TeSys circuit-breakers

Thermal-magnetic motor circuit-breakers
types GV2, GV3 and GV7

GV2-ME with screw clamp connections

GV2-ME with spring terminal connections

GV2-P

GV3-ME

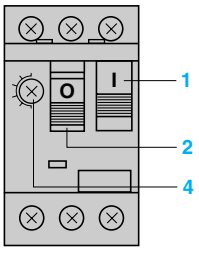
GV7-R

GV2-ME, GV2-P, GV3-ME and GV7-R motor circuit-breakers are 3-pole thermal-magnetic circuit-breakers **specifically designed for the control and protection of motors,** conforming to standards IEC/EN 60947-2 and IEC/EN 60947-4-1.

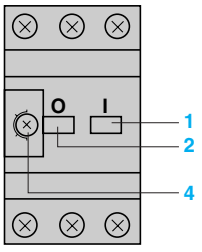
Connection

These circuit-breakers are designed for connection by screw clamp terminals.
Circuit-breaker GV2-ME can be supplied with **spring terminal** connections.
These ensure secure, permanent and durable clamping that is resistant to harsh environments, vibration and impact and is even more effective when conductors without cable ends are used. Each connection can take two independent conductors.

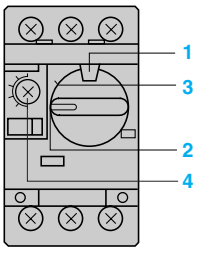
Operation



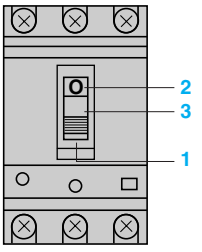
GV2-ME



GV3-ME



GV2-P



GV7-R

GV2-ME and GV3-ME: Pushbutton control.
Energisation is controlled manually by operating the Start button “I” 1.
De-energisation is controlled manually by operating the Stop button “O” 2, or automatically by the thermal-magnetic protection elements or by a voltage trip attachment.

GV2-P: control by rotary knob.
GV7-R: control by rocker lever.
Energisation is controlled manually by moving the knob or rocker lever to position “I” 1.
De-energisation is controlled manually by moving the knob or rocker lever to position “O” 2.
De-energisation due to a fault automatically places the knob or rocker lever in the “Trip” position 3. Re-energisation is possible only after having returned the knob or rocker switch to position “O”.

Control is manual and local when the motor circuit-breaker is used on its own.
Control is automatic and remote when it is associated with a contactor.

Protection of motors and personnel

Motor protection is provided by the thermal-magnetic protection elements incorporated in the motor circuit-breaker.
The **magnetic** elements (short-circuit protection) have a non-adjustable tripping threshold, which is equal to about 13 times the maximum setting current of the thermal trips.
The **thermal** elements (overload protection) include automatic compensation for ambient temperature variations.
The rated operational current of the motor is displayed by means of a graduated knob 4.

Personnel protection is also provided. All live parts are protected against direct finger contact.

The addition of an undervoltage trip allows the circuit-breaker to be de-energised in the event of an undervoltage condition. The user is therefore protected against sudden starting of the machine when normal voltage is restored, since the Start button “I” has to be pressed to restart the motor.

With the addition of a shunt trip, de-energisation of the unit can be remotely controlled.

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

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

Special features

These motor circuit-breakers are easily installed in any configuration thanks to their universal fixing arrangement: screw fixing or clip-on mounting on symmetrical, asymmetrical or combination rails.

Characteristics: pages 3/5 to 3/7 & 3/25 to 3/30
Dimensions: pages 3/43 to 3/48
Schemes: pages 3/49 to 3/51

Coordination (according to standard IEC/EN 60947-4-1)

The standard defines the degree of acceptable damage to the equipment following a short-circuit.
Standard IEC/EN 60947-4-1 (motor-starters) defines 2 types

Type 1 coordination	Damage to motor-starter components is accepted.	The fault current has been successfully interrupted. No damage has been caused to persons or to installations.
Type 2 coordination	Welding of the contactor or motor-starter contacts is accepted providing they can be easily separated.	

Coordination table for GV2 + contactors: see pages 1/40 to 1/43.

Iq = rated conditional short-circuit current (kA)
- that the circuit-breaker can interrupt
- that the associated motor-starter components can withstand without damage.

Suitability for isolation

According to standard IEC/EN 60947-1, sub-clause 7-1-6 (additional safety requirements for equipment suitable for isolation):

Equipment suitable for isolation shall provide in the open position and isolating distance in accordance with the requirements necessary to satisfy the isolating function and shall be fitted with an indicating device indicating the position of the moving contacts. This position indicator shall be connected to the moving contacts in a reliable way; the handle may form such an indicator, providing it cannot indicate the open position when released unless all the moving contacts are in the open position.

Breaking capacity (according to standard IEC/EN 60947-2)

Icu: Rated ultimate short-circuit breaking capacity

Breaking capacity for which the prescribed conditions according to a specified test sequence do not include the capability of the circuit-breaker to carry its rated current continuously following the sequence of operations)O-t-CO.

Ics: Rated service short-circuit breaking capacity

Breaking capacity for which the prescribed conditions according to a specified test sequence include the capability of the circuit-breaker to carry its rated current continuously following the sequence of operations O-t-CO-t-CO.

It is expressed as a percentage of Icu (25, 50, 75 or 100%).
In operational conditions , the short-circuit currents normally encountered rarely exceed 25 to 50% of the prospective short-circuit current at the point of installation of the circuit-breaker.

Other definitions

Discrimination (selectivity)

Discrimination of protective devices requires that protection against a fault arising at any point of the network is effected by the nearest device on the supply side of the fault.

Discrimination may be total or partial. In the latter case the overcurrent limit must be defined.
See pages 3/20 to 3/24.

Cascading

Where two separate protective devices in series operate at the same time under short circuit fault conditions, the breaking capacity Icu of the downstream device is increased.
See page 3/20.

Current limiting

By the use of additional poles operating in series with the main poles, the overall breaking capacity Icu of a motor circuit-breaker is substantially increased. A single current limiting block may be used in conjunction with a number of motor circuit-breakers up to the 63 A thermal limit.
See page 3/6.

Sensitivity to phase loss (according to standard IEC/EN 60947-4-1, sub-clause 7.2.1.5.2)

Limits of operation of 3-pole thermal overload relays energised on two poles: With the overload relay energised on two poles at 1.0 times the current setting (Ir) and on one pole at 0.9 Ir, tripping shall not occur in less than 2 hours starting from the cold state at 20 °C.

When the value Ir flowing in two poles is increased to 1.15 Ir and the third pole is de-energised, tripping shall occur in less than 2 hours. See curves, pages 3/8 to 3/10.

TeSys circuit-breakers

Thermal-magnetic motor circuit-breakers
types GV2-ME and GV2-P
(Also applies to GV2-RT. Use GV2-ME table
eg: for GV2-RT14 use GV2-ME14 data)

Breaking capacity of GV2-ME and GV2-P

Circuit-breaker type				GV2-									GV2-								
				ME01 to ME06	ME07	ME08	ME10	ME14	ME16	ME20	ME21 and ME22	ME32	P01 to P06	P07	P08	P10	P14	P16	P20	P21 and P22	P32
Rating			**A**	**0.1 to 1.6**	**2.5**	**4**	**6.3**	**10**	**14**	**18**	**23 and 25**	**32**	**0.1 to 1.6**	**2.5**	**4**	**6.3**	**10**	**14**	**18**	**23 and 25**	**32**
Breaking capacity conforming to IEC/EN 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/EN 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 3/31 to 3/42
Dimensions: pages 3/43 to 3/48
Schemes: pages 3/49 to 3/51

TeSys circuit-breakers

Thermal-magnetic motor circuit-breakers
types GV2-ME and GV2-P
(Also applies to GV2-RT. Use GV2-ME table
eg: for GV2-RT14 use GV2-ME14 data)

Breaking capacity of GV2-ME and GV2-P (used in association with current limiter GV1-L3)

Circuit-breaker type		GV2-		ME01 to ME06	ME07	ME08	ME10	ME14	ME16	ME20	ME21	ME22	ME32
Rating			**A**	**0.1…1.6**	**2.5**	**4**	**6.3**	**10**	**14**	**18**	**23**	**25**	**32**
Breaking capacity conforming to IEC/EN 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		**GV2-**		**P01 to P06**	**P07**	**P08**	**P10**	**P14**	**P16**	**P20**	**P21**	**P22**	**P32**
Rating			**A**	**0.1…1.6**	**2.5**	**4**	**6.3**	**10**	**14**	**18**	**23**	**25**	**32**
Breaking capacity conforming to IEC/EN 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		**GV2-**		**ME01 to ME06**	**ME07**	**ME08**	**ME10**	**ME14**	**ME16**	**ME20**	**ME21**	**ME22**	**ME32**
Rating			**A**	**0.1…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 LA9-LB920.

References: pages 3/31 to 3/42
Dimensions: pages 3/43 to 3/48
Schemes: pages 3/49 to 3/51

TeSys circuit-breakers

Magnetic motor circuit-breakers
types GV2-LE and GV2-L

Breaking capacity of GV2-LE and GV2-L

Type				GV2-									GV2-								
				LE03 to LE06	LE07	LE08	LE10	LE14	LE16	LE20	LE22	LE32	L03 to L06	L07	L08	L10	L14	L16	L20	L22	L32
Rating			**A**	**0.4 to 1.6**	**2.5**	**4**	**6.3**	**10**	**14**	**18**	**25**	**32**	**0.4 to 1**	**2.5**	**4**	**6.3**	**10**	**14**	**18**	**25**	**32**
Breaking capacity to IEC/EN 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 to IEC/EN 60947-2	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
(1) As % of Icu
(2) Cable c.s.a. not protected
● Cable c.s.a. protected

