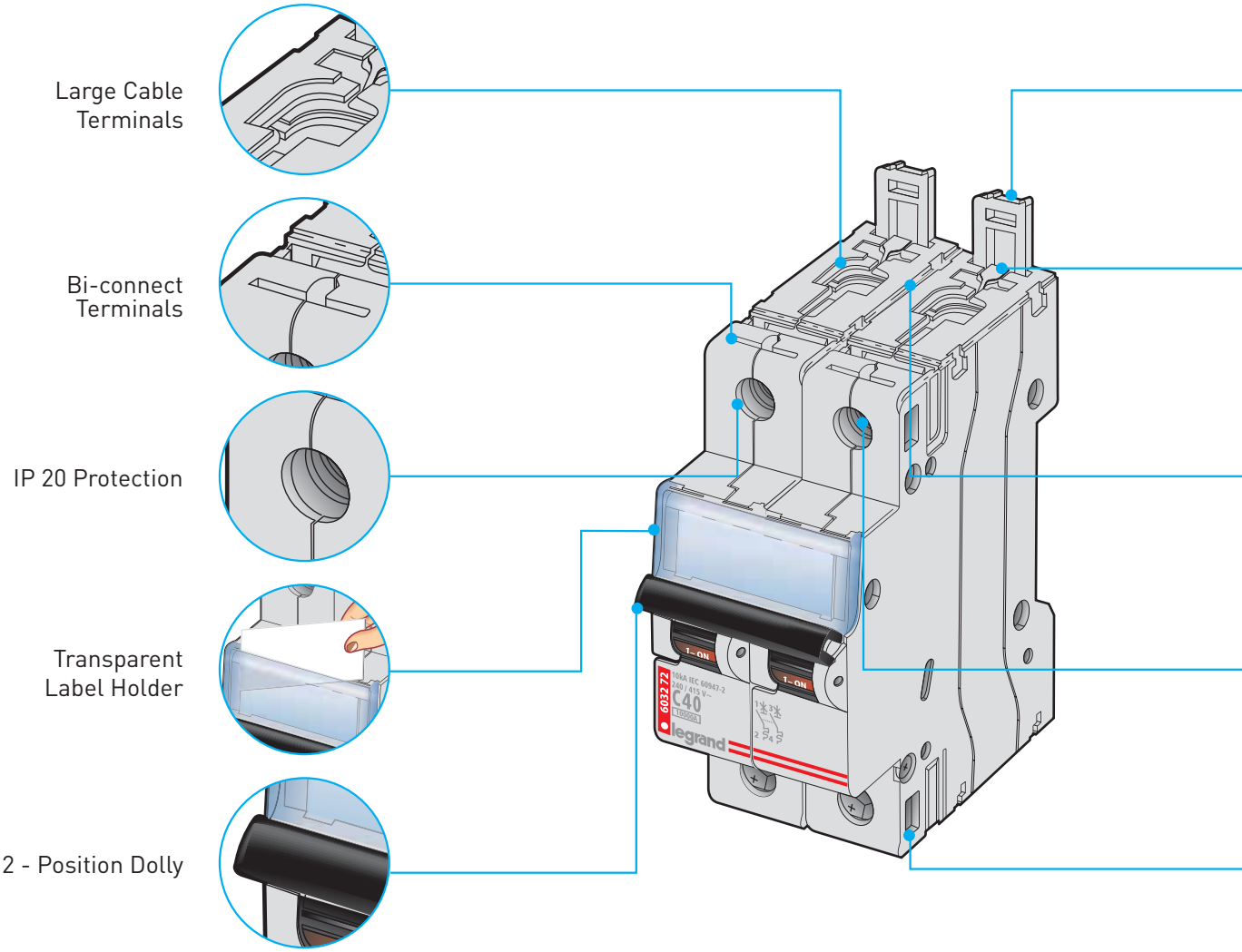
Protection Solutions with Lexic™

Lexic : Protection, isolation, control, signalling and metering



MODULAR LEXIC RANGE

Protection & Isolation

MCB

ISOLATOR

RCD

MPCB

VOLTAGE SURGE PROTECTOR

Controlling

ANALOGUE TIME SWITCH

DIGITAL ASTROREX TIME SWITCH

DIGITAL ALPHAREX TIME SWITCH

TIME-LAG SWITCH

TIME DELAY RELAY

POWER CONTACTOR

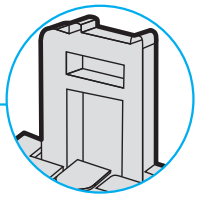
Metering

COMMAND AUXILIARY

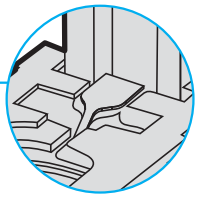
ANALOGUE ENERGY METER

INDICATOR

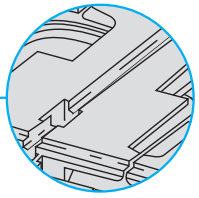
SELECTOR SWITCH



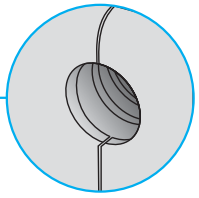
2 Dual position
Din Rail Clamps



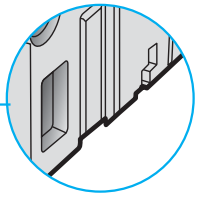
Fully Insulated
Safety Shutters



Air Circulation



Combined Screws

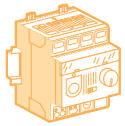


2 Type of Busbars

Signalling

SIGNALLING
AUXILIARY

PUSH BUTTON
CONTROL SWITCH



REMOTE CONTROL
DIMMER

CHANGEOVER
SWITCH

LEXIC

Safe, simple and flexible

Lexic combines the latest technology with aesthetics and flexibility to design modular concepts for protection, isolation, controlling, signalling and metering.

Lexic
thermal magnetic MCBs up to 125 A


6032 31


6032 51


6032 67


6032 85


0064 76

Dimensions (p. 170)
Technical data (p. 115-121)

10 kA ISI marked as per IS / IEC 60898-1 : 2002 (0.5-63A)
15 kA conforming to IEC 60947 upto 25 A rating
Integrated label holder
Biconnect upper and lower terminals
35 sq. mm cage terminals with safety shutters
Air channel for low temperature rise
Clip on auxiliaries
10kA as per IEC 60898 (80-125A)

Single pole 240 / 415 V~

Pack	Cat. nos. D curve	Cat. nos. C curve	Nominal rating (A)	Number of 17.5 mm modules
1/10/120	6032 24		0.5	1
1/10/120	6032 25		1	1
1/10/120	6032 26		1.6	1
1/10/120	6032 27		2	1
1/10/120	6032 28		3	1
1/10/120	6032 29		4	1
1/**10**/120	6049 51	**6032 31**	6	1
1/**10**/120	6049 52	**6032 33**	10	1
1/**10**/120	6049 53	**6032 34**	16	1
1/**10**/120	6049 54	**6032 35**	20	1
1/**10**/120	6049 55	**6032 36**	25	1
1/**10**/120	6049 56	**6032 37**	32	1
1/10/120	6049 57	6032 38	40	1
1/10/120	6049 58	6032 39	50	1
1/10/120	6049 59	6032 40	63	1
1/5/160		0063 83	80	1.5
1/5/160		0063 84	100	1.5
1/5/160		0063 85	125	1.5

Double pole 415 V~

Pack	Cat. nos. D curve	Cat. nos. C curve	Nominal rating (A)	Number of 17.5 mm modules
1/5/60	6032 58		0.5	2
1/5/60	6032 59		1	2
1/5/60	6032 60		1.6	2
1/5/60	6032 61		2	2
1/5/60	6032 62		3	2
1/5/60	6032 63		4	2
1/**5**/60	6049 61	**6032 65**	6	2
1/**5**/60	6049 62	**6032 67**	10	2
1/**5**/60	6049 63	**6032 68**	16	2
1/**5**/60	6049 64	**6032 69**	20	2
1/5/60	6049 65	**6032 70**	25	2
1/**5**/60	6049 66	**6032 71**	32	2
1/5/60	6049 67	6032 72	40	2
1/5/60	6049 68	6032 73	50	2
1/5/60	6049 69	6032 74	63	2
1/40		0064 75	80	3
1/40		0064 76	100	3
1/40		0064 77	125	3

Single pole + Neutral 240 V~

	D curve	C curve	Nominal rating (A)	Number of 17.5 mm modules
1/5/60	6032 41		0.5	2
1/5/60	6032 42		1	2
1/5/60	6032 43		1.6	2
1/5/60	6032 44		2	2
1/5/60	6032 45		3	2
1/5/60	6032 46		4	2
1/5/60		6032 48	6	2
1/5/60		6032 50	10	2
1/**5**/60		**6032 51**	16	2
1/**5**/60		**6032 52**	20	2
1/5/60		6032 53	25	2
1/**5**/60		**6032 54**	32	2
1/5/60		6032 55	40	2
1/5/60		6032 56	50	2
1/5/60		6032 57	63	2

Triple pole 415 V~

	D curve	C curve	Nominal rating (A)	Number of 17.5 mm modules
1/40	6032 75		0.5	3
1/40	6032 76		1	3
1/40	6032 77		1.6	3
1/40	6032 78		2	3
1/40	6032 79		3	3
1/40	6032 80		4	3
1/40	6049 71	**6032 82**	6	3
1/40	6049 72	**6032 84**	10	3
1/40	6049 73	**6032 85**	16	3
1/40	6049 74	**6032 86**	20	3
1/40	6049 75	**6032 87**	25	3
1/40	6049 76	**6032 88**	32	3
1/40	6049 77	6032 89	40	3
1/40	6049 78	6032 90	50	3
1/40	6049 79	6032 91	63	3
1/9		0064 95	80	4.5
1/9		0064 96	100	4.5
1/9		0064 97	125	4.5

Common auxiliaries (p. 132)

For terminating aluminium cables in MCBs of 32 A and above, use of entry terminal 6034 48 is mandatory.

For terminating aluminium cables in MCBs of 32 A and above, use of entry terminal 6034 48 is mandatory.

Bold catalogue numbers are products normally available with Legrand (India) stockists.
Cat. nos. that are not bold - delivery within 4 - 8 weeks from the date of order.
Bold packing quantity is our mandatory packing. Orders to be placed by Legrand (India) stockists in multiples of the same.

Lexic
thermal magnetic MCBs up to 63 A

6033 04

6033 22

Dimensions (p. 170)
Technical data (p. 115-121)

10 kA ISI marked as per IS / IEC 60898-1 : 2002
15 kA conforming to IEC 60947 upto 25 A rating
Integrated label holder
Biconnect upper and lower terminals
35 sq. mm cage terminals with safety shutters
Air channel for low temperature rise
Clip on auxiliaries

Triple pole + Neutral 415 V~

Pack	Cat. nos. D curve	Cat. nos. C curve	Nominal rating (A)	Number of 17.5 mm modules
1/32	6032 92		0.5	4
1/32	6032 93		1	4
1/32	6032 94		1.6	4
1/32	6032 95		2	4
1/32	6032 96		3	4
1/32	6032 97		4	4
1/32		6032 99	6	4
1/32		6033 01	10	4
1/32		6033 02	16	4
1/32		6033 03	20	4
1/32		6033 04	25	4
1/32		**6033 05**	32	4
1/32		**6033 06**	40	4
1/32		6033 07	50	4
1/32		**6033 08**	63	4

Four pole 415 V~

Pack	D curve	C curve	Nominal rating (A)	Number of 17.5 mm modules
1/32	6033 09		0.5	4
1/32	6033 10		1	4
1/32	6033 11		1.6	4
1/32	6033 12		2	4
1/32	6033 13		3	4
1/32	6033 14		4	4
1/32	6049 81	6033 16	6	4
1/32	6049 82	6033 18	10	4
1/32	6049 83	6033 19	16	4
1/32	6049 84	6033 20	20	4
1/32	6049 85	6033 21	25	4
1/32	6049 86	**6033 22**	32	4
1/32	6049 87	**6033 23**	40	4
1/32	6049 88	6033 24	50	4
1/32	6049 89	**6033 25**	63	4
1/9		0065 70	80	6
1/9		0065 71	100	6
1/9		0065 72	125	6

For terminating aluminium cables in MCBs and Isolators of 32 A and above, use of entry terminal 6034 48 is mandatory.

Lexic
Isolators up to 80 A

6040 03

6040 08

6040 16

Conforms to IS 13947-3 (IEC 60947-3)
Integrated label holder
Biconnect upper and lower terminals
35 sq. mm cage terminals with safety shutters
Clip on auxiliaries

Double pole 415 V~

Pack	Cat. nos.	Nominal rating (A)	Number of 17.5 mm modules
1/**5**/60	6040 01	32	2
1/**5**/60	**6040 02**	40	2
1/**5**/60	6040 03	63	2
1/**5**/60	6040 05	100	2

Triple pole 415 V~

		Nominal rating (A)	Number of 17.5 mm modules
1/40	6040 07	32	3
1/40	**6040 08**	40	3
1/40	**6040 09**	63	3
1/40	6040 11	100	3
1/40	6040 12	125	3

Four pole 415 V~

		Nominal rating (A)	Number of 17.5 mm modules
1/32	6040 13	32	4
1/32	**6040 14**	40	4
1/32	**6040 15**	63	4
1/32	6040 17	100	4
1/32	6040 18	125	4

For terminating aluminium cables in MCBs and Isolators of 32 A and above, use of entry terminal 6034 48 is mandatory.

Lexic
MCBs for DC applications up to 63 A and railway MCBs

6033 55

6033 67

Dimensions (p. 170)
Technical data (p. 115-121)

6 kA as per IS 13947 - 2 (IEC 60947 - 2)
Integrated label holder
Bi-connect upper and lower terminal
35 sq. mm cage terminals with safety shutters
Air channel for low temperature rise
Clip on auxiliaries

Single pole 250 V⎓

Pack	Cat. nos. C curve	Nominal rating (A)	Number of 17.5 mm modules
1/10/120	6033 26	0.5	1
1/10/120	6033 27	1	1
1/10/120	6033 28	1.6	1
1/10/120	6033 29	2	1
1/10/120	6033 30	3	1
1/10/120	6033 31	4	1
1/10/120	6033 33	6	1
1/10/120	6033 35	10	1
1/10/120	6033 36	16	1
1/10/120	6033 37	20	1
1/10/120	6033 38	25	1
1/10/120	6033 39	32	1
1/10/120	6033 40	40	1
1/10/120	6033 41	50	1
1/10/120	6033 42	63	1

Double pole 250 V⎓

	D curve	C curve	Nominal rating (A)	Number of 17.5 mm modules
1/5/60	6033 43		0.5	2
1/5/60	6033 44		1	2
1/5/60	6033 45		1.6	2
1/5/60	6033 46		2	2
1/5/60	6033 47		3	2
1/5/60	6033 48		4	2
1/5/60		6033 50	6	2
1/5/60		6033 52	10	2
1/5/60		6033 53	16	2
1/5/60		6033 54	20	2
1/5/60		6033 55	25	2
1/5/60		6033 56	32	2
1/5/60		6033 57	40	2
1/5/60		6033 58	50	2
1/5/60		6033 59	63	2

Railway MCBs single pole 130 V⎓

	NEW	Nominal rating (A)	Number of 17.5 mm modules
1/40	6033 60	0.5	1
1/40	6033 61	1.0	1
1/40	6033 63	1.6	1
1/40	6033 64	2.5	1
1/40	6033 65	3.0	1
1/40	6033 66	4.0	1
1/40	6033 67	5.0	1
1/40	6033 68	10	1
1/40	6033 69	15	1
1/40	6033 70	20	1
1/40	6033 71	25	1
1/40	6033 72	30	1
1/40	6033 73	35	1
1/40	6033 74	40	1
1/40	6033 75	50	1
1/40	6033 76	60	1

For terminating aluminium cables in MCBs of 32 A and above, use of entry terminal 6034 48 is mandatory.

Lexic
DC MCBs

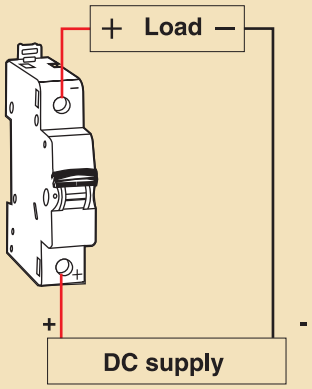
■ Technical data

Correct polarity connections for DC MCBs

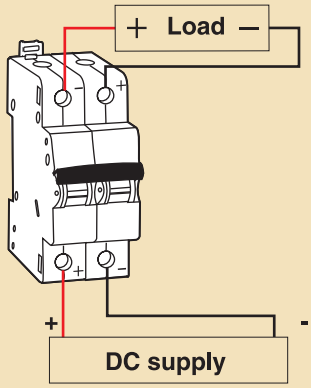
• Supply terminals

When supply is given at lower terminals

Single pole MCB



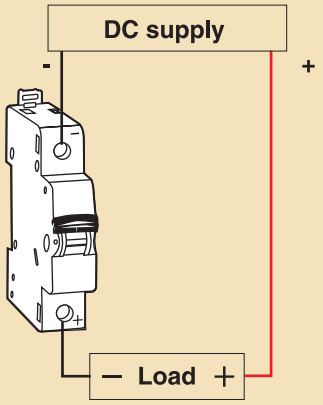
Double pole MCB



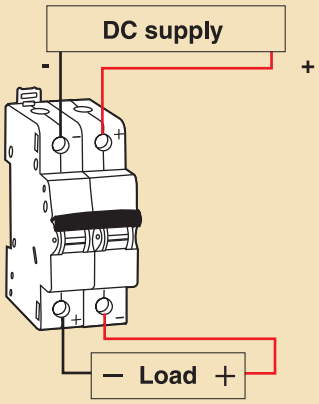
• Supply terminals

When supply is given at upper terminals

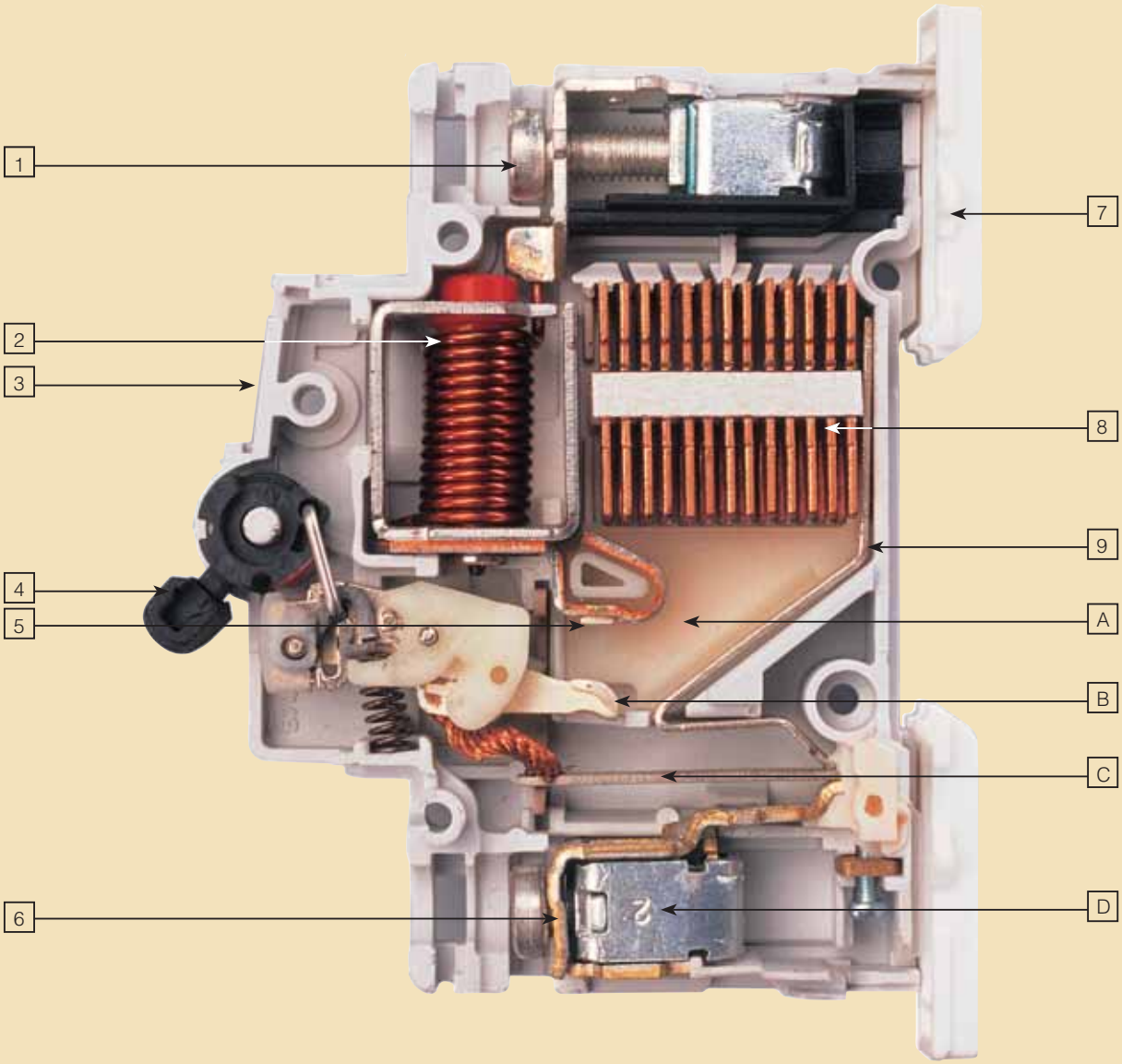
Single pole MCB



Double pole MCB



Lexic MCB
cross sectional view of Lexic AC MCB



1	Combihead terminal screw	8	Arc chute
2	Solenoid	9	Arc runner
3	Label holder	A	Gas chamber
4	Large two position dolly	B	Moving contact
5	Fixed contact	C	Bimetallic strip
6	Bus bar terminal	D	`35 mm² box terminal
7	Two position DIN rail clamp		

