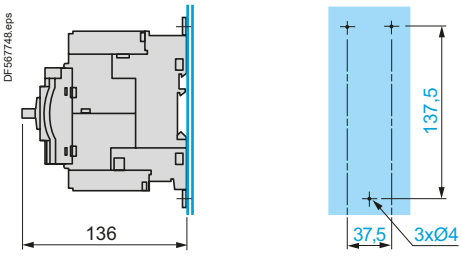


(1) Mountings with c.b. up to GV3L73, GV3P73.
(2) For GV3L80, GV3P80 use cable between components for dissipating heat. Consult online datasheets for values
(3) S-shape busbar system suitable up to 73 A.

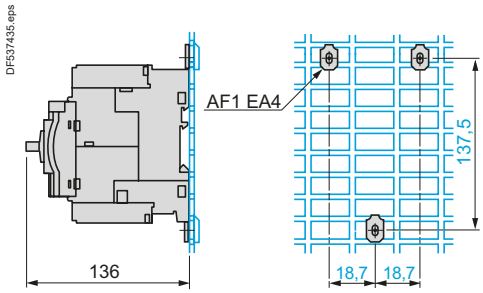
Mounting on rail AM1 DE200 or AM1 ED201



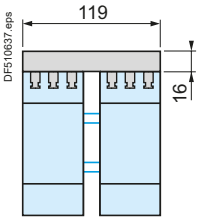
Panel mounting, using M4 screws



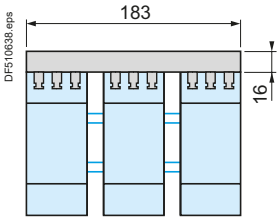
Mounting on pre-slotted plate AM1 PA



Set of busbars GV3G264



Set of busbars GV3G364

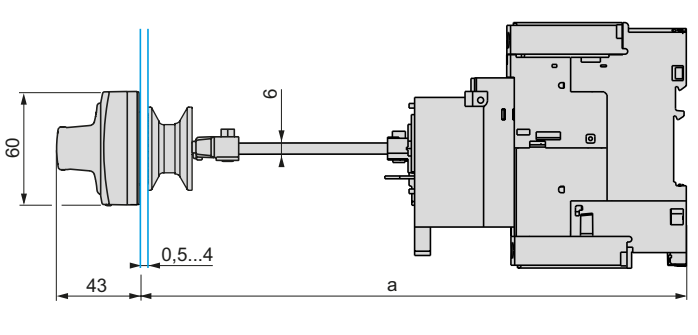


References:
pages 21 to 26
Characteristics:
pages 88 to 91
Curves:
pages 92 to 97
Schemes:
pages 103

Mounting

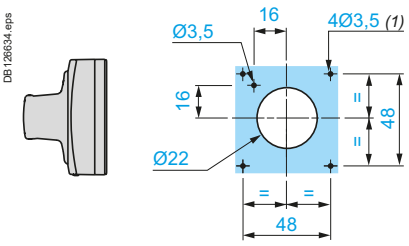
Mounting of external operator GV3APN01, GV3APN02 or GV3APN04 for motor circuit breakers GV3L

DB127416.eps



Door cut-out

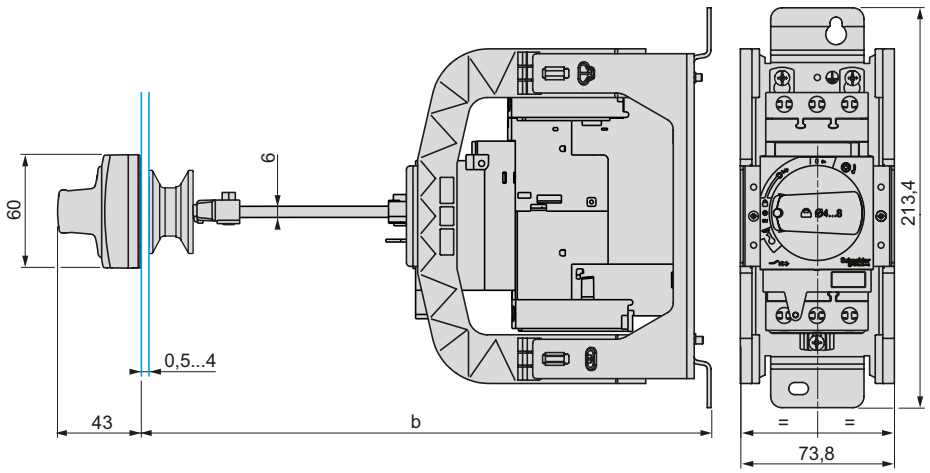
DB126634.eps



(1) *For IP65 only.*

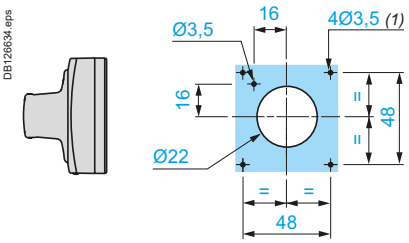
Mounting of external operator GVAPH03 for motor circuit breakers GV3L

DB127417.eps



Door cut-out

DB126634.eps



(1) *For IP65 only.*

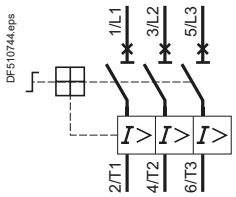
	a		b	
	Mini	Maxi	Mini	Maxi
GV3APN●●	189	300	-	-
GV3APN●● + GVAPK12	300	481		
GV3APN●● + GVAPH03	-	-	200	300
GV3APN●● + GVAPH03 + GVAPK12	-	-	300	492

TeSys protection components

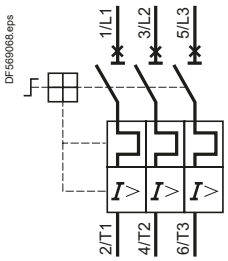
Motor circuit breakers GV3L, GV3 P

Schemes

GV3L●●

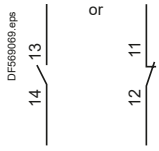


GV3P●●

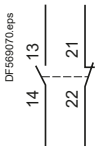


Front mounting add-on contact blocks
Instantaneous auxiliary contacts

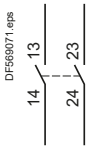
GVAE1



GVAE11

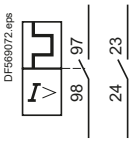


GVAE20

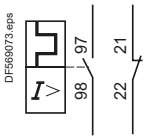


Front mounting add-on contact blocks
Instantaneous auxiliary contacts and fault signalling contacts

GVAED101

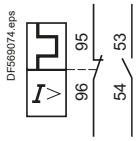


GVAED011

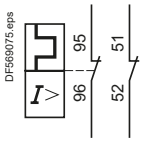


Side mounting add-on contact blocks
Instantaneous auxiliary contacts and fault signalling contacts

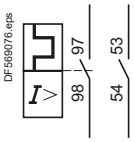
GVAD0110



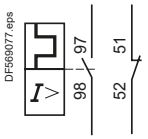
GVAD0101



GVAD1010

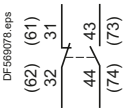


GVAD1001

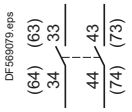


Instantaneous auxiliary contacts

GVAN11

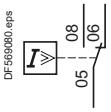


GVAN20



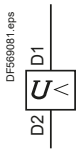
Short-circuit signalling contacts

GVAM11

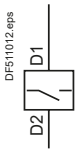


Voltage trips

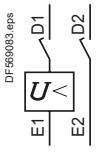
GVAU●●●



GVAS●●●

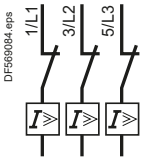


GVAX●●●

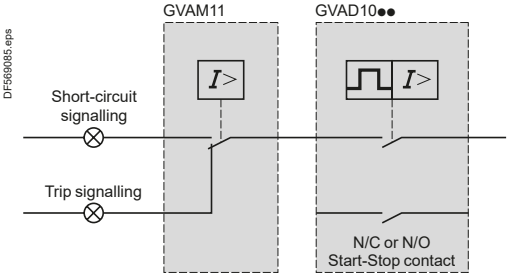


Current limiter

GV1L3

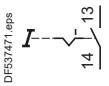


Use of fault signalling contact and short-circuit signalling contact

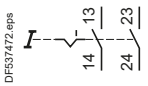


Start-Stop signalling contact blocks

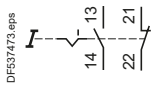
GK2AX10



GK2AX20

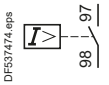


GK2AX50

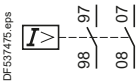


Fault signalling contact blocks

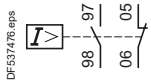
GK2AX12



GK2AX22



GK2AX52



References: pages 21 to 26
Characteristics: pages 88 to 91
Curves: pages 92 to 97
Dimensions: pages 101 to 102

TeSys GV4

0.25 to 55 kW

Environment

Circuit breaker type				GV4L	GV4LE	GV4P	GV4PE	GV4PEM
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		
Product certifications				CCC, EAC		CCC, EAC, CSA (cCSAus)		
Protective treatment				"TH"				
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 (1)		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 (2)		
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

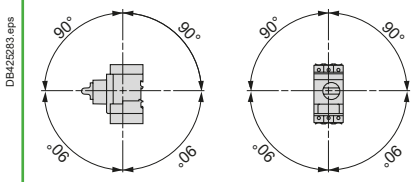
Utilisation category	Conforming to IEC 60947-2			A		A		
	Conforming to IEC 60947-4-1			AC-3 (3)				
Rated operational voltage (Ue)	Conforming to IEC 60947-2		V	690				
Rated insulation voltage (Ui)	Conforming to IEC 60947-2		V	800				
Rated voltage	Conforming to CSA C22-2 n°1, UL 60947-4-1		V	Non applicable		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) DRH = with Direct Rotary Handle
ERH = with Extended Rotary Handle
(2) For operation up to 70 °C, please consult your regional sales office.
(3) Up to 100 A.

References: pages 27 to 42
Curves: pages 111 to 115
Dimensions: pages 120 to 122

Mounting characteristics

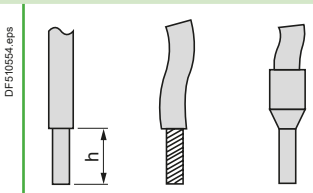
Operating position
Without derating, in relation to normal vertical mounting plane (1)



Power connection characteristics

Power connection by bare cables (EverLink connector)

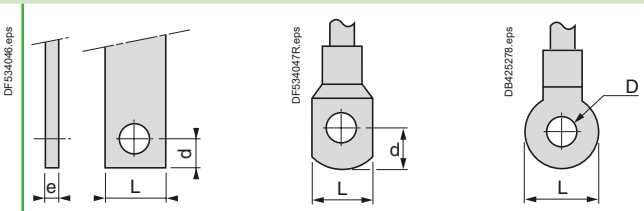
Bare cables



			Min.	Max.
Connection to screw clamp terminals (Max. number of conductors x c.s.a.)	Solid cable	**mm²** **AWG**	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
	Flexible cable without cable end	**mm²** **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	**mm²** **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
Tightening torque		**N.m**	5 ≤ 10 mm² / 8 AWG 9 ≥ 16 mm² / 6 AWG	
Stripping length (h)	Solid cable	**mm**	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 mm² / 8 AWG 9 ≥ 16 mm² / 6 AWG

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

References:
pages 27 to 42
Curves:
pages 111 to 115
Dimensions:
pages 120 to 122

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.

