

# Control and Automation

For industrial applications ED.03

Motor protection devices



GE imagination at work

## SFK - Motor protection circuit breaker

- B.2 Order codes
- B.3 Auxiliary contact blocks and auxiliary functions
- B.4 Enclosures and accessories
- B.5 Terminal numbering
- B.6 Technical data
- B.7 Dimensions

Plug-in relays and Auxiliary contactors

**Motor protection devices**

## SURION - Manual motor starter

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- B.10 GPS2B... - Thermal and magnetic protection
- B.12 GPS1M... - Magnetic protection
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Contactors and Thermal overload relays

Motorstarters

Control and signalling units

Electronic relays

Limit switches

Speed drive units

Main switches

Numerical index

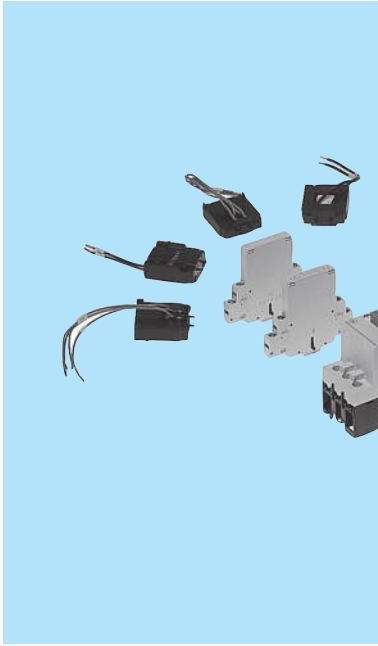
*SURION*

*Manual Motor Starters and Coordination tables*

*see chapter D pages D2-D13*

under control





## Motor protection circuit breaker

- For thermal and magnetic protection of AC and DC motors
- Conformity to standards IEC 947-2, IEC 947-4-1 and VDE 0660
- Manual push-button operation
- Setting ranges from 0.1 to 25A at 690V AC and 220V DC
- Short-circuit capacity of 65kA up to setting range of 1.6-2.5A/400V

### Standards

IEC 947-2  
IEC 947-4-1  
VDE 0660

### Approvals




UL



CSA



CE

- Trip class 10
- Instant magnetic tripping (12 times the maximum operating current Ie)
- Single phase protection
- Ambient temperature compensation between - 5° C and + 40° C
- Internal and external accessories easy to mount
- Quick fixing on DIN rail EN 50022-35 and, with two screws, on plate or wall
- Terminals protected against accidental contacts (IP20)
- Suitable for isolation (  ) and positive padlocking in open position (IEC 947-1 § 7-1-6)



### Motor protection circuit breakers






3-phase motor AC3 380/415V kW	Magnetical tripping current A	Thermal tripping current (setting range)		Cat. no.	Ref. no.	Pack
		Min. A	Max. A			
0.02	1.9	0.1	0.16	SFK0A	120001	1/5
0.06	3.0	0.16	0.25	SFK0B	120002	1/5
0.06 / 0.09	4.8	0.25	0.4	SFK0C	120003	1/5
0.12 / 0.18	7.5	0.4	0.63	SFK0D	120004	1/5
0.25	12	0.63	1	SFK0E	120005	1/5
0.37 / 0.55	19	1	1.6	SFK0F	120006	1/5
0.75	30	1.6	2.5	SFK0G	120007	1/5
1.1 / 1.5	48	2.5	4	SFK0H	120008	5
2.2	75	4	6.3	SFK0I	120009	5
3.7 / 4.0	120	6.3	10	SFK0J	120010	5
5.5 / 7.5	190	10	16	SFK0K	120011	5
9.0	240	16	20	SFK0L	120012	1/5
11 / 12.5	300	20	25	SFK0M	120013	1/5

Circuit breaker to protect transformers on request


**Auxiliary contact blocks**

				Cat. no.	Ref. no.	Pack
 <p><b>Side mounting</b></p>		1NO	1NC	SFAL11N	120020	5
		2NO		SFAL20N	120021	5
		1NO	1NC	SFAL11D	120022	5
		(advanced on closing)				
		2NO		SFAL20D	120023	5
		(advanced on closing)				
	For lower energy levels ( $\geq 4V, \geq 4mA$ )	1change-over PE + N conductor		SFAL11S	120027	1
				SFALPEN	264826	1
 <p><b>Internal mounting</b></p>		1NO	1NC	SFAI11	120024	5
	Switch trip indicator-alarm	1NO		SFAK10	120025	5
		1NC		SFAK01	120026	5

**Coils for internal mounting**

				Cat. no.	Ref. no.	Pack
 <p><b>Minimum power</b></p>	Functioning range: $0.35U_e < U < 0.7U_e$					
	Manual reset					
	Dissipated power 2.2VA / 1W	110V / 50Hz	120V / 60Hz	SFB0RJ	120034	5
		220V / 50Hz	240V / 60Hz	SFB0RN	120035	5
	380V / 50Hz	440V / 60Hz	SFB0RU	120036	5	
 <p><b>Undervoltage release special for machinery</b></p>	According to IEC204-1, DIN VDE 0113, INRS Art. L233-5					
	A combination of a special undervoltage release and auxiliary contact block SFAL20D					
		110V / 50Hz	120V / 60Hz	SFB0RJM	107256	1
		220V / 50Hz	240V / 60Hz	SFB0RNM	120114	1
	380V / 50Hz	440V / 60Hz	SFB0RUM	120115	1	
 <p><b>Shunt trip</b></p>	Functioning range: $0.7U_e < U < 1.2U_e$					
	Manual reset					
		110V / 50Hz	120V / 60Hz	SFB0AJ	120030	5
		220V / 50Hz	240V / 60Hz	SFB0AN	120031	5
	380V / 50Hz	440V / 60Hz	SFB0AU	120032	5	

**Current limiter**

				Cat. no.	Ref. no.	Pack
 <p><b>Current limiter</b></p>	Combined with SFK.					
	Upgrades breaking capacity to 50kA/3~400V					
	Not available UL, CSA.					
	$I_n = 32A$			SFVH03	243713	1

A

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H

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X



## Enclosures

				Cat. no.	Ref. no.	Pack
	Surface mounting		IP41-PG16	SFS04	120040	1
			Conversion kit IP55	SFS0K2	120046	1
			IP55-PG16	SFS05	120041	1
			IP41-M25	SFS04M	212558	1
			IP65-M25	SFS05M	212559	1
	Flush mounting		IP41	SFE04	120042	1
			Conversion kit IP55	SFE0K2	120047	1
			IP55	SFE05	120043	1

## Accessories for enclosures

				Cat. no.	Ref. no.	Pack
	Neutral connection	For use with surface and flush mounting enclosures		SFVN0	101369	1
	Padlocking device	Up to 3 padlocks 6 - 8 mm		SFVCD	120054	1
	Emergency mushroom push-buttons IP55	Impulse function		SFPS0	120051	1
		Latched, pull to release		SFPR0	120052	1
		Key locked, turn to release		SFPE0	120053	5
		Conversion kit IP55 for SFS04		SFS04K1	245217	1
		Conversion kit IP55 for SFE04		SFE04K1	216604	1
	Indicator lamps for AC and DC	Green 110/120V		GPELGAJ	101375	1
		Green 220/240V		GPELGAN	101376	1
		Green 380/440V		GPELGAU	101377	1
		Green 480/500V		GPELGAX	101378	1
		Green 600V		GPELGAY	101379	1
		Red 110/120V		GPELRAJ	101380	1
		Red 220/240V		GPELRAN	101381	1
		Red 380/440V		GPELRAU	101382	1
		Red 480/500V		GPELRAX	101383	1
		Red 600V		GPELRAY	101384	1
		Transparent 110/120V		GPELCAJ	101385	1
		Transparent 220/240V		GPELCAU	101386	1
		Transparent 380/440V		GPELCAU	101387	1
Transparent 480/500V		GPELCAU	101388	1		
Transparent 600V		GPELCAY	101389	1		

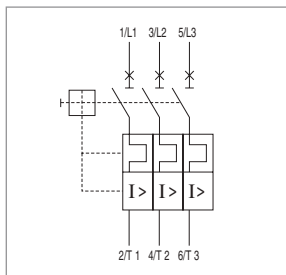
Accessories for enclosures (continued)

				Cat. no.	Ref. no.	Pack
Three phase busbar block	4 units	Ui 690V / Ie 63A	L = 207mm	<b>GPB104A</b>	101392	2
	5 units	Ui 690V / Ie 63A	L = 261mm	<b>GPB105A</b>	101393	2
	Plastic cover for 3 unused terminals			<b>GPB1GA</b>	101408	2
Supply block	Ie = 63A Fully insulated			<b>SFVB8</b>	254537	5

Terminal numbering

Motor protection circuit breaker

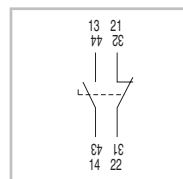
SFK...



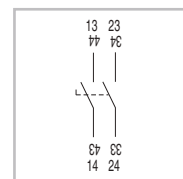
Auxiliary contact blocks

Side mounting

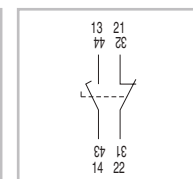
SFAL11N



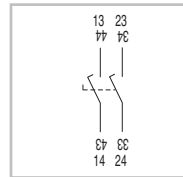
SFAL20N



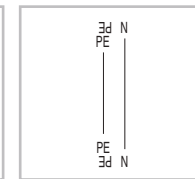
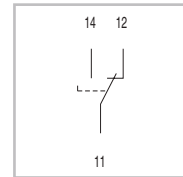
SFAL11D



SFAL20D

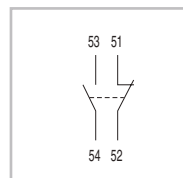


SFAL11S

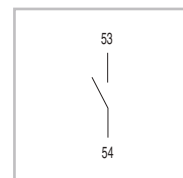


Internal mounting

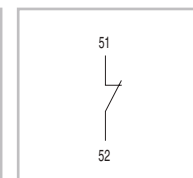
SFAI11



SFAK10



SFAK01



A

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## Technical data

### General

Rated thermal current (Ith) at 40°C	25A
Rated insulation voltage (Ui)	690V
Rated operational voltage (Ue) AC	690V, 40/60Hz
(see application diagram) DC	220V, with or without earth

### Standards

IEC 947-2	IEC 947-4-1	VDE 0660
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### Approvals

UL	CSA
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### Main circuit

Category	AC3, DC4
Operational frequency limits	40 to 60 Hz
Opening time	aprox. 7 ms
Mechanical endurance	10 <sup>5</sup> operations
Electrical endurance category AC3	10 <sup>5</sup> operations
Maximum operating rate	40 operations/hour
Total dissipated power at rated thermal current and hot state	6 W

### Tripping characteristics

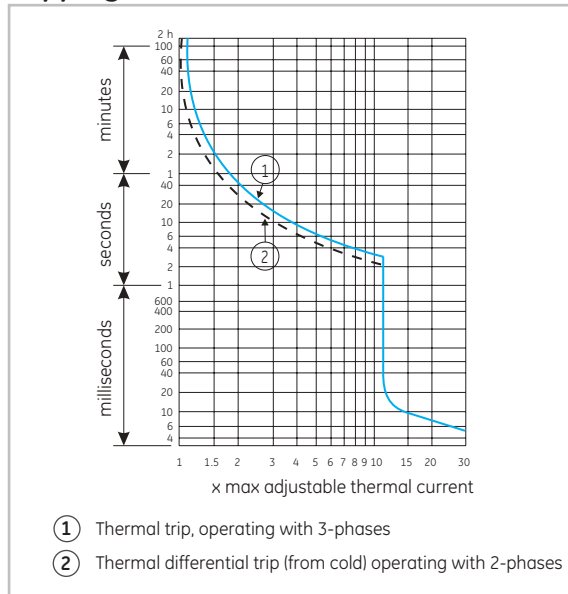
Thermal	
Symmetrical overloads	Class 10 (see curve 1, tripping curves)
Asymmetrical overloads (phase failure)	To IEC 947-4-1 (see curve 2, tripping curves)
Temperature compensation	- 5 to + 40°C

Magnetic	
	12 × Ie (Ie = max. thermal setting value)
Shunt release	
	0.7 - 1.2 Ue 100% ED
Operating voltage limits	
	2.2 VA
Consumption	
AC	1 W
DC	0.85 - 1.1 Ue 100% ED

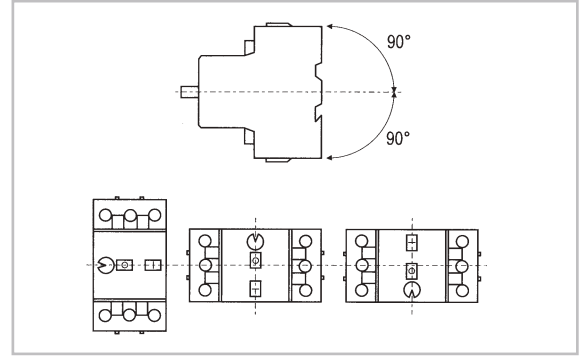
Undervoltage release	
Operating voltage limits	0.75 - 0.35 Ue
Breaking voltage limits	2.2 VA
Consumption	1 W

Wiring capacity	
Rigid wire	min. 2 wires of 0,75mm <sup>2</sup> max. 2 wires of 6mm <sup>2</sup>
Flexible wire	min. 2 wires of 0,75mm <sup>2</sup> max. 2 wires of 4mm <sup>2</sup>

### Tripping curve



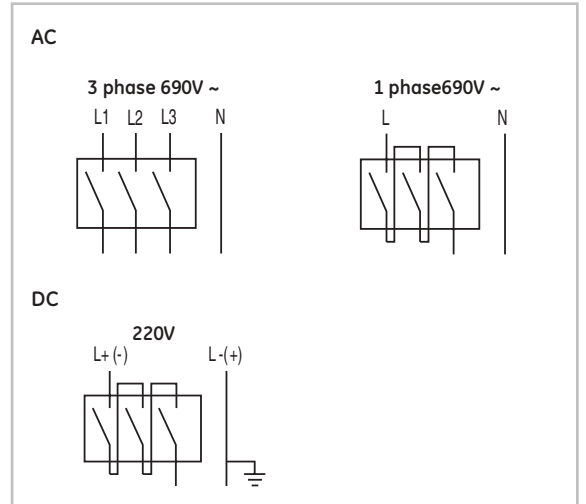
### Mounting positions



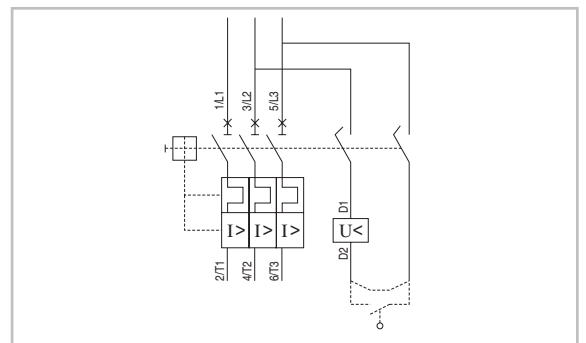
### Auxiliary contact blocks

	SFAL	SFAI - SFAK
Rated insulation voltage (Ui)	500V	500V
according VDE 0110		
Rated thermal current (Ith)	6A	6A
AC-15	Ue 230V 400V 500V Ie 3,5A 2A 1A	230V 400V 500V 2A 1A 0,5A
DC-13	Ue 60V 110V 220V Ie 1,5A 1A 0,5A	60V 110V 220V 0,7A 0,55A 0,25A
Protective fuse gl	6A	6A
Wiring capacity,		
Flexible wire	min. 2 × 0.75mm <sup>2</sup> max. 2 × 2.5mm <sup>2</sup>	2 × 0.75mm <sup>2</sup> 2 × 2.5mm <sup>2</sup>
Terminal type	M3,5, Pozidriv, safety flange screws	