■ Technical data

Specification	IS / IEC 60898-1 : 2002
Number of poles	SP, DP, TP, FP, SPN and TPN
Characteristic	C and D
Breaking capacity	10 kA - 0.5 A to 125 A IS / IEC 60898-1 : 2002 15 kA - 0.5 A to 25 A 10 kA - 32 A to 63 A 12.5 kA - 80 A to 125 A As per IS 13947 - 2 (IEC 60947 - 2)
Rated voltage	240 / 415 V AC
Current limitation class	3 as per EN 60898, IEC 60898
Frequency	50 to 60 Hz
Minimum operating voltage	12 V AC
Enclosure	Moulded self-extinguishing thermo set plastic in light bone grey colour.
Mounting position	Optional
Fixing	Snap fixing on standard DIN rail profile - 35 x 7.5 Surface mounting with two screws
Maximum cable size	Top/Bottom - 0.5 to 63A - 1 to 35 mm² for rigid cable - 80 to 125A - 1 to 70 mm² Top/Bottom - 0.5 to 63A - 1 to 25 mm² for flexible standard cable - 80 to 125A - 1 to 50 mm²
Applied connection torque	2.5 Nm
Mechanical endurance	10,000 operation
Electrical endurance	10,000 operation (cos Ø = 0.85 to 0.9)
Permissible ambient temp.	0.5 to 63A - Maximum + 55°C Minimum - 5°C 80 to 125A Maximum + 75°C Minimum - 25°C

Note : Lexic AC MCBs are also suitable for DC operations
0.5 to 63A-60 V DC, Breaking capacity 1kA,
80 to 125A-80 V DC, Breaking capacity 4kA,

Power dissipated in Watt per pole at In

In A	0.5	1	1.6	2	3	4	6	10	16	20	25	32	40	50	63	80	100	125
Type C							1.2	1.53	1.85	1.98	2.4	3.1	4	4.5	5.5	8.5	10	15.6
Type D	2.2	2.2	2.2	2.2	2.4	2.5	1.2	1.53	1.85	1.98	2.4	3.1	4	4.5	5.5			
Permitted limit as per IEC 60898	3	3	3	3	3	3	3	3	3.5	4.5	4.5	6	7.5	9	13			

Derating according to ambient temperature

In at 30°C	Ambient temperature						
	0° C	10° C	20° c	30° C	40° C	50° C	60° C
0.5	0.55	0.53	0.51	0.5	0.48	0.46	0.45
1	1.1	1.07	1.03	1	0.97	0.93	0.9
1.6	1.8	1.7	1.65	1.6	1.55	1.49	1.44
2	2.2	2.1	2.06	2	1.94	1.86	1.8
3	3.3	3.2	3.1	3	2.9	2.8	2.6
4	4.4	4.28	4.12	4	3.88	3.72	3.6
6	6.6	6.4	6.2	6	5.8	5.5	5.4
10	11	10.7	10.3	10	9.7	9.3	9
16	18	17.3	16.6	16	15.4	14.7	14.1
20	22.4	21.6	20.8	20	19.2	18.4	17.6
25	28.3	27.2	26	25	24	22.7	21.7
32	36.2	34.9	33.3	32	30.7	29.1	27.8
40	46	44	42	40	38	36	34
50	57.5	55	52.5	50	47.5	45	42.5
63	73.1	69.9	66.1	63	59.8	56.1	52.9
80	92	88	84	80	76	72	69
100	114	110	105	100	95	90	86
125	141	137	131	125	119	113	108

■ Lexic DC MCBs

Specification	IS 13947-2 ; IEC 60947-2
No. of poles	SP And DP
Breaking capacity	6 kA at 250 V DC As per IS 13947-2 ; IEC 60947-2
Rated Voltage	250 V DC
Minimum Operating Voltage	12 V DC
Permissible ambient temperature	- 5° C to + 55° C

■ Lexic Isolators

Specification	As per IS 13947-3 and IEC 60947-3
Rating and no. of poles	DP - 32, 40, 63 TP - 32, 40, 63, 80 FP - 32, 40, 63, 80
Rated operational voltage and frequency	415 V, 50/60 Hz
Utilization category	AC 22 (for resistive & moderate inductive load)
Insulation voltage Ui	660 V AC
Impulse voltage Uimp	6 kV (1.2 / 50 µ s surge)
Short time with stand capacity	Icw = 1000 A for 0.3 second
Short circuit making capacity Im	1000 A
Endurance	Electrical - 10000 operation (cos Ø 0.85 to .09 lag) Mechanical - 10000 operation
Terminals	Top - 1 to 35 mm² copper / aluminium rigid cable, biconnect terminal, 14 mm deep terminal shutter Bottom - 1 to 35 mm² copper / aluminium rigid cable, biconnect terminal, 14 mm deep with terminal shutter

Choice of Lexic MCBs for capacitor banks

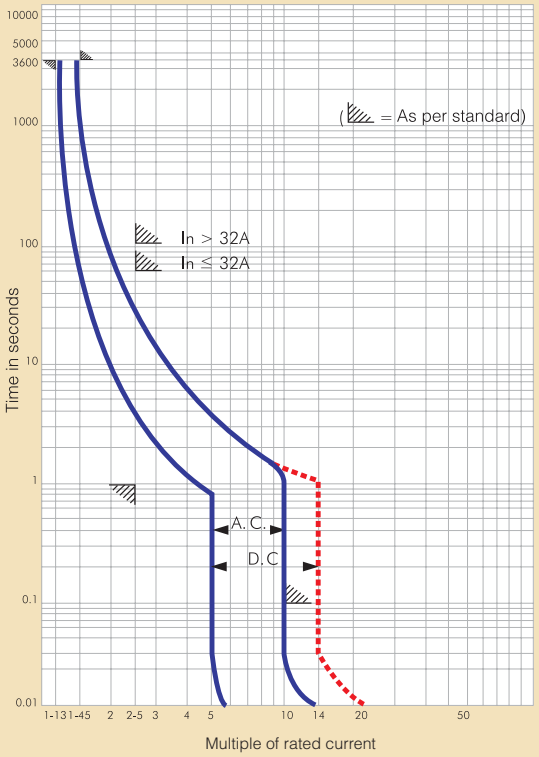
This table shows the rated current of Lexic MCBs to be used when controlling capacitor banks so as to guarantee its function and shortcircuit protection.
Overload protection is not necessary since these installations cannot be overloaded.
This data refers to shortcircuit protection in absence of harmonics or heavy transitory currents.

	Lexic MCB rating in amps			
	C characteristic		D characteristic	
Power of capacitor bank in KVAR	Single phase 240 V	Three phase 415 V	Single phase 240 V	Three phase 415 V
0.5	10	6	3	1
1	20	6	6	2
1.5	32	10	10	3
2.5	40	16	10	4
3	50	16	16	4
3.5	63	20	16	6
4	63	25	16	6
4.5	...	25	20	10
5	...	32	20	10
5.5	...	32	25	10
6	...	32	25	10
6.5	...	40	25	10
7	...	40	32	10
7.5	...	50	32	16
8	...	50	32	16
8.5	...	50	40	16
9	...	50	40	16
9.5	...	63	40	16
10		63	40	16
10.5	80	63	60	16
11	80		50	16
11.5	80		50	16
12	80		50	20
12.5	80		50	20
13	100	...	63	20
13.5	100	...	63	20
14	100	...	63	20
14.5	100	...	63	25
15	100	...	63	25
15.5	100	...		25
16	100	...		25
16.5	125	...	...	25
17	125	...	...	25
17.5	125	...	...	25
18	125	...	...	32
18.5	125	...	...	32
19	125	...	...	32
19.5	125	...	...	32
20	125	...	...	32
20.5	...	...	...	32
21	...	...	...	32
21.5	...	...	...	32
22	...	...	...	32
22.5	...	...	...	32
23	...	...	...	32
23.5	...	...	...	40
24	...	...	...	40
24.5	...	...	...	40
25	...	...	...	40
25.5	...	...	...	40
26	...	...	...	40
26.5	...	...	...	40
27	...	...	...	40
27.5	...	...	...	40
28	...	...	...	40
28.5	...	...	...	40
29	...	...	...	50
29.5	...	...	...	50
30	...	...	...	50
30.5	...	80	...	50
31	...	80	...	50
31.5	...	80	...	50
32	...	80	...	50
32.5	...	80	...	50
33	...	80	...	50
33.5	...	80	...	50
34	...	80	...	50
34.5	...	80	...	50
35	...	80	...	50
35.5	...	80	...	50
36	...	80	...	50
36.5	...	80	...	63
37	...	80	...	63
37.5	...	80	...	63
38	...	80	...	63
38.5	...	80	...	63
39	...	100	...	63
39.5	...	100	...	63
40	...	100	...	63
40.5	...	100	...	63
41	...	100	...	63
41.5	...	100	...	63
42	...	100	...	63
42.5	...	100	...	63
43	...	100	...	63
43.5	...	100	...	63
44	...	100	...	63
44.5	...	100	...	63
45	...	100	...	63
45.5 to 48	...	100	...	...
48.5 to 60	...	125	...	...

■ Technical data

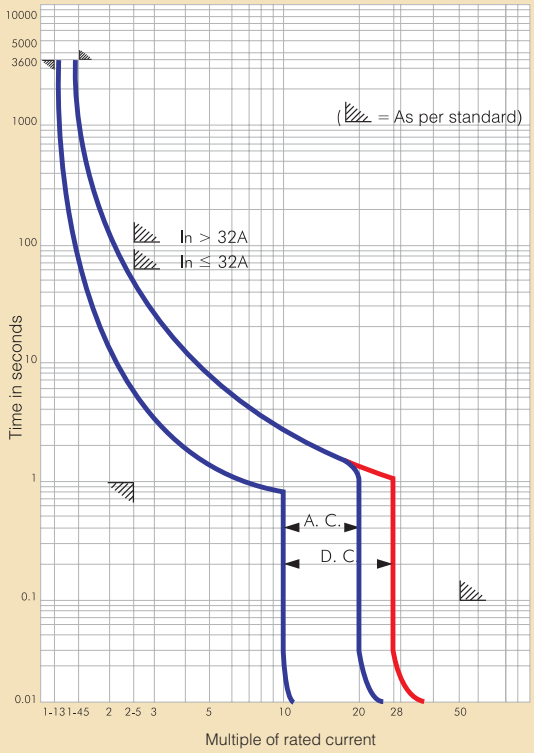
Time current characteristics for C curve

Rating - 6 to 63A Ref. calibration Temp. : 30°C
Ref. standard : IS / IEC 60898-1



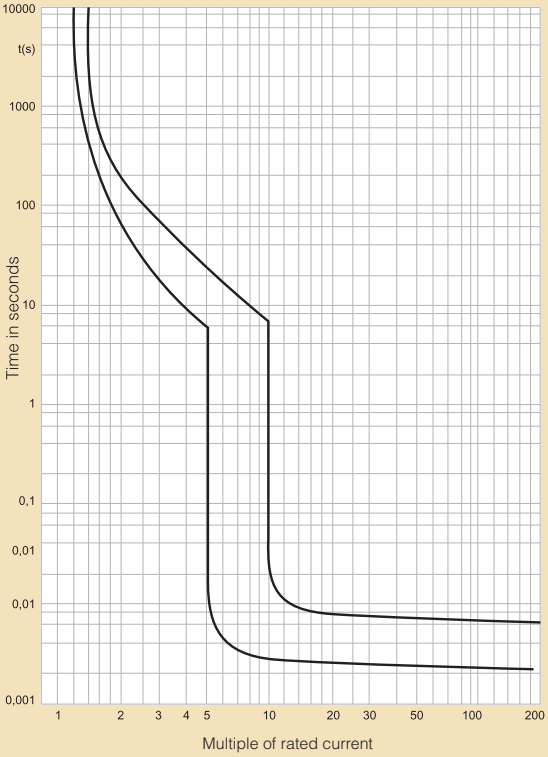
Time current characteristics for D curve

Rating - 0.5 to 63A Ref. calibration Temp. : 30°C
Ref. standard : IS / IEC 60898-1



Time current characteristics for C curve

Rating - 80A to 125A Ref. calibration Temp. : 30°C
Ref. standard : IS / IEC 60898-1



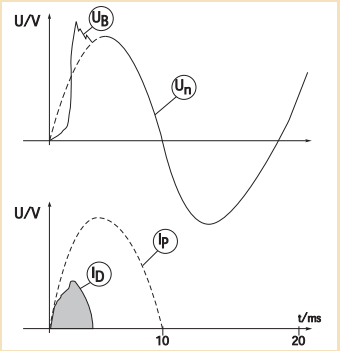
Tripping characteristics

Standards has established different tripping characteristics depending on minimum and maximum values of magnetic trip.

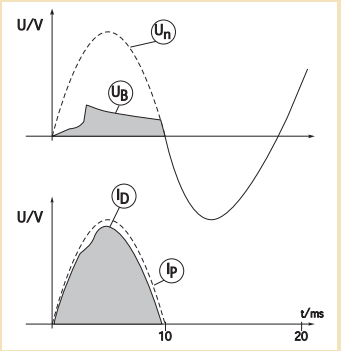
Lexic MCB	Type	Im1	Im2	Typical application
0.5 A to 63 A	D	10 In	20 In	Protection of cable and appliance which has very high starting currents.
6 A to 125 A	C	5 In	10 In	Protection of cable used for lighting load, power load and induction loads with high starting current.

Im1 - hold limit
Im2 - Trip limit

Lexic MCBs versus zero point extinguishing MCBs



Current limiting Lexic MCB



Zero point extinguishing MCB

Un = Mains Voltage
UB = Arc Voltage
ID = Let-through short circuit current
IP = Prospective short circuit current

■ Technical data

Association of protection devices

Association is the technique by which the breaking capacity of a MCB is increased by coordinating it with another protection device, placed upstream. This coordination makes it possible to use a protection device with a breaking capacity which is lower than the maximum prospective short-circuit current at its installation point

The breaking capacity of a protection device must be at least equal to the maximum short-circuit which may occur at the point at which this device is installed.

In exceptional cases, the breaking capacity may be lower than the maximum prospective short-circuit, as long as:

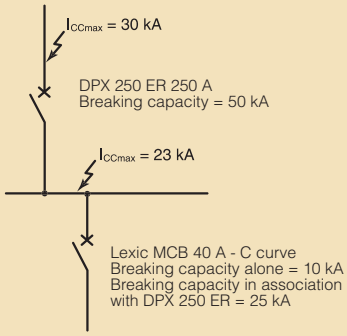
- It is associated with a device upstream which has the necessary breaking capacity at its own installation point
- The downstream device and the trunking being protected can withstand the power limited by the association of the devices.

Association therefore leads to substantial savings.

The association values given in the tables on the following pages are based on laboratory tests carried out in accordance with IEC 60947-2.

Note: In the case of single phase circuits (protected by P+N or 2P MCBs) in a 415 V AC supply, supplied upstream by a 3-phase circuit, it is advisable to use the association tables for 230 V.

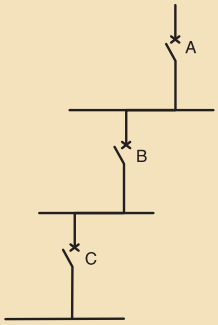
Example of association



3-level association

An association may be created on three levels if one of the conditions below is met.

- The upstream device A must have an adequate breaking capacity at its installation point. Devices B and C are associated with device A. Simply check that the association values B + A and C + A have the necessary breaking capacity.
In this case, there is no need to check the association between devices B and C.



- The association is made between successive devices: Upstream device A, which has an adequate breaking capacity at its installation point, device C is associated with device B which is in turn associated with device A.

Simply check that the association values C+B and B+A have the necessary breaking capacity. In this case, there is no need to check the association between devices A and C.

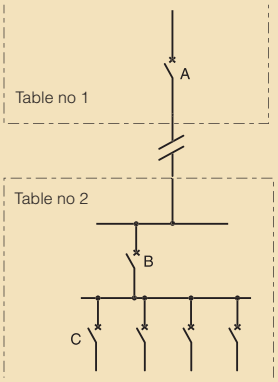
Association in IT connection systems

The values given in the tables should only be used for TN and TT systems.

Although this practice is not widely used, these values may also be used for installations with IT systems. It is therefore advisable to check that each protection device, on its own, can break, on a single pole, the maximum double fault current at the point in question.

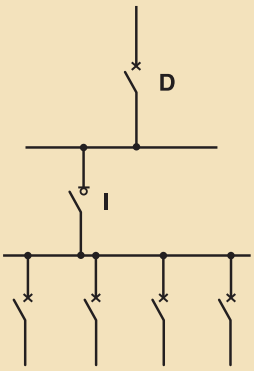
Association between distribution boards

Association applies to devices installed in the same distribution board as well as in different boards. It is therefore generally possible to benefit from the advantages of the association between devices located, for example, in a main distribution board and in a secondary board.