TeSys protection components

Thermal-magnetic motor circuit breakers GV4P, GV4PE and GV4PEM

Breaking capacity of GV4P, GV4PE and GV4PEM

Circuit breaker type				GV4P●●●B GV4PE●●●B GV4PEM●●●B					GV4P●●●N GV4PE●●●N GV4PEM●●●N								GV4PE●●●S GV4PEM●●●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.

References: pages 27 to 42
Curves: pages 111 to 115
Dimensions: pages 120 to 122

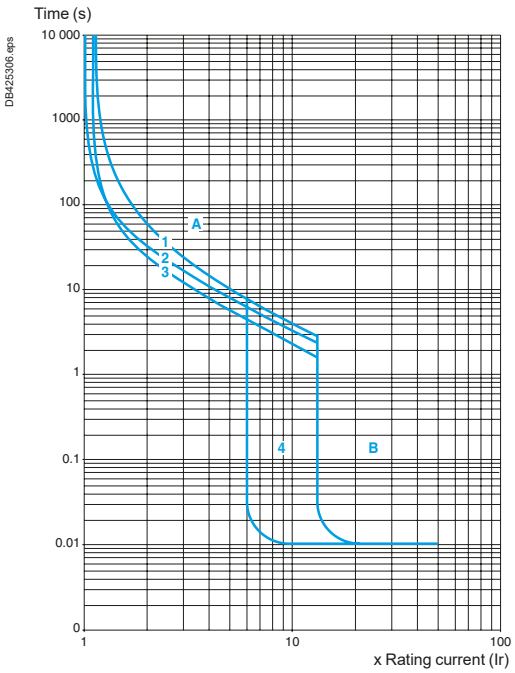
TeSys protection components

Magnetic motor circuit breakers GV4L, GV4LE

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

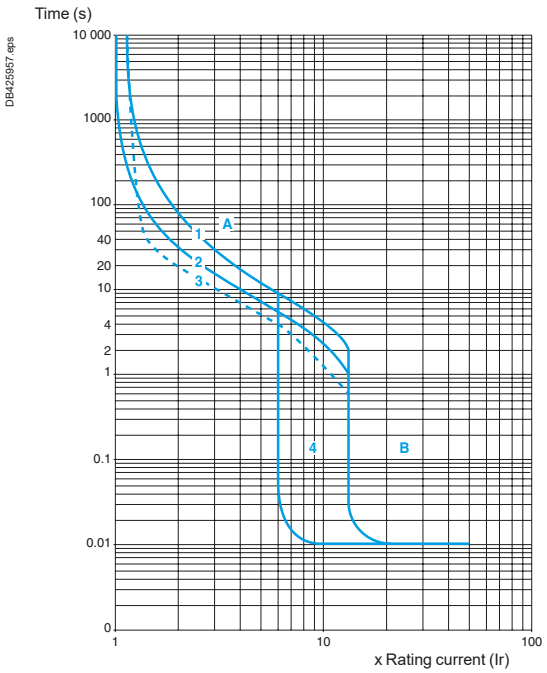
GV4L02 and GV4LE02 to 12 with LRD05 to LRD14, GV4L80 and GV4LE80 with LRD3363



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

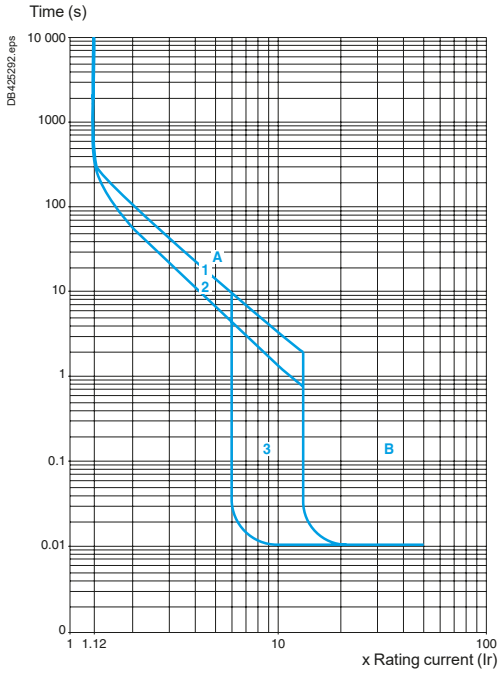
GV4L25 AND GV4LE25 with LRD 318, LRD325
GV4L50 AND GV4LE50 with LRD 332, LRD 340, LRD 350



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

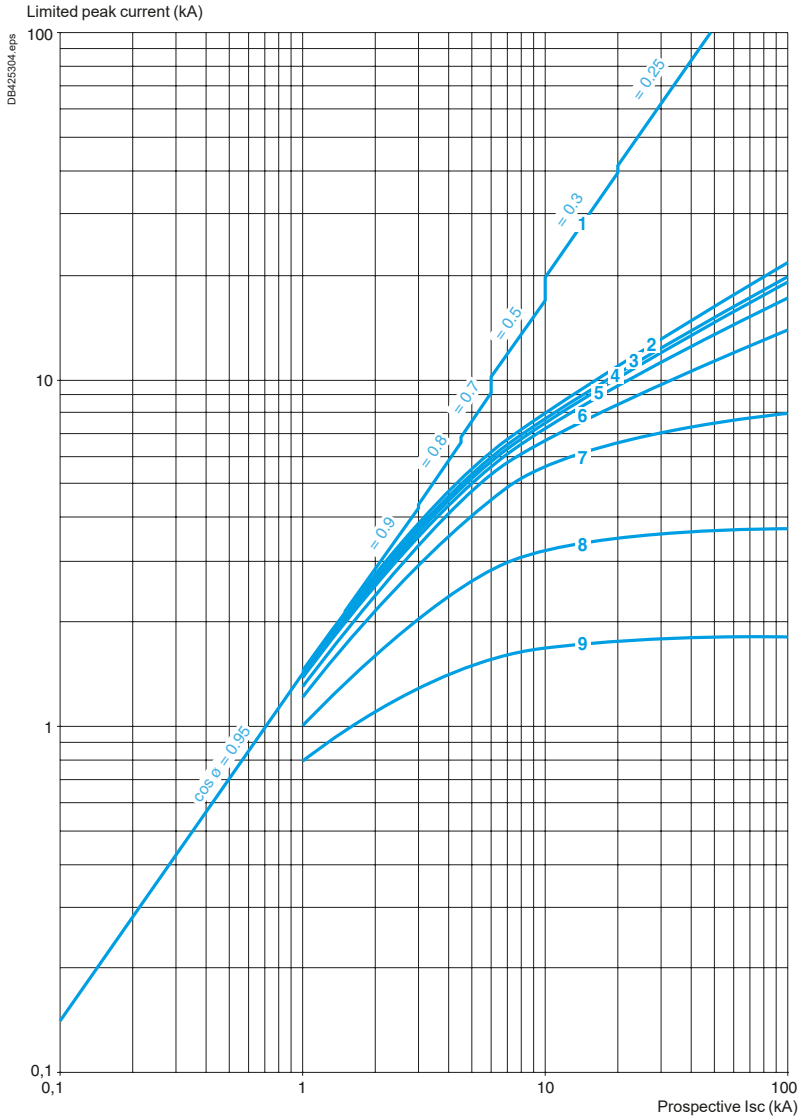


1 Cold state curve
2 Hot state curve
3 6 ...14 Ir

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

Dynamic stress

I peak = f (prospective Isc) at 1.05 Ue = 435 V



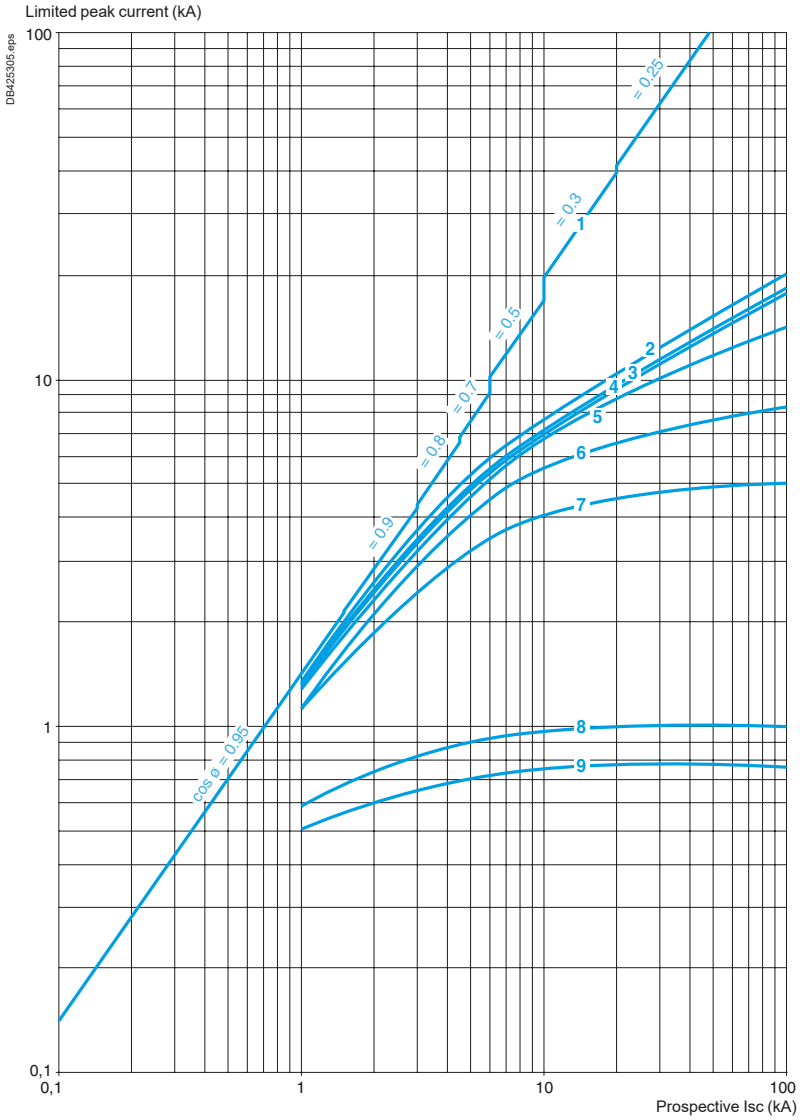
1 Maximum peak current
2 GV4L115
3 GV4L80
4 GV4L50
5 GV4L25
6 GV4L12
7 GV4L07
8 GV4L03
9 GV4L02

References: pages 27 to 43
Characteristics: pages 106 to 118
Dimensions: pages 120 to 122