### Wiring diagram



### Application diagram for tooling machines



Short-circuit breaking capacity Icu/Ics according to IEC 947-2

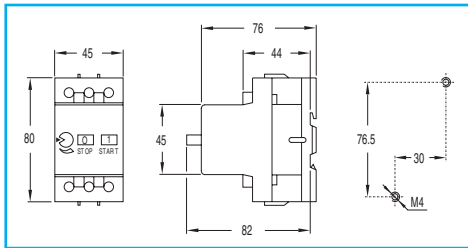
Thermal adjustment (A)	230V AC / 220V DC <sup>(1)</sup>				400V AC				415V AC				500V AC				690V AC			
	3ph motor AC3 (kW)	Icu (kA)	Ics (kA)	Fuse <sup>(2)</sup> (A)	3ph motor AC3 (kW)	Icu (kA)	Ics (kA)	Fuse <sup>(2)</sup> (A)	3ph motor AC3 (kW)	Icu (kA)	Ics (kA)	Fuse <sup>(2)</sup> (A)	3ph motor AC3 (kW)	Icu (kA)	Ics (kA)	Fuse <sup>(2)</sup> (A)	3ph motor AC3 (kW)	Icu (kA)	Ics (kA)	Fuse <sup>(2)</sup> (A)
0.1 - 0.16	-	65	65	(3)	0.02	65	65	(3)	0.02	65	65	(3)	0.04	65	65	(3)	0.06	42	42	(3)
0.16 - 0.25	-	65	65	(3)	0.06	65	65	(3)	0.06	65	65	(3)	0.06	65	65	(3)	0.12	42	42	(3)
0.25 - 0.4	0.06	65	65	(3)	0.09	65	65	(3)	0.12	65	65	(3)	0.12	65	65	(3)	0.18	42	42	(3)
0.4 - 0.63	0.09	65	65	(3)	0.12	65	65	(3)	0.18	65	65	(3)	0.25	65	65	(3)	0.37	42	42	(3)
0.63 - 1	0.12	65	65	(3)	0.25	65	65	(3)	0.25	65	65	(3)	0.37	65	65	(3)	0.75	1	1	20
1 - 1.6	0.25	65	65	(3)	0.55	65	65	(3)	0.55	65	65	(3)	0.75	65	65	(3)	1.1	1	1	20
1.6 - 2.5	0.37	65	65	(3)	0.75	65	65	(3)	0.75	10	5	25	1.1	3	1.5	25	1.5	1	0.5	20
2.5 - 4	0.75	65	65	(3)	1.5	10 (4)	5 (4)	35	1.5	10	5	35	2.2	3	1.5	35	3	1	0.5	25
4 - 6.3	1.1	65	37.5(4)	(3)	2.2	10 (4)	5 (4)	50	2.2	10	5	50	3	3	1.5	50	4	1	0.5	35
6.3 - 10	2.2	10 (4)	5 (4)	80	4	4 (4)	2 (4)	80	4	4	2	80	5.5	3	1.5	50	7.5	1	0.5	35
10 - 16	4	6 (4)	3 (4)	80	7.5	4 (4)	2 (4)	80	7.5	3.5	1.75	80	9	3	1.5	63	11	1	0.5	35
16 - 20	5	6 (4)	3 (4)	80	9	4 (4)	2 (4)	80	9	2.5	1.25	80	11	1.5	0.75	63	15	1	0.5	50
20 - 25	5.5	6 (4)	3 (4)	80	11	4 (4)	2 (4)	80	12.5	2.5	1.25	80	15	1.5	0.75	63	22	1	0.5	50

Icu = Ultimate short-circuit breaking capacity  
Ics = Service short-circuit breaking capacity

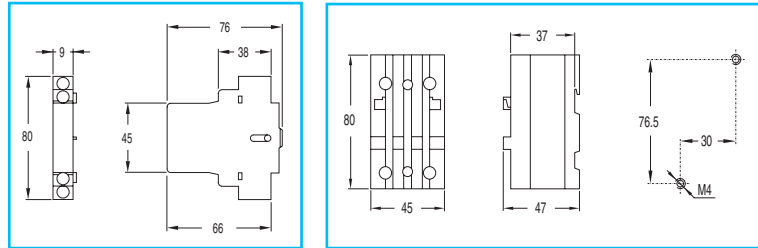
- (1) At 220V, t = 15 ms
- (2) Maximum value of the fuses when the presumed short circuit current is higher than the breaking capacity of the device. Type D, slow or NH type gG/gL.
- (3) No back-up fuse required to the Icu value
- (4) 50 kA in combination with current limiter

Dimensional drawings

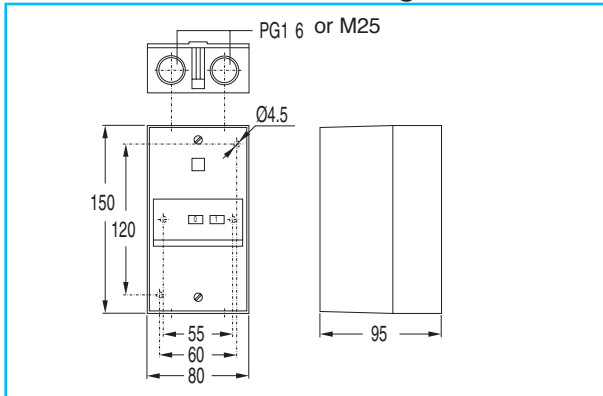
Motor protection circuit breaker



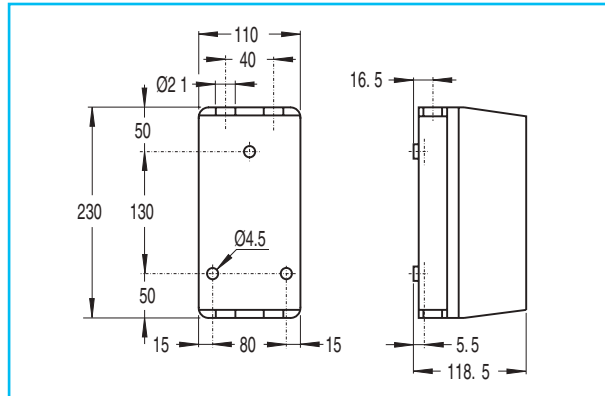
Auxiliary contact block Current limiter



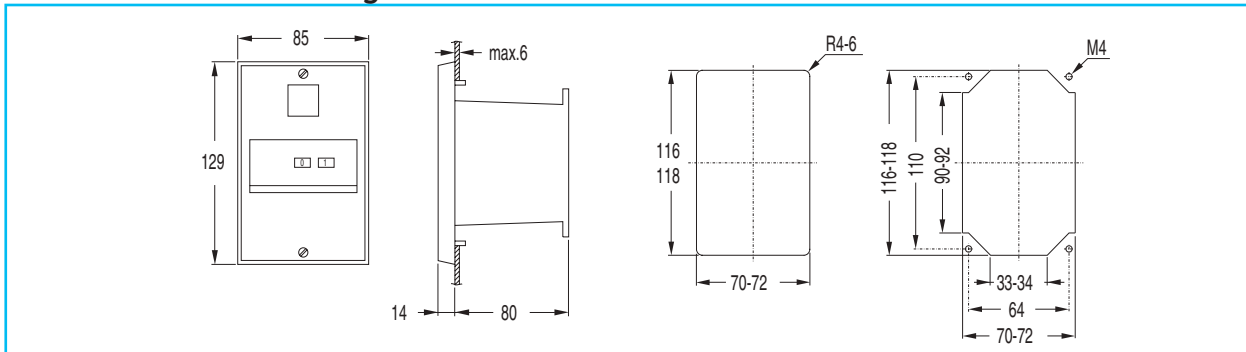
Enclosures: surface mounting



Enclosure to combine with contactor



Enclosures: flush mounting





## Thermal and magnetic protection

### GPS1B



#### Standards/Approvals

IEC 60947-1, 60947-2, 60947-4-1  
 DIN VDE 0660T 100/101/102  
 UL508/CSA - UL508/cULus  
 Shipping approvals:



RINA



Bureau Veritas



Lloyd's Register  
 Germanischer Lloyd



cULus

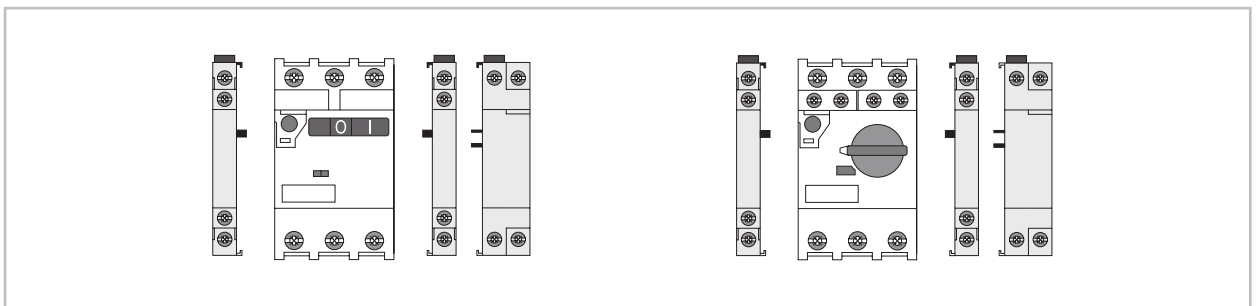


CE

#### Characteristics

- Rocker and rotary handle operator
- Thermal and magnetic protection
- Standard and high breaking capacity  
 $I_{cu} = 100kA \geq I_{cs} = 100\% I_{cu}$   
 $I_{cu} < 100kA \geq I_{cs} \text{ min. } 75\% I_{cu}$
- Clear identification of the operation state (ON-OFF-tripped)
- Ambient temperature compensation
- Phase failure protection

#### Auxiliaries



#### Technical performances

Rated current $I_n$	(A)	0.1-32
Rated operational current $I_e$ (A)		0.1-32
Rated power at 400Vac	(kW)	0.02-15
Utilisation category		
IEC 60947-2 (circuit breaker)		A
IEC 60947-4-1 (MMS)		AC-3
Tripping class IEC 60947-4-1		10
Magnetic release $I_e \text{ max.}$	(A)	x13
Mechanical/electrical endurance		100,000

#### Accessories

- Auxiliaries ● pg. B.16
- Busbar system ● pg. B.19

- Technical data ● pg. B.22
- Dimensions ● pg. B.28
- Fuseless starters ● pg. D.2
- Coordination tables ● pg. D.5



**GPS1B - Standard breaking capacity**

CLASS 10	Rated power 3 phase motors at 400Vac Pn	Rated current In (1)	Thermal current setting range	Instantaneous short-circuit release	Rated ultimate short-circuit breaking capacity at 400V Icu (kA)	Rated service short-circuit breaking capacity at 400V Ics (kA)	Cat. no.	Ref. no.	Pack.
	(kW)	(A)	(A)	(A)					
	0.02	0.16	0.1 - 0.16	2.1	100	100	GPS1BSAA	101211	5
	0.06	0.25	0.16 - 0.25	3.3	100	100	GPS1BSAB	101212	5
	0.09	0.4	0.25 - 0.4	5.2	100	100	GPS1BSAC	101213	5
	0.12/0.18	0.63	0.4 - 0.63	8.2	100	100	GPS1BSAD	101214	5
	0.25	1	0.63 - 1	13	100	100	GPS1BSAE	101215	5
	0.37/0.55	1.6	1 - 1.6	20.8	100	100	GPS1BSAF	101216	5
	0.75	2.5	1.6 - 2.5	32.5	100	100	GPS1BSAG	101217	5
	1.5	4	2.5 - 4	52	100	100	GPS1BSAH	101218	5
	2.2	6.3	4 - 6.3	81.9	100	100	GPS1BSAJ	101219	5
	3/4	10	6.3 - 10	130	100	100	GPS1BSAK	101220	5
	5.5	13	9 - 13	169	50	38	GPS1BSAL	101221	5
	7.5	16	11 - 16	208	25	19	GPS1BSAM	101222	5
	10	20	14 - 20	260	25	19	GPS1BSAN	101223	5
	11	25	19 - 25	325	25	19	GPS1BSAP	101224	5
	15	32	24 - 32	416	25	19	GPS1BSAR	101225	5



**Multipack by 40**

To reduce the amount of waste packaging material and to save time during installation, we offer the opportunity to order manual motor starters in a multipack without the individual packaging.

	0.02	0.16	0.1 - 0.16	2.1	100	100	GPS1BSAAMP	101195	40
	0.06	0.25	0.16 - 0.25	3.3	100	100	GPS1BSABMP	101196	40
	0.09	0.4	0.25 - 0.4	5.2	100	100	GPS1BSACMP	101197	40
	0.12/0.18	0.63	0.4 - 0.63	8.2	100	100	GPS1BSADMP	101198	40
	0.25	1	0.63 - 1	13	100	100	GPS1BSAEMP	101199	40
	0.37/0.55	1.6	1 - 1.6	20.8	100	100	GPS1BSAFMP	101200	40
	0.75	2.5	1.6 - 2.5	32.5	100	100	GPS1BSAGMP	101201	40
	1.5	4	2.5 - 4	52	100	100	GPS1BSAHMP	101202	40
	2.2	6.3	4 - 6.3	81.9	100	100	GPS1BSAJMP	101203	40
	3/4	10	6.3 - 10	130	100	100	GPS1BSAKMP	101204	40
	5.5	13	9 - 13	169	50	38	GPS1BSALMP	101205	40
	7.5	16	11 - 16	208	25	19	GPS1BSAMMP	101206	40
	10	20	14 - 20	260	25	19	GPS1BSANMP	101207	40
	11	25	19 - 25	325	25	19	GPS1BSAPMP	101208	40
	15	32	24 - 32	416	25	19	GPS1BSARMP	101209	40

(1) Rated current: highest thermal current setting range value.

**GPS1B - High breaking capacity.**

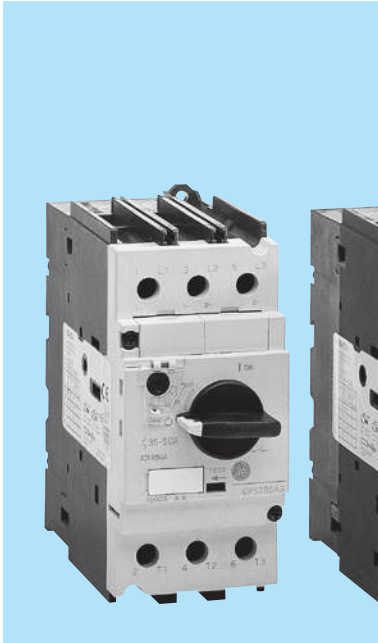
CLASS 10	Rated power 3 phase motors at 400Vac Pn	Rated current In (1)	Thermal current setting range	Instantaneous short-circuit release	Rated ultimate short-circuit breaking capacity at 400V Icu (kA)	Rated service short-circuit breaking capacity at 400V Ics (kA)	Cat. no.	Ref. no.	Pack.
	(kW)	(A)	(A)	(A)					
	0.02	0.16	0.1 - 0.16	2.1	100	100	GPS1BHAA	101234	5
	0.06	0.25	0.16 - 0.25	3.3	100	100	GPS1BHAB	101235	5
	0.09	0.4	0.25 - 0.4	5.2	100	100	GPS1BHAC	101236	5
	0.12/0.18	0.63	0.4 - 0.63	8.2	100	100	GPS1BHAD	101237	5
	0.25	1	0.63 - 1	13	100	100	GPS1BHA E	101238	5
	0.37/0.55	1.6	1 - 1.6	20.8	100	100	GPS1BHAF	101239	5
	0.75	2.5	1.6 - 2.5	32.5	100	100	GPS1BHAG	101240	5
	1.5	4	2.5 - 4	52	100	100	GPS1BHAH	101241	5
	2.2	6.3	4 - 6.3	81.9	100	100	GPS1BHAJ	101242	5
	3/4	10	6.3 - 10	130	100	100	GPS1BHAK	101243	5
	5.5	13	9 - 13	169	100	100	GPS1BHAL	101244	5
	7.5	16	11 - 16	208	50	38	GPS1BHAM	101245	5
	10	20	14 - 20	260	50	38	GPS1BHAN	101246	5
	11	25	19 - 25	325	50	38	GPS1BHAP	101247	5
	15	32	24 - 32	416	50	38	GPS1BHAR	101248	5



(1) Rated current: highest thermal current setting range value.

## Thermal and magnetic protection

### GPS2B



#### Standards/Approvals

IEC 60947-1, 60947-2, 60947-4-1  
 DIN VDE 0660T 100/101/102  
 UL508/CSA - UL508/cULus  
 Shipping approvals:



RINA



Bureau Veritas



Lloyd's Register  
 Germanischer Lloyd



cULus

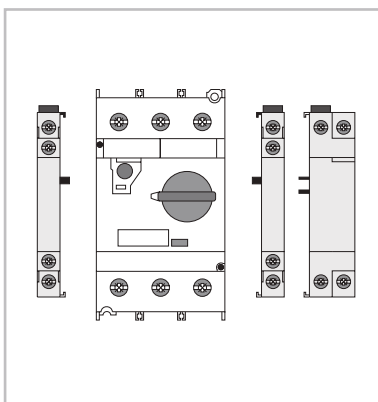


CE

#### Characteristics

- Rotary handle operator
- Thermal and magnetic protection
- Standard and high breaking capacity  
 $I_{cu} = 100kA \geq I_{cs} = 100\% I_{cu}$   
 $I_{cu} < 100kA \geq I_{cs} \text{ min. } 75\% I_{cu}$
- Clear identification of the operation state (ON-OFF-tripped)
- Ambient temperature compensation
- Phase failure protection

#### Auxiliaries



#### Technical performances

<b>Rated current <math>I_n</math></b>	(A)	10-63
<b>Rated operational current <math>I_e</math></b>	(A)	10-63
<b>Rated power at 400Vac</b>	(kW)	4-30
<b>Utilisation category</b>		
IEC 60947-2 (circuit breaker)		A
IEC 60947-4-1 (MMS)		AC-3
<b>Tripping class IEC 60947-4-1</b>		10
<b>Magnetic release <math>I_e \text{ max.}</math></b>	(A)	$\times 13$
<b>Mechanical/electrical endurance</b>		50,000/25,000


#### Accessories

- Auxiliaries ● pg. B.16
- Busbar system ● pg. B.19

- Technical data ● pg. B.22
- Dimensions ● pg. B.28
- Fuseless starters ● pg. D.2
- Coordination tables ● pg. D.5




**GPS2B - Standard breaking capacity**

<b>CLASS 10</b>	Rated power 3 phase motors at 400Vac Pn	Rated current In (1)	Thermal current setting range	Instantaneous short-circuit release	Rated ultimate short-circuit breaking capacity at 400V Icu (kA)	Rated service short-circuit breaking capacity at 400V Ics (kA)	Cat. no.	Ref. no.	Pack.
	(kW)	(A)	(A)	(A)					
		3/4	10	6.3 - 10	130	100	100	GPS2BSAK	101226
	5.5	13	9 - 13	169	50	38	GPS2BSAL	107119	1
	7.5	16	11 - 16	208	25	19	GPS2BSAM	101227	1
	10	20	14 - 20	260	25	19	GPS2BSAN	101228	1
	11	25	19 - 25	325	25	19	GPS2BSAP	101229	1
	15	32	24 - 32	416	25	19	GPS2BSAR	101230	1
	18.5	40	28 - 40	520	25	19	GPS2BSAS	101231	1
	22	50	35 - 50	650	25	19	GPS2BSAT	101232	1
	30	63	45 - 63	819	25	19	GPS2BSAU	101233	1

(1) Rated current: highest thermal current setting range value.