MCB - switch association

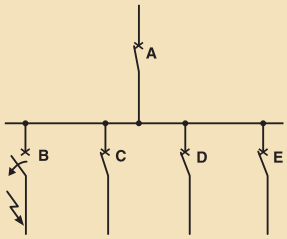
The switches must be systematically protected by an MCB placed upstream. There is considered to be protection against overloads if the rating of switch I is at least equal to that of the upstream MCB, D. If this is not the case, the thermal stresses (devices and conductors) must be checked.
The tables on the following pages give the breaking capacity limits of the MCB - switch associations.



Discrimination of protection devices

Discrimination is a technique which consists of coordinating the protection in such a way that a fault on one circuit only trips the protection placed at the head of that circuit, thus avoiding rendering the remainder of the installation inoperative. Discrimination improves continuity of service and safety of the installation

Discrimination rules are set by the regulations concerning public buildings and for safety installations in general.



Discrimination between A and B is said to be “total” if it is provided up to the value of the maximum prospective short-circuit at the point at which B is installed.

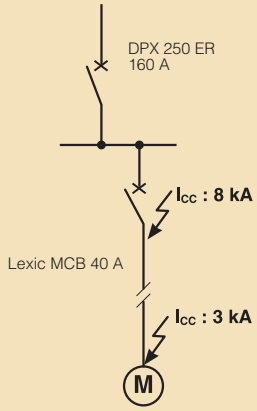
By extension, in the tables on the following pages, total discrimination, indicated by T, means that there is discrimination up to the breaking capacity of device B.

Discrimination between A and B is said to be “partial” in the other cases.

The discrimination limit (given in the following tables) is therefore defined. This gives the short-circuit current value below which only MCB B will open and above which MCB A will also open.

There are a number of techniques for providing discrimination:

- Current discrimination, used for terminal circuits which have low short-circuits.
- Time discrimination, provided by a delay on tripping the upstream MCB
- Logical discrimination, a variant of time discrimination, used on electronic MCBs via a special link between the devices.



Since almost all faults occur during use, partial discrimination may be adequate if the discrimination limit is higher than the value of the maximum short-circuit which may occur at the point of use (or at the end of the trunking). This is referred to as “operating discrimination“. This technique is very often adequate, more economical and less restricting in terms of implementation.

The discrimination limit for the association DPX 250 ER (160 A) with Lexic MCB 40 A (C curve) is 6 kA. Since the prospective ISC at the point of installation is 8 kA, the discrimination is not total. However, there is discrimination at the point of use at which the prospective short-circuit is only 3 kA.

Current discrimination

This technique is based on the offset of the intensity of the tripping curves of the upstream and downstream MCBs. It is checked by comparing these curves and checking that they do not overlap. It applies for the overload zone and the short-circuit zone, and the further apart the ratings of the devices, the better the discrimination.

- On overloads

To have discrimination in the overload zone, the ratio of the setting currents (Ir) must be at least 2.

- On short-circuits

To have discrimination in the short circuit zone, the ratio of the magnetic setting currents (Im) must be at least 1.5.

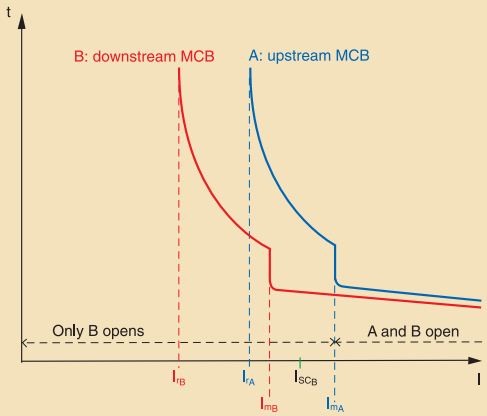
The discrimination limit is then equal to the magnetic release current ImA of the upstream MCB. The discrimination is then total as long as IscB is less than ImA.

Current discrimination is therefore very suitable for terminal circuits where the short-circuits are relatively weak.

In other cases, time discrimination may be used together with current discrimination.

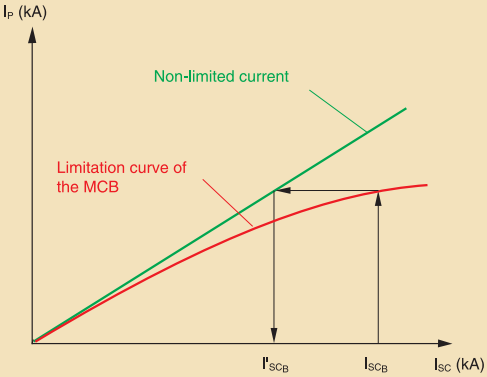
Current discrimination

The discrimination is total for Isc_B



I_{SCB} : maximum short-circuit at the point at which MCB B is installed

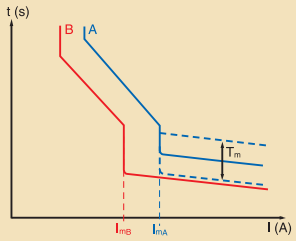
When the downstream MCB B is a limiting device, the short-circuit current is limited in terms of time and amplitude. The discrimination is therefore total if the limited current IscB, which device B allows to pass, is lower than the tripping current of device A



I_{SCB} : prospective short-circuit at the point at which the device is installed
I'_{SCB} : short-circuit limited by device B

Time discrimination

This technique is based on the offset of the times of the tripping curves of the MCBs in series. It is checked by comparing the curves and is used for discrimination in the short-circuit zone. It is also used in addition to current discrimination in order to obtain discrimination beyond the magnetic setting current of the upstream MCB (ImA).



The following is necessary:

- It must be possible to set a time delay on the upstream MCB
- The upstream MCB must be able to withstand the short-circuit current and its effects for the whole period of the time delay
- The trunking through which this current passes must be able to withstand the thermal stresses (I^2t).

The non-tripping time of the upstream device must be longer than the breaking time (including any time delay) of the downstream device.

DPX MCBs have a number of time delay setting positions for creating discrimination with a number of stages.

■ Technical data

Association and co-ordination of MCCBs and MCBs (in kA)

In 3 phase networks + N 400/415 V according to IEC 60947-2

		MCCBs Upstream									
		DPX-E 125	DPX 125	DPX/ DPX-H 160	DPX 250 ER			DPX/H/L 250		DPX/H/L 630	
MCBs downstream		16 to 125A	16 to 125A	25 to 160A	63A	160A	250A	160A	250A	250 to 400A	
Lexic - 10 kA MCB	0.5 to 20 A	16	25	25	25	25	25	25	25	25	
	25A	16	25	25	25	25	25	25	25	25	
	32A	16	25	25	25	25	25	25	25	25	
	40A	16	25	25	25	25	25	25	20	20	
	50A	16	25	20	25	20	20	20	15	15	
	63A	16	25	15		15	15	15	15	15	
	80A	16	20	20	20	20	20	20	20	20	
	100A	16	20	20	20	20	20	20	20	20	
	125A			15	15	15	15	15	15	15	

In 3 phase networks + N 230/240 V according to IEC 60947-2

		MCCBs upstream									
		DPX-E 125	DPX 125	DPX/ DPX-H 160	DPX 250 ER			DPX/H/L 250		DPX/H/L 250	
MCBs downstream		16 to 125A	16 to 125A	25 to 160A	63A	160A	250A	160A	250A	250 to 400A	
Lexic - 10 kA MCB	0.5 to 20 A	22	35	35	50	50	50	50	50	50	
	32 & 40A	22	35	35	50	50	50	50	50	50	
	50A	16	25	25	36	36	36	36	30	30	
	63A	16	25	15	25	30	30	30	30	30	
	80A	16	25	25	25	25	25	25	25	25	
	100A	16	25	25	25	25	25	25	25	25	
	125A			25	25	25	25	25	25	25	

TT or TNS neutral earthing systems :
For a 230 / 400 V supply in order to determine the breaking capacity of a 2 P MCB used as L + N (230 V) downstream a 2 P or 4 P circuit breaker use values indicated in the table for 230/240 V

Selectivity tables MCBs/MCCBs

		MCCBs upstream														
		DPX														
		DPX 125				DPX 160			DPX 250 ER				DPX/H/L 250			
MCBs downstream		40 A	63 A	100 A	125 A	63 A	100 A	160 A	63 A	100 A	160 A	250 A	63 A	100 A	160 A	250 A
Lexic - 10 kA MCB	0.5 to 4 A	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	6 A	6 000	6 000	T	T	T	T	T	T	T	T	T	6 000	T	T	T
	10 A	5 000	5 000	7 500	7 500	5 000	T	T	5 000	T	T	T	5 000	T	T	T
	13 A	4 000	4 000	6 000	6 000	5 000	T	T	5 000	T	T	T	4 000	T	T	T
	16 A	4 000	4 000	6 000	6 000	4 000	T	T	4000	T	T	T	4 000	T	T	T
	20 A	3 000	3 000	5 000	5 000	4 000	8 000	T	4 000	8 000	T	T	4 000	8 000	T	T
	25 A	3 000	3 000	4 500	4 500	3 000	6 000	8 500	3 000	6 000	8 500	T	3 000	6 000	T	T
	32 A		2 000	4 000	4 000	2 000	5 000	7 000	2000	5 000	7 000	T	2 000	5 000	T	T
	40 A		2 000	3 000	3 000	2 000	4 000	6 000	2 000	4 000	6 000	T	2 000	5 000	T	T
	50 A			3 000	3 000		4 000	5 500		4 000	5 500	7 000		4 000	8 000	T
	63 A			3 000	3 000		3 000	5 000		3 000	5 000	6 000		4 000	8 000	T
	80 A				2000		2000	5000		2500	5000	6000		3000	8000	T
	100A							4000			4000	5000			7500	T
	125A							2000			2000	3000			3000	8000

T: total selection, up to downstream circuit breaker breaking capacity according to IEC 60947-2

(1) The magnetic threshold of the upstream circuit breaker must be higher than the magnetic threshold of the downstream circuit breaker

Selectivity limits Fuses / MCBs

		upstream fuse							
		gG type							
MCBs downstream		32A	40a	50A	63A	80A	100A	125A	160A
Lexic 10 kA C curve	0.5 to 6A	1 600	1 900	2 500	4 000	4 600	11 000	25 000	T
	8A	1 600	1 900	2 500	4 000	4 600	11 000	25 000	T
	10A		1 600	2 200	3 200	3 600	7 000	11 000	20 000
	13A		1 600	2 200	3 200	3 600	7 000	11 000	20 000
	16A		1 400	1 800	2 600	3 000	5 600	8 000	15 000
	20A		1 200	1 500	2 200	2 500	4 600	6 300	10 000
	25A			1 300	2 000	2 200	4 100	5 500	8 000
	32A			1 200	1 700	1 900	3 500	4 500	7 000
	40A					1 700	3 000	4 000	5 000
	50A					1 600	2 600	3 500	4 500
	63A						2 400	3 300	4 500
	80A						3000	6000	8000
	100A							4000	5000
	125A								4000

T : Total selectivity up to breaking capacity of downstream circuit breaker according to EN 60947-2

DPX/H/L 630 Electronic		DPX/H/L 1250	DPX/H/L 1600
160 & 400 A	630A	500 to 1250A	800 to 1600A
25	25	25	25
25	25	20	20
25	25	15	15
20	20	15	15
15	15	12.5	12.5
15	15	12.5	12.5
20	15	15	12.5
20	15	15	12.5
15	12.5	12.5	12.5

DPX/H/L 630 Electronic		DPX/H/L 1250	DPX/H/L 1600
160 & 400 A	630A	500 to 1250A	800 to 1600A
50	50	50	50
50	50	50	50
30	25	25	25
30	25	25	25
25	25	25	16
25	25	25	16
25	25	25	16

Association of fuses and Lexic MCBs

In 3 phase networks (+ N) 400/415 V according to IEC 60947-2

MCBs downstream		Fuses upstream gG type		
		20 to 50 A		63 to 160 A
Lexic 10kA	0.5 A to 40 A	100		100
	50 to 63 A	-		100
		100 A	125 A	160 A
	80 A	100	100	100
	100 A	-	100	100
	125 A	-	-	100

Association of fuses and Lexic MCBs

In 3 phase networks (+ N) 230/240 V according to IEC 60947-2

MCBs downstream		Fuses upstream gG type		
		20 to 50 A		63 to 160 A
Lexic 10kA	0.5 A to 40 A	100		100
	50 A to 63 A	-		100
		100 A	125 A	160 A
	80 A	100	100	100
	100 A		100	100
	125 A			100

DPX															
DPX/H/L 630 elec.			DPX/H/L 630				DPX/H/L 1250					DPX/H 1600 elec.			
250 A	320 A	400A	160 A	250 A	400 A	630 A	500 A	630 A	800 A	1 000 A	1 250 A	630 A	800 A	1 250 A	1 600 A
T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T

■ Selection chart*

Lexic MCBs (10 kA) and RCBOs
3 phase motor application

Motor H.P.	KW	MCB rating (A) Star Delta	DOL
1	0.75	-	1.6 A
1.5	1.10	-	2 A
2	1.50	-	3 A
3	2.25	-	4 A
4	3.00	-	10 A
5	3.75	10 A	10 A
6	4.50	10 A	10 A
7.5	5.50	16 A	16 A
10	7.50	16 A	20 A
12.5	9.30	20 A	25 A
15	11.00	25 A	32 A
17.5	13.00	25 A	32 A
20	15.00	40 A	40 A
25	18.50	40 A	50 A
30	22.50	50 A	63 A
35	26.00	63 A	-

Selectivity limits MCB / MCB (average values in Amp.)

MCBs downstream		MCBs upstream Lexic 10 kA											
		6A	10A	16A	20A	25A	32A	40A	50A	63A	80A	100A	125A
Lexic 10 kA	0.5 to 4A	45	75	120	150	187	240	300	375	472	480	600	750
	2A	45	75	120	150	187	240	300	375	472	480	600	750
	3A	45	75	120	150	187	240	300	375	472	480	600	750
	6A	75	120	150	187	240	300	375	472	480	480	600	750
	10A			120	150	187	240	300	375	472	480	600	750
	16A				150	187	240	300	375	472	480	600	750
	20A					187	240	300	375	472	480	600	750
	25A						240	300	375	472	480	600	750
	32A							300	375	472	480	600	750
	40A								375	472	480	600	750
	50A									472	480	600	750
	63A										480	600	750
	80A											600	750
	100A												750
	125A												

(1) The MCB downstream must always have a magnetic threshold and a nominal rating inferior to upstream MCBs

For MCB/RCBO ratings :

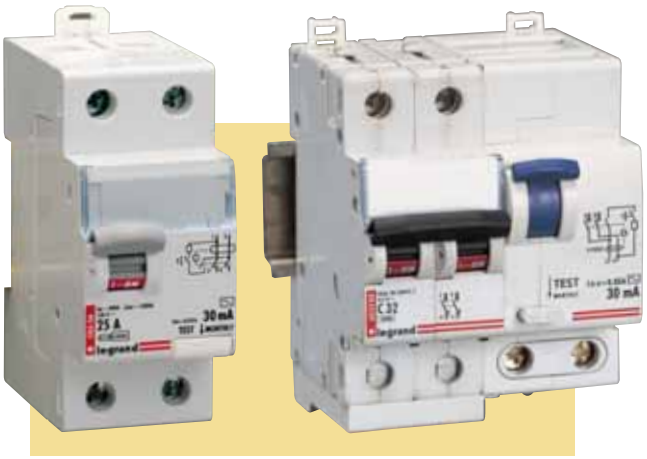
Single phase = P = VI

Three phase = P = $\sqrt{3}$ VI Cos φ = 1.732 x VI x 0.8

Note : One lighting circuit can have upto 800 W or upto 10 points.
One power circuit can have upto 3000 W or upto 2 power points.
* The data given above is only for guidance.
The exact rating must be selected only after considering the motor characteristics.

Protection against earth leakage

RCCB RCBO



> Type AC

Sensitive to residual alternating currents
Use : Standard applications

> Type A-S

Sensitive to residual alternating currents with DC components
Delayed trip for discrimination with other RCDs
Use : Special applications like rectifier bridge, etc.

> Type Hpi

Enhanced immunity to unwanted tripping in environments with disturbances. Detects faults with DC components
Use : Special applications like DG sets, computers, printers, thyristors, etc.

Lexic
RCCBs upto 63 A

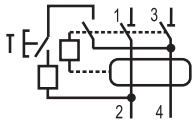
0086 08

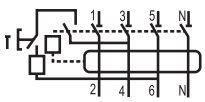
6021 31

Dimensions (p. 170)
Technical data (p. 126-131)

Protection against earth leakage
ISI marked as per IS 12640 (part 1) - 2008
Conforms to IEC 61008-1
Integrated label holder
Bi-connect terminal
35 mm. cage terminals with safety shutters
Clip on auxiliaries

Pack	Cat. nos.	Nominal rating (A)	Number of 17.5 mm modules
		Type AC	
		Double pole 230 V~	
		30 mA	
1/5/60	**0086 06**	25	2
1/5/60	**0086 07**	40	2
1/5/60	0086 08	63	2
		100 mA	
1/5/60	**0086 09**	25	2
1/5/60	**0086 10**	40	2
1/5/60	0086 11	63	2
		300 mA	
1/5/60	0086 12	25	2
1/5/60	0086 13	40	2
1/5/60	0086 14	63	2
		Four pole 400 V~	
		30 mA	
1/32	6021 26	25	4
1/32	**6021 27**	40	4
1/32	**6021 28**	63	4
		100 mA	
1/32	6021 29	25	4
1/32	**6021 30**	40	4
1/32	**6021 31**	63	4
		300 mA	
1/32	6021 32	25	4
1/32	**6021 33**	40	4
1/32	**6021 34**	63	4





Common auxiliaries (p. 132)

For terminating aluminium cables in RCCBs of 32 A and above, use of entry terminal 6034 48 is mandatory.

Bold catalogue numbers are products normally available with Legrand (India) stockists.
Cat. nos. that are not bold - delivery within 4 - 8 weeks from the date of order.
Bold packing quantity is our mandatory packing. Orders to be placed by Legrand (India) stockists in multiples of the same.

Lexic
RCCBs 63A

6021 72

6021 67

Dimensions (p. 170)
Technical data (p. 126-131)

Protection against earth leakage
Conform to new standards
IEC 61008-1
Integrated label holder
Bi-connect lower terminal
Terminals with safety shutters
Clip on auxiliaries

Pack	Cat. nos.	Type A-S	
		Double pole - 230 V~	
		300 mA discriminating	
		Nominal rating (A)	Number of 17.5 mm modules
1/5/60	6021 72	63	2
		Four pole - 400 V~ neutral on right	
		300 mA discriminating	
1/32	6021 67	63	4

Lexic
RCCBs upto 63 A

6021 68

6021 66

Dimensions (p. 170)
Technical data (p. 126-131)

Protection against earth leakage
Enhanced immunity to unwanted tripping in environments with disturbances eg. DG sets, Computers, Printers, etc.
Detects faults with DC components eg. Thyristors, Trio, etc.
Conforms to IEC 61008-1
Integrated label holder
Bi-connect lower terminals
Terminals with safety shutters
Clip on auxiliaries
Minimum operating temperature - 25° C

Pack	Cat. nos.	Type Hpi	
		Double pole 230 V~	
		30 mA	
		Nominal rating (A)	Number of 17.5 mm modules
1/5/60	6021 68	25	2
1/5/60	6021 69	40	2
1/5/60	6021 70	63	2
		Four pole 400 V~	
		30 mA	
1/32	6021 64	25	4
1/32	6021 65	40	4
1/32	6021 66	63	4

Most compact range of MCCBs in India

DPX MCCBs (p. 56-69)

For terminating aluminium cables in RCCBs of 32 A and above, use of entry terminal 6034 48 is mandatory.