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

Dynamic stress

I peak = f (prospective Isc) at 1.05 Ue = 435 V

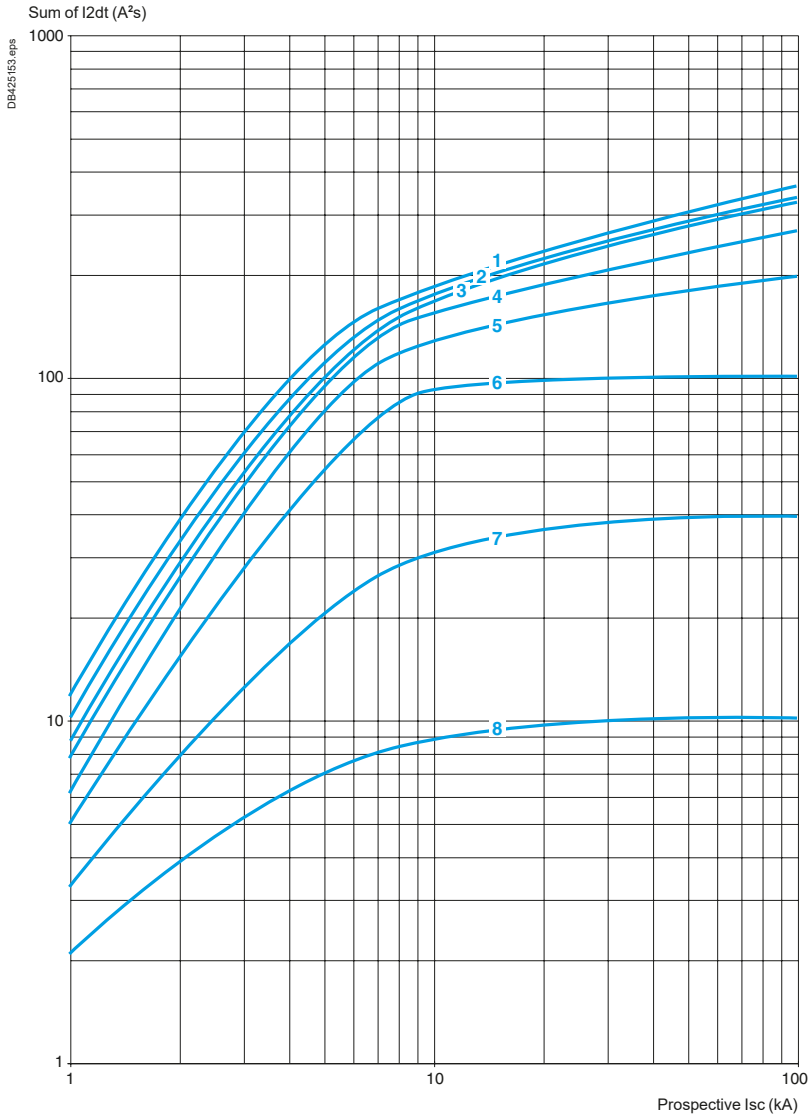


1 Maximum peak current
2 GV4L115 + LR9D5367 or LR9F5367
3 GV4L80 + LRD3361
4 GV4L50 + LRD340
5 GV4L25 + LRD325
6 GV4L12 + LRD313
7 GV4L07 + LRD12
8 GV4L03 + LRD07
9 GV4L02 + LRD07

Thermal limit on short-circuit for GV4L, GV4LE

Thermal limit in A^2s

Sum of I^2dt = f (prospective Isc) at 1.05 Ue = 435 V



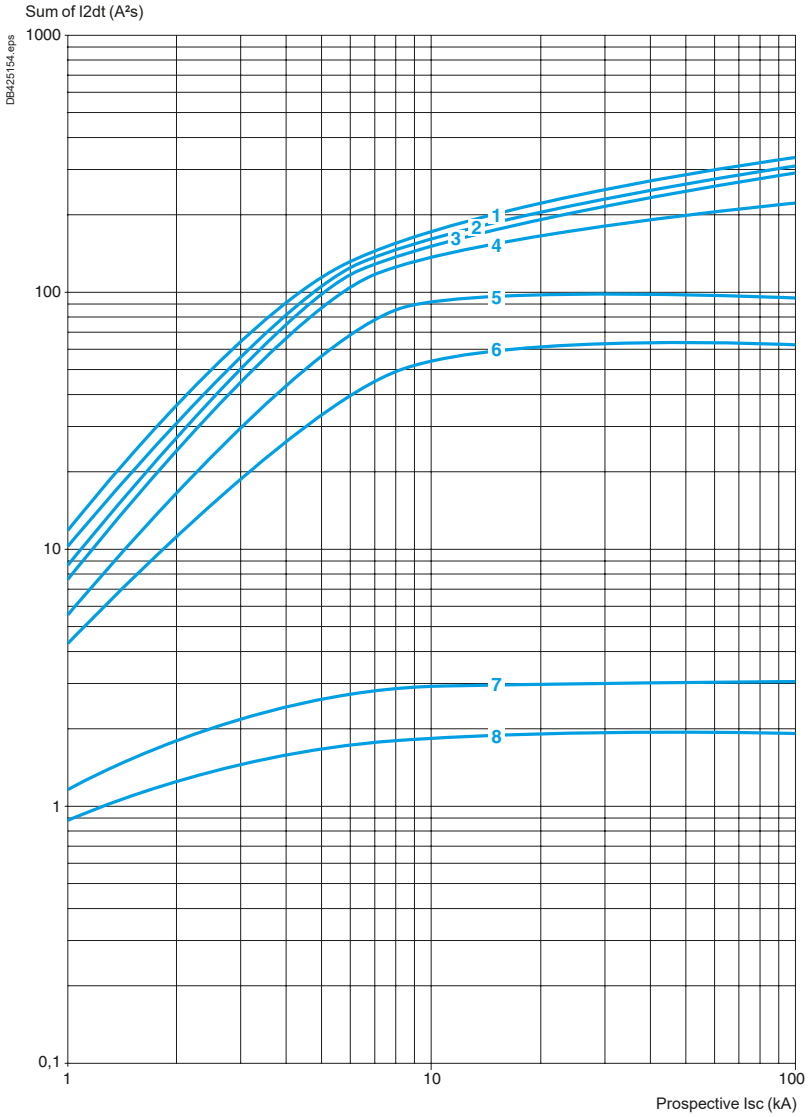
1 GV4L115
2 GV4L80
3 GV4L50
4 GV4L25
5 GV4L12
6 GV4L07
7 GV4L03
8 GV4L02

References:
pages 27 to 43
Characteristics:
pages 106 to 118
Dimensions:
pages 120 to 122

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

Thermal limit in kA in the magnetic operating zone

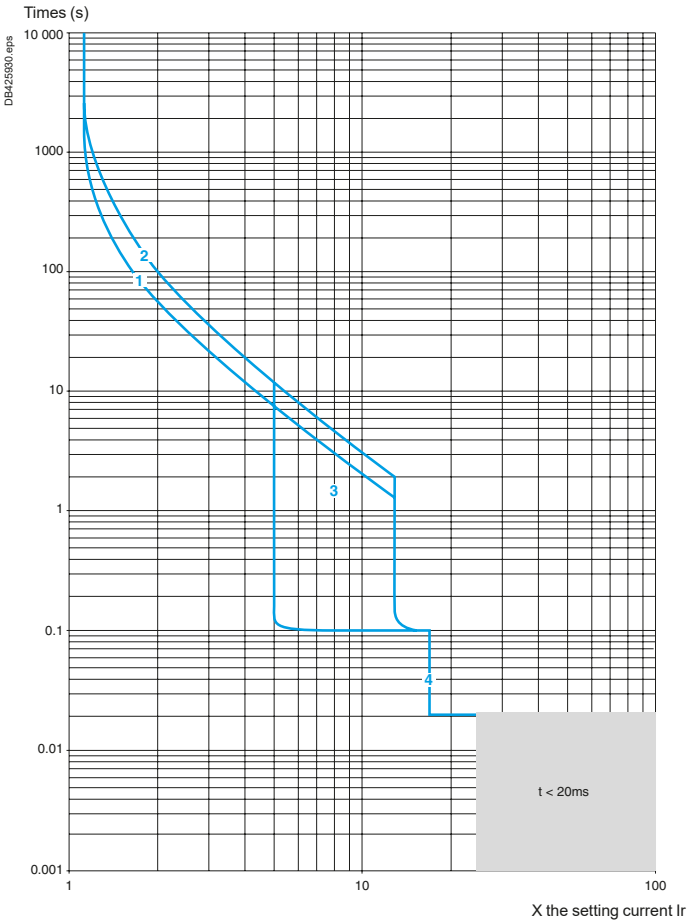
Sum of I²dt = f (prospective Isc) at 1.05 Ue = 435 V



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

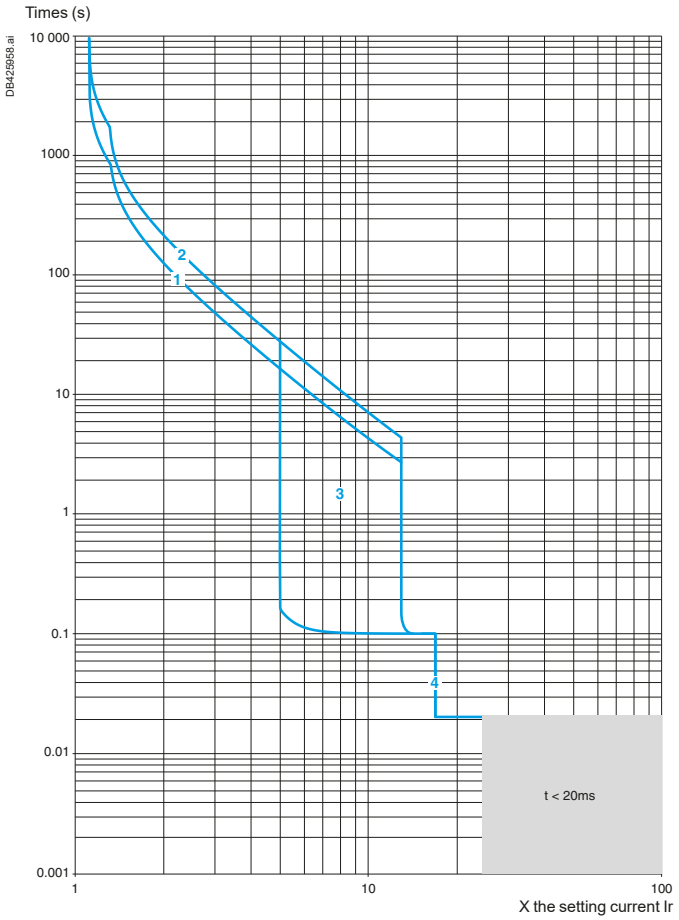
Thermal-magnetic tripping curves for GV4P, GV4PE, GV4PEM

