



NEW PRODUCTS 2023

MOTOR PROTECTION CIRCUIT BREAKERS SM1RT TYPE

SM1RTs are circuit breakers dedicated to the primary control of transformers. In this application, the most relevant technical aspect to consider is the high transformer in-rush current. A normal motor protection circuit breaker would trip due to this peak current exceeding its magnetic trip threshold. SM1RTs are sized to support peak currents up to 20 times the maximum rated current of the circuit breaker and cover rated currents from 0.1A to 25A. The adjustable thermal protection trip threshold enables accurate transformer protection.

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BF265, BF330, BF400 CONTACTORS

They have current ratings in AC-3 category of 265A, 330A and 400A at 440V and currents in AC-1 category of 450A, 500A and 600A. They have an electronically controlled AC/DC coil that allows very low power consumption and a wide-range voltage rating that ensures perfect operation even in the face of large variations on the supply voltage. Front-mounting auxiliary contacts have a small footprint and allow easy and fast wiring. Up to 6 auxiliary contacts can be front-mounting on three-pole contactors and 8 on four-pole contactors. In addition, up to 8 auxiliary contacts can be side-mounting.

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PUSHBUTTON AND SELECTOR SWITCHES PLATINUM SERIES Ø22MM IN KITS

Simplicity and ease of ordering: the offer of Platinum series Ø22mm pushbuttons and selectors is enriched with a selection of codes supplied in kits that include the most common operators (pushbuttons, mushroom pushbuttons, selector switches, double-touch/triple-touch actuators) accompanied by the fixing base and different combinations of contact elements and LED light elements available in various colors and supply voltages. Kits are available for both LPC... plastic chrome type and LPS... metal type for fixing on 22mm diameter holes.

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ILLUMINATED PLASTIC DISK

Completing the range of LOVATO Electric emergency signalling devices are the new illuminated discs. Their main function is to make the emergency button easily recognizable and identifiable in the event of its activation in non-optimal visibility conditions and identifying which actuator is operated in the presence of several emergency mushrooms in the same area. There are 3 different supply voltages (24VAC/DC, 110...120VAC and 220...240VAC), 4 specific markings in different languages and integrated with 2 power functions (steady or flashing light).

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WIRING MODULES AND ACCESSORIES FOR SIGNAL TOWERS LTN SERIES

The LTN series of signal towers expands to include a new wiring module suitable for direct mounting on a horizontal plane without the need for a fixing base. This new accessory is available in both 50mm and 70mm versions in the 12-24VDC and 110-230VAC voltage ranges. To complement it, 50mm extension tubes have also been introduced.

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SWITCH DISCONNECTORS AND CHANGEOVERS SWITCHES GL SERIES UP TO 1000A

The GL series of switch disconnectors and changeover switches now covers applications up to 1000A. The new construction size covers currents of 630A, 800A and 1000A.

Switch disconnectors are also available in UL98 versions (600A and 800A). The handles, which are available with the highest degree of protection on the market (IP66, IP69K and NEMA 4X), allow for direct-operated versions or door coupling with the addition of a shaft extension. To complete the range, terminal lugs, auxiliary contacts, connection covers, phase separators and captive nut accessories are available.

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SPD TYPE 1,2 FOR PHOTOVOLTAIC APPLICATIONS

LOVATO Electric's SPD offer is expanded with the introduction of a new type 1, 2 model with voltage rating U_n 1500VDC.

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INTERFACE PROTECTION SYSTEM UNITS PMVF52 AND PMVF81

The PMVF series of interface protection system units is being renewed with the introduction of PMVF52 and PMVF81 codes, which are suitable for cogeneration plants according to the rules for connecting updated energy generators to the electrical distribution network of the Italian CEI 0-21 (PMVF52) and German VDE-AR-N 4105 and VDE V 0126-1-1 standards for low voltage, VDE-AR-N 4110 for medium voltage and VDE-AR-N 4120 for high voltage (PMVF81). VDE standards apply in Germany and Switzerland and are accepted in many other countries.

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GENERAL PURPOSE RELAYS HR40 TYPE

HR40 relays are characterized by the possibility of being able to evaluate the condition of the contacts due to their front placement and transparent housing. In addition, the lack of a test device makes it appreciated in applications where manual operation of the relay is to be prevented. Available in versions with 1 16A changeover contact or 2 10A changeover contacts. Versions with 24VAC, 110VAC and 230VAC control voltage are now also available.

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ENERGY METERS DMED341MID7 CERTIFICATED MID WITH TEMPERATURE RANGE EXTENDED UP TO 70°C

LOVATO Electric's range of MID-approved three-phase energy meters is extended with the new DMED341MID7 direct-insertion model with extended operating temperature up to 70°C, ideal for applications in electric vehicle charging stations, which are also installed outdoors and therefore subject to high heating due to climatic conditions. Its main features are: three-phase meter up to 80A in only 4 modules (72mm), MID approved up to 70°C, built-in RS485 communication port, built-in static output.

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Motor protection circuit breakers

SM1RT Type



Motor protection circuit breakers SM1RT... up to 25A. Transformers protection



SM1RT...

Order code	Thermal trip adjustment range	Short circuit breaking capacity 400V		Qty per pkg	Wt
		Icu [kA]	Ics [kA]		
	[A]	[kA]	[kA]	n°	[kg]

Rotary knob type.

SM1RT0016	0.1...0.16	100	100	1	0.270
SM1RT0025	0.16...0.25	100	100	1	0.270
SM1RT0040	0.25...0.4	100	100	1	0.278
SM1RT0063	0.4...0.63	100	100	1	0.278
SM1RT0100	0.63...1	100	100	5	0.280
SM1RT0160	1...1.6	100	100	5	0.280
SM1RT0250	1.6...2.5	100	100	5	0.340
SM1RT0400	2.5...4	100	100	5	0.340
SM1RT0650	4...6.5	100	100	5	0.340
SM1RT1000	6.3...10	100	100	5	0.340
SM1RT1400	9...14	25	12.5	5	0.340
SM1RT1800	13...18	25	12.5	5	0.340
SM1RT2300	17...23	15	5	1	0.340
SM1RT2500	20...25	15	5	1	0.340

UL 60947-1 characteristics

Short circuit breaking capacity as per

UL 60947-1 at 240V and 480/277V:

– from SM1RT0016 to SM1RT0650 - 65kA

– from SM1RT1000 to SM1RT2500 - 30kA

Only from circuit breakers from SM1RT0650 to SM1RT2500: fuse protection 200A class J.

General characteristics

SM1RT... are circuit breakers with thermal and magnetic trip releases intended specifically for transformers control and protection.

The magnetic trip threshold of $20 \times I_n$ enable the connection of transformers avoiding unintentional tripping due to the high in-rush currents.

The various adjustment ranges from 0.1A to 25A enable control and protection of transformers up to 17kVA (400V).

Operational characteristics

- IEC rated insulation voltage U_i : 690V
- IEC rated impulse withstand voltage: 6kV
- IEC rated frequency: 50/60Hz
- Maximum rated current: 25A
- Max. heat dissipation per phase: 0.7...3.4 W
- Magnetic tripping: $20 \times I_n$ max
($16 \times I_n$ max for SM1RT0016, SM1RT2300, SM1RT2500)
- Mechanical and electrical life: 100.000 cycles
- Mounting on 35mm DIN rail (IEC/EN/BS 60715)
- Mounting position: Any
- IEC utilisation category: A
- Padlocking in OFF: $\varnothing 4\text{mm}/0.16''$
- IEC degree of protection: IP20.

Certifications and compliance

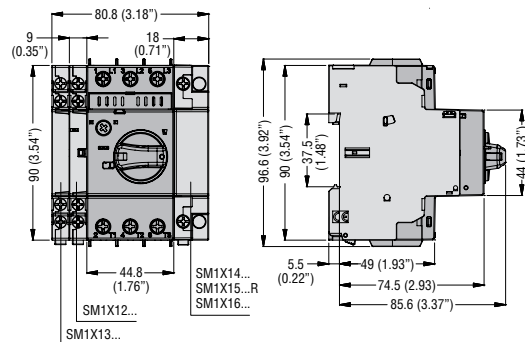
Certifications obtained: cULus, EAC.

Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-2, IEC/EN/BS 60947-4-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1.

Plastics compliant with standards: IEC/EN/BS 60335 and EN/BS 45545.

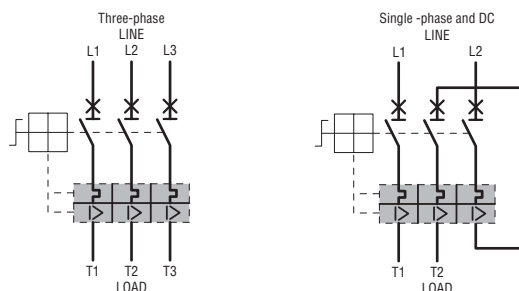
Dimensions [mm(in)]

SM1RT... with side-mounting auxiliary contacts



Wiring diagrams

SM1RT...



Motor protection circuit breakers

SM1RT Type

TECHNICAL CHARACTERISTICS

TYPE		SM1RT...
Rated insulation voltage U_i	V	690
Rated impulse withstand voltage U_{imp}	kV	6
Rated frequency	Hz	50/60Hz
Maximum rated current	A	25
Number of adjustment ranges	No.	14
Total power dissipation at maximum current	W	2.1...10.2
Magnetic tripping	A	$20 \times I_n \max$ ①
Mechanical life	cycles	100,000
Electrical life ($I_e \max$ AC3)	cycles	100,000
Terminal tightening torque	Nm	2.5...3
	lb.in	22...26.5
	Tool	PH2
Conductor section minimum and maximum (1 or 2 wires)	AWG	No.
Flexible without lug	mm ²	0.75...25

AMBIENT CONDITIONS

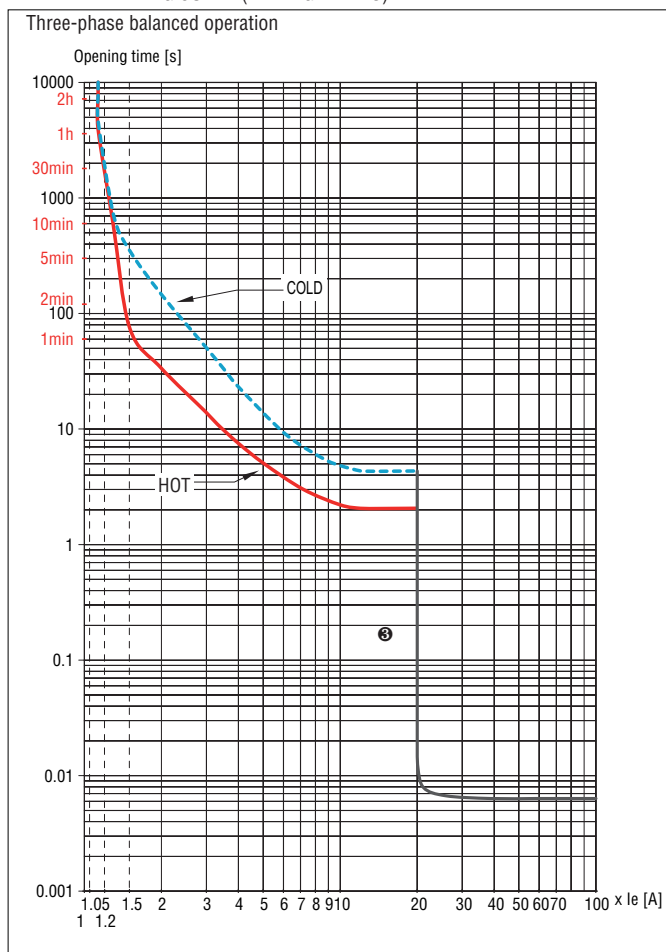
Temperature	operating	°C	-20...+60 
	storage	°C	-50...+80
	compensation	°C	-20...+50
Maximum altitude		m	3000
Mounting position			Any
Fixing			On 35mm DIN rail or screw via accessory

N.B. PH = Phillips; PZ = Pozidriv.

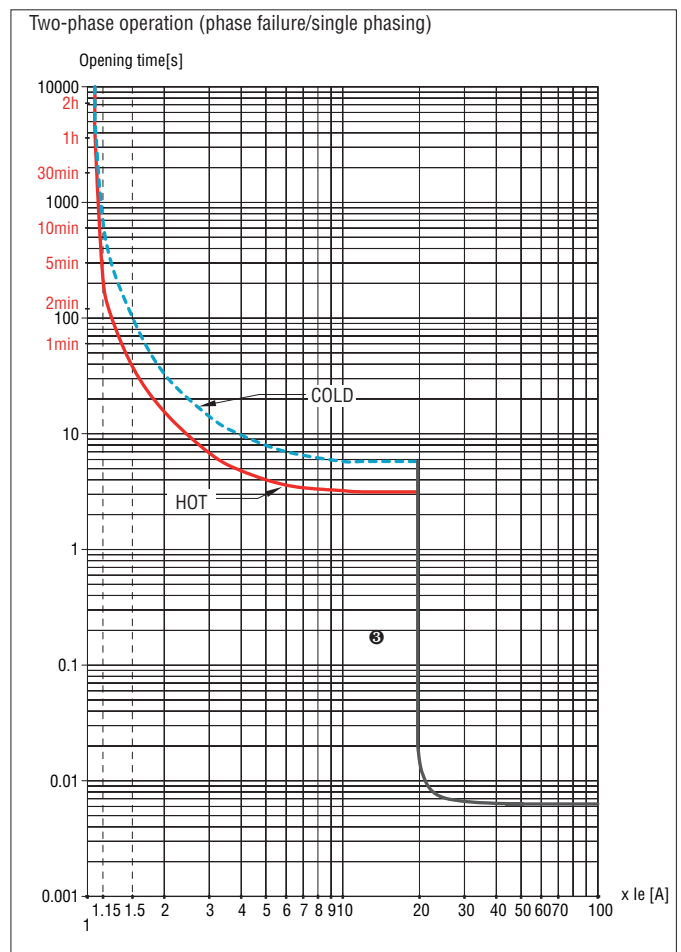
① $16 \times I_n \max$ SM1RT0016, SM1RT2300, SM1RT2500.

② When fitting more than one breaker side by side (without leaving space between each to consent free air circulation on the breaker sides) and have simultaneous operation, the thermal trip adjuster must be positioned at a value 15% higher than the rated motor current.

THERMAL TRIPPING CURVE (AVERAGE TIMES)



③ $16 \times I_n \max$ only for SM1RT0016, SM1RT2300, SM1RT2500.



INNOVATION IS CONTINUING...

COMPACT DIMENSIONS

- Three-pole contactors: 105mm width for currents up to 230A AC3 - 350A AC1 and 140mm for current up to 400A AC3 - 600A AC1
- Four-pole contactors: 140mm width for currents up to 350A AC1 and 185mm width for current up to 600A AC1
- Width identical with moulded-case circuit breakers (MCCB) of equal current.



CONTACT STATUS FRONT VIEW

A front mechanical indicator allows to easily identify the status of the contacts.



OPEN



CLOSE



HIGH POWER TERMINALS FOR EASY AND SAFE WIRING

High power terminals to ensure a safe isolation distance from the panel in case of wiring with double terminals or bars for parallel or changeover.



SIDE-MOUNTING AUXILIARY CONTACTS

Useful in the event that the panel depth may be critical.



FRONT-MOUNTING AUXILIARY CONTACTS

Up to 6 NO or NC auxiliary contacts, with screw terminals, can be mounted without side dimensions increasing.



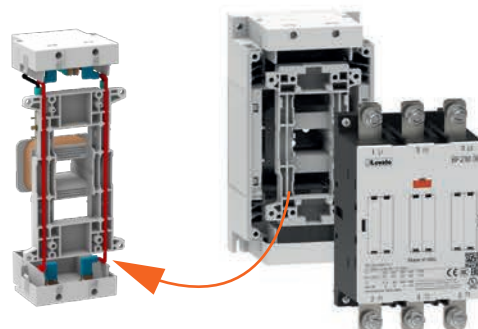
4-TERMINAL COIL

You can connect the connection cables to the coil either from the top or the bottom of the contactors.



The coil terminals are easy to reach with the screwdriver as they are interspersed with the power terminals.

EASY COIL AND POWER CONTACTS REPLACEMENT



AC/DC COIL WITH ELECTRONIC CONTROL

- Wide operating range: for example one single coil to cover 100...250VAC/DC range.
- Low consumption during in-rush and in service
- No chattering in the event of irregular voltage thanks to the electronic control
- Built-in surge suppressor filter.

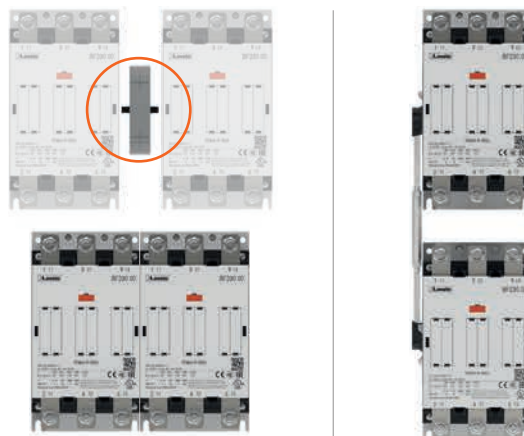
CAPTIVE NUTS

Accessory that allows even easier wiring of the terminals using a single wrench.



HORIZONTAL AND VERTICAL INTERLOCK

Horizontal interlock with concealed mounting does not increase the dimensions.



BF series contactors



- Quick connect - snap on accessory mounting
- Distinct contact status indication
- Up to 12 auxiliary contacts can be mounted
- Mechanical interlock without overall dimensions increasing
- Three-pole contactors from 160A to 400A (AC3)
- Four-pole contactors from 250A to 600A (AC1)
- Highly conductive auxiliary contacts.
- Wide range AC/DC coil with electronic control.

	Ie (AC3) 400V	3 poles with coil type:		
		AC	DC	AC/DC ^①
BF160	160A	—	—	●
BF195	195A	—	—	●
BF230	230A	—	—	●
BF265	265A	—	—	●
BF330	330A	—	—	●
BF400	400A	—	—	●

	Ith (AC1) 600V	4 poles with coil type:		
		AC	DC	AC/DC ^①
BF160	250A	—	—	●
BF195	275A	—	—	●
BF230	350A	—	—	●
BF265	450A	—	—	●
BF330	500A	—	—	●
BF400	600A	—	—	●

① Wide range AC/DC coil with electronic control.

Contactors

BF160...BF400 with AC/DC control circuit



3 pole contactors



BF160E...BF230E



BF265E...BF400E

	Three phase motor control in AC-3 / AC-3e											UL/CSA details			
Order code	IEC operating current				Maximum IEC power at ≤55°C (AC-3 / AC-3e)							Maximum UL/CSA horsepower ratings			
	I _{th} (AC1)			I _e (AC3)								Three phase			
AC/DC coil	≤40°C	≤55°C	≤70°C	≤440V ≤55°C	230V	400V	415V	440V	500V	690V	1000V	200V	240V	480V	600V
	[A]	[A]	[A]	[A]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[HP]	[HP]	[HP]	[HP]
BF16000E●	250	210	180	160	45	75	90	90	110	132	75	50	60	125	150
BF19500E●	275	230	200	195	55	90	110	110	132	160	90	60	75	150	150
BF23000E●	350	290	250	230	55	110	110	132	132	160	110	75	75	150	200
BF26500E●	450	375	325	265	75	132	132	160	160	200	160	75	100	200	250
BF33000E●	500	415	360	330	90	160	160	160	200	250	185	100	125	250	300
BF40000E●	600	500	435	400	110	200	200	200	250	315	200	125	150	350	400

- ❗ The contactor coil is controlled electronically; it can have either an AC or a DC supply and has a wide operating range.
Complete the order code only with the digit of the coil voltage.
Standard voltages are:
– AC/DC 024 = 24...60VAC/20...60VDC; 110 = 60...130VAC/DC; 230 = 100...250VAC/DC;
400 = 250...500VAC/DC.

4 pole contactors



BF160T4E...BF230T4E



BF265T4E...BF400T4E

	Resistive load control in AC1											UL/CSA details
Order code	IEC operating current				Maximum IEC power at ≤40°C (AC1)							
	I _{th} (AC1)											
AC/DC coil	≤40°C	≤55°C	≤70°C	I _e (AC3) ≤440V ≤55°C	230V	400V	415V	440V	500V	690V	1000V	UL/CSA General (purpose) use
	[A]	[A]	[A]	[A]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[A]
BF160T4E●	250	210	180	160	95	165	171	181	206	284	411	250
BF195T4E●	275	230	200	195	104	181	188	199	226	312	452	275
BF230T4E●	350	290	250	230	132	230	239	253	288	397	576	350
BF265T4E●	450	375	325	265	170	296	307	326	370	511	740	450
BF330T4E●	500	415	360	330	189	329	341	362	411	568	823	500
BF400T4E●	600	500	435	400	227	395	410	434	494	681	987	600

- ❗ The contactor coil is controlled electronically; it can have either an AC or a DC supply and has a wide operating range.
Complete the order code only with the digit of the coil voltage.
Standard voltages are:
– AC/DC 024 = 24...60VAC/20...60VDC; 110 = 60...130VAC/DC; 230 = 100...250VAC/DC;
400 = 250...500VAC/DC.

Contactors

BF160...BF400 with AC/DC control circuit

		UL/CSA: Short-circuit protection fuse, 600V ^②								
	UL/CSA General (purpose) use	High fault		Standard fault		Type of terminal	Incorpor. auxiliary contacts		Qty per pkg.	Wt
		Short circuit current	Fuse	Short circuit current	Fuse					
	[A]	[kA]	[A]	[kA]	[A]		NO	NC	n°	[kg]
	250	100	400 (J)	10	400 (RK5)	Clamp-screw	—	—	1	3.000
	275	100	400 (J)	10	400 (RK5)	Clamp-screw	—	—	1	3.000
	350	100	400 (J)	10	400 (RK5)	Clamp-screw	—	—	1	3.000
	450	100	600 (J)	18	600 (RK5)	Clamp-screw	—	—	1	4.600
	500	100	600 (J)	18	600 (RK5)	Clamp-screw	—	—	1	4.600
	600	100	600 (J)	18	600 (RK5)	Clamp-screw	—	—	1	4.600

② The values in brackets indicate the class of the fuse to be used.
Where there is no value in brackets, any type of fuse can be used.

Certifications and compliance

Certifications obtained:

Type	C U L U S	E A C	C C C
BF160	●	Ⓢ	Ⓢ
BF195	●	Ⓢ	Ⓢ
BF230	●	Ⓢ	Ⓢ
BF265	●	Ⓢ	Ⓢ
BF330	●	Ⓢ	Ⓢ
BF400	●	Ⓢ	Ⓢ

● Certified products.

Ⓢ Pending.

Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-1, UL 60947-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1.

		UL/CSA: Short-circuit protection fuse, 600V ^②								
		High fault		Standard fault		Type of terminal	Incorpor. auxiliary contacts		Qty per pkg.	Wt
		Short circuit current	Fuse	Short circuit current	Fuse					
		[kA]	[A]	[kA]	[A]		NO	NC	n°	[kg]
		100	400 (J)	10	400 (RK5)	Clamp-screw	—	—	1	4.000
		100	400 (J)	10	400 (RK5)	Clamp-screw	—	—	1	4.000
		100	400 (J)	10	400 (RK5)	Clamp-screw	—	—	1	4.000
		100	600 (J)	18	600 (RK5)	Clamp-screw	—	—	1	6.135
		100	600 (J)	18	600 (RK5)	Clamp-screw	—	—	1	6.135
		100	600 (J)	18	600 (RK5)	Clamp-screw	—	—	1	6.135

② The values in brackets indicate the class of the fuse to be used.
Where there is no value in brackets, any type of fuse can be used.

IEC utilisation current with poles in parallel

If the poles of the contactors are arranged in parallel, the operating current is the one indicated in the table multiplied by the K factor given below, which account for the unequal distribution of the current in the various poles. To limit distribution inequality, it is advisable to use paralleling links.

2 POLES in parallel: **K** = 1.6

3 POLES in parallel: **K** = 2.2

4 POLES in parallel: **K** = 2.8

Certifications and compliance

Certifications obtained:

Type	C U L U S	E A C	C C C
BF160T4E	●	Ⓢ	Ⓢ
BF195T4E	●	Ⓢ	Ⓢ
BF230T4E	●	Ⓢ	Ⓢ
BF265T4E	●	Ⓢ	Ⓢ
BF330T4E	●	Ⓢ	Ⓢ
BF400T4E	●	Ⓢ	Ⓢ

● Certified products.

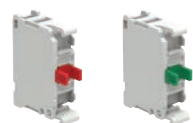
Ⓢ Pending.

Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-1, UL 60947-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1.

Contactors

BF160...BF400

Add-on blocks and accessories



BFX10C01 BFX10C10



BFX12C...



BFX5500



BFX5503
BFX5504

BFX815
BFX816



BFX835
BFX836

BFX845
BFX846



BFX805
BFX806



GLX500
GLX501

GMX500

GMX501



BFX3583
BFX3683

BFX3584
BFX3684



BFX8508
BFX8608

Order Code	Characteristics	Max qty per cont.	Qty per pkg	Wt
		n°	n°	[kg]

Auxiliary contacts with front-mounting
Screw terminals.

BFX10C10	1NO	6	10	0.048
BFX10C01	1NC	6	10	0.048

Auxiliary contacts with low side-mounting
Screw terminals.

BFX12C02	2NC	2	5	0.048
BFX12C11	1NO + 1NC	2	5	0.048
BFX12C20	2NO	2	5	0.048

Mechanical interlock.

BFX5500	For contactors BF160...BF400. Side by side mounting.	1	1	0.050
BFX5503	For contactors BF160...BF400. One on top of other mounting. Interaxis 305...345mm	1	1	0.150
BFX5504	For contactors BF160...BF400. One on top of other mounting. Interaxis: 345...385mm	1	1	0.200

Order Code	Characteristics	Qty per pkg	Wt
		n°	[kg]

Power terminal protection.
One-pole terminal cover.

BFX815 ①	For BF160...BF230	6	0.026
BFX816 ①	For BF265...BF400	6	0.035

Three-pole terminal cover.

BFX835	For BF160...BF23000	1	0.050
BFX836	For BF265...BF400	1	0.075

Four-pole terminal cover

BFX845	For BF160T4...BF230T4	1	0.070
BFX846	For BF265T4...BF400T4	1	0.098

Phase barrier.

BFX805 ②	For BF160...BF230	1	0.021
BFX806 ②	For BF265...BF400	1	0.030

Terminal clamp sets for rigid and flexible cables.

GLX500	1-piece set. For AWG 6...kcmil 250 wires.	1	0.011
GLX501	3-piece set. For AWG 6...kcmil 250 wires.	1	0.011
GMX500 ②	6-piece set. For AWG 14...2/0 wires.	1	0.200
GMX501	6-piece set. For AWG 4...kcmil 300 wires.	1	0.200

Connections and captive nut accessory.
Terminal enlargement.

BFX3583	For BF160...BF230 three-phase	1	0.100
BFX3683	For BF265...BF400 three-phase	1	0.140
BFX3584	For BF160...BF230 four-phase	1	0.130
BFX3684	For BF265...BF400 four-phase	1	0.180

Paralleling link.

BFX3592	Two-pole paralleling for BF160...BF230	1	0.050
BFX3692	Two-pole paralleling for BF265...BF400	1	0.070
BFX3593	Three-pole paralleling for BF160...BF230	1	0.070
BFX3693	Three-pole paralleling for BF265...BF400	1	0.098

Connecting kit for reversing contactor assembly.

BFX3501	Per BF160...BF230	1	1.000
BFX3601	Per BF265...BF400	1	1.400

Connecting kits for star-delta starter.

BFX3531	For BF160...BF230	1	1.100
BFX3631	For BF265...BF400	1	1.500

Rigid connecting kit for changeover.

BFX3561	For BF160...BF230 three-pole	1	0.900
BFX3661	For BF265...BF400 three-pole	1	1.250
BFX3571	For BF160...BF230 four-pole	1	1.200
BFX3671	For BF265...BF400 four-pole	1	1.700

Captive nut.

BFX8508	For BF160...BF230. 8-piece set	1	0.052
BFX8608	For BF265...BF400. 8-piece set	1	0.073

Operational characteristics for add-on auxiliary contacts

Type		BFX10C10 BFX10C01	BFX12
IEC conventional free air thermal current I _{th}	A	10	10
IEC rated insulation voltage U _i	V	690	690
Terminals	Screw	M3.5	M3
	Width	mm	7
Tightening torque	Nm	0.8...1	0.8...1
	lb.in	7...9	7...9
Conductor section maximum with (1 or 2 cables)			
	flexible w/o lug	mm²	2.5
	flexible c/w lug	mm²	2.5
	AWG	n°	14
Terminal protection per IEC/EN/BS 60529		IP20	IP20
IEC/EN/BS 60947-5-1 designation	AC	A600	A600
	DC	Q600	Q600
Mechanical life (million)	cycles	10	10

Certifications and compliance

Certifications obtained:

Type	cULus	EAC	CCC
BFX10C...	●	⑤	⑤
BFX12C...	●	⑤	⑤
BFX3...	●	⑤	⑤
BFX5...	●	⑤	⑤
BFX8...	●	⑤	⑤
GLX50...	●	⑤	⑤
GMX50...	●	⑤	⑤

⑤ Pending.

Add-on auxiliary contacts are compliant with the following standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-5-1, UL 60947-1, UL 60947-5-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-5-1.

The add-on auxiliary contact blocks BFX10C... and BFX12C... comply with annex F of the IEC/EN/BS 60947-4-1 standard auxiliary contact linked with power contact" also known as mirror contact.

They also comply with Annex L of the IEC/EN/BS 60947-5-1 standard "mechanically linked contact elements".

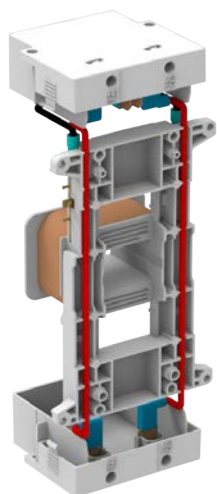
- ① It is supplied for one terminal only. Example: for three-pole contactor, order 3 pieces for the upper terminals or 6 pieces for all the upper and lower terminals.
- ② For currents higher than 175A, 2 pieces can be mounted for each contactor terminal.
- ③ Kit 4 pieces. For three-pole contactor order 1x BFX805; for four pole contactor order 2x BFX805.
- ④ Kit 4 pieces. For three-pole contactor order 1x BFX806; for four pole contactor order 2x BFX806.

Contactors

BF160...BF400

Add-on blocks and accessories

AC/DC coils



BF96E...