Bold catalogue numbers are products normally available with Legrand (India) stockists.
Cat. nos. that are not bold - delivery within 4 - 8 weeks from the date of order.
Bold packing quantity is our mandatory packing. Orders to be placed by Legrand (India) stockists in multiples of the same.

Lexic
RCBOs up to 63 A

6033 80

6033 99

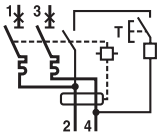
Dimensions (p. 170)
Technical data (p. 126-131)

3 in 1 protection : Earth leakage, overload and short circuit
10 kA ISI marked as per IS 12640 (part 2) - 2008
Conforms to IEC 61009 - 1
Integrated label holder
Bi-connect terminal.
35 sq. mm cage terminals with safety shutters
Clip on auxiliaries

Type AC

Double pole 240/415 V~

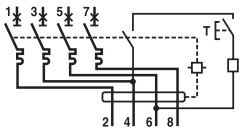
Pack	Cat. nos.	Nominal rating (A)	Number of 17.5 mm modules
		30 mA	
1/32	6034 14	6	4
1/32	6034 16	10	4
1/32	**6033 77**	16	4
1/32	**6033 79**	25	4
1/32	**6033 80**	32	4
1/32	**6033 81**	40	4
1/32	6033 82	63	4
		100 mA	
1/32	6034 24	6	4
1/32	6034 26	10	4
1/32	6033 83	16	4
1/32	**6033 85**	25	4
1/32	**6033 86**	32	4
1/32	**6033 87**	40	4
1/32	6033 88	63	4
		300 mA	
1/32	6033 89	16	4
1/32	**6033 91**	25	4
1/32	**6033 92**	32	4
1/32	6033 93	40	4
1/32	6033 94	63	4



Type AC

Four pole 240/415 V~

Pack	Cat. nos.	Nominal rating (A)	Number of 17.5 mm modules
		30 mA	
1/16	6033 95	16	8
1/16	6033 97	25	8
1/16	**6033 98**	32	8
1/16	**6033 99**	40	8
1/16	**6034 00**	63	8
		100 mA	
1/16	6034 01	16	8
1/16	6034 03	25	8
1/16	**6034 04**	32	8
1/16	**6034 05**	40	8
1/16	**6034 06**	63	8
		300 mA	
1/16	6034 07	16	8
1/16	6034 09	25	8
1/16	**6034 10**	32	8
1/16	**6034 11**	40	8
1/16	**6034 12**	63	8



For terminating aluminium cables in RCBOs of 32 A and above, use of entry terminal 6034 48 is mandatory.

For terminating aluminium cables in RCBOs of 32 A and above, use of entry terminal 6034 48 is mandatory.

Bold catalogue numbers are products normally available with Legrand (India) stockists.
Cat. nos. that are not bold - delivery within 4 - 8 weeks from the date of order.
Bold packing quantity is our mandatory packing. Orders to be placed by Legrand (India) stockists in multiples of the same.

Lexic
SPN RCBOs upto 40 A

0078 63

Dimensions (p. 170)
Technical data (p. 126-131)

3 in 1 protection : Earth leakage, overload and short circuit
6 kA as per IEC 60947-2
Integrated label holder
Terminals with safety shutters
Compact 2 modules
Clips on auxiliaries
Neutral on left

Pack	Cat. nos.	Type AC	
		SPN 230 V~	
		30 mA	
		Nominal rating (A)	Number of 17.5 mm modules
1/5/60	**0078 60**	6	2
1/5/60	0078 61	10	2
1/5/60	**0078 63**	16	2
1/5/60	0078 64	20	2
1/5/60	**0078 65**	25	2
1/5/60	**0078 66**	32	2
1/5/60	**0078 67**	40	2
		300 mA	
1/5/60	0078 71	6	2
1/5/60	0078 72	10	2
1/5/60	0078 74	16	2
1/5/60	0078 75	20	2
1/5/60	0078 76	25	2
1/5/60	0078 77	32	2
1/5/60	**0078 78**	40	2

0085 67

3 in 1 protection : Earth leakage, overload and short circuit
6 kA as per IEC 60947-2
Enhanced immunity to unwanted tripping in environments with disturbances eg. Diesels, Computers, Printers, etc.
Detects faults with DC components eg. thyristors, trio, etc.
Integrated label holder
Terminals with safety shutters
Compact 2 modules
Clips on auxiliaries
Minimum operating temperature -25° C
Neutral on left

Pack	Cat. nos.	Type Hpi	
		SPN 230 V~	
		30 mA	
		Nominal rating (A)	Number of 17.5 mm modules
1/5/60	0085 67	25	2
1/5/60	0085 68	32	2
1/5/60	0085 69	40	2

Lexic RCDS

Technical data for Lexic RCDs

		RCCB	
		Type AC	**Type A-S**
Specification		IS 12640 (part 1) 2008 IEC 61008 - 1	IEC 61008 - 1 NFC 61 - 150 EN 61008 - 1
No. of modules	- Double pole	2	2
	- Four pole	4	4
Electrical characteristics			
Nominal rating In (A)	- Double pole	25, 40, 63	63
	- Four pole	25, 40, 63	63
Rated sensitivity (mA)	- Double pole	30, 100, 300	300
	- Four pole	30, 100, 300	300
Rated frequency (Hz)		50 / 60	50 / 60
Rated operating voltage Ue (V AC)	- Double pole	230	230
	- Four pole	230 / 415	400
Minimum operating voltage (V AC)		12	12
Minimum operating voltage for test button (V AC)[1]			
	- Double pole	170	170
	- Four pole	196	196
Rated insulation voltage Ui (V AC)	- Double pole	250	250
	- Four pole	500	500
Rated impulse withstand voltage Uimp (kV)		6	6
Breaking capacity			**As per IS 12640 (part 1) 2008, IEC 61008 - 1**
Rated making & breaking capacity (Im)			
	- Up to 40 A	500 A	-
	- From 63 A and above	10 x In	630 A
Rated residual making & breaking capacity (IΔm)			
	- Up to 40 A	1000 A	-
	- From 63 A and above	1000 A	1000 A
Rated conditional short circuit current (Inc)		10000 A	10000 A
Rated conditional residual short circuit current (IΔc)		10000 A	10000 A
Rated service short circuit capacity (Ics)		-	-
Rated short circuit capacity (Icn)		-	-
Operating temperature (°C)		-5 to 55	- 5 to 55
Endurance (0.C cycle)	- Mechanical	20,000	20,000
	- On load at in X cos φ 0.9	10,000	10,000
	- Via test button	2,000	2,000
	- By fault current (sensitivity)	2,000	2,000
Testing		By pressing test button grey dolly will come to OFF position It is recommended to test RCCB once a month	By pressing test button grey dolly will come to OFF position It is recommended to test RCCB once a month
Fault indication	- Earth leakage	Grey dolly will come to OFF position	Grey dolly will come to OFF position
	- Overload and shortcut	-	-
Resetting		Switch on grey dolly	Switch on grey dolly
Terminals	- Rigid	1 - 35 sq. mm	1 - 35 sq. mm
	- Flexible	1 - 25 sq. mm	1 - 25 sq. mm
Type of protection			
Earth leakage		•	•
Overload		-	-
Short circuit		-	-
Add on electrical accessories*			
Auxiliary		•	•
Fault signaling		•	•
Shunt trip		•	•
Under voltage		•	•

* - Accessories are mounted on the left hand side of the product.
At a time a maximum of three accessories can be mounted.
(1) - Between phase and neutral

	RCBO			
	Type Hpi	**Type AC**	**Type AC - 2 modules**	**Type Hpi**
	NFC 61 - 150 EN 61008 - 1 IEC 61008 - 1	IS 12640 (part 2) 2008 IEC 61009 - 1	NFC 61 - 410 EN 61009 - 1 IEC 61009 - 1	NFC 61 - 410 EN 61009 - 1 IEC 61009 - 1
	2	4	2	2
	4	8	-	-
	25, 40, 63	6, 10, 16, 25, 32, 40, 63	6, 10, 16, 20, 25, 32, 40	25, 32, 40
	25, 40, 63	16, 25, 32, 40, 63	-	-
	30	30, 100, 300	30, 300	30
	30	30, 100, 300	-	-
	50 / 60	50 / 60	50 / 60	50 / 60
	230	230 / 415	230	230
	400	415	-	-
	12	12	12	12
	170	170	170	170
	196	196	-	-
	250	500	250	250
	500	500	-	-
	6	6	6	6
		As per IS 12640 (part 2) 2008, IEC 61009 - 1		
	500 A	10000 A	6000 A	6000 A
	630 A	10000 A	-	-
	1000 A	10000 A	3000 A	3000 A
	1000 A	10000 A	-	-
	10000 A	-	-	-
	10000 A	-	-	-
	-	7500 A	6000 A	6000 A
	-	10000 A	6000 A	6000 A
	- 25 to 55	- 5 to 55	- 5 to 55	- 25 to 55
	20,000	20,000	20,000	20,000
	10,000	10,000	10,000	10,000
	2,000	1,000	1,000	1,000
	2,000	1,000	1,000	1,000
	By pressing test button, grey dolly will come to OFF position It is recommended to test RCCB once a month	By pressing test button, black and blue dolly will come to OFF position It is recommended to test RCBO once a month	By pressing test button, black dolly will come to OFF position It is recommended to test RCBO once a month	By pressing test button, black dolly will come to OFF position It is recommended to test RCBO once a month
	Grey dolly will come to OFF position	Black & blue dolly will come to OFF position	Black dolly will come to OFF position & blue indicator will appear on front face window	Black dolly will come to OFF position & blue indicator will appear on front face window
	-	Black dolly will come to OFF position	Black dolly will come to OFF position	Black dolly will come to OFF position
	Switch on grey dolly	Switch on blue dolly followed by black dolly	Switch on black dolly	Switch on black dolly
	1 - 35 sq. mm	1 - 35 sq. mm	0.75 - 16 sq. mm	0.75 - 16 sq. mm
	1 - 25 sq. mm	1 - 25 sq. mm	0.75 - 10 sq. mm	0.75 - 10 sq. mm
	•	•	•	•
	-	•	•	•
	-	•	•	•
	•	•	•	•
	•	•	•	•
	•	•	•	•
	•	•	•	•

Ekinoxe™ MCCB's Distribution Boards

(refer pg. 181)

Lexic
RCDs

■ Technical data

Short-circuit withstanding capacity of RCCBs (in kA)

RCD downstream		Lexic MCB upstream
2 P	16 A	10
	25 A	10
	40 A	10
	63 A	10
4 P	25 A	10
	40 A	10
	63 A	10

Marking example :

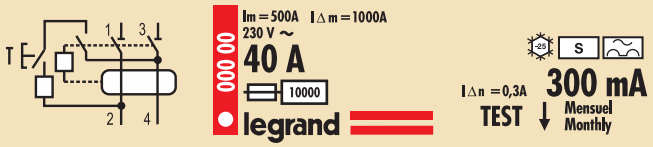
Type A

Type AC

Type A-S

Type Hpi

according to IEC 61008-1 and IEC 61009-1



Note : We offer Type AC, Type A-S and Type Hpi RCDs

■ Technical data

Nature and consequences of electrical risks

Direct and indirect contact

All electrical risks for people are the result of direct or indirect contact. What are these contacts ? And how can we protect ourselves against them?

All the answers appear in the following section.

Electrical risks do not just concern people : these risks - especially fire affect installations as well. A 500 mA current, for example, flowing through combustible material is sufficient to ignite such material after a certain time. Every electrical installation is subject to current leakages which can vary considerably depending on such factors as the installation's condition, age, environment, etc.

These current leaks may flow through the fabric of the building (trunking, metal girders or other metal components), generating heat which in turn may lead to fire.

Direct contacts

Direct contact is caused by humans and may be due to either carelessness or clumsiness.

What is a direct contact? How can we protect ourselves? Here are the answers...

This is when someone makes contact with a live electrical component of a device or installation.

For example :

- a person inadvertently touching a live cable.
- a child sticking a metal object into a power socket.
- using male/male extensions or unprotected test cables.

In this case only basic protection is effective

Other examples

Someone touching a live busbar in a distribution panel or cabinet, or someone touching flush-mounted electrical trunking with the end of a tool, etc. In this case basic protection plus additional protection is effective.

How can we protect ourselves?

There are two ways (independent of the neutral earthing system) of ensuring that personnel are protected against direct contact.

- **Preventing access to live parts where possible.**

Basic protection via physical or electrical isolation of live parts.

This protection must ensure that live parts cannot be touched, even inadvertently.

How?

By using barriers, enclosures, closed cabinets which physically or electrically isolate live parts presenting a danger to the user, shuttered sockets, or insulation.

- **Additional protection**

Must be provided by a 30-mA residual current device such as Lexic range of residual current devices. This protection is required in case the basic protection detailed above fails.

Indirect contacts

Indirect contacts are independent of humans : it results from an internal hardware fault.

What is an indirect contact?
How can we protect ourselves? Here are the answers...

What is an indirect contact?

This is when a person makes contact with a metal earthed part which has accidentally been powered up following an insulation fault. This type of contact is very dangerous as, unlike direct contact, it is completely unexpected. For example, a person touching the metal frame of an electrical appliance which has defective insulation may be electrocuted through no fault of their own if the appliance is not protected.

How can we protect ourselves?

There are three possibilities :

- Preventing access to potentially dangerous metal components via class II protection.
- Good connection of all exposed conductive parts to an effective earth.
- A protective RCD according to the neutral earthing system.

A person is in danger of electrocution if the fault current raises the voltage of the accessible metal part above 50 V to earth.

Important note:

Under the Indian Electricity Rules [rules 61 (A), 71 (1) and 73 (1)], installation of an RCCB is mandatory in all installations of 5 KW and above, in all luminous tube signs and X-ray installations. The bureau of Indian standards recommends that RCCBs installed at construction sites, temporary installations, agriculture and horticulture premises, limit the residual current to 30 mA.

■ Technical data

Residual current devices, selection and operation

The main function of a residual current device is to ensure that people are protected from any risk of electrocution. It can also ensure protection against risk of fire.

What is the nature of these risks ? What are the consequences ?
Here are the answers...

Risks of electrocution-

The dangerous effects of electricity depend on two factors-:

- the flowing time through the human body
- the current value

These two factors are independent and the importance of the risk varies in accordance with the level of each factor.

The dangerous current value through a human body depends on the touch voltage and touch resistance of the human body.

In practice, the current value is defined using a standard "safety" voltage of 50 V. This voltage takes into account the maximum current which can be withstood by a human being with a minimum internal electrical resistance in given conditions. It also takes into account the maximum permissible time for the current to pass through the body without dangerous physio-pathological effects.

50 V is considered as the safe limit of voltage for human body in dry condition.

How does an electrical current affect the human body?

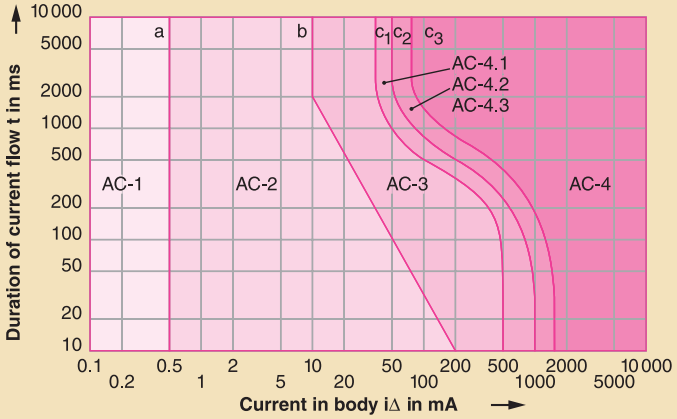
When subject to a voltage, the human body reacts like any other receiver with a given internal resistance. An electrical current passes through the body with three serious risks :

- Locking of the muscles, or tetanisation : the muscles through which the current passes contract and remain contracted : if this includes the rib cage, breathing may be impeded.
- Action on the heart : the cardiac rhythm is completely disrupted (ventricular fibrillation).
- Thermal effects may cause varying levels of damage to body tissue, including severe burns in the case of very high currents.

Examples of electrocution by direct or indirect contact.

Effect of current on human body

The standards define the following curves, which take into account the two parameters required to assess the risk :



iΔ : current flowing through body.
t : time taken for current to pass through body.

These curves show the various zones of effect of an alternating current on people : they derive from IEC 60 479 and determine

4 main risk zones

Zone designation	Physiological effects	
zone AC-1	Usually no reaction	
zone AC-2	Usually no harmful physiological effects	
zone AC-3	Usually no organic damage to be expected. Likelihood of cramp like muscular contractions and difficulty in breathing for durations of current-flow longer than 2 s. Reversible disturbances of formation and conduction of impulses in the heart, including atrial fibrillation and transient cardiac arrest without ventricular fibrillation increasing with current magnitude and time	
zone AC-4	Increasing with magnitude and time, dangerous pathophysiological effects such as cardiac arrest, breathing arrest and serious burns may occur in addition to the effects of zone-3	
zone AC-4.1	Probability of ventricular fibrillation increasing up to about 5%	C1 - C2
zone AC-4.2	Probability of ventricular fibrillation up to about 50%	C2 - C3
zone AC-4.3	Probability of ventricular fibrillation above 50%	

* For durations of current flow below 10 ms, the limit for the body current at line b remains constant at a value of 200 mA.

A residual current device continuously measures the difference between the value of the input and the output currents. If the value is not equal to zero, this indicates a leak.

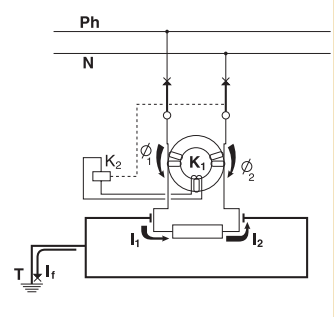
When this leak reaches the level at which the differential is set (its sensitivity), the device trips and breaks the circuit.

What are the operating principles of a residual current device?

What are the selection criteria for a residual current device? Here are the answers...

Operating principle of a residual current device

No fault present



Therefore no current is induced in coil K_1, and coil K_2 is not excited. The contacts do not open. The equipment operates normally

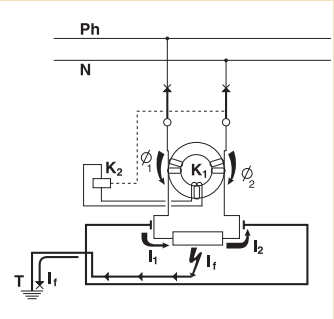
$I_f = 0$, thus

$I_1 = I_2$

$\varnothing_1 = \varnothing_2$

$\varnothing_1 - \varnothing_2 = 0$

Insulation fault



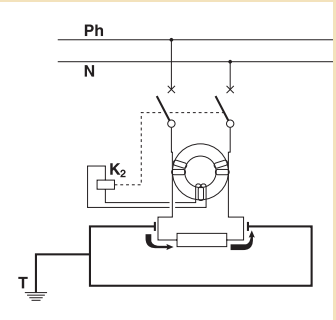
A current is thus induced in coil K_1...