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



Hot state

1 Class 10
2 Class 20
3 Isd = 5 ...13x Ir
4 Ii = 17 In



Cold state

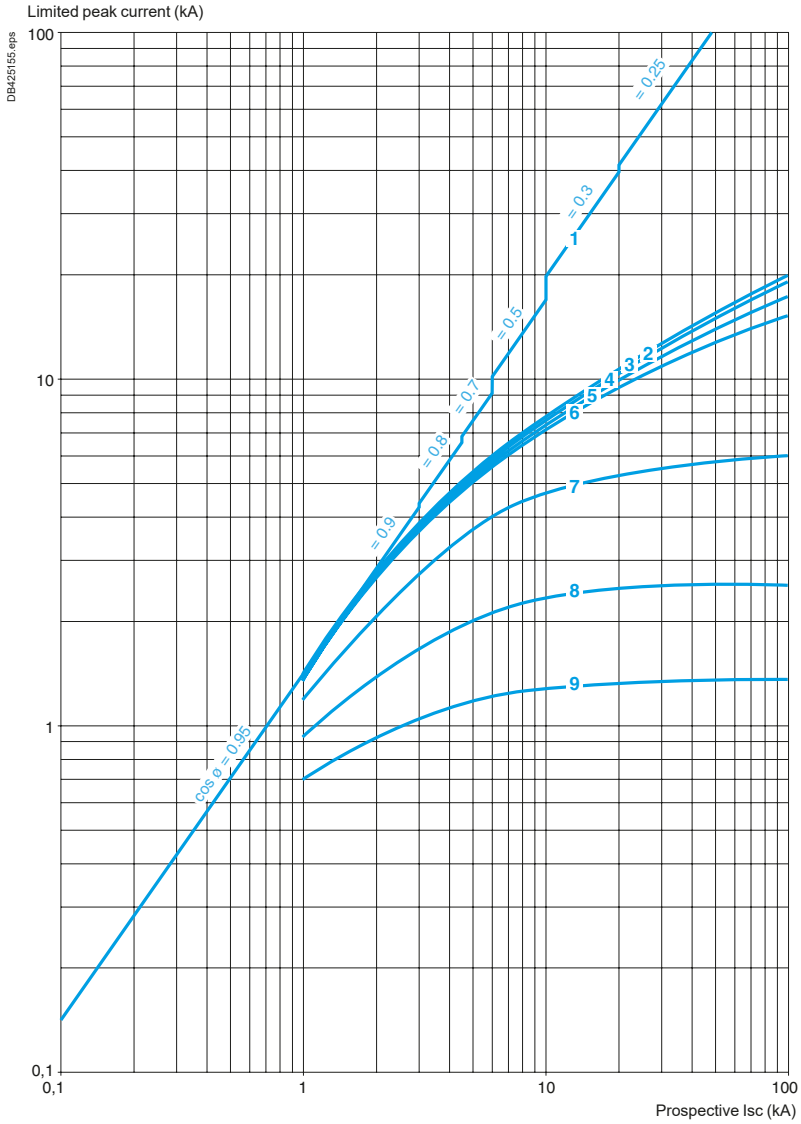
1 Class 10
2 Class 20
3 Isd = 5 ...13x Ir
4 Ii = 17 In

References:
pages 27 to 43
Characteristics:
pages 106 to 118
Dimensions:
pages 120 to 122

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

Dynamic stress

I peak = f (prospective Isc) at 1.05 Ue = 435 V

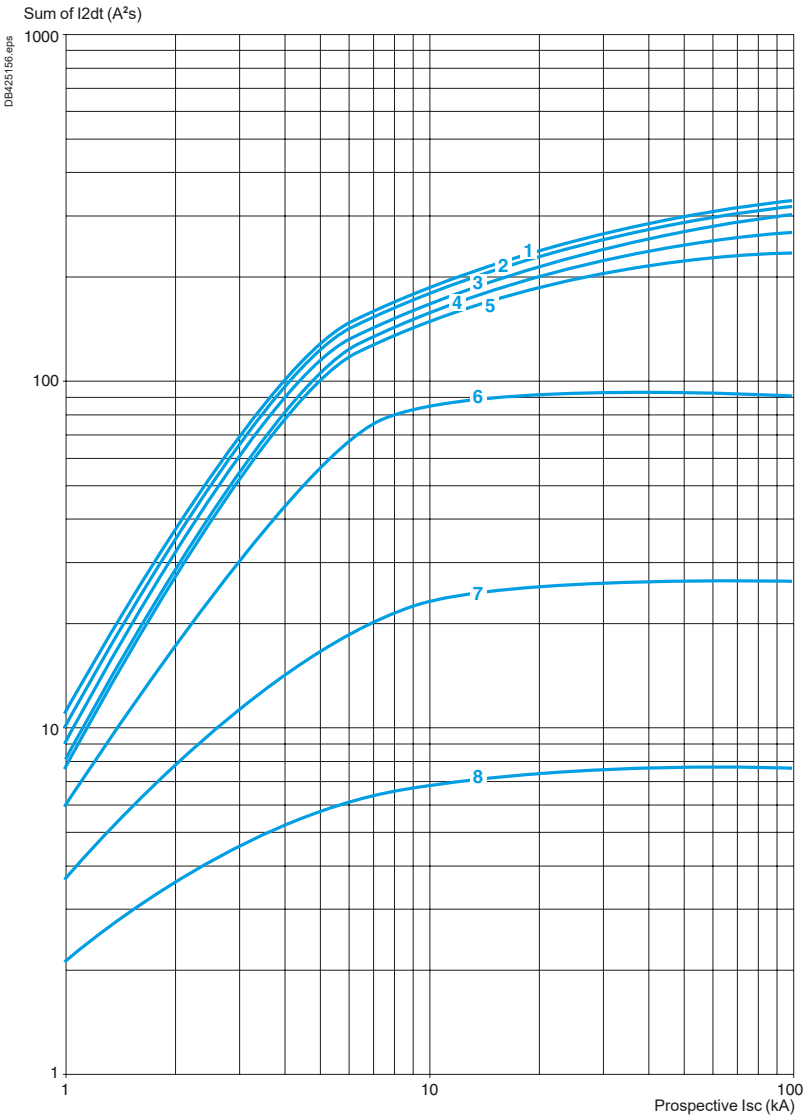


1 Maximum peak current
2 GV4P115
3 GV4P80
4 GV4P50
5 GV4P25
6 GV4P12
7 GV4P07
8 GV4P03
9 GV4P02

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

Thermal limit in kA²s in the magnetic operating zone

Sum of I²dt = f (prospective Isc) at 1.05 Ue = 435 V



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

References:
pages 27 to 43
Characteristics:
pages 106 to 118
Dimensions:
pages 120 to 122

TeSys protection components

Thermal-magnetic motor circuit breakers

Voltage releases

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	mm²	No solid cable allowed						
	Flexible cable without cable end	mm² AWG	Cu 0.5 mm² to 1.5 mm² Cu 20AWG to 16AWG						
	Flexible cable with cable end	mm²	No cable with cable end allowed						
Tightening torque		N.m	NA						
Mechanical durability (C.O.: Close - Open)		C.O.	20000						

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	mm²	No solid cable allowed				
	Flexible cable without cable end	mm² AWG	Cu 0.5 mm² to 1.5 mm² Cu 20AWG to 16AWG				
	Flexible cable with cable end	mm²	No cable with cable end allowed				
Tightening torque		N.m	NA				
Mechanical durability (C.O.: Close - Open)		C.O.	20000				

TeSys protection components

Thermal-magnetic motor circuit breakers GV4L, GV4P, GV4PE, GV4PEM

Auxiliary contacts

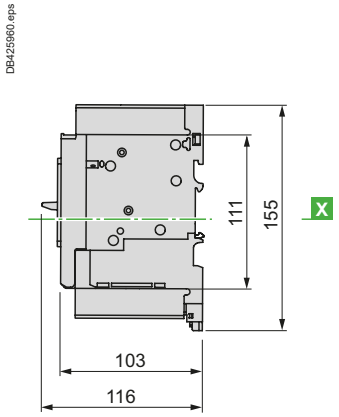
Auxiliary contact characteristics

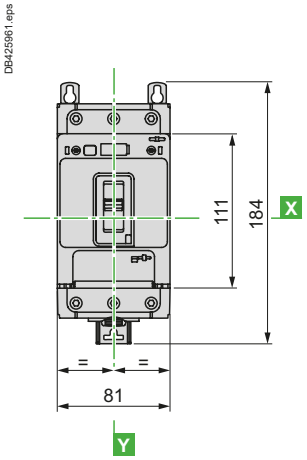
Type of contacts				Auxiliary contact block GV4AE11						SDx contact module for GV4PEM GV4ADM1111					
Rated insulation voltage(Ui)	Conforming to IEC 60947-1		V	690						250					
	Conforming to CSA C22-2 n°14 UL 508		V	-						-					
Conventional thermal current (Ith)	Conforming to IEC 60947-5-1		A	5						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					

References: pages 27 to 42
Characteristics: pages 106 to 118
Curves: pages 111 to 115

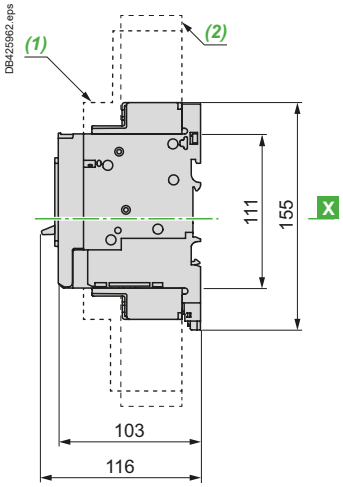
GV4 with toggle : GV4LE, GV4PE, GV4PEM

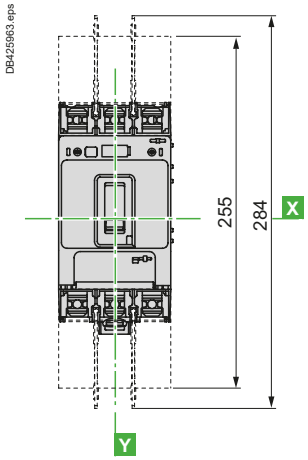
With EverLink® connector





With crimp lug connector

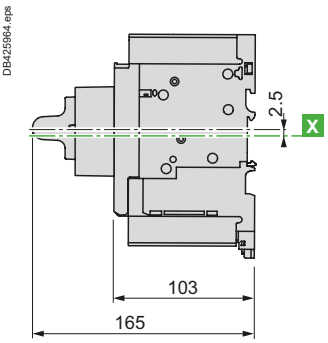


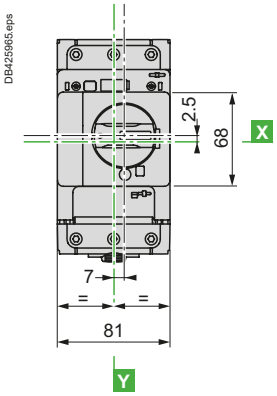


(1) Long terminal shield
(2) Interphases barriers

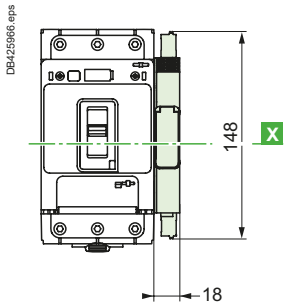
GV4 with rotary handle: GV4L, GV4P, or GV4LE, GV4PE, GV4PEM with GV4ADN01, GV4ADN02 direct mounting rotary handle

Dimensions





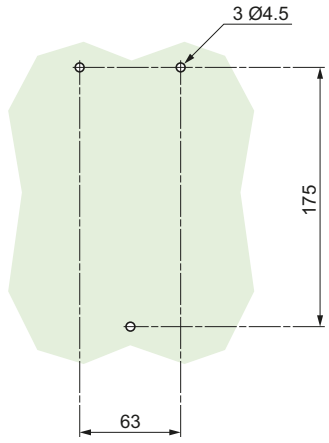
SDx module



GV4L, GV4P, GV4LE, GV4PE, GV4PEM

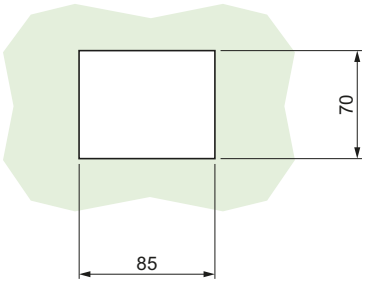
Panel mounting with M4 screws

DB425163.eps



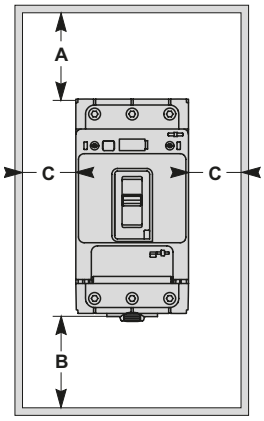
Door cut-out for rotary handle

DB425164.eps



Minimum safety clearance

DB425971.eps



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

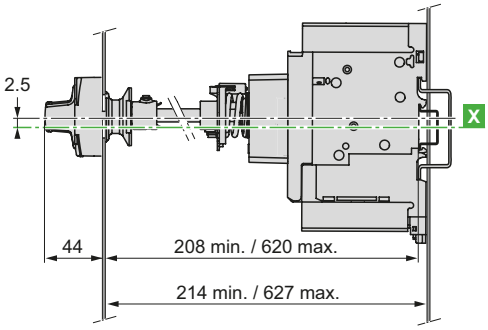
Safety clearance (mm)

