CIRCUTOR

P 4

P.4.01 GB

Protection relays and devices

MPRB
OVERLOAD PROTECTION RELAY

The MPRB together with a set of MPTA transformers, form a three-phase protection system against overloads in transformers and mid-voltage distribution centres.
Using a sequence of trip impulses, the supply system is interrupted by a switch or other breaking element. These impulses are generated by the MPRB relay when an overload continues over a certain time period.
The high degree of protection from the relay (IP 67) and the resin transformer box give the equipment excellent qualities for working in adverse environmental conditions.

FEATURES

Auxiliary power supply	
Voltage	230 V a.c. (± 20 %)
Power	5,6 V·A
Frequency	50...60 Hz
Measurement circuit	
Start up current I_n selectable	0,3 - 0,39 - 0,51 - 0,66 A
Powers according to current 0,3 A 0,39 A 0,51 A 0,66 A	1,95 V·A 2,65 V·A 3,75 V·A 5,25 V·A
Frequency	50...60 Hz
Current reading error	± 7,5 %
Maximum current over one second	I =100 I_n ; I_n (0,3 A)
Exterior trip	
Voltage	230 V a.c.. (± 20 %)
Power	0,25 V·A
Frequency	50...60 Hz
External trip with self power supply	from 80% I_n
Output relay features	
Transistor	24 V pulse train (100 µF, 24 Vd.c. external switch coil)
Environmental conditions	
Operating temperature	- 40 ºC / + 85 ºC
Construction features	
Dimensions	173 x 90 x 127 mm
Protection	IP 67
Standards	**IEC 801-2/3/4, IEC 255**

MPRB RELAYS

MAIN FEATURES

		MPRB-96-1-25	MPRB-99-1.0 GF
Equipment with microprocessor technology		●	●
5 trip curves		●	●
4 start up overloads		●	●
Calculation of current values in RMS for a large part of the overload range		●	●
Overload measurement range from 1 I_n to 11,82 I_n		●	●
Reason for trip display **(Trip Ext - Trip I_n)**		●	●
Timer start up display **(I_n >, I_o> / I_n)**		●	●
Auxiliary power supply display 230 V a.c. **(POWER)**		●	●
Trip display memory longer than 48 hours		●	●
Does not require auxiliary power supply (having this guarantees exterior trip)		●	●
Exterior trip with 230 V a.c. and delayed		●	●
Exterior trip delay to avoid unforeseen trips		●	●
Repetition of trip impulses while the current through the transformers is not interrupted		●	●
System test by test coil in the transformer		●	●
With external powered (*)	16 settings the earth fault current from 0.1 two 0,1 to 1,2 $I_{o>}$ / I_n		●
	15 settings for the earth fault current delay from 50 ms to 120 s		●
Cancellable earth fault function			●
Code		**P40101**	**P40102**

(*) With self-powered, consult

CURRENT SELECTION (I_n) MPRB +

MPTA-96-14-90

Selection I_n	CT 1 S0 - S1	CT 1 S0 - S2
I_n a	14,4 A	41,1 A
I_n b	18,7 A	53,4 A
I_n c	24,3 A	69,5 A
I_n d	31,6 A	90,3 A

MPTA-96-117-737

Selection I_n	CT 2 S0 - S1	CT 2 S0 - S1
I_n a	117,4 A	335 A
I_n b	152,7 A	436 A
I_n c	198,5 A	566 A
I_n d	258 A	737 A

TRANSFORMERS FOR MPRB RELAY

fig.1

fig.2

Current ratio	Ø Diameter	Type	Code	
14,4 ÷ 31,6 A	42 mm	MPTA 96-14-90	**P40201**	fig. 1
41,1 ÷ 90,3 A	55 mm	MPTA 96-117-737	**P40202**	fig. 2

OVERVOLTAGE PROTECTORS ST

ST series overvoltage protectors are especially designed to offer complete and effective protection against transient overvoltages in any type of electrical system (TT, TN o IT), whether they are in common or differential mode.

They are capable of earthing high currents which are produced when an overvoltage in the system occurs, due, for example to a lightning strike on the line. To do this they use varistors, elements which allow a high derivation current and the low residual voltage to be achieved.

When the ST protectors operate they deteriorate and worsen with a larger discharge. This continuous deterioration forces the ST protectors to finish their useful life, meaning that they have to be replaced. To detect when this happens, there is a visual and remote display (the latter being optional).