$I_f \neq 0$

$I_1 > I_2$, thus

$\varnothing_1 > \varnothing_2$, thus

$\varnothing_1 - \varnothing_2 \neq 0$



...coil K_2 is excited, the contacts open and the equipment is automatically switched OFF

Selecting a residual current device

First determine your requirement. This exists on two levels :

1 The need to protect against direct or indirect contacts.

2 The need to ensure protection against overloads and short-circuits.

If protection against indirect contact is required, use residual current devices with a sensitivity of : 30 mA,
100 mA,
300 mA,

The rating (40, 63 A, etc.) is selected according to the load.

If protection against direct contact is required, use residual current device with a sensitivity of 30 mA.

The sensitivity of a residual current device IΔn is the current level at which tripping is sure to occur. To do this, the standards concerning residual current devices stipulate that tripping must occur between IΔn / 2 and IΔn.

Types of residual current device

There are 2 types of RCD : the AC type and the A type

Both types are produced in the "S" (discriminating) or normal versions. They conform to Indian and International standards IS 12640, IEC 61008 and IEC 61009 as well as European standards EN 61008 and EN 61009.

- **Type A** 

Sensitive to residual alternating currents and residual currents with a DC component.

Use : special applications
- if it is possible that the fault currents are not purely sinusoidal (rectifier bridge, etc.)

- **Type AC** 

Sensitive to residual alternating currents
Use : standard applications

- **Type S** 

Delayed trip for discrimination with other residual current devices.
Use : for discrimination with a downstream device.

- **Type Hpi** 

- Enhanced immunity to unwanted tripping in environments with disturbances. eg. diesels, computers, printers, etc.
- Detects faults with DC components eg. thyristors, trio etc.

Residual current circuit-breaker with or without overload protection? Which do I choose?

Choose a residual current circuit-breaker (RCCB) if you do not need to protect against overload and short circuits (caution! an RCCB must be connected to some form of line protection device : either a circuit-breaker or a fuse).

Choose a residual current circuit-breaker with overload and short circuit protection (RCBO) if this type of protection is not available.

Residual current circuit-breakers without overload and short circuit protection (RCCB)

These provide two functions : fault current detection, measurement and cut-off : and isolation of an installation.

RCCBs are governed by standards IS 12640 (part 1), IEC 61008-1.

Residual current circuit-breakers with overload and short circuit protection (RCBO)

These provide three functions : fault current detection, measurement and cut-off : protection against overloads and short-circuits : and isolation of an installation.

Residual current circuit-breakers are governed by standards IS 12640 (part 2), IEC 61009-1.

The "test" function

A residual current device is a safety device, and it is therefore vital that it is regularly tested. This function is therefore required by the standard governing residual current protective devices, and ensures correct operation. All Lexic RCDs are equipped with this function.

Note : We offer Type AC, Type A-S and Type Hpi RCDs

Lexic
common auxiliaries for MCBs, Isolators, RCBOs and RCCBs up to 63 A

Lexic
mounting accessories for MCBs, RCBOs and RCCBs DIN rail


0073 51


0073 68


0073 73


0044 42


0044 44


0044 06

Dimensions (p. 170)
Technical data (p. 133)

Clip on the left-hand side of the MCB (maximum 3)
Allow insertion of the supply busbar at the top
Auxiliaries common for MCBs, Isolators, RCBOs and RCCBs

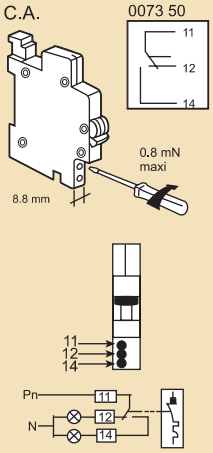
Pack	Cat. nos.	Signalling auxiliaries	Number of 17.5 mm modules
1	**0073 50**	Auxiliary change over switch 6 A - 250 V~ Indicates the position of the MCB, Isolator, RCD.	0.5
1	**0073 51**	Fault signalling changeover switch 6 A - 250 V~ Indicates the tripping of the MCB or RCD in the event of a fault	0.5
1	**0073 53**	Auxiliary changeover switch which can be modified to a fault signaling switch 6 A - 250 V~	0.5
1	0073 54	Auxiliary change over 6 A - 250 VA switch + fault signalling switch which can be modified to 2 auxiliary change over switches.	1
		Command auxiliaries	
		Shunt trip Enables the MCB or RCD to be tripped from a remote location	
1	0073 60	12 to 48 V~ / ⎓	1
1	**0073 61**	110 to 415 V~ 110 to 125 V ⎓	1
		Minimum voltage trips. Time delay adjustable from 0 to 300 ms.	
1	0073 65	24 V ⎓	1
1	0073 66	48 V ⎓	1
1	0073 68	230 V~	1
		Remote control for MCBs	
1	0073 73	Clip on the left hand side of the MCBs motor driven contol module Remote control for DP/TP/FP MCBs. Auxiliary changeover and fault signalling changeover incorporated 230 V AC - 3 modules	3

Pack	Cat. nos.	Padlock support
2/100	0044 42	Support for 5 mm and 6 mm padlock for locking MCB in ON / OFF position
		Terminal shields
2/96	0044 44	Terminal shield (4 separable poles) for covering MCB screw terminal to avoid opening of terminals by an unauthorised person. Sealable terminal shield (4 separable poles) for MCBs, RCBOs and RCCBs to seal terminal screws.
		Clip on adaptor
10	0044 06	Enables mounting of panel accessories, such as 22.5mm dia, push buttons in DBs. A hole of requisite diameter can be drilled through the adaptor to fit the panel accessory. 3 module clip on adaptor for rail ⊔
		Labels for Lexic devices
1	6017 99	Label for label holder with printed symbols, alphabets and numbers
		Entry terminals
1	6034 48	Entry terminals are used for terminating aluminium cable. While terminating aluminium cable on MCBs, Isolators, & RCDs, for current rating from 32A and above, the use of entry terminals is mandatory. 50 mm² entry terminal for MCBs / Isolators / RCCBs
1	6034 49	50 mm² entry terminal for RCBOs

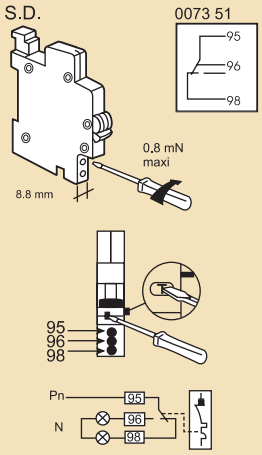
Lexic
clip-on auxiliaries for MCBs, Isolators, RCBOs and RCCBs

■ Technical data

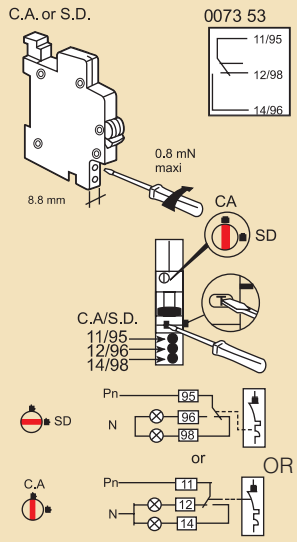
Installations and wiring diagrams
Auxiliary change over switch
Cat. nos 0073 50



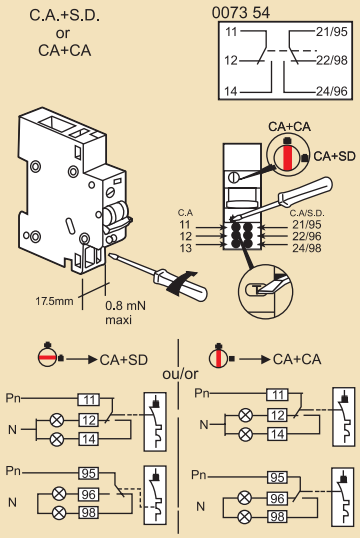
Fault signaling change over switch
Cat. nos 0073 51



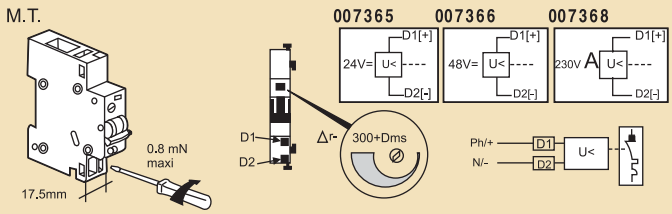
Auxiliary change over switch / Fault signalling change over switch
Cat. nos 0073 53



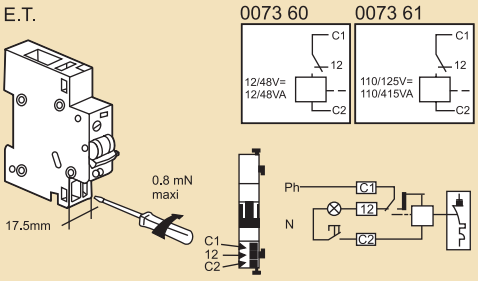
Auxiliary change over switch + Fault signaling change over switch
Cat. nos 0073 54



Minimum voltage trip
Cat. nos 0073 65, 0073 66, 0073 68



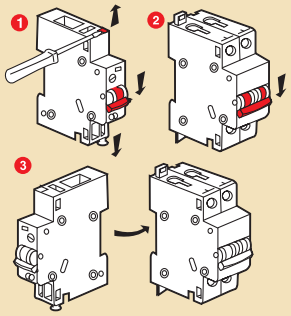
Shunt trip
Cat. nos 0073 60, 0073 61



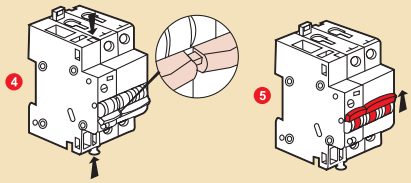
Lexic
clip-on auxiliaries for MCBs, Isolators, RCBOs and RCCBs

■ Technical data

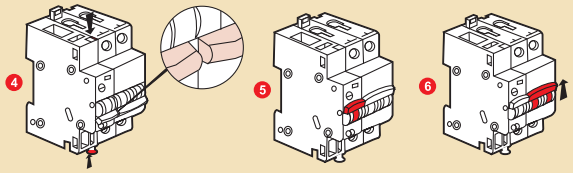
Installations of clip-on auxiliaries on MCB / RCD / Isolators
Cat. nos 0073 50, 0073 51, 0073 53, 0073 60,
0073 71, 0073 65, 0073 66, 0073 68



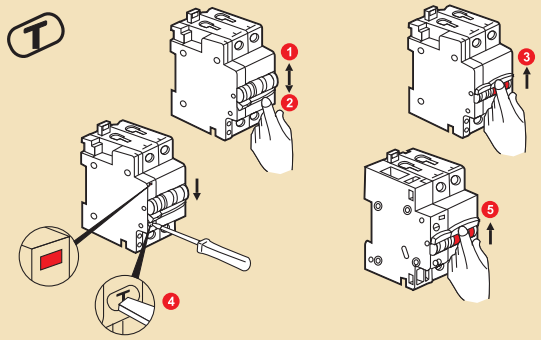
Signalling auxiliaries
Cat. nos 0073 50, 0073 51, 0073 53, 0073 54



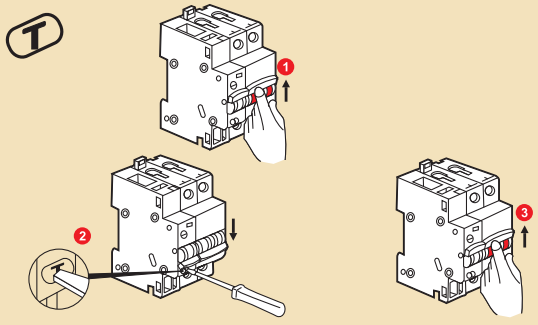
Command auxiliaries
Cat. nos 0073 60, 0073 61, 0073 65, 0073 66, 0073 68



Cat. nos 0073 51

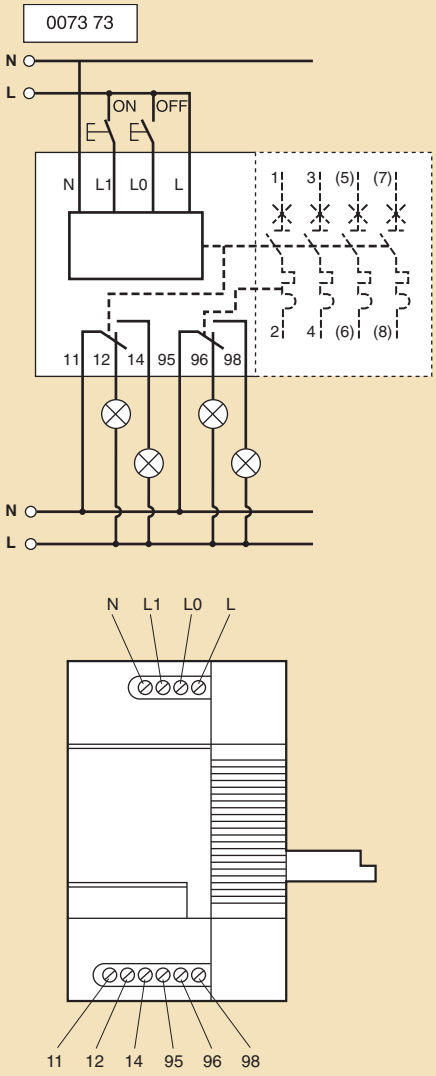


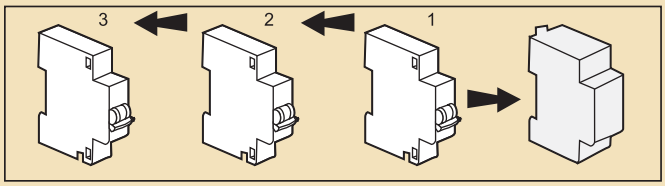
Cat. nos 0073 53, 0073 54



Wiring

Remote control
Cat. nos 0073 73





1			0073 50 0073 60 0073 51 0073 61 0073 53 0073 65 0073 54 0073 66 0073 68	MCB/ RCCB/ RCBO
2 1		0073 54 0073 60 0073 61 0073 65 0073 66 0073 68	0073 50 0073 51 0073 53 0073 54	
3 2 1	0073 60 0073 61 0073 65 0073 66 0073 68	0073 54	0073 50 0073 51 0073 53 0073 54	

1			0073 50 0073 60 0073 54 0073 61 0073 65 0073 66 0073 68	Isolator
2 1		0073 54 0073 60 0073 61 0073 65 0073 66 0073 68	0073 50 0073 54	
3 2 1	0073 60 0073 61 0073 65 0073 66 0073 68	0073 54	0073 50 0073 54	

Lexic
MPCBs


0028 06


0028 17


0028 22


0028 22 + 0028 06 + 0028 17

Conform to EN/IEC 60947-1, EN/IEC 60947-2, EN/IEC 60947-4-1

Pack	Cat.Nos	Triple pole MPCBs		
		Depth: 82.5 mm Enable control and protection of motors up to 15 kW (400 V)		
		Nominal rating (A)	Thermal adjustement range (A)	Numbers of modules
1	0028 00	0.16	0.1 - 0.16	2.5
1	0028 01	0.25	0.16 - 0.25	2.5
1	0028 02	0.4	0.25 - 0.4	2.5
1	0028 03	0.63	0.4 - 0.63	2.5
1	0028 04	1	0.63 - 1	2.5
1	0028 05	1.6	1 - 1.6	2.5
1	0028 06	2.5	1.6 - 2.5	2.5
1	0028 07	4	2.5 - 4	2.5
1	0028 08	6.5	4 - 6.5	2.5
1	0028 09	10	6.3 - 10	2.5
1	0028 10	14	9 - 14	2.5
1	0028 11	18	13 - 18	2.5
1	0028 12	23	17 - 23	2.5
1	0028 13	25	20 - 25	2.5
1	0028 14	32	24 - 32	2.5

		Auxiliaries		
		Failure contact		
		Contact	Capacity	Numbers of modules
1	0028 16	N/C + N/O	6 A/690 V	0.5
		Signal contacts		
1	0028 17	N/C + N/O	6 A/690 V	0.5
1	0028 18	2 N/C	6 A/690 V	0.5
		Undervoltage trips		
		Coil voltage	Consumption trip/hold	Numbers of modules
1	0028 22	230 V∿	12/3.5 VA	1
1	0028 23	400 V∿	12/3.5 VA	1
		Shunt trips		
1	0028 25	230 V∿	3.5 VA	1
1	0028 26	400 V∿	3.5 VA	1

		Accessories		
		IP 65 box		
1	0028 29	For motor MCB with auxiliary contact (Cat.Nos 0028 16/17/18) and/or a trip (Cat.Nos 0028 22/ 23/25/26) With knock out entries for PG 16 cable glands 4 modules		
		Emergency stop button		
1	0028 30	Fits on IP 65 box for replacement of etancheity membrane Ensures IP 65 protection		
		Pilot lights		
		Fixing in front of box Cat.No 0028 29		
		Voltage	Color	
1	0028 31	230 V∿	Colourless	
1	0028 32	400 V∿	Colourless	
		Padlock		
1	0028 34	Padlock in "off" position 3 padlocks max Ø4.5		

■ Technical data

The motor MCB has a signalling system for magnetic tripping that prevents all dangerous shutdown following a short-circuit previously isolated by the device
Takes 3 auxiliaries mounted simultaneously by clipping on
- on the left: 1 undervoltage / shunt trip
- on the right: 1 fault signal + 1 signalling contact

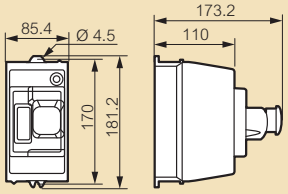
■ Electrical characteristics

Rated insulating voltage Ui: 690 V
Impulse withstand voltage: 6 kV
Rated frequency: 50/60 Hz
Dissipated power per phase: 0.57-1.46 W
Magnetic tripping: 12 max.
Mechanical lifespan: 100-000 cycles
Electrical lifespan: 32 A (AC3): 100-000 cycles
Operating temperature: -20°C to + 70°C
Use class: A
Protection index: IP 20
Connection cable cross-section (1 or 2 conductors):
flexible wire 1-6 mm² or AWG 16-10

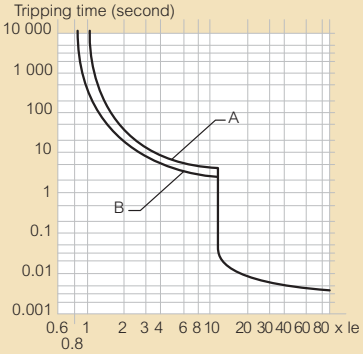
■ Breaking capacity

Cat. nos	Rating (A)	Short circuit rated breaking capacity (kA)							
		230 V		400 V		500 V		690 V	
		Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics
0028 00	0.16	100	100	100	100	100	100	100	100
0028 01	0.25	100	100	100	100	100	100	100	100
0028 02	0.4	100	100	100	100	100	100	100	100
0028 03	0.63	100	100	100	100	100	100	100	100
0028 04	1	100	100	100	100	100	100	100	100
0028 05	1.6	100	100	100	100	100	100	100	100
0028 06	2.5	100	100	100	100	100	100	8	8
0028 07	4	100	100	100	100	100	100	8	8
0028 08	6.5	100	100	100	100	100	100	8	8
0028 09	10	100	100	100	100	42	21	8	8
0028 10	14	100	100	25	12.5	10	5	2	2
0028 11	18	100	100	25	12.5	4	2	2	2
0028 12	23	100	100	25	12.5	4	2	2	2
0028 13	25	100	100	25	12.5	4	2	2	2
0028 14	32	100	100	25	12.5	4	2	2	2

■ IP 65 box 0028 29 equipped with stop button 0028 30



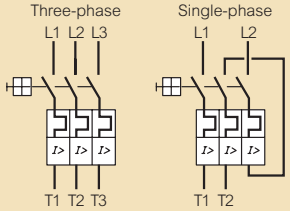
■ Thermal-magnetic tripping curve



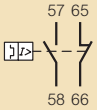
Approximate cold tripping time. To obtain the hot tripping time, multiply the graph value by 0.75
A = Balanced operation over 3 phases
B = Operation over 2 phases (phase absence)

■ Electrical diagrams

0028 00 to 0028 14



0028 16



0028 17

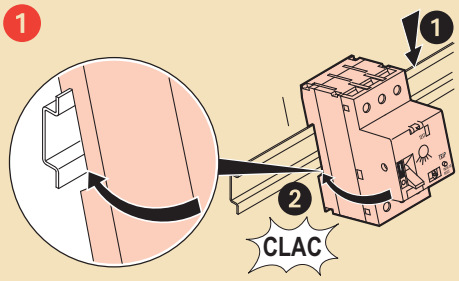
0028 18

Bold catalogue numbers are products normally available with Legrand (India) stockists.
Cat. nos. that are not bold - delivery within 4 - 8 weeks from the date of order.
Bold packing quantity is our mandatory packing. Orders to be placed by Legrand (India) stockists in multiples of the same.