	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

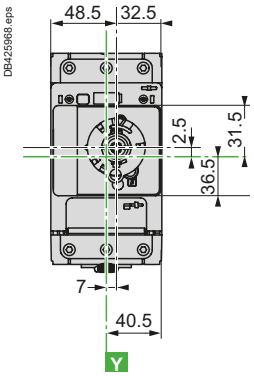
GV4 with extended rotary handle

Front extended rotary handle GV4APN01,GV4APN02, GV4APN04

DB425967.eps

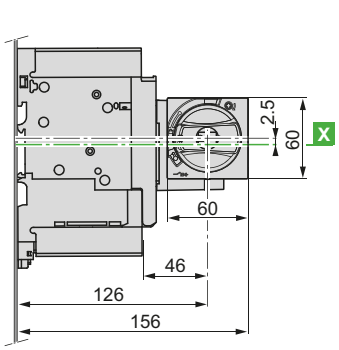


DB425968.eps



Side (left or right) extended rotary handle LV426935, LV426936

DB425970.eps



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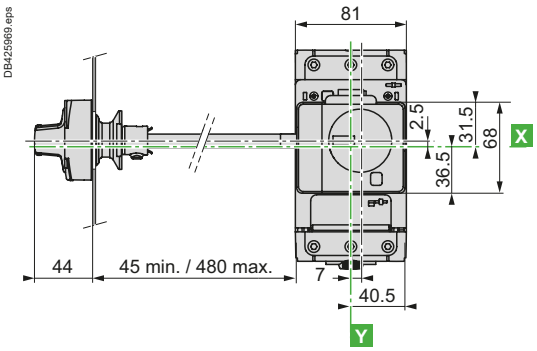
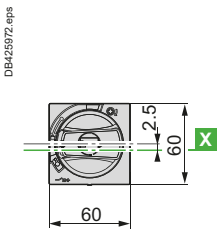


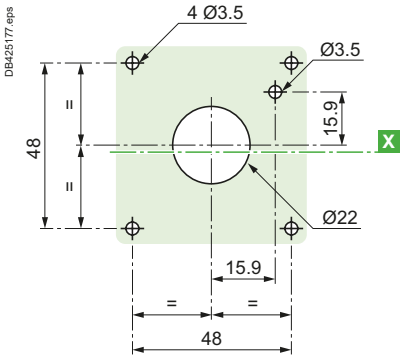
Front and side extended rotary handle, door/side panel cut-out

Front and side extended rotary handle	IP65, door panel cut-out	IP54, door/side panel cut-out

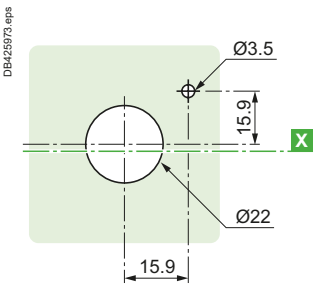
DB425972.eps



DB425177.eps



DB425973.eps



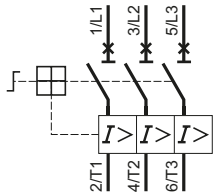
TeSys protection components

Motor circuit breakers TeSys GV4

Magnetic motor circuit breakers

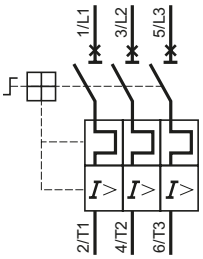
GV4L, GV4LE

DF510744.eps



GV4P, GV4PE, GV4PEM

DF569068.eps



Accessories

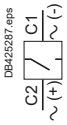
Electrical trips

MN GV4AU●●●

DB425286.eps

MX GV4AS●●●

DB425287.eps



GV4AE11 auxiliary contacts

Used as OF contact

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Used as SD contact

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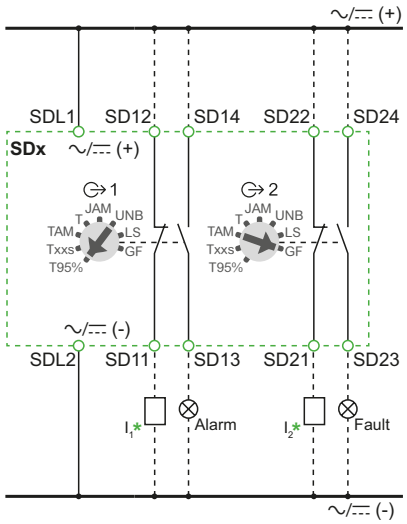
Side mounting add-on contact blocks
Instantaneous auxiliary contacts and fault signalling contacts

DB425927.eps



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

References:
pages 27 to 42

Characteristics:
pages 106 to 118

Curves:
pages 111 to 115

TeSys GV7

55 to 110 kW

Environment

Circuit breaker type				GV7R
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				UL, CSA, DNV-GL
Protective treatment				"TC"
Degree of protection (front face)	Conforming to IEC 60529	Open mounted		IP405 with terminal shrouds
		In enclosure		–
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		°C	-55…+95
	Operation	Open mounted	°C	-25… +70
		In enclosure	°C	–
Temperature compensation		Open mounted	°C	-25… +55 (3)
		In enclosure	°C	–
Flame resistance	Conforming to IEC 60695-2-1		°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				

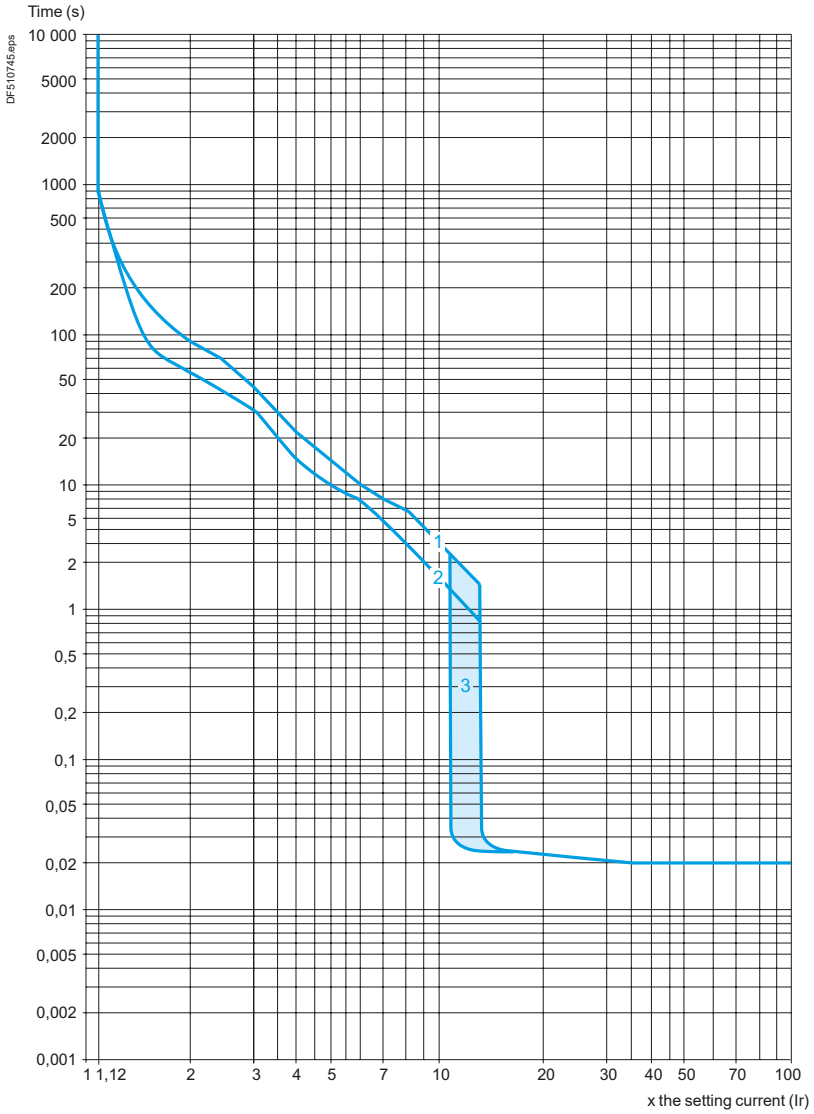
Technical characteristics

Circuit breaker type			GV7R●20... R●100	GV7R●150	GV7R●220
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	750		
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	5	8.7	14.5
Mechanical durability (C.O.: Close, Open)		C.O.	50 000	40 000	20 000
Electrical durability for AC-3 duty	415 V In	C.O.	30 000	20 000	10 000
Duty class (maximum operating rate)		C.O./h	25		
Maximum conventional rated thermal current (Ith)	Conforming to IEC 60947-4-1	A	12…100	150	220
Rated duty	Conforming to IEC 60947-4-1		Continuous duty		

*(1) UL 60947-4-1 type E for **GV2P●●H7**.*
(2) 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.
(3) For operation up to 70 °C, please consult your Regional Sales Office.

Thermal-magnetic tripping curves for GV7R

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



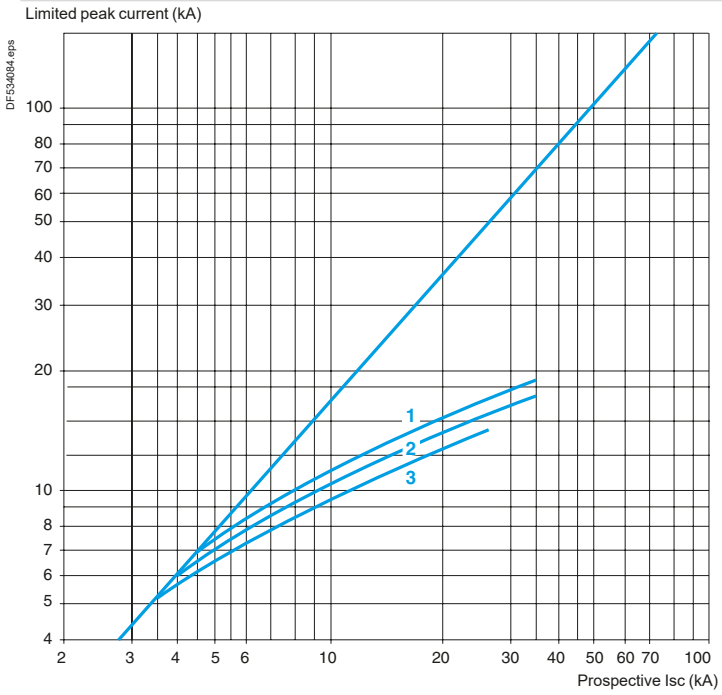
1 Cold state curve
2 Hot state curve
3 12…14 Ir
In the event of total phase failure, tripping occurs after 4 s ± 20 %