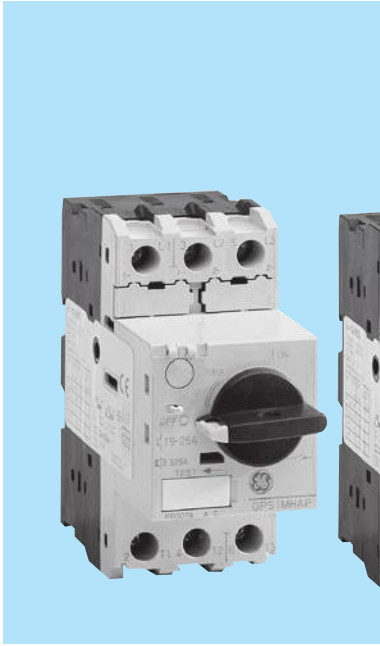
**GPS2B - High breaking capacity**

<b>CLASS 10</b>	Rated power 3 phase motors at 400Vac Pn	Rated current In (1)	Thermal current setting range	Instantaneous short-circuit release	Short-circuit breaking capacity at 400V Icu (kA)	Short-circuit breaking capacity at 400V Ics (kA)	Cat. no.	Ref. no.	Pack.
	(kW)	(A)	(A)	(A)					
		3/4	10	6.3 - 10	130	100	100	GPS2BHAK	101249
	5.5	13	9 - 13	169	100	100	GPS2BHAL	107120	1
	7.5	16	11 - 16	208	50	38	GPS2BHAM	101250	1
	10	20	14 - 20	260	50	38	GPS2BHAN	101251	1
	11	25	19 - 25	325	50	38	GPS2BHAP	101252	1
	15	32	24 - 32	416	50	38	GPS2BHAR	101253	1
	18.5	40	28 - 40	520	50	38	GPS2BHAS	101254	1
	22	50	35 - 50	650	50	38	GPS2BHAT	101255	1
	30	63	45 - 63	819	50	38	GPS2BHAU	101256	1

(1) Rated current: highest thermal current setting range value.

**Magnetic protection**

**GPS1M**



**Standards/Approvals**

IEC 60947-1, 60947-2, 60947-4-1  
 DIN VDE 0660T 100/101/102  
 UL508/CSA - UL508/cULus  
 Shipping approvals:



RINA



Bureau Veritas



Lloyd's Register  
 Germanischer Lloyd



cULus

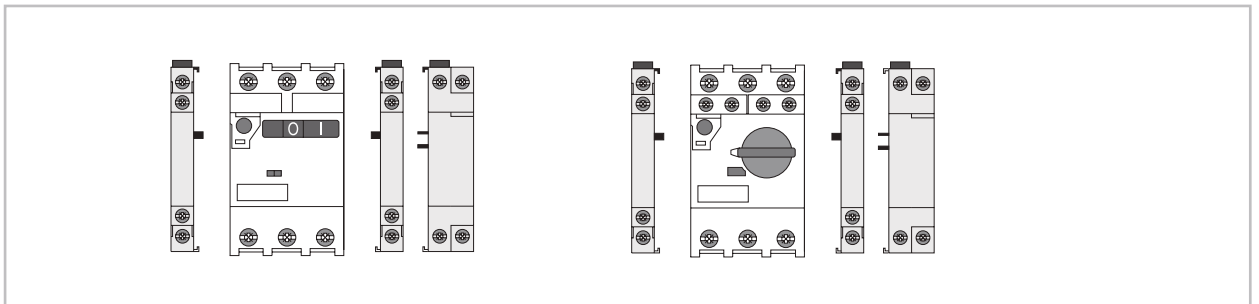


CE

**Characteristics**

- Short-circuit protection for starters
- Rocker and rotary handle operator
- Magnetic protection
- Standard and high breaking capacity  
 $I_{cu} = 100kA \geq I_{cs} = 100\% I_{cu}$   
 $I_{cu} < 100kA \geq I_{cs} \text{ min. } 75\% I_{cu}$
- Clear identification of the operation state (ON-OFF-tripped)

**Auxiliaries**



**Accessories**

- Auxiliaries ● pg. B.16
- Busbar system ● pg. B.19

- Technical data ● pg. B.22
- Dimensions ● pg. B.28
- Fuseless starters ● pg. D.2
- Coordination tables ● pg. D.5

**Technical performances**

<b>Rated current <math>I_n</math></b>	(A) 0.1-32
<b>Rated operational current <math>I_e</math></b>	(A) 0.1-32
<b>Utilisation category</b>	A
<b>IEC 60947-2 (circuit breaker)</b>	
<b>Magnetic release <math>I_e \text{ max.}</math></b>	(A) x13
<b>Mechanical/electrical endurance</b>	100.000



**GPS1M - Standard breaking capacity**



Rated power 3 phase motors at 400Vac Pn	Rated current In	Thermal current setting range (1)	Instantaneous short-circuit release	Rated ultimate short-circuit breaking capacity at 400V Icu (kA)	Rated service short-circuit breaking capacity at 400V Ics (kA)	Cat. no.	Ref. no.	Pack.
(kW)	(A)	(A)	(A)					
0.02	0.16	-	2.1	100	100	GPS1MSAA	101257	5
0.06	0.25	-	3.3	100	100	GPS1MSAB	101258	5
0.09	0.4	-	5.2	100	100	GPS1MSAC	101259	5
0.12/0.18	0.63	-	8.2	100	100	GPS1MSAD	101260	5
0.25	1	-	13	100	100	GPS1MSAE	101261	5
0.37/0.55	1.6	-	20.8	100	100	GPS1MSAF	101262	5
0.75	2.5	-	32.5	100	100	GPS1MSAG	101263	5
1.5	4	-	52	100	100	GPS1MSAH	101264	5
2.2	6.3	-	81.9	100	100	GPS1MSAJ	101265	5
3/4	10	-	130	100	100	GPS1MSAK	101266	5
5.5	13	-	169	50	38	GPS1MSAL	101267	5
7.5	16	-	208	25	19	GPS1MSAM	101268	5
10	20	-	260	25	19	GPS1MSAN	101269	5
11	25	-	325	25	19	GPS1MSAP	101270	5
15	32	-	416	25	19	GPS1MSAR	101271	5

(1) Select appropriate thermal overload relay for the starter. See chapter C pages C.62 - C.68.

**GPS1M - High breaking capacity**



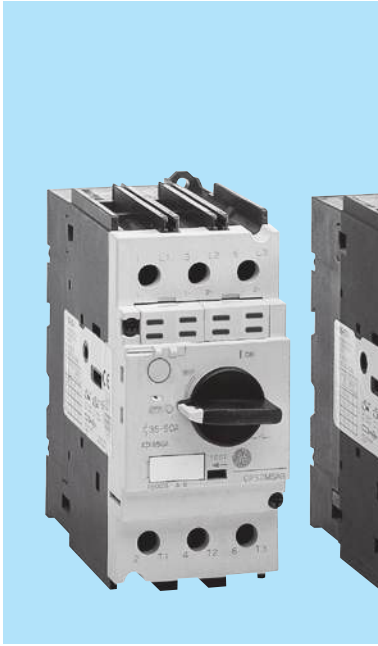
Rated power 3 phase motors at 400Vac Pn	Rated current In	Thermal current setting range (1)	Instantaneous short-circuit release	Rated ultimate short-circuit breaking capacity at 400V Icu (kA)	Rated service short-circuit breaking capacity at 400V Ics (kA)	Cat. no.	Ref. no.	Pack.
(kW)	(A)	(A)	(A)					
0.02	0.16	-	2.1	100	100	GPS1MHAA	101280	5
0.06	0.25	-	3.3	100	100	GPS1MHAB	101281	5
0.09	0.4	-	5.2	100	100	GPS1MHAC	101282	5
0.12/0.18	0.63	-	8.2	100	100	GPS1MHAD	101283	5
0.25	1	-	13	100	100	GPS1MHAE	101284	5
0.37/0.55	1.6	-	20.8	100	100	GPS1MHAF	101285	5
0.75	2.5	-	32.5	100	100	GPS1MHAG	101286	5
1.5	4	-	52	100	100	GPS1MHAH	101287	5
2.2	6.3	-	81.9	100	100	GPS1MHAJ	101288	5
3/4	10	-	130	100	100	GPS1MHAK	101289	5
5.5	13	-	169	100	100	GPS1MHAL	101290	5
7.5	16	-	208	50	38	GPS1MHAM	101291	5
10	20	-	260	50	38	GPS1MHAN	101292	5
11	25	-	325	50	38	GPS1MHAP	101293	5
15	32	-	416	50	38	GPS1MHAR	101294	5

(1) Select appropriate thermal overload relay for the starter. See chapter C pages C.62 - C.68.



## Magnetic protection

### GPS2M



### Standards/Approvals

IEC 60947-1, 60947-2, 60947-4-1  
 DIN VDE 0660T 100/101/102  
 UL508/CSA - UL508/cULus  
 Shipping approvals:



RINA



Bureau Veritas



Lloyd's Register  
 Germanischer Lloyd

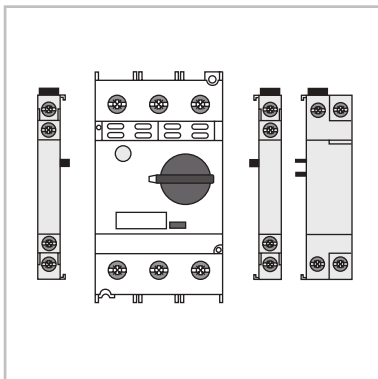


CE

### Characteristics

- Short-circuit protection for starters
- Rotary handle operator
- Magnetic protection
- Standard and high breaking capacity
  - $I_{cu} = 100kA \geq I_{cs} = 100\% I_{cu}$
  - $I_{cu} < 100kA \geq I_{cs} \text{ min. } 75\% I_{cu}$
- Clear identification of the operation state (ON-OFF-tripped)

### Auxiliaries



### Technical performances

Rated current $I_n$	(A) 10-63
Rated operational current $I_e$	(A) 10-63
Utilisation category	
IEC 60947-2 (circuit breaker)	A
Magnetic release $I_e \text{ max.}$	(A) x13
Mechanical/electrical endurance	50,000/25,000

#### Accessories

- Auxiliaries ● pg. B.16
- Busbar system ● pg. B.19

- Technical data ● pg. B.22
- Dimensions ● pg. B.28
- Fuseless starters ● pg. D.2
- Coordination tables ● pg. D.5

**GPS2M - Standard breaking capacity**



Rated power 3 phase motors at 400Vac Pn  (kW)	Rated current In  (A)	Thermal current setting range (1)  (A)	Instantaneous short-circuit release  (A)	Rated ultimate short-circuit breaking capacity at 400V Icu (kA)	Rated service short-circuit breaking capacity at 400V  Ics (kA)	Cat. no.	Ref. no.	Pack.
4	10	-	130	100	100	GPS2MSAK	101272	1
5.5	13	-	169	50	38	GPS2MSAL	107121	1
7.5	16	-	208	25	19	GPS2MSAM	101273	1
10	20	-	260	25	19	GPS2MSAN	101274	1
11	25	-	325	25	19	GPS2MSAP	101275	1
15	32	-	416	25	19	GPS2MSAR	101276	1
18.5	40	-	520	25	19	GPS2MSAS	101277	1
22	50	-	650	25	19	GPS2MSAT	101278	1
30	63	-	819	25	19	GPS2MSAU	101279	1

(1) Select appropriate thermal overload relay for the starter. See chapter C pages C.64 - C.68.

**GPS2M - High breaking capacity**

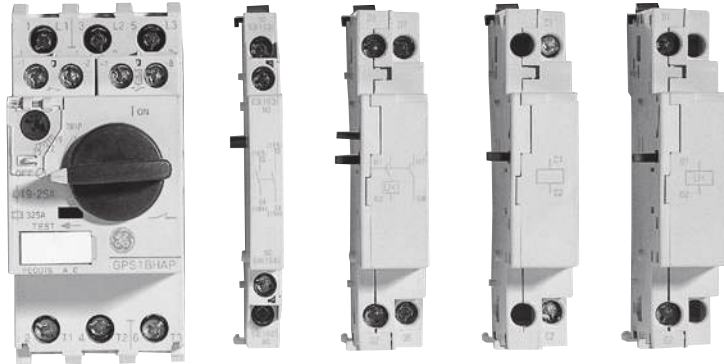
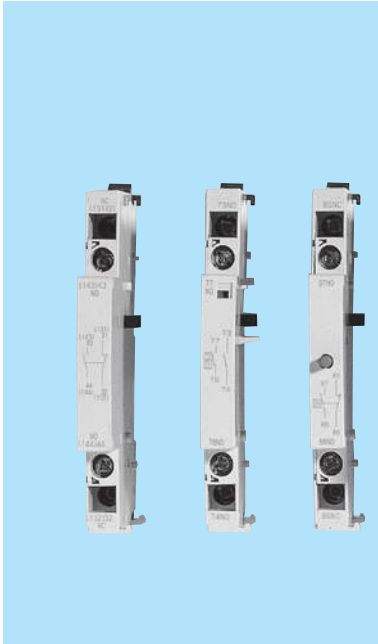


Rated power 3 phase motors at 400Vac Pn  (kW)	Rated current In  (A)	Thermal current setting range (1)  (A)	Instantaneous short-circuit release  (A)	Rated ultimate short-circuit breaking capacity at 400V Icu (kA)	Rated service short-circuit breaking capacity at 400V  Ics (kA)	Cat. no.	Ref. no.	Pack.
4	10	-	130	100	100	GPS2MHAK	101295	1
5.5	13	-	169	100	100	GPS2MHAL	107122	1
7.5	16	-	208	50	38	GPS2MHAM	101296	1
10	20	-	260	50	38	GPS2MHAN	101297	1
11	25	-	325	50	38	GPS2MHAP	101298	1
15	32	-	416	50	38	GPS2MHAR	101299	1
18.5	40	-	520	50	38	GPS2MHAS	101300	1
22	50	-	650	50	38	GPS2MHAT	101301	1
30	63	-	819	50	38	GPS2MHAU	101302	1

(1) Select appropriate thermal overload relay for the starter. See chapter C pages C.63 - C.68.