■ Assembly

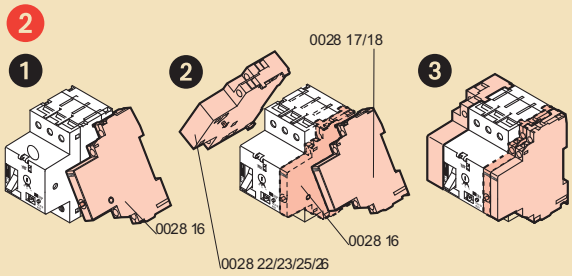
Installations of MPCBs

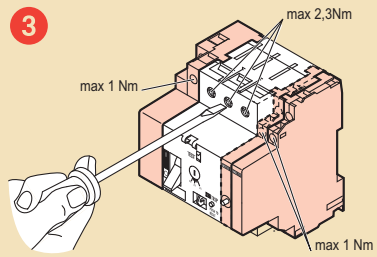
Cat. nos 0028 00 / 01 / 02 / 03 / 04 / 05 / 06 / 07 08 / 09 / 10 / 11 / 12 / 13 / 14

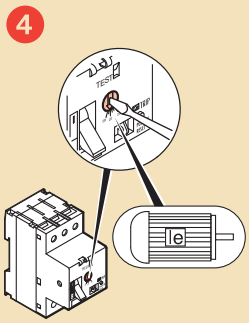


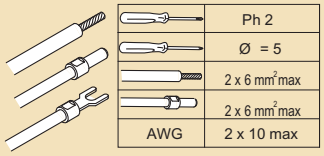
Installations of auxiliaries

Cat. nos 0028 16 / 17 / 18 / 22 / 23 / 25 / 26

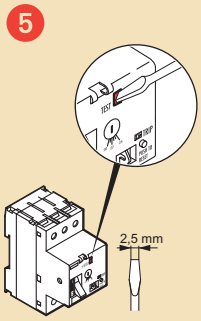


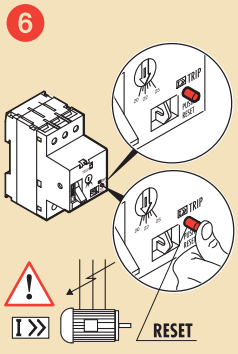






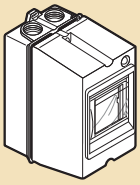
	Ph 2
	Ø = 5
	2 x 6 mm² max
	2 x 6 mm² max
AWG	2 x 10 max

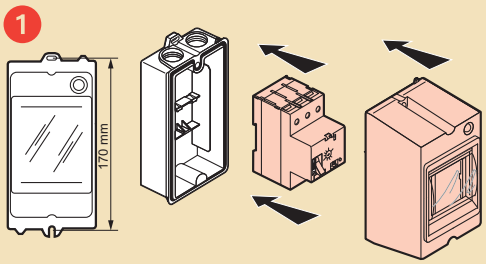


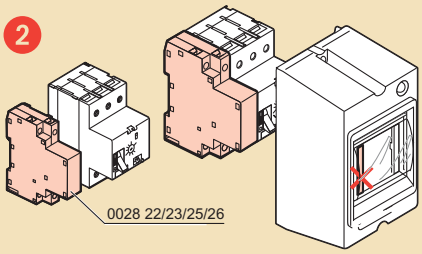


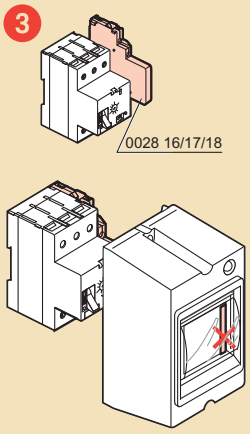
Installations in a IP 65 box

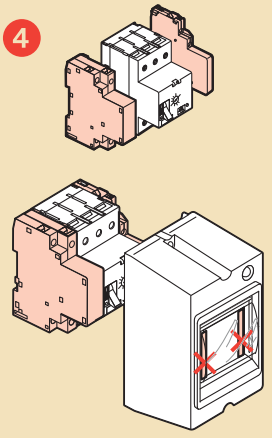
Cat. nos 0028 16 / 17 / 18 / 22 / 23 / 25 / 26 / 29/ 31 / 32

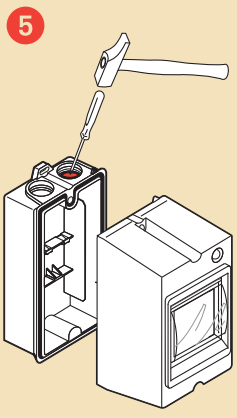


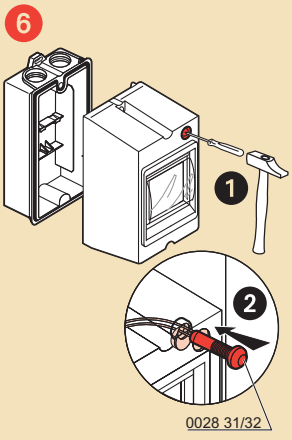








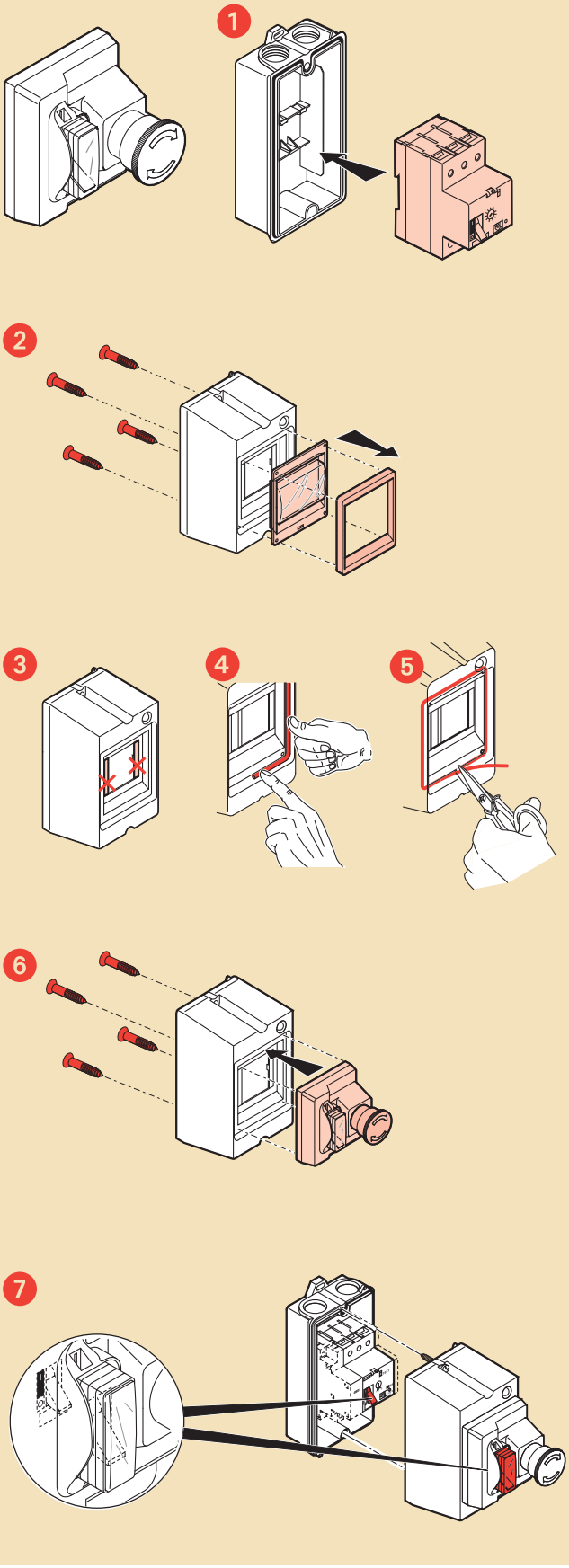




■ Assembly

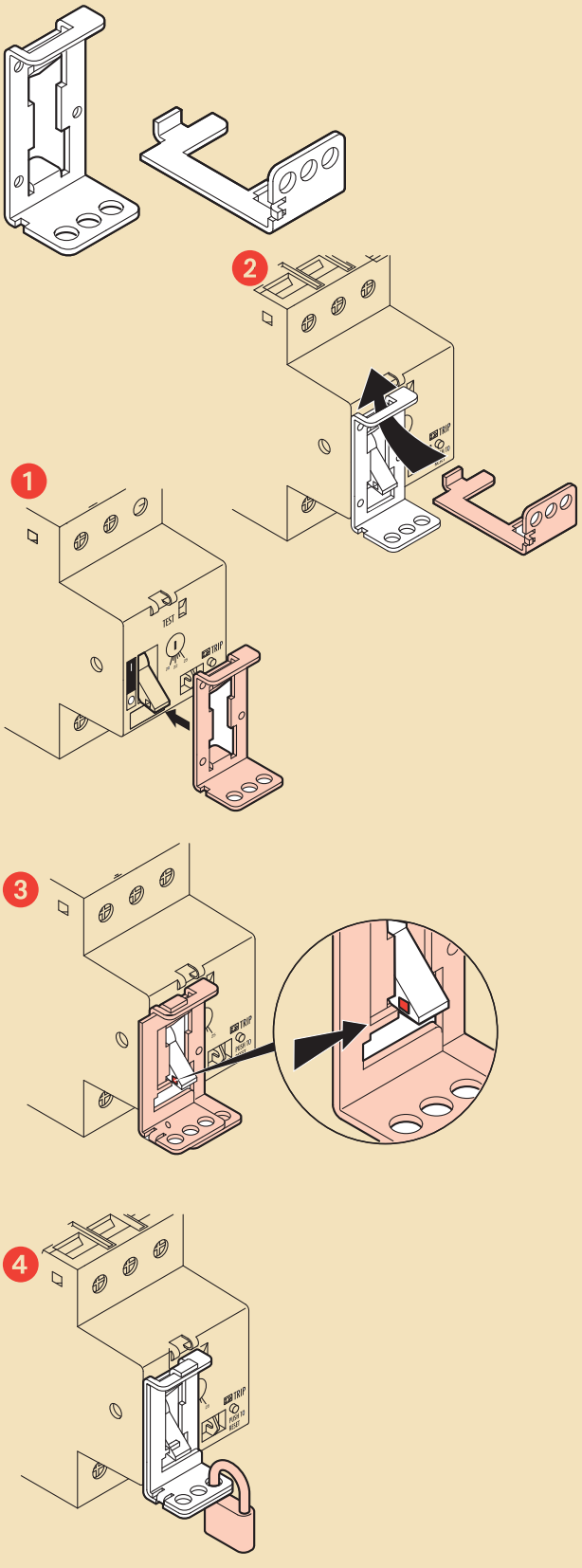
Installations of emergency stop button

Cat. nos 0028 30

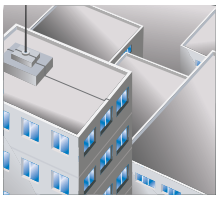


Installations of padlock (padlocking)

Cat. nos 0028 34

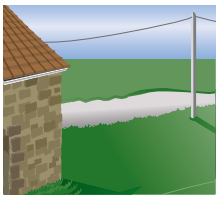


a solution for every risk



High protection

Required for buildings equipped with lightning conductors and in very exposed areas.
High flow-to-earth capacity 70 kA.



Increased protection

For overhead electrical power supplies.
Required in areas with average exposure.

Standard protection

Essential for all installations, whatever the type of power supply.

Lexic

voltage surge protectors for power lines

0039 21

0039 38

0039 28

Dimensions (p. 170)
Technical data (p.118-121)

Voltage surge protectors for distribution boards or consumer units
Conform to standard NF C 61-740, IEC 61643-1 and EN 61643-11
Satisfy requirements of guide C 15-443
Fitted with built-in thermal protection
Consist of a base and a plug-in replacement module with status indicator
Green : surge protector operational
Orange : module needs replacing
Can be fitted with a signalling auxiliary to transfer surge protector status
For 230/400 VAC supply
Frequency : 50/60 Hz

High protection - H - Class I - II

I max : 70 kA (8/20 µ s wave)
UP : 2.0 kV (protection level)
For neutral earthing systems : TT, TN, IT

Pack	Cat. nos.		Associated protection by MCB	Number of 17.5 mm modules
1/20	0039 20	1-pole	6032 38	1
1/12	0039 21	2-pole	6032 72	2
1/20	0039 22	3-pole	6032 89	3
1/20	0039 23	4-pole	6033 23	4

Increased protection - I - Class II

I max : 40 kA (8/20 µ s wave)
UP : 1.4 kV (protection level)
For neutral earthing systems : TT, TN

1/20	0039 35	1-pole	6032 35	1
1/12	0039 36	2-pole	6032 69	2
1/20	0039 38	4-pole	6033 20	4

Standard protection - S - Class II

I max : 15 kA (8/20 µ s wave)
UP : 1.2 kV (protection level)
For neutral earthing systems : TT, TN

1/20	0039 40	1-pole	6032 35	1
1/12	0039 41	2-pole	6032 69	2
1/20	0039 43	4-pole	6033 20	4

Accessories

Plug-in replacement modules
With indicator
Green : surge protector operational
Yellow : module needs replacing

		I max (kA)	UP (kV)	For surge protector
5/20	0039 28	70	2.0	0039 20/21/22/23
5/20	0039 39	40	1.4	0039 35/36/38
5/20	0039 44	15	1.2	0039 40/41/43

Signalling auxiliaries

With changeover micro switch
5 A - 250 V AC
Clip onto the base of the surge protector

1/42	0039 56	For 2-pole module
1/42	0039 57	For 3-pole module
1/42	0039 58	For 4-pole module

Lexic
voltage surge protectors for telephone lines

0038 28

0038 29

Dimensions (p. 155)
Technical data (p. 140-143)

For protection of : telephone, fax, modem, etc.
connected on the internal telephone line, against over voltages of atmospheric origin
Installed in a distribution box
Connected in series on the telephone line
Provided with a status indicator :
• Green : surge protector operational
• Orange : surge protector needs replacing
Conforms to standard IEC 61643-21 and EN 61643-21

Pack	Cat. nos.	**Voltage surge protector**
		I max: 10kA & In: 5kA (8/20 µs wave)
1	0038 28	For analogue telephone line
1	0038 29	For digital telephone line

Aesthetic and flexible range of Ekinoxe TX DBs

Ekinoxe TX DBs (p. 184)

Lexic
voltage surge protectors

■ Technical data

Cat.No	High protection (H) 0039 20/21/22/23	Increased protection (I) 0039 35/36/38	Standard protection (S) 0039 40/41/43
Neutral earthing system	TT - TN - IT	TT - TN	TT - TN
Max. steady state voltage (Uc)	440 V~	320 V~	320 V~
Frequency	50/60 Hz	50/60 Hz	50/60 Hz
Type EN-61613-11	1	2	2
Max. discharge current **I max 8/20 µs**	70 kA	40 kA	15 kA
I imp 10/350 µs	10 kA	-	-
Nominal discharge current (In, wave 8/20 µs)	20 kA	15 kA	5 kA
Up protection level In	2 kV	1.4 kV	1.2 kV
Ut	440 V	400 V	400 V
Leakage current at Uc (Ic)	< 1 mA	< 1 mA	< 1 mA
Time delay **Associated protection** **- max. (EN-61613-11)**	160 A DPX	125 A DPX	20 A MCB C curve
- min.	MCB C curve 40 A	MCB C curve 20 A	MCB C curve 20 A
Follower current If	Zero	Zero	Zero
Terminal capacity **- rigid conductor** **- flexible conductor**	25 mm² 16 mm²	25 mm² 16 mm²	25 mm² 16 mm²
Degree of protection	IP 20 installed in enclosure		
Environment **- operating temperature** **- storage temperature**		- 10 °C to + 40 °C - 20 °C to + 70 °C	
Response time	25 ms		

VSP for telephone lines

	Analogue line	Digital line
Cat. nos.	0038 28	0038 29
Mav. discharge current (I max, wave 8/20 micro second)	10 kA	10 kA
Nominal discharge current (In, wave 8/20 micro second)	5 kA	5 kA
Up protection level	300 V	100 V
Terminal capacity - rigid conductor	2.5 mm²	2.5 mm²
- flexible conductor	2.5 mm²	2.5 mm²
Associated protection by Lexic MCB	20 A	20 A
Degree of protection	IP 20 installed in enclosure	
Operating temperature	- 10° C to + 40° C	
Storage temperature	- 20° C to + 70° C	

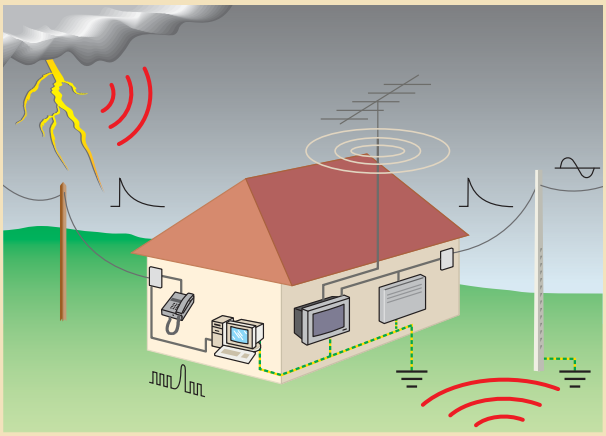
Bold catalogue numbers are products normally available with Legrand (India) stockists.
Cat. nos. that are not bold - delivery within 4 - 8 weeks from the date of order.
Bold packing quantity is our mandatory packing. Orders to be placed by Legrand (India) stockists in multiples of the same.