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

Dynamic stress

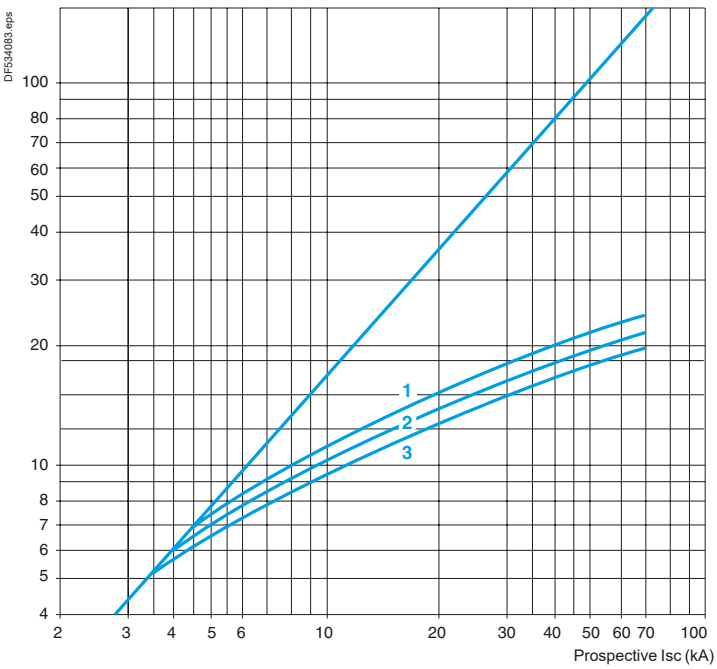
I peak = f (prospective Isc)

For GV7RE only



1 GV7RE220
2 GV7RE150
3 GV7RE100

For GV7RS only



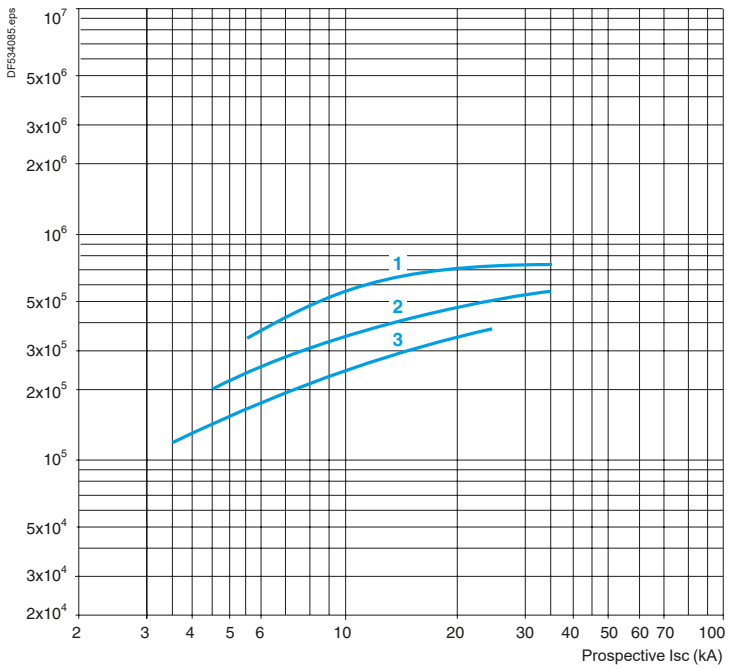
1 GV7RS220
2 GV7RS150
3 GV7RS100

Thermal limit (3-phase 400/415 V)

Thermal limit

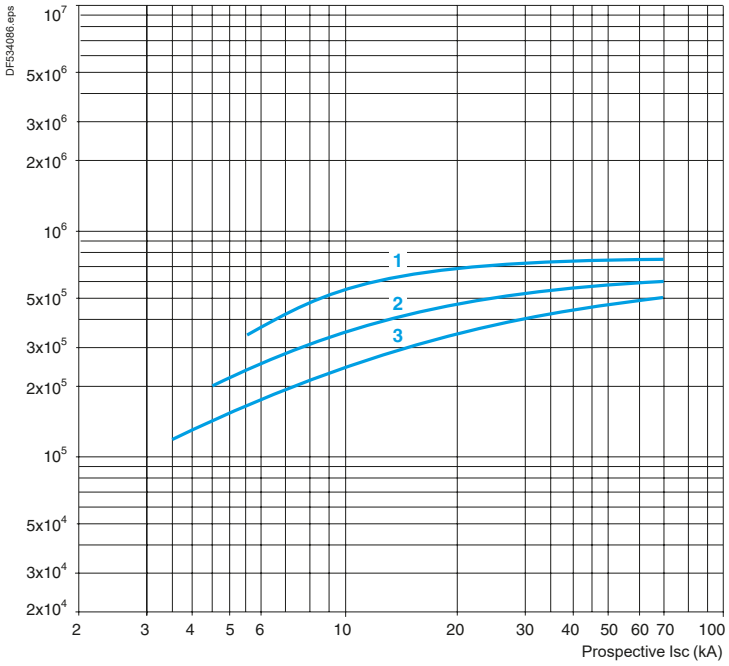
Sum of $I^2dt = f$ (prospective Isc)

For GV7RE only



1 GV7RE220
2 GV7RE150
3 GV7RE100

For GV7RS only



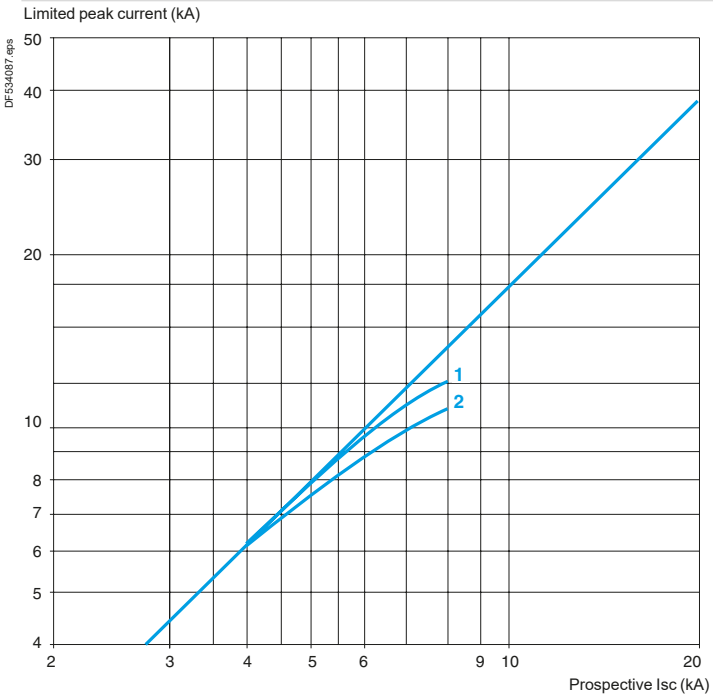
1 GV7RS220
2 GV7RS150
3 GV7RS100

Current limitation on short-circuit (3-phase 690 V)

Dynamic stress

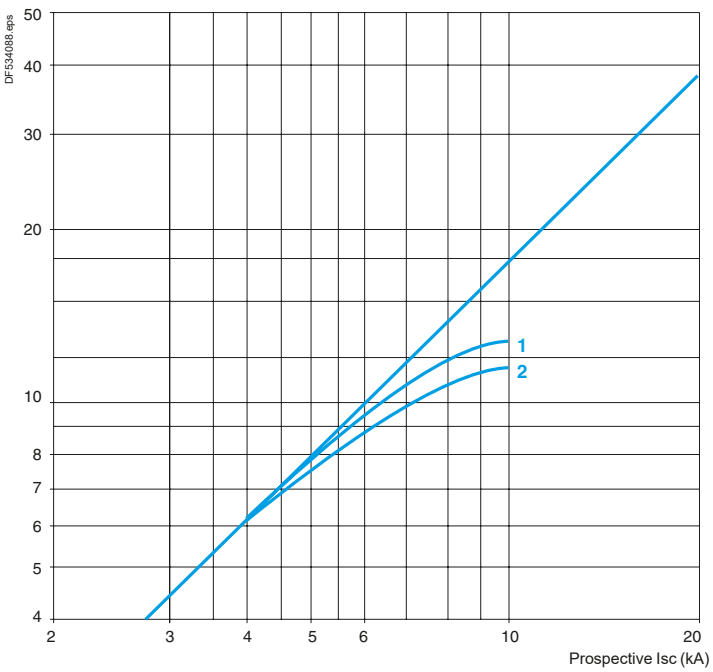
I peak = f (prospective Isc)

For GV7RE only



1 GV7RE220
2 GV7RE150 and GV7RE100

For GV7RS only



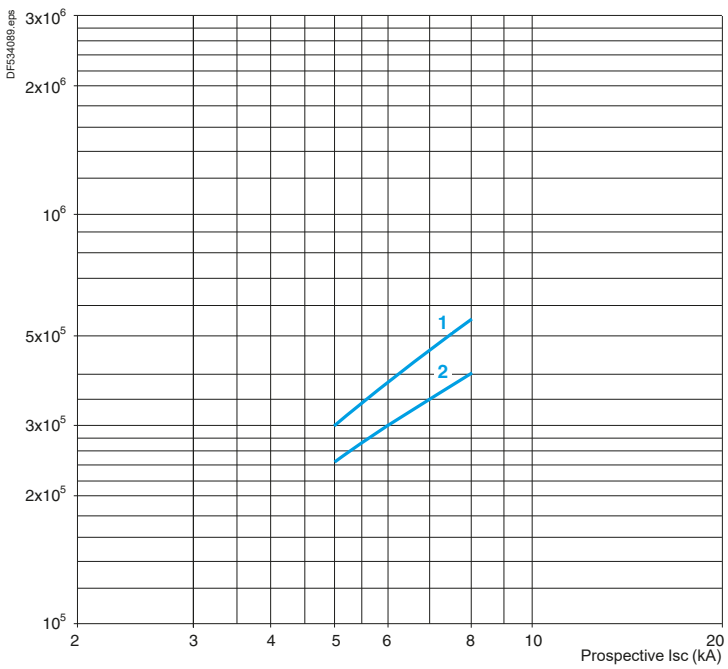
1 GV7RS220
2 GV7RS150 and GV7RS100

Thermal limit on short-circuit (3-phase 690 V)

Thermal limit

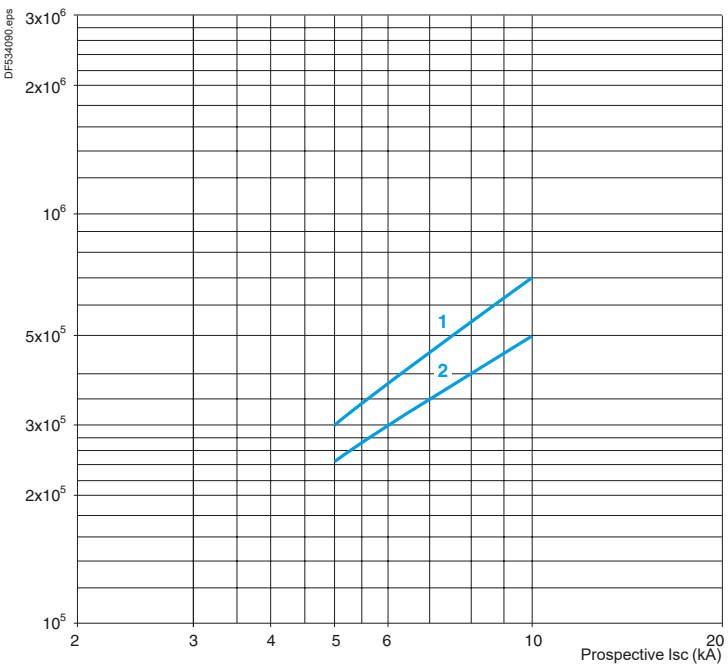
Sum of I^2dt = f (prospective Isc)

For GV7RE only



1 GV7RE220
2 GV7RE150 and GV7RE100

For GV7RS only



1 GV7RS220
2 GV7RS150 and GV7RS100

Characteristics of GV7 electric trips

Type of trip			GV7AU●●● MN undervoltage trip	GV7AS●●● 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	0.7...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 (spring connection)	Number of conductors		1	
	Solid cable	mm^2	1.5	
	Flexible cable without cable end	mm^2	1.5	
	Flexible cable with cable end	mm^2	1	
Tightening torque		N.m	1.2	
Mechanical durability (C.O.: Close - Open)		C.O.	50 % of the mechanical durability of the circuit breaker.	