**Auxiliaries**



**Standards/Approvals**

IEC 60947-1, 60947-2, 60947-4-1  
 DIN VDE 0660T 100/101/102  
 UL508/CSA - UL508/cULus  
 Shipping approvals:



RINA



Bureau Veritas



Lloyd's Register  
 Germanischer Lloyd



cULus

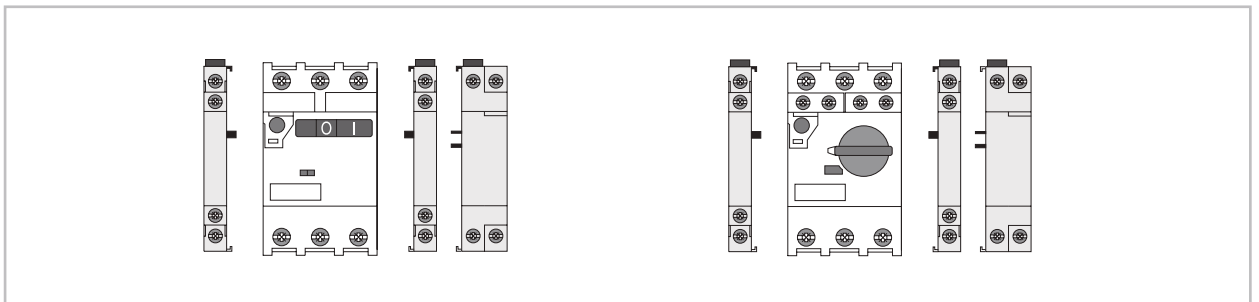


CE

**Product range**

- Auxiliary contacts (frontal & lateral)
- Alarm contact block
- Auxiliary and alarm contact block
- Short-circuit alarm contact block
- Shunt trip
- Undervoltage release
- Undervoltage release with 2NO early make contacts
- External handle operator
- Terminal protector
- Busbar system

**Auxiliaries**



**Technical performances**

- All auxiliaries can be mounted and changed easily, without any tools
- Both frames GPS1 and GPS2 uses same auxiliaries
- All terminals are capable for 2 cables (0.5mm<sup>2</sup> - 2.5mm<sup>2</sup>)
- Side auxiliary contacts are rated to A600, P300 duty
- Frontal auxiliary contacts are rated to B300, Q300 duty
- Minimum operational contact 5mA, 17Vdc
- All terminal screwhead are Pozidriv 2 and slotted combination

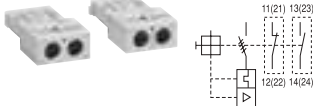
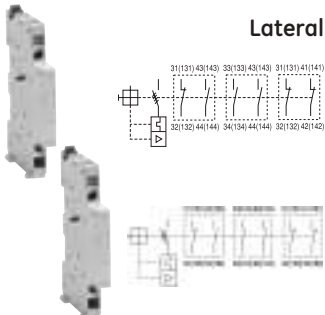
**Accessories**

- Auxiliaries ● pg. B.16
- Busbar system ● pg. B.19

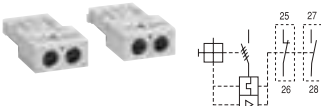
- Technical data ● pg. B.22
- Dimensions ● pg. B.28
- Fuseless starters ● pg. D.2
- Coordination tables ● pg. D.5



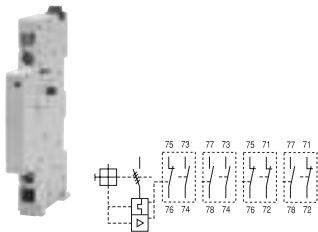
### Auxiliary contact blocks

	Description	For use with	Type	Cat. no.	Ref. no.	Pack.
<b>Frontal</b> 	Maximum 2 auxiliary contact blocks per manual motor starter	GPS1... and GPS2...	1 NO	<b>GPAC10FBA</b>	101303	10
		GPS1... and GPS2...	1 NC	<b>GPAC01FBA</b>	101304	10
<b>Lateral</b> 	Two contacts Side mounting on the <b>left</b>	GPS1... and GPS2...	1 NO + 1 NC	<b>GPAC11LLA</b>	101305	10
		GPS1... and GPS2...	2 NO	<b>GPAC20LLA</b>	101306	10
		GPS1... and GPS2...	2 NC	<b>GPAC02LLA</b>	101307	10
	Two contacts Side mounting on the <b>right</b>	GPS1... and GPS2...	1 NO + 1 NC	<b>GPAC11LRA</b>	101308	10
		GPS1... and GPS2...	2 NO	<b>GPAC20LRA</b>	101309	10
		GPS1... and GPS2...	2 NC	<b>GPAC02LRA</b>	101310	10


### Alarm contact block

	Description	For use with	Type	Cat. no.	Ref. no.	Pack.
	Frontal mounting on the <b>right</b>	GPS1... and GPS2...	1 NO	<b>GPAL10FRA</b>	101311	10
	Single contact	GPS1... and GPS2...	1 NC	<b>GPAL01FRA</b>	101312	10

### Auxiliary / alarm contact block

	Description	For use with	Type	Cat. no.	Ref. no.	Pack.
	Side mounting on the <b>left</b> (front alarm contact block can not be used at the same time)	GPS1... and GPS2...	1 NO(Alarm)+1 NO(Aux)	<b>GPAD1010LLA</b>	101313	10
		GPS1... and GPS2...	1 NO(Alarm)+1 NC(Aux)	<b>GPAD1001LLA</b>	101314	10
		GPS1... and GPS2...	1 NC(Alarm)+1 NO(Aux)	<b>GPAD0110LLA</b>	101315	10
	Two contacts	GPS1... and GPS2...	1 NC(Alarm)+1 NC(Aux)	<b>GPAD0101LLA</b>	101316	10

### Short-circuit alarm contact block

	Description	For use with	Type	Cat. no.	Ref. no.	Pack.
	Side mounting on the <b>left</b> Two contacts NO + NC Mechanical indication marking	GPS1... and GPS2...	1 NO + 1 NC	<b>GPAE11LLA</b>	101317	10

A

B

C

D

E

F

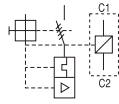
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H

I

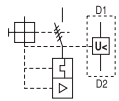
X

**Shunt trip device**



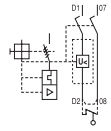
Description	For use with	Coil voltage	Cat. no.	Ref. no.	Pack.
Side mounting on the <b>right</b> Can not be used together with the undervoltage trip device	GPS1... and GPS2...	24V 50/60Hz	GPASLRAA1	101318	5
	GPS1... and GPS2...	48V 60Hz	GPASLRAAF	101319	5
	GPS1... and GPS2...	48V 50Hz / 60V 60Hz	GPASLRAAG	101320	5
	GPS1... and GPS2...	110/127V 50Hz / 120V 60Hz	GPASLRAAJ	101321	5
	GPS1... and GPS2...	208V 60Hz	GPASLRAAM	101322	5
	GPS1... and GPS2...	220/230V 50Hz / 240/260V 60Hz	GPASLRAAN	101323	5
	GPS1... and GPS2...	240V 50Hz / 277V 60Hz	GPASLRAAR	101324	5
	GPS1... and GPS2...	380/400V 50Hz	GPASLRAAU	101325	5
	GPS1... and GPS2...	415/440V 50Hz / 460/480V 60Hz	GPASLRAAW	101326	5
	GPS1... and GPS2...	500V 50Hz / 600V 60Hz	GPASLRAAY	101327	5
	GPS1... and GPS2...	24 to 60Vdc	GPASLRADD	101328	5
	GPS1... and GPS2...	110 to 240Vdc	GPASLRADJ	101329	5
	GPS1... and GPS2...	100V 50/60Hz	GPASLRAA11	101194	5

**Undervoltage trip device**



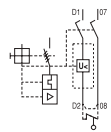
Description	For use with	Coil voltage	Cat. no.	Ref. no.	Pack.
Side mounting on the <b>right</b> Can not be used together with the shunt trip device	GPS1... and GPS2...	24V 50Hz	GPAULRAAD	101330	10
	GPS1... and GPS2...	24V 60Hz	GPAULRAAC	101331	10
	GPS1... and GPS2...	48V 50Hz	GPAULRAAG	101332	10
	GPS1... and GPS2...	48V 60Hz	GPAULRAAF	101333	10
	GPS1... and GPS2...	110/127V 50Hz / 120V 60Hz	GPAULRAAJ	101334	10
	GPS1... and GPS2...	208V 60Hz	GPAULRAAM	101335	10
	GPS1... and GPS2...	220/230V 50Hz / 240/260V 60Hz	GPAULRAAN	101336	10
	GPS1... and GPS2...	240V 50Hz / 277V 60Hz	GPAULRAAR	101337	10
	GPS1... and GPS2...	380/400V 50Hz	GPAULRAAU	101338	10
	GPS1... and GPS2...	415/440V 50Hz / 460/480V 60Hz	GPAULRAAW	101339	10
	GPS1... and GPS2...	500V 50Hz / 600V 60Hz	GPAULRAAY	101340	10
	GPS1... and GPS2...	100V 50/60Hz	GPAULRAA11	102625	10

**With 2NO early make auxiliary contacts**



Description	For use with	Coil voltage	Cat. no.	Ref. no.	Pack.
Side mounting on the <b>right</b> Can not be used together with the shunt trip device	GPS1*S...	24V 50Hz	GPAU20LTAAD	101341	10
	GPS1*S...	24V 60Hz	GPAU20LTAAC	101342	10
	GPS1*S...	48V 50Hz	GPAU20LTAAG	101343	10
	GPS1*S...	48V 60Hz	GPAU20LTAAF	101344	10
	GPS1*S...	110/127V 50Hz / 120V 60Hz	GPAU20LTAAJ	101345	10
	GPS1*S...	208V 60Hz	GPAU20LTAAM	101346	10
	GPS1*S...	220/230V 50Hz / 240/260V 60Hz	GPAU20LTAAN	101347	10
	GPS1*S...	240V 50Hz / 277V 60Hz	GPAU20LTAAR	101348	10
	GPS1*S...	380/400V 50Hz	GPAU20LTAAU	101349	10
	GPS1*S...	415/440V 50Hz / 460/480V 60Hz	GPAU20LTAAW	101350	10
	GPS1*S...	500V 50Hz / 600V 60Hz	GPAU20LTAAY	101351	10
	GPS1*S...	100V 50/60Hz	GPAU20LTA11	110360	10

**With 2NO early make auxiliary contacts**



Description	For use with	Coil voltage	Cat. no.	Ref. no.	Pack.
Side mounting on the <b>right</b> Can not be used together with the shunt trip device	GPS1*H and GPS2...	24V 50Hz	GPAU20LCAAD	101352	10
	GPS1*H and GPS2...	24V 60Hz	GPAU20LCAAC	101353	10
	GPS1*H and GPS2...	48V 50Hz	GPAU20LCAAG	101354	10
	GPS1*H and GPS2...	48V 60Hz	GPAU20LCAAF	101355	10
	GPS1*H and GPS2...	110/127V 50Hz / 120V 60Hz	GPAU20LCAAJ	101356	10
	GPS1*H and GPS2...	208V 60Hz	GPAU20LCAAM	101357	10
	GPS1*H and GPS2...	220/230V 50Hz / 240/260V 60Hz	GPAU20LCAAN	101358	10
	GPS1*H and GPS2...	240V 50Hz / 277V 60Hz	GPAU20LCAAR	101359	10
	GPS1*H and GPS2...	380/400V 50Hz	GPAU20LCAAU	101360	10
	GPS1*H and GPS2...	415/440V 50Hz / 460/480V 60Hz	GPAU20LCAAW	101361	10
	GPS1*H and GPS2...	500V 50Hz / 600V 60Hz	GPAU20LCAAY	101362	10
	GPS1*H and GPS2...	100V 50/60Hz	GPAU20LCA11	112185	10

**Terminal protector**




101509

107182


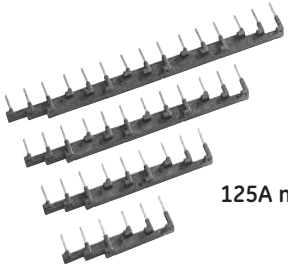
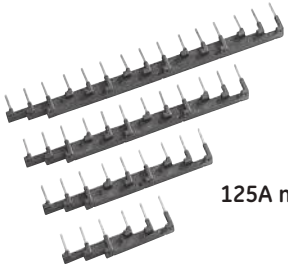
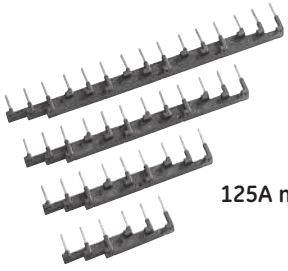
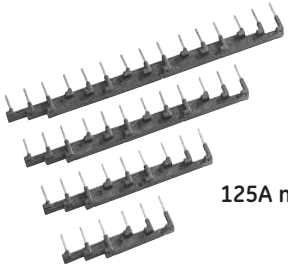
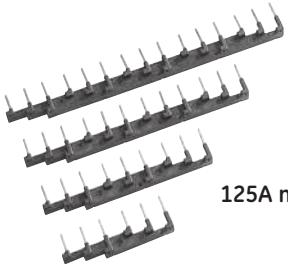
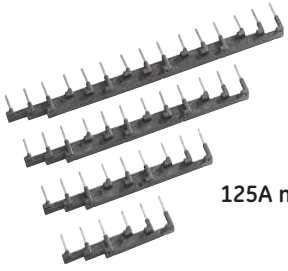


Description	For use with	Cat. no.	Ref. no.	Pack.
Snap-in tabs for screw mounting (set of 10)	GPS1*	GPAKS1A	101509	1
IP20 terminal covers	GPS2*	GPAPT2A	107182	50
DIN rail vibration clamps	GPS1* / GPS2*	GPVDA	101514	2
Panel vibration clamps	GPS1* / GPS2*	GPVPA	101515	2
Increases vibration resistance of GPS1* from 5G to 8G (5-150 Hz) in all directions. One clamp must be mounted on each side which increases total mounting width by 22 mm (0.87"). For vibration resistance of GPS2*, contact customers service.				



**External handle operator**

	Description	For use with	Type	Cat. no.	Ref. no.	Pack.
	Used for distance mounting on a panel Lockable with 1, 2 or 3 padlocks diameter 4 to 8 mm Two types: standard and emergency applications ON/OFF/TRIPPING position marking Protection degree: IP54 Shaft mounting depths: 139.8 - 289.8 mm for GPA1HAB, GPA1HAR 161 - 311.1 mm for GPA2HAB, GPA2HAR Package parts and quantities: 1 handle unit 1 shaft 1 shaft guide 1 latch (screws) 4 mounting screws	GPS1*H...	Standard (black)	<b>GPA1HAB</b>	101363	5
		GPS1*H ...	Emergency (red/yellow)	<b>GPA1HAR</b>	101364	5
		GPS2...	Standard (black)	<b>GPA2HAB</b>	101502	5
		GPS2 ...	Emergency (red/yellow)	<b>GPA2HAR</b>	101503	5

**Busbar system**

	Description	For use with	Connection	Cat. no.	Ref. no.	Pack.
 <p><b>3-phase feed-in terminals</b></p>	Main feeding terminal Upper connection	GPS1...	Terminal capacity: 25 mm <sup>2</sup> Pin	<b>GPB1FA</b>	107186	10
		GPS2...	Terminal capacity: 50 mm <sup>2</sup> Pin	<b>GPB2FA</b>	107187	10
		GPS1...	Terminal capacity: 25mm <sup>2</sup> Fork	<b>SFVB8</b>	254537	1
 <p><b>Main busbar 63A max.</b></p>	Modular spacing 45 mm	for 2 GPS1... + frontal auxiliaries	Pin	<b>GPB1B02A</b>	101390	5
		for 3 GPS1... + frontal auxiliaries	Pin	<b>GPB1B03A</b>	101391	5
		for 4 GPS1... + frontal auxiliaries	Pin	<b>GPB1B04A</b>	101392	5
		for 5 GPS1... + frontal auxiliaries	Pin	<b>GPB1B05A</b>	101393	5
 <p><b>125A max.</b></p>	Modular spacing 54 mm	for 2 GPS1... + 9mm lateral aux.	Pin	<b>GPB1B12A</b>	101394	5
		for 3 GPS1... + 9mm lateral aux.	Pin	<b>GPB1B13A</b>	101395	5
		for 4 GPS1... + 9mm lateral aux.	Pin	<b>GPB1B14A</b>	101396	5
		for 5 GPS1... + 9mm lateral aux.	Pin	<b>GPB1B15A</b>	101397	5
 <p><b>125A max.</b></p>	Modular spacing 63 mm	for 2 GPS1... + 18mm lateral aux. or 2 x 9mm lateral auxiliary	Fork	<b>GPB1B22A</b>	101398	10
		for 4 GPS1... + 18mm lateral aux. or 2 x 9mm lateral auxiliary	Fork	<b>GPB1B24A</b>	101399	10
 <p><b>125A max.</b></p>	Modular spacing 55 mm	for 2 GPS2... + frontal auxiliaries	Pin	<b>GPB2B02A</b>	101400	1
		for 3 GPS2... + frontal auxiliaries	Pin	<b>GPB2B03A</b>	101401	1
		for 4 GPS2... + frontal auxiliaries	Pin	<b>GPB2B04A</b>	101402	1
 <p><b>125A max.</b></p>	Modular spacing 64 mm	for 2 GPS2... + 9mm lateral aux.	Pin	<b>GPB2B12A</b>	101403	1
		for 3 GPS2... + 9mm lateral aux.	Pin	<b>GPB2B13A</b>	101404	1
		for 4 GPS2... + 9mm lateral aux.	Pin	<b>GPB2B14A</b>	101405	1
 <p><b>125A max.</b></p>	Modular spacing 73 mm	for 2 GPS2... + 18mm lateral aux. or 2 x 9mm lateral auxiliary	Pin	<b>GPB2B22A</b>	101406	1
		for 4 GPS2... + 18mm lateral aux. or 2 x 9mm lateral auxiliary	Pin	<b>GPB2B24A</b>	101407	1
 <p><b>Busbar cover</b></p>	Touch guard for non used space	GPS1...	Pin	<b>GPB1GA</b>	101408	10
		GPS1...	Fork	<b>GPB1GAF</b>	101511	1
		GPS2...	Pin	<b>GPB2GA</b>	101409	10
 <p><b>Terminal cover type E</b></p>	For compliance UL508E	GPS1...H	-	<b>GPAPT1E</b>	107315	1
		When using a Surion GPS1*BH as a manual self-protected combination motor starter (Type E). Cover enables compliance with NEC Section 430-52, 1" over air creepage and over surface clearance, phase to phase on the line side.				