■ Lightning

1 - The effects of lightning

Lightning directly or indirectly generates the following effects:

- thermal (blow-outs, fire)
- electrodynamic (loosening of terminals)
- rise in earth voltage (risk of electrocution)
- overvoltages of several thousand volts and destructive induced currents (damage to electrical and electronic equipment, interruption of operation)



2 - Protection against the effects of lightning

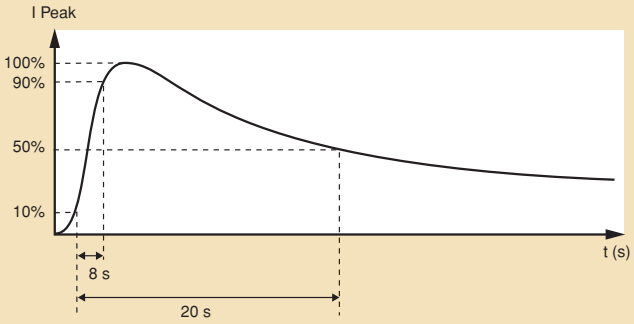
This is based essentially on:

- catching and discharging the current to earth
- the use of voltage surge protectors
- the passive protection of the installation

Passive protection (poor, good) designates the part of the protection provided by the structure and the configuration of the installation itself (neutral earthing system, area, level of equipotentiality, etc.)

■ Regulation

Standard EN 61-643-11, characterises the indirect effects of lightning based on a 8/20 µs waveform, type 2 voltage surge protector and the direct effect by a 10/350 µs wave form type 1 voltage surge protector (v.s.p.)



When a voltage surge protector is installed on the power circuit, it is recommended that one is installed on the communication circuit (telephone line)
More than 1 v.s.p. should be installed in electrical board and as closed as possible to the equipment to be protected
The Lexic range is completed by proximity v.s.p. (type 3) for electrical accessories (Mosaic and multi-outlet extensions)
These proximity accessories are dedicated to the sensitive equipment (electronics, information technology, home cinema etc.)

■ Choice of the level of lightning protection

Prior to the installation of the lightning protection devices, the risk must be assessed, using a number of criteria:

- level of exposure of the area (ϟ, ϟϟ, ϟϟϟ)
- location of the building
- power supply, neutral system TT, TN, IT
  - underground
  - overhead
- the presence of a lightning conductor on/close to the building
- the type of equipment to be protected
- the cost of the consequences of the equipment not being available

The level of this lightning protection is indicated as:

- medium (★)
- high (★★)
- very high (★★★)

The protection must be chosen according to the most exacting criterion E.g. whatever the level of exposure, the presence of a lightning conductor requires a very high level of protection

Additional protection will be necessary according to the sensitivity of the equipment to be protected (computing, electronic) and the area of the installation

1 - Defining the required level of protection (★, ★★, ★★★)

Location of the installation	Level of exposure ϟ	ϟϟ	ϟϟϟ
Building location			
tighly packed buildings		★	★★
scattered buildings	★	★★	★★
isolated	★	★★	★★★
in mountains, close to a stretch of water or on top of a hill	★★	★★★	★★★
Power supply			
overhead	★	★★	★★★
underground		★	★★
Presence or proximity of a lightning conductor	★★★	★★★	★★★

2 - Determining the level of sensitivity of the equipment

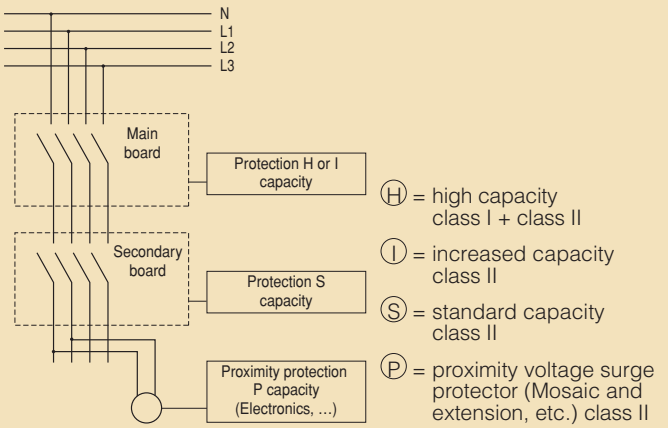
Level of sensitivity	Equipment	Protection level
Low sensitivity	motors, heating equipment	> 2 kV
Sensitive	domestic electrical appliances, lights	1.5 to 2 kV
High sensitivity	computer equipment	1.5 kV

The choice is specific to each installation and depends on:

- the required level of lightning protection (★, ★★, ★★★)
- the sensitivity of the equipment
- the configuration of the installation (passive protection)

3 - Position of the voltage surge protectors

Legrand voltage surge protectors are available in 4 levels, linked to their lightning impulse discharge capacity according to the 8/20 µs and 10/350 µs waveform



4 - Determine voltage surge protectors capacities

Sensitivity of equipment	Level of lighting protection			Position of the voltage surge protectors
	★	★★	★★★	
Low sensitivity	S	I	H	Head of installation
		S	S	Distribution level
				Application level
Sensitive	S	I	H	Head of installation
		S	S	Distribution level
	P	P	P	Application level
High sensitivity	I	H	H	Head of installation
	S	S	I	Distribution level
	P	P	P	Application level

5 - Choice of the catalogue number

The choice of the catalogue number depends on the electrical layout of the installation (single phase, 3-phase), the neutral earthing system and the required capacity

	Voltage surge protectors for distribution boards					
	High capacity (H)		Increased capacity (I)		Standard capacity (S)	
Neutral earthing system	1P or 1P+N	3P or 3P+N	1P or 1P+N	3P or 3P+N	1P or 1P+N	3P or 3P+N
TT/TNS	0039 21	0039 23	0039 36	0039 38	0039 41	0039 43
TNC	0039 20	0039 22	-	-	-	-
IT with neutral	0039 21	0039 23	-	-	-	-
IT without neutral	0039 20	0039 22	-	-	-	-

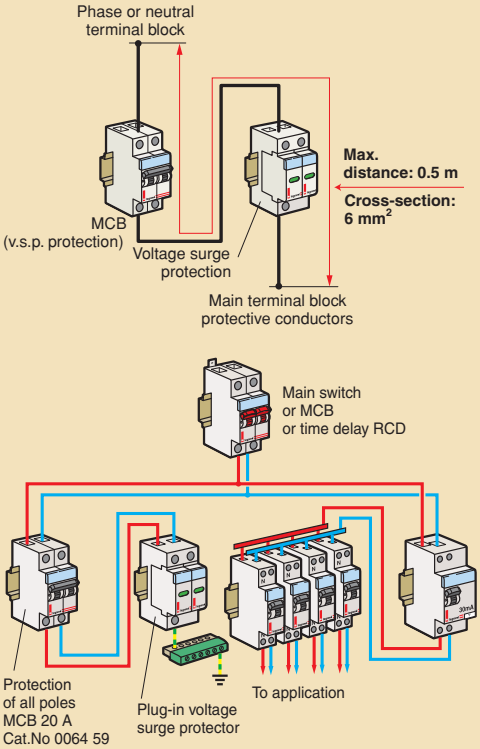
■ Installation

1 - Associated protection

The circuit supplying the v.s.p. can be protected against short circuits and overloads by MCB according to selectivity charts

2 - Connection principles

For the voltage surge protector to perform it's function as well as possible, it must be installed:
- as a tap-off
- keeping as short a connection length as possible between the phase-neutral terminal block and the PE or PEN terminal block
- in accordance with EMC (electromagnetic compatibility) rules: avoid the use of loops, fix the cables against metal conductive parts



3 - Recommanded cross-sections for conductors linking voltage surge protectors

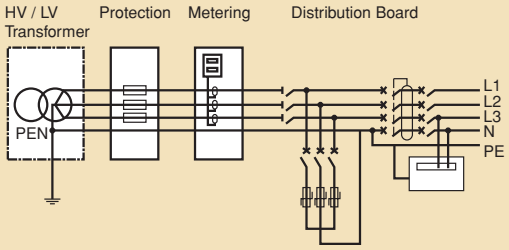
Capacity	Cross-section (mm²)
Standard (S)	6
Increased (I)	10
High (H)	16

4 - Minimum distances between voltage surge protectors in one installation

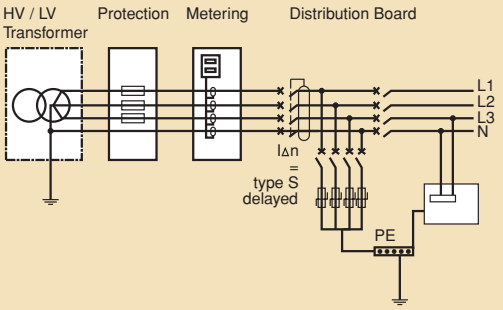
Downstream v.s.p.	Upstream v.s.p.	Distance (in meter)
H	I	6
	S	8
	P	10
I	S	4
	P	6
S	P	2

■ Installation principle

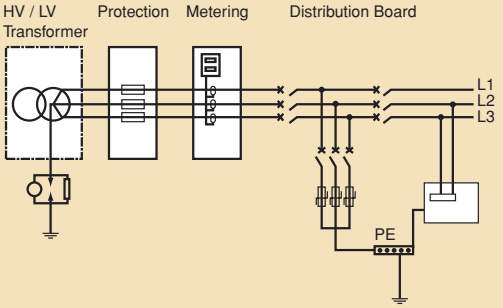
1 - Voltage surge protector in TN system



2 - Voltage surge protector in TT system

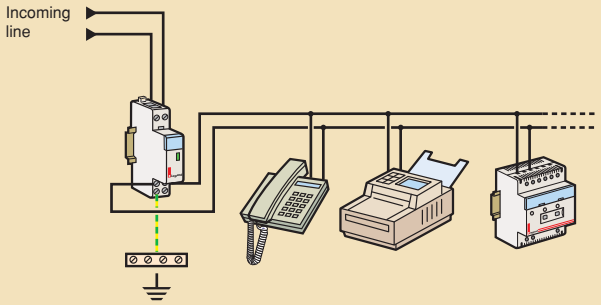


3 - Voltage surge protector in IT system



■ Telephone characteristics

Protection of a telephone line



1 voltage surge protector per pair
- If digital, 2 pairs (2 x 0038 29)
- If analogue, 1 pair (1 x 0038 28)

Rex-Analogue time switches
for DIN rail mounting and wall mounting
MaxiRex

6499 14

6499 15

Dimensions (p. 170)
Technical data (p. 149-155)

230 V∿, 50/60 Hz
Voltage tolerance - ± 10%
Conforms to IEC 60730-1, EN 60730-1
Analogue 24 hrs and 7 days time switch
With 3 position changeover switch (5 terminals)
Suitable for DIN rail mounting, wall mounting and installation in plastic box with locking facility
With manual override switch
Hands can be moved clockwise or anti clockwise for easy setting of time.

Pack	Cat. nos.	MaxiRex with 4 terminals (without plastic box)		
		MaxiRex 4QT (with 500 hrs. working reserve) 24 hrs. programme	Voltage	Frequency
1/30	**6499 15**		230 V	50-60 Hz

Pack	Cat. nos.	MaxiRex with 4 terminals (with plastic box)		
		MaxiRex 4QTB (with 500 hrs. working reserve) 24 hrs. programme	Voltage	Frequency
1	**6499 14**		230 V	50-60 Hz
		MaxiRex 4QWB (with 500 hrs. working reserve) 7 days programme		
1	**6499 36A**		240 V	50-60 Hz

Pack	Cat. nos.	MaxiRex with 5 terminals (without plastic box)		
		MaxiRex 5QW (with 500 hrs. working reserve) 7 days programme	Voltage	Frequency
1/30	**6499 39**		230 V	50-60 Hz
		MaxiRex QT 30A (with 100 hrs. running reserve) 24 hrs. programme	Voltage	Frequency
1/30	6499 64	Robust analogue time switch with real 30A switching capacity	230V	50-60 Hz

Accessories

1/30	6499 49	Terminal cover for MaxiRex 4 and 5
1/10	6499 48	IP53 plastic box

Bold catalogue numbers are products normally available with Legrand (India) stockists.
Cat. nos. that are not bold - delivery within 4 - 8 weeks from the date of order.
Bold packing quantity is our mandatory packing. Orders to be placed by Legrand (India) stockists in multiples of the same.

Rex-Analogue time switches
for front panel and wall installation
EconoRex

0499 86

Dimensions (p. 170)
Technical data (p. 149-155)

230 V~, 50/60 Hz
Voltage tolerance - ± 10%
Conforms to IEC 60730-1, EN 60730-1
Analogue 24 hrs time switch
With 3 position changeover switch
Suitable for DIN rail mounting and surface mounting
With manual override switch
With 72 X 72 mm display

Pack	Cat. nos.	EconoRex		
		EconoRex MQT Front panel mounting (with 100 hrs. running reserve) 24 hrs. programme	Voltage	Frequency
1/30	**0499 86**		230 V	50/60 Hz

		Accessories
1	0044 07	Accessories for EconoRex BQTAP DIN rail ⊔ adaptor

Rex-Analogue time switches
for DIN rail mounting
MicroRex - 1 module

0037 40

230 V~, 50/60 Hz
Voltage tolerance - ± 10%
Conforms to IEC 60730-1, EN 60730-1
Modular analogue 24 hrs time switch
With 3 position changeover switch
Suitable for DIN rail mounting
With manual override switch
With quartz controlled motor

Pack	Cat. nos.	MicroRex QT11			
		(with 100 hrs. running reserve) 24 hrs. programme	Voltage	Frequency	Number of 17.5 modules
1/100	**0037 40**		230 V	50/60 Hz	1

Rex-Analogue time switches
for DIN rail mounting
MicroRex - 3 modules

Rex - digital time switches
AstroRex

0037 53

0047 64

Dimensions (p. 170)
Technical data (p. 149-155)

230 V∿, 50/60 Hz
Voltage tolerance - ± 10%
Conforms to IEC 60730-1, EN 60730-1
Modular analogue 24 hrs and 7 days time switch
With 3 position changeover switch
Suitable for DIN rail mounting
With manual override switch
With quartz controlled motor

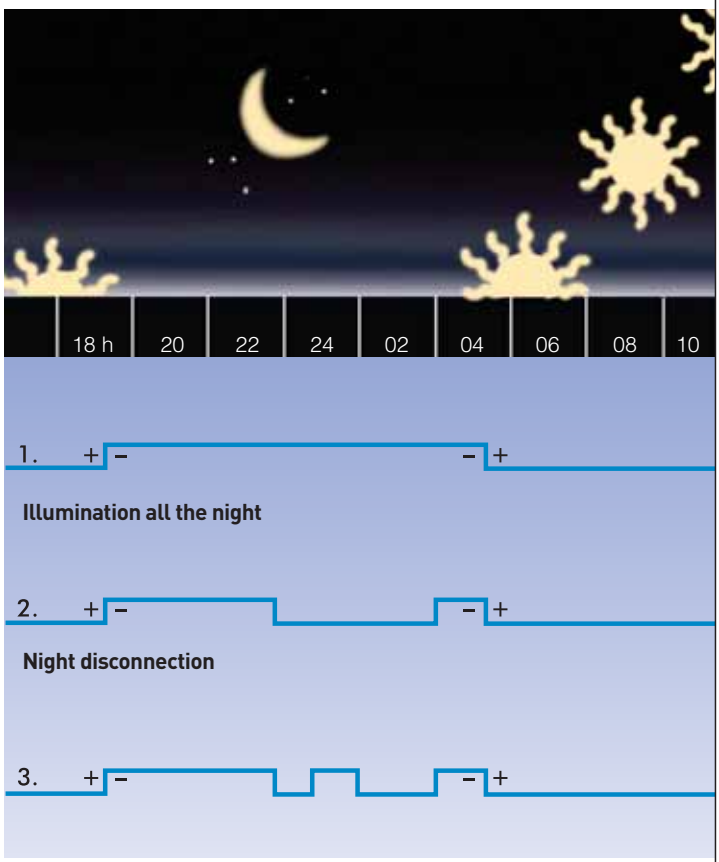
Pack	Cat. nos.	MicroRex QT31	Voltage	Frequency	Number of 17.5 modules
1/30	**0037 53**	(with 100 hrs. running reserve) 24 hrs. programme	230 V	50/60 Hz	3
1/30	0037 55	**MicroRex QW31** (with 100 hrs. running reserve) 7 days programme	230 V	50/60 Hz	3

- according to VDE 631-1 and 631-2-7, IEC 60 730-1 and 60 730-2-7, EN 60 730-1 and 60 730-2-7
- with text based programming concept
- Selectable languages: English, German, French, Italian, Spanish and Dutch
- fast programming due to selection of pre-set groups of days Mo-Su, and individual selection of days
- easy programming with PC using Legrand software and data key
- a program consists of an ON and OFF time and their assignment to certain days
- Backup on data key possible
- with additional fuctions:
  - holiday program (permanently ON or OFF)
  - 1 hour-test-outputs are switched ON for 1 hour
  - hour counter for max. 65535 hours.
- backgroundlighting for display and buttons
- running reserve of 6 years for date and time
- programs are stored in a EEPROM
- programs are shown as a weekly matrix on the display
- automatic summer-/wintertime change (daylight saving)
- Precision ± 0,2 sec/day
- manual switching
- lead sealable cover, even with inserted data key
- Calculation of sunrise and sunset by programming date, time and local coordinates.
- No light sensor needed!
- To save energy, a switching off at night is programmable.
- The switching On and OFF times can be adjusted asymetricaly for ± 120 minutes (offset).
- The control input enables the activation of the time switch irrespective to the program. (NOT D22 Astro!)

Pack	Cat. nos.	AstroRex D21	Voltage	Frequency	Number of 17.5 modules
1	0047 64	weekly time switch, 1 channel 1 changeover (SPDT) 250 V/50 Hz, 16 A∿ cos φ=1 min. switching time: 1 min. switching stem: 1 min.	230 V	50/60 Hz	2
1	0047 67	**AstroRex D22** weekly time switch, 2 channels 2 changeover (SOPDT) 250 V/50 Hz, 16 A∿ cos φ=1 min. switching time: 1 min. switching stem: 1 min.	230 V	50/60 Hz	2

Rex astronomical time switches

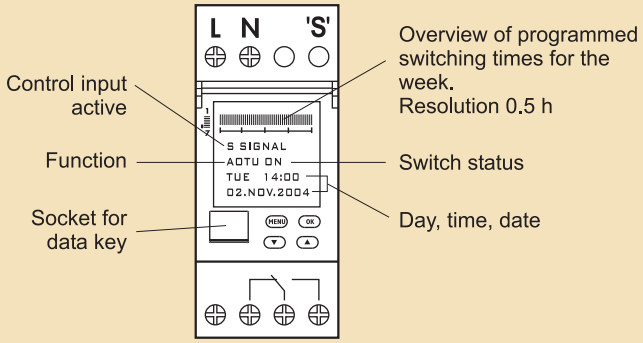
Easy control of light based on the calculation of sunrise and sundown, with no need of installing a light sensor !



