

TeSys Power

Deca, Giga Motor circuit breakers

Introduction

Circuit breakers for motor protection and control

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

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

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

Deca, Giga protection technologies

Deca, Giga circuit breakers are carried with 3 variants:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



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



Characteristics:
p. B6/72 to B6/76

Curves:
p. B6/83 to B6/85

Dimensions:
p. B6/93 to B6/97

Schemes:
p. B6/99



GV2P08

Motor circuit breakers from 0.06 to 15 kW / 400 V

Deca - Frame 2 (ref. GV2P): control by rotary handle, connection by screw clamp terminals

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

400/415 V			500 V			690 V			Setting range of thermal trips (2)	Magnetic tripping current I _Δ ± 20 %	Reference
P	I _{cu}	I _{cs} (1)	P	I _{cu}	I _{cs} (1)	P	I _{cu}	I _{cs} (1)			
kW	kA	%	kW	kA	%	kW	kA	%	A	A	
—	—	—	—	—	—	—	—	—	0.1...0.16	1.93	GV2P01
0.06	★	★	—	—	—	—	—	—	0.16...0.25	3.08	GV2P02
0.09	★	★	—	—	—	—	—	—	0.25...0.40	5.8	GV2P03
0.12	★	★	—	—	—	0.37	★	★	0.40...0.63	9.3	GV2P04
0.18	★	★	—	—	—	—	—	—	—	—	—
0.25	★	★	—	—	—	0.55	★	★	0.63...1	15.1	GV2P05
0.37	★	★	0.37	★	★	—	—	—	1...1.6	26.2	GV2P06
0.55	★	★	0.55	★	★	0.75	★	★	—	—	—
0.75	★	★	1.1	★	★	1.5	8	100	1.6...2.5	39	GV2P07
1.1	★	★	1.5	★	★	2.2	8	100	2.5...4	74	GV2P08
2.2	★	★	3	★	★	4	6	100	4...6.3	91	GV2P10
3	★	★	5	50	100	5.5	6	100	6...10	149	GV2P14
5.5	★	★	7.5	42	75	9	6	100	9...14	253.4	GV2P16
—	—	—	—	—	—	11	6	100	—	—	—
7.5	50	50	9	10	75	15	4	100	13...18	341	GV2P20
9	50	50	11	10	75	18.5	4	100	17...23	341	GV2P21
11	50	50	15	10	75	—	—	—	20...25	388.3	GV2P22
15	50	50	18.5	10	75	22	4	100	24...32	537.6	GV2P32

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

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

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

Deca - Frame 2 (ref. GV2P): control by rotary handle, connection by screw clamp terminals

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

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

Motor circuit breakers from 3/4 to 20 HP / 460 V

Deca - Frame 2 (ref. GV2P): control by rotary handle, connection by screw clamp terminals

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

(1) As % of I_{cu}.

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

(3) 3P FLA corresponding values: see page A5/142.

★ > 100 kA.