



GV4PEM

Advanced version

Basic protection

Settings are made using dials.

Overloads or thermal protection (I_r)

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

Wide range setting made in amperes.

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

Trip class (class)

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

■ Class 10: starting time less than 10 s.

■ Class 20: starting time less than 20 s.

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

Short-circuit protection (I_i)

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

Advanced protection

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

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

Short time delay protection (I_{sd})

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

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

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

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

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

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

□ 0.7 s during starting (non adjustable)

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

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

Ground-fault protection (I_g, t_g)

Residual type ground-fault protection, with OFF position:

■ adjustable pick-up I_g:

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

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

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

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

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

During normal operation, it causes tripping:

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

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

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

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

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

It causes tripping:

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

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

Indications

Front indications

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

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

Remote indications via SDx module

See description on page B6/44.

Standards and certifications

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



Characteristics:
p. B6/120 to B6/123

Curves:
p. B6/129 to B6/131

Dimensions:
p. B6/134 to B6/135

Schemes:
p. B6/137

Advanced thermal-magnetic motor circuit breakers from 0.25 to 55 kW

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

Motor
circuit
breakers

Connection by lugs

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

⁽¹⁾ As % of I_{cu}.

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

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