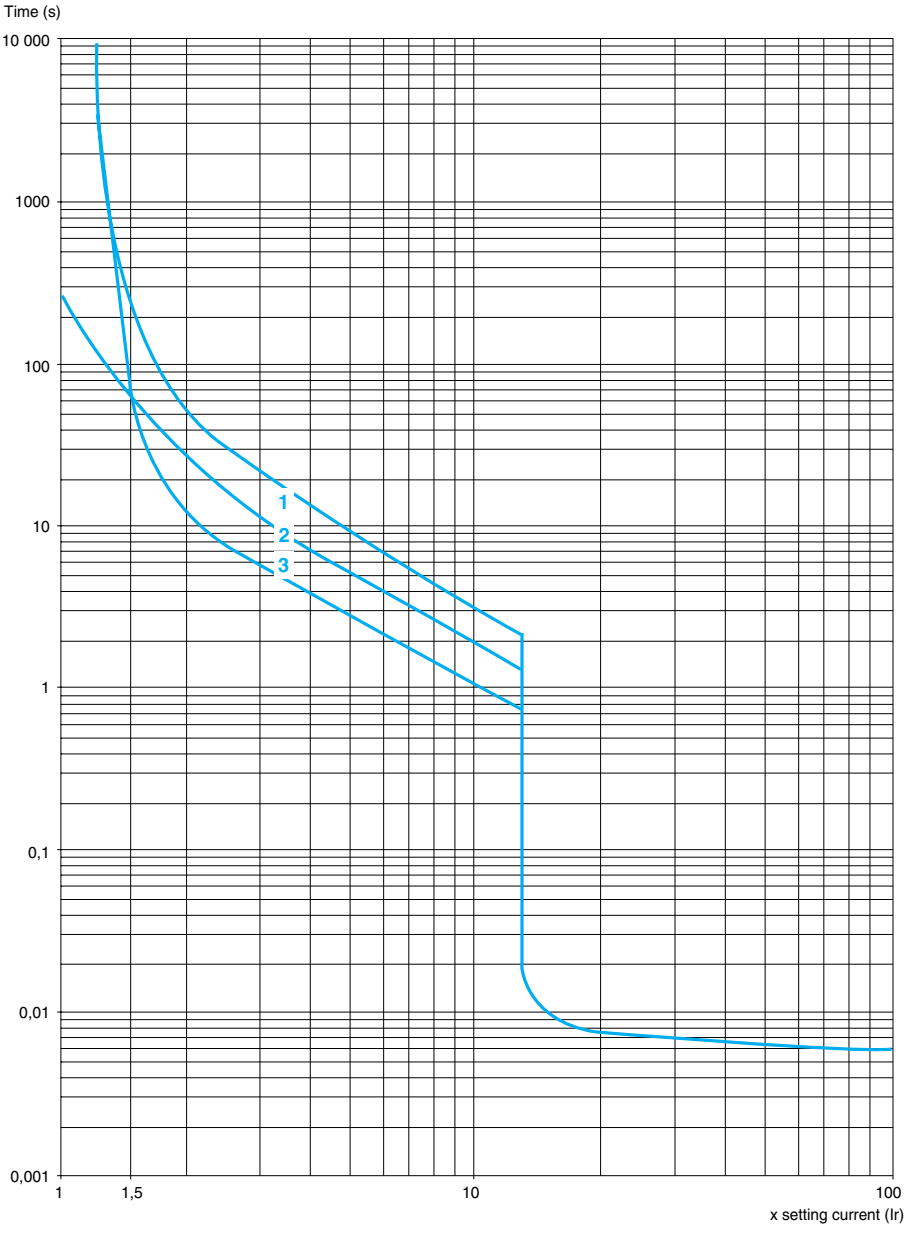
References: pages 3/31 to 3/42
Dimensions: pages 3/43 to 3/48
Schemes: pages 3/49 to 3/51

TeSys circuit-breakers

Thermal-magnetic motor circuit-breakers
types GV2-ME and GV2-P

Thermal-magnetic tripping curves for GV2-ME and GV2-P

Average operating time at 20 ˚C according to multiples of the setting current



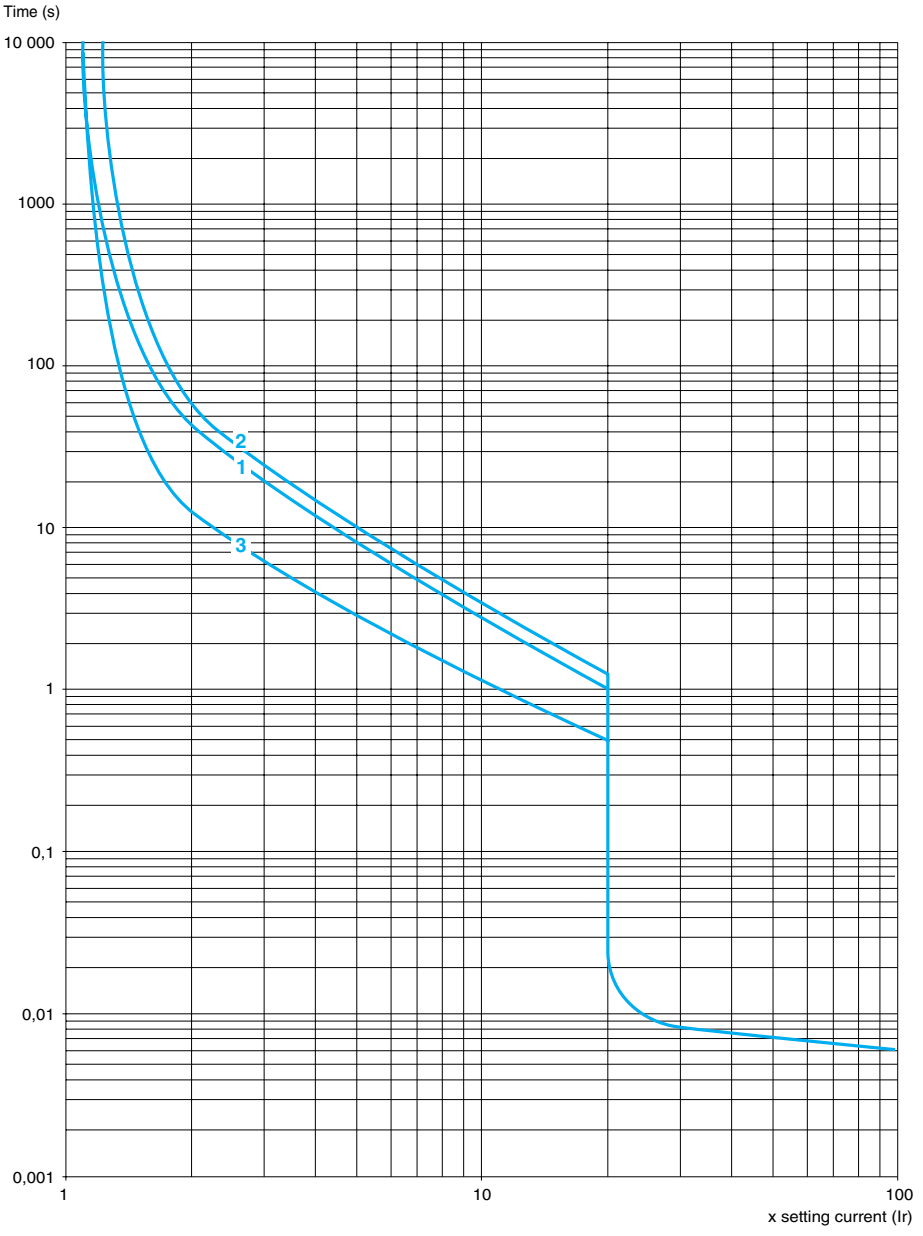
1 3 poles from cold state
2 2 poles from cold state
3 3 poles from hot state

References:
pages 3/31 to 3/42
Dimensions:
pages 3/43 to 3/48
Schemes:
pages 3/49 to 3/51

TeSys circuit-breakers

Thermal-magnetic motor circuit-breakers
type GV2-RT

Thermal-magnetic tripping curves for GV2-RT

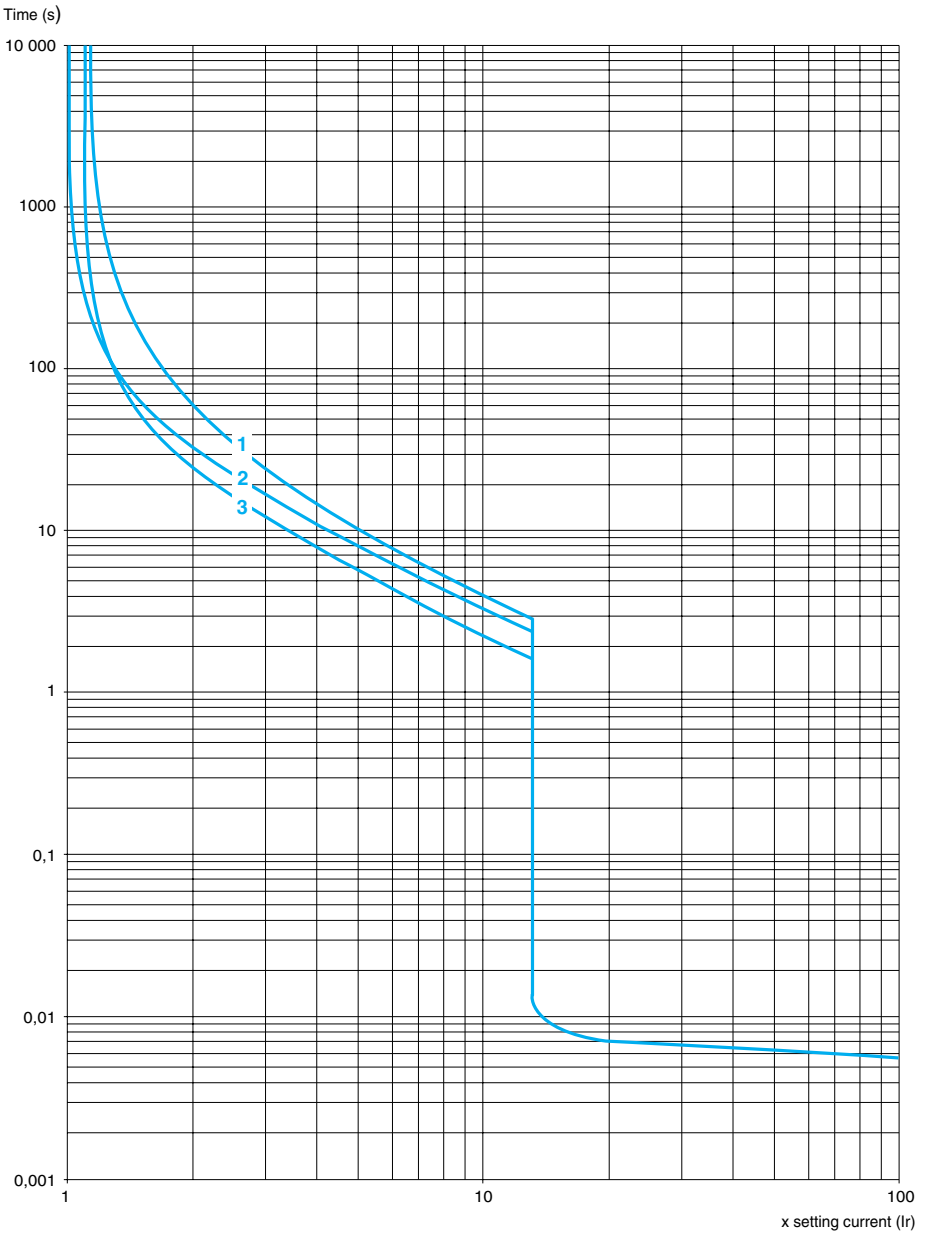


1 3 poles from cold state
2 2 poles from cold state
3 3 poles from hot state

References:
pages 3/31 to 3/42
Dimensions:
pages 3/43 to 3/48
Schemes:
pages 3/49 to 3/51

Tripping curves for GV2-L or LE combined with thermal overload relay LRD or LR2-K