Night disconnection using the control contact (+/- = switch-on and switch-off time can be postponed up to +/- 120 minutes)

Astronomical time switches
AstroRex D21

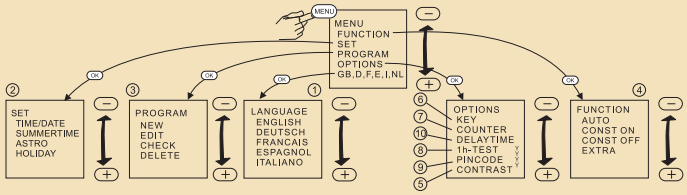
■ Technical data



General information

- **Starting :** After connection of the supply voltage, the clock starts to run with last selected function. The relay position is determined by the currently active program.
- **Backup battery**
  - **Background lighting** switched off.
  - **Data key** READ/WRITE only via the menu.

Overview



'S' = A control i/p signal is superimposed on all program commands (OR circuit), while the control signal is applied, the output is switched 'ON' when the control signal is switched 'OFF', the output is switched 'OFF' after a delay time. Unless an 'ON' command is applied by a program (0 min.... 23 hrs-5 min)

Rex digital time switches
AlphaRex

0047 61

0047 72

0047 73

Dimensions (p. 170)
Technical data (p. 149-155)

- According to VDE 631-1 and 631-2-7, IEC 60 730-1 and 60 730-2-7, EN 60 703-1 and 60 730-2-7
- With text based programming concept
- Selectable languages: English, German, French, Italian, Spanish and Dutch
- Fast programming due to selection of pre-set days Mo-Su, Mo-Fr, Sa-Su and individual selection of days
- Easy programming with PC using Legrand software and data key
- A program consists of an ON and OFF time and their assignment to certain days
- Backup on data key possible
- With additional comfort functions:
  - holiday program
  - random function
  - pulse function (only 1 channel) with pulse duration of 1 sec up to 59 min, 59 sec. and 84 start times
  - hour counter for max. 65 535 hours
- Background lighting for display and buttons
- Running reserve of 6 years for date and time
- Programs are stored in a EEPROM
- Programs are shown as a weekly matrix on the display
- Automatic summer/winter time change (daylight saving)
- Precision ±0.2 sec/day
- Manual switching
- Sealable cover, even with inserted data key

Pack	Cat. nos.	AlphaRex
1	0047 61	AlphaRex D21 weekly time switch, 1 channel Voltage: 230 V | Frequency: 50/60 Hz | Number of 17.5 modules: 2 - 1 changeover (SPDT) 250 V/50 Hz 16 AA cos φ = 1 - 56 programs - min. switching time: 1 min. - switching step: 1 min.
1	0047 71	AlphaRex D22 weekly time switch, 2 channels Voltage: 230 V | Frequency: 50/60 Hz | Number of 17.5 modules: 2 - 2 changeover (SPDT) 250 V/50 Hz 16 AA cos φ = 1 - 56 programs (28 per channel) - min. switching time: 1 min. - switching step: 1 min.

Pack	Cat. nos.	Accessories
1	0047 72	Data key - With the data key, it is possible to transfer programs into the time switch Select the data key function on "READ" on the time switch - The data key can be programmed on PC - Using the data key function "WRITE", programs can be transferred to data key, it allows to easily copy program from one time switch to another one. It can also be used as a backup - One data key allows to save 1 complete time switch program (56 ON/OFF)
1	0047 73	USB-adapter - to read and write data keys on PC - software include - connection via USB port - system requirements: Windows®2000 - Windows®ME, Windows®XP and Windows®98 second edition, 10 MB free disc space - serial adapter on demand

Rex digital time switches
AlphaRex

■ Brief description of the programming possibilities

Text based programming

The AlphaRex uses clear text to guide you through the options and the programming. Every step is clearly displayed and the selected function is flashing. The integrated background lighting for display and buttons allows easy programming even at bad lighting conditions.

Selection language

Using the "MENU" button, allows to select the requested language. Default language is English.

Time, date, summer/winter time

The actual time (CET) and date have been pre-set in the factory. Default summer/wintertime is EU. Changes can be made by choosing "MENU" and "SET".

Programming

A program consists of an ON and OFF time and the assigned day(s). Before setting the ON and OFF times, the requested days have to be selected. MONDAY-SUNDAY, MONDAY-FRIDAY, SATURDAY-SUNDAY OR INDIVIDUAL. The INDIVIDUAL mode allows to select every single day of the week. It is also possible to program over midnight.

Relay function

With "MENU" and "FUNCTION" it is possible to change the relay position. By default it is "AUTO", the time switch switches at the programmed times. Additional selections are: "CONST ON" CONST OFF" and "EXTRA". With choosing "EXTRA" the stored program will be inversed. When the next programmed switching time has been reached, the time switch returns to normal mode.

Holiday

Selection the "HOLIDAY" function allows to set the start-and end-date of the holidays and has to be activated by selecting "ACTIVE", or deactivate it by selecting "PASSIVE". When the "HOLIDAY" function is activated, the stored program will be ignored during the selected days and replaced by "CONST ON" or "CONST OFF". When holiday is over, the AlphaRex returns to default mode.

- **Data key**

When the time switch is connected to tension, the data key activated automatically the "DATA KEY" menu with the options "READ" and "WRITE".

"WRITE": programs stored in the time switch will be copied into the data key. Eventually stored programs on the data key will be over-written.

"READ": programs stored on the data key will be copied into the time switch. Eventually stored programs on the time switch will be overwritten.

It is only possible to save 1 "time switch program" which consist of max. 56 ON/OFF (1 channel.) or max. 84 ON (1 channel pulse) or max. 2 x 28 ON/OFF (2 channel) on the time switch and the data key.

When inserting the data key without the time switch being connected to tension, the "DATA KEY" menu will not appear automatically, but has to be selected manually.

- **Programming on the PC**

Next to the easy and text based programming directly on the time switch, it is also possible to do it on your PC by using the Legrand software and to transfer the program with the data key to the time switch. To save the PC-created programs on the data key, the USB adapter has to be installed.

System requirements: USB-port; Windows® 98 second edition; Window® 2000; Window®ME or Windows®XP, 10MB free disc space.

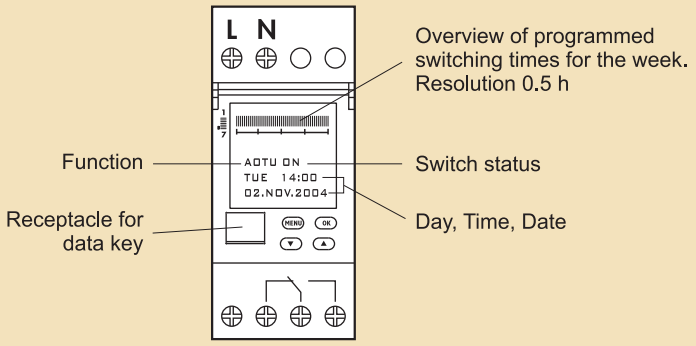
- **Reset**

Pressing simultaneously on all 4 buttons for more than 2 seconds, will causes a deletion of all stored data. Language, time/date, summer-winter time and programs have to be re-installed.

- **Random function**

To stimulate your presence with turning lights ON and OFF on different times everyday. Just setup a normal program, activate the 'Random' function and from now on all ON and OFF times will vary randomly for ±30 minutes.

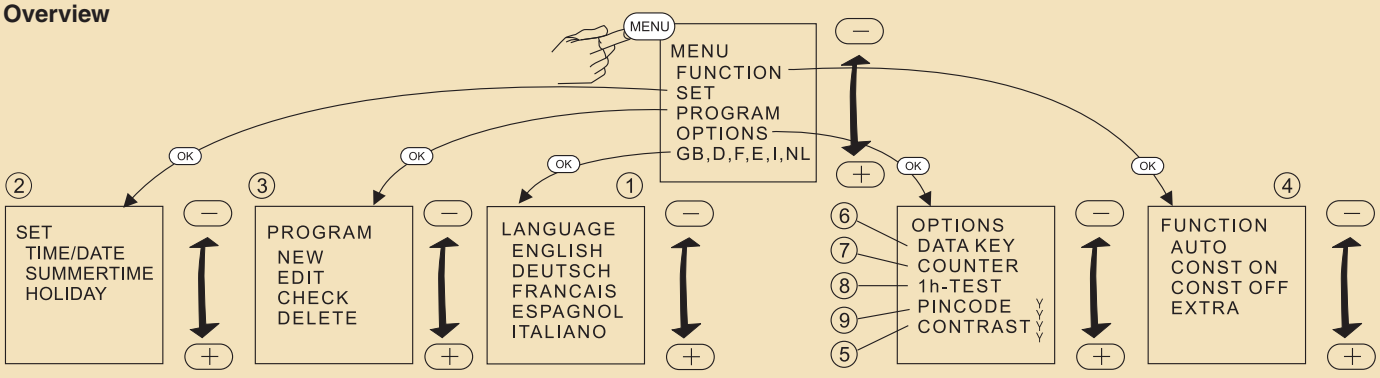
D21 - 1-channel with pulse function



General information

- **Starting :** After applying the supply voltage, the time switch starts automatically with the last selected function. The relay position is set by the current program.
- **Battery backup**
  - **Backlighting** not active.
  - **Data key** READ/WRITE only via the menu.

Overview



Rex time switches

■ Technical data

Analogue time switch

Type	MaxiRex			
	4QTB	4QWB	4QT	5QW
Catalogue no.	6499 14	6499 36	6499 15	6499 39
Voltage	230 V AC	230 V AC	230 V AC	230 V AC
Frequency	50 / 60 hz	50 / 60 hz	50 / 60 hz	50 / 60 hz
No. of channels	1	1	1	1
Motor	quartz controlled	quartz controlled	quartz controlled	quartz controlled
Switching dial	24 hrs	7 days	24 hrs	7 days
Switching capacity for				
Resistive Cos φ = 1	20 A	20 A	20 A	20 A
Incandescent lamps	4 A	4 A	4 A	4 A
Inductive cos φ = 0.6	10 A	10 A	10 A	10 A
Contact	SPST			
Running reserve	500 hrs	500 hrs	500 hrs	500 hrs
Minimum switching time	10 min	1 hr	10 min	1 hr
Minimum setting interval	20 min	2 hr	20 min	2 hr
Switching accuracy	± 10 min	± 1 hr	± 10 min	± 1 hr
IP rating	IP 53	IP 53	IP 30	IP 30
Operating temperature	- 10°C to + 50°C	- 10°C to + 50°C	- 10°C to + 50°C	- 10°C to + 50°C

Type	MaxiRex	EconoRex	MicroRex		
	QT	MQT	QT11	QT31	QW31
Catalogue no.	6499 64	0499 86	0037 40	0037 53	0037 55
Voltage	230 V AC	230 V AC	230 V AC	230 V AC	230 V AC
Frequency	50 / 60 hz	50 / 60 hz	50 / 60 hz	50 / 60 hz	50 / 60 hz
No. of channels	1	1	1	1	1
Motor	quartz controlled	quartz controlled	quartz controlled	quartz controlled	quartz controlled
Switching dial	24 hrs	24 hrs	24 hrs	24 hrs	7 days
Switching capacity for					
Resistive Cos φ = 1	30 A	16 A	16 A	16 A	16 A
Incandescent lamps	1800 W	4 A	4 A	4 A	4 A
Inductive cos φ = 0.6	20 A	8 A	10 A	10 A	10 A
Contact	SPST	SPDT	SPST	SPDT	
Running reserve	100 hrs	100 hrs	100 hrs	100 hrs	100 hrs
Minimum switching time	10 min	15 min	15 min	15 min	2 hrs
Minimum setting interval	20 min	10 min	30 min	30 min	4 hrs
Switching accuracy	± 30 min	± 15 min	± 5 min	± 5 min	± 30 min
IP rating	IP 30	IP 30	IP 20	IP 20	IP 20
Operating temperature	- 10°C to + 55°C	- 10°C to + 55°C	- 10°C to + 55°C	- 10°C to + 55°C	- 10°C to + 55°C

Digital time switch

Type	AlphaRex		AstroRex	
	D21	D22	D21	D22
Catalogue no.	0047 61	0047 71	0047 64	0047 67
Voltage	230 V AC	230 V AC	230 V AC	230 V AC
Frequency	50 / 60 hz	50 / 60 hz	50 / 60 hz	50 / 60 hz
No. of channels	1	2	1	2
Type	24 hrs / 7 days	24 hrs / 7 days	24 hrs	24 hrs
Switching capacity for				
Resistive Cos φ = 1	16 A	16 A	16 A	16 A
Incandescent lamps	8 A	8 A	10 A	10 A
Inductive Cos φ = 0.6	10 A	10 A	4 A	4 A
Contact	1 SPDT	2 SPDT	1 SPDT	2 SPDT
Running reserve	6 yrs	6 yrs	6 yrs	6 yrs
Minimum switching time	1 min(1)	1 min	1 min	1 min
Minimum setting interval	1 min	1 min	1 min	1 min
Switching accuracy	± 0.2 sec / day	± 0.2 sec / day	± 0.2 sec / day	± 0.2 sec / day
IP rating	IP 20	IP 20	IP 20	IP 20
Operating temperature	- 20°C to + 55°C	- 20°C to + 55°C	- 20°C to + 55°C	- 20°C to + 55°C
No of module (17.5 mm)	2	2	2	2

(1) Impulse version 1 sec.

Dimensions in mm,
1 inch = 25.4mm

Rex time switches

■ Technical data

Allowed loads for time switches

	Consumption at 230 V~ 50 Hz	Nominal output (VDE)			Allowed load at 230 V~, 50 Hz		
		I Cos φ = 1	Output	Class	Incandescent halogen lamps (230V~)	Fluorescent lamps duo circuit	cos φ = 0.6
Cat.no.	Watt	A	*)	IP	A	A	A
DIN rail mounting							
0037 40	0.38	16	1 S µ	20	4	14	12
0037 53	0.38	16	1 W µ	20	4	14	12
0037 55	0.38	16	1 W µ	20	4	14	12
0047 61	1	16	1 W µ	20	8	-	10
0047 71	1	16	1 W µ	20	8	-	10
0047 64	1	16	1 W µ	20	10	-	4
0047 67	1	16	1 W µ	20	10	-	4
Surface and facia mounting							
6499 15	0.38	16	1 W µ	20	4	14	12
0497 55	0.38	16	1 W µ	20	4	14	12
6499 14	0.38	16	1 W µ	20	4	14	12
0497 57	0.38	16	1W µ	20	4	14	12
6499 39	0.38	10	1 W µ	20	4	8	7
6499 36	0.38	16	1 W µ	20	4	8	8

*) W = changeover contact
S = normal open
µ = distance between contacts 3 mm

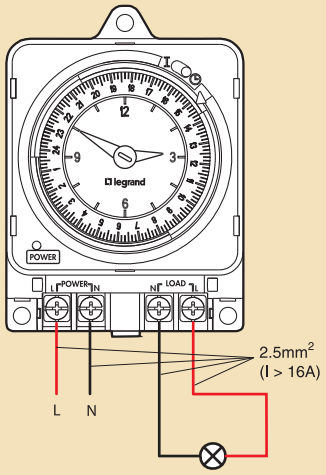
Hint : Loads given for 230 V~ / 50 Hz and contact life time ≥ 5 years

- Staircase time switches and timing relays ≥ 1,00,000 changeovers, corresponding at ca. 27 changeovers / day.
- Time switches ≥ 10,000 changeovers, corresponding at ca. 5 changeovers / day.

■ Wiring diagram

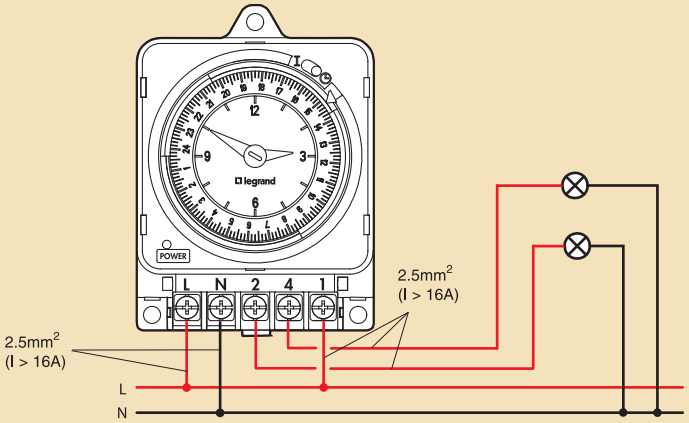
• MaxiRex

Cat. no. 6499 15, 6499 14, 6499 36



• MaxiRex

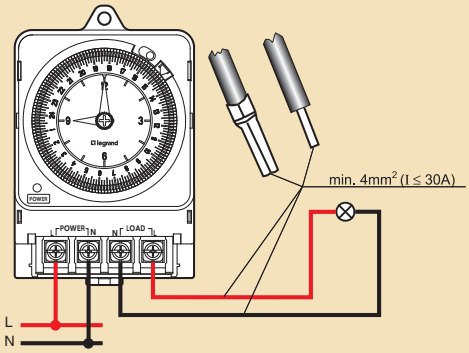
Cat. no. 6499 39



• MaxiRex

Cat. no. 6499 64

Wiring diagram

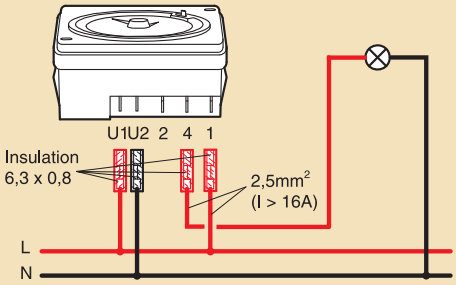


Dimensions in mm,
1 inch = 25.4mm

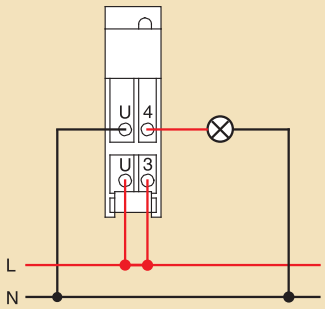
Rex time switches

■ Wiring diagram

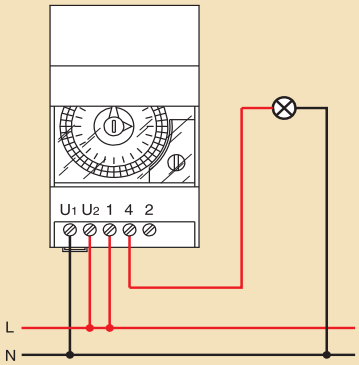
EconoRex MQT
Cat. no. 0499 86



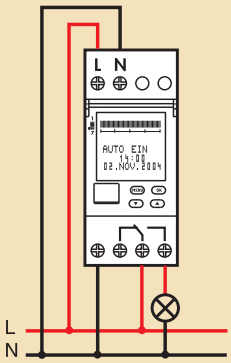
MicroRex QT11
Cat. no. 0037 40



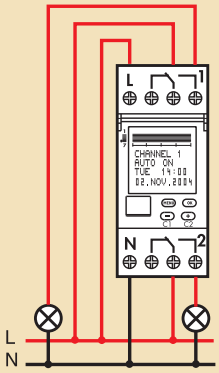
MicroRex QT31
Cat. no. 0037 53 and 0037 55



AlphaRex D21
Cat. no. 0047 61



AlphaRex D22
Cat. no. 0047 71