FEATURES

	STU-15 / 230	STU-40 / 230	STU-40 / 230 IR	STM-15 / 230	STM-40 / 230	STT-15 / 400	STT-40 / 400	STAE-250
Power supply circuit								
Number of polls	1			2		4		2 (high-energy)
* U_c (50/60 Hz)	275 V a.c.			275 V a.c.		275 / 440 V a.c.		250 V a.c.
* U_p (1,2/50 µs)	1,2 kV	1,3 kV		-	-	-	-	2 kV
* U_p (1,2/50 µs) L-N	-	-		1,2 kV	1,3 kV	1,2 kV	1,3 kV	-
* U_p (1,2/50 µs) N-PE	-	-		1,5 kV		1,5 kV		-
* I_{max} (8/20 µs)	15 kA	40 kA		15 kA	40 kA	15 kA	40 kA	65 kA
* I_n (8/20 µs)	5 kA	15 kA		5 kA	15 kA	5 kA	15 kA	20 kA
* t_A	< 25 ns			< 50 ns (L-N) / < 100 ns (N-PE)				<25 ns
* I_{cc} (50 Hz)	10 kA	25 kA		10 kA	25 kA	10 kA	25 kA	-
Transition (IEC 61.312-1)	LPZ1-LPZ2, 3	$LPZO_B$-LPZ1		LPZ1-LPZ2, 3	$LPZO_B$-LPZ1	LPZ1-LPZ2, 3	$LPZO_B$-LPZ1	-
Protection class	II			II		II		II
Type of system	TT, TN and IT	TT		TT		TT		TT
Environmental conditions								
Operating temperature	-40 ºC / +80 ºC			-40 ºC / +80 ºC		-40 ºC / +80 ºC		-25 ºC / +40 ºC
Construction features								
Dimensions	1 module			2 modules		4 modules		7 modules
Weight	95 g	110 g		116 g	144 g	35 g	40 g	50 g
Mounting	DIN rail			DIN rail		DIN rail		DIN rail
Protección	IP 20							IP 203
Remote display	Not available		Free of voltage switched output	Not available		Not available		Contact free of voltage NC
Standards	**IEC 61643-1 / EN 61643-11**							

* U_c : Service voltage
* U_p : Protection level at I_n
* I_{max} : Maximum discharge current
* I_n : Nominal discharge current
* t_A : Response time
* I_{cc} : Short circuit current

Unipolar protection

CLASS II		
Maximum current (8 / 20 µs)	**Type**	**Code**
15 kA	**STU-15 / 230**	**P40511**
40 kA	**STU-40 / 230**	**P40512**
40 kA	**STU-40 / 230 IR*** *with remote display	**P40502**

Phase - neutral protection

CLASS II, TT systems		
Maximum current (8 / 20 µs)	**Type**	**Code**
15 kA	**STM-15 / 230**	**P40521**
40 kA	**STM-40 / 230**	**P40522**

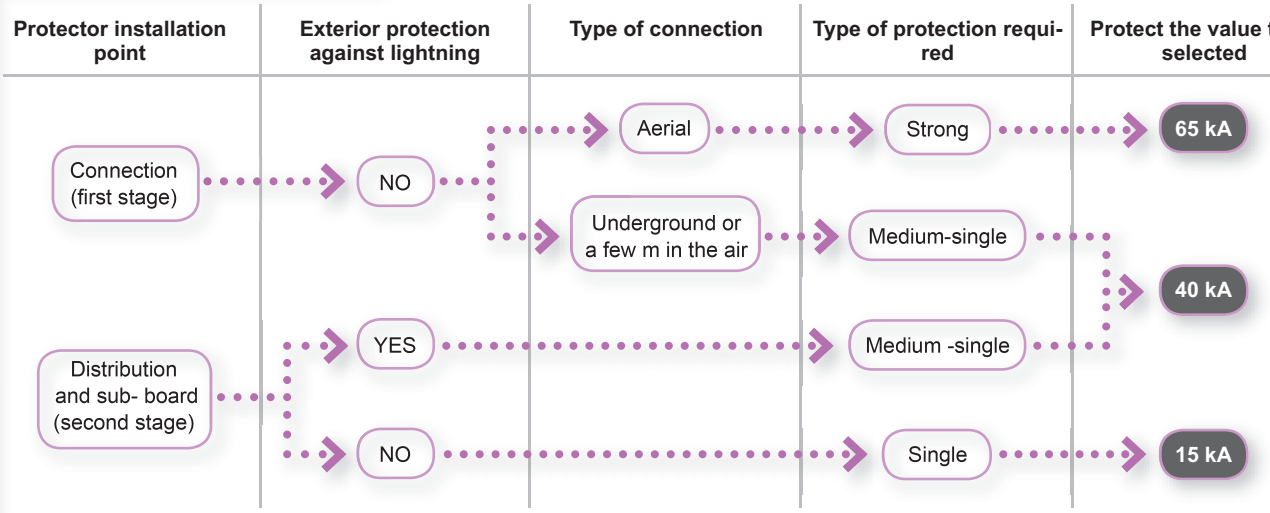
3 phase - neutral protection

CLASS II, TT systems		
Maximum current (8 / 20 µs)	**Type**	**Code**
15 kA	**STT-15 / 400**	**P40531**
40 kA	**STT-40 / 400**	**P40532**

Unipolar protection, high energy

250 UNIPOLAR		
Maximum current (8 / 20 µs)	**Type**	**Code**
65 kA	**STAE-250**	**P40322**

SELECTION GUIDE



RS OVERVOLTAGE PROTECTORS

fig.1

fig.3

fig.2

The propagation of transient overvoltages along electricity distribution lines and weak current lines, cause significant damage to the electronic equipment: loss of data, system blockage, breakdown of parts, etc.
RS modules ensure the protection of interfaces and computer terminals being particularly practical when applied to electronic instruments which have data transfer systems and which are usually mounted on operating and control panels and equipment