Average operating time at 20˚C according to multiples of the setting current



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

TeSys circuit-breakers

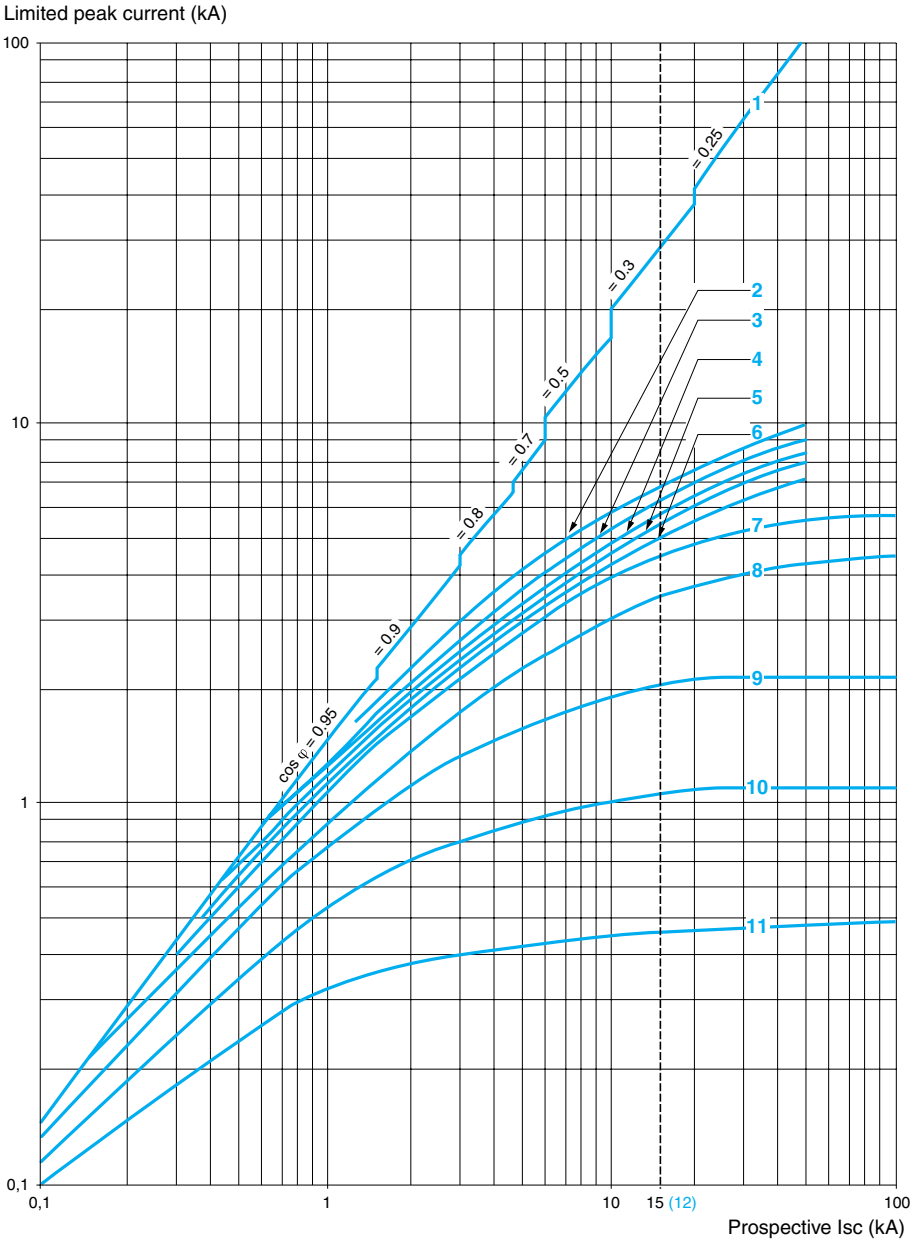
Thermal-magnetic motor circuit-breakers
types GV2-ME, GV2-P and GV2-RT

Current limitation on short-circuit for GV2-ME, GV2-P and GV2-RT

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 GV2-ME (14, 18, 23 and 25 A ratings)

References:
pages 3/31 to 3/42
Dimensions:
pages 3/43 to 3/48
Schemes:
pages 3/49 to 3/51

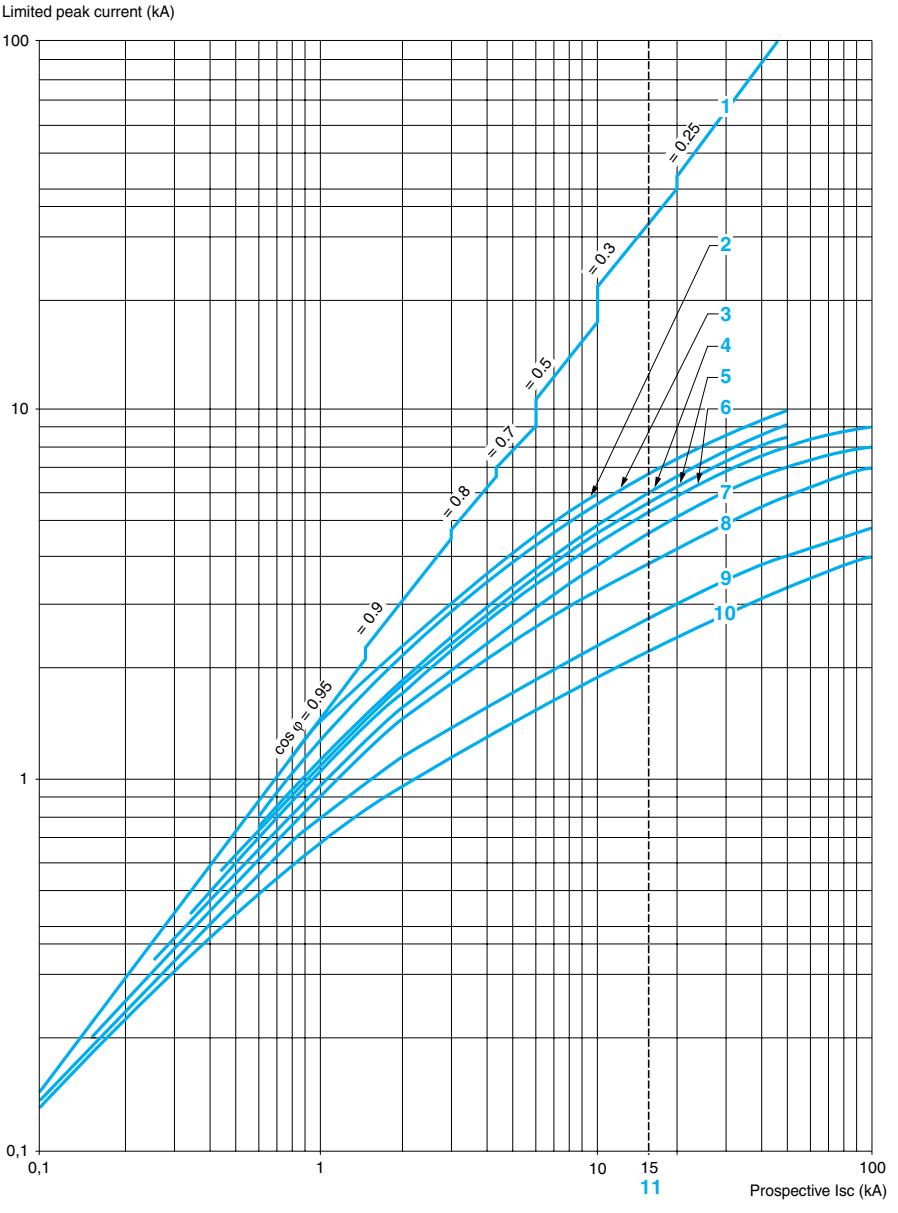
Current limitation on short-circuit

For GV2-L and GV2-LE 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 GV2-LE (14, 18 and 25 A ratings)

References: pages 3/31 to 3/42
Dimensions: pages 3/43 to 3/48
Schemes: pages 3/49 to 3/51

TeSys circuit-breakers

Magnetic motor circuit-breakers
types GV2-L and GV2-LE

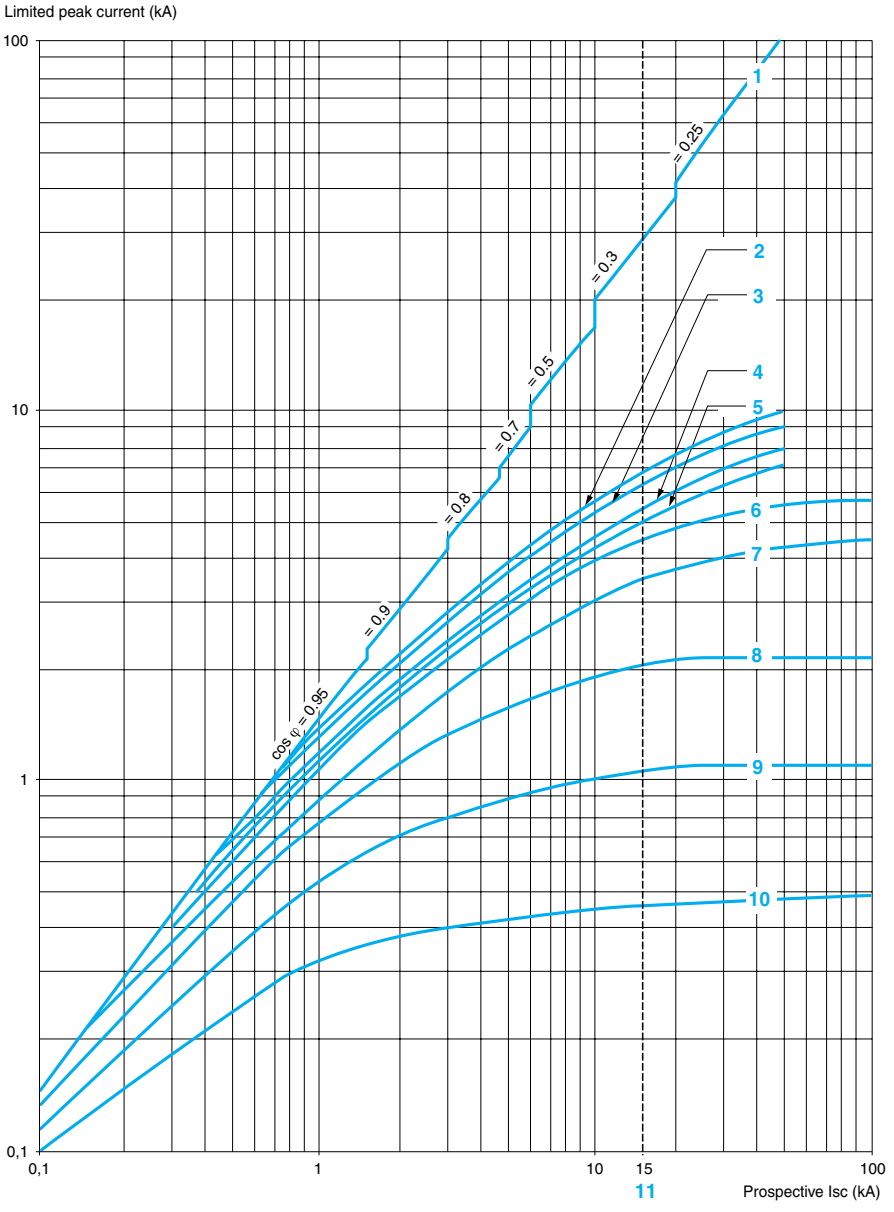
Current limitation on short-circuit

For GV2-L and GV2-LE + thermal overload relay LRD or LR2-K

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 GV2-LE (14, 18 and 25 A ratings)