Order code	Rated voltage	Qty per pkg.	Wt
	[V]	n°	[kg]
For contactors BF160E-BF195E-BF230E.			
BFX95E024	24...60VAC / 20...60VDC	1	0.400
BFX95E110	60...130VAC/DC	1	0.400
BFX95E230	100...250VAC/DC	1	0.400
BFX95E400	250...500VAC/DC	1	0.400
For contactors BF265E-BF330E-BF400E.			
BFX96E024	24...60VAC / 20...60VDC	1	0.560
BFX96E110	60...130VAC/DC	1	0.560
BFX96E230	100...250VAC/DC	1	0.560
BFX96E400	250...500VAC/DC	1	0.560

Operational characteristics for BFX95E coil

AC/DC control

Rated voltage		V	20...250
Operating voltage limits: 50/60Hz coil powered at or in DC	pick-up	% Us	80...110①
	drop-out	% Us	≤70% Us min
Average coil a ≤20°C	in-rush	W	160...230
	holding	W	1.5...3

Operational characteristics for BFX96E...

AC/DC control

Rated voltage		V	20...250
Operating voltage limits: 50/60Hz coil powered at or in DC	pick-up	% Us	80...110①
	drop-out	% Us	≤70% Us min
Average coil cons. at ≤20°C	in-rush	W	160...320
	holding	W	3.5...8

① 80% of Us min. and 110% of Us max.

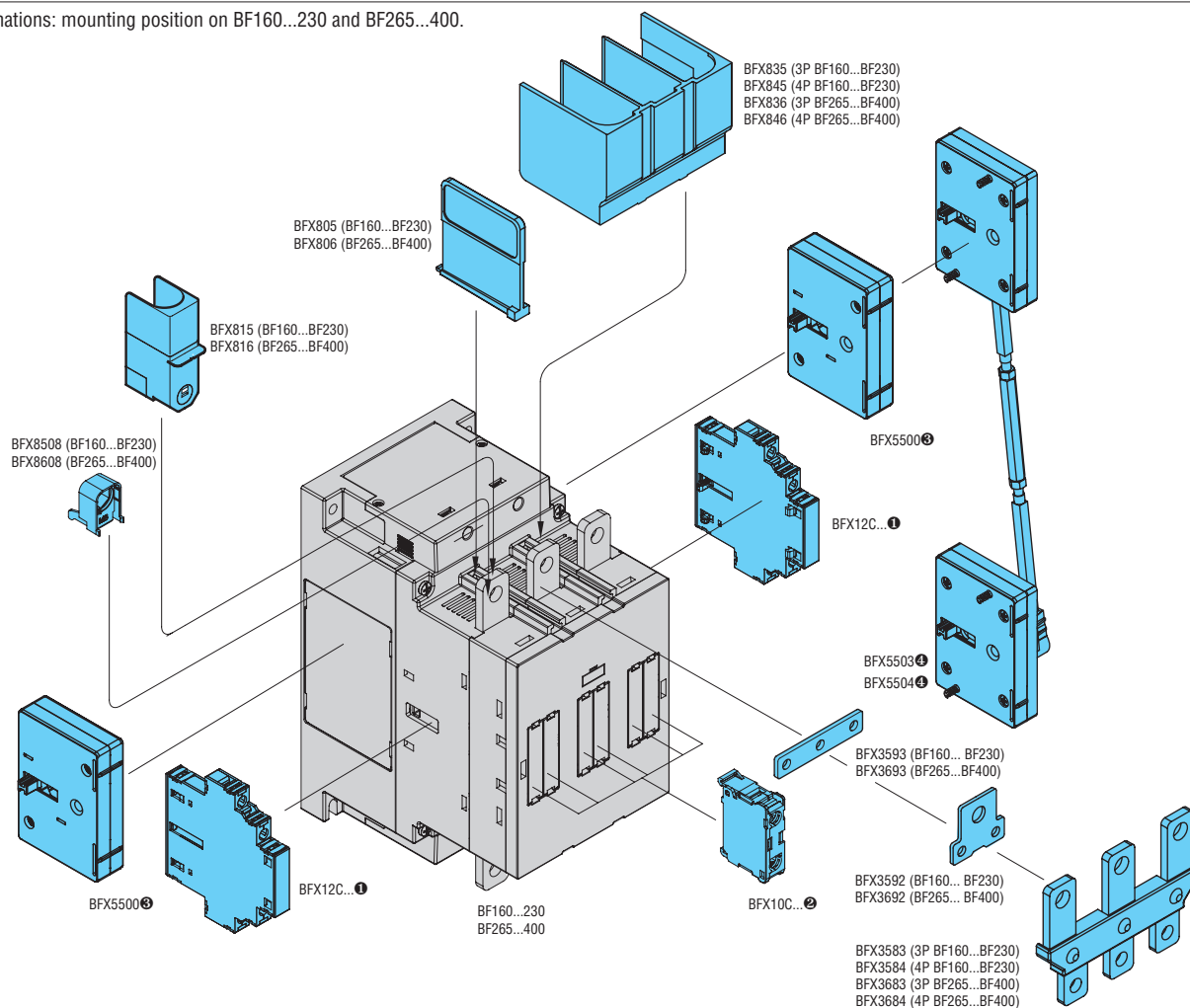
Materials

Class F enamelled copper wire.

Special versions

For coils with non standard voltages, consult Technical support for information; see contact details on inside front cover.
(Tel. +39 035 4282422; E-mail: service@LovatoElectric.com).

Combinations: mounting position on BF160...230 and BF265...400.



① Max 2 BFX12C... contact blocks per each contactor side.

② Max 6 BFX10C... contact blocks for three-pole contactors and 8 contact blocks for four-pole contactors.

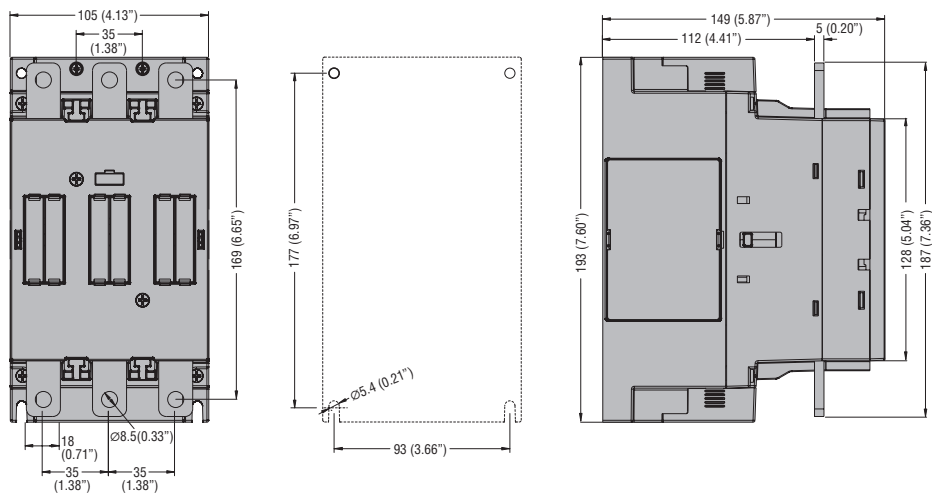
③ The BFX12C... contacts, in the presence of the BFX5500 mechanical interlock, can be mounted only on the opposite side of the contactor from that where the interlock is mounted.

④ On the side of the contactor where the BFX5503 and BFX5504 vertical mechanical interlocks are mounted, the BFX12C... auxiliary contacts can also be mounted.

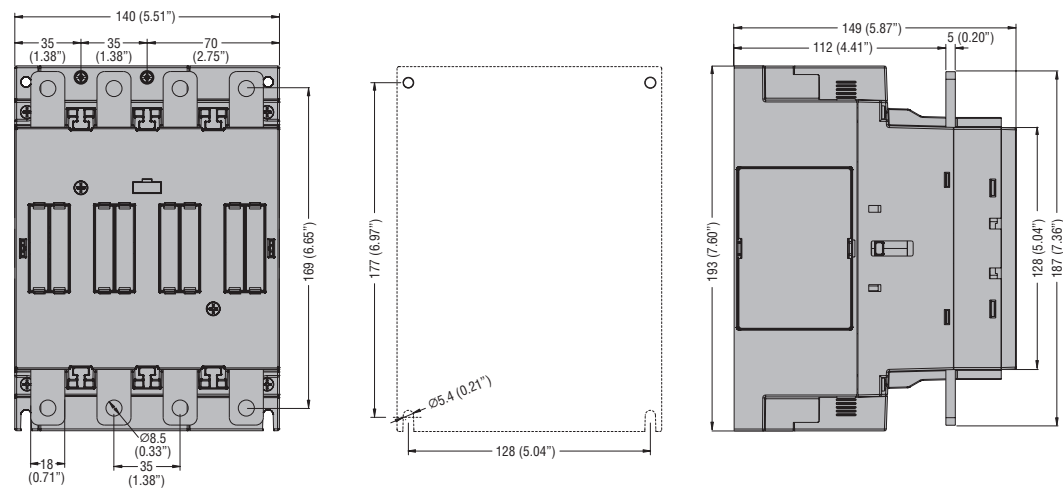
Contactors **BF160...BF400** **Dimensions [mm(in)]**

BF...CONTACTORS WITH AC/DC SUPPLY VOLTAGE

BF16000E... - BF19500E... - BF23000E... three-poles



BF160T4E... - BF195T4E... - BF230T4E... four-poles



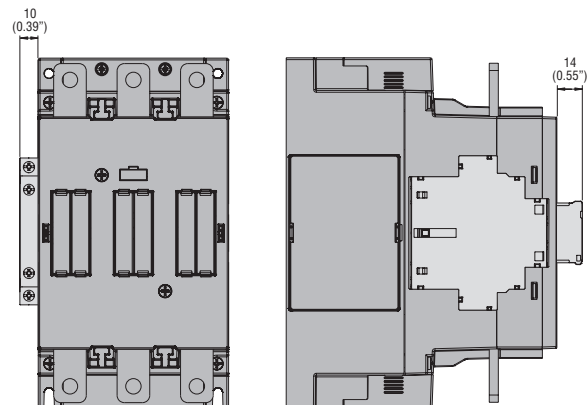
Dimensions [mm(in)]

Contactors BF160...BF400 Dimensions [mm(in)]

ADD-ON BLOCKS WITH BF160...BF400 CONTACTORS

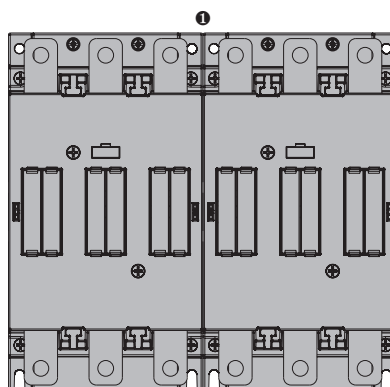
Auxiliary contacts

BFX10C..., BFX12C...

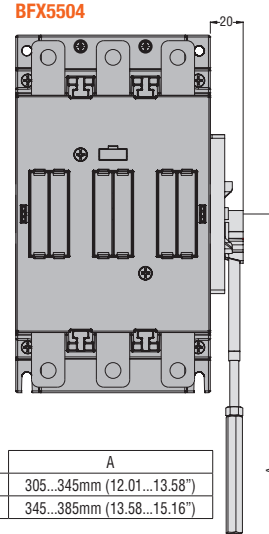


Interlocks

BFX5500



BFX5503
BFX5504

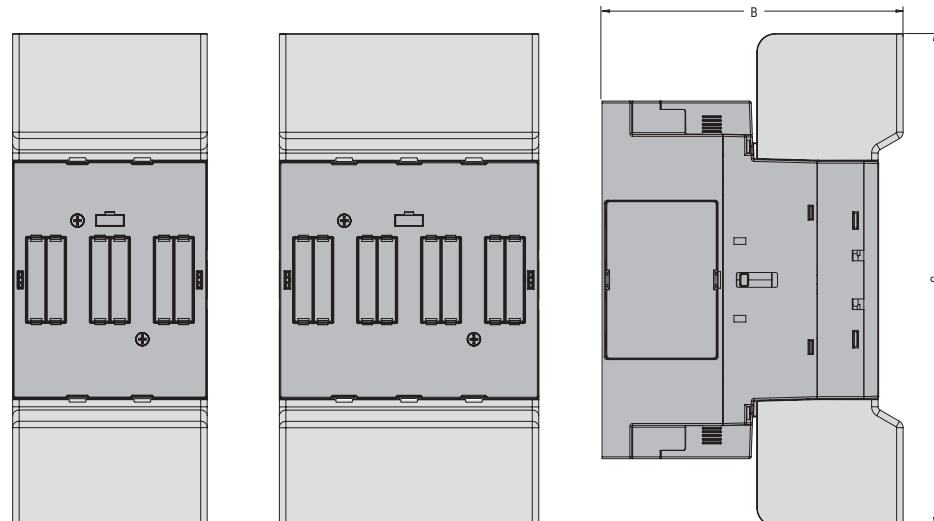


ⓘ The BFX5500 interlock is mounted inside the 2 contactors without dimensions increasing.

	A
BFX5503	305...345mm (12.01...13.58")
BFX5504	345...385mm (13.58...15.16")

Terminal protection

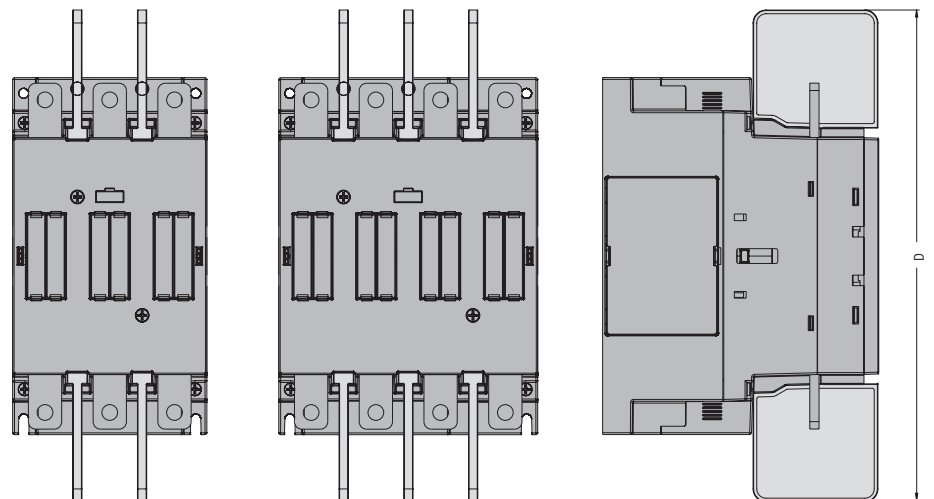
BFX835 - BFX845 - BFX836 - BFX846



	B	C
BFX835 - BFX845	163 (6.42")	266 (10.47")
BFX836 - BFX846	193 (7.60")	384 (15.23")

Phase barrier

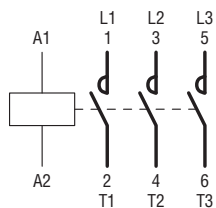
BFX805 - BFX806



	D
BFX805	266 (10.47")
BFX806	384 (15.23")

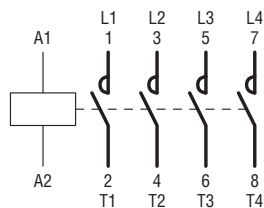
THREE-POLE CONTACTORS IN AC/DC

BF16000E... - BF19500E... - BF23000E...
BF26500E... - BF33000E... - BF40000E...



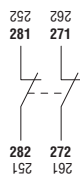
FOUR-POLE CONTACTORS IN AC/DC

BF160T4E... - BF195T4E... - BF230T4E...
BF265T4E... - BF 330T4E... - BF400T4E...

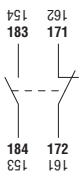


Auxiliary contacts

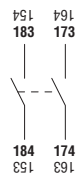
BFX1202
BFX12C02



BFX1211
BFX12C11



BFX1220
BFX12C20



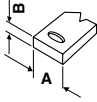
BFX10C10



BFX10C01



IEC OPERATIONAL CHARACTERISTICS FOR BF160...BF400

TYPE			BF160	BF195	BF230	BF265	BF330	BF400
POLE CONTACT CHARACTERISTICS								
Power poles		N°	3-4					
Rated insulation voltage Ui		V	1000					
Rated impulse withstand voltage Uimp		kV	8					
Operational frequency		Hz	25-400①					
Operational current	Conventional free air thermal Ith (≤40°C)	A	250	275	350	450	500	600
	AC3 (≤440V ≤55°C)	A	160	195	230	265	330	400
	AC4 (400V)②	A	75	95	110	125	160	190
Short-time allowable current for 10s (IEC/EN/BS 60947-1)		A	1280	1560	1840	2120	2640	3200
Maximum fuse size coordination Type 2, 400V - 50kA	gG	A	315	400	400	630	630	800
	aM	A	250	250	315	400	500	500
Making capacity (RMS value)		A	1600	1950	2300	2650	3300	4000
Breaking capacity at voltage	≤440V	A	1280	1560	1840	2120	2640	3200
	500V	A	1248	1472	1472	1792	2240	2752
	690V	A	1072	1296	1296	1624	2000	2504
	1000V	A	440	528	624	856	960	1064
Consumption and resistance per pole (average values)		mΩ	0.18	0.18	0.18	0.12	0.12	0.12
	Ith	W	11	13	21	24.3	30.0	43.2
	AC3	W	4.5	6.7	9.3	8.4	13	19
Terminals		A mm	18	18	18	20	20	20
		B mm	5	5	5	5	5	5
		Screw + hex nut	M8	M8	M8	M10	M10	M10
		Key mm	13	13	13	17	17	17
	Coil terminals	Type	Screw					
Pole tightening torque	Nm	18	18	18	35	35	35	
	lb.in	159	159	159	310	310	310	
Tightening torque for coil terminals min-max	Nm	0.8...1						
	lb.in	7.1...8.8						
	Phillips	2						
Maximum conductor section	N° 1 or 2 bars	mm	25x5	25x5	25x5	30x4	30x5	30x5
	N° 1 wire with lug	mm²	185			240		
	N° 2 wire with lug	mm²	185			240		
AMBIENT CONDITIONS								
Operating temperature		°C	-40...+70					
Storage temperature		°C	-50...+80					
Maximum altitude		m	3000					
Operating position	Normal		Vertical					
	Allowable		± 30°					
Fixing			Screw					

① Derating for use at 61-400 Hz. Consult Technical support for information (Tel. +39 035 4282422; E-mail: service@LovatoElectric.com).

② Current values guarantee an electrical life of about 200,000 cycles.

TYPE			BF160	BF195	BF230	BF265	BF330	BF400
AC/DC CONTROL								
Supply voltage			50/60Hz, DC					
Rated control voltage		V	20...500					
Operating voltage limits	pick-up	% Us	80...110❶					
	drop-out	% Us	≤70% Us min					
Consumption at ≤20°C	in-rush	VA/W	160...230			160...320		
	holding	VA/W	1.5...3.0			3.5...8.0		
Dissipation at ≤20°C		W	1.5...3.0			3.5...8.0		
OPERATING TIMES								
Making		ms	50...100			80...120	80...120	80...120
Breaking		ms	30...75			30...75	30...75	30...75
LIFE								
Mechanical (million)	AC/DC	cycles	10	10	10	5	5	5
Electrical (Ie at 400V in AC3) (million)		cycles	1	1	1	0.9	0.7	0.6
MAXIMUM OPERATING RATE								
Mechanical operations		cycles/h	1000					
PARTICULAR CHARACTERISTICS								
Indicator			For contactor open or closed status					

① 80% of Us min and 110% of Us max.

PLatinum

It is now even easier to order Platinum Series pushbuttons and selectors thanks to a selection of codes supplied in KITS. Each KIT includes the most commonly used actuators, combined with the mounting base, contact element and LED light element.

● HIGH DEGREE OF PROTECTION:

IP66, IP67 and IP69K

The actuators have been tested to guarantee a degree of protection per IEC/EN IP66, IP67, IP69K and per UL Type 4X, appropriate for use even in extreme ambient conditions

● ELEGANT STYLE AND ERGONOMIC DESIGN

All the series elements have an ergonomic design and, at the same time, particular care has been given to the finest detail aesthetics

● LONG ACTUATOR MECHANICAL LIFE

High performance characteristics assure 5,000,000 cycle mechanical life for spring return actuators, 1,000,000 for double and triple touch units and 300,000 for emergency-stop types

● MATERIALS RESISTANT TO OILS, SOLVENTS AND HYDROCARBONS

● CUSTOMIZATION

To facilitate warehouse management, it is possible to purchase spring return or push-push button actuators without caps or lenses and at the same time caps and lenses as spare parts. This allows for custom buttons to be completed from stock.



● HIGH STANDARDIZATION

Contact elements, LED light elements and a wide range of accessories are common to all types of the series.

● USAGE AT EXTREME TEMPERATURE CONDITIONS

Operation temperature range between -25° and +70°C.

● CERTIFICATIONS: cULus, EAC, RINA and CCC.

Ø22mm chromed plastic LPC type



Order code	Colour	Actuator	Mounting adapter	NO contact elements	NC contact elements
Pushbutton actuators, spring return. Flush.					
LPCB102K10	Black	LPCB102	LPXAU120	LPXC10 (NO)	-
LPCB103K10	Green	LPCB103	LPXAU120	LPXC10 (NO)	-
LPCB104K01	Red	LPCB104	LPXAU120	-	LPXC01 (NC)
LPCB105K10	Yellow	LPCB105	LPXAU120	LPXC10 (NO)	-
LPCB106K10	Blue	LPCB106	LPXAU120	LPXC10 (NO)	-
LPCB108K10	White	LPCB108	LPXAU120	LPXC10 (NO)	-



Order code	Colour	Actuator	Mounting adapter	NO contact elements	NC contact elements	LED light elements
Illuminated button actuators, spring return. Flush.						
LPCBL103K11PB3	Green	LPCBL103	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPB3 (12...30VAC/DC)
LPCBL103K11PM3	Green	LPCBL103	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPM3 (185...265VAC)
LPCBL104K11PB4	Red	LPCBL104	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPB4 (12...30VAC/DC)
LPCBL104K11PM4	Red	LPCBL104	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPM4 (185...265VAC)
LPCBL105K11PB5	Yellow	LPCBL105	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPB5 (12...30VAC/DC)
LPCBL105K11PM5	Yellow	LPCBL105	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPM5 (185...265VAC)
LPCBL106K11PB6	Blue	LPCBL106	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPB6 (12...30VAC/DC)
LPCBL106K11PM6	Blue	LPCBL106	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPM6 (185...265VAC)
LPCBL107K11PB8	White	LPCBL107	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPB8 (12...30VAC/DC)
LPCBL107K11PM8	White	LPCBL107	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPM8 (185...265VAC)



Order code	Colour	Actuator	Mounting adapter	NC contact elements
Mushroom head pushbutton actuators. Latch, turn to release.				
LPCB6344K01	Red	LPCB6344	LPXAU120	LPXC01 (NC)
LPCB6644K01	Red	LPCB6644 (ISO 13850)	LPXAU120	LPXC01 (NC)
LPCB6744K01	Red	LPCB6744 (ISO 13850)	LPXAU120	LPXC01 (NC)

Pushbuttons and selector switches PLatinum in KITS

Ø22mm



Order code	Type of positions	Colour	Actuator	Mounting adapter	NO contact elements	NO contact elements
Selector switch actuators lever.						
LPCS120K10	↘	■	LPCS120	LPXAU120	LPXC10 (NO)	-
LPCS130K20	↘	■	LPCS130	LPXAU120	LPXC10 (NO)	LPXC10 (NO)
LPCS131K20	↔	■	LPCS131	LPXAU120	LPXC10 (NO)	LPXC10 (NO)



Order code	Type of positions	Colour	Actuator	Mounting adapter	NO contact elements	NC contact elements	LED light elements
Illuminated selector switch actuators lever.							
LPCSL120K11PB3	↘	■	LPCSL1203	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPB3 (12...30VAC/DC)
LPCSL130K11PB3	↘	■	LPCSL1303	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPB3 (12...30VAC/DC)
LPCSL120K11PM3	↘	■	LPCSL1203	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPM3 (185...265VAC)
LPCSL130K11PM3	↘	■	LPCSL1203	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPM3 (185...265VAC)
LPCSL120K11PB4	↘	■	LPCSL1204	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPB4 (12...30VAC/DC)
LPCSL130K11PB4	↘	■	LPCSL1304	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPB4 (12...30VAC/DC)
LPCSL131K11PB4	↔	■	LPCSL1314	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPB4 (12...30VAC/DC)
LPCSL120K11PM4	↘	■	LPCSL1204	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPM4 (185...265VAC)
LPCSL120K11PB5	↘	■	LPCSL1205	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPB5 (12...30VAC/DC)
LPCSL130K11PB5	↘	■	LPCSL1305	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPB5 (12...30VAC/DC)
LPCSL131K11PB5	↘	■	LPCSL1315	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPB5 (12...30VAC/DC)
LPCSL120K11PM5	↘	■	LPCSL1205	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPM5 (185...265VAC)



Order code	Type of positions	Colour	Actuator	Mounting adapter	NO contact elements
Selector switch actuators key.					
LPCS320K10	↘	■	LPCS320	LPXAU120	LPXC10 (NO)



Order code	Colour	Symbols	Actuator	Mounting adapter	NO contact elements	NC contact elements	NC contact elements
Double-touch actuators, spring return.							
LPCB7191K20	■	↑ ↓	LPCB7191	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	-
LPCB7113K11	■	—	LPCB7113	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	-

Triple-touch actuators, spring return.

Order code	Colour	Symbols	Actuator	Mounting adapter	NO contact elements	NC contact elements	NC contact elements
LPCB7355K21	■	↑ STOP ↓	LPCB7355	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXC01 (NC)



Order code	Colour	Symbols	Actuator	Mounting adapter	NO contact elements	NC contact elements	LED light elements
Double-touch actuators, spring return, white indicator.							
LPCBL7224K11PB	■	I-O	LPCBL7224	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPB8 (12...30VAC/DC)
LPCBL7224K11PM	■	I-O	LPCBL7224	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPM8 (185...265VAC)
LPCBL7123K11PB	■	I-O	LPCBL7123	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPB8 (12...30VAC/DC)
LPCBL7123K11PM	■	I-O	LPCBL7123	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPM8 (185...265VAC)
LPCBL7223K11PB	■	I-O	LPCBL7223	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPB8 (12...30VAC/DC)
LPCBL7223K11PM	■	I-O	LPCBL7223	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPM8 (185...265VAC)
LPCBL7124K11PB	■	I-O	LPCBL7124	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPB8 (12...30VAC/DC)
LPCBL7124K11PM	■	I-O	LPCBL7124	LPXAU120	LPXC10 (NO)	LPXC01 (NC)	LPXLPM8 (185...265VAC)

Pushbuttons and selector switches **PLatinum** in KITS

Ø22mm chromed plastic and metal

Ø22mm metal LPS type



Order code	Colour	Actuator	Mounting adapter	NO contact elements	NC contact elements
Pushbutton actuators, spring return. Flush.					
LPSB102K10		LPSB102	LPXAU120M	LPXC10 (NO)	-
LPSB103K10		LPSB103	LPXAU120M	LPXC10 (NO)	-
LPSB104K01		LPSB104	LPXAU120M	-	LPXC01 (NC)
LPSB105K10		LPSB105	LPXAU120M	LPXC10 (NO)	-
LPSB106K10		LPSB106	LPXAU120M	LPXC10 (NO)	-
LPSB108K10		LPSB108	LPXAU120M	LPXC10 (NO)	-



Order code	Colour	Actuator	Mounting adapter	NO contact elements	NC contact elements	LED light elements
Illuminated button actuators, spring return. Flush.						
LPSBL103K11PB3		LPSBL103	LPXAU120M	LPXC10 (NO)	LPXC01 (NC)	LPXLPB3 (12...30VAC/DC)
LPSBL103K11PM3		LPSBL103	LPXAU120M	LPXC10 (NO)	LPXC01 (NC)	LPXLPM3 (185...265VAC)
LPSBL104K11PB4		LPSBL104	LPXAU120M	LPXC10 (NO)	LPXC01 (NC)	LPXLPB4 (12...30VAC/DC)
LPSBL104K11PM4		LPSBL104	LPXAU120M	LPXC10 (NO)	LPXC01 (NC)	LPXLPM4 (185...265VAC)
LPSBL105K11PB5		LPSBL105	LPXAU120M	LPXC10 (NO)	LPXC01 (NC)	LPXLPB5 (12...30VAC/DC)
LPSBL105K11PM5		LPSBL105	LPXAU120M	LPXC10 (NO)	LPXC01 (NC)	LPXLPM5 (185...265VAC)
LPSBL106K11PB6		LPSBL106	LPXAU120M	LPXC10 (NO)	LPXC01 (NC)	LPXLPB6 (12...30VAC/DC)
LPSBL106K11PM6		LPSBL106	LPXAU120M	LPXC10 (NO)	LPXC01 (NC)	LPXLPM6 (185...265VAC)
LPSBL107K11PB8		LPSBL107	LPXAU120M	LPXC10 (NO)	LPXC01 (NC)	LPXLPB8 (12...30VAC/DC)
LPSBL107K11PM8		LPSBL107	LPXAU120M	LPXC10 (NO)	LPXC01 (NC)	LPXLPM8 (185...265VAC)



Order code	Colour	Actuator	Mounting adapter	NC contact elements
Mushroom head pushbutton actuators. Latch, turn to release.				
LPSB6644K01		LPSB6644 (ISO 13850)	LPXAU120M	LPXC01 (NC)
LPSB6744K01		LPSB6744 (ISO 13850)	LPXAU120M	LPXC01 (NC)



Order code	Type of positions	Colour	Actuator	Mounting adapter	NO contact elements	NC contact elements
Selector switch actuators lever.						
LPSS120K10			LPSS120	LPXAU120M	LPXC10 (NO)	-
LPSS130K20			LPSS130	LPXAU120M	LPXC10 (NO)	LPXC10 (NO)
LPSS131K20			LPSS131	LPXAU120M	LPXC10 (NO)	LPXC10 (NO)



Order code	Type of positions	Colour	Actuator	Mounting adapter	NO contact elements	NC contact elements	LED light elements
Illuminated selector switch actuators lever.							
LPSSL120K11PB3			LPSSL1203	LPXAU120M	LPXC10 (NO)	LPXC01 (NC)	LPXLPB3 (12...30VAC/DC)
LPSSL130K11PB3			LPSSL1303	LPXAU120M	LPXC10 (NO)	LPXC01 (NC)	LPXLPB3 (12...30VAC/DC)
LPSSL120K11PM3			LPSSL1203	LPXAU120M	LPXC10 (NO)	LPXC01 (NC)	LPXLPM3 (185...265VAC)
LPSSL130K11PM3			LPSSL1303	LPXAU120M	LPXC10 (NO)	LPXC01 (NC)	LPXLPM3 (185...265VAC)
LPSSL120K11PB4			LPSSL1204	LPXAU120M	LPXC10 (NO)	LPXC01 (NC)	LPXLPB4 (12...30VAC/DC)
LPSSL120K11PM4			LPSSL1204	LPXAU120M	LPXC10 (NO)	LPXC01 (NC)	LPXLPM4 (185...265VAC)
LPSSL120K11PB5			LPSSL1205	LPXAU120M	LPXC10 (NO)	LPXC01 (NC)	LPXLPB5 (12...30VAC/DC)
LPSSL120K11PM5			LPSSL1205	LPXAU120M	LPXC10 (NO)	LPXC01 (NC)	LPXLPM5 (185...265VAC)



Order code	Type of positions	Colour	Actuator	Mounting adapter	NO contact elements
Selector switch actuators key.					
LPSS320K10			LPSS320	LPXAU120M	LPXC10 (NO)

Ø60mm emergency illuminated disk for Ø22mm mushroom buttons



LPXDAU1150...