Maximum current	Type	Code	Figure
10 kA (8 / 20 µs)	**RS 232/3 DIN**	**P40421**	fig.1
0,5 kA (8 / 20 µs)	**RS 232 C**	**P40422**	fig.2
10 kA (8 / 20 µs)	**RS 485 DIN**	**P40411**	fig.3

FEATURES

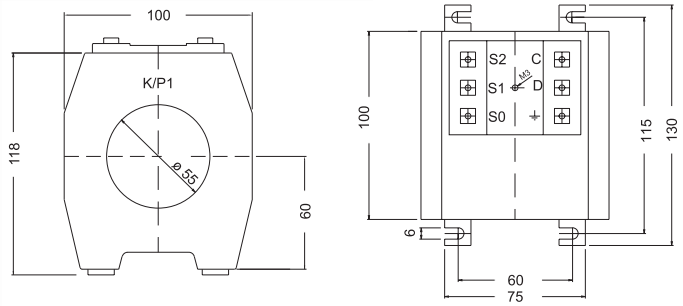
	RS 232/3 DIN	RS 485 DIN
Application	Protection of RS 232 / V24 interfaces	Protection of RS 485 interface with long transmission length
Power supply circuit		
Service voltage	± 12 V d.c.	
Maximum line resistance	15 Ω	27 Ω
Protection level	Common mode: < 200 V d.c. Differential mode: 20 V d.c.	Common mode: < 200 V d.c. Differential mode: 15 V d.c.
$I_{máx}$ (8 / 20 µs)	10 kA	
Communications		
Maximum transmission speed	1 MB / s	
Data lines protected	3	2
Construction features		
Dimensions	2 modules	
Weight	7 g	
Mounting	DIN rail	
Standards	**IEC 61643-21**	

FEATURES

	RS 232 C (7 wire)
Application	Protects the terminal from parasites in a disturbed atmosphere: spark jumps, discharge lamps, motors, etc. For example: between a computer and a peripheral
Power supply circuit	
Service voltage	±16 V d.c.
Maximum line resistance	12 Ω
Residual voltage (0 V connected to earth in the terminal (wire-earth))	33 V d.c.
Residual voltage (0 V not connected to earth in the terminal (floating earth))	Between active wires and earth: 33 V d.c. Between 0 V and earth: 950 V d.c.
Discharge power (8 / 20 µs)	500 A
Nominal current	10 mA
Communications	
Maximum flow	20 KB / s
Type of connector (EIA 449 standard)	Sub D25 pins M / H
Construction features	
Dimensions	105 x 51 x 15 mm
Weight	105 g
Mounting	Using plug and mounting screws
Standards	**IEC 61643-21**

DIMENSIONS

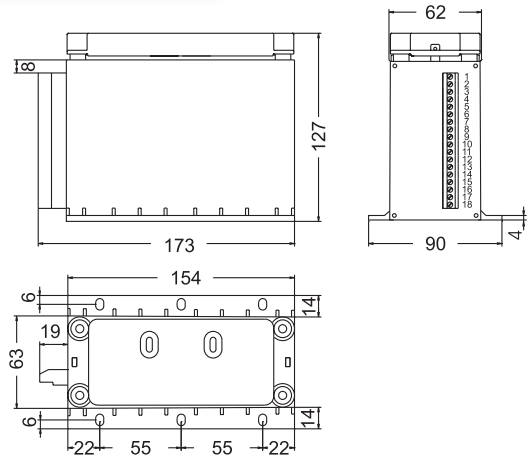
MPTA-96-14-90 / MPTA-96-117-737



Ø	MPTA 96-14-90
a	42

Ø	MPTA 96-117-737
a	55

MPRB



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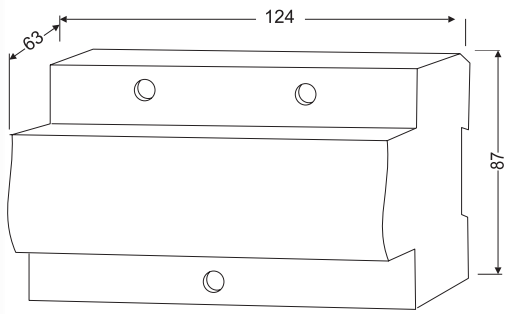

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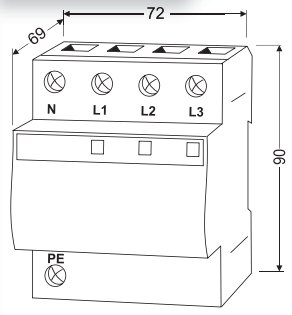

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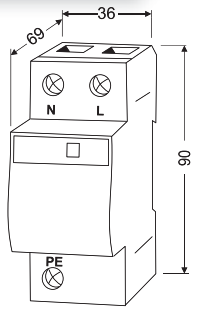
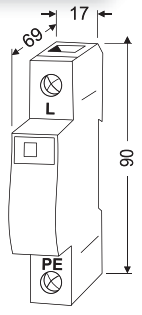


STU



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