A

B

C

D

E

F

G

H

I

X



## Enclosures for manual motor starters




### Product range

- Surface and flush mounting plastic enclosures (IP41 and IP55)
- Neutral and ground connection
- Three different types of push-buttons
  - Mushroom with impulse function
  - Mushroom self latching, unlatching by turning
  - Mushroom self latching, unlatching with a key
- Indicator lamps
- Padlocking device for three padlocks
- Conversion kit IP41 to IP55


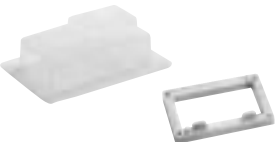
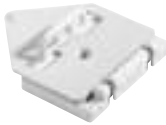



### Technical performances

- Used with GPS1\*S manual motor starters
- Protection degree IP41 or IP55
- Possibility to mount frontal/lateral auxiliary contact blocks with an undervoltage release (without or with 2NO early make auxiliary contacts) inside the enclosures

**Enclosures for only GPS 1\*S**

	Description	Cat. no.	Ref. no.	Pack.
 <b>Plastic enclosures</b>	Surface mounting IP41	GPE41A	101365	1
	Surface mounting IP55	GPE55A	101366	1
	Flush mounting IP41	GPEF41A	101367	1
	Flush mounting IP55	GPEF55A	101368	1

**Mounting accessories for all enclosures**

	Description	Cat. no.	Ref. no.	Pack.
 <b>Neutral connection</b>	To be used inside the enclosure	GPENA	101369	1
 <b>Adaptor set</b>	For enclosures used with GPS1*S and undervoltage release with 2 NO auxiliary contacts	GPEUTA	107097	1
 <b>Padlocking device</b>	For three padlocks with max. 8 mm shackle diameter Not to be used with emergency stop handle	GPEPA	101370	1
 <b>Conversion kit IP41 to IP55</b>		GPECA	101371	1
 <b>Mushroom push-button</b>	Mushroom spring return	GPEPMA	101372	1
	Mushroom self latching, turn to release	GPEPLA	101373	1
	Mushroom self latching, release with a key	GPEPKA	101374	1
 <b>Indicator lamps</b>	Green 110/120V	GPELGAJ	101375	1
	Green 220/240V	GPELGAN	101376	1
	Green 380/440V	GPELGAU	101377	1
	Green 480/500V	GPELGAX	101378	1
	Green 600V	GPELGAY	101379	1
	Red 110/120V	GPELRAJ	101380	1
	Red 220/240V	GPELRAN	101381	1
	Red 380/440V	GPELRAU	101382	1
	Red 480/500V	GPELRAX	101383	1
	Red 600V	GPELRAY	101384	1
	Transparent 110/120V	GPELCAJ	101385	1
	Transparent 220/240V	GPELCAN	101386	1
	Transparent 380/440V	GPELCAU	101387	1
	Transparent 480/500V	GPELCAX	101388	1
Transparent 600V	GPELCAY	101389	1	

A

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Technical data

General data

Frame size	GPS1	GPS2
Rated insulation voltage U <sub>i</sub>	690V	1000V
Rated operating voltage U <sub>e</sub>	690V ac	690V ac
Rated impulse withstand strength U <sub>imp</sub>	6kV	8kV
Rated frequency	50/60Hz	50/60Hz
Total power loss P (W)	0.16 to 25A 7W 32A 8.5W	up to 32A 11W 40A to 50A 15W 63A 17W
Utilisation category:		
IEC 947-2 (Circuit breaker)	Cat. A	Cat. A
IEC 947-4-1 (Motor starter)	AC3	AC3
Mechanical operational performance	100,000 (70,000 for 32A)	50,000
Electrical operational performance	100,000 (70,000 for 32A)	25,000
Max. operations per hour (motor start-up)	25	25
Ambient conditions:		
Storage temperature	-40°C to +80°C	-40°C to +80°C
Operation temperature	-25°C to +60°C	-25°C to +60°C
Temperature compensation	-20°C to +60°C	-20°C to +60°C
Ambient temperature compensation	yes	yes
Operational altitude	up to 2000m	up to 2000m
Shock resistance (IEC 68)	30g (width 20ms)	30g (width 20ms)
Vibration resistance	8g (5 to 150Hz)	8g (5 to 150Hz)
Shock-hazard prot. (acc. DIN VDE 0106)	fingerproof	fingerproof
Protection degree (acc. to IEC529)	IP20	IP10 (IP20 with acc. GPAPT2A)
Rated current I <sub>e</sub>	up to 32A	up to 63A
Overload protection	IEC 947-4-1	IEC 947-4-1
Phase failure protection	yes	yes
Tripping class	10	10
Magnetic release (factory set)	13 x I <sub>emax</sub>	13 x I <sub>emax</sub>
Test trip button	yes	yes
Standards & Approvals		
IEC 947-1 / -2 / -4-1	yes	yes
DIN VDE 0660T 100 / 101 / 102	yes	yes
UL508	yes	yes
UL508 type E	Only GPS1*H	yes
CE	yes	yes
cULus	yes	yes
D / S / N / Fi	In process	-
Shipping approvals	yes	yes

Mounting data

Terminal capacity:		
Solid or stranded without end sleeve	1 x 1...10 mm <sup>2</sup> 2 x 1...6 mm <sup>2</sup>	1 or 2 x 1...25 mm <sup>2</sup>
Stranded with end sleeve	1 or 2 x 1...6 mm <sup>2</sup>	1 x 1...25 mm <sup>2</sup> / 2 x 1...16 mm <sup>2</sup>
AWG	1 x 18...8 / 2 x 18...10	1 x 18...2 / 2 x 18...4
Operating mechanism lockable in OFF position diameter (mm)	3.5 to 4.5	3.5 to 4.5
Terminal type	screw	box
Tightening torque	2 Nm / 18Lb.in	5 Nm / 45 Lb.in
Screwdriver	Pz2 / slotted combination	Pz2 / slotted combination
Mounting:		
DIN-rail	yes	yes
Screws	no	yes
Operating position:		
turning to the front	30°	30°
turning to the back	90°	90°
turning to both sides	180°	180°
Handle operation	Rocker level / Rotary	Rotary
Dimensions		
width (mm)	45	55
height (mm)	90	120
depth (mm)	(GPS1*S) 75 / 92.5 (GPS1*H)	107.5



Ultimate short-circuit breaking capacity (Icu) in kA

		For ranges GPS1BSA* / GPS1MSA*																	
Rated current (A)		A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U
		1.6	0.25	0.4	0.63	1	1.6	2.5	4	6.3	10	13	16	20	25	32	40	50	63
220/230V		100	100	100	100	100	100	100	100	100	100	100	100	50	50	50	-	-	-
400/415V		100	100	100	100	100	100	100	100	100	100	50	25	25	25	25	-	-	-
440V		100	100	100	100	100	100	100	100	50	15	10	10	10	10	10	-	-	-
500/525V		100	100	100	100	100	100	100	50	10	6	6	6	6	6	6	-	-	-
600V		100	100	100	100	100	3	3	3	3	3	3	3	3	3	3	-	-	-
690V		100	100	100	100	100	3	3	3	3	3	3	3	3	3	3	-	-	-
		For ranges GPS1BHA* / GPS1MHA*																	
220/230V		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	-	-	-
400/415V		100	100	100	100	100	100	100	100	100	100	50	50	50	50	50	-	-	-
440V		100	100	100	100	100	100	100	100	50	50	35	35	35	35	-	-	-	
500/525V		100	100	100	100	100	100	100	100	50	42	10	10	10	10	-	-	-	
600V		100	100	100	100	100	8	8	6	6	6	4	4	4	4	-	-	-	
690V		100	100	100	100	100	8	8	6	6	6	4	4	4	4	-	-	-	
		For ranges GPS2BSA* / GPS2MSA*																	
220/230V		-	-	-	-	-	-	-	-	-	100	100	100	50	50	50	50	50	50
400/415V		-	-	-	-	-	-	-	-	-	100	50	25	25	25	25	25	25	25
440V		-	-	-	-	-	-	-	-	-	15	10	10	10	10	10	10	10	10
500/525V		-	-	-	-	-	-	-	-	-	10	6	6	6	6	6	5	5	5
600V		-	-	-	-	-	-	-	-	-	4	4	4	4	4	4	4	4	4
690V		-	-	-	-	-	-	-	-	-	4	4	4	4	4	4	4	4	4
		For ranges GPS2BHA* / GPS2MHA*																	
220/230V		-	-	-	-	-	-	-	-	-	100	100	100	100	100	100	100	100	100
400/415V		-	-	-	-	-	-	-	-	-	100	100	50	50	50	50	50	50	50
440V		-	-	-	-	-	-	-	-	-	50	50	50	50	35	35	35	35	35
500/525V		-	-	-	-	-	-	-	-	-	50	42	12	12	12	10	10	10	10
600V		-	-	-	-	-	-	-	-	-	6	6	5	5	5	5	5	5	5
690V		-	-	-	-	-	-	-	-	-	6	6	5	5	5	5	5	5	5

Short-circuit proof with an Icu = 100kA or 50kA

Rated service short-circuit breaking capacity (Ics) in kA

		For ranges GPS1BSA* / GPS1MSA*																	
Rated current (A)		A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U
		1.6	0.25	0.4	0.63	1	1.6	2.5	4	6.3	10	13	16	20	25	32	40	50	63
220/230V		100	100	100	100	100	100	100	100	100	100	100	100	38	38	38	-	-	-
400/415V		100	100	100	100	100	100	100	100	100	100	38	19	19	19	19	-	-	-
440V		100	100	100	100	100	100	100	100	38	11	8	8	8	8	8	-	-	-
500/525V		100	100	100	100	100	100	100	100	38	8	5	5	5	5	5	-	-	-
600V		100	100	100	100	100	3	3	3	3	3	3	3	3	3	3	-	-	-
690V		100	100	100	100	100	3	3	3	3	3	3	3	3	3	3	-	-	-
		For ranges GPS1BHA* / GPS1MHA*																	
220/230V		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	-	-	-
400/415V		100	100	100	100	100	100	100	100	100	100	100	38	38	38	38	-	-	-
440V		100	100	100	100	100	100	100	100	100	38	38	25	25	25	25	-	-	-
500/525V		100	100	100	100	100	100	100	100	100	38	32	8	8	8	8	-	-	-
600V		100	100	100	100	100	6	6	5	5	5	3	3	3	3	3	-	-	-
690V		100	100	100	100	100	6	6	5	5	5	3	3	3	3	3	-	-	-
		For ranges GPS2BSA* / GPS2MSA*																	
220/230V		-	-	-	-	-	-	-	-	-	100	100	100	38	38	38	38	38	38
400/415V		-	-	-	-	-	-	-	-	-	100	32	19	19	19	19	19	19	19
440V		-	-	-	-	-	-	-	-	-	12	8	8	8	8	8	8	8	8
500/525V		-	-	-	-	-	-	-	-	-	8	5	5	5	5	5	4	4	4
600V		-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3
690V		-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3
		For ranges GPS2BHA* / GPS2MHA*																	
220/230V		-	-	-	-	-	-	-	-	-	100	100	100	100	100	100	100	100	100
400/415V		-	-	-	-	-	-	-	-	-	100	100	38	38	38	38	38	38	38
440V		-	-	-	-	-	-	-	-	-	38	38	38	38	25	25	25	25	25
500/525V		-	-	-	-	-	-	-	-	-	38	32	9	9	9	8	8	8	8
600V		-	-	-	-	-	-	-	-	-	5	5	4	4	4	4	4	4	4
690V		-	-	-	-	-	-	-	-	-	5	5	4	4	4	4	4	4	4

Back-up fuses are necessary in case of possibility of a short-circuit current higher than 100kA or 50kA at the installation point of the device (on request)

Ics = 100%Icu when Icu = 100kA

Ics = 75%Icu when Icu < 100kA





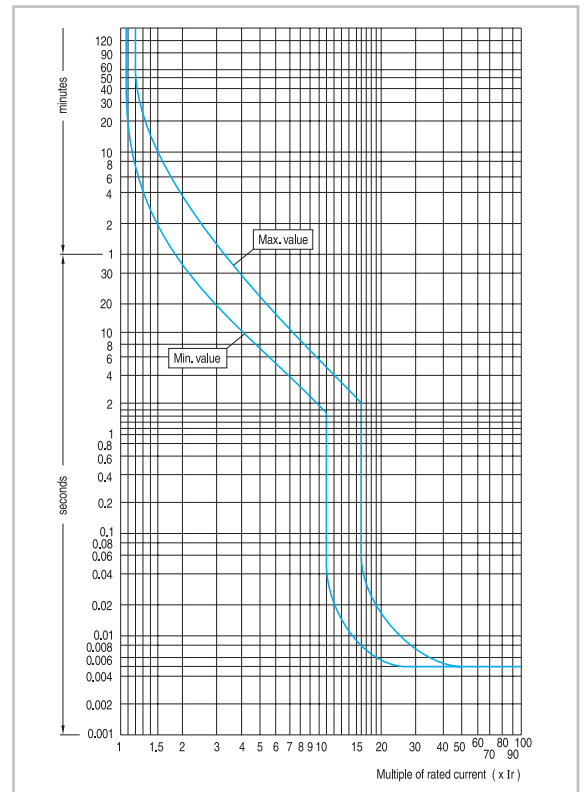
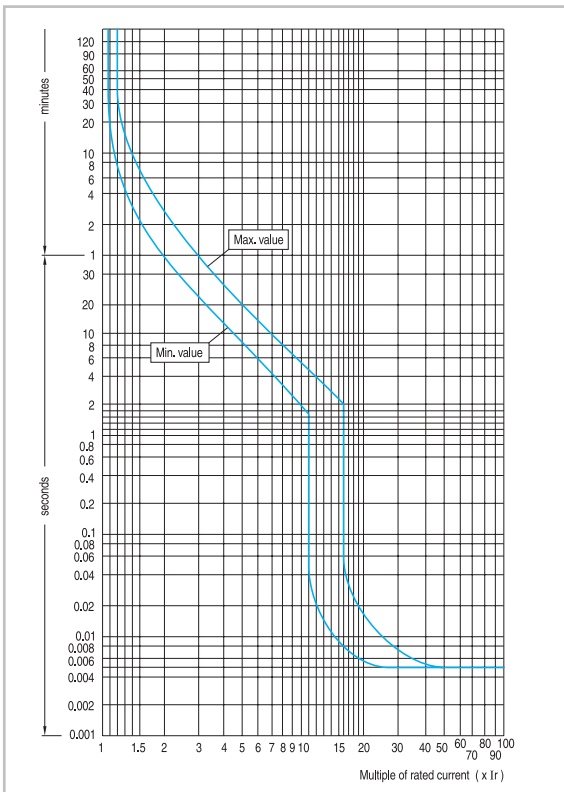
Back-up gl/gG fuses only if  $I_{cs} > I_{cu}$  (kA)

		For ranges GPS1BSA* / GPS1MSA*																	
gl/gG fuses (A)		A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U
		1.6	0.25	0.4	0.63	1	1.6	2.5	4	6.3	10	13	16	20	25	32	40	50	63
230V	#	#	#	#	#	#	#	#	#	#	#	#	#	100	100	100	-	-	-
400V	#	#	#	#	#	#	#	#	#	#	#	80	100	100	100	100	-	-	-
440V	#	#	#	#	#	#	#	#	#	50	63	63	80	80	80	80	-	-	-
500V	#	#	#	#	#	#	#	#	#	50	50	63	63	63	80	80	-	-	-
600V	#	#	#	#	#	#	#	20	32	40	50	63	63	63	80	80	-	-	-
690V	#	#	#	#	#	#	#	20	32	40	50	50	63	63	63	63	-	-	-
		For ranges GPS1BHA* / GPS1MHA*																	
230V	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	-	-	-
400V	#	#	#	#	#	#	#	#	#	#	#	#	100	125	125	125	-	-	-
440V	#	#	#	#	#	#	#	#	#	#	63	63	80	80	100	100	-	-	-
500V	#	#	#	#	#	#	#	#	#	50	63	80	80	80	80	80	-	-	-
600V	#	#	#	#	#	#	#	25	40	50	50	63	63	63	80	80	-	-	-
690V	#	#	#	#	#	#	#	25	40	50	50	63	63	63	63	63	-	-	-
		For ranges GPS2BSA* / GPS2MSA*																	
230V	-	-	-	-	-	-	-	-	-	-	#	#	#	125	125	125	125	125	160
400V	-	-	-	-	-	-	-	-	-	-	#	80	100	125	125	125	125	125	160
440V	-	-	-	-	-	-	-	-	-	-	63	63	80	80	100	100	125	125	125
500V	-	-	-	-	-	-	-	-	-	-	63	63	80	80	80	80	100	100	125
600V	-	-	-	-	-	-	-	-	-	-	63	63	63	63	80	80	100	100	100
690V	-	-	-	-	-	-	-	-	-	-	63	63	63	63	63	63	80	80	100
		For ranges GPS2BHA* / GPS2MHA*																	
230V	-	-	-	-	-	-	-	-	-	-	#	#	#	#	#	#	#	#	#
400V	-	-	-	-	-	-	-	-	-	-	#	#	100	125	125	125	125	125	160
440V	-	-	-	-	-	-	-	-	-	-	63	63	80	80	100	100	125	125	125
500V	-	-	-	-	-	-	-	-	-	-	63	63	80	80	80	80	100	100	125
600V	-	-	-	-	-	-	-	-	-	-	80	63	63	63	80	80	100	100	100
690V	-	-	-	-	-	-	-	-	-	-	80	63	63	63	63	63	63	80	100

Back-up gl/gG fuses only if  $I_{cs} > I_{cu}$  (kA)

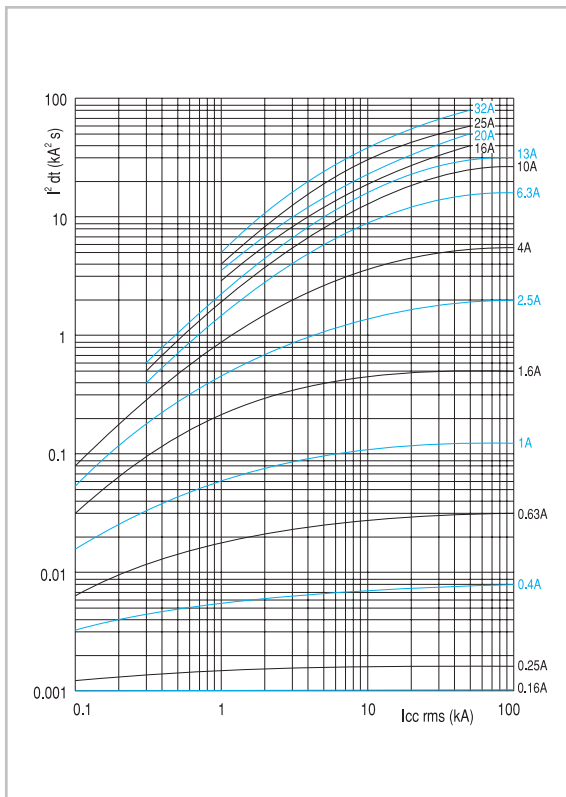
Manual motor starter: GPS1...