Order code	Text	Qty per pkg	Wt
		n°	[kg]

24VAC/DC auxiliary supply.

LPXDAU111024	—	1	0.100
LPXDAU114024	EMERGENZA ARRESTO	1	0.100
LPXDAU115024	EMERGENCY STOP	1	0.100
LPXDAU118024	ARRET D'URGENCE / NOT AUS / PARO EMERGENCIA	1	0.100
LPXDAU123024	IEC60417-5638 symbol according to ISO 13850	1	0.100

110...120VAC auxiliary supply.

LPXDAU111230	—	1	0.100
LPXDAU114110	EMERGENZA ARRESTO	1	0.100
LPXDAU115110	EMERGENCY STOP	1	0.100
LPXDAU118110	ARRET D'URGENCE / NOT AUS / PARO EMERGENCIA	1	0.100
LPXDAU123110	IEC60417-5638 symbol according to ISO 13850	1	0.100

220...240VAC auxiliary supply.

LPXDAU111230	—	1	0.100
LPXDAU114230	EMERGENZA ARRESTO	1	0.100
LPXDAU115230	EMERGENCY STOP	1	0.100
LPXDAU118230	ARRET D'URGENCE / NOT AUS / PARO EMERGENCIA	1	0.100
LPXDAU123230	IEC60417-5638 symbol according to ISO 13850	1	0.100

General characteristics

The main function of the illuminated plastic disk is to make the emergency button more identifiable by ensuring its operation in conditions of low visibility. The illuminated plastic disks integrate two light functions: steady or flashing. The function choice depends on the wiring. They are suitable for use with Ø22mm plastic chrome LPC and metallic LPS operators.

Operational characteristics

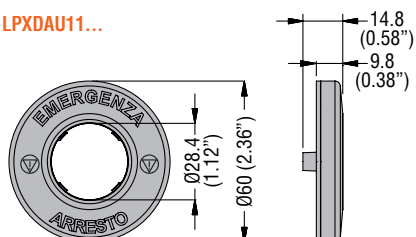
- auxiliary supply voltage: 24VAC/DC, 110...120VAC or 220...240VAC
- rated frequency: 50/60Hz
- electrical life: >30,000 hours
- ambient conditions:
 - operating temperature: -25...+70°C
 - storage temperature: -40...+85°C
- degree of protection:
 - per IEC/EN: IP66, IP67 and IP69K
 - per UL: type 1, 2, 3R, 4, 4X, 12, 12K.

Certifications and compliance

Certifications: cULus.
Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-5-1, UL508, CSA C22.2 n°14

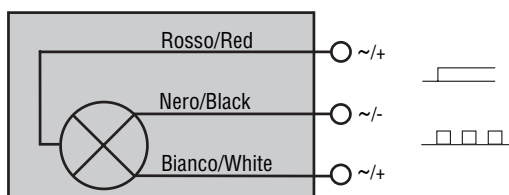
Dimensions [mm(in)]

LPXDAU11...

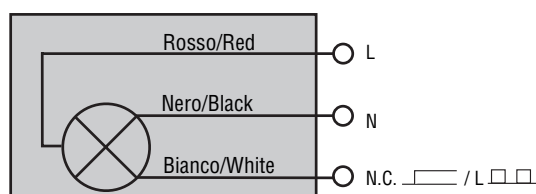


Wiring diagrams

LPXDAU...024



LPXDAU...110 - LPXDAU...230



Signal towers and beacons

Signal towers Ø50mm

LTN... series



LTN50ML1



LTN50MSH



LTN50MSL



LTN50C



LTN50MW024



LTN50MWB024



LTN50BP1



LTN50BM1



LTN50BP2 1



LTN50BM2



LTN50BP3



LTN50BM3



LTN50P100



LTN50P050



LTN50P100T



LTN50P050T

Order code	Description	Qty per pkg	Wt.
		n°	[kg]

Blinking or steady light modules.
Integrated LED lamp.

LTN50ML1	Orange	1	0.037
LTN50ML3	Green	1	0.037
LTN50ML4	Red	1	0.037
LTN50ML6	Blue	1	0.037
LTN50ML8	White	1	0.037

Continuous sound modules.

LTN50MSL	85dB. IP65, Type 4	1	0.050
LTN50MSH	100dB. IP20	1	0.048

Wiring modules.

LTN50MW024	12...24VDC tube mounting	1	0.136
LTN50MW230	110...230VAC tube mounting	1	0.222
LTN50MWB024	12...24VDC screw mounting	1	0.098
LTN50MWB230	110...230VAC screw mounting	1	0.237

Top cover.

LTN50C	To be used only if sound module is not present	5	0.010
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Fixing bases.

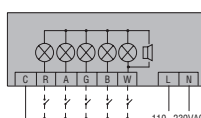
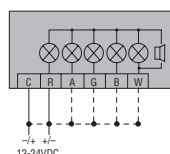
LTN50BP1	Horizontal surface mounting, black plastic	1	0.032
LTN50BP2	Wall mounting, grey plastic	1	0.046
LTN50BP3	Horizontal surface or wall mounting, black plastic	1	0.076
LTN50BM1	Horizontal surface mounting, metal	1	0.072
LTN50BM2	Wall mounting, metal	1	0.088
LTN50BM3	Horizontal surface or wall mounting, metal	1	0.173

Extension tubes.

LTN50P050T	50mm/1.97", metal with threaded end	5	0.014
LTN50P050	50mm/1.97", metal	5	0.014
LTN50P100T	100mm/3.94", metal with threaded end	5	0.027
LTN50P100	100mm/3.94", metal	5	0.028
LTN50P250T	250mm/9.84", metal with threaded end	5	0.066
LTN50P250	250mm/9.84", metal	5	0.068
LTN50P400T	400mm/15.75", metal with threaded end	5	0.108
LTN50P400	400mm/15.75", metal	5	0.109

1 For fixing base LTN50BP2 the extension tube LTN... without threaded end has to be used.

2 Extension tubes with threaded end LTN...T have to be used for all the fixing bases except for LTN50BP2.



General characteristics

Signal towers are fundamental elements in manufacturing processes for the visual and audible signaling of the system status.

The signal towers can be assembled by stacking up to 5 light modules or 4 light modules and 1 sound module.

Technical characteristics

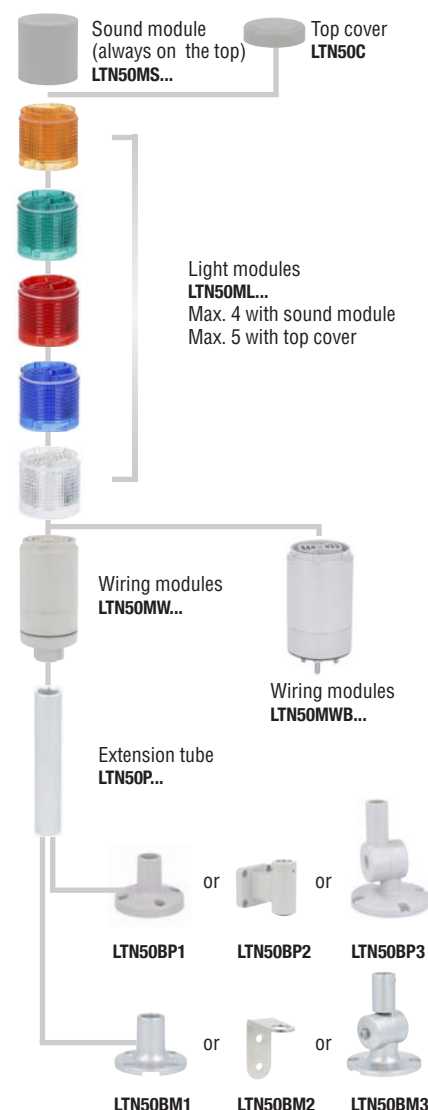
- maximum operational voltage: 26.4VDC - 240VAC
- light, sound and wiring modules consumption:
 - light modules: 1.2VA
 - sound modules: 1.7VA
 - wiring modules: 1VA
- number of stackable modules: 5
- connections: screw clamp terminals and conductor section 0.25...1.5mm²/AWG16...24
- operating temperature: -30...+50°C
- IEC degree of protection: IP65 for wiring modules, light modules, top cover and sound module LTN50MSL.

Certifications and compliance

Certifications obtained: cULus, EAC.

Compliant with standards: IEC/EN/BS 60947-5-1, IEC/EN/BS 60947-1, UL508, CSA C22.2 n° 14.

Combinations



Signal towers and beacons

Signal towers Ø70mm

LTN... series



LTN70ML3



LTN70MSH



LTN70MSL



LTN70C



LTN70MW024



LTN70MWB024



LTN70BP1



LTN70BM1



LTN70BP2 ①



LTN70BM2



LTN70BP3



LTN70BM3



LTN70P100



LTN70P050



LTN70P100T



LTN70P050T

Order code	Description	Qty per pkg	Wt.
		n°	[kg]

Blinking or steady light modules.
Integrated LED lamp.

LTN70ML1	Orange	1	0.066
LTN70ML3	Green	1	0.066
LTN70ML4	Red	1	0.066
LTN70ML6	Blue	1	0.066
LTN70ML8②	White	1	0.066

Continuous sound modules.

LTN70MSL	85dB. IP65, Type 4	1	0.065
LTN70MSH	100dB. IP20	1	0.062

Wiring modules.

LTN70MW024	12...24VDC tube mounting	1	0.170
LTN70MW230	110...230VAC tube mounting	1	0.277
LTN70MWB024	12...24VDC screw mounting	1	0.170
LTN70MWB230	110...230VAC screw mounting	1	0.277

Top cover.

LTN70C	To be used only if sound module is not present	5	0.014
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Fixing bases.

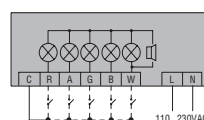
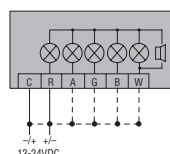
LTN70BP1	Horizontal surface, mounting, black plastic	1	0.040
LTN70BP2②	Horizontal surface mounting, black plastic	1	0.067
LTN70BP3	Horizontal surface or wall mounting, black plastic	1	0.094
LTN70BM1	Horizontal surface mounting, metal	1	0.101
LTN70BM2	Wall mounting, metal	1	0.131
LTN70BM3	Horizontal surface or wall mounting, metal	1	0.242

Extension tubes②.

LTN70P050T	50mm/1.97", metal with threaded end	5	0.022
LTN70P050	50mm/1.97", metal	5	0.022
LTN70P100T	100mm/3.94", metal with threaded end	5	0.039
LTN70P100	100mm/3.94", metal	5	0.043
LTN70P250T	250mm/9.84, metal with threaded end	5	0.100
LTN70P250	250mm/9.84, metal	5	0.105
LTN70P400T	400mm/15.75", metal with threaded end	5	0.163
LTN70P400	400mm/15.75", metal	5	0.167

① For fixing base LTN70BP2 the extension tube LTNP... without threaded end has to be used.

② Extension tubes with threaded end LTNP...T have to be used for all the fixing bases except for LTN70BP2.



General characteristics

The signal towers can be assembled by stacking up to 5 light modules or 4 light modules and 1 sound module.

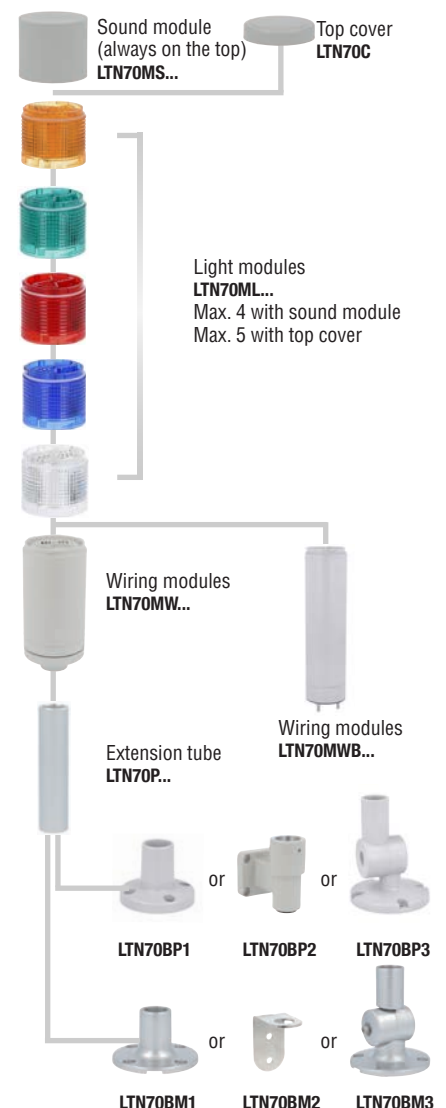
Technical characteristics

- maximum operational voltage: 26.4VDC - 240VAC
- light, sound and wiring modules consumption:
 - light modules: 1.2VA
 - sound modules: 1.7VA
 - wiring modules: 1VA
- number of stackable modules: 5
- connections: screw clamp terminals and conductor section 0.25...1,5mm²/AWG16...24
- operating temperature: -30...+50°C
- IEC degree of protection: IP65 for wiring modules, light modules, top cover and sound module LTN70MSL.

Certifications and compliance

Certifications obtained: cULus, EAC.
Compliant with standards: IEC/EN/BS 60947-5-1, IEC/EN/BS 60947-1, UL508, CSA C22.2 n° 14.

Combinations



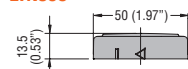
Signal towers and beacons

Signal towers Ø50mm
Dimensions [mm(in)]

SIGNAL TOWERS Ø50mm/1.97"

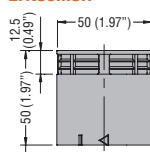
Top cover

LTN50C

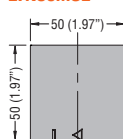


Sound modules

LTN50MSH

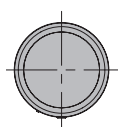
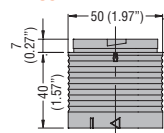


LTN50MSL



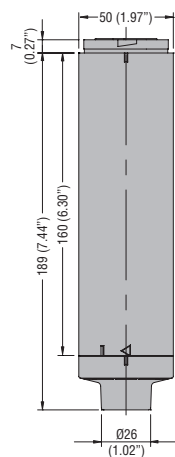
Light modules

LTN50ML

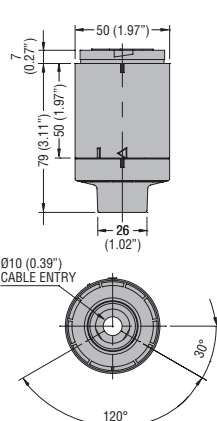


Wiring modules tube mounting

LTN50MW230

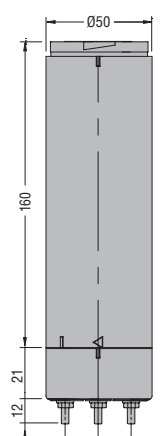


LTN50MW024

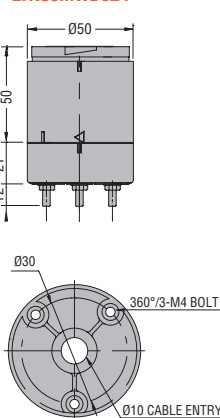


Wiring modules screw mounting

LTN50MB230

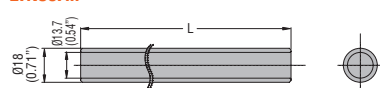


LTN50MB024



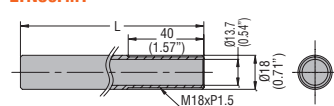
Extension tubes

LTN50P...



Type	L (mm/in)
LTP50P050	50 (1.97")
LTP50P100	100 (3.94")
LTP50P250	250 (9.84")
LTP50P400	400 (15.75")

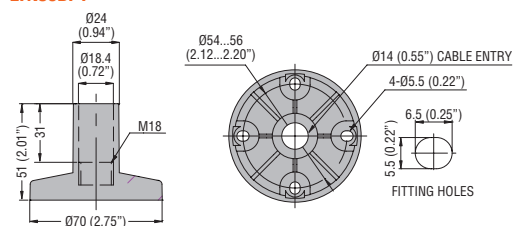
LTN50P...T



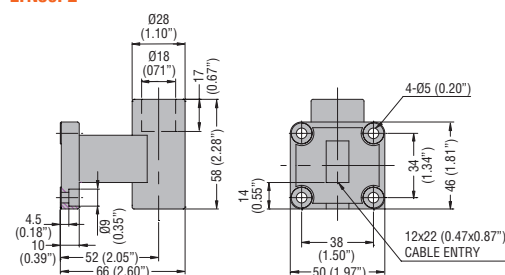
Type	L (mm/in)
LTP50P050T	50 (1.97")
LTP50P100T	100 (3.94")
LTP50P250T	250 (9.84")
LTP50P400T	400 (15.75")

Fixing bases

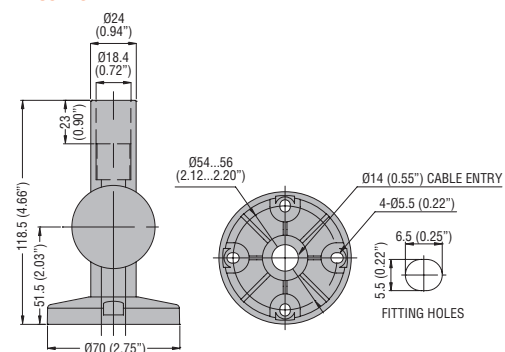
LTN50BP1



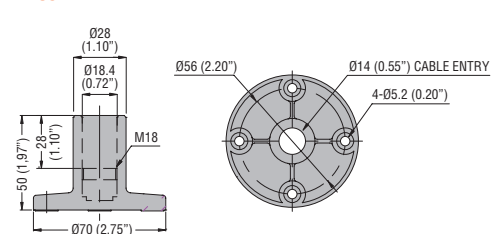
LTN50P2



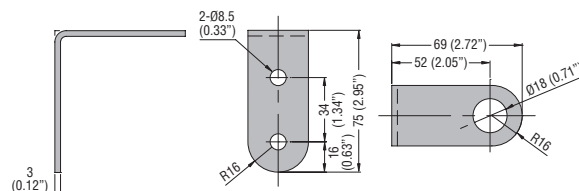
LTN50BP3



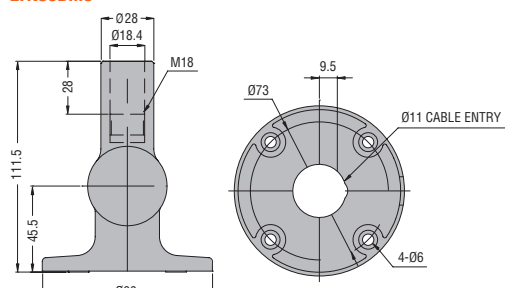
LTN50BM1



LTN50M2



LTN50BM3

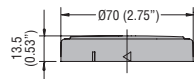


Signal towers and beacons

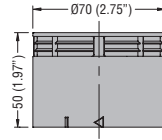
Signal towers Ø70mm
Dimensions [mm(in)]

SIGNAL TOWERS Ø70mm/2.75"

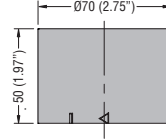
Top cover LTN70C



Sound modules LTN70MSH

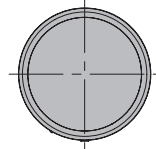
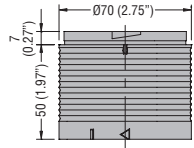


LTN70MSL



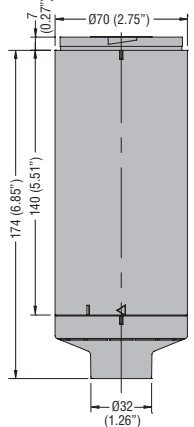
Light modules

LTN70ML

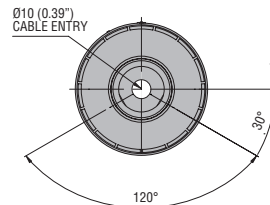
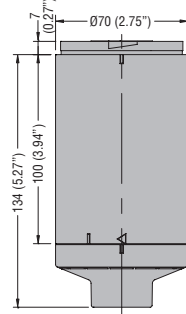


Wiring modules tube mounting

LTN70MW230

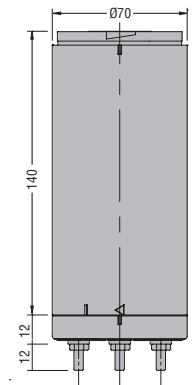


LTN70MW024

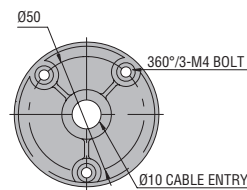
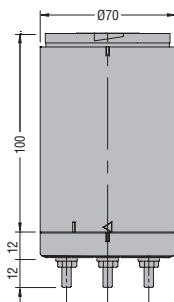


Wiring modules screw mounting

LTN70MWB230

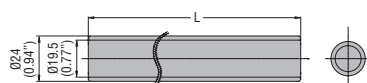


LTN70MWB024

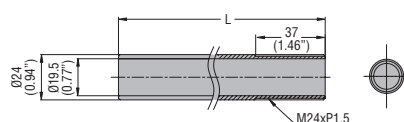


Extension tubes

LTN70P...



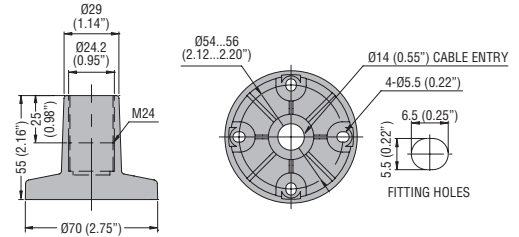
LTN70P...T



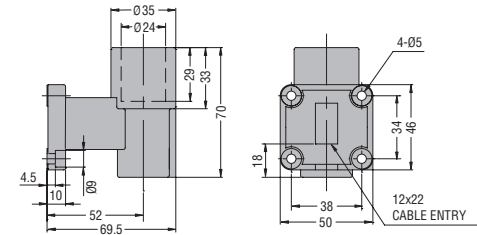
Type	L (mm/in)
LTP70P050	50 (1.97")
LTP70P100	100 (3.94")
LTP70P250	250 (9.84")
LTP70P400	400 (15.75")

Type	L (mm/in)
LTP70P050T	50 (1.97")
LTP70P100T	100 (3.94")
LTP70P250T	250 (9.84")
LTP70P400T	400 (15.75")

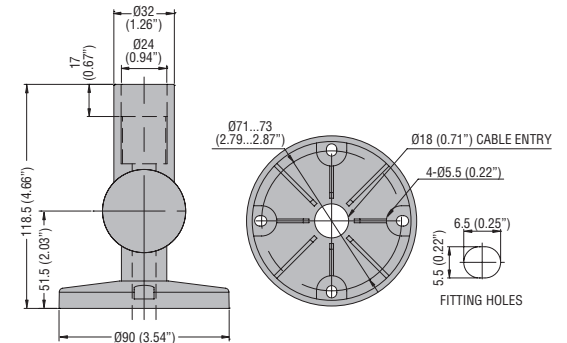
Fixing bases LTN70BP1



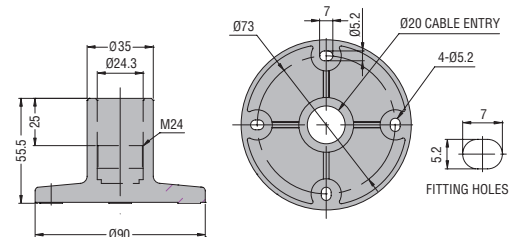
LTN70P2



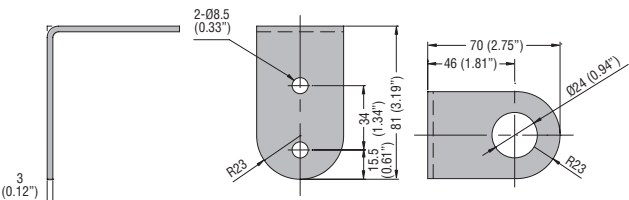
LTN70BP3



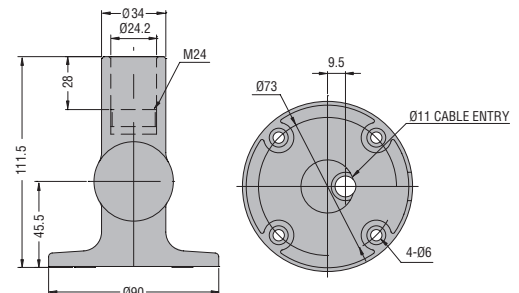
LTN70BM1



LTN70M2



LTN70BM3



SWITCH DISCONNECTORS



COMPACT SIZE

The three-pole switch disconnectors are made up of a body with compact dimensions: 162mm/6.38" wide up to 315A, 203mm/7.99" from 320A to 500A, 231mm/9.09" for 630A, 284mm/11.18" from 630A to 800A and 314mm/12.36" for 1000A.

UL98 VERSION

Switch disconnectors are listed for USA and Canada, certified according to UL98/CSA C22.2 n° 4. General use currents available: 100-200-400-600-800A.

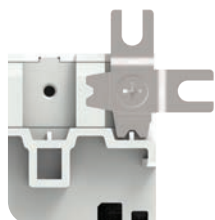


FOUR-POLE VERSION AVAILABLE

Switch disconnectors are supplied with three-pole configuration. To realise the four-pole version, a fourth-pole add-on can be purchased.

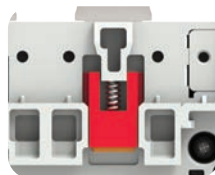
EASY INSTALLATION ON DIN RAIL

The switch disconnectors can be mounted on a DIN rail (for sizes from 160A to 315A) or on a plate by screw fixing.



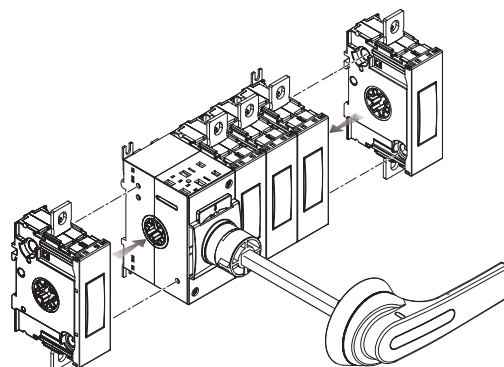
FLEXIBLE INSTALLATION ORIENTATION

Switch disconnectors can be installed in all directions. The clips for screw fixing can be adjusted both in rotation and position (flexible fixing).



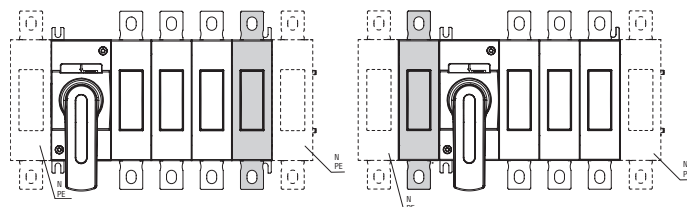
ANTI-SLIDE INSERT FOR DIN RAIL

For sizes from 160A to 315A there are two rubber pad inserts that prevent the sliding of switch disconnectors on the DIN rail.



COMPONENT FLEXIBILITY

It is possible to mount the fourth pole, neutral and earth/ground terminals on both sides of the switch disconnectors using 2 screws.



CHANGEOVER SWITCHES



COMPACT SIZE

Changeover switches are made up of a body with compact dimensions:
- 185mm/7.28" wide for three-pole versions up to 315A, 237mm/9.33" from 320A to 500A and 263mm/10.35" for 630A, 340mm/13.38" from 631A to 800A and 370mm/14.57" for 1000A;
- 220mm/8.66" wide for the four-pole versions up to 315A, 281mm/11.06" from 320A to 500A, 317mm/12.48" for 630A and 445mm/17.50" for 1000A.

EASY INSTALLATION

The changeover switches can be mounted on a plate by screws.

UL1008 VERSION

The changeover switches are listed for USA and Canada, certified according to UL1008/CSA C22.2 n° 178. General use currents available: 100-200-400A.



THREE AND FOUR-POLE VERSION

Changeover switches are already supplied assembled in three-pole and four-pole configuration.

Switch disconnectors

GL series from 100A to 1000A

● WIDE RANGE OF ACCESSORIES

A wide choice of auxiliary contacts, terminal covers, phase barriers, terminal clamps, bridging bars, shafts and handles are available to satisfy every installation need.

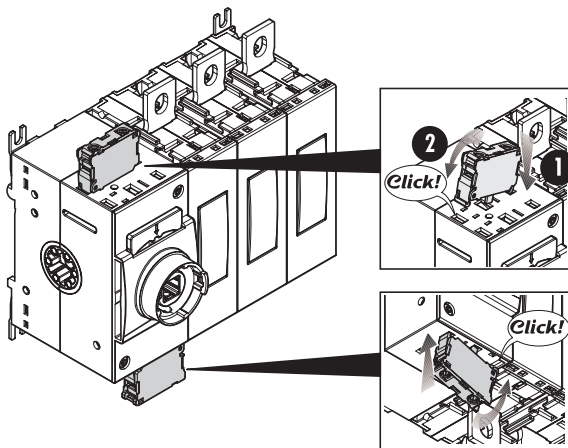


● HIGH IEC ELECTRICAL CAPABILITY

The rated currents in AC23A up to 1000A 500V and 800A 690V are the highest of the category.

● ADD-ON AUXILIARY CONTACTS

The same add-on block is suitable for all the switch disconnectors and changeover switches. Contacts are mounted on main switching actuator (max 8 contacts for switch disconnectors; max 4 contacts for changeover switches).



● CAPTIVE NUTS

Accessory that allows even easier wiring of terminals using a single key.



● VISIBLE CONTACTS: MAXIMUM SECURITY!

Thanks to the window on the individual power poles the open or closed switch status is clearly visible at a distance.



● HANDLES VERSION UL508A

In compliance with UL508A, which requires that the live electrical panel can be inspected by authorized personnel, the handles of the switch disconnectors GL series are equipped with a door lock release function in the ON position.