Auxiliary contact characteristics

Type of contacts				GV7AE11							GV7AB11						
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							6						
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**	**230/ 240**	**380/ 415**	**440**	**690**	**24**	**48**	**110**	**230/ 240**	**380/ 415**	**440**	**690**
	Rated operational current (Ie)	AC-12	A	6	6	6	6	6	6	6	5	5	5	5	5	5	5
		AC-15	A	6	6	5	4	3	3	0.1	5	5	4	3	2.5	2.5	0.1
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	2.5		2.5		0.8		0.3	2		2		0.5		–
		DC-14	A	1		0.2		0.5		0.03	0.5		0.1		0.25		–
Minimum operational conditions d.c. operation			V	17							12						
			mA	5							5						
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						

GV7R

Dimensions

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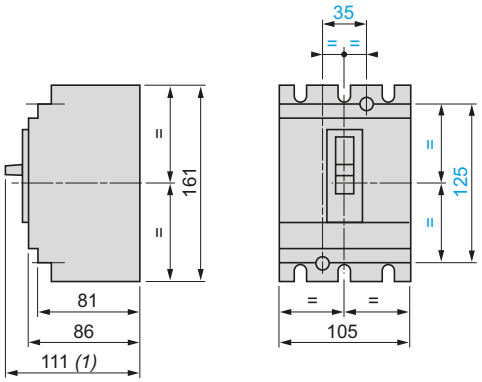
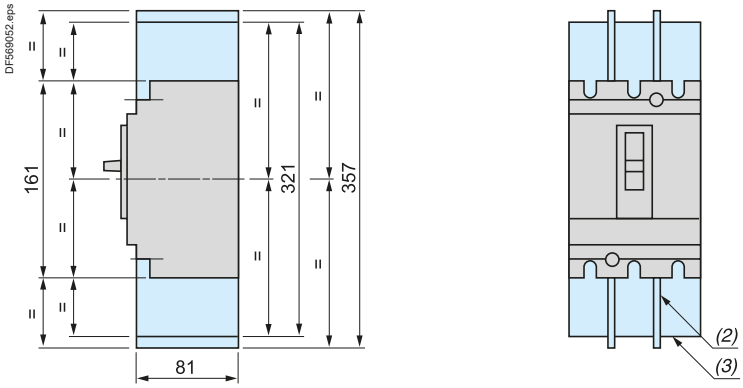


*(1) 126 for **GV7R● 220.***

Motor circuit breakers with terminal shields or phase barriers GV7R + GV7AC01 or AC04

DF569052.eps



*(2) Phase barriers: **GV7AC04**.*
*(3) Terminal shields: **GV7AC01**.*

Combination of GV7R and TeSys contactor LC1 F with kit GV7AC0●

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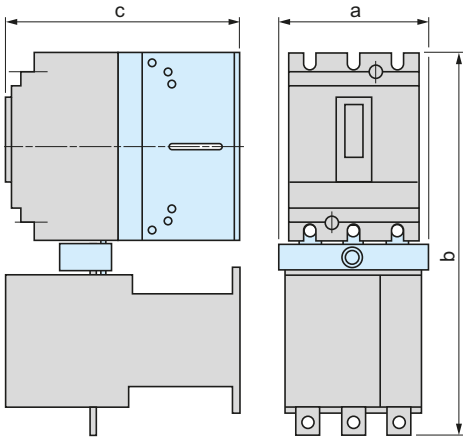

	a	b	c
GV7R + LC1F115 or F150 + GV7AC06	119	334	181
GV7R + LC1F185 + GV7AC06	119	338	188
GV7R + LC1F225 + GV7AC07	131	358	188
GV7R + LC1F265 + GV7AC07	131	364	215

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

Minimum electrical clearance

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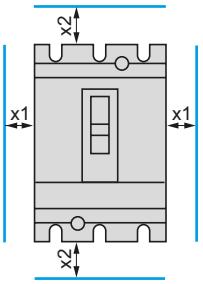
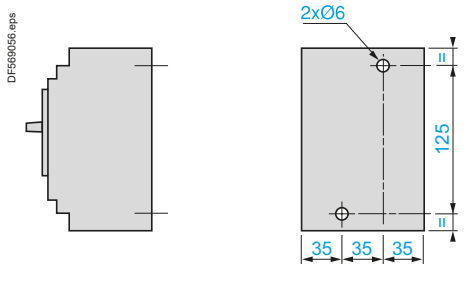


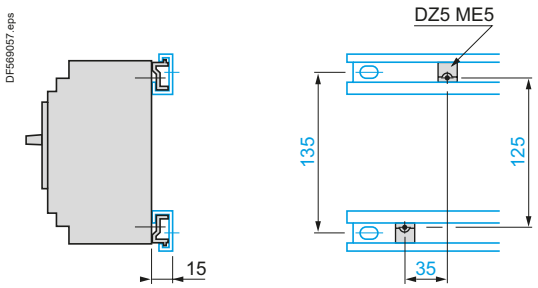
		x1	x2
Painted or insulated metal plate, insulation or insulated bar		0	30
Bare metal plate	U ⩽ 440 V	5	35
	440 V < U < 600 V	10	35
	U ⩾ 600 V	20	35

GV7R

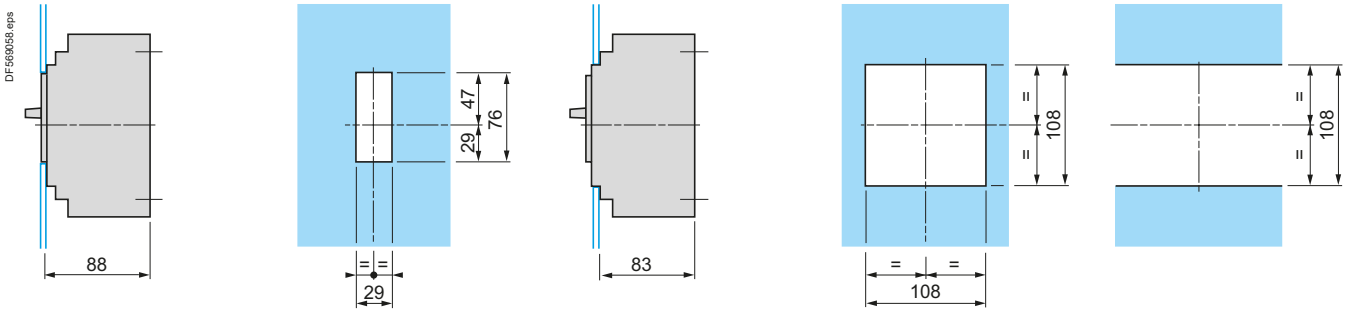
Panel mounting



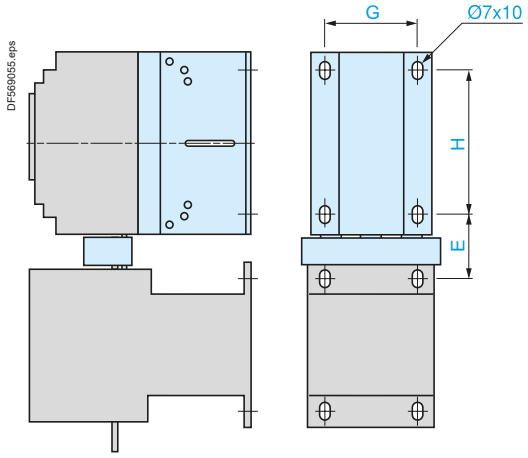
Mounting on 2 mounting rails DZ5 MB201



Flush-mounting



Combination of GV7R and TeSys contactor LC1F with kit GV7 AC0●

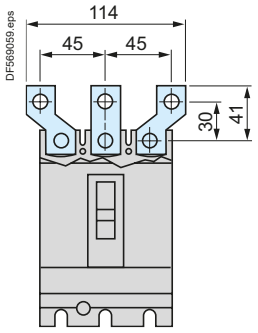


	E	G	H
GV7R + LC1F115 + GV7AC06	44	85	120
GV7R + LC1F150 + GV7AC06	46	85	120
GV7R + LC1F185 + GV7AC06	48	85	120
GV7R + LC1F225 + GV7AC07	57	85	120
GV7R + LC1F265 + GV7AC07	60	85	120

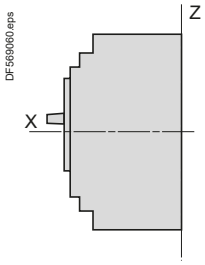
References: pages 45 to 50
Characteristics: pages 126
Curves: pages 127 to 113
Schemes: pages 137

GV7R

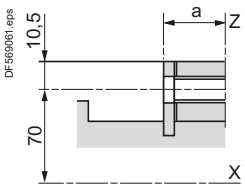
Spreaders GV7AC03



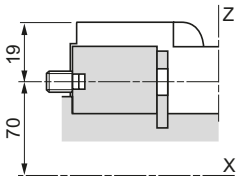
Connection



Smooth terminals

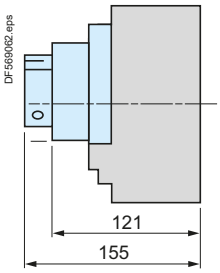


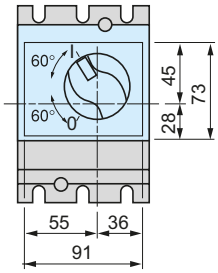
Connectors



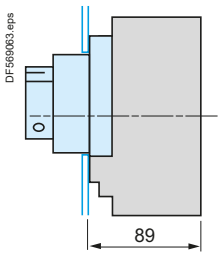
	a
GV7R●40…R●150	19.5
GV7R●220	21.5

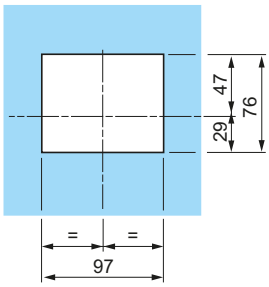
Direct rotary handle GV7AP03, GV7AP04





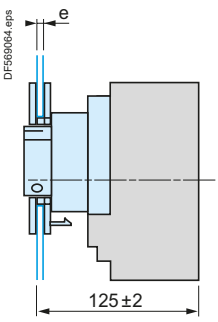
Flush-mounting

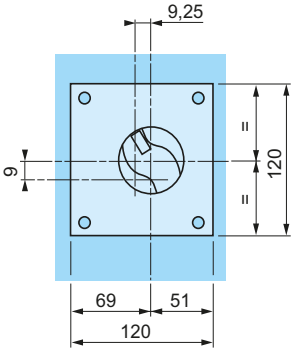


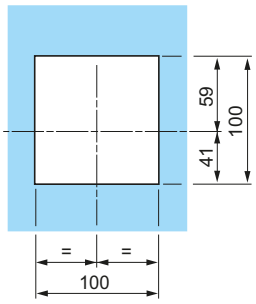


Direct rotary handle GV7AP03 or GV7AP04 with conversion accessory GV7AP05

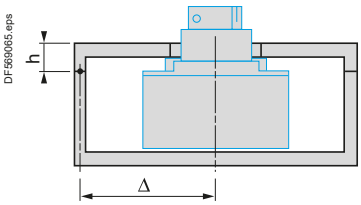
Front face cut-out







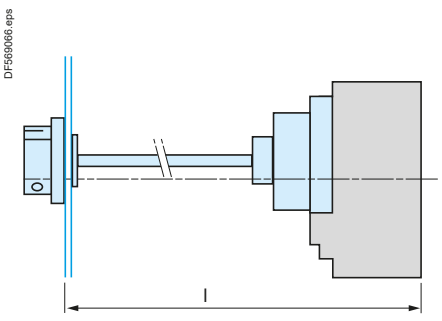
Enclosure viewed from top

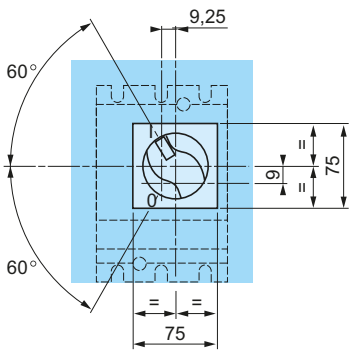


Door cut-outs require a minimum distance between the centre of the circuit breaker and the door hinge point Δ ≥ 100 + (h x 5)