References:
pages 3/31 to 3/42

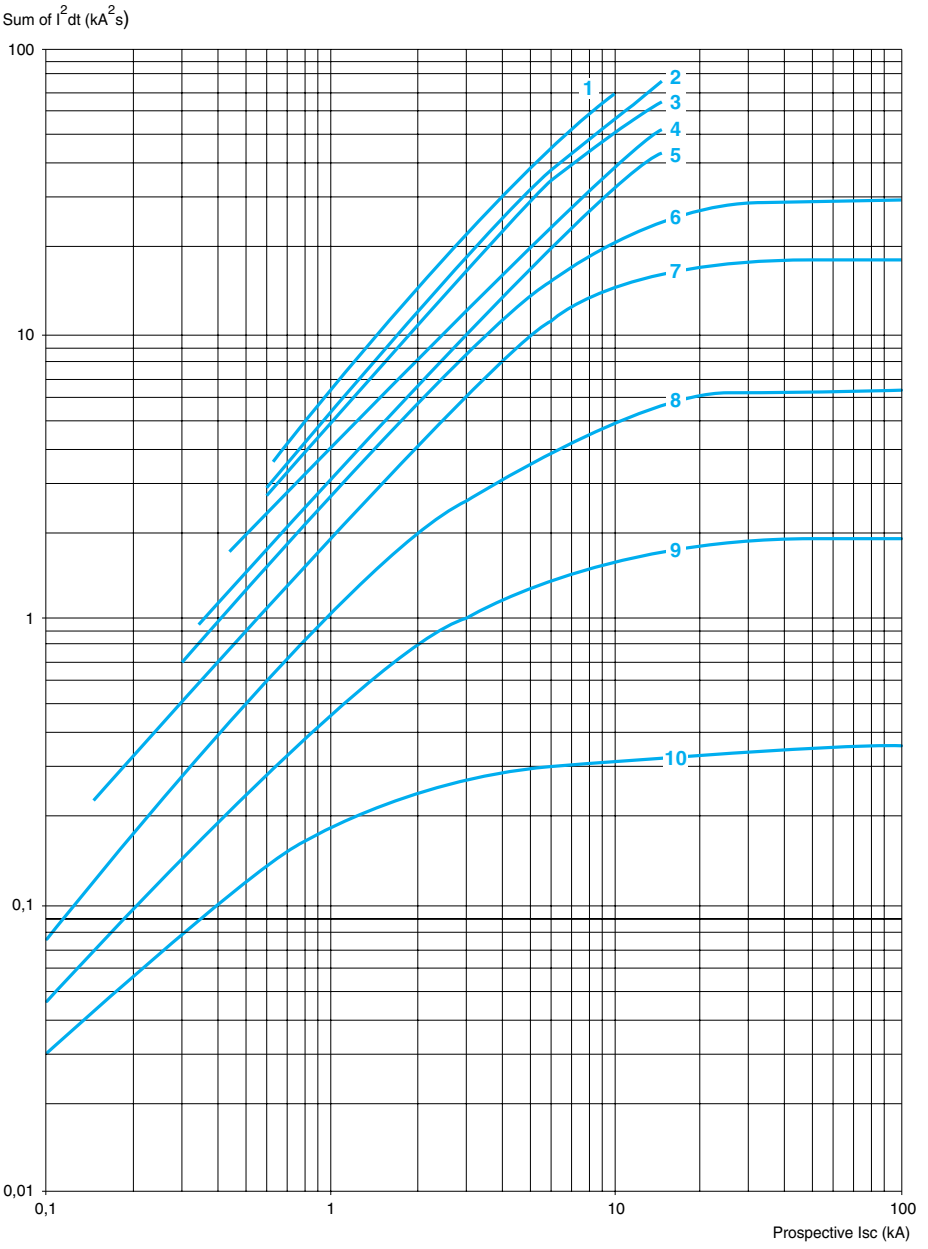
Dimensions:
pages 3/43 to 3/48

Schemes:
pages 3/49 to 3/51

Thermal limit on short-circuit for GV2-ME and GV2-RT

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

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



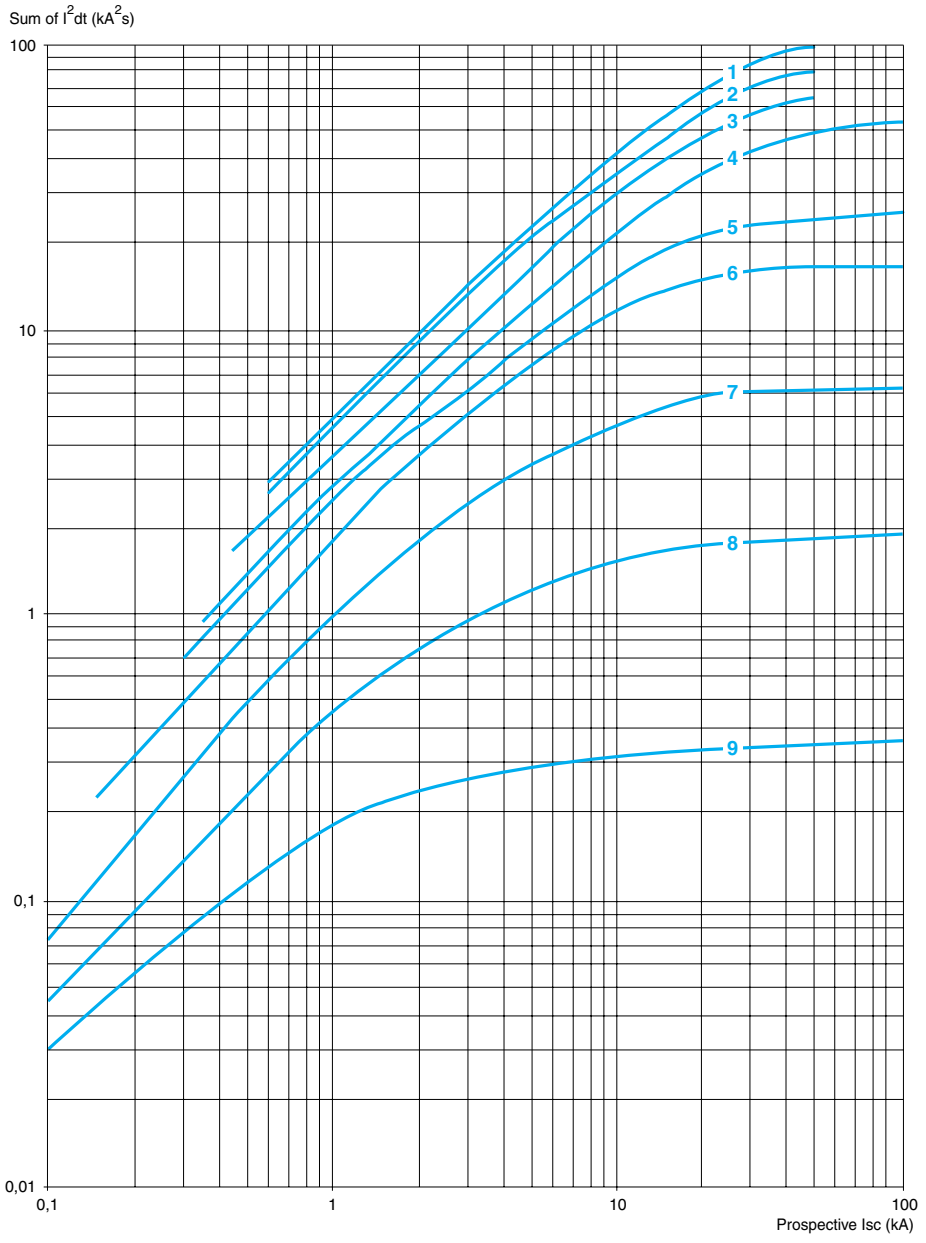
1 24-32 A (GV2-ME)
2 20-25 A
3 17-23 A
4 13-18 A
5 9-14 A
6 6-10 A
7 4-6.3 A
8 2.5-4 A
9 1.6-2.5 A
10 1-1.6 A

TeSys circuit-breakers
Thermal-magnetic motor circuit-breakers
type GV2-P

Thermal limit on short-circuit for GV2-P

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

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



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

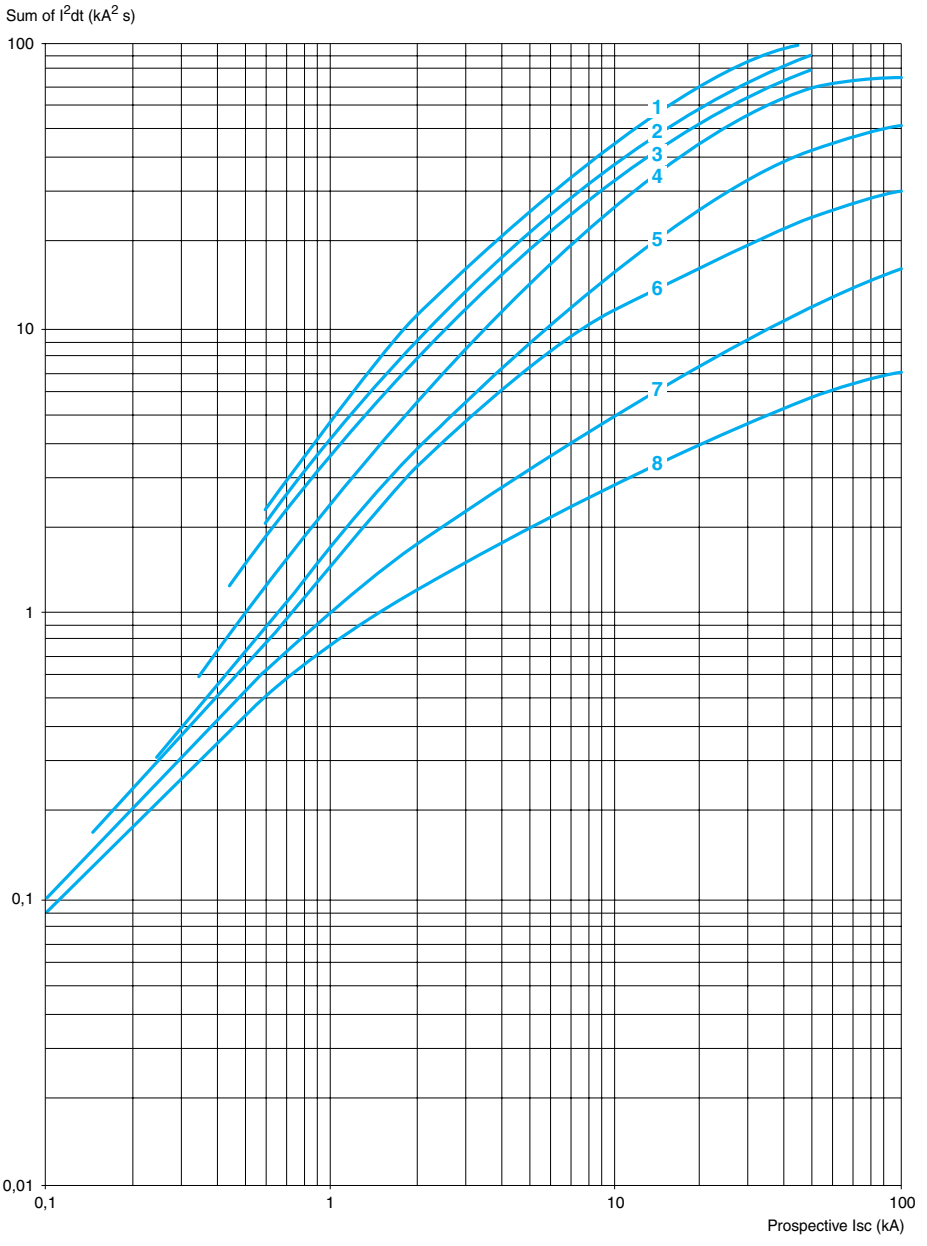
References: pages 3/31 to 3/42
Dimensions: pages 3/43 to 3/48
Schemes: pages 3/49 to 3/51