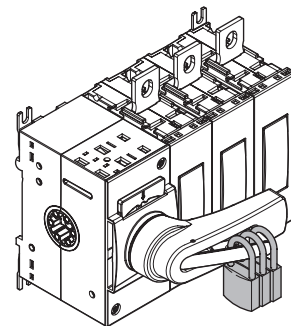
● IP66, IP69K AND NEMA 4X HANDLES

A wide range of screw fixing pistol grip handles are available with the maximum degree of protection on the market.



● PADLOCKABLE HANDLES

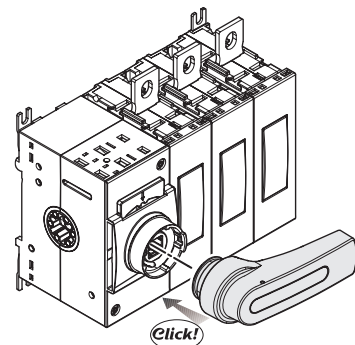
All direct and door coupling handles are equipped with integrated padlock mechanism.



● HANDLES

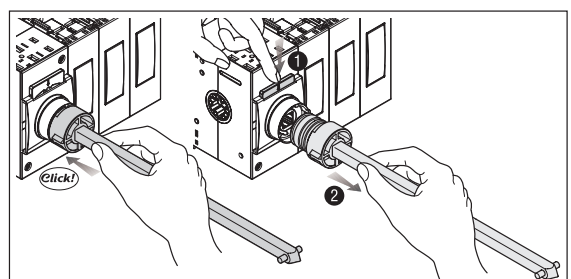
Switch disconnectors and changeover switches are standard supplied without any handles. By purchasing the direct operating handle separately it is possible to create a direct operating version. The handles can be mounted and removed very easily thanks to the snap-on assembly.

By purchasing a shaft extension and a door coupling handle separately it is possible to create the door coupling version.



● SNAP-ON SHAFT MOUNTING

Shafts can be mounted and removed very easily by snapping on the front of the switch. This feature allows fast installation and easy accessibility to the panel in case of maintenance.



Switch disconnectors

GL series from 100A to 1000A



Summary table of combinations



IEC/EN/BS



Type	IEC conventional free air thermal current I _{th}	IEC rated operational current I _e		IEC reactive power for control of capacitors 400V	Fourth pole	Neutral terminal	Earth/ground terminal	Direct operating handle	
	AC21A (≤690V)	AC23A (≤400V)	AC23A (≤500V)					Black	Red/Yellow
Order code	[A]	[A]	[A]	[kvar]	Order code	Order code	Order code	Order code	Order code

IEC/EN/BS three-pole switch disconnectors.

GL0160C1	160	160	160	80	GLX420315	GLX300	GLX301	GLX61DB	GLX61D
GL0200C1	200	200	200	100					
GL0250C1	250	250	250	115					
GL0315C1	315	315	250	145					
GL0320C1	320	320	320	145	GLX420320	GLX302	GLX303	GLX62DB	GLX62D
GL0400C1	400	400	400	180	GLX420400				
GL0500C1	500	500	500	200	GLX420500				
GL0630C1	630	630	500	250	GLX420630				
GL0631C1	630	630	630	250	GLX420631	GLX304	GLX305	GLX63DB	GLX63D
GL0800C1	800	800	800	310	GLX420800				
GL1000C1	1000	1000	800	460	GLX421000	GLX306	GLX307		

IEC/EN/BS three-pole changeover switches.

GLC0160C1	160	160	160	-	-	-	-	GLX61DB	-
GLC0200C1	200	200	200						
GLC0250C1	250	250	250						
GLC0315C1	315	250	315						
GLC0320C1	320	320	320					GLX62DB	
GLC0400C1	400	400	400						
GLC0500C1	500	500	500						
GLC0630C1	630	630	500	-	-	-	-	GLX63DB	-
GLC0631C1	630	630	630						
GLC0800C1	800	800	800						
GLC1000C1	1000	1000	800						

IEC/EN/BS four-pole changeover switches.

GLC0160T4C1	160	160	160	-	-	-	-	GLX61DB	-
GLC0200T4C1	200	200	200						
GLC0250T4C1	250	250	250						
GLC0315T4C1	315	250	315						
GLC0320T4C1	320	320	320					GLX62DB	
GLC0400T4C1	400	400	400						
GLC0500T4C1	500	500	500						
GLC0630T4C1	630	630	500	-	-	-	-	GLX63DB	-
GLC0631T4C1	630	630	630						
GLC0800T4C1	800	800	800						
GLC1000T4C1	1000	1000	800						

Switch disconnectors

GL series from 100A to 1000A



	Door coupling handle		Shaft extensions for door coupling handles			Shaft alignment ring	Auxiliary contacts	Terminal covers	Phase barriers	Terminal clamps	Bridging bars	Captive nuts	
	Black	Yellow/red		Panel depth									Shaft section
	Order code	Order code	Order code	min [mm/in]	min [mm/in]	□ [mm/in]	Order code	Order code	Order code	Order code	Order code	Order code	
	GLX61B	GLX61	GLX7150S10 GLX7200S10 GLX7300S10 GLX7400S10 GLX7500S10	124/4.88"	194/7.64" 244/9.61" 344/13.54" 444/17.48" 544/21.42"	10/0.4"	GLX00	GLX1001 (1NC) GLX1010EA (1EB)	GLX800 (3 pcs)	GLX900 (6 pcs)	GLX500Ⓢ GLX501Ⓢ	—	GLX550 (8 pcs)
	GLX62B	GLX62	GLX7150S10 GLX7200S10 GLX7300S10 GLX7400S10 GLX7500S10	157/6.18"	227/8.94" 277/10.90" 377/14.84" 477/18.78" 577/22.72"				GLX801 (4 pcs)	GLX802 (3 pcs) GLX803 (4 pcs)			GLX901 (8 pcs) GLX902 (6 pcs) GLX903 (8 pz) Built-in
	GLX63B	GLX63	GLX7150S12 GLX7200S12 GLX7300S12 GLX7400S12 GLX7500S12	212/8.34"	232/9.13" 282/11.10" 382/15.03" 482/18.97" 582/22.91"	12/0.47"	GLX00	GLX1001 (1NC) GLX1010EA (1EB)	GLX804 (3 pcs) GLX805 (4 pcs)	GLX904 (6 pcs) GLX905 (8 pcs) Built-in	GLX506Ⓢ GLX507Ⓢ	—	GLX552 (8 pcs) GLX553 (8 pcs)
	GLX61CB	—	GLX7150S10 GLX7200S10 GLX7300S10 GLX7400S10 GLX7500S10	220/8.66"	290/11.42" 340/13.38" 440/17.32" 540/21.26" 640/25.20"	10/0.4"	GLX00	GLX1001 (1NC) GLX1010EA (1EB)	GLX800 (3 pcs)	GLX900 (6 pcs)			GLX500Ⓢ GLX501Ⓢ
	GLX62CB		GLX7150S10 GLX7200S10 GLX7300S10 GLX7400S10 GLX7500S10	267/10.51"	337/13.27" 387/15.24" 487/19.17" 587/23.11" 687/27.05"				GLX801 (4 pcs)	GLX802 (3 pcs) GLX803 (4 pcs)	GLX901 (8 pcs) GLX902 (6 pcs) GLX903 (8 pcs) Built-in	GLX502Ⓢ GLX503Ⓢ GLX504Ⓢ GLX505Ⓢ	
	GLX63CB	—	GLX7150S12 GLX7200S12 GLX7300S12 GLX7400S12 GLX7500S12	308/12.12"	378/14.88" 428/16.85" 528/20.78" 628/24.72" 728/28.66"	12/0.47"	GLX00	GLX1001 (1NC) GLX1010EA (1EB)	GLX804 (3 pcs) GLX805 (4 pcs)	GLX904 (6 pcs) GLX905 (8 pcs) Built-in	GLX506Ⓢ GLX507Ⓢ	GLX208 (3 pcs) GLX209 (4 pcs)	GLX552 (8 pcs) GLX553 (8 pcs)
	GLX61CB	—	GLX7150S10 GLX7200S10 GLX7300S10 GLX7400S10 GLX7500S10	220/8.66"	290/11.42" 340/13.38" 440/17.32" 540/21.26" 640/25.20"	10/0.4"	GLX00	GLX1001 (1NC) GLX1010EA (1EB)	GLX800 (3 pcs)	GLX900 (6 pcs)			GLX500Ⓢ GLX501Ⓢ
	GLX62CB		GLX7150S10 GLX7200S10 GLX7300S10 GLX7400S10 GLX7500S10	267/10.51"	337/13.27" 387/15.24" 487/19.17" 587/23.11" 687/27.05"				GLX801 (4 pcs)	GLX802 (3 pcs) GLX803 (4 pcs)	GLX901 (8 pcs) GLX902 (6 pcs) GLX903 (8 pcs) Built-in	GLX502Ⓢ GLX503Ⓢ GLX504Ⓢ GLX505Ⓢ	
	GLX63CB	—	GLX7150S12 GLX7200S12 GLX7300S12 GLX7400S12 GLX7500S12	308/12.12"	378/14.88" 428/16.85" 528/20.78" 628/24.72" 728/28.66"	12/0.47"	GLX00	GLX1001 (1NC) GLX1010EA (1EB)	GLX804 (3 pcs) GLX805 (4 pcs)	GLX904 (6 pcs) GLX905 (8 pcs) Built-in	GLX506Ⓢ GLX507Ⓢ	GLX208 (3 pcs) GLX209 (4 pcs)	GLX552 (8 pcs) GLX553 (8 pcs)

- ① 1-piece set. 1 terminal connection for single cable:
– Maximum conductor cross section: 120mm²/250kcmil;
– Minimum conductor cross section: 16mm²/6AWG.

- ② 3-piece set. 3 terminals connection for single cable:
– Maximum conductor cross section: 120mm²/250kcmil;
– Minimum conductor cross section: 16mm²/6AWG.

- ③ 1-piece set. 1 terminal connection for single cable:
– Maximum conductor cross section: 304mm²/600kcmil;
– Minimum conductor cross section: 33.6mm²/2AWG.

- ④ 3-piece set. 3 terminals connection for single cable:
– Maximum conductor cross section: 304mm²/600kcmil;
– Minimum conductor cross section: 33.6mm²/2AWG.

- ⑤ 1-piece set. 1 terminal connection for double cables:
– Maximum conductor cross section: 2x152mm²/2x300kcmil;
– Minimum conductor cross section: 2x21.2mm²/2x4AWG.

- ⑥ 3-piece set. 3 terminals connection for double cables:
– Maximum conductor cross section: 2x152mm²/2x300kcmil;
– Minimum conductor cross section: 2x21.2mm²/2x4AWG.

- ⑦ 1-piece set. 1 terminals connection for double cables:
– Maximum conductor cross section: 4x304mm²/4x600kcmil;
– Minimum conductor cross section: 4x33.6mm²/4x2AWG.

- ⑧ 3-piece set. 3 terminals connection for double cables:
– Maximum conductor cross section: 4x304mm²/4x600kcmil;
– Minimum conductor cross section: 4x33.6mm²/4x2AWG.

Switch disconnectors

GL series from 100A to 1000A



Summary table of combinations



cULus



Type	General purpose current	Max 3-phase horsepower rating	Fourth pole	Neutral terminal	Earth/ground terminal	Direct operating handle		
						Black	Red/Yellow	
Order code	[A]	[HP/V]	Order code	Order code	Order code	Order code	Order code	
UL98 three-pole switch disconnectors.								
GL0100C1UL	100	30/240 - 75/480 - 100/600	GLX420100UL	GLX300	GLX301	GLX61DB	GLX61D	
GL0200C1UL	200	75/240 - 150/480 - 200/600	GLX420200UL					
GL0400C1UL	400	125/240 - 250/480 - 350/600	GLX420400UL	GLX302	GLX303	GLX62DB	GLX62D	
GL0600C1UL	600	200/240 - 450/480 - 500/600	GLX420600UL	GLX304	GLX305	GLX63DB	GLX63D	
GL0800C1UL	800	250/240 - 500/480 - 500/600	GLX420800UL	GLX306	GLX307			
UL1008 three-pole changeover switches.								
GLC0100C1UL	100	30/240 - 75/480 - 100/600	-	-	-	GLX61DB	-	
GLC0200C1UL	200	75/240 - 150/480 - 200/600						
GLC0400C1UL	400	125/240 - 250/480 - 350/600				GLX62DB		
UL1008 four-pole changeover switches.								
GL0C100T4C1UL	100	30/240 - 75/480 - 100/600	-	-	-	GLX61DB	-	
GL0C200T4C1UL	200	75/240 - 150/480 - 200/600						
GLC0400T4C1UL	400	125/240 - 250/480 - 350/600				GLX62DB		

Switch disconnectors

GL series from 100A to 1000A



	Door coupling handle		Shaft extensions for door coupling handles			Shaft alignment ring	Auxiliary contacts	Terminal covers	Phase barriers	Terminal clamps	Bridging bars	Captive nuts	
	Black	Red/Yellow		Panel depth									Shaft section
	Order code	Order code	Order code	min [mm/in]	max [mm/in]	□ [mm/in]	Order code	Order code	Order code	Order code	Order code	Order code	
	GLX61B	GLX61	GLX7150S10 GLX7200S10 GLX7300S10 GLX7400S10 GLX7500S10	124/4.88"	194/7.64" 244/9.61" 344/13.54" 444/17.48" 544/21.42"	10/0.4"	GLX00	GLX1001 (1NC) GLX1010EA (1EB)	GLX800 (3 pcs) GLX801 (4 pcs)	Built-in	GLX500① GLX501②	–	GLX550 (8 pcs)
	GLX62B	GLX62	GLX7150S10 GLX7200S10 GLX7300S10 GLX7400S10 GLX7500S10	157/6.18"	227/8.94" 277/10.90" 377/14.84" 477/18.78" 577/22.72"				GLX802 (3 pcs) GLX803 (4 pcs)	Built-in	GLX502③ GLX503④ GLX504⑤ GLX505⑥		GLX551 (8 pcs)
	GLX63B	GLX63	GLX7150S12 GLX7200S12 GLX7300S12 GLX7400S12 GLX7500S12	212/8.34"	232/9.13" 282/11.10" 382/15.03" 482/18.97" 582/22.91"	12/0.47"	GLX00	GLX1001 (1NC) GLX1010EA (1EB)	GLX804 (3 pcs) GLX805 (4 pcs)	GLX904 (6 pcs) GLX905 (8 pcs) Built-in	GLX506⑦ GLX507⑧	–	GLX552 (8 pcs) GLX553 (8 pcs)
	GLX61CB	–	GLX7150S10 GLX7200S10 GLX7300S10 GLX7400S10 GLX7500S10	220/8.66"	290/11.42" 340/13.38" 440/17.32" 540/21.26" 640/25.20"	10/0.4"	GLX00	GLX1001 (1NC) GLX1010EA (1EB)	GLX800 (3 pcs) GLX801 (4 pcs)	Built-in	GLX500① GLX501②	GLX201 (3 pcs) GLX202 (4 pcs)	GLX550 (8 pcs)
	GLX62CB		GLX7150S10 GLX7200S10 GLX7300S10 GLX7400S10 GLX7500S10	267/10.51"	337/13.27" 387/15.24" 487/19.17" 587/23.11" 687/27.05"				GLX802 (3 pcs) GLX803 (4 pcs)	Built-in	GLX502③ GLX503④ GLX504⑤ GLX505⑥	GLX206 (3 pcs) GLX207 (4 pcs)	GLX551 (8 pcs)
	GLX61CB	–	GLX7150S10 GLX7200S10 GLX7300S10 GLX7400S10 GLX7500S10	220/8.66"	290/11.42" 340/13.38" 440/17.32" 540/21.26" 640/25.20"	10/0.4"	GLX00	GLX1001 (1NC) GLX1010EA (1EB)	GLX800 (3 pcs) GLX801 (4 pcs)	Built-in	GLX500① GLX501②	GLX201 (3 pcs) GLX202 (4 pcs)	GLX550 (8 pcs)
	GLX62CB		GLX7150S10 GLX7200S10 GLX7300S10 GLX7400S10 GLX7500S10	267/10.51"	337/13.27" 387/15.24" 487/19.17" 587/23.11" 687/27.05"				GLX802 (3 pcs) GLX803 (4 pcs)	Built-in	GLX502③ GLX503④ GLX504⑤ GLX505⑥	GLX206 (3 pcs) GLX207 (4 pcs)	GLX551 (8 pcs)

① 1-piece set. 1 terminal connection for single cable:
– Maximum conductor cross section: 120mm²/250kcmil;
– Minimum conductor cross section: 16mm²/6AWG.

② 3-piece set. 3 terminals connection for single cable:
– Maximum conductor cross section: 120mm²/250kcmil;
– Minimum conductor cross section: 16mm²/6AWG.

③ 1-piece set. 1 terminal connection for single cable:
– Maximum conductor cross section: 304mm²/600kcmil;
– Minimum conductor cross section: 33.6mm²/2AWG.

④ 3-piece set. 3 terminals connection for single cable:
– Maximum conductor cross section: 304mm²/600kcmil;
– Minimum conductor cross section: 33.6mm²/2AWG.

⑤ 1-piece set. 1 terminal connection for double cables:
– Maximum conductor cross section: 2x152mm²/2x300kcmil;
– Minimum conductor cross section: 2x21.2mm²/2x4AWG.

⑥ 3-piece set. 3 terminals connection for double cables:
– Maximum conductor cross section: 2x152mm²/2x300kcmil;
– Minimum conductor cross section: 2x21.2mm²/2x4AWG.

⑦ 1-piece set. 1 terminals connection for double cables:
– Maximum conductor cross section: 4x304mm²/4x600kcmil;
– Minimum conductor cross section: 4x33.6mm²/4x2AWG.

⑧ 3-piece set. 3 terminals connection for double cables:
– Maximum conductor cross section: 4x304mm²/4x600kcmil;
– Minimum conductor cross section: 4x33.6mm²/4x2AWG.

Switch disconnectors

GL series from 100A to 1000A

IEC/EN/BS three-pole switch disconnectors



GL0160C1...GL0315C1



GL0320C1...GL0500C1



GL0631C1...GL0800C1

UL98 three-pole switch disconnectors



GL...C1UL

Order code	IEC conventional free air thermal current Ith AC21A (≤690V)	IEC rated operational current Ie AC23A (≤415V) AC23A (≤690V)	Qty per pkg	Wt
	[A]	[A]	[A]	n° [kg]

Supplied without handle.

Complete the switch disconnector by selecting shaft extension and handle for door coupling version or the handle for direct operating version.

GL0160C1	160	160	160	1	1.740
GL0200C1	200	200	200	1	1.740
GL0250C1	250	250	250	1	1.740
GL0315C1	315	315	250	1	1.740
GL0320C1	320	320	320	1	3.460
GL0400C1	400	400	400	1	3.460
GL0500C1	500	500	500	1	3.460
GL0630C1	630	630	500	1	3.780
GL0631C1	630	630	630	1	7.450
GL0800C1	8000	800	800	1	7.450
GL1000C1	1000	1000	800	1	7.950

Order code	IEC conventional free air thermal current Ith AC21A (≤690V)	Max. 3-phase horsepower rating	Qty per pkg	Wt
	[A]	[HP/V]	n°	[kg]

Supplied without handle.

Complete the switch disconnector by selecting shaft extension and handle for door coupling version or the handle for direct operating version.

GL0100C1UL	100	30/240 75/480 100/600	1	1.900
GL0200C1UL	200	75/240 150/480 200/600	1	1.900
GL0400C1UL	400	125/240 250/480 350/600	1	3.780
GL0600C1UL	600	200/240 450/480 500/600	1	7.450
GL0800C1UL	800	250/240 500/480 500/600	1	7.950

General characteristics

- 160 to 1000A AC23 versions
- 100A, 200A, 400A, 600A and 800A general purpose according to UL98
- compact dimensions and add-on fourth-pole
- screw or 35mm DIN rail fixing to 315A. Only on a plate from 320A to 1000A
- possibility to adjust the position of the clips for screw fixing on plate
- visible contacts
- maximum number of power poles: 4.

Operational characteristics

- rated insulation voltage Ui: 1000V
- rated impulse withstand Uimp: 12kV
- mechanical life:
 - 20.000 cycles from 160A to 315A
 - 10.000 cycles from 320A to 630A
 - 5.000 cycles from 630A (GL0631...) to 1000A.

Certifications and compliance

Certifications obtained: cULus according to UL98 / CSA C22.2 n°4 for GL...UL and GLX42...UL types. Compliant with standards: IEC/EN/BS 60947-3, IEC/EN/BS 60947-1.

Switch disconnectors

GL series from 100A to 1000A

Add-on fourth pole IEC/EN/BS



GLX420315 GLX420500 GLX420630



GLX420631...800 GLX421000

Add-on fourth pole UL98



GLX420200UL GLX420400UL

Order code	IEC conventional free air thermal current Ith AC21A (≤690V)	IEC rated operational current Ie		Qty per pkg	Wt
	[A]	[A]	[A]	n°	[kg]

Simultaneous closing operation as switch disconnector poles. For GL0160C1...GL0315C1 versions.

GLX420315	315	315	250	1	0.400
For GL0320C1...GL0630C1 versions.					
GLX420320	320	320	320	1	0.900
GLX420400	400	400	400	1	0.900
GLX420500	500	500	500	1	0.900
GLX420630	630	630	500	1	0.900

For GL0631C1...GL1000C1 versions.

GLX420631	630	630	630	1	1.860
GLX420800	800	800	800	1	1.860
GLX421000	1000	1000	800	1	1.980

Order code	General purpose current	Max. 3-phase horsepower rating	Qty per pkg	Wt
	[A]	[HP/V]	n°	[kg]

Simultaneous closing operation as switch disconnector poles. For GL0100C1UL version.

GLX420100UL	100	30/240 75/480 100/600	1	0.410
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For GL0200C1UL version.

GLX420200UL	200	75/240 150/480 200/600	1	0.410
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For GL0400C1UL version.

GLX420400UL	400	125/240 250/480 350/600	1	0.900
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For GL0600C1UL version.

GLX420600UL	600	200/240 450/480 500/600	1	1.860
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For GL0800C1UL version

GLX420800UL	800	250/240 500/480 500/600	1	1.980
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General characteristics

- 160 to 1000A AC23 versions
- 100A, 200A, 400A, 600A and 800A general purpose according to UL98
- compact dimensions and add-on fourth-pole
- visible contacts
- maximum number of power poles: 4.

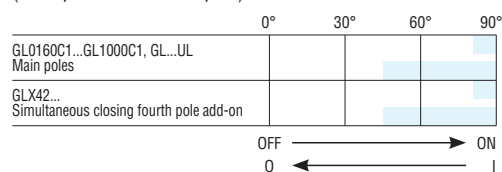
Operational characteristics

- rated insulation voltage Ui: 1000V
- rated impulse withstand Uimp: 12kV
- mechanical life:
 - 20.000 cycles from 160A to 315A
 - 10.000 cycles from 320A to 630A
 - 5.000 cycles from 630A (GL0631...) to 1000A.

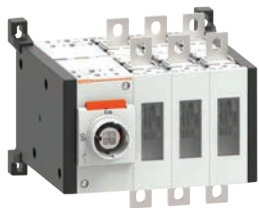
Certifications and compliance

Certifications obtained: cULus according to UL98 / CSA C22.2 n°4 for GL...UL and GLX42...UL types. Compliant with standards: IEC/EN/BS 60947-3, IEC/EN/BS 60947-1.

Strokes of GL poles (main poles and add-on pole)



IEC/EN/BS three-pole changeover switches



GLC0160C1...GLC0315C1

Order code	IEC conventional free air thermal current Ith AC21A (≤690V)	IEC rated operational current Ie		Qty per pkg	Wt
		AC33B (≤400V)	AC33B (≤690V)		
	[A]	[A]	[A]	n°	[kg]
Supplied without handle.					
GLC0160C1	160	160	160	1	3.550
GLC0200C1	200	200	200	1	3.550
GLC0250C1	250	250	250	1	3.550
GLC0315C1	315	315	250	1	3.550
GLC0320C1	320	320	320	1	7.060
GLC0400C1	400	400	400	1	7.060
GLC0500C1	500	500	500	1	7.060
GLC0630C1	630	630	500	1	7.720
GLC0631C1	630	630	630	1	16.50
GLC0800C1	800	800	800	1	16.50
GLC1000C1	1000	1000	800	1	18.00

General characteristics

- 160 to 1000A AC33 versions
- screw fixing on plate
- visible contacts.

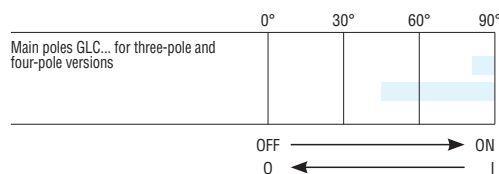
Operational characteristics

- rated insulation voltage Ui: 1000V
- rated impulse withstand Uimp: 12kV
- mechanical life:
 - 20.000 cycles from 160A to 315A
 - 10.000 cycles from 320A to 630A
 - 5.000 cycles from 630A (GLC0631...) to 1000A.

Certifications and compliance

Compliant with standards: IEC/EN/BS 60947-6-1, IEC/EN/BS 60947-3.

Strokes of GLC... poles



IEC/EN/BS four-pole changeover switches



GLC0160T4C1...GLC0315T4C1

Order code	IEC conventional free air thermal current Ith AC21A (≤690V)	IEC rated operational current Ie		Qty per pkg	Wt
		AC33B (≤400V)	AC33B (≤690V)		
	[A]	[A]	[A]	n°	[kg]
Supplied without handle.					
GLC0160T4C1	160	160	160	1	4.330
GLC0200T4C1	200	200	200	1	4.330
GLC0250T4C1	250	250	250	1	4.330
GLC0315T4C1	315	315	250	1	4.330
GLC0320T4C1	320	320	320	1	8.810
GLC0400T4C1	400	400	400	1	8.810
GLC0500T4C1	500	500	500	1	8.810
GLC0630T4C1	630	630	500	1	9.460
GLC0631T4C1	630	630	630	1	18.60
GLC0800T4C1	800	800	800	1	18.60
GLC1000T4C1	1000	1000	800	1	17.80

UL1008 three-pole changeover switches

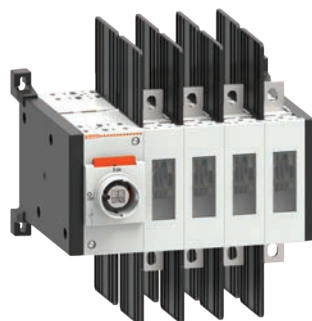
cULus



GLC0200C1UL

UL1008 four-pole changeover switches

cULus



GLC0200T4C1UL

Order code	General purpose current	Max. 3-phase horsepower rating	Qty per pkg	Wt
	[A]	[HP/V]	n°	[kg]

Supplied without handle.

GLC0100C1UL	100	30/240 75/480 100/600	1	3.800
GLC0200C1UL	200	75/240 150/480 200/600	1	3.800
GLC0400C1UL	400	125/240 250/480 350/600	1	7.560

General characteristics

- 100A, 200A and 400A general purpose according to UL1008
- screw fixing on plate
- visible contacts.

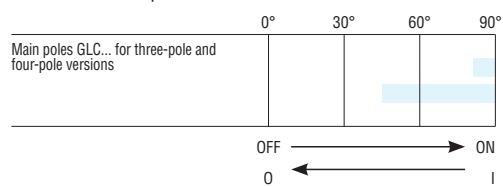
Operational characteristics

- rated insulation voltage Ui: 1,000V
- rated impulse withstand Uimp: 12kV

Compliance

Certifications obtained: cULus according to standard UL1008. Compliant with standards: IEC/EN 60947-6-1, IEC/EN 60947-3.

Strokes of GLC... poles



Order code	General purpose current	Max. 3-phase horsepower rating	Qty per pkg	Wt
	[A]	[HP/V]	n°	[kg]

Supplied without handle.

GLC0100T4C1UL	100	30/240 75/480 100/600	1	4.590
GLC0200T4C1UL	200	75/240 150/480 200/600	1	4.590
GLC0400T4C1UL	400	125/240 250/480 350/600	1	7.680

Switch disconnectors

GL series from 100A to 1000A
Accessories

Add-on blocks



GLX1010EA



GLX1001



GLX300



GLX301



GLX8...



GLX9...

Order code	Characteristics	Qty per pkg	Wt
		n°	[kg]
Auxiliary contacts.			
GLX1001	1NC with screw terminals	1	0.100
GLX1010EA	1EB with screw terminals	1	0.100
Neutral terminal.			
GLX300	For GL0100...GL0315	1	0.340
GLX302	For GL0320...GL0630	1	0.680
GLX304	For GL0631...GL0800	1	1.860
GLX306	For GL1000	1	1.980
Earth/ground terminal.			
GLX301	For GL0100...GL0315	1	0.340
GLX303	For GL0320...GL0630	1	0.680
GLX305	For GL0631...GL0800	1	1.860
GLX307	For GL1000	1	1.980
One-pole terminal covers.			
GLX800	3-piece set. 3 terminals protections. For GL0100...GL0315 and GLC0100...GLC0315	1	0.060
GLX801	4-piece set. 4 terminals protections. For GL0100...GL0315 and GLC0100...GLC0315	1	0.080
GLX802	3-piece set. 3 terminals protections. For GL0320...GL0630 and GLC0320...GLC0630	1	0.070
GLX803	3-piece set. 3 terminals protections. For GL0320...GL0630 and GLC0320...GLC0630	1	0.095
GLX804	3-piece set. 3 terminals protections. For GL0631...GL1000 and GLC0631...GLC1000	1	0.085
GLX805	8-piece set. 4 terminals protections. For GL0631...GL1000 and GLC0631...GLC1000	1	0.115
One-pole phase barrier (needed for voltages > 500V).			
GLX900	6-piece set. 3 terminals protections. For GL0160...GL0315 and GLC0160...GLC0315	1	0.070
GLX901	8-piece set. 4 terminals protections. For GL0160...GL0315 and GLC0160...GLC0315	1	0.090
GLX902	6-piece set. 3 terminals protections. For GL0320...GL0500 and GLC0320...GLC0500	1	0.011
GLX903	8-piece set. 4 terminals protections. For GL0320...GL0500 and GLC0320...GLC0500	1	0.011
GLX904	6-piece set. 3 terminals protections. For GL0631...GL0800 and GLC0631...GLC0800	1	0.160
GLX905	8-piece set. 4 terminals protections. For GL0631...GL0800 and GLC0631...GLC0800	1	0.210

Operational characteristics of auxiliary contacts GLX10...