Manual motor starter: GPS2...

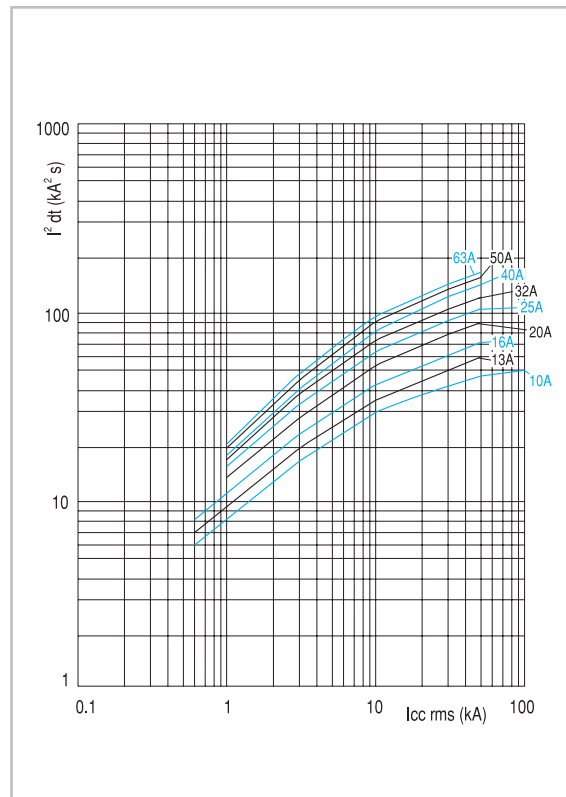


**Specific let-through energy at  $U_e = 400/415\text{ V}$**

Manual motor starter: GPS1...

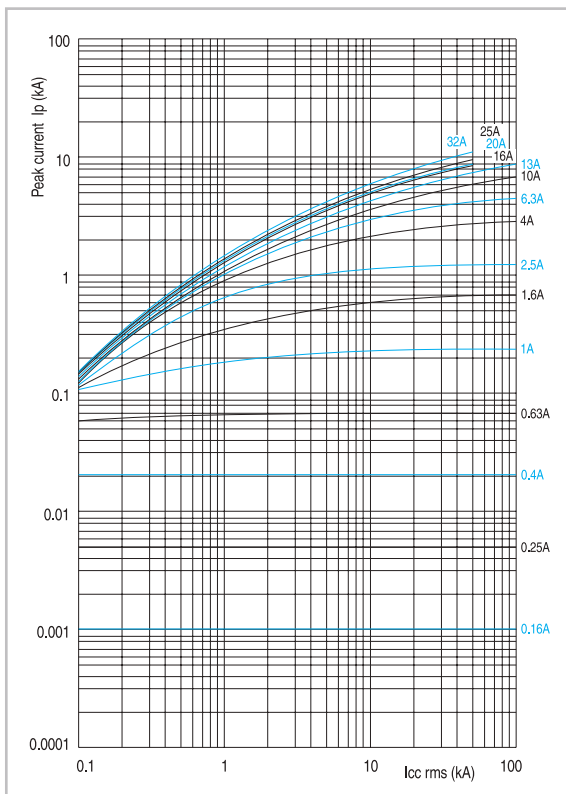


Manual motor starter: GPS2...

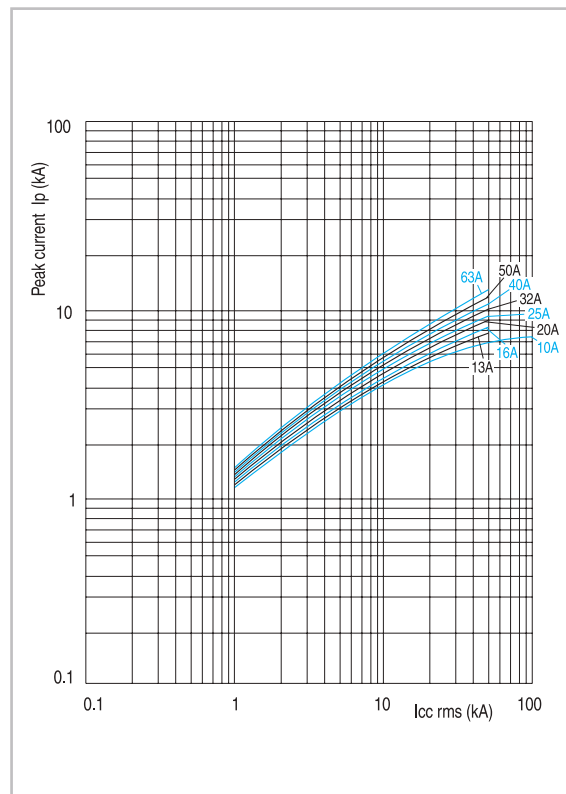


**Peak current limitation at  $U_e = 400/415\text{ V}$**

Manual motor starter: GPS1...



Manual motor starter: GPS2...



Manual motor starter

A

B

C

D

E

F

G

H

I

X



Mounting possibilities of the auxiliaries



Wiring diagram	Type	Description
<b>Frontal auxiliaries</b>		
	Auxiliary contact block	1NO or 1NC
	Alarm contact block	1NO or 1NC
<b>Lateral auxiliaries</b>		
	Auxiliary contact block	2NO 1NO + 1NC 2NC
	Auxiliary/alarm contact block	1NO (alarm) + 1NO (auxiliary) 1NO (alarm) + 1NC (auxiliary) 1NC (alarm) + 1NO (auxiliary) 1NC (alarm) + 1NC (auxiliary)
	Short-circuit alarm contact block	1NO + 1NC
	Shunt trip	
	Undervoltage trip	
	Undervoltage trip with 2NO early make auxiliary contacts	

Shunt trip, undervoltage trip and undervoltage with 2NO contacts can be mounted together with any frontal block or left lateral block with above mentioned restrictions

Auxiliaries

Catalogue reference	GPAC*F..	GPAC*L..	GPAL..	GPAD..	GPAE..
	Aux. frontal block	Aux. lateral block	Alarm frontal block	Alarm/aux. lateral block	Short-circuit alarm block
Cont. cap. contacts class (UL508)	B300 / Q300	A600 / P300	B300 / Q300	A600 / P300	A600 / P300
Back-up fuses gG, gl	6A	10A	6A	10A	10A
<b>Utilization category AC-15</b>					
Rated operating voltage Ue (Vac)	48 125 230	48 125 230 400 500 690	48 125 230	48 125 230 400 500 690	48 125 230 400 500 690
Rated operational current (A)	5 3 1.5	6 4 4 2.2 1.5 0.6	5 3 1.5	6 4 4 2.2 1.5 0.6	6 4 4 2.2 1.5 0.6
<b>Utilization category DC-13</b>					
Rated operating voltage Ue (Vdc)	48 110 220	48 110 220	48 110 220	48 110 220	48 110 220
Rated operational current (A)	1.38 0.55 0.27	5 1.3 0.5	1.38 0.55 0.27	5 1.3 0.5	5 1.3 0.5
<b>Mounting data</b>					
Mounting side	Front	Left or right	Frontal right	Left	Left
Terminals capacity: Solid or stranded without end sleeve	2x0.5...2.5 mm <sup>2</sup>	2x0.5...2.5 mm <sup>2</sup>	2x0.5...2.5 mm <sup>2</sup>	2x0.5...2.5 mm <sup>2</sup>	2x0.5...2.5 mm <sup>2</sup>
AWG	2x18...14	2x18...14	2x18...14	2x18...14	2x18...14
Terminal type	screw	screw	screw	screw	screw
Tightening torque	0.8Nm	0.8Nm	0.8Nm	0.8Nm	0.8Nm
Screwdriver	Pz2/Slotted	Pz2/Slotted	Pz2/Slotted	Pz2/Slotted	Pz2/Slotted
Dimensions width (mm)	Maintain same width	Increase width 9 mm	Maintain same width	Increase width 9 mm	Increase width 9 mm

Detailed dimensions see page B.29

Auxiliaries

Catalogue reference	GPAU	GPAS
	Undervoltage trip	Shunt trip
Power consumption:		
Pick-up (VA/W)	21/12	21/12
Hold (VA/W)	8/1.2	-
Operating voltage		
Tripping (V)	0.35Ve-0.7Ve	0.7Ve-1.1Ve
Pick-up (V)	0.85Ve-1.1Ve	-
Max. operation supply (ms)	-	5(DCI)
Rated operating voltage Ue	24V 50Hz 24V 60Hz 48V 50Hz 48V 60Hz 110/127V 50Hz / 120V 60Hz 208V 60Hz 220/230V 50Hz / 240/260V 60Hz 240V 50Hz / 277V 60Hz 380/400V 50Hz 415/440V 50Hz / 460/480V 60Hz 500V 50Hz / 600V 60Hz	24V 50/60Hz 48V 60Hz 48V 50Hz / 60V 60Hz 110/127V 50Hz / 120V 60Hz 208V 60Hz 220/230V 50Hz / 240/260V 60Hz 240V 50Hz / 277V 60Hz 380/400V 50Hz 415/440V 50Hz / 460/480V 60Hz 500V 50Hz / 600V 60Hz 24 to 60Vdc 110 to 240Vdc
Contacts class (UL508)	-	-
Back-up fuses (gG,gl)	10A	10A
<b>Mounting data</b>		
Mounting side	Right	Right
Terminals capacity: Solid or stranded without end sleeve	2x0.5...2.5 mm <sup>2</sup>	2x0.5...2.5 mm <sup>2</sup>
AWG	2x18...14	2x18...14
Terminal type	Screw	Screw
Tightening torque	0.8Nm	0.8Nm
Screwdriver	Pz2/Slotted	Pz2/Slotted
Dimensions width (mm)	Increase width 18 mm	Increase width 18 mm