TeSys circuit-breakers
Magnetic motor circuit-breakers
types GV2-L

Thermal limit on short-circuit for GV2-L

Thermal limit in kA² s in the magnetic operating zone

Sum of I^2dt = 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

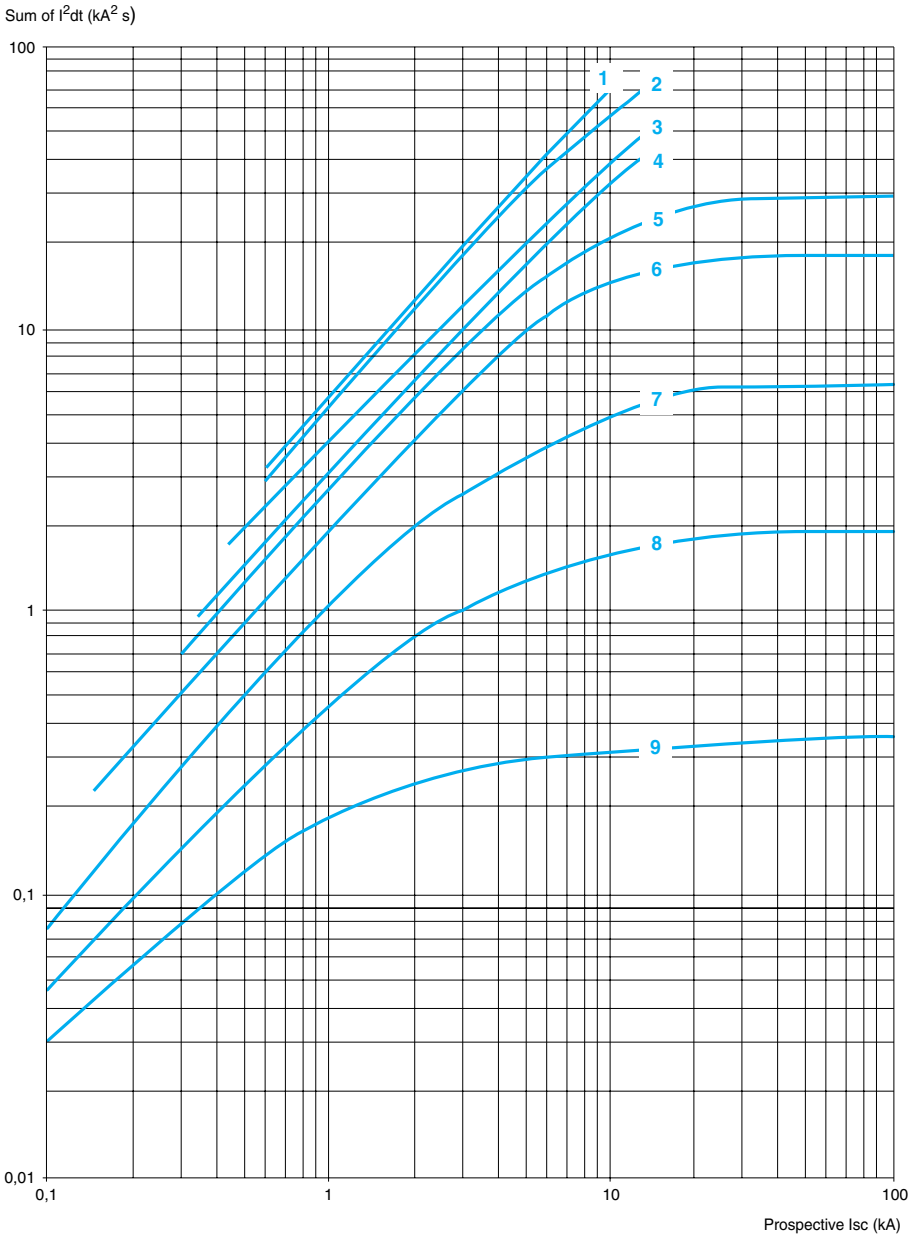
References:
pages 3/31 to 3/42
Dimensions:
pages 3/43 to 3/48
Schemes:
pages 3/49 to 3/51

TeSys circuit-breakers
Magnetic motor circuit-breakers
types GV2-LE

Thermal limit on short-circuit for GV2-LE

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

Sum of I^2dt = 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

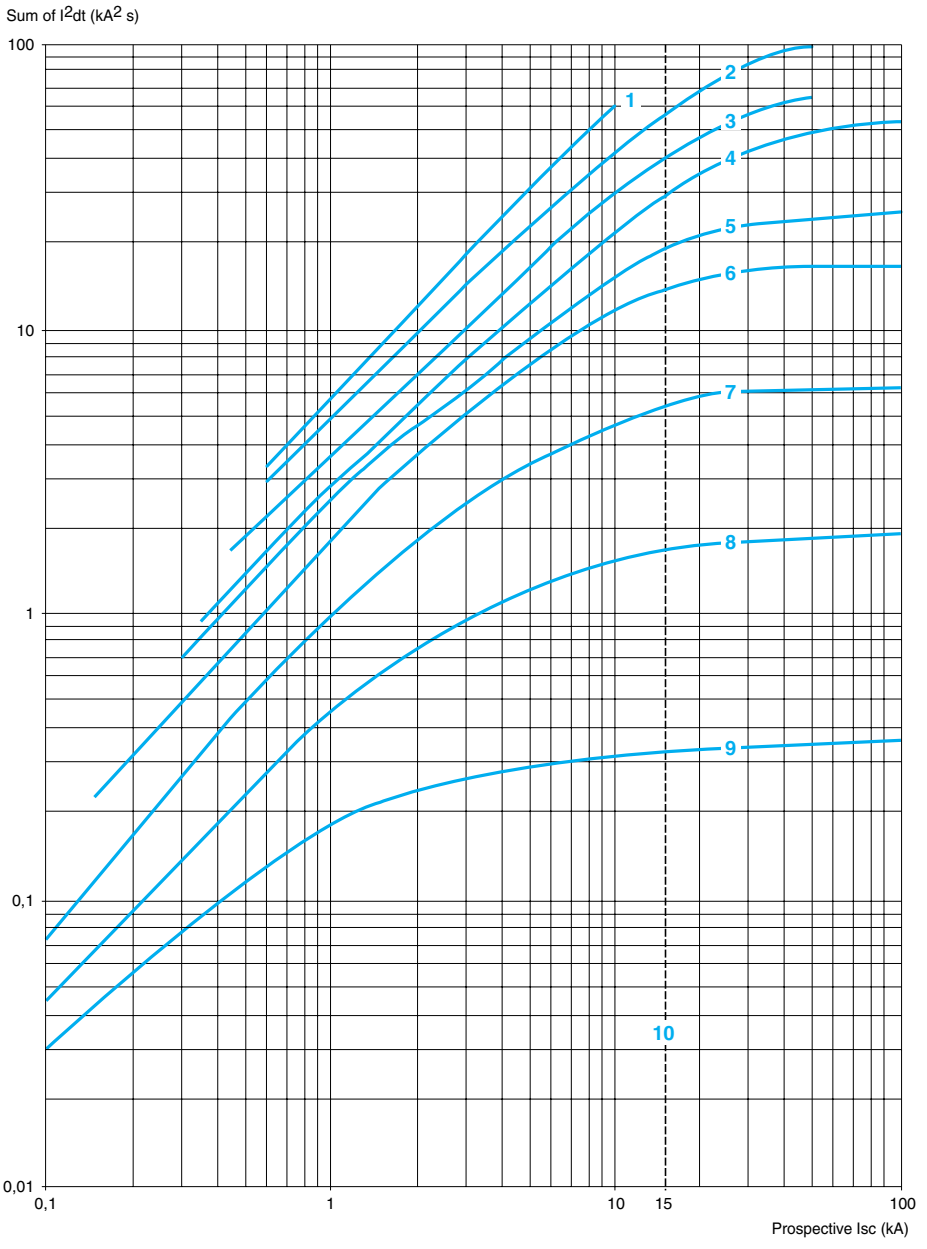
References:
pages 3/31 to 3/42
Dimensions:
pages 3/43 to 3/48
Schemes:
pages 3/49 to 3/51

Thermal limit on short-circuit

For GV2-L and GV2-LE + thermal overload relay LRD or LR2-K

Thermal limit in kA² s in the magnetic operating zone

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



1 32 A (GV2-LE32)
2 25 A and 32 A (GV2-L32)
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 and 25 A ratings)

References:
pages 3/31 to 3/42

Dimensions:
pages 3/43 to 3/48

Schemes:
pages 3/49 to 3/51

Maximum Earth Fault Loop Impedance Z_S for 0.4s disconnection time with U_0 230V (1)

Reference	Thermal Adjustment Range I_n (A)	Magnetic Tripping Current I_m (A)	Tolerance I_m+20% (A)	Maximum Loop Impedance Z_s (Ω)
GV2-ME01	0.1...0.16	1.50	1.80	127.78
GV2-ME02	0.16...0.25	2.40	2.88	79.86
GV2-ME03	0.25...0.4	5.00	6.00	38.33
GV2-ME04	0.4...0.63	8.00	9.60	23.96
GV2-ME05	0.63...1	13.00	15.60	14.74
GV2-ME06	1...1.6	22.50	27.00	8.52
GV2-ME07	1.6...2.5	33.50	40.20	5.72
GV2-ME08	2.5...4	51.00	61.20	3.76
GV2-ME10	4...6.3	78.00	93.60	2.46
GV2-ME14	6...10	138.00	165.60	1.39
GV2-ME16	9...14	170.00	204.00	1.13
GV2-ME20	13...18	223.00	267.60	0.86
GV2-ME21	17...23	327.00	392.40	0.59
GV2-ME22	20...25	327.00	392.40	0.59
GV2-ME32	24...32	416.00	499.20	0.46
GV2-P01	0.1...0.16	1.50	1.80	127.78
GV2-P02	0.16...0.25	2.40	2.88	79.86
GV2-P03	0.25...0.4	5.00	6.00	38.33
GV2-P04	0.4...0.63	8.00	9.60	23.96
GV2-P05	0.63...1	13.00	15.60	14.74
GV2-P06	1...1.6	22.50	27.00	8.52
GV2-P07	1.6...2.5	33.50	40.20	5.72
GV2-P08	2.5...4	51.00	61.20	3.76
GV2-P10	4...6.3	78.00	93.60	2.46
GV2-P14	6...10	138.00	165.60	1.39
GV2-P16	9...14	170.00	204.00	1.13
GV2-P20	13...18	223.00	267.60	0.86
GV2-P21	17...23	327.00	392.40	0.59
GV2-P22	20...25	327.00	392.40	0.59
GV2-L03	0.4	5.00	6.00	38.33
GVL-L04	0.63	8.00	9.60	23.96
GV2-L05	1	13.00	15.60	14.74
GV2-L06	1.6	22.50	27.00	8.52
GV2-L07	2.5	33.50	40.20	5.72
GV2-L08	4	51.00	61.20	3.76
GV2-L10	6.3	78.00	93.60	2.46
GV2-L14	10	138.00	165.60	1.39
GV2-L16	14	170.00	204.00	1.13
GV2-L20	18	223.00	267.60	0.86
GV2-L22	25	327.00	392.40	0.59
GV2-LE03	0.4	5.00	6.00	38.33
GVL-LE04	0.63	8.00	9.60	23.96
GV2-LE05	1	13.00	15.60	14.74
GV2-LE06	1.6	22.50	27.00	8.52
GV2-LE07	2.5	33.50	40.20	5.72
GV2-LE08	4	51.00	61.20	3.76
GV2-LE10	6.3	78.00	93.60	2.46
GV2-LE14	10	138.00	165.60	1.39
GV2-LE16	14	170.00	204.00	1.13
GV2-LE20	18	223.00	267.60	0.86
GV2-LE22	25	327.00	392.40	0.59
GV2-LE32	32	416.00	499.20	0.46
GV2-RT03	0.25...0.4	8.00	9.60	23.96
GV2-RT04	0.4...0.63	13.00	15.60	14.74
GV2-RT05	0.63...1	22.00	26.40	8.71
GV2-RT06	1...1.6	33.00	39.60	5.81
GV2-RT07	1.6...2.5	51.00	61.20	3.76
GV2-RT08	2.5...4	78.00	93.60	2.46
GV2-RT10	4...6.3	138.00	165.60	1.39
GV2-RT14	6...10	200.00	240.00	0.96
GV2-RT16	9...14	280.00	336.00	0.68
GV2-RT20	13...18	400.00	480.00	0.48
GV2-RT21	17...23	400.00	480.00	0.48

(1) Whilst the IEE Regulations provide for a disconnection time of 5s for fixed equipment, the value of impedance obtained will limit the current to a level which may affect the starting characteristics of the motor.