- conventional free air thermal current Ith: 10A
- Rated insulation voltage: 690V
- conductivity: 5V, 1mA
- UL/CSA and IEC/EN/BS 60947-5-1 designation: A600 Q600
- tightening torque: 0.8Nm/7.1lb.in
- maximum 8 contacts (2 for slot) for GL0160...GL1000 switch disconnectors
- maximum 4 contacts for position (1 for slot) for GLC0160...GLC1000 changeover switches
- snap-on assembly without the use of tools.

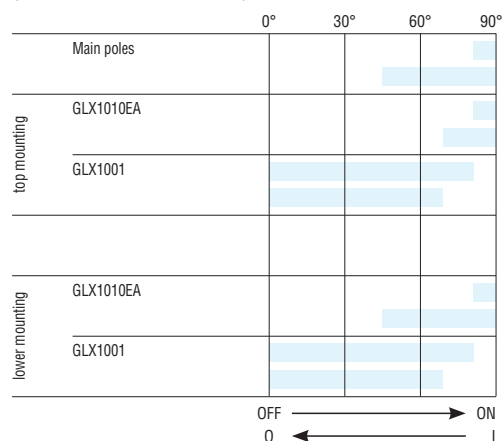
Operational characteristics of neutral and earth/ground terminals GLX3...

- add-on only on GL0160...GL1000 switch disconnectors
- tightening torque for GLX300 and GLX301: 15...22Nm/132.7...194.7lb.in
- tightening torque for GLX302 and GLX303: 30...37Nm/265...327lb.in
- tightening torque for GLX304, GLX305, GLX306, GLX307: 50...75Nm/442...664lb.in.

Operational characteristics for terminal covers and phase barriers GLX8..., GLX9...

- snap-on mounting.

Strokes of GL... poles
(main poles with add-on pole)



Switch disconnectors

GL series from 100A to 1000A
Accessories

Add-on blocks



GLX500 - GLX501



GLX502 - GLX503



GLX504 - GLX505



GLX55...

Order code	Characteristics	Qty per pkg	Wt
		n°	[kg]

Terminal clamp sets for rigid and flexible cables.

GLX500	1-piece set. 1 terminal connection for single cable. For GL0100...GL0315 and GLC0100...GLC0315	1	0.050
GLX501	3-piece set. 3 terminals connection for single cable. For GL0100...GL0315 and GLC0100...GLC0315	1	0.140
GLX502	1-piece set. 1 terminal connection for single cable. For GL0320...GL0630 and GLC0320...GLC0630	1	0.100
GLX503	3-piece set. 3 terminals connection for single cable. For GL0320...GL0630 and GLC0320...GLC0630	1	0.280
GLX504	1-piece set. 1 terminal connection for double cables. For GL0320...GL0630 and GLC0320...GLC0630	1	0.110
GLX505	3-piece set. 3 terminals connection for double cables. For GL0320...GL0630 and GLC0320...GLC0630	1	0.310
GLX506	1-piece set. 1 terminal connection for four cables. For GL0631...GL1000 and GLC0631...GLC1000	1	0.200
GLX507	3-piece set. 3 terminal connection for four cables. For GL0631...GL1000 and GLC0631...GLC1000	1	0.600

Captive nuts.

GLX550	8-piece set. For GL0100...GL0315 and GLC0100...GLC0315	1	0.010
GLX551	8-piece set. For GL0320...GL0630 and GLC0320...GLC0630	1	0.010
GLX552	8-piece set. For GL0631...GL0800 and GLC0631...GLC0800	1	0.015
GLX553	8-piece set. For GL1000 and GLC1000	1	0.015

Operational characteristics for terminal clamps

GLX500-GLX501

- maximum conductor cross section: 120mm²/250kcmil
- minimum conductor cross section: 16mm²/6AWG
- tightening torque: 35Nm/309.7lb.in.

GLX502-GLX503

- maximum conductor cross section: 304mm²/600kcmil
- minimum conductor cross section: 33.6mm²/2AWG
- tightening torque: 42.4Nm/375lb.in.

GLX504-GLX505

- maximum conductor cross section: 2x152mm²/2x300kcmil
- maximum conductor cross section: 2x21.2mm²/2x4AWG
- tightening torque: 22.6Nm/200lb.in.

GLX506-GLX507

- maximum conductor cross section: 4x304mm²/4x600kcmil
- maximum conductor cross section: 4x33.6mm²/4x2AWG
- tightening torque: 42.4Nm/375lb.in.

Certifications and compliance

Certifications obtained: cULus

Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-3.

Parallel connections



GLX2...

Order code	Characteristics	Qty per pkg	Wt
		n°	[kg]

One-pole bridging bars for changeover parallel connection
GLC0100...GLC1000.

GLX201	3-piece set. Connection 3 poles. For GLC0100...GLC0315	1	0.180
GLX202	4-piece set. Connection 4 poles. For GLC0100...GLC0315	1	0.200
GLX206	3-piece set. Connection 3 poles. For GLC0320...GLC0630	1	0.190
GLX207	4-piece set. Connection 4 poles. For GLC0320...GLC0630	1	0.255
GLX208	3-piece set. Connection 3 poles. For GLC0631...GLC1000	1	0.850
GLX209	4-piece set. Connection 4 poles. For GLC0631...GLC1000	1	0.850

Switch disconnectors

GL series from 100A to 1000A
Accessories

Handles and shafts



GLX61DB



GLX61D



GLX62DB



GLX61



GLX61B



GLX61CB



GLX00



GLX7...

Order code	Characteristics	Qty per pkg	Wt
		n°	[kg]

Direct operating handles.

GLX61DB	For GL0100...GL0315 and GLC0100...GLC0315. Black	1	0.075
GLX61D	For GL0100...GL0315. Red/yellow	1	0.095
GLX62DB	For GL0320...GL0630 and GLC0320...GLC0630. Black	1	0.140
GLX62D	For GL0320...GL0630. Red/yellow	1	0.170
GLX63DB	For GL0631...GL1000 and GLC0631...GLC1000.	1	0.210
GLX63D	For GL0631...GL1000. Red/yellow	1	0.260

Door coupling handles.

GLX61	For GL0100...GL0315. Screw fixing. 125mm/4.92" lever length pistol handle - defeatable (req. UL508A). Red/yellow. □ 10mm/0.39"	1	0.220
GLX61B	For GL0100...GL0315. Screw fixing. 125mm/4.92" lever length pistol handle - defeatable (req. UL508A). Black. □ 10mm/0.39"	1	0.220
GLX61CB	For GLC0100...GLC0315. Screw fixing. 125mm/4.92" lever length pistol handle - defeatable (req. UL508A). Black. □ 10mm/0.39"	1	0.215
GLX62	For GL0320...GL0630. Screw fixing. 175mm/6.89" lever length pistol handle - defeatable (req. UL508A). Red/yellow. □ 10mm/0.39"	1	0.240
GLX62B	For GL0320...GL0630. Screw fixing. 175mm/6.89" lever length pistol handle - defeatable (req. UL508A). Black. □ 10mm/0.39"	1	0.240
GLX62CB	For GLC0320...GLC0630. Screw fixing. 175mm/6.89" lever length pistol handle - defeatable (req. UL508A). Black. □ 10mm/0.39"	1	0.240
GLX63	For GL0631...GL1000. Screw fixing. Lever handle, 175mm - defeatable. (req. UL508A). Yellow/red. □ 12mm	1	0.310
GLX63B	Per GL0631...GL1000. Screw fixing. defeatable, 175mm - with release (req. UL508A). Black. □ 12mm	1	0.310
GLX63CB	For changeovers GLC0631...GLC1000. Screw fixing. defeatable, 175mm - with release (req. UL508A). Black. □ 12mm	1	0.310

Accessories for door coupling handles.

GLX00	Shaft alignment ring	1	0.040
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Shaft extensions for door coupling handles GLX61, GLX61B, GLX61CB, GLX62, GLX62B, GLX62CB, GLX63, GLX63B, GLX63CB

GLX7150S10	150mm/5.90", □ 10mm/0.39"	1	0.150
GLX7200S10	200mm/7.87", □ 10mm/0.39"	1	0.190
GLX7300S10	300mm/11.81", □ 10mm/0.39"	1	0.270
GLX7400S10	400mm/15.75", □ 10mm/0.39"	1	0.350
GLX7500S10	500mm/19.68", □ 10mm/0.39"	1	0.430
GLX7150S12	150mm/5.90", □ 12mm/0.47"	1	0.180
GLX7200S12	200mm/7.87", □ 12mm/0.47"	1	0.240
GLX7300S12	300mm/11.81", □ 12mm/0.47"	1	0.360
GLX7400S12	400mm/15.75", □ 12mm/0.47"	1	0.480
GLX7500S12	500mm/19.68", □ 12mm/0.47"	1	0.600

Operational characteristics for direct operating handles

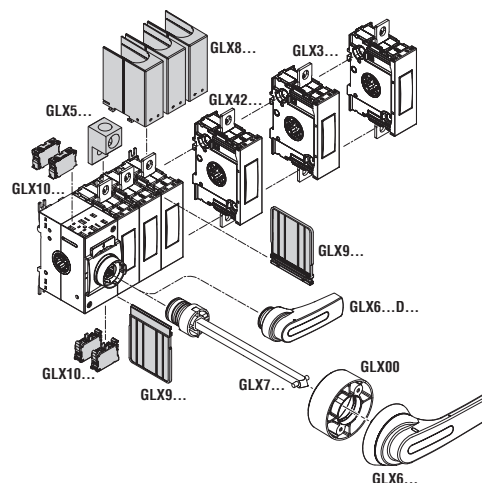
- Snap-on mounting on switch disconnectors and changeover switches
- 1 to 3 padlocks in the Ø4...6mm/0.16...0.24"

Operational characteristics for door coupling handles

- Handle fixing centres: 28x40mm/1.10x1.57"
- 1 to 3 padlocks in the Ø4...8mm/0.16...0.31"
- Tightening torque: 1.5Nm/13.3lb.in
- Degree of protection:
 - Per IEC/EN: IP66 and IP69K
 - Per UL: Type 1, 2, 3R, 12, 12K, 4, 4X external use.

Certifications and compliance

Certifications obtained: cULus.
Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-3.

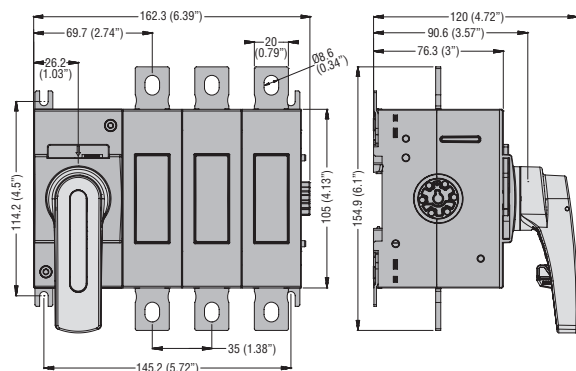


Switch disconnectors

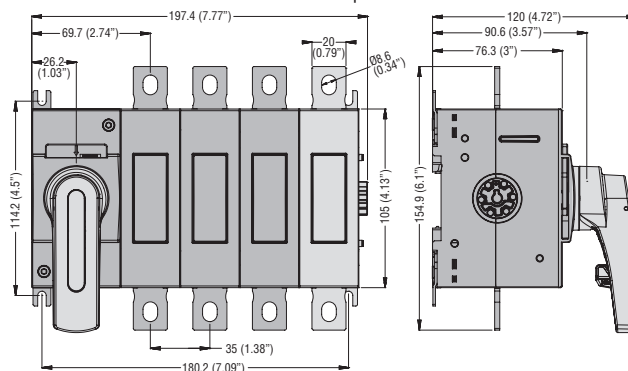
GL series from 100A to 1000A
Dimensions [mm(in)]

GL SERIES 100A TO 1000A SWITCH DISCONNECTORS

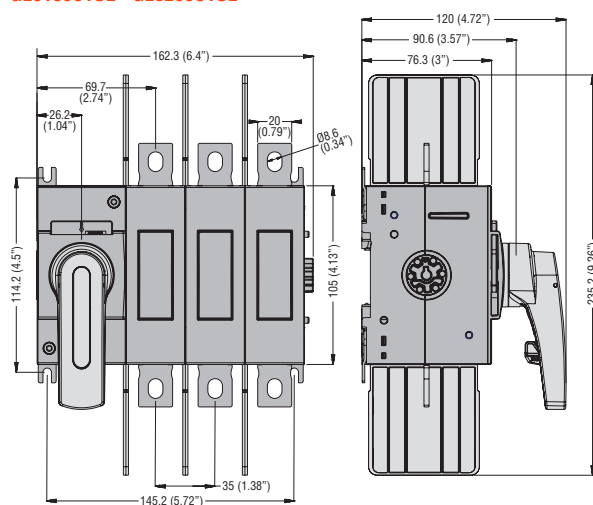
GL0160C1...GL0315C1



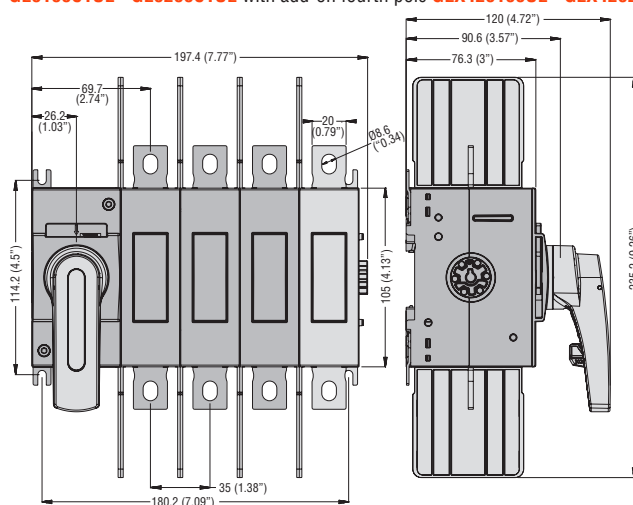
GL0160C1...GL0315C1 with add-on fourth pole GLX420315



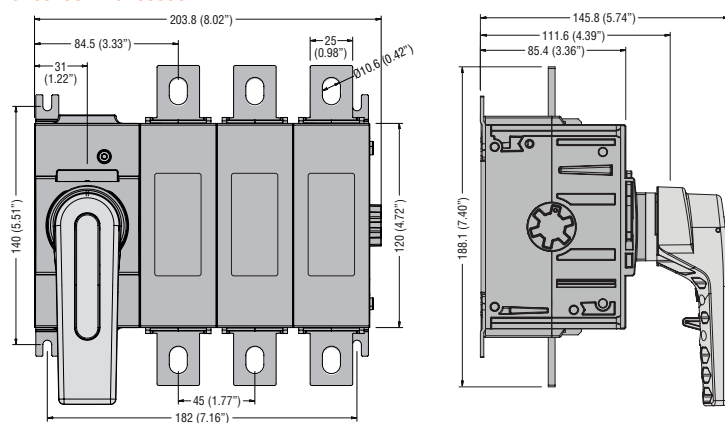
GL0100C1UL - GL0200C1UL



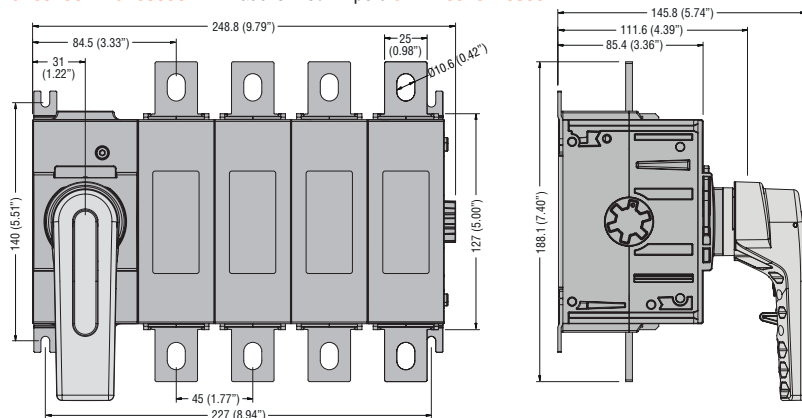
GL0100C1UL - GL0200C1UL with add-on fourth pole GLX420100UL - GLX420200UL



GL0320C1...GL0500C1



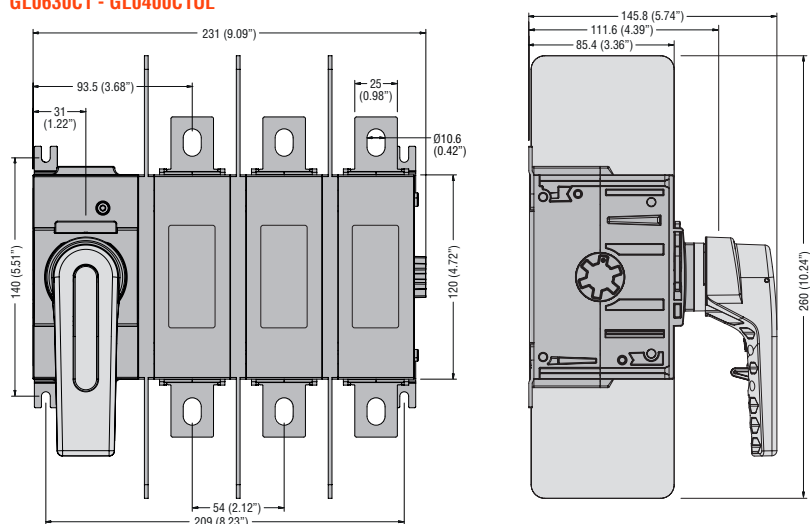
GL0320C1...GL0500C1 with add-on fourth pole GLX420320...0500



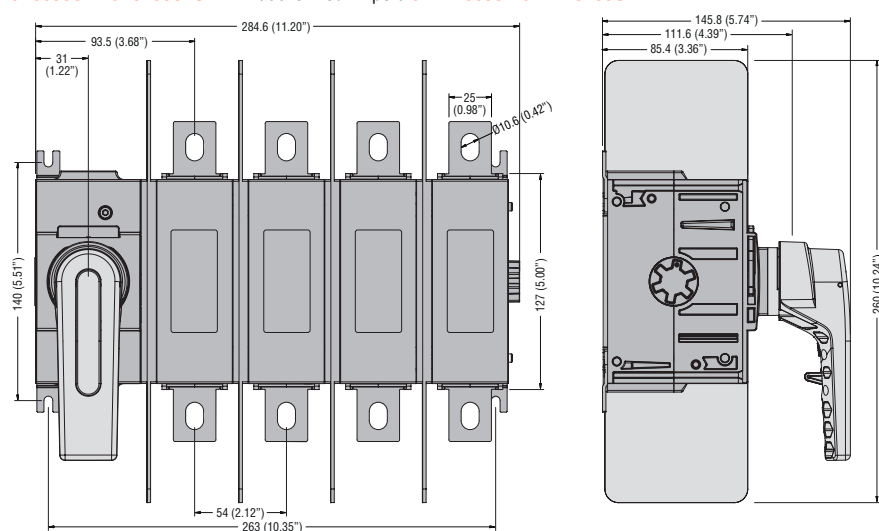
Switch disconnectors

GL series from 100A to 1000A
Dimensions [mm(in)]

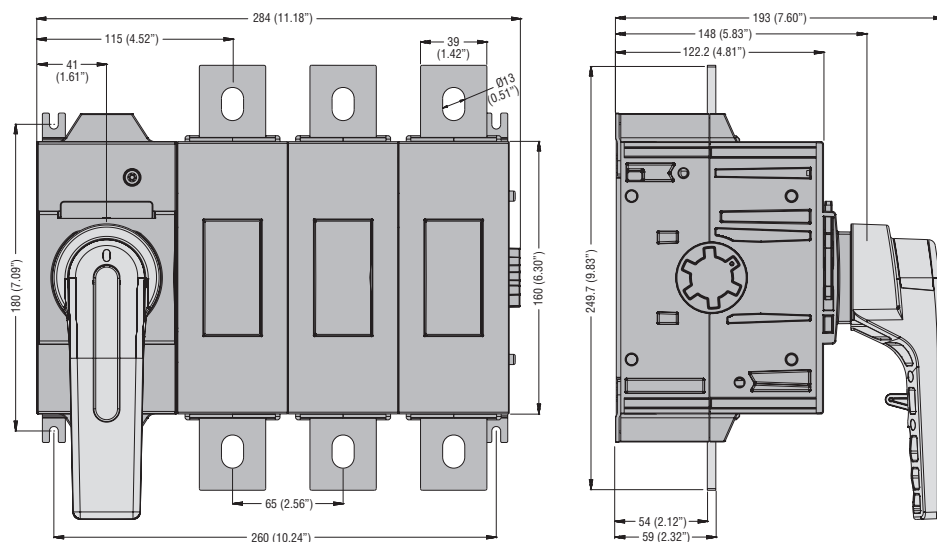
GL0630C1 - GL0400C1UL



GL0630C1 - GL0400C1UL with add-on fourth pole GLX420630 - GLX420400UL



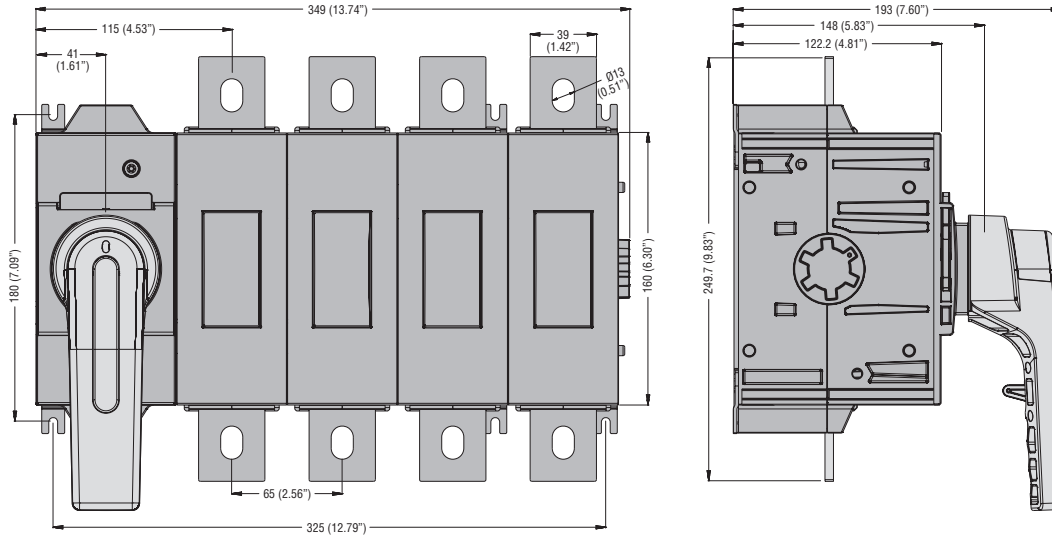
GL0631C1 - GL0800C1 - GL0600C1UL



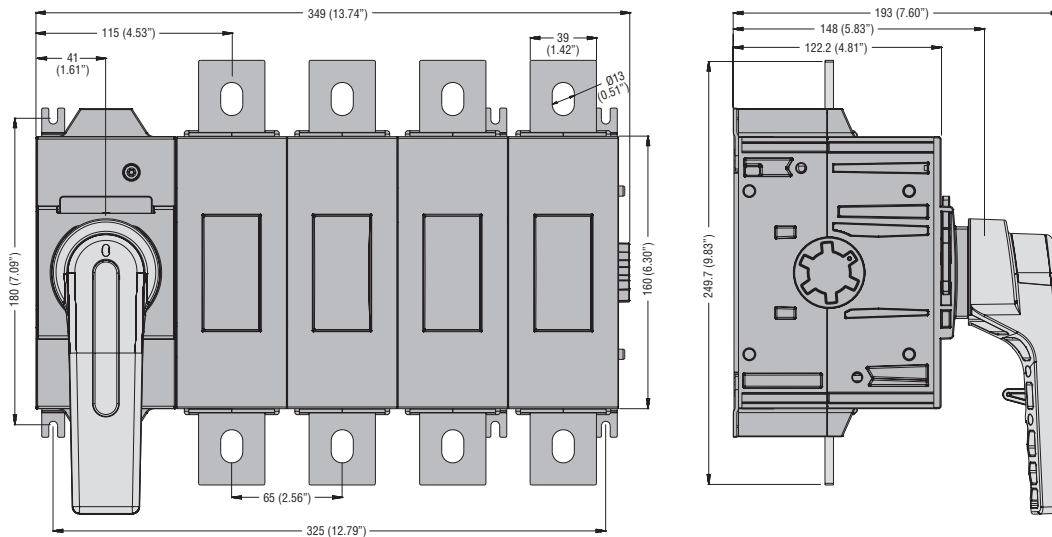
GL series from 100A to 1000A
Dimensions [mm(in)]

Dimensions [mm(in)]

GL0631C1 - GL0800C1 with add-on fourth pole **GLX420631 - GLX420800**



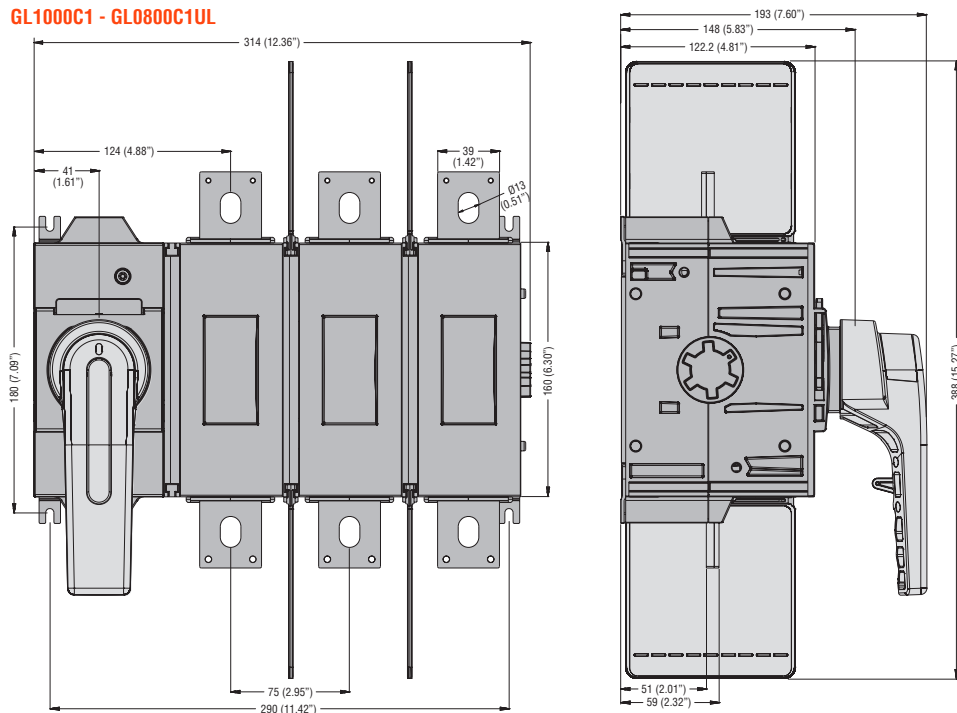
GL0600C1UL with add-on fourth pole **GLX420600UL**



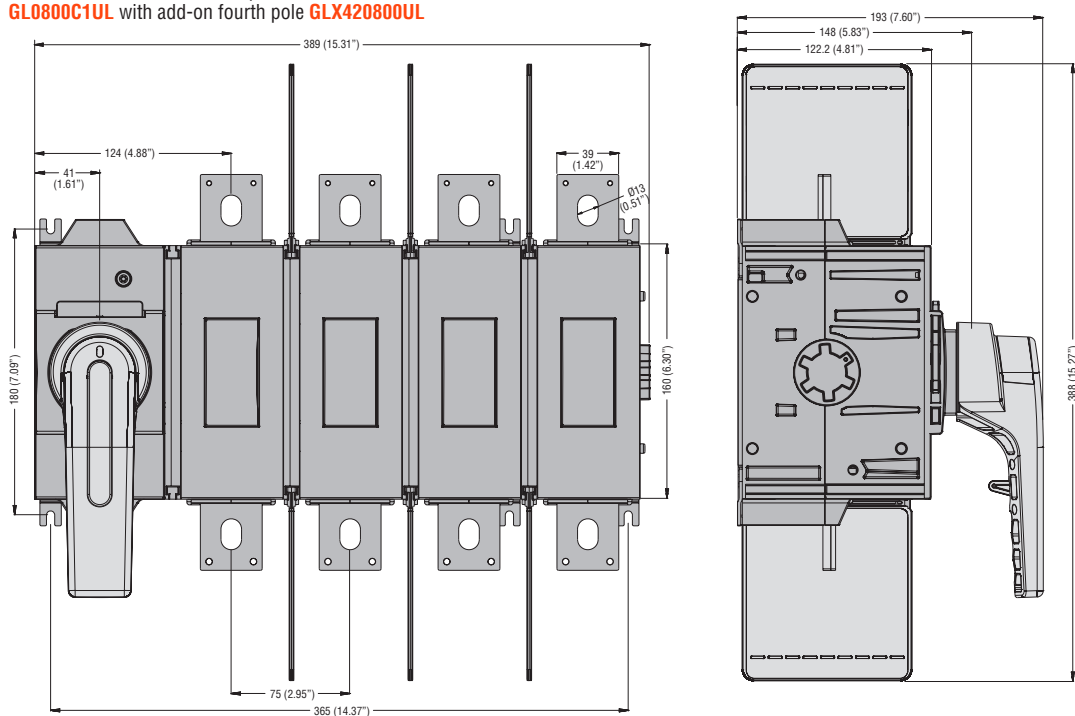
Switch disconnectors

GL series from 100A to 1000A
Dimensions [mm(in)]

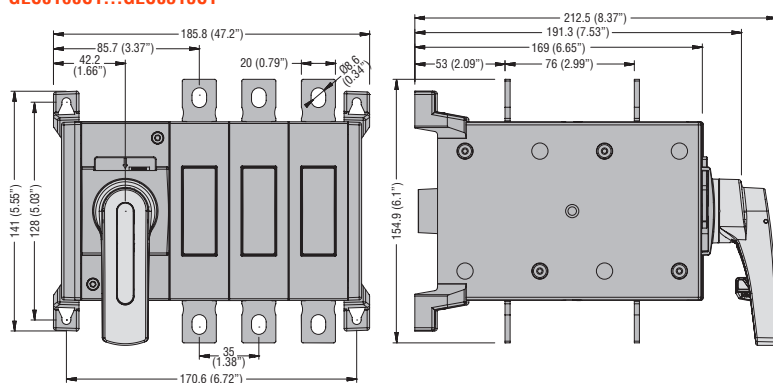
GL1000C1 - GL0800C1UL



GL1000C1 with add-on fourth pole GLX421000 GL0800C1UL with add-on fourth pole GLX420800UL