e = 1 to 3 max

Extended rotary handle GV7AP01, GV7AP02





l : 185 min, 600 max
*The shaft of the extended rotary handle **GV7AP01** or **GV7AP02** must be cut to length: l – 126 mm.*

References: pages 45 to 50
Characteristics: pages 126
Curves: pages 127 to 113
Schemes: pages 137

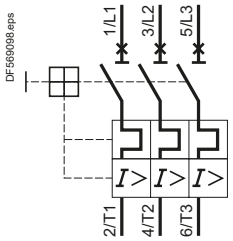
TeSys protection components

Thermal-magnetic motor circuit breakers GV7 R

Schemes

Motor circuit breakers

GV7 R



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

GV7 AE11, GV7 AB11

Location 1
C/O contact

Location 2
Trip indication

Location 3
Electrical fault indication

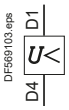
Location 4
C/O contact

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.

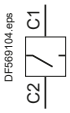
(1) See page 109.

Electric trips

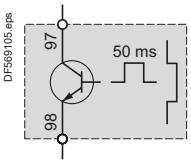
GV7AU●●●



GV7AS●●●

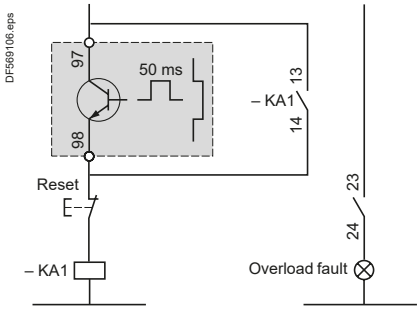


GV7AD111, AD112



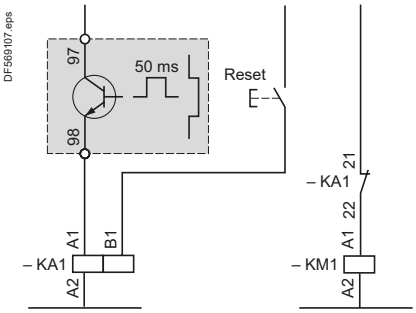
Recommended application schemes GV7AD111, AD112

Fault indication



Associated components
KA1: CA2KN or CADN

Contactor opening on overload



Associated components
KA1: CAD + LAD6K10 or RHK
KM1: LC1 D or LC1 F

TeSys GB2

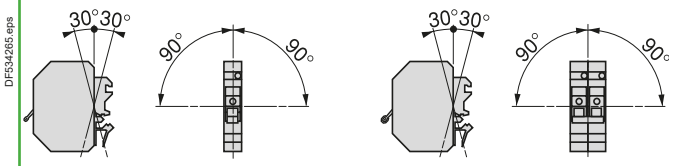
0.5 to 20 A

(for equipment and control circuits)

Protection components

Thermal-magnetic circuit breakers TeSys GB2 for the protection of industrial equipment control circuits

Environment

Circuit breaker type			GB2CB	GB2CD	GB2DB	GB2CS
Conforming to standards			IEC 60947-1, 947-2, EN 60947-1, 60947-2			
Product certifications			CSA, NEMKO, UL	NEMKO, UL	–	–
Protective treatment			"TC"			
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 60695-2-1	°C	960			
Maximum operating altitude		m	3000			
Operating position	In relation to normal vertical mounting plane		 GB2CB,CD, CS		GB2DB	
Cabling			Minimum c.s.a.		Maximum c.s.a.	
	Solid cable	mm²	1 x 0.75		1 x 6 or 2 x 4	
	Flexible cable with cable end	mm²	1 x 0.75		1 x 4 or 2 x 2.5	
Tightening torque		N.m	1.2			

Technical characteristics

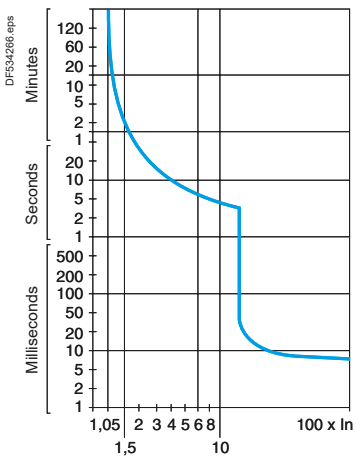
Utilisation category	Conforming to IEC 60947-2		A		A		A		A	
Rated operational voltage (Ue)	Conforming to IEC 60947-2	V	250 (1)		250		415		250 (1)	
	Conforming to CSA C22-2 Nr 14 and UL 1077	V	277		–		277		–	
Rated operational frequency	Conforming to IEC 60947-2	Hz	50/60		50/60		50/60		50/60	
Rated impulse 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) Ue = 415 V when a **GB2** circuit breaker is fitted on every live conductor.*

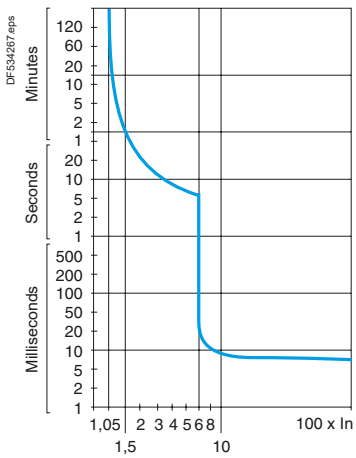
Tripping curves

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

GB2CB, GB2 CD, GB2 DB



GB2CS



References: pages 51 to 54
Dimensions: pages 143
Schemes: pages 143

Protection components

Thermal-magnetic circuit breakers TeSys GB2 for the protection of industrial equipment control circuits

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
		gG	A	★	★	25	32	32	50	50	63	63	80	80	80
	230/240 V	aM	A	★	★	16	20	20	32	32	40	40	50	50	50
		gG	A	★	★	25	32	32	40	40	50	50	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
		gG	A	★	★	25	32	32	50	50	63	63	80	80	80
	230/240 V	aM	A	★	★	16	20	20	32	32	40	40	50	50	50
		gG	A	★	★	25	32	32	40	40	50	50	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
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
		gG	A	★	★	25	32	32	50	50	63	63	80	80	80
	230/240 V	aM	A	★	★	16	20	20	32	32	40	40	50	50	50
		gG	A	★	★	25	32	32	40	40	50	50	63	63	63
	400/415 V	aM	A	★	★	16	20	20	32	32	40	40	50	50	50
		gG	A	★	★	25	32	32	40	40	50	50	63	63	63

(1) As % of Icu.
★ *Fuse not required. Breaking capacity Icu > Isc.*

References: pages 51 to 54
Dimensions: pages 143
Schemes: pages 143

Protection components

Thermal-magnetic circuit breakers TeSys GB2 for the protection of industrial equipment control circuits

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	
				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 mm²	m	(3)	31	365	6	85	230
			0.75 mm²	m	(3)	39	460	8	110	290
			1 mm²	m	(3)	52	610	10	145	380
			1.5 mm²	m	(3)	78	910	15	220	570
			2.5 mm²	m	(3)	130	1520	26	360	950
			4 mm²	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 mm²	m	(3)	(3)	230	(3)	56	230
			0.75 mm²	m	(3)	(3)	290	(3)	70	290
			1 mm²	m	(3)	(3)	390	(3)	95	380
			1.5 mm²	m	(3)	(3)	580	(3)	140	570
			2.5 mm²	m	(3)	(3)	970	(3)	230	950
			4 mm²	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 mm²	m	(3)	(3)	46	(3)	13	100
			0.75 mm²	m	(3)	(3)	60	(3)	17	130
			1 mm²	m	(3)	(3)	80	(3)	22	170
			1.5 mm²	m	(3)	(3)	120	(3)	34	250
			2.5 mm²	m	(3)	(3)	190	(3)	56	420
			4 mm²	m	(3)	(3)	310	(3)	90	680

(1) As % of Icu.
*(2) One **GB2CS** circuit breaker on each live conductor.*
(3) Use relays.

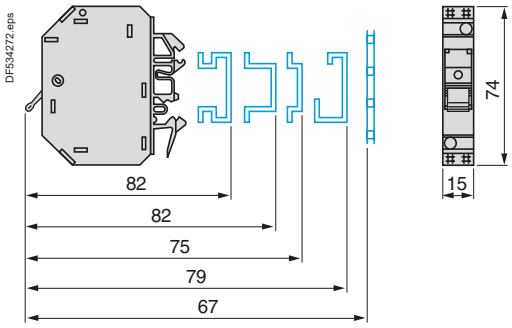
References: pages 51 to 54
Dimensions: pages 143
Schemes: pages 143

Protection components

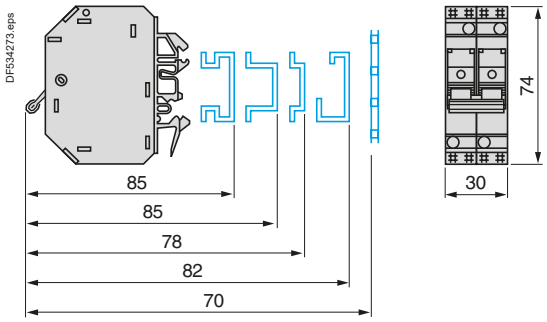
Thermal-magnetic circuit breakers TeSys GB2 for the protection of industrial equipment control circuits

Dimensions

GB2CB●●, GB2CD●●, GB2CS●●



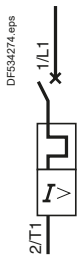
GB2DB●●



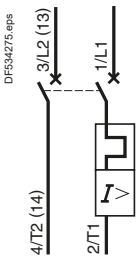
Marking: up to twelve AB1 R clip-in markers.

Schemes

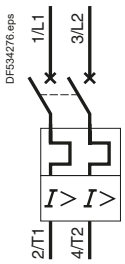
GB2CB●●



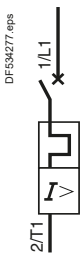
GB2CD●●



GB2DB●●



GB2CS●●



References:
pages 51 to 54

Characteristics:
pages 140 to 142

Schemes:
pages 143

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