References: pages 3/31 to 3/42 **Dimensions, mounting:** pages 3/43 to 3/48 **Schemes:** pages 3/49 to 3/51

Cascading

Upstream circuit-breaker	NSC100N	NS100N	NS100H	NS100L
Breaking capacity kA rms	18	25	70	150
Downstream circuit-breaker	Breaking capacity (kA rms)			
GV2-ME ≥ 14 A	18	25	50	50
GV2-L ≥ 18 A			70	150
GV2-P ≥ 18 A			70	150

GV2-L or GV2-LE upstream circuit-breaker

Upstream circuit-breaker trip unit		L14 LE14	L16 LE16	L20 LE20	L22 LE22
Rating (A)		10	14	18	25
Downstream circuit-breaker	Rating (A)	Discrimination (A)			
GV2-ME01	0.16				
GV2-ME02	0.25				
GV2-ME03	0.4				
GV2-ME04	0.63				
GV2-ME05	1	10000			
GV2-ME06	1.6	150	300	400	900
GV2-ME07	2.5	100	150	200	400
GV2-ME08	4			150	200
GV2-ME10	6.3				
GV2-ME14	10				
GV2-ME16	14				
GV2-ME20	18				
GV2-ME21	23				
GV2-ME22	25				
GV2-ME32	32				
GV2-P01	0.16				
GV2-P02	0.25				
GV2-P03	0.4				
GV2-P04	0.63				
GV2-P05	1	10000			
GV2-P06	1.6	150	300	400	900
GV2-P07	2.5	100	150	200	400
GV2-P08	4			150	200
GV2-P10	6.3				
GV2-P14	10				
GV2-P16	14				
GV2-P20	18				
GV2-P21	23				
GV2-P22	25				
GV2-L03	0.4				
GV2-L04	0.63				
GV2-L05	1	10000			
GV2-L06	1.6	150	300	400	900
GV2-L07	2.5	100	150	200	400
GV2-L08	4			150	200
GV2-L10	6.3				
GV2-L14	10				
GV2-L16	14				
GV2-L20	18				
GV2-L22	25				
GV2-LE03	0.4				
GV2-LE04	0.63				
GV2-LE05	1	10000			
GV2-LE06	1.6	150	300	400	900
GV2-LE07	2.5	100	150	200	400
GV2-LE08	4			150	200
GV2-LE10	6.3				
GV2-LE14	10				
GV2-LE16	14				
GV2-LE20	18				
GV2-LE22	25				
GV2-LE32	32				

Total discrimination zone

150 Partial discrimination limited to 150 kA

No discrimination

References: pages 3/31 to 3/42

Dimensions, mounting: pages 3/43 to 3/48

Schemes: pages 3/49 to 3/51

Compact NS100 or NS160N/H/L upstream circuit-breaker with TM-D trip unit

Upstream circuit-breaker			NS100N/H/L				NS160N/H/L	
Trip unit			TM-D				TM-D	
Rating (A)			16	25	40	63	80	100
Downstream circuit-breaker	**Thermal overload relay**	Rating (A)	**Discrimination** (kA)					
GV2-ME01	Built-in	0.1…0.16						
GV2-ME02	Built-in	0.16…0.25						
GV2-ME03	Built-in	0.25…0.40						
GV2-ME04	Built-in	0.40…0.63						
GV2-ME05	Built-in	0.63…1						
GV2-ME06	Built-in	1…1.6						
GV2-ME07	Built-in	1.6…2.5						
GV2-ME08	Built-in	2.5…4	2	2	2	10		
GV2-ME10	Built-in	4…6.3		1	2	2		
GV2-ME14	Built-in	6…10			1	1		
GV2-ME16	Built-in	9…14				1		
GV2-ME20	Built-in	13…18					10	10
GV2-ME21	Built-in	17…23					5	6
GV2-ME22	Built-in	20…25					4	6
GV2-ME32	Built-in	24…32					3	5
GV2-P01	Built-in	0.1…0.16						
GV2-P02	Built-in	0.16…0.25						
GV2-P03	Built-in	0.25…0.40						
GV2-P04	Built-in	0.40…0.63						
GV2-P05	Built-in	0.63…1						
GV2-P06	Built-in	1…1.6						
GV2-P07	Built-in	1.6…2.5						
GV2-P08	Built-in	2.5…4	2	2	10	10		
GV2-P10	Built-in	4…6.3		1	2	2		
GV2-P14	Built-in	6…10			1	1		
GV2-P16	Built-in	9…14				1		
GV2-P20	Built-in	13…18				1	10	
GV2-P21	Built-in	17…23					5	10
GV2-P22	Built-in	20…25					4	6
GV2-L03	**LR2-D1303**	0.25…0.4						
GV2-L04	**LR2-D1304**	0.4…0.63						
GV2-L05	**LR2-D1305**	0.63…1						
GV2-L06	**LR2-D1306**	1…1.6						
GV2-L07	**LR2-D1307**	1.6…2.5						
GV2-L08	**LR2-D1308**	2.5…4	2	2	10	10		
GV2-L10	**LR2-D1310**	4…6		1	2	2		
GV2-L14	**LR2-D1312**	5.5…8			1	1		
GV2-L16	**LR2-D1316**	9…13			1	1		
GV2-L20	**LR2-D1321**	12…18				1	10	
GV2-L22	**LR2-D1322**	17…25					4	6
GV2-LE03	**LR2-K0302**	0.16…0.23						
GV2-LE03	**LR2-K0303**	0.23…0.36						
GV2-LE03	**LR2-K0304**	0.36…0.54						
GV2-LE04	**LR2-K0304**	0.36…0.54						
GV2-LE04	**LR2-K0305**	0.54…0.80						
GV2-LE05	**LR2-K0305**	0.54…0.80						
GV2-LE05	**LR2-K0306**	0.8…1.2						
GV2-LE06	**LR2-K0306**	0.8…1.2						
GV2-LE06	**LR2-K0307**	1.2…1.8						
GV2-LE07	**LR2-K0307**	1.2…1.8						
GV2-LE07	**LR2-K0308**	1.8…2.6						
GV2-LE08	**LR2-K0310**	2.6…3.7	2	2	10	10		
GV2-LE08	**LR2-K0312**	3.7…5.5	2	2	10	10		
GV2-LE10	**LR2-K0312**	3.7…5.5		1	2	2		
GV2-LE10	**LR2-K0314**	5.5…8		1	2	2		
GV2-LE14	**LR2-K0314**	5.5…8			1	1		
GV2-LE14	**LR2-K0316**	8…11.5			1	1		
GV2-LE14	**LR2-D1314**	7…10			1	1		
GV2-LE16	**LR2-D1316**	9…13			1	1		
GV2-LE20	**LR2-D1321**	12…18				1	10	
GV2-LE22	**LR2-D1322**	17…25					4	6
GV2-LE32	**LR2-D2353**	23…32					3	5

Total discrimination

6 Partial discrimination limited to 6 kA

No discrimination

References: pages 3/31 to 3/42

Dimensions, mounting: pages 3/43 to 3/48

Schemes: pages 3/49 to 3/51

Compact NS160 or 250N/H/L upstream circuit-breaker with TM-D trip unit

Upstream circuit-breaker			**NS160N/H/L**		**NS250N/H/L**		
Trip unit			**TM-D**		**TM-D**		
Rating (A)			125	160	160	200	250
Downstream circuit-breaker	**Thermal overload relay**	Rating (A)	**Discrimination** (kA)				
GV2-ME01	Built-in	0.1…0.16					
GV2-ME02	Built-in	0.16…0.25					
GV2-ME03	Built-in	0.25…0.40					
GV2-ME04	Built-in	0.40…0.63					
GV2-ME05	Built-in	0.63…1					
GV2-ME06	Built-in	1…1.6					
GV2-ME07	Built-in	1.6…2.5					
GV2-ME08	Built-in	2.5…4					
GV2-ME10	Built-in	4…6.3					
GV2-ME14	Built-in	6…10					
GV2-ME16	Built-in	9…14					
GV2-ME20	Built-in	13…18					
GV2-ME21	Built-in	17…23					
GV2-ME22	Built-in	20…25					
GV2-ME32	Built-in	24…32					
GV2-P01	Built-in	0.1…0.16					
GV2-P02	Built-in	0.16…0.25					
GV2-P03	Built-in	0.25…0.40					
GV2-P04	Built-in	0.40…0.63					
GV2-P05	Built-in	0.63…1					
GV2-P06	Built-in	1…1.6					
GV2-P07	Built-in	1.6…2.5					
GV2-P08	Built-in	2.5…4					
GV2-P10	Built-in	4…6.3					
GV2-P14	Built-in	6…10					
GV2-P16	Built-in	9…14					
GV2-P20	Built-in	13…18					
GV2-P21	Built-in	17…23					
GV2-P22	Built-in	20…25					
GV2-L03	**LR2-D1303**	0.25…0.4					
GV2-L04	**LR2-D1304**	0.4…0.63					
GV2-L05	**LR2-D1305**	0.63…1					
GV2-L06	**LR2-D1306**	1…1.6					
GV2-L07	**LR2-D1307**	1.6…2.5					
GV2-L08	**LR2-D1308**	2.5…4					
GV2-L10	**LR2-D1310**	4…6					
GV2-L14	**LR2-D1312**	5.5…8					
GV2-L16	**LR2-D1316**	9…13					
GV2-L20	**LR2-D1321**	12…18					
GV2-L22	**LR2-D1322**	17…25					
GV2-LE03	**LR2-K0302**	0.16…0.23					
GV2-LE03	**LR2-K0303**	0.23…0.36					
GV2-LE03	**LR2-K0304**	0.36…0.54					
GV2-LE04	**LR2-K0304**	0.36…0.54					
GV2-LE04	**LR2-K0305**	0.54…0.80					
GV2-LE05	**LR2-K0305**	0.54…0.80					
GV2-LE05	**LR2-K0306**	0.8…1.2					
GV2-LE06	**LR2-K0306**	0.8…1.2					
GV2-LE06	**LR2-K0307**	1.2…1.8					
GV2-LE07	**LR2-K0307**	1.2…1.8					
GV2-LE07	**LR2-K0308**	1.8…2.6					
GV2-LE08	**LR2-K0310**	2.6…3.7					
GV2-LE08	**LR2-K0312**	3.7…5.5					
GV2-LE10	**LR2-K0312**	3.7…5.5					
GV2-LE10	**LR2-K0314**	5.5…8					
GV2-LE14	**LR2-K0314**	5.5…8					
GV2-LE14	**LR2-K0316**	8…11.5					
GV2-LE14	**LR2-D1314**	7…10					
GV2-LE16	**LR2-D1316**	9…13					
GV2-LE20	**LR2-D1321**	12…18					
GV2-LE22	**LR2-D1322**	17…25					
GV2-LE32	**LR2-D2353**	23…32					