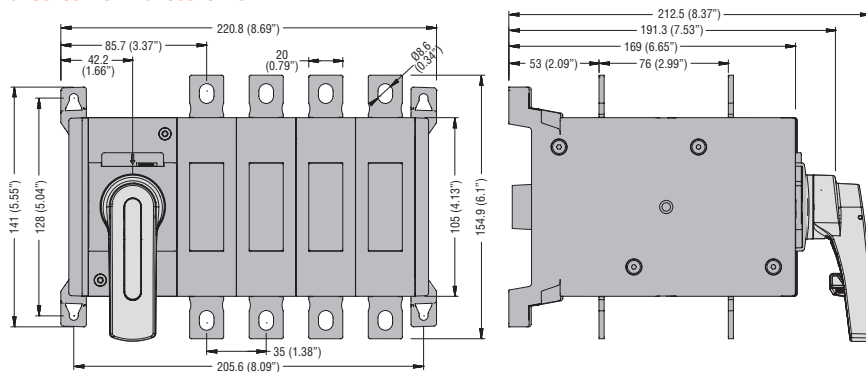
GLC0160C1...GLC0315C1



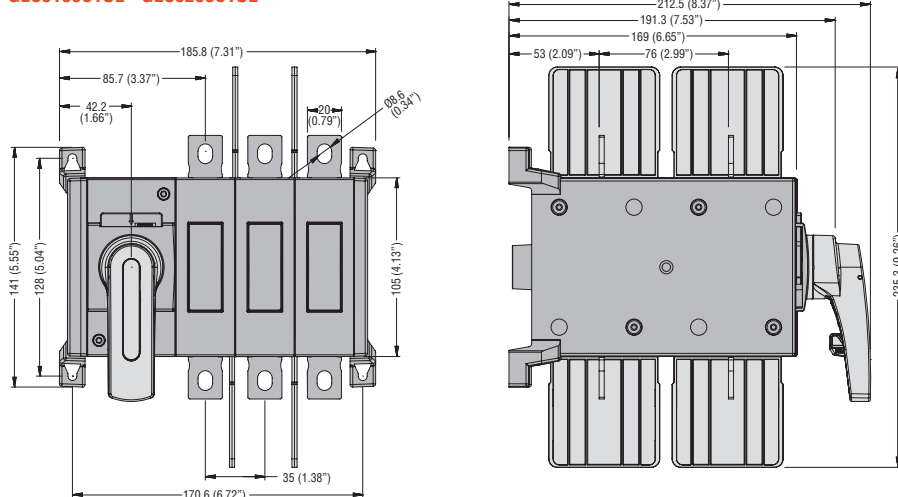
Switch disconnectors

GL series from 100A to 1000A
Dimensions [mm(in)]

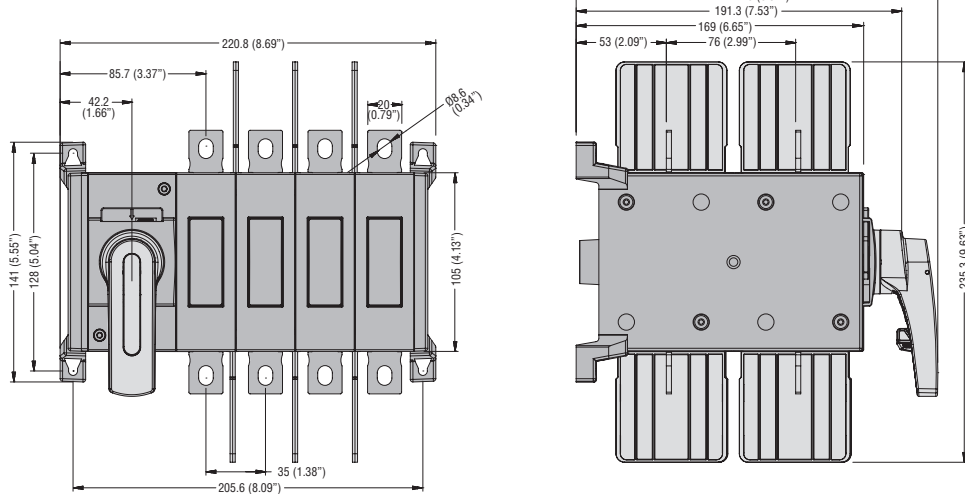
GLC0160T4C1...GLC0315T4C1



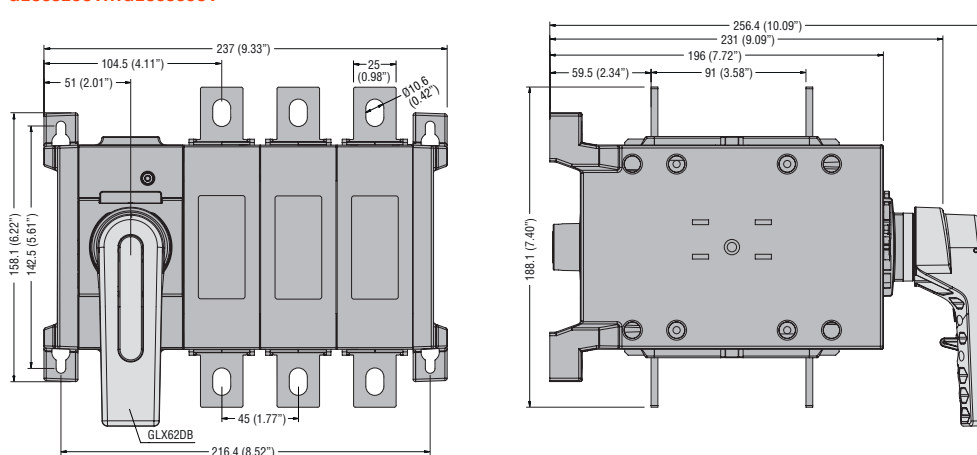
GLC0100C1UL - GLC0200C1UL



GLC0100T4C1UL - GLC0200T4C1UL



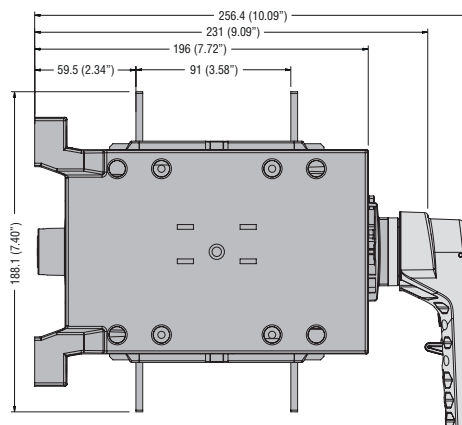
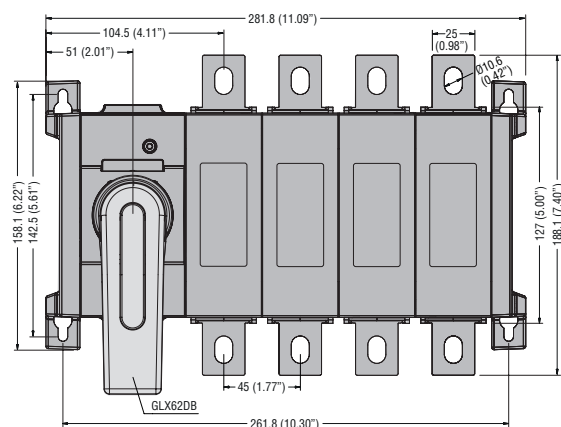
GLC0320C1...GLC0500C1



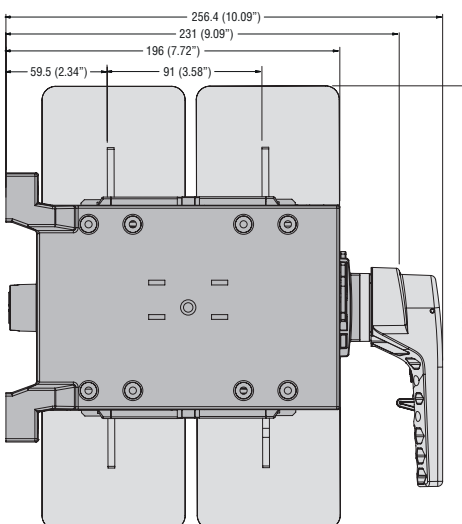
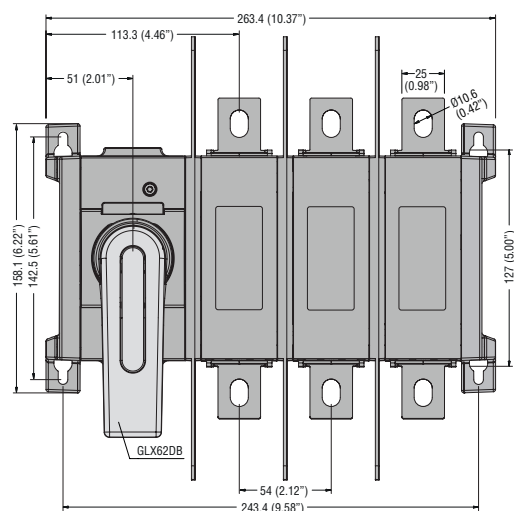
Switch disconnectors

GL series from 100A to 1000A
Dimensions [mm(in)]

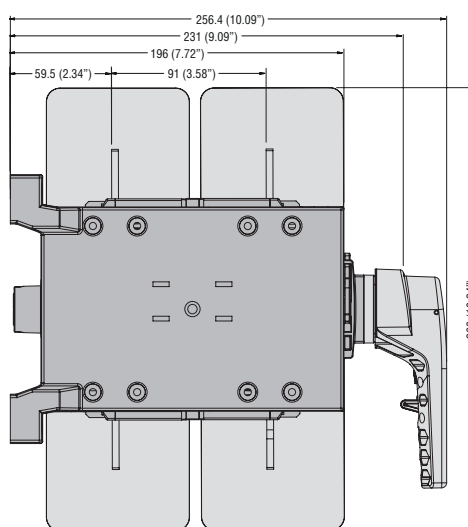
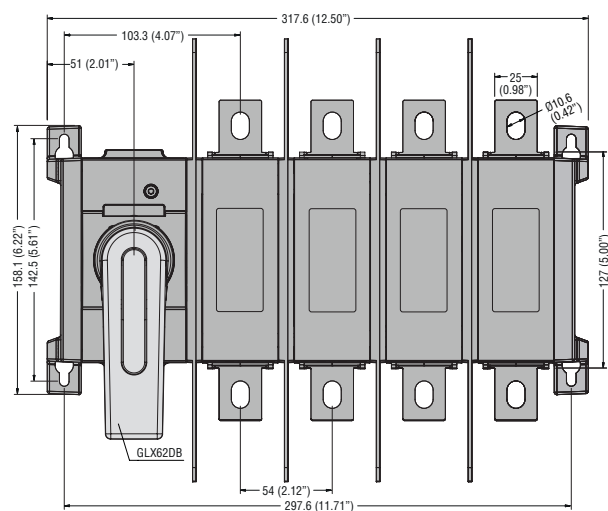
GLC0320T4C1...GLC0500T4C1



GLC0630C1 - GLC0400C1UL



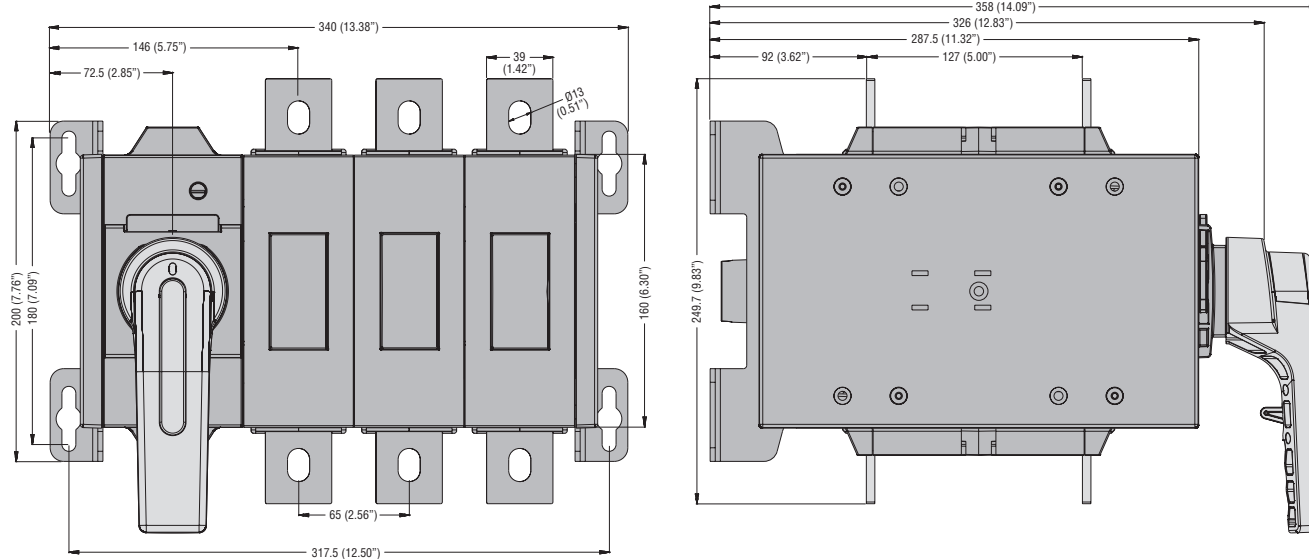
GLC0630T4C1 - GLC0400T4C1UL



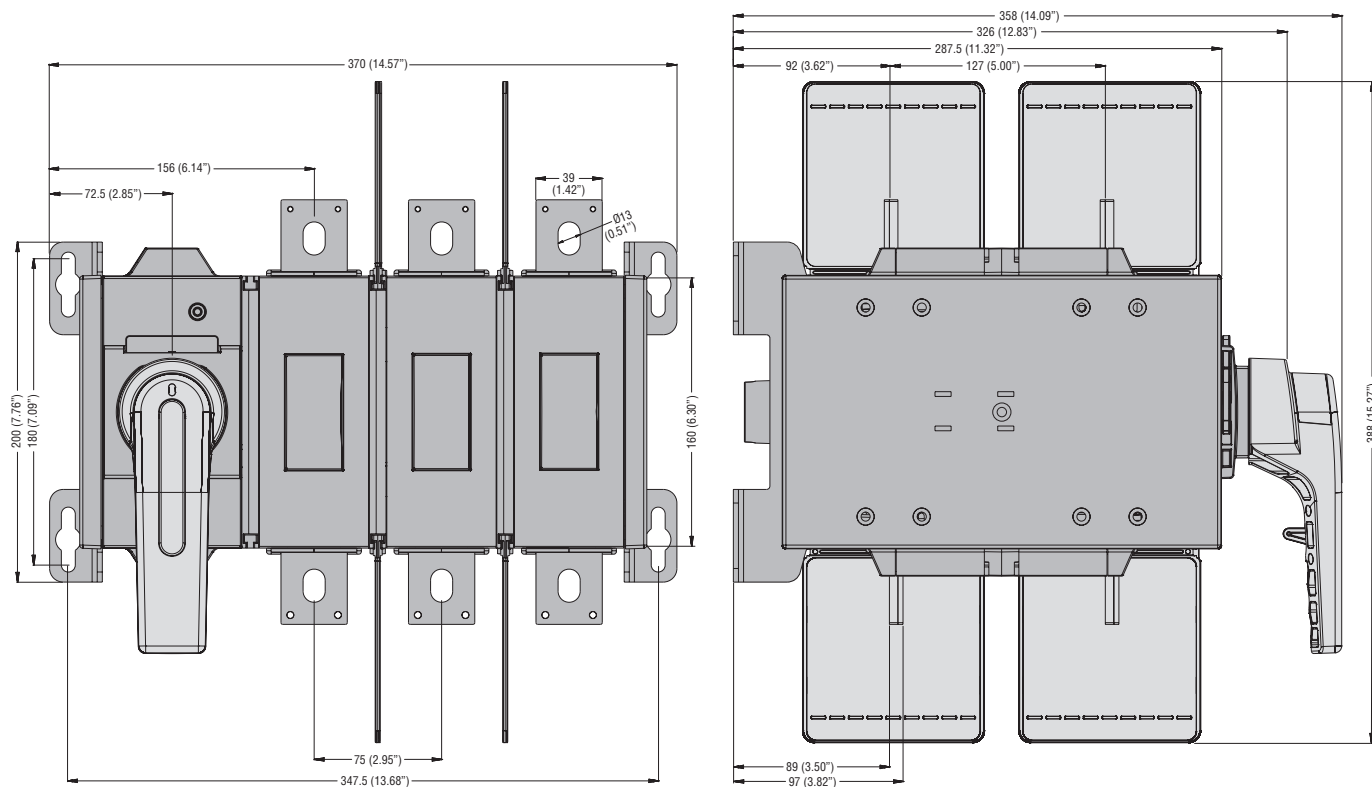
Switch disconnectors

GL series from 100A to 1000A
Dimensions [mm(in)]

GLC0631C1 - GLC0800C1



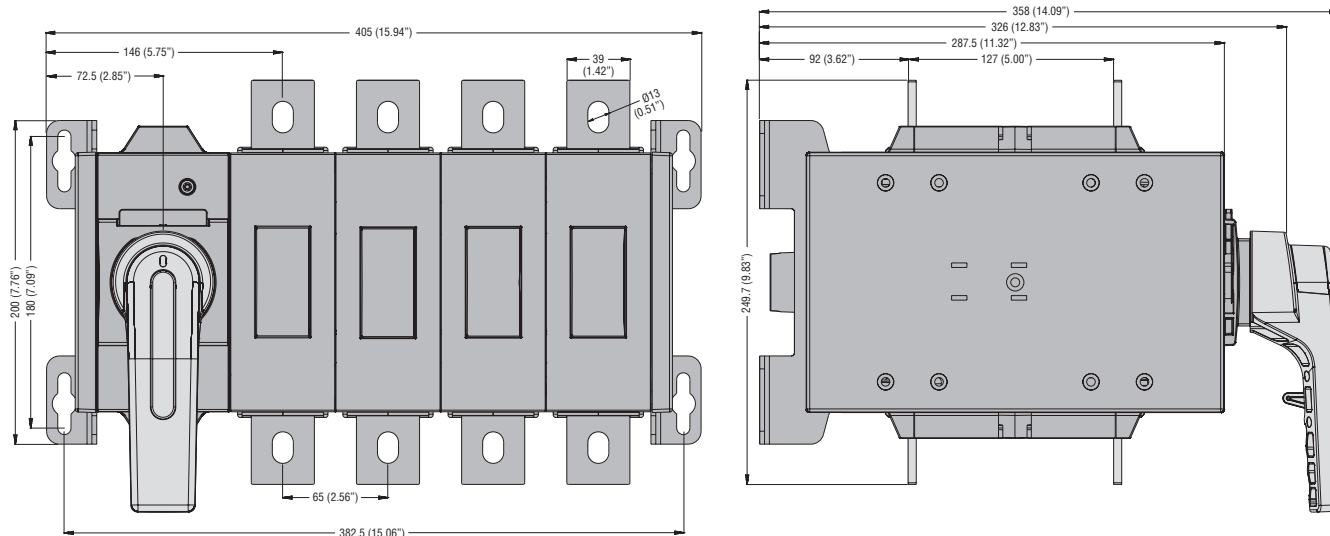
GLC1000C1



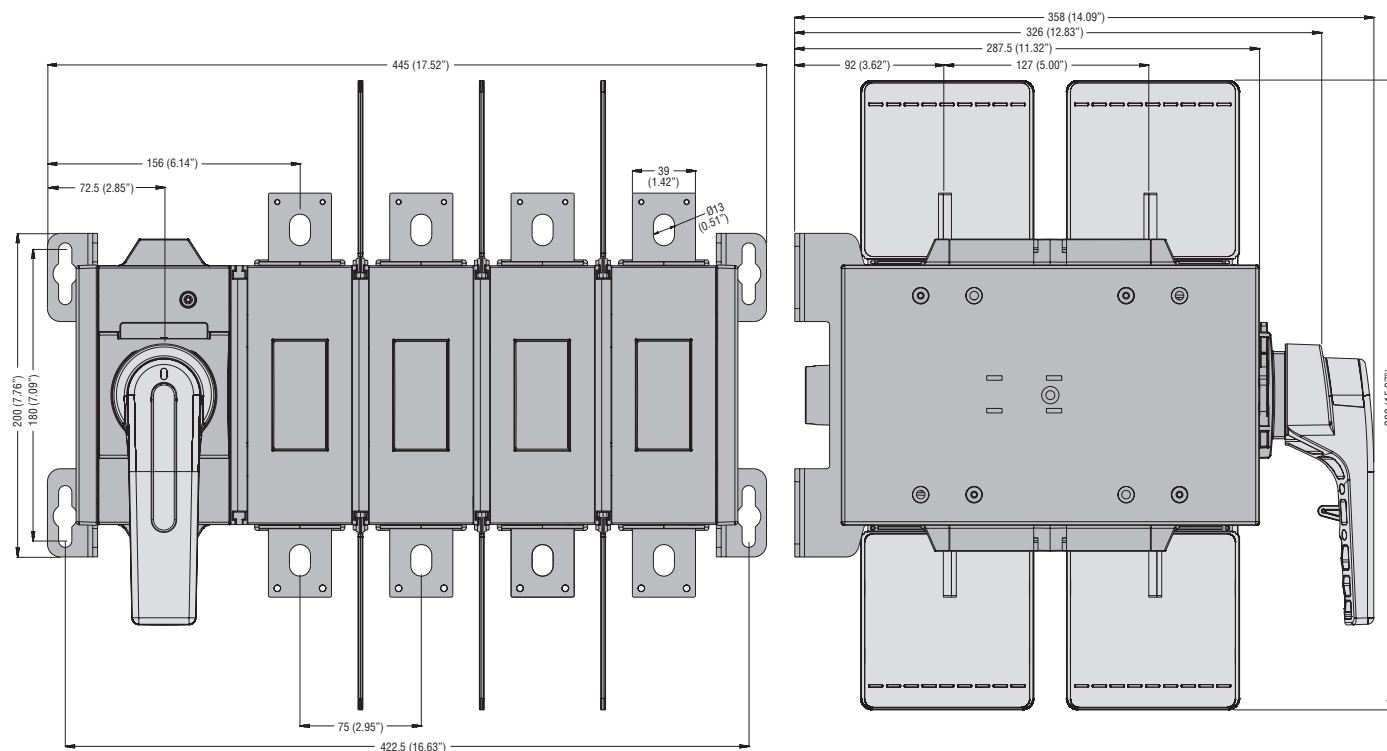
Switch disconnectors

GL series from 100A to 1000A
Dimensions [mm(in)]

GLC0631T4C1 - GLC0800T4C1



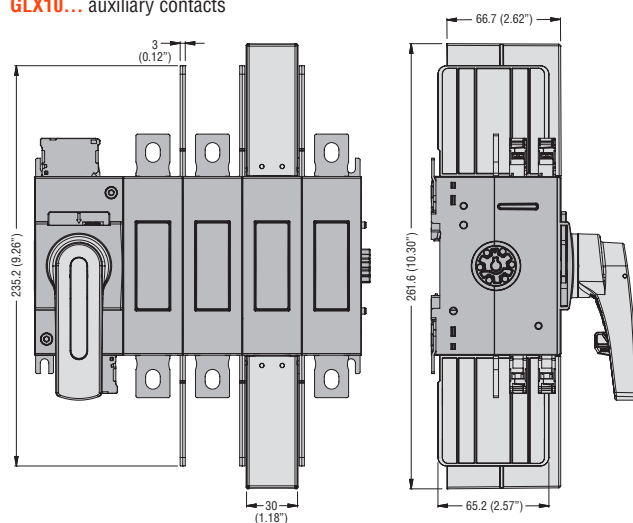
GLC1000T4C1



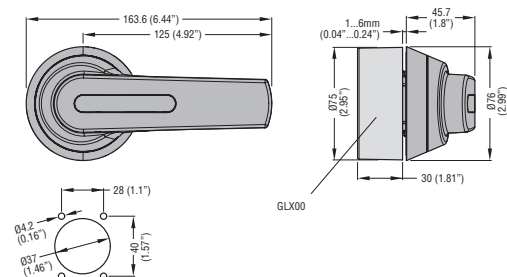
Switch disconnectors

GL series from 100A to 1000A
Dimensions [mm(in)]

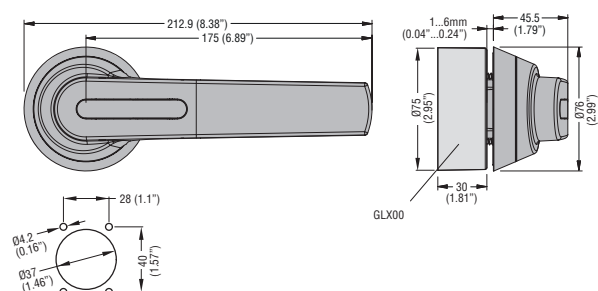
GLX800 - GLX801 terminal covers
GLX900 - GLX901 one-pole phase barrier
GLX10... auxiliary contacts



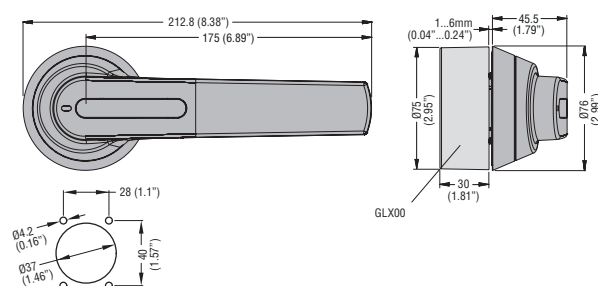
Handles **GLX61 - GLX61B - GLX61CB**



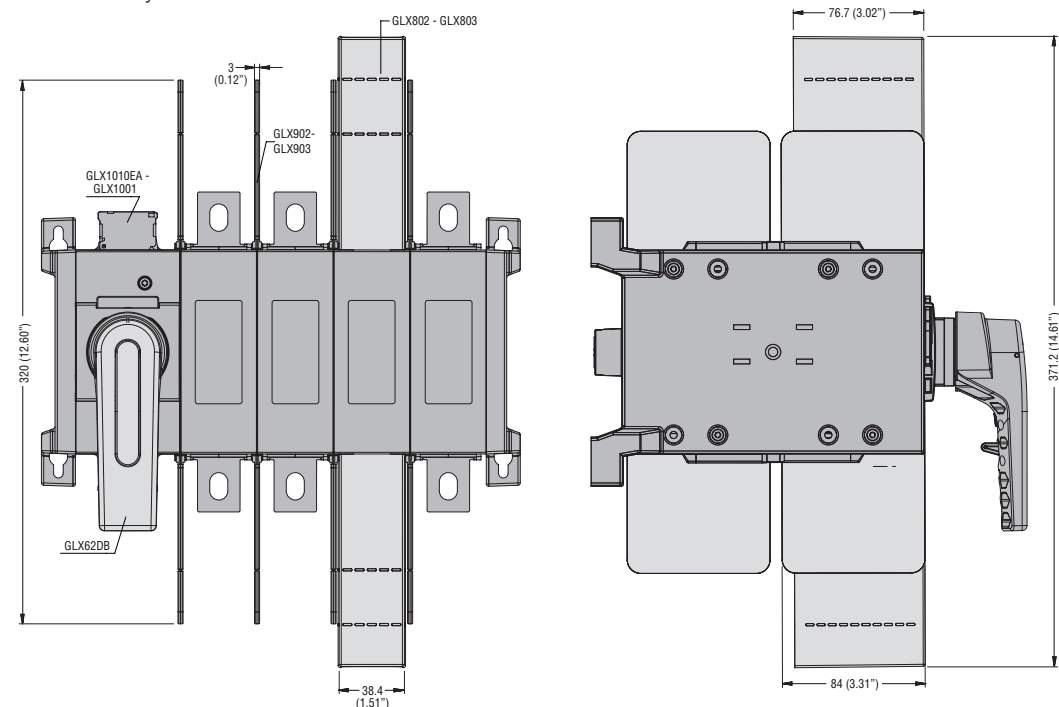
Handles **GLX62 - GLX62B - GLX62CB**



Handles **GLX63 - GLX63B - GLX63CB**



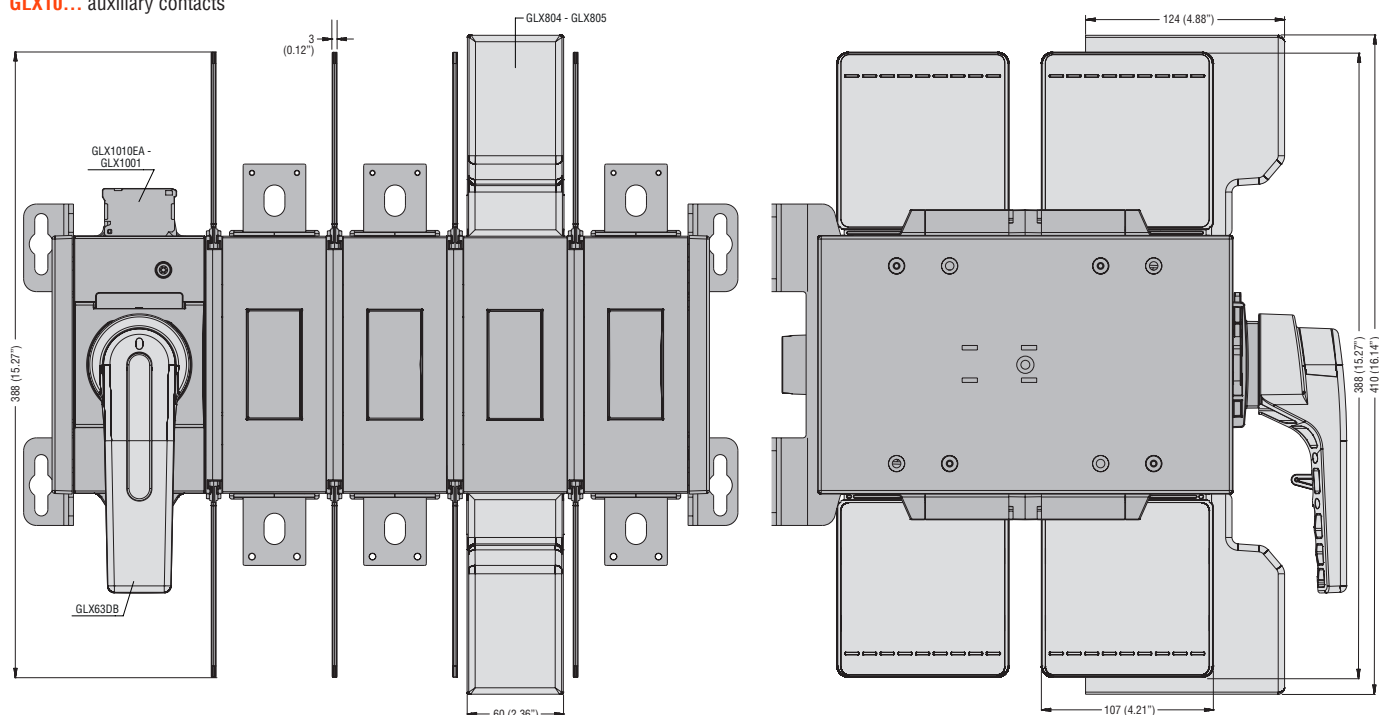
GLX802 - GLX803 terminal covers
GLX902 - GLX903 one-pole phase barrier
GLX10... auxiliary contacts