A

B

C

D

E

F

G

H

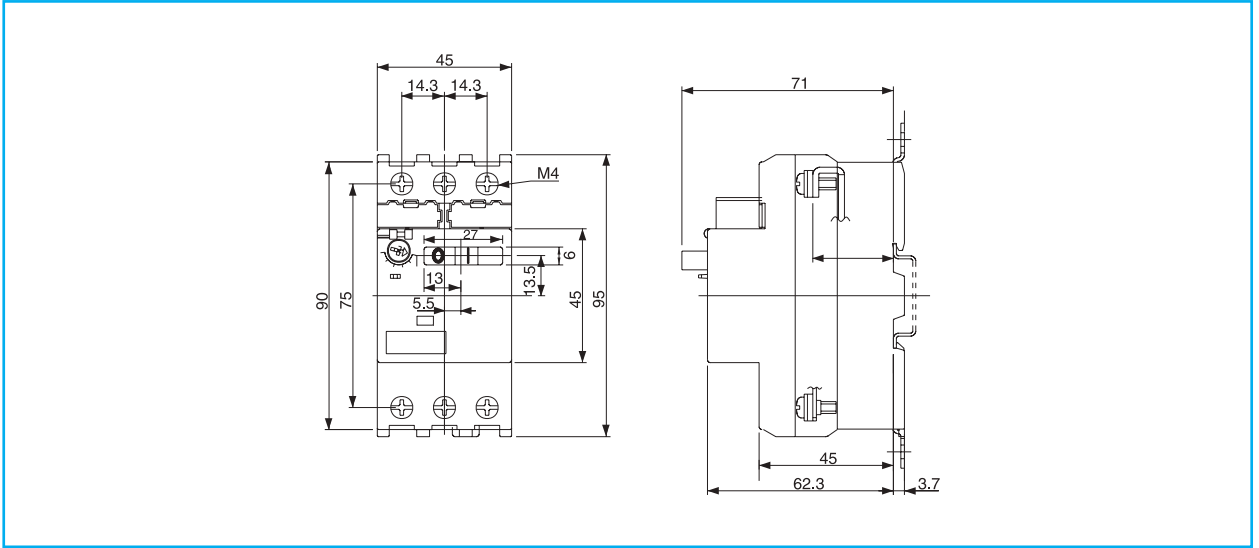
I

X

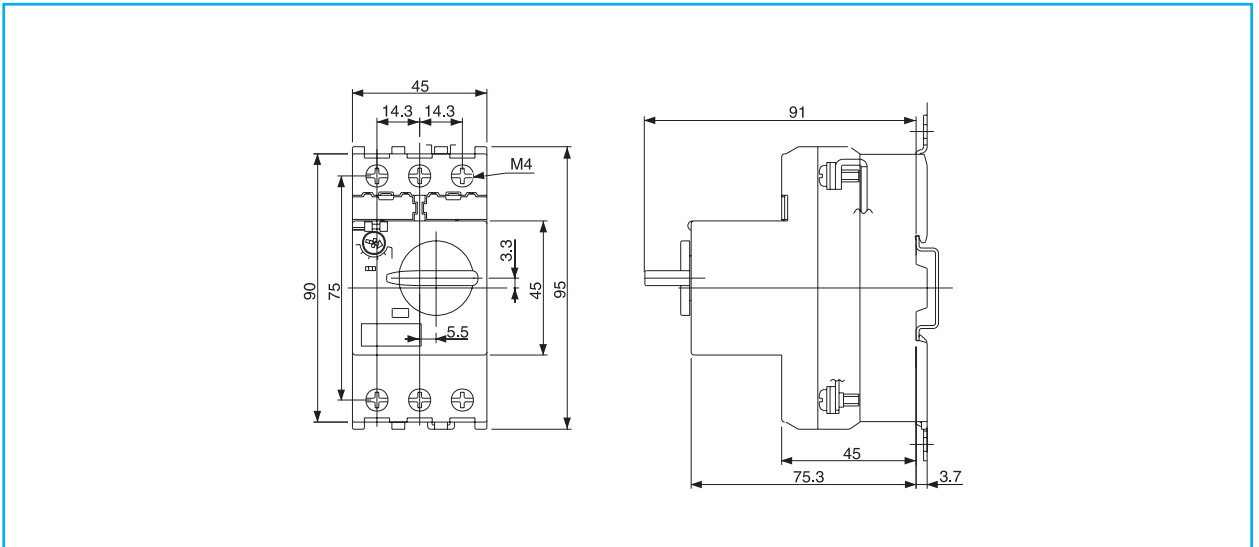


**Dimensional drawings**

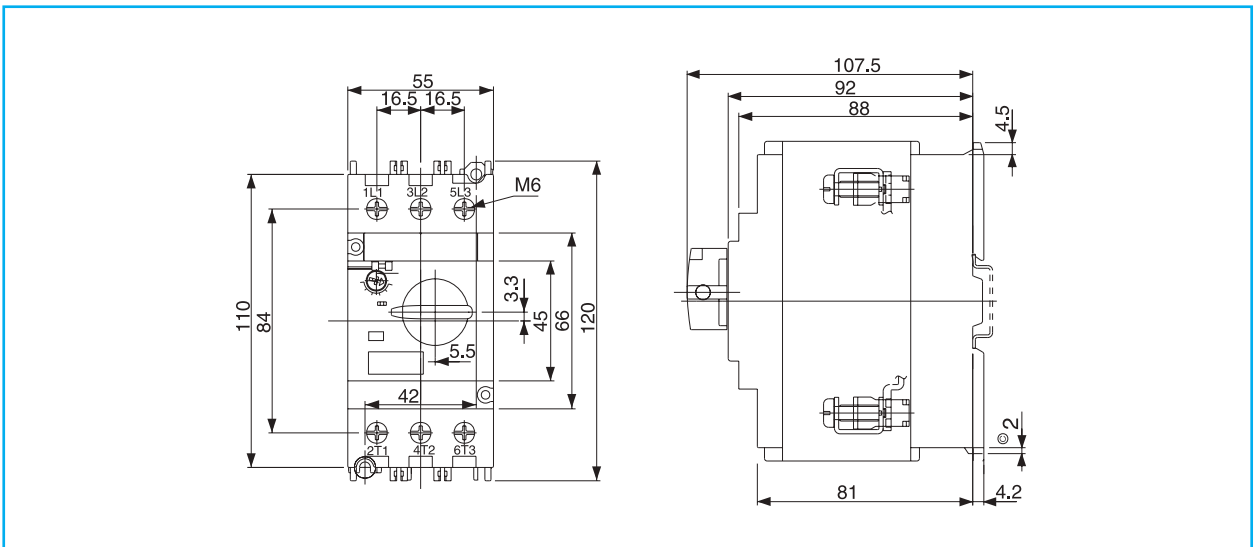
**Manual Motor Starter - GPS1 rocker**



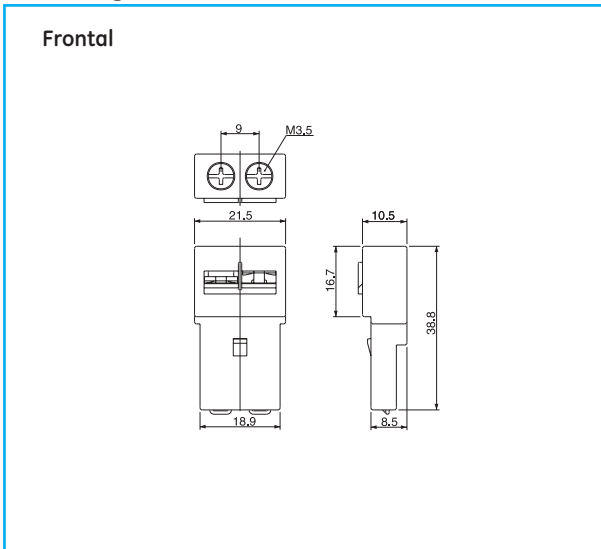
**Manual Motor Starter - GPS1 rotary**



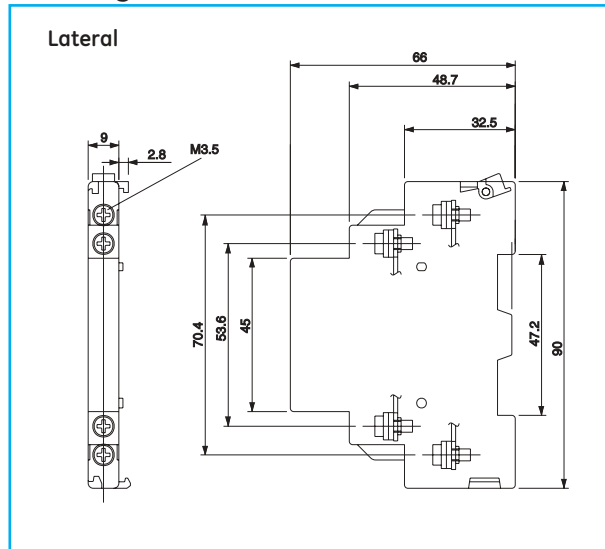
**Manual Motor Starter - GPS2**



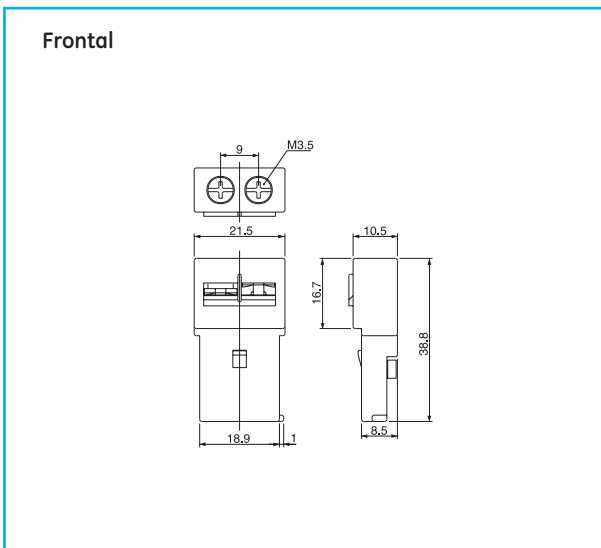
**Auxiliary contact blocks**



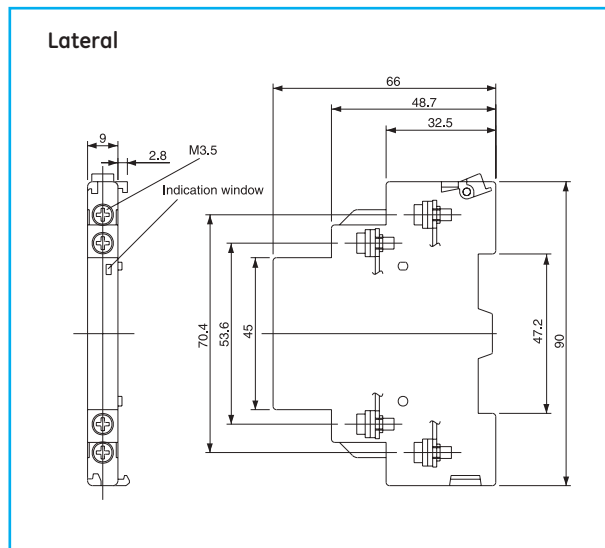
**Auxiliary contact blocks**



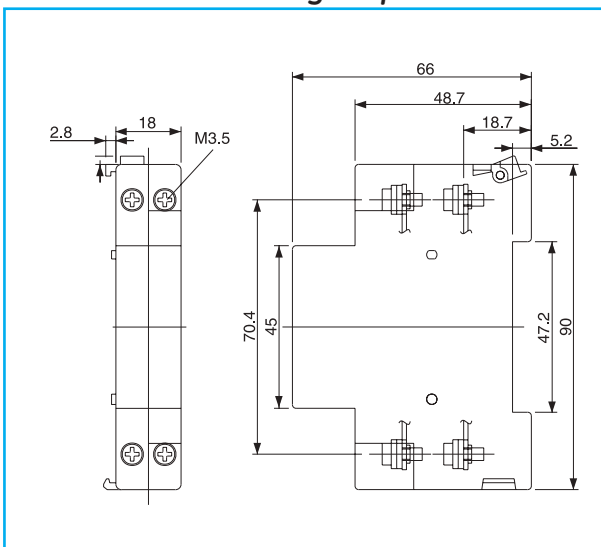
**Alarm contact blocks**



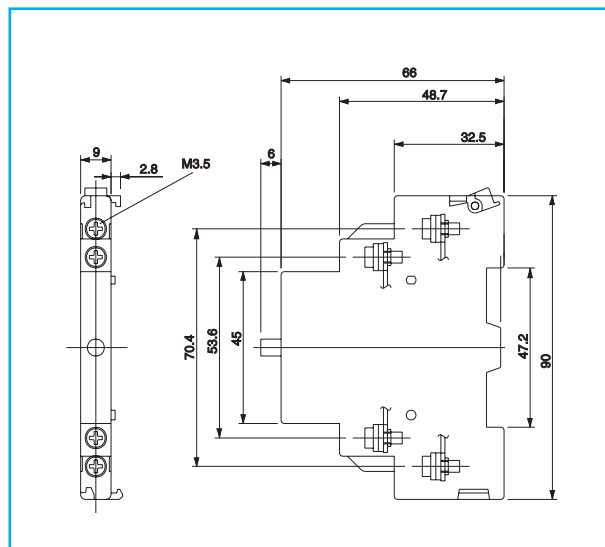
**Alarm contact blocks**



**Shunt and undervoltage trip devices**

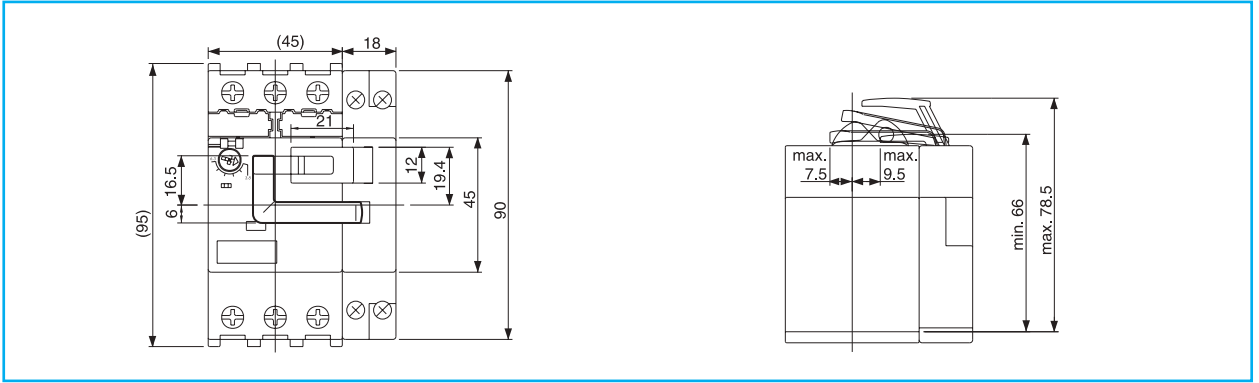


**Short-circuit contact block**

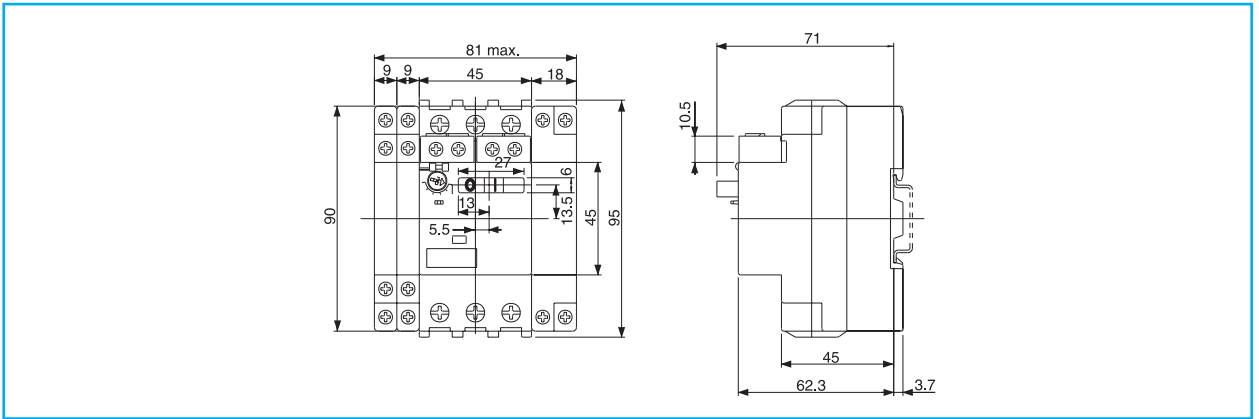


**Dimensional drawings**

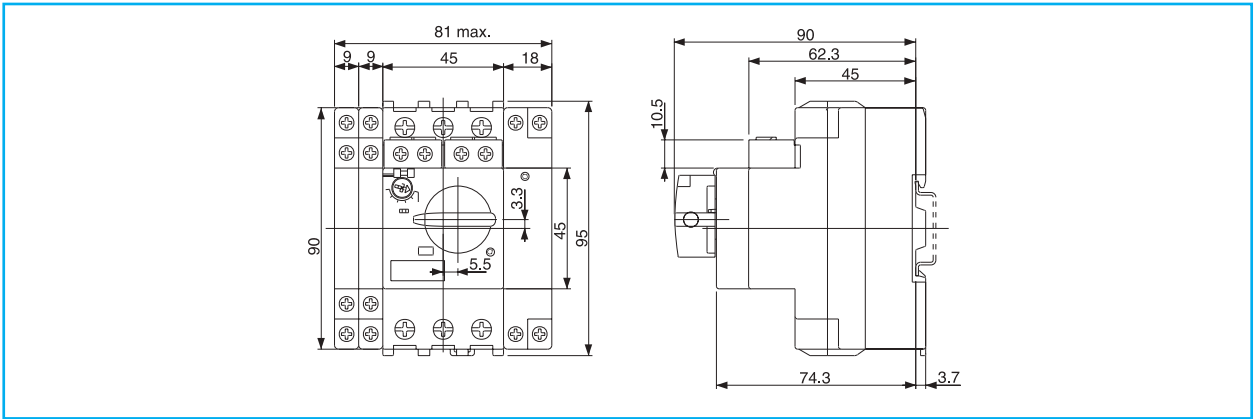
**GPS1 rocker + Undervoltage trip device with 2NO contacts**



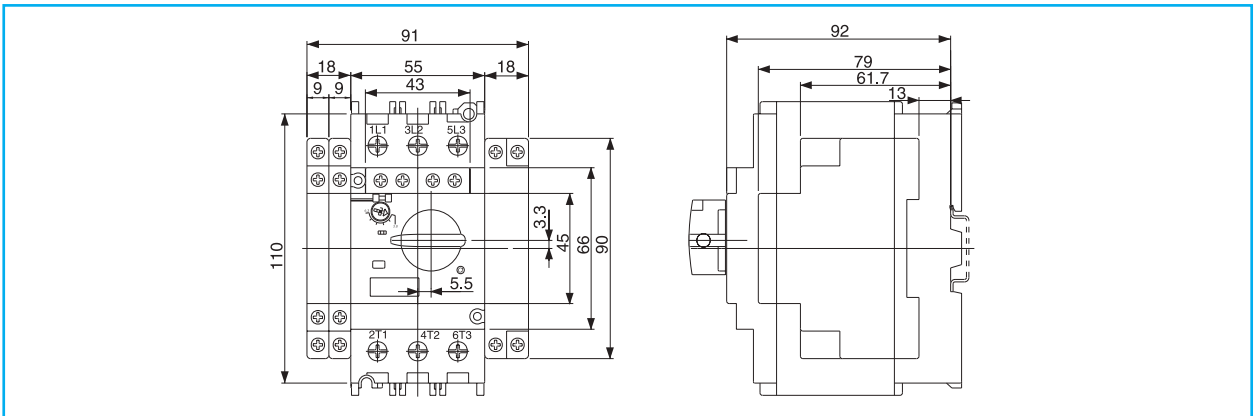
**GPS1 rocker + Auxiliaries**



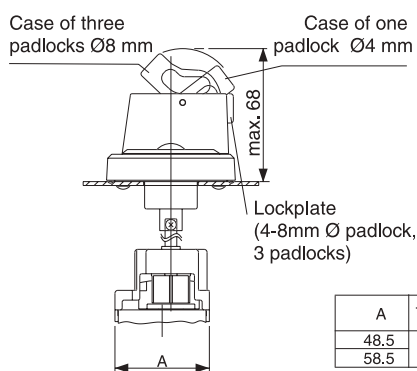
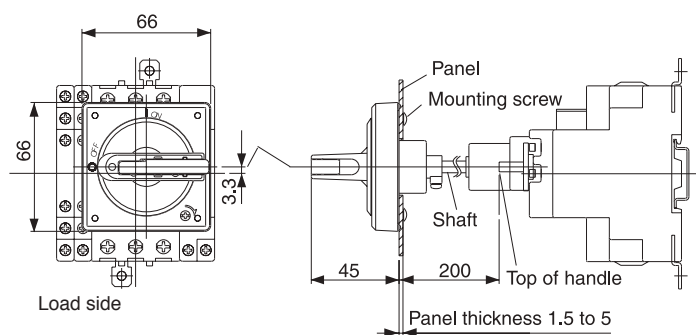
**GPS1 rotary + Auxiliaries**