Total discrimination

6 Partial discrimination limited to 6 kA

No discrimination

References: pages 3/31 to 3/42 **Dimensions, mounting:** pages 3/43 to 3/48 **Schemes:** pages 3/49 to 3/51

Compact NS100N/H/L upstream circuit-breaker with STR22SE trip unit

Upstream circuit-breaker			NS100N/H/L			
Trip unit			STR22SE			
Rating (A)			25	40	63	100
Downstream circuit-breaker	**Thermal overload relay**	Rating (A)	**Discrimination** (kA)			
GV2-ME01	Built-in	0.1…0.16				
GV2-ME02	Built-in	0.16…0.25				
GV2-ME03	Built-in	0.25…0.40				
GV2-ME04	Built-in	0.40…0.63				
GV2-ME05	Built-in	0.63…1				
GV2-ME06	Built-in	1…1.6				
GV2-ME07	Built-in	1.6…2.5	1	1		
GV2-ME08	Built-in	2.5…4	0.5	0.5	5	5
GV2-ME10	Built-in	4…6.3	0.5	0.5	2	2
GV2-ME14	Built-in	6…10		0.5	1.2	1.2
GV2-ME16	Built-in	9…14			1.2	1.2
GV2-ME20	Built-in	13…18				1.2
GV2-ME21	Built-in	17…23				1.2
GV2-ME22	Built-in	20…25				1.2
GV2-ME32	Built-in	24…32				1.2
GV2-P01	Built-in	0.1…0.16				
GV2-P02	Built-in	0.16…0.25				
GV2-P03	Built-in	0.25…0.40				
GV2-P04	Built-in	0.40…0.63				
GV2-P05	Built-in	0.63…1				
GV2-P06	Built-in	1…1.6				
GV2-P07	Built-in	1.6…2.5	1	1		
GV2-P08	Built-in	2.5…4	0.5	0.5	10	10
GV2-P10	Built-in	4…6.3	0.5	0.5	2	2
GV2-P14	Built-in	6…10		0.5	1.2	1.2
GV2-P16	Built-in	9…14			1.2	1.2
GV2-P20	Built-in	13…18			1.2	1.2
GV2-P21	Built-in	17…23				1.2
GV2-P22	Built-in	20…25				1.2
GV2-L03	**LR2-D1303**	0.25…0.4				
GV2-L04	**LR2-D1304**	0.4…0.63				
GV2-L05	**LR2-D1305**	0.63…1				
GV2-L06	**LR2-D1306**	1…1.6				
GV2-L07	**LR2-D1307**	1.6…2.5	1	1		
GV2-L08	**LR2-D1308**	2.5…4	0.5	0.5	10	10
GV2-L10	**LR2-D1310**	4…6	0.5	0.5	2	2
GV2-L14	**LR2-D1312**	5.5…8		0.5	1.2	1.2
GV2-L16	**LR2-D1316**	9…13			1.2	1.2
GV2-L20	**LR2-D1321**	12…18			1.2	1.2
GV2-L22	**LR2-D1322**	17…25				1.2
GV2-LE03	**LR2-K0302**	0.16…0.23				
GV2-LE03	**LR2-K0303**	0.23…0.36				
GV2-LE03	**LR2-K0304**	0.36…0.54				
GV2-LE04	**LR2-K0304**	0.36…0.54				
GV2-LE04	**LR2-K0305**	0.54…0.80				
GV2-LE05	**LR2-K0305**	0.54…0.80				
GV2-LE05	**LR2-K0306**	0.8…1.2				
GV2-LE06	**LR2-K0306**	0.8…1.2				
GV2-LE06	**LR2-K0307**	1.2…1.8				
GV2-LE07	**LR2-K0307**	1.2…1.8	1	1		
GV2-LE07	**LR2-K0308**	1.8…2.6	1	1		
GV2-LE08	**LR2-K0310**	2.6…3.7	0.5	0.5	10	10
GV2-LE08	**LR2-K0312**	3.7…5.5	0.5	0.5	10	10
GV2-LE10	**LR2-K0312**	3.7…5.5	0.5	0.5	2	2
GV2-LE10	**LR2-K0314**	5.5…8	0.5	0.5	2	2
GV2-LE14	**LR2-K0314**	5.5…8		0.5	1.2	1.2
GV2-LE14	**LR2-K0316**	8…11.5		0.5	1.2	1.2
GV2-LE14	**LR2-D1314**	7…10		0.5	1.2	1.2
GV2-LE16	**LR2-D1316**	9…13			1.2	1.2
GV2-LE20	**LR2-D1321**	12…18			1.2	1.2
GV2-LE22	**LR2-D1322**	17…25				1.2
GV2-LE32	**LR2-D2353**	23…32				1.2

Total discrimination

6 Partial discrimination limited to 6 kA

No discrimination

References: pages 3/31 to 3/42

Dimensions, mounting: pages 3/43 to 3/48

Schemes: pages 3/49 to 3/51

Compact NS160…630N/H/L upstream circuit-breaker with STR●●●E trip unit

Upstream circuit-breaker			**NS160N/H/L**	**NS250N/H/L**		**NS400 or 630N/H/L**	
Trip unit			**STR22SE**	**STR22SE**		**STR23SE/53UE**	
Rating (A)			160	160	250	400	630
Downstream circuit-breaker	**Thermal overload relay**	Rating (A)	**Discrimination** (kA)				
GV2-ME01	Built-in	0.1…0.16					
GV2-ME02	Built-in	0.16…0.25					
GV2-ME03	Built-in	0.25…0.40					
GV2-ME04	Built-in	0.40…0.63					
GV2-ME05	Built-in	0.63…1					
GV2-ME06	Built-in	1…1.6					
GV2-ME07	Built-in	1.6…2.5					
GV2-ME08	Built-in	2.5…4					
GV2-ME10	Built-in	4…6.3					
GV2-ME14	Built-in	6…10					
GV2-ME16	Built-in	9…14					
GV2-ME20	Built-in	13…18					
GV2-ME21	Built-in	17…23					
GV2-ME22	Built-in	20…25					
GV2-ME32	Built-in	24…32					
GV2-P01	Built-in	0.1…0.16					
GV2-P02	Built-in	0.16…0.25					
GV2-P03	Built-in	0.25…0.40					
GV2-P04	Built-in	0.40…0.63					
GV2-P05	Built-in	0.63…1					
GV2-P06	Built-in	1…1.6					
GV2-P07	Built-in	1.6…2.5					
GV2-P08	Built-in	2.5…4					
GV2-P10	Built-in	4…6.3					
GV2-P14	Built-in	6…10					
GV2-P16	Built-in	9…14					
GV2-P20	Built-in	13…18					
GV2-P21	Built-in	17…23					
GV2-P22	Built-in	20…25					
GV2-L03	**LR2-D1303**	0.25…0.4					
GV2-L04	**LR2-D1304**	0.4…0.63					
GV2-L05	**LR2-D1305**	0.63…1					
GV2-L06	**LR2-D1306**	1…1.6					
GV2-L07	**LR2-D1307**	1.6…2.5					
GV2-L08	**LR2-D1308**	2.5…4					
GV2-L10	**LR2-D1310**	4…6					
GV2-L14	**LR2-D1312**	5.5…8					
GV2-L16	**LR2-D1316**	9…13					
GV2-L20	**LR2-D1321**	12…18					
GV2-L22	**LR2-D1322**	17…25					
GV2-LE03	**LR2-K0302**	0.16…0.23					
GV2-LE03	**LR2-K0303**	0.23…0.36					
GV2-LE03	**LR2-K0304**	0.36…0.54					
GV2-LE04	**LR2-K0304**	0.36…0.54					
GV2-LE04	**LR2-K0305**	0.54…0.80					
GV2-LE05	**LR2-K0305**	0.54…0.80					
GV2-LE05	**LR2-K0306**	0.8…1.2					
GV2-LE06	**LR2-K0306**	0.8…1.2					
GV2-LE06	**LR2-K0307**	1.2…1.8					
GV2-LE07	**LR2-K0307**	1.2…1.8					
GV2-LE07	**LR2-K0308**	1.8…2.6					
GV2-LE08	**LR2-K0310**	2.6…3.7					
GV2-LE08	**LR2-K0312**	3.7…5.5					
GV2-LE10	**LR2-K0312**	3.7…5.5					
GV2-LE10	**LR2-K0314**	5.5…8					
GV2-LE14	**LR2-K0314**	5.5…8					
GV2-LE14	**LR2-K0316**	8…11.5					
GV2-LE14	**LR2-D1314**	7…10					
GV2-LE16	**LR2-D1316**	9…13					
GV2-LE20	**LR2-D1321**	12…18					
GV2-LE22	**LR2-D1322**	17…25					
GV2-LE32	**LR2-D2353**	23…32					

Total discrimination

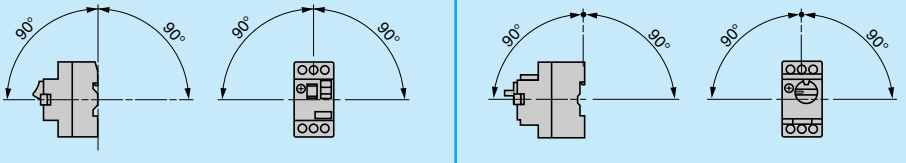
6 Partial discrimination limited to 6 kA

No discrimination

References: pages 3/31 to 3/42 **Dimensions, mounting:** pages 3/43 to 3/48 **Schemes:** pages 3/49 to 3/51

TeSys circuit-breakers

Thermal-magnetic motor circuit-breakers
types GV2-ME and GV2-P

Circuit-breaker type		GV2-ME		GV2-P	
Environment					
Conforming to standards		IEC/EN 60947-1, 60947-2, 60947-4-1, UL 508, CSA C22-2 N° 14, NF C 63-650, NF C 63-120, 79-130, VDE 0113, 0660.			
Product approvals		CSA, CEBEC, GOST, TSE, UL, BV, GL, LROS, DNV, PTB, EZU, SETI, RINA		CSA, UL, PTB, EZU, GOST, TSE, DNV, LROS, GL, BV, RINA	
Protective treatment		"TH"		"TH"	
Degree of protection conforming to IEC/EN 60529		Basic unit: IP 20 In enclosure **GV2-M●01**: IP 41 In enclosure **GV2-M●02**: IP 55		Basic unit: IP 20 – –	
Shock resistance conforming to IEC/EN 60068-2-27		30 gn - 11 ms		30 gn - 11 ms	
Vibration resistance conforming to IEC/EN 60068-2-6		5 gn (5 to 150 Hz)		5 gn (5 to 150 Hz)	
Ambient air temperature - storage	°C	- 40…+ 80		- 40…+ 80	
- operation	°C	- 20…+ 60 in open air	- 20…+ 40 in enclosure	- 20…+ 60 In open air	
Temperature compensation	°C	- 20…+ 60 in free air		- 20…+ 60	
Flame resistance conforming to IEC/EN 60695-2-1	°C	960		960	
Maximum operating altitude	m	2000		2000	
Operating positions in relation to normal vertical mounting position					
Cabling Number of conductors and c.s.a.		**GV2-ME** Maximum	Minimum	**GV2-ME●●3** Maximum	Minimum
Solid cable	**mm²**	2 x 6	2 x 1	2 x 6	2 x 1 (1)
Flexible cable without cable end	**mm²**	2 x 6	2 x 1.5	2 x 4	2 x 1.5 (1)
Flexible cable with cable end	**mm²**	2 x 4	2 x 1	–	
Suitable for isolation conforming to IEC/EN 60947-1 § 7-1-6		Yes		Yes	
Tightening torque	N.m	1.7		1.7	
Resistance to mechanical impact	J	0.5		0.5	
		Enclosed: 6		–	
Sensitivity to phase failure		Yes, conforming to IEC/EN 60947-4-1 § 7-2-1-5-2			

Cabling Number of conductors and c.s.a.		GV2-P Maximum	Minimum
Solid cable	**mm²**	2 x 6	2 x 1
Flexible cable without cable end	**mm²**	2 x 6	2 x 1.5
Flexible cable with cable end	**mm²**	2 x 4	2 x 1

(1) For c.s.a. of 1 to 1.5 mm², use cable end reducer LA9-D99.