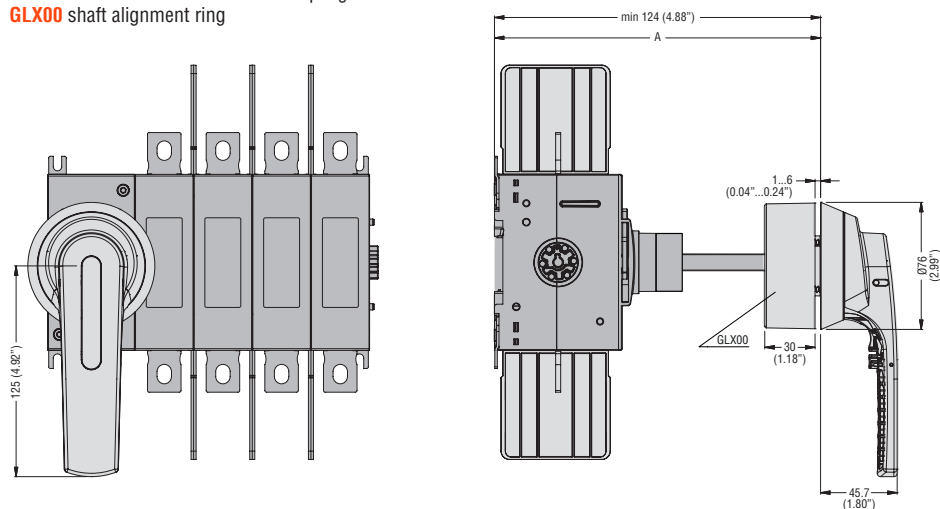
Switch disconnectors

GL series from 100A to 1000A
Dimensions [mm(in)]

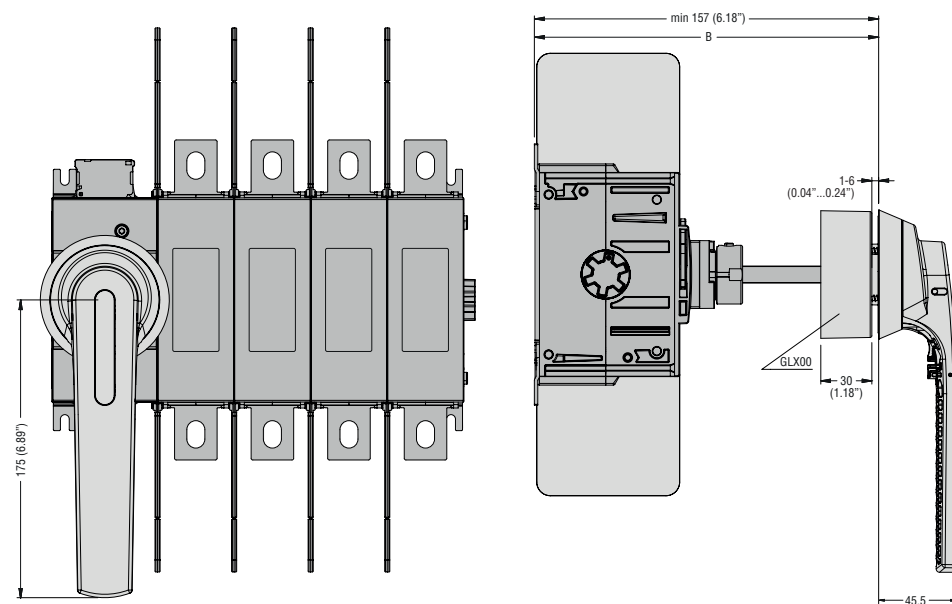
GLX804 - GLX805 terminal covers
GLX904 - GLX905 one-pole phase barrier
GLX10... auxiliary contacts



GLX7... shaft extensions for door coupling handles
GLX00 shaft alignment ring



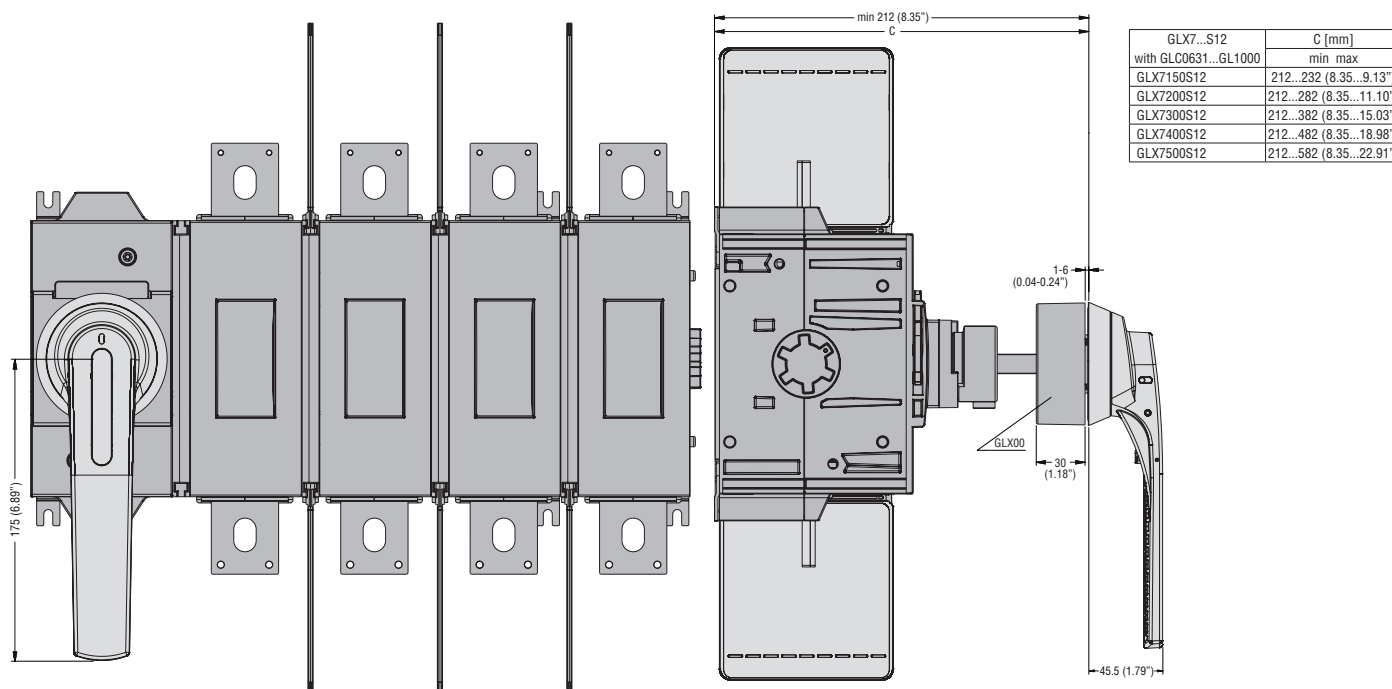
GLX7...S10 with GLC0100...GL0315	A mm (in) min max
GLX7150S10	124...194 (4.88...7.64")
GLX7200S10	124...244 (4.88...9.61")
GLX7300S10	124...344 (4.88...13.54")
GLX7400S10	124...444 (4.88...17.48")
GLX7500S10	124...544 (4.88...21.42")



GLX7...S10 with GLC0320...GL0630	B mm (in) min max
GLX7150S10	157...227 (6.18...8.94")
GLX7200S10	157...277 (6.18...10.90")
GLX7300S10	157...377 (6.18...14.84")
GLX7400S10	157...477 (6.18...18.78")
GLX7500S10	157...577 (6.18...22.72")

Switch disconnectors

GL series from 100A to 1000A
Dimensions [mm(in)]



Wiring diagrams

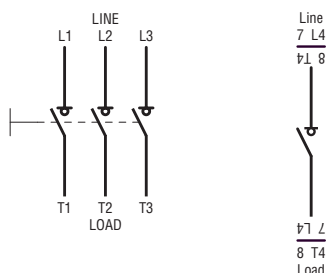
GL SERIES 100A TO 1000A SWITCH DISCONNECTORS

Three-pole

GL0100...GL1000...

Fourth-pole

GLX42...



ADD-ON BLOCKS AND ACCESSORIES

Auxiliary contacts

GLX1010EA

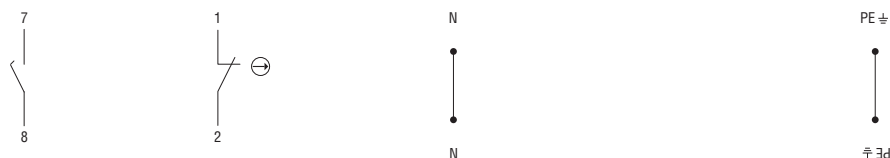
GLX1001

Neutral terminal

GLX300 - GLX302 - GLX304 - GLX306

Earth/Ground terminal

GLX301 - GLX303 - GLX305 - GLX307



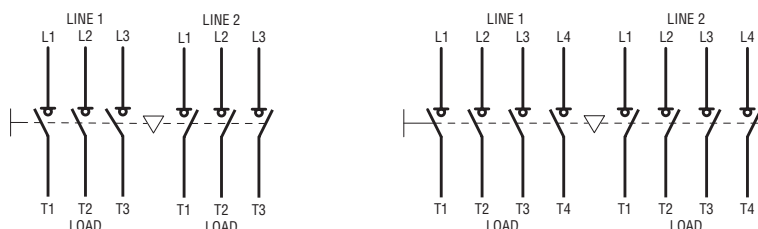
GL SERIES 160A TO 1000A CHANGEOVER SWITCHES

Three-pole

GLC...C1

Four-pole

GLC...T4C1



Switch disconnectors

GL series from 100A to 1000A - Switch disconnectors
Technical characteristics



TECHNICAL DATA ACCORDING TO IEC/EN/BS 60947 RATINGS

TYPE	3-pole	GL0160...	GL0200...	GL0250...	GL0315...	
	4-pole	GLX420315				
CONTACT CHARACTERISTICS						
IEC conventional free air thermal current I _{th} (≤40°C)	A	160	200	250	315	
IEC rated insulation voltage U _i	V	1000				
IEC rated impulse withstand U _{imp}	kV	12				
IEC rated operational current I _e AC21A	A	160	200	250	315	
	400V					
	500V	A	160	200	250	315
AC22A	690V	A	160	200	250	315
	400V	A	160	200	250	315
	500V	A	160	200	250	315
AC23A	690V	A	160	200	250	315
	400V	A	160	200	250	315
	500V	A	160	200	250	250
690V	A	160	200	250	250	
Power dissipation	W/pole	3.2	4	6.5	6.5	
IEC rated operational power AC23A	kW	90	110	140	140	
	400V					
	690V	kW	144	200	250	250
IEC reactive power for control of capacitors 400V	kvar	80	100	115	145	
SHORT CIRCUIT PROTECTION						
Rated short-time current I _{cs}	(1s)	A	6			
	(0.3s)	A	12			
Conditional short-circuit current	kA rms	100				
With fuse class gG	A	160	200	250	315	
Making capacity AC23A 400V	A	1600	2000	2500	2500	
Breaking capacity AC23A 400V	A	1280	1600	2000	2000	
Mechanical life	cycles	20.000				
Terminal for busbars	mm	M8 x 20				
Tightening torque	Nm	15...22				
	lb.in	132...194				
Conductor section min...max	mm²	70...185				
	AWG/ Kcmil	00...400				

AMBIENT CONDITIONS

Temperature	Operating	°C	-25...+55	
	Storage	°C	-40...+70	
Maximum altitude		m	3000	
Mounting position	Normal		Vertical	
	Admissible		Any	
Fixing			By screw. For GL0160...0315 also on 35mm DIN rail (IEC/EN 60715)	

For more details contact our Technical support (Tel. +39 035 4282422; E-mail: service@LovatoElectric.com).

TECHNICAL DATA ACCORDING TO UL/CSA RATINGS

TYPE	3-pole	GL0100C1UL	GL0200C1UL	—	—	
	4-pole	GLX420100UL	GLX420200UL	—	—	
Compliance		UL98 CSA C22.2 N°4	UL98 CSA C22.2 N°4	—	—	
General purpose current ratings	A	100	200	—	—	
Maximum operating voltage	V	600	600	—	—	
Horsepower ratings /motor FLA current three-phase	HP/A	30/80	75/192	—	—	
	240V					
	480V	HP/A	75/96	150/180	—	—
	600V	HP/A	100/99	200/192	—	—
Short circuit rating	KA rms	200	200	—	—	
With fuse	class/A	J/100	J/200	—	—	
Terminal kit lugs		GLX500-GLX501	GLX500-GLX501	—	—	
Minimum enclosure dimensions at rated current	mm (in)	400 x 250 x 150 (15.8 x 9.9 x 5.9)	400 x 250 x 150 (15.8 x 9.9 x 5.9)	—	—	

Switch disconnectors

GL series from 100A to 1000A - Switch disconnectors
Technical characteristics

GL0320...	GL0400...	GL0500...	GL0630...	GL0631...	GL0800...	GL1000...
GLX420320	GLX420400	GLX420500	GLX420630	GLX420631	GLX420800	GLX421000

320	400	500	630	630	800	1000
1000				1000		
12				12		
320	400	500	630	630	800	1000
320	400	500	630	630	800	1000
320	400	500	630	630	800	1000
320	400	500	50	630	800	800
320	400	500	500	630	800	800
320	400	500	630	630	800	1000
320	400	500	500	630	800	800
320	400	500	500	630	800	800
20.8	26.0	32.5	41.0	25	40	63
160	200	250	355	355	400	560
315	400	500	50	630	800	800
145	180	200	250			

12.5				20		
20				-		
80				80		50
355	400	500	630	630	800	1000
3200	4000	5000	6300	6300	8000	10000
2560	3200	4000	5040	5040	6400	8000
10.000				5000		
M10 x 25				M12 x 40		
30...37				50...75		
265...327				442...664		
1 x 185...2 x 185❶				2 X 185... 4 X 300		
1 x 400...2 x 350				1 X 2AWG... 4 X 600KCMIL		

-25...+55						
-40...+70						
3000						
Vertical						
Any						
By screw						

—	GL0400C1UL	—	—	GL0600C1UL	GL0800C1UL	—
—	GLX420400UL	—	—	GLX420600UL	GLX420800UL	—
—	UL98 CSA C22.2 N°4	—	—	UL98 CSA C22.2 N°4		—
—	400	—	—	600	800	—
—	600	—	—	600		—
—	125/312	—	—	200/480	250/604	—
—	250/302	—	—	450/515	500/590	—
—	350/336	—	—	500/472	500/600	—
—	100	—	—	100		—
—	J/400	—	—	J/600	L/800	—
—	GLX502-GLX503	—	—	GLX506-GLX507		—
—	950 x 350 x 200 (37.4 x 13.8 x 7.9)	—	—	750 x 600 x 250 (29.5 X 23.6 X 9.8)	1000 x 1200 x 300 (39.4 X 47.2 X 11.8)	—

Switch disconnectors

GL series from 100A to 1000A - Changeover switches
Technical characteristics



TECHNICAL DATA ACCORDING TO IEC/EN/BS 60947

TYPE	3-pole	GLC0160...	GLC0200...	GLC0250...	GLC0315...	
	4-pole	GLC0160T4...	GLC0200T4...	GLC0250T4...	GLC0315T4...	

CONTACT CHARACTERISTICS

IEC conventional free air thermal current I _{th} (≤40°C)	A	160	200	250	315	
IEC rated insulation voltage U _i	V	1000				
IEC rated impulse withstand U _{imp}	kV	12				
IEC rated operational current I _e						
AC31B	400V A	160	200	250	315	
	500V A	160	200	250	315	
	690V A	160	200	250	315	
AC32B	400V A	160	200	250	315	
	500V A	160	200	250	315	
	690V A	160	200	250	315	
AC33B	400V A	160	200	250	315	
	500V A	160	200	250	250	
	690V A	160	200	250	250	
Power dissipation	W/pole	3.2	4	6.5	6.5	
IEC rated operational power						
AC23A	400V kW	90	110	140	140	
	690V kW	144	200	250	250	
IEC reactive power for control of capacitors 400V	kvar	80	100	115	145	

SHORT CIRCUIT PROTECTION

Rated short-time current I _{cs}	(1s) kA rms	6				
	(0.3s) kA rms	12				
Conditional short-circuit current	kA rms	100				
With fuse class gG	A	160	200	250	315	
Making capacity AC23A 400V	A	1600	2000	2500	2500	
Breaking capacity AC23A 400V	A	1280	1600	2000	2000	
Mechanical life	cycles	20.000				
Terminal for busbars	mm	M8 x 20				
Tightening torque	Nm	15...22				
	lb.in	132...194				
Conductor section min...max	mm ²	70...185				
	AWG/Kcmil	00...400				

AMBIENT CONDITIONS

Temperature	Operating	°C	-25...+55			
	Storage	°C	-40...+70			
Maximum altitude	m	3000				
Mounting position	Normal	Vertical				
	Admissible	Any				
Fixing		By screw				

For more details contact our Technical support (Tel. +39 035 4282422; E-mail: service@LovatoElectric.com).

TECHNICAL DATA ACCORDING TO UL/CSA RATINGS

TYPE		GLC0100...UL	GLC0200...UL	—	—	
Compliance	A	UL1008 CSA C22.2 N°4	UL1008 CSA C22.2 N°4	—	—	
General purpose current ratings	A	100	200	—	—	
Maximum operating voltage	V	600	600	—	—	
Horsepower ratings /motor FLA current three-phase						
AC31B	240V HP/A	30/80	75/192	—	—	
	480V HP/A	75/96	150/180	—	—	
	600V HP/A	100/99	200/192	—	—	
Short circuit ratings	KA rms	100	100	—	—	
With fuse	class/A	J/100	J/200	—	—	
Terminal kit lugs		GLX500-GLX501	GLX500-GLX501	—	—	
Minimum enclosure dimensions at rated current	mm (in)	400 x 250 x 150 (15.8 x 9.9 x 5.9)	400 x 250 x 150 (15.8 x 9.9 x 5.9)	—	—	

Switch disconnectors

GL series from 100A to 1000A - Changeover switches

Technical characteristics

GLC0320...	GLC0400...	GLC0500...	GLC0630...	GLC0631...	GLC0800...	GLC1000...
GLC0320T4...	GLC0400T4...	GLC0500T4...	GLC0630T4...	GLC0631T4...	GLC0800T4...	GLC1000T4...

320	400	500	630	630	800	1000
1000				1000		
12				12		
320	400	500	630	630	800	1000
320	400	500	630	—	—	—
320	400	500	630	—	—	—
320	400	500	630	630	800	1000
320	400	500	500	—	—	—
320	400	500	500	—	—	—
320	400	500	630	630	800	1000
320	400	500	500	—	—	—
320	400	500	500	—	—	—
20.8	26.0	32.5	41.0	25	40	63
160	200	250	355	355	400	560
315	400	500	500	630	800	800
145	180	200	250			

12.5				20		
20				—		
80				80		
355	400	500	630	630	800	1000
3200	4000	5000	6300	6300	8000	10000
2560	3200	4000	5040	5040	6400	8000
10.000				5000		
M10 x 25				M12 X 40		
30...37				50...75		
265...327				10,442...664		
1 x 185...2 x 185				2 X 185...	2 X 240...	2 X 300...
1 x 400...2 x 350				1 X 2AWG...4 X 600KCMIL		

-25...+55			
-40...+70			
3000			
Vertical			
Any			
By screw			

—	GLC0400...UL	—	—	—	—	—
—	UL1008	—	—	—	—	—
—	CSA C22.2 N°4	—	—	—	—	—
—	400	—	—	—	—	—
—	600	—	—	—	—	—
—	125/312	—	—	—	—	—
—	250/302	—	—	—	—	—
—	350/336	—	—	—	—	—
—	100	—	—	—	—	—
—	J/400	—	—	—	—	—
—	GLX502-GLX503	—	—	—	—	—
—	950 x 350 x 260 (37.4 x 13.8 x 10.3)	—	—	—	—	—

Surge protection devices

For photovoltaic application



Type 1, 2 with plug-in cartridge



SG2EDGK10M3R

Type 2 with plug-in cartridge



SG2DG600M2...



SG2DGK10M3R

Plug-in cartridge



SGX02DG600M2

Order code	Pole arrangement	Relay output	Number of DIN modules	Qty per pkg	Wt [kg]
			n°	n°	[kg]

EN rated voltage Un 1100VDC.

SG2EDGK10M3R	+, -, PE	YES	3	1	0.406
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EN rated voltage Un 1500VDC.

SG2EDGK50M3R	+, -, PE	YES	3	1	0.475
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Order code	Pole arrangement	Relay output	Number of DIN modules	Qty per pkg	Wt [kg]
			n°	n°	[kg]

EN rated voltage Un 600VDC.

SG2DG600M2	+, -, PE	NO	2	1	0.320
------------	----------	----	---	---	-------

SG2DG600M2R	+, -, PE	YES	2	1	0.325
-------------	----------	-----	---	---	-------

EN rated voltage Un 1100VDC.

SG2DGK10M3	+, -, PE	NO	3	1	0.396
------------	----------	----	---	---	-------

SG2DGK10M3R	+, -, PE	YES	3	1	0.406
-------------	----------	-----	---	---	-------

SA2EDGK10M3	+, -, PE	NO	3	1	0.329
-------------	----------	----	---	---	-------

EN rated voltage Un 1500VDC.

SG2DGK50M3	+, -, PE	NO	3	1	0.444
------------	----------	----	---	---	-------

Order code	Description	Qty per pkg	Wt [kg]
		n°	[kg]
SGX02DG600M2	For SG2DG600M2/M2R type	1	0.100
SGX02DGK10M3	For SG2DGK10M3/M3R type	1	0.100
SGX02DGK50M3	For SG2DGK50M3 type	1	0.100

Main characteristics

The surge protection device type SG2EDG..., SG2DG... and SA2EDG... with plug-in cartridge for photovoltaic applications is suitable for installation on the direct-current end of a photovoltaic installation and protects against induced overvoltage conditions.

The protection cartridges are plug-in and can be easily replaced for quick servicing.

Operational characteristics

- EN maximum continuous voltage Ucpv: 600VDC, 1100VDC, 1500VDC
- EN short circuit current Iscpv: 30kA for SG2EDGK50..., 11kA for SG2DGK10... and SG2DG..., 9kA for SA2EDG...
- Versions with or without relay output having changeover contact for remote status indication
- EN degree of protection: IP20.

Characteristics

Type	EN rated voltage Un [VDC]	EN continuous voltage Ucpv [VDC]	EN voltage protection level Up [kV]
SG2DG600M2	600	600	<1.9
SG2DG600M2R	600	600	<1.9
SG2DGK10M3	1100	1100	<3.8
SG2DGK10M3R	1100	1100	<3.8
SG2EDGK10M3R	1100	1100	<3.8
SA2EDGK10M3	1100	1100	<4.0
SG2EDGK50M3R	1500	1500	<4.5
SG2DGK50M3	1500	1500	<5.0

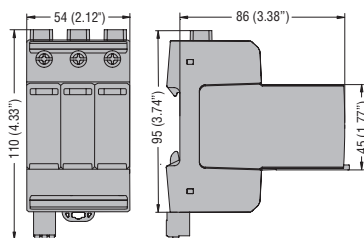
Certifications and compliance

Certification obtained: EAC.

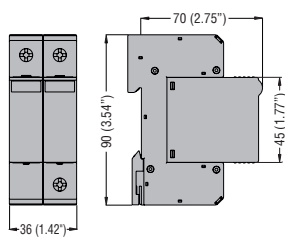
Compliant with standards: IEC/EN/BS 50539-11.

Dimensions [mm(in)]

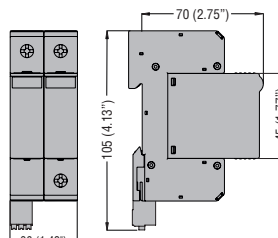
SG2EDGK...M3R



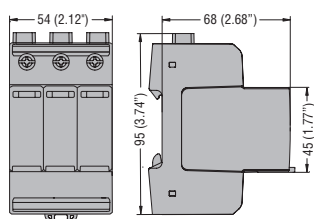
SG2DG600M2



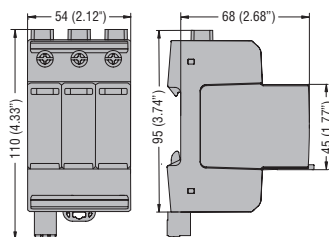
SG2DG600M2R



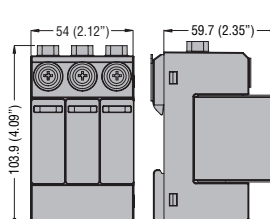
SG2DGK...M3



SG2DGK10M3R



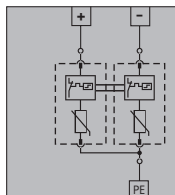
SA2EDGK10M3



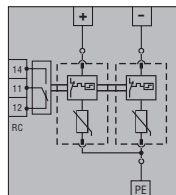
Surge protection devices

For photovoltaic application
Wiring diagrams

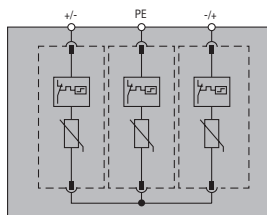
SG2DG600M2



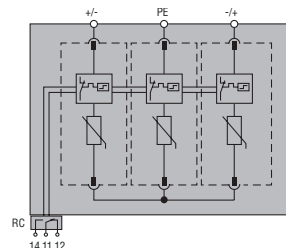
SG2DG600M2R



SG2DGK10M3
SG2DGK50M3
SA2EDGK10M3



SG2DGK10M3R
SG2EDGK10M3R
SG2DGK50M3
SG2EDGK50M3R



Technical characteristics

TYPE	without relay output	—	—	SG2DG600M2	SG2DGK10M3	SG2DGK50M3	SA2EDGK10M3
	with relay output	SG2EDGK10M3R	SG2EDGK50M3R	SG2DG600M2R	SG2DGK10M3R	—	—

ELECTRICAL PROPERTIES

SPD according to IEC/EN/BS 61643-11		Type 1 and 2 (test class I and II)	Tipo 1 and 2 (test class I and II)	Tipo 2 (test class I and II)			
IEC rated voltage U_n	VDC	1100	1500	600	1100	1500	1100
Maximum continuous voltage U_{cpv}	VDC	1100	1500	600	1100	1500	1100
IEC impulse current I_{imp} (10/350)	kA	6.25	6.25	–	–	–	–
Maximum discharge current I_{max} (8/20)	kA	40	60	40	40	30	40
Rated discharge current I_n (8/20)	kA	20	20	20	20	20	20
Protection level U_p	kV	<3.8	<4.5	<1.9	<3.8	<5.0	<4.0
EN residual voltage U_{res} at 5kA (8/20)	kV	–	3.4	1.5	–	–	–
Tripping time t_a	ns	<25					
Thermal isolation protection		Yes					
EN maximum short circuit current I_{scpv}	kA	11	30	11			9
Status indication - operating / failure	colour	Green / Red					

CONNECTIONS

EN degree of protection		IP20		
Terminal tightening torque	Nm	4.5	4.5	2.5
Maximum conductor section	mm²	25 (flexible) / 35 (rigid)		

RELAY OUTPUT FOR REMOTE STATUS INDICATION

Type of contact		Changeover (NO/NC)					
Contact capacity	A	1A 250VAC; 1A 125VAC; 0,5A 48VDC; 0,5A 24VDC; 0,5A 12VDC					
Maximum contact conductor section	mm ²	1.5					

AMBIENT CONDITIONS

Operating temperature		-40...+85°C					
Fixing		On 35mm DIN rail (IEC/EN/BS 60715)					
Material		Thermoplastic, RAL 7035, UL 94 V-0					

Monitoring relays

Interface protection system units
compliant with Italian standard CEI 0-21



For low voltage



PMVF52

Voltage threshold per CEI 0-21.

Order code	Rated voltage Control	Auxiliary	Qty per pkg	Wt
	[V]	[V]	n°	[kg]

For single-phase and three-phase systems with and without low voltage neutral. Dual threshold minimum and maximum voltage and frequency protection.
Modular (4U).

PMVF52	230VAC 400VAC	24...240VAC/ 24...240VDC	1	0.326
--------	------------------	-----------------------------	---	-------

Type of protection	Tripping threshold	Tripping time
Maximum voltage 59.S2	1.15Un	0.2s
Maximum voltage 59.S1 (moving mean over 10min)	1.10Un	≤ 3s
Minimum voltage 27.S1	0.85Un	1.5s
Minimum voltage 27.S2	0.15Un	0.2s

Frequency threshold per CEI 0-21.

Type of protection	Tripping threshold	Tripping time
High external signal and low local control conditions.		
Maximum frequency 81>.S2	51.5Hz	0.1s
Minimum frequency 81<.S2	47.5Hz	0.1s
Low external signal and high local control conditions.		
Maximum frequency 81>.S2	51.5Hz	1s
Minimum frequency 81<.S2	47.5Hz	4s
High conditions for both external signal and local control.		
Maximum frequency 81>.S1	50.2Hz	0.1s
Minimum frequency 81<.S1	49.8Hz	0.1s

NOTE: Low conditions for both external signal and local control are not taken into consideration by the standard.

Order code	Description
Communication ports.	
EXM1010	Opto-isolated USB interface
EXM1011	Opto-isolated RS232 interface
EXM1012	Opto-isolated RS485 interface
EXM1013	Opto-isolated Ethernet interface
EXM1018	IEC/EN/BS 61850 interface
Inputs and outputs.	
EXM1001	2 digital opto-isolated inputs and 2 relay outputs 5A 250VAC

IEC 61850 protocol

The EXM1018 module will be made available only when the competent authorities have established the exact terms of the supervision and control of the specific commands (currently under study as specified in the Italian CEI 0-21 standard).

Order code	Description	Qty per pkg	Wt
		n°	[kg]
PMVFUPS01	Input 230VAC Output 230VAC with stored energy 200Ws and power 250VA	1	0.500

Expansion modules



EXM10...

Backup power supply



PMVFUPS01

General characteristics

PMVF52 interface protection system (IP) unit has been developed according to the Italian CEI 0-21 standard prescriptions. Each is used when a local solar generating system is connected in parallel with the low-voltage electric utility. The controls refer to limits of voltage and frequency monitoring.

In the case when either the voltage or the frequency are out of admissible limits, PMVF52 must step in by de-energising a relay output so that the interface device (DDI) trips. PMVF52 is certified for use in single and three phase systems, where it is required in presence of storage systems connected in parallel to the distribution network and to the photovoltaic inverter on the AC side (presence of multiple energy generators simultaneously or exceeding the threshold of 11.08kW overall).

PMVF52 is equipped with 5 inputs having the following functions:

- DDI status feedback
- External signal for frequency selection (communication network malfunction)
- local control for frequency selection
- remote tripping (forced DDI opening, independent of voltage and frequency values)
- 5th programmable input.

Also, there are 3 relay outputs for:

- DDI opening and closing
- standby device opening (programmable: retentive normally energised, retentive normally de-energised or adjustable pulse)
- 3rd programmable input.

The standby device control is compulsory in installations with more than 20kW and consists of a signal, with a 0.5s delay respect to the DDI opening command, transmitted only if the DDI failed and did not complete the disconnection.

Operational characteristics

- Auxiliary voltage: 24...240VAC/24...240VDC
- voltage inputs:
 - 400VAC (three-phase connection)
 - 230VAC (single-phase connection)
- relays output:
 - OUT1: 8A 250VAC, 8A 30VDC
 - OUT2: 5A 250VAC, 5A 30VDC
 - OUT3: 2A 250VAC, 2A 30VDC
- parameter configuration and remote control (only with communication expansion module) with software **Synergy** and **Xpress**
- housing: modular (4 modules)
- mounting on 35mm DIN rail or screw fixing
- degree of protection for both: IP40 on front; IP20 on terminals
- predisposed for IEC/EN/BS 61850 signal supervision using expansion EXM1018 or external module
- event log (128 events with time reference):
 - interface protection interventions
 - action on password
 - command execution
 - system events.

Reference standards

Compliant standard: Italian CEI 0-21, IEC/EN/BS 60255-27, IEC/EN/BS 60255-26.

General characteristics for PMVFUPS01

CEI 0-21 and CEI 0-16 standards require an auxiliary power supply to feed the interface protection (IP), the interface switch (IS) and the backup switch for at least 5 seconds in the event of a power failure. PMVFUPS01 guarantees the necessary energy by accumulating it in capacitors, thus avoiding the use of batteries that require maintenance.

- power supply: 230VAC, 50Hz
- output voltage: 230VAC, 50Hz
- output power: 250VA
- accumulated energy: 200Ws
- accumulation time: 15s
- 9U modular housing
- operating temperature: -5...+55°C
- degree of protection IP20.

Reference standards

Compliant with standards: IEC/EN/BS 61010-1.

Monitoring relays

Interface protection system units

compliant with VDE-AR-N 4105, VDE-AR-N 4110, VDE-AR-N 4120 e VDE V 0126-1-1 standards

**For low, medium
and high voltage**



PMVF81

Voltage threshold
(default for VDE-AR-N 4105).

Order code	Rated voltage Control	Auxiliary	Qty per pkg	Wt
	[V]	[V]	n°	[kg]

For single-phase and three-phase systems with and without low voltage neutral. Dual threshold minimum and maximum voltage and frequency protection.
R.O.C.O.F and Vector shift. Modular type (4U).

PMVF81	230VAC 400VAC	24...240VAC/ 24...240VDC	1	0.326
---------------	------------------	-----------------------------	---	-------

Type of protection

Maximum voltage threshold 2	●
Maximum voltage threshold 1	● (10 min. avg)
Minimum voltage threshold 1	●
Minimum voltage threshold 2	Optional set to OFF

Frequency threshold
(default for VDE-AR-N 4105).

Type of protection

Maximum frequency threshold 2	●
Maximum frequency threshold 1	Optional set to OFF
Minimum frequency threshold 1	Optional set to OFF
Minimum frequency threshold 2	●

Expansion modules



EXM10...

Order code	Description
------------	-------------

Communication ports.

EXM1010	Opto-isolated USB interface
EXM1011	Opto-isolated RS232 interface
EXM1012	Opto-isolated RS485 interface
EXM1013	Opto-isolated Ethernet interface
EXM1018	IEC/EN/BS 61850 interface

Inputs and outputs.

EXM1001	2 digital opto-isolated inputs and 2 relay outputs 5A 250VAC
----------------	---

IEC 61850 protocol

The EXM1018 module will be made available only when the competent authorities have established the exact terms of the supervision and control of the specific commands (currently under study as specified in the Italian CEI 0-21 standard).

Caratteristiche generali

PMVF81 interface protection system (IP) unit has been developed according to VDE-AR-N 4105, VDE-AR-N 4110, VDE-AR-N 4120 e VDE V 0126-1-1 standards.

The controls refer to limits of voltage and frequency monitoring.

In the case when either the voltage or the frequency are out of admissible limits, PMVF81 must step in by de-energising a relay output so that the interface device (DDI) trips.

PMVF81 is equipped with 5 inputs having the following functions:

- DDI status feedback
- R.O.C.O.F./Vector shift delay
- disabling tripping
- remote tripping (forced DDI opening independent of voltage and frequency values).
- programmable.

Also, there are 3 relay outputs for:

- DDI opening and closing
- standby device opening (programmable: retentive normally energised, retentive normally de-energised or adjustable pulse)
- programmable (default: global alarm).

The backup device consists of a signal contemporary or delayed respect to the IS opening command, transmitted only if the IS failed and did not complete the disconnection.

Operational characteristics

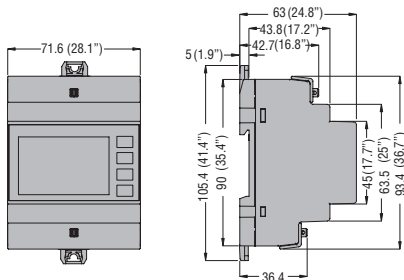
- Auxiliary voltage: 24...240VAC/24...240VDC
- voltage inputs: 50-50000VAC (with TV)
- relays output:
 - OUT1: 8A 250VAC, 8A 30VDC
 - OUT2: 5A 250VAC, 5A 30VDC
 - OUT3: 2A 250VAC, 2A 30VDC
- the device can be password protected to prevent parameters from being altered
- 5 digital input
- programmable voltage rating, voltage thresholds, frequency and delays
- support of EXM series communication port (USB, RS232, RS485, Ethernet)
- housing: modular (4 modules)
- parameter configuration and remote control (only with communication expansion module) with software **Synergy** and **Xpress**
- degree of protection: IP40 on front; IP20 on terminals
- predisposed for IEC/EN/BS 61850 signal supervision using expansion EXM1018 or external module.
- event log (128 events with time reference):
 - interface protection interventions
 - action on password
 - command execution
 - system events.

Reference standards

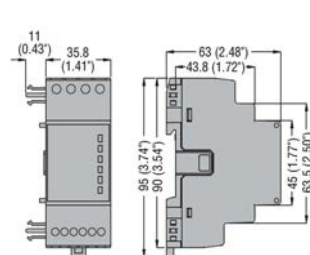
Compliant standard VDE-AR-N 4105, VDE-AR-N 4110, VDE-AR-N 4120, IEC/EN 61010-1, IEC/EN 61000-6-2, IEC/EN 61000-6-4, EN 50549-1 and EN 50549-2.

Dimensions [mm(in)]

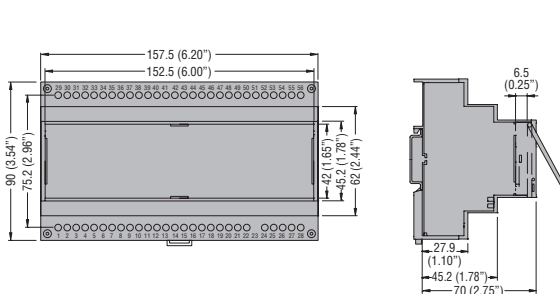
PMVF52 - PMVF81



EXM10...



PMVFUPS01



Monitoring relays

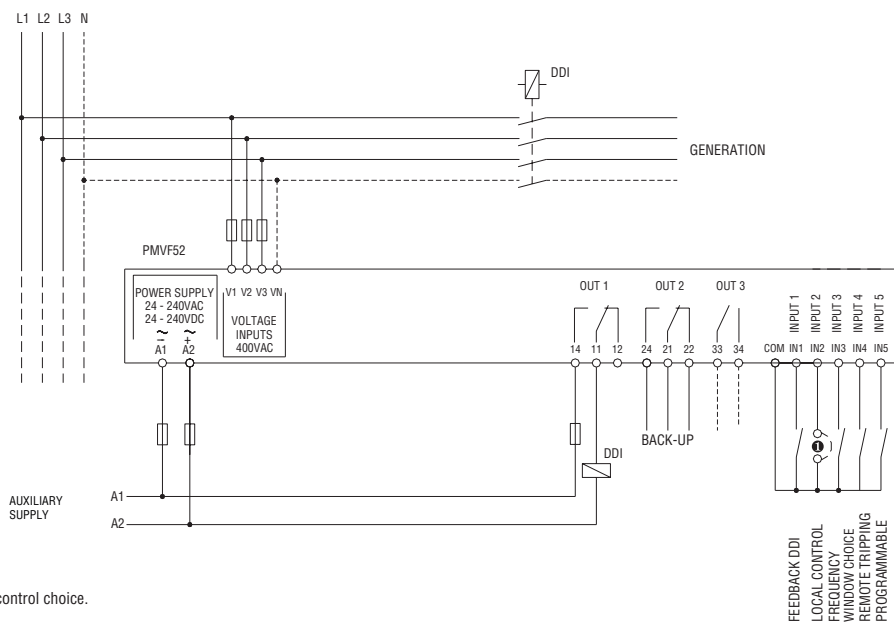
Interface protection system units

Wiring diagrams

PMVF52

Three-phase connection

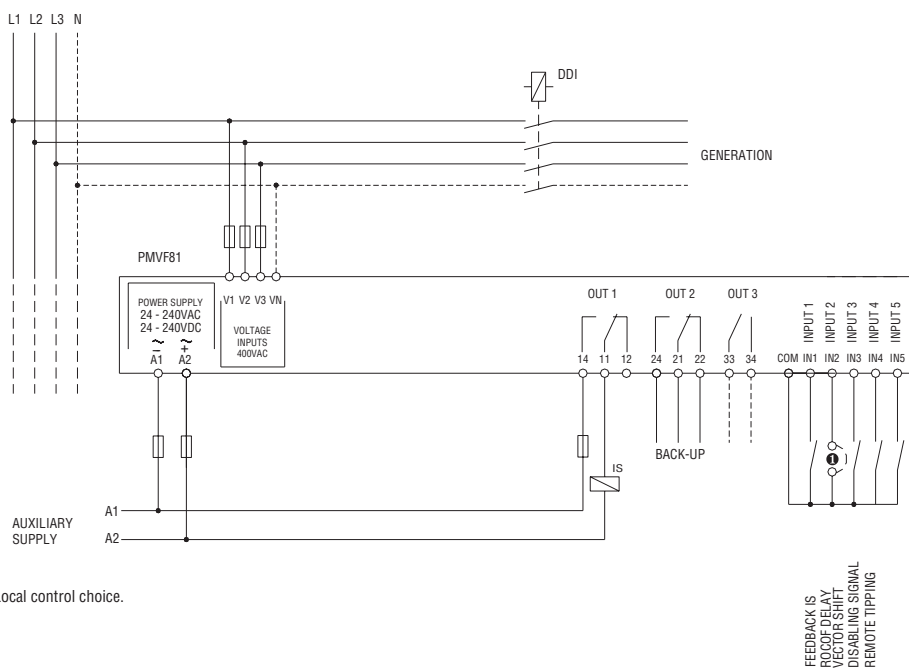
LOW VOLTAGE DISTRIBUTION LINE



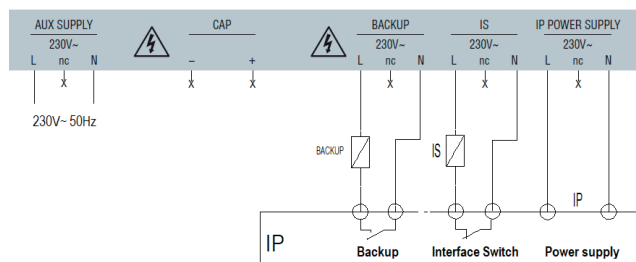
PMVF81

Three-phase connection

LOW VOLTAGE DISTRIBUTION LINE



PMVFUPS01



Monitoring relays

Interface protection system units Technical characteristics

TYPE	PMVF52 - PMVF81
AUXILIARY POWER SUPPLY	
Rated control supply voltage U_s	24...240VAC / 24...240VDC
Operating limits	22...264VAC / 22...264VDC
Frequency	45...55Hz
Power consumption max	6.2VA
Power dissipation max	2W
Micro-breaking immunity	240VAC 50Hz ≤ 2000 ms 240VDC ≤ 1000 ms 24VAC 50Hz ≤ 30 ms 24VDC ≤ 15 ms
Overload category	III
VOLTAGE INPUTS	
Maximum rated operating voltage	400VAC L-L; 230VAC L-N 50Hz
Measuring range	40...480VAC L-L; 23...277VAC L-N
Frequency range	45...55Hz
Overload category	IV
RELAY OUTPUTS	
Number of outputs	3①
Type of output	2 changeover contact and 1 output NO
Rated operating voltage	250VAC
IEC/EN/BS 60947-5-1 designation	OUT1: 8A 250VAC, 8A 30VDC OUT2: 5A 250VAC, 5A 30VDC OUT3: 2A 250VAC, 2A 30VDC
Overload category	III
DIGITAL INPUTS	
Number and type of inputs	4 positive (PNP)
Input voltage	5VDC output from the common
Input current	6mA
SUPPLY/VOLTAGE MEASURING CIRCUIT CONNECTIONS	
Type of terminals	Screw- fixes
Conductor section (min...max)	0.2...4mm ² (24...12AWG)
Tightening torque	0.8Nm (7lb.in)
RELAY OUTPUT CONNECTIONS	
Type of terminals	Screw- fixes
Conductor section (min...max)	0.2...2.5mm ² (24...12AWG)
Tightening torque	0.44Nm (4lb.in)
INPUT CONNECTIONS – Input terminals	
Tightening torque	Screw
Conductor section (min...max)	0.2...2.5mm ² (24...12AWG)
Tightening torque	0.44Nm (4lb.in)
HOUSING	
Material	Polyamide
Version	Modular 4U

① Single insulation between the two outputs. Both outputs must use the same voltage group.

General purpose relays

Miniature relays



In clear enclosure



HR40...

With LED state indicator and mechanical actuator



HR50...

Sockets



HR5XS21 HR5XS22



HR5XS21S



HR5XS21P

Accessories



HR5X86 HR5X87



HR5X88 HR5X30



HR5X9008 HR5X9002

Order code	Control voltage	Contacts	Rated current	Description	Qty per pkg
			[A]		no.

Miniature relays clear enclosure.

HR401CD012	12VDC	1 C/O	16	Mounting on	10
HR401CD024	24VDC	1 C/O	16	HR5XS2... socket (max 10A)	10
HR401CA024	24VAC	1 C/O	10	Mounting on HR5XS2... socket	20
HR401CA110	110VAC	1 C/O	10		20
HR401CA230	230VAC	1 C/O	10		20
HR402CD012	12VDC	2 C/O	10	Mounting on	10
HR402CD024	24VDC	2 C/O	10	HR5XS2... socket	10
HR402CA024	24VAC	2 C/O	5	Mounting on HR5XS2... socket	20
HR402CA110	110VAC	2 C/O	5		20
HR402CA230	230VAC	2 C/O	5		20

Order code	Control voltage	Contacts	Rated current	Description	Qty per pkg
			[A]		no.

Miniature relays with LED state indicator and mechanical actuator.

HR501CD012	12VDC	1 C/O	16	Mounting on HR5XS2... socket (max 10A)	10
HR501CD024	24VDC	1 C/O	16		10
HR501CD048	48VDC	1 C/O	16		10
HR501CD110	110VDC	1 C/O	16		10
HR501CA024	24VAC	1 C/O	16		10
HR501CA110	110/120VAC	1 C/O	16	Mounting on HR5XS2... socket	10
HR501CA230	230VAC	1 C/O	16		10
HR502CD012	12VDC	2 C/O	8		10
HR502CD024	24VDC	2 C/O	8		10
HR502CD048	48VDC	2 C/O	8		10
HR502CD110	110VDC	2 C/O	8		10
HR502CA012	12VAC	2 C/O	8		10
HR502CA024	24VAC	2 C/O	8	Mounting on HR5XS2... socket	10
HR502CA110	110/120VAC	2 C/O	8		10
HR502CA230	230VAC	2 C/O	8		10

Order code	Description	Qty per pkg
		no.

Sockets for relays (supplied without retain/release clip).
Terminal layout see page 61.

HR5XS21	Screw terminals, contact terminals all on upper side. Fitting on DIN rail or with screws	10
HR5XS22	Screw terminals. Fitting on DIN rail or with screw	10
HR5XS21S	Spring terminals with Push-in technology. Fitting on DIN rail or with screws	10
HR5XS21P	PIN terminals for Printed Circuit Board	40

Order code	Description	Qty per pkg
		n°
HR5X86	Metal retaining clip. Only mounting on HR5XS21P socket	10
HR5X87	Metal retaining clip. Not suitable for HR5XS21P socket	20
HR5X88	Plastic retaining clip. Not suitable for HR5XS21P socket	10
HR5X30	Marker tags	100
HR6X78024	Plug-in surge suppressor filters. 6...24VDC con LED	10
HR6X77024	Plug-in surge suppressor filters. 6...24VAC/DC (RC)	10
HR6X77230	Plug-in surge suppressor filters. 110...230VAC/DC (RC)	10
HR5X9008	8-pole parallel busbar - black	10
HR5X9002	Bus jumper for A2 terminals; for spring terminal socket only	10

General characteristics

HR40... miniature relay has reduced dimensions and, in addition to the high electrical performance. HR40... has a clear enclosure that allow contacts visibility for wear and tear check. The mechanical actuator in HR50... miniature relay is particularly useful for performing functional tests; it can also keep the relay closed continuously.

Operational characteristics

- rated insulation voltage: 250V (400V with pollution degree 2)
- relay control voltage:
 - HR40....: 12 and 24VDC
 - HR40....: 24, 110 and 230VAC 50/60Hz
 - HR50....: 12, 24 and 48VDC
 - HR50....: 12, 24, 110/120 and 230VAC 50/60Hz
- max AC-1 controllable power (1C/2C):
 - HR40...3840/2500W (coil versions DC)
 - HR40...2500W/1250W (coil versions AC)
 - HR50....: 4000/2000W
- max AC-15controllable power: 150A
- maximum current (1C/2C):
 - HR40....: 16A/10A for DC coil versions
 - HR40....: 10A/5A for AC coil versions
 - HR50....: 16A/8A.

Certifications and compliance

Certifications obtained: HR401CD... cURus; HR402CD... cURus, TÜV; HR40...CA... cURus, TÜV; HR501C... and HR502C... cURus, CSA, EAC, VDE.
Note: HR502CA012 no certification.
Compliant with standards: IEC/EN/BS 61810-1.

General socket characteristics

HR5X... series sockets can have screw terminals or spring terminals like Push-in technology for quick wiring. A socket with pins for PCB is also available. Screw terminals are available in 2 versions: with contact terminals separated from the coil terminals or with NC contact terminals near the coil terminals. Surge suppressor filters, parallel busbars and tags for wiring can be snap-fitted to the sockets intended for DIN rail mounting.

Operational characteristics

- rated insulation voltage: 250V
- rated impulse withstand voltage: 4kV
- maximum current: 10A
- operating temperature: -40...+70°C.

Certifications and compliance

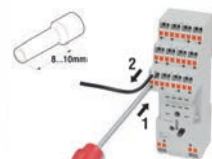
Certifications obtained:
– screw socket: cURus, CSA, EAC
– spring socket: cURus, EAC
– socket for printed circuit board: cURus
Compliant with standards: IEC/EN/BS 61810-1.

HR5XS21S socket with Push-in technology

Push-in wiring without using a screwdriver for cables with end lugs. They guarantee fast wiring and clamping force maintained over time even in the presence of vibrations and / or shocks. To connect cables without end lug and for cables removal, a screwdriver needs to push the handy buttons.



Push-in wiring without using a screwdriver



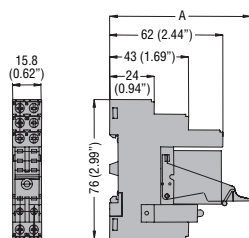
Cable removal with screwdriver

General purpose relays

Miniature relays

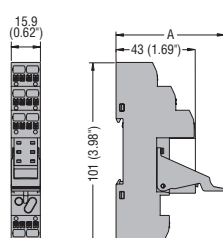
Dimensions [mm(in)]

HR40... - HR50...
with socket **HR5XS21**



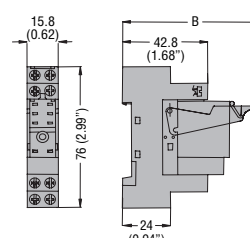
A: 75mm (2.95") with XR5X88

HR40... - HR50...
with socket **HR5XS21S**



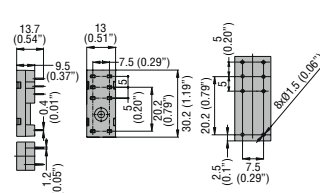
A: 70mm (2.75") with XR5X88

HR40... - HR50...
with socket **HR5XS22**

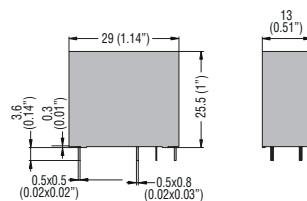


B: 68mm (2.68") with XR5X88

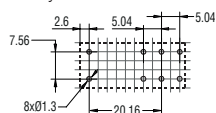
HR5XS21P



HR40 - HR50

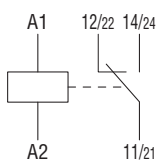


PCB layout

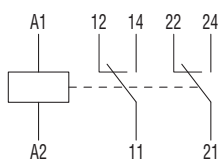


Wiring diagrams

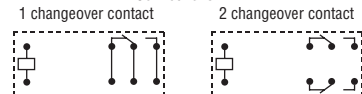
HR401C... - HR501C...



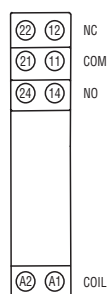
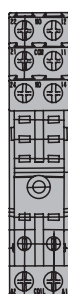
HR402C... - HR502C...



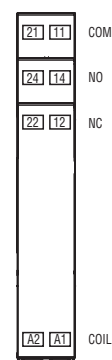
Connections



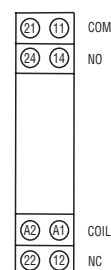
HR5XS21



HR5XS21S



HR5XS22



General purpose relays

Miniature relays

Technical characteristics

TYPE		HR401CD...	HR402CD...	
CHARACTERISTICS OF THE CONTACTS				
Contact configuration		1 C/O	2 C/O	
Rated insulation voltage Ui	V	250	250	
Rated impulse withstand voltage Uimp	kV	4	5	
Conventional free air thermal current Ith	A	16 ^②	10	
Maximum instantaneous current	A	60	26	
Rated operating voltage AC1	VA	4000	2500	
Rated operating voltage AC15 (230VAC)	VA	500	400	
Single-phase motor control (230VAC)	kW	0.37	0,3	
Rated operating voltage DC1: 30/110/220V	A	10 / 0.3 / 0.12	8 / 0.3 / 0.12	
Minimum switching load	V / mA	5 / 100		
Contact impedance	mΩ	100		
Contact material		Ag/SnO ₂		
Max socket terminal tightening torque	Nm	0,6		
Socket screw tightening tool (cross / flat blade)		Phillips 1 / 4.5mm ^③		
Wire section on sockets with screw terminals or spring (min...max)	mm²	0.5...2.5		
	AWG	20...14		
OPERATING TIMES				
Closing	ms	< 15		
Opening	ms	< 5		
ENDURANCE				
Mechanical	Cycles	10,000,000		
Electrical with load AC1	Cycles	100,000 ^④		
COIL CHARACTERISTICS				
Average coil consumption AC (50/60Hz) at 20°C	VA	–	–	
Average coil consumption DC at 20°C	W	0,7	0,5	
Operating range	closing (% Un)	75...110	75...110	
	opening (% Un)	10...30	10...30	
Maximum cycle frequency	cycles/h	3,600	3,600	
Maximum cycle frequency				
Operating temperature	°C	-40...+85		
Storage temperature	°C	-40...+85		
Fitting position		Any		
OTHER CHARACTERISTICS				
Indicator LED		No		
Mechanical contact position indicator		No		
Mechanical test actuator		No		
Socket fixing		On 35mm DIN rail and with screws	On 35mm DIN rail and with screws	

① NO contact.

② Maximum socket current of 10A.

③ 2.5mm flat blade for versions with spring terminals.

④ 2A output 24...280VAC.

⑤ 4A output 3...28VDC.

General purpose relays

Miniature relays

Technical characteristics

	HR401CA...	HR402CA...	HR501C...	HR502C...
	1 C/O	2 C/O	1 C/O	2 C/O
	250	250	250	
	4	4	6	
	10	5	16 ^②	8
	–	–	20 ^①	10 ^①
	2500	1250	4000	2000
	–	–	150 ^①	150 ^①
	0.25	0.12	0.1	-
	–	–	12 / 0.3 / 0.1	8 / 0.3 / 0.1
	5 / 100		5 / 100	
	50		100	
	Ag/SnO ₂		Ag/Ni	
	0.6		0.6	
	Phillips 1 / 4.5mm ^③		Phillips 1 / 4.5mm ^③	
	0.5...2.5		0.5...2.5	
	20...14		20...14	
	< 20		< 15	
	< 10		< 15	
	10,000,000		10,000,000	
	100,000 ^①		30,000 ^①	
	1		1	
	–		0,4	
	80...110		70...110AC / 75...110DC	
	> 10		20...55AC / 10...30DC	
	1,800		3,600	
	-40...+85		-40...+70	
	-40...+85		-40...+85	
	Any			
	No		Yes	
	No		Yes	
	No		Yes	
	On 35mm DIN rail and with screws		On 35mm DIN rail and with screws	

**Three-phase with neutral,
non expandable,
MID certified**

MID



DMED341MID7



-25...+70°C

Order code	Description	Qty per pkg	Wt
		n°	[kg]
DMED341MID7	RS485 interface, 1 programmable static outputs, multi-measurements, -25...+70°C, 4U	1	0,360

General characteristics

The DME... series energy meters, MID certified, are compulsory in Europe, are needed for billing purposes between electricity suppliers and consumers and for energy consumption measurement in directly or CT connected threephase installations. DMED341MID7 was developed for applications in EV charging stations, which are also installed outdoors and then subjected to high heating due to climatic conditions.

Operational characteristics

- LCD multifunction meter
- nominal supply voltage: 230VAC (L-N); 400VAC (L-L)
- voltage range: 187...264VAC (L-N); 323...456VAC (L-L)
- active energy measurement and accuracy: Class B (EN 50470-3)
- reactive energy measurement and accuracy: Class 2 (IEC/EN/BS 62053-23)
- metrological LED with pulse emission for consumption indication
- clearable partial energy measurements
- 1 programmable digital input
- built-in RS485 compatible with Xpress
- modular housing 4 module
- sealable terminal blocks, standard supplied
- EN degree of protection: IP40 on front; IP20 at terminals.

Certifications and compliance

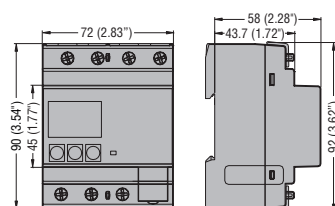
MID Class B (IEC/EN 62052-11, IEC/EN 62052-31, EN 50470-3), certifications per module B (type tests) + per module D (production conformity: pending) IEC/EN 62052-31, EN 50470-3 .

Multi-measurements:

- total and partial active energy
- total and partial reactive energy
- voltage
- current
- active and reactive power
- power factor
- frequency
- total and partial hour counter;
- average active power (on the last 15 minutes of data)
- Maximum demand.

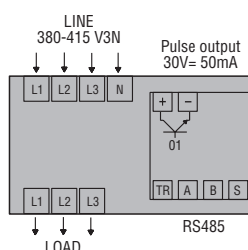
Dimensions [mm(in)]

DMED341MID7



Wiring diagrams

DMED341MID7



Metering instruments and current transformers

Energy meters MID certified
Technical characteristics

TYPE	DMED341MID7
	3 phase with neutral
AUXILIARY SUPPLY	
Rated voltage (Ue)	400VAC (3ph-N)
Voltage range	187...264VAC phase-neutral / 323...456VAC phase-phase
Rated frequency	50Hz
Maximum power consumption	2.4VA
Maximum power dissipation	0.8W
CURRENT	
IEC maximum current (Imax)	80A
IEC minimum current (Imin)	0.75A
IEC rated current (Iref-Ib)	15A
IEC start current (Ist)	60mA
IEC transition current (Itr)	1.5A
ACCURACY	
Active energy (per IEC/EN/BS 62053-21)	Class B (EN50470-3)
LED	
Pulse rate	2000 pulses/kWh
Pulse duration	30ms
STATIC OUTPUTS	
Pulse rate	1-10-100-1000 pulses/kWh
Pulse duration	100ms
External voltage	10...30VDC
Maximum current	50mA
INSULATION	
IEC rated insulation voltage Ui	300VAC
IEC rated impulse withstand voltage Uimp	6kV
IEC power frequency withstand voltage	4kV
SUPPLY/MEASUREMENT CIRCUIT CONNECTIONS	
Type of terminals	Fixed
Conductor section (min...max)	2.5...16mm ² (16...6AWG)
Maximum tightening torque	3Nm (26.5lb.in)
CONNECTIONS (PULSE OUTPUT/RS485)	
Type of terminals	Fixed
Conductor section (min...max)	0.2...1.3mm ² (24...16AWG)
Maximum tightening torque	0.15Nm (1.7lb.in)
AMBIENT CONDITIONS	
Operating temperature	-25...+55°C (MID7: -25...+70°C)
Storage temperature	-25...+70°C
Relative humidity	<80% non condensing
Maximum pollution degree	2
Mechanical environment	Class M1
Magnetic environment	Class E1
HOUSING	
Material	Polyamide

YouTube

Check out our YouTube channel to be guided by our installation and configuration tutorials.

CONFIGURE AND SIZE YOUR MOTOR STARTING

Set the engine data and select the type of starter. The configurator will guide you to the choice of components and accessories. Consult the data sheets. Transmit a list of part numbers to order now.



DESIGN YOUR ENERGY MONITORING SYSTEM WITH MYENERGY CONFIGURATOR

Selected the favorite type of energy monitoring [Web server, Cloud, On site] and inserted the electrical data of the utilities to be monitored, myEnergy configurator selects the correct components, produces a graphical layout, and outputs the material list. The design can be saved, edited, sent to LOVATO Electric for technical and commercial verification.



FIND THE RIGHT SURGE PROTECTION DEVICES

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