**GPS2 + Auxiliaries**



External handle operator



A	Type	Applicable frame
48.5	Standard / emergency stop	GPS1*H
58.5		GPS2

A

**B**

C

D

E

F

G

H

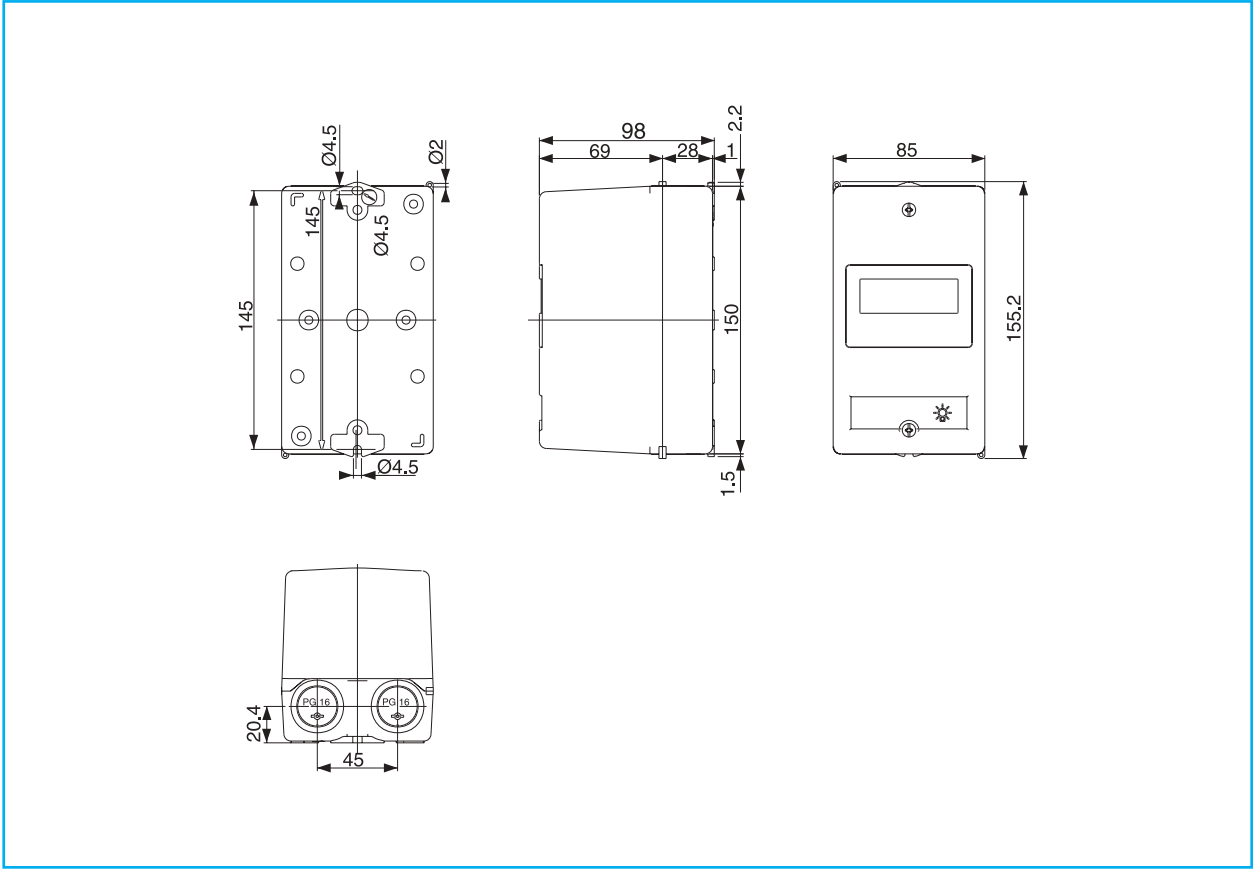
I

X

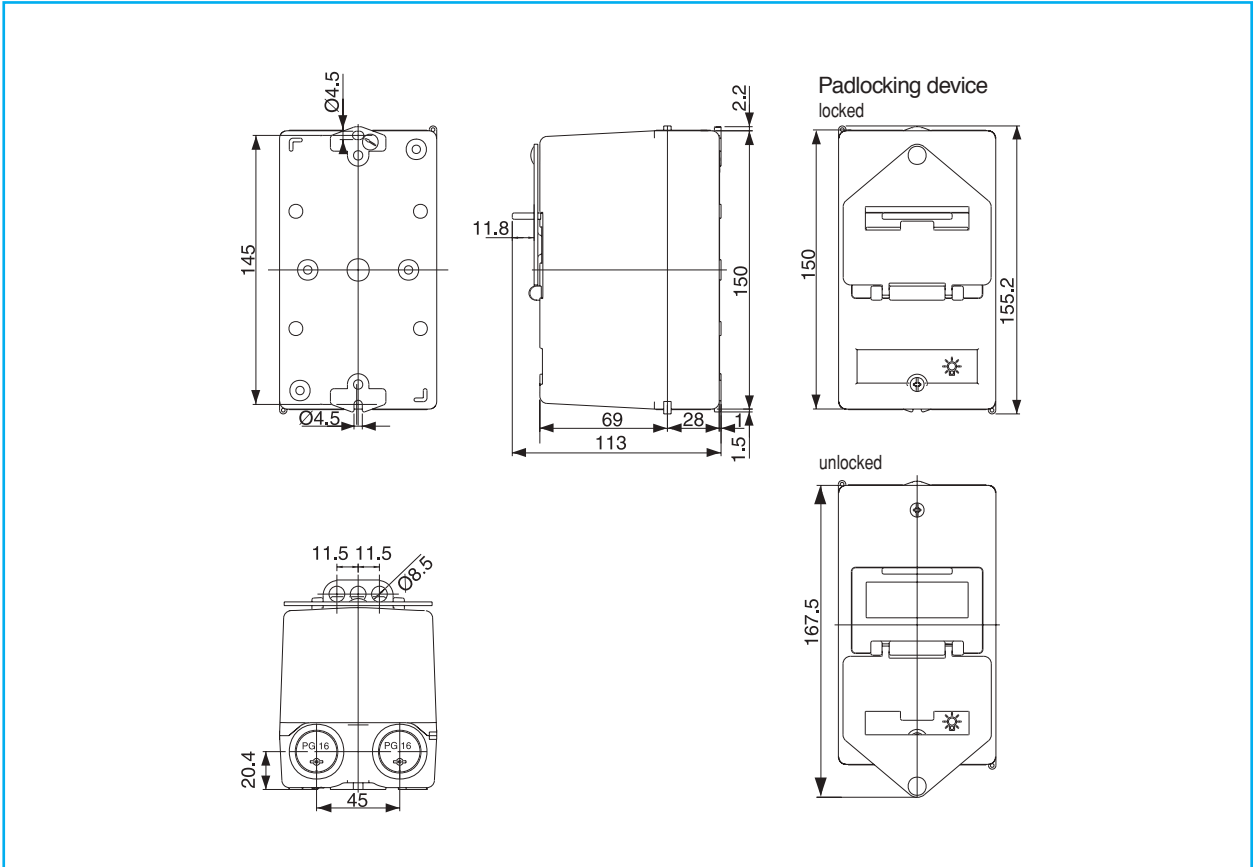


**Dimensional drawings**

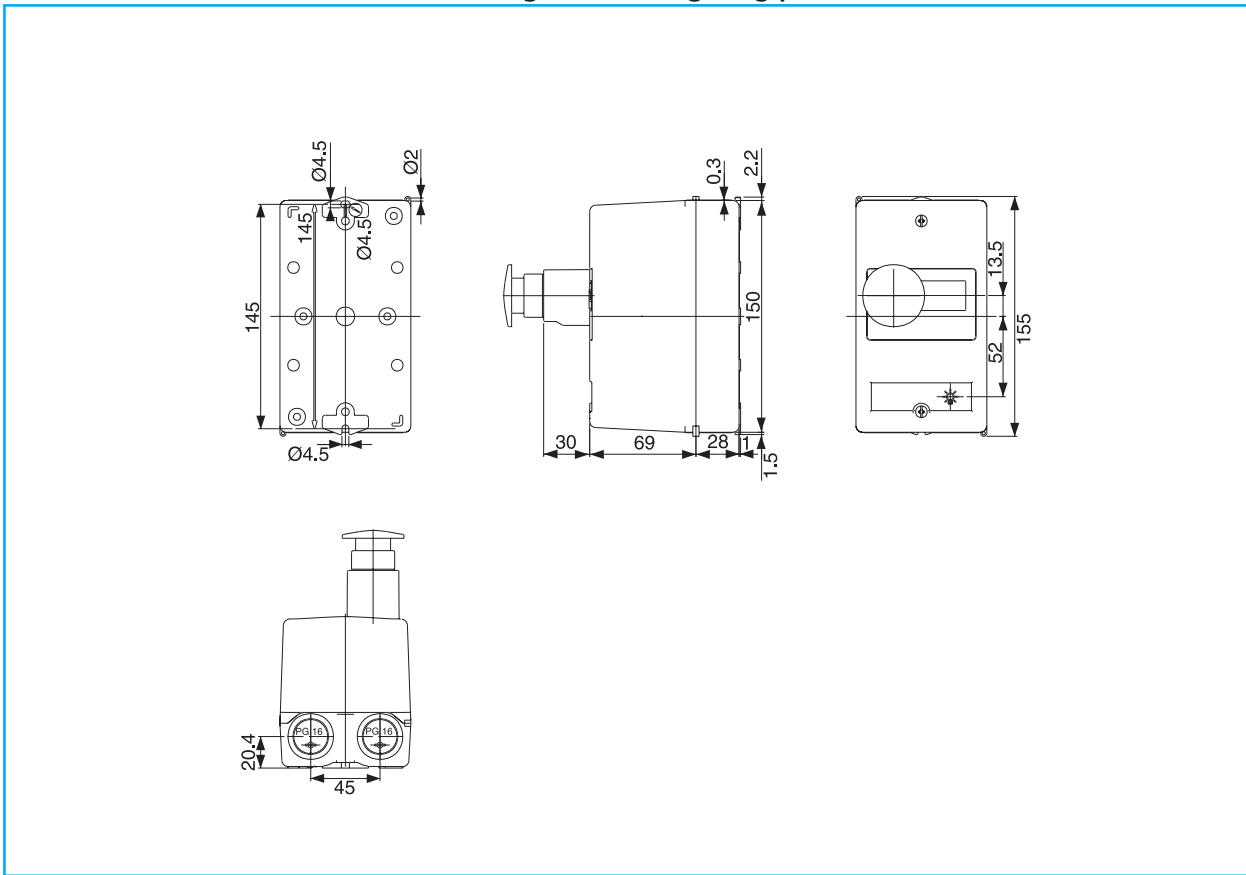
**Enclosure for GPS1 - Surface mounting**



**Enclosure for GPS1 - Surface mounting with padlocking device**

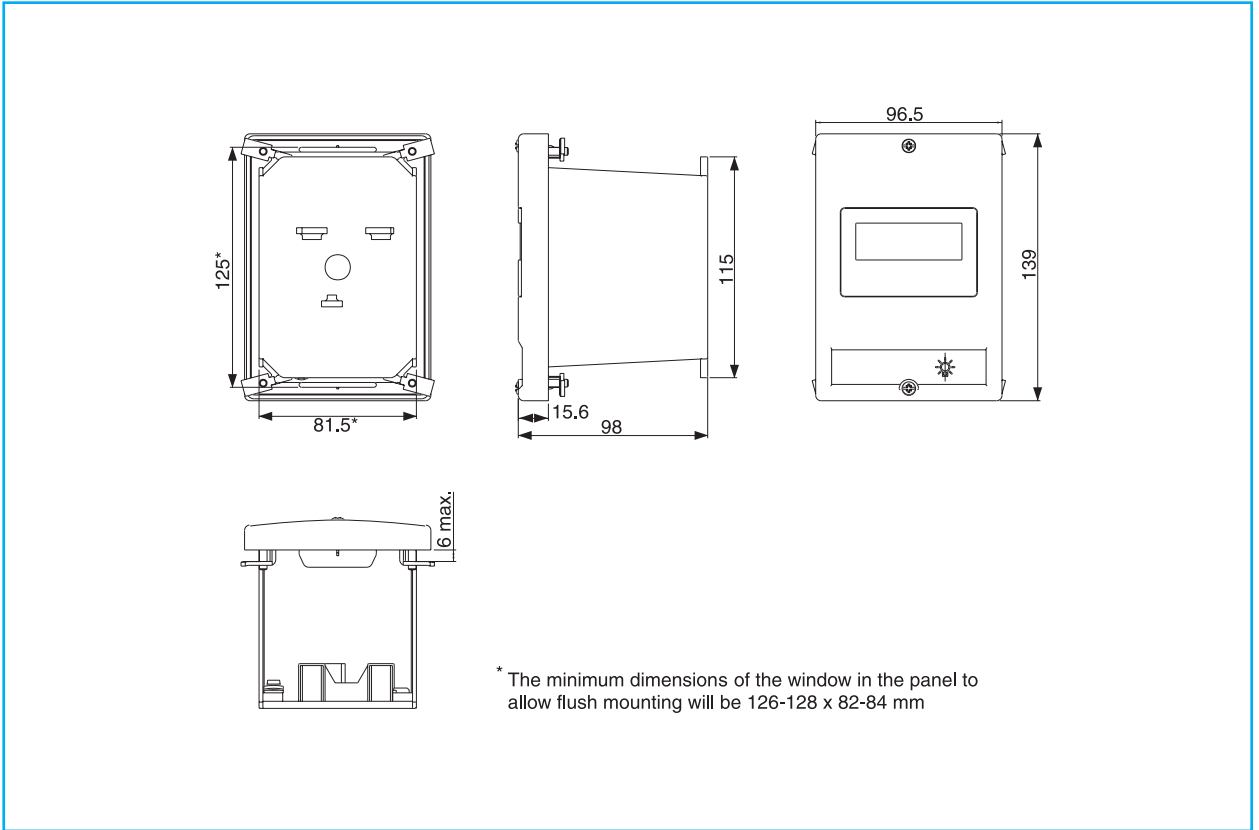


Enclosure for GPS1 - Surface mounting with emergency push-button

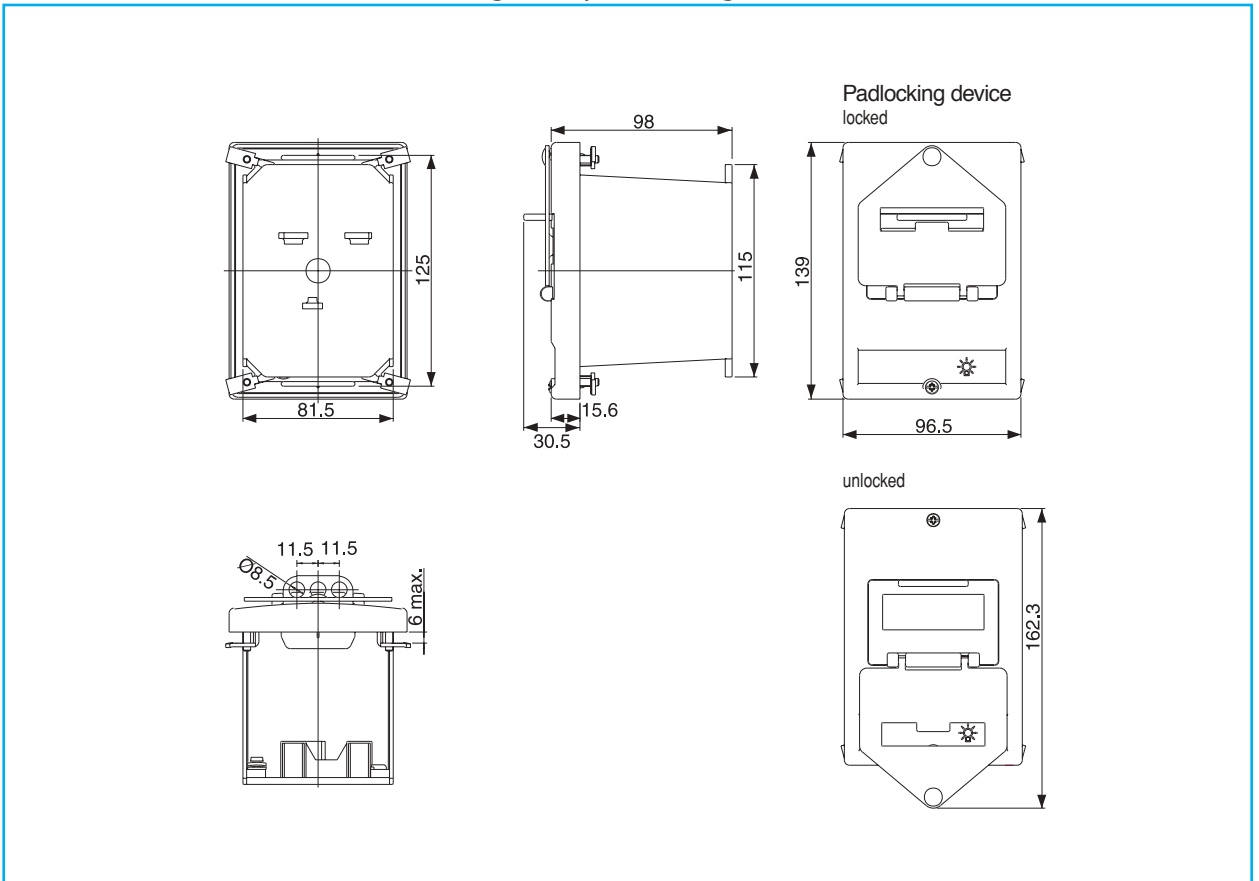


**Dimensional drawings**

**Enclosure for GPS1 - Flush mounting**



**Enclosure for GPS1 - Flush mounting with padlocking device**



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