References: pages 3/31 to 3/42
Dimensions, mounting: pages 3/43 to 3/48
Schemes: pages 3/49 to 3/51

TeSys circuit-breakers

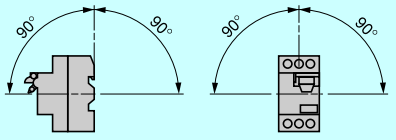
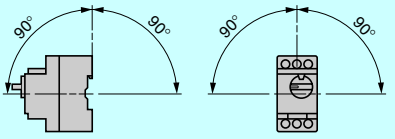
Thermal-magnetic motor circuit-breakers
types GV2-ME and GV2-P

Circuit-breaker type		GV2-ME	GV2-P
Technical characteristics			
Utilisation category conforming to IEC/EN 60947-2		A	A
conforming to IEC/EN 60947-4-1		AC-3	AC-3
Rated operational voltage (Ue) conforming to IEC/EN 60947-2	**V**	690	690
Rated insulation voltage (Ui) conforming to IEC/EN 60947-2	**V**	690	690
conforming to CSA C22-2 n° 14, UL 508	**V**	600	600
Rated operational frequency conforming to IEC/EN 60947-2	**Hz**	50/60	50/60
Rated impulse withstand voltage (U imp) conforming to IEC/EN 60947-2	**kV**	6	6
Total power dissipated per pole	**W**	2.5	2.5
Mechanical durability (C.O.: Closing, Opening)	**C.O.**	100,000	100,000
Electrical durability for AC-3 duty 440 V In/2	**C.O.**	100,000	100,000
Duty class (maximum operating rate)	**C.O./h**	25	25
Rated duty conforming to IEC/EN 60947-4-1		Uninterrupted duty	Uninterrupted duty
Maximum conventional rated thermal current (Ith) conforming to IEC/EN 60947-4-1	**A**	0.16...32	0.16...32

References: pages 3/31 to 3/42
Dimensions, mounting: pages 3/43 to 3/48
Schemes: pages 3/49 to 3/51

TeSys circuit-breakers

Magnetic motor circuit-breakers
types GV2-LE and GV2-L

Circuit-breaker type		GV2-LE		GV2-L	
Environment					
Conforming to standards		IEC/EN 60947-1, IEC/EN 60947-2, NF C 63-650, NF C 63-120, NF C 79-130, VDE 0113, VDE 0660			
Approvals pending		BV, GL, LROS, DNV, TSE, UL, CSA		BV, GL, LROS, DNV, EZU, GOST, TSE, UL, CSA	
Protective treatment		"TH"		"TH"	
Shock resistance to IEC/EN 60068-2-27		30 gn		30 gn	
Vibration resistance to IEC/EN 60068-2-6		5 gn (5 to 150 Hz)		5 gn (5 to 150 Hz)	
Ambient air temperature - storage	**°C**	- 40…+ 80		- 40…+ 80	
- operation	**°C**	- 20…+ 60		- 20…+ 60	
Flame resistance to IEC/EN 60695-2-1	**°C**	960		960	
Maximum operating altitude	**m**	2000		2000	
Operating position					
Cabling Number of conductors and c.s.a.		Max	Min	Max	Min
Solid cable	**mm²**	2 x 6	2 x 1	2 x 6	2 x 1
Flexible cable without cable end	**mm²**	2 x 6	2 x 1.5	2 x 6	2 x 1.5
Flexible cable with cable end	**mm²**	2 x 4	2 x 1	2 x 4	2 x 1
Suitability for isolation conforming to IEC/EN 60947-1 § 7-1-6		Yes		Yes	
Tightening torque	**N.m**	1.7		1.7	
Resistance to mechanical impact	**J**	0.5		0.5	
Utilisation category conforming to IEC/EN 60947-2		A		A	
conforming to IEC/EN 60947-4-1		AC-3		AC-3	
Rated operational voltage (Ue) conforming to IEC/EN 60947-2	**V**	690		690	
Rated insulation voltage (Ui) conforming to IEC/EN 60947-2	**V**	690		690	
Rated operational frequency conforming to IEC/EN 60947-2	**Hz**	50/60		50/60	
Rated impulse withstand voltage (U imp) to IEC/EN 60947-2	**kV**	6		6	
Total power dissipated per pole	**W**	1.8		1.8	
Mechanical durability (C.O.: closing, opening)	**C.O.**	100,000		100,000	
Electrical durability for AC-3 duty	**C.O.**	100,000		100,000	
Duty class (maximum operating rate)	**C.O./h**	40		40	
Rated duty to IEC/EN 60947-4-1		Continuous duty		Continuous duty	

References: pages 3/31 to 3/42
Dimensions: pages 3/43 to 3/48
Schemes: pages 3/49 to 3/51

TeSys circuit-breakers

Thermal-magnetic motor circuit-breakers types GV2
Electric trips

Trip type		GV-AU	GV-AX (1)	GV-AS
Characteristics of electric trips				
Rated insulation voltage (Ui) conforming to IEC/EN 60947-1	V	690	500	690
conforming to CSA C22-2 n° 14, UL 508	V	600	–	600
Operational voltage conforming to IEC/EN 60947-1	V	0.85…1.1 Un		0.7…1.1 Un
Drop-out voltage	V	0.7…0.35 Un		0.75…0.2 Un
Inrush consumption ~	VA	12		14
⎓	W	8		10.5
Sealed consumption ~	VA	3.5		5
⎓	W	1.1		1.6
Operating time conforming to IEC/EN 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 Number of conductors		1 or 2		
Solid cable	mm^2	1…2.5		
Flexible cable without cable end	mm^2	0.75…2.5		
Flexible cable with cable end	mm^2	0.75…1.5		
Tightening torque	N.m	1.4 max		
Mechanical durability (C.O.: Closing-Opening)	C.O.	100,000		

(1) Wiring scheme of undervoltage trip for dangerous machines (conforming to INRS) on GV2-ME only, see page 3/49.

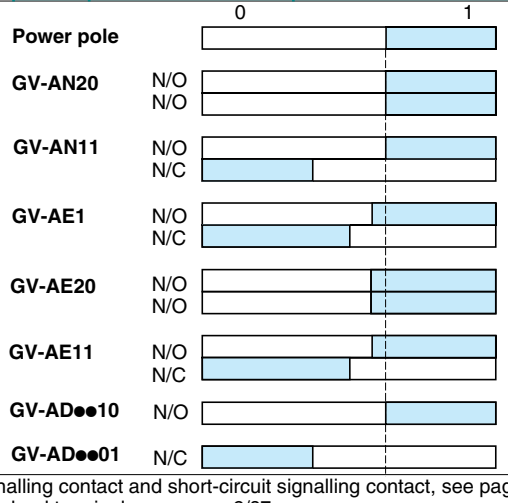
References: pages 3/31 to 3/42
Dimensions: pages 3/43 to 3/48
Schemes: pages 3/49 to 3/51

TeSys circuit-breakers

Thermal-magnetic motor circuit-breakers types GV2
Auxiliary contacts

Contact type		Instantaneous auxiliary **GV-AN, GV-AD**							Fault signalling **GV-AD, GV-AM11** (1)				Instantaneous auxilairy **GV-AE**			
Rated insulation voltage (Ui) (associated insulation coordination) to IEC/EN 60947-1	**V**	690							690				250 (690 in relation to main circuit)			
to CSA C22-2 n° 14 and UL 508	**V**	600							300				300			
Conventional rated thermal current (Ith) to IEC/EN 60947-5-1	**A**	6							2.5				2.5			
to CSA C22-2 n° 14 and UL 508	**A**	5							1				1			
Mechanical durability	**C.O.**	100,000							1000				100,000			
Operational power and current to IEC/EN 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**
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	**VA**	3000	7000	13,000	15,000	13,000	12,000	9000	220	300	450	450	480	600	1270	2400
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 to IEC/EN 60947-5-1, d.c. operation		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**	–
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 level switching contact reliability		**GV-AE**: Number of failures for for “n” million operating cycles (17 V-5 mA): = 10^{-6}														
Minimum operational conditions	**V**	17														
d.c. operation	**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			

Contact operation, instantaneous auxiliary contacts



Contact open

Contact closed

Operation of fault signalling contacts

GV-AM11
Change of state following tripping on short-circuit.

GV-AD10●● and GV-AD01●●
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 3/49.
(2) Add an RC circuit type LA4-D to the load terminals, see page 2/87.

References: pages 3/31 to 3/42
Dimensions: pages 3/43 to 3/48
Schemes: pages 3/49 to 3/51

TeSys circuit-breakers

Thermal-magnetic motor circuit-breakers types GV2
Auxiliary contacts

Characteristics of 3-pole busbars GV2-G●●●

Rated insulation voltage (Ui)	To IEC/EN 60947-1	**V**	690
Conventional rated thermal current (Ith)	To IEC/EN 60439-1	**A**	63
Permissible peak current (I peak)		**kA**	11
Permissible thermal limit (I^2t)		**kA²s**	104
Degree of protection	To IEC/EN 60529		IP 20

Characteristics of terminal blocks GV2-G05 and GV1-G09

Rated insulation voltage (Ui)	To IEC/EN 60947-1	**V**	690
Conventional rated thermal current (Ith)	To IEC/EN 60947-5-1	**A**	63
Degree of protection	To IEC/EN 60529		IP 20
Cabling	Solid cable	**mm²**	1 x 1.5 to 25 conductor or 2 x 1.5 to 10 conductors
	Flexible cable without cable end	**mm²**	1 x 1.5 to 25 conductor or 2 x 2.5 to 10 conductors
	Flexible cable with cable end	**mm²**	1 x 1.5 to 16 conductor or 2 x 1.5 to 4 conductors
Tightening torque	Connector	**N.m**	2.2
	Screw clamp	**N.m**	1.7

Characteristics of current limiters (GV2-ME and GV2-P)

Type			**GV1-L3**		**LA9-LB920**	
Rated insulation voltage (Ui)	To IEC/EN 60947-1	**V**	690		690	
Conventional rated thermal current (Ith)	To IEC/EN 60947-1	**A**	63		63	
Operating threshold	rms current	**A**	1500 (non adjustable threshold)		1000 (non adjustable threshold)	
Cabling			1 conductor	2 conductors	1 conductor	2 conductors
	Solid cable	**mm²**	1.5…25	1.5…10	1.5…25	1.5…10
	Flexible cable without cable end	**mm²**	1.5…25	2.5…10	1.5…25	1.5…10
	Flexible cable with cable end	**mm²**	1.5…16	1.5… 4	1.5…16	1.5… 4
Tightening torque		**N.m**	2.2			

References: pages 3/31 to 3/42
Dimensions: pages 3/43 to 3/48
Schemes: pages 3/49 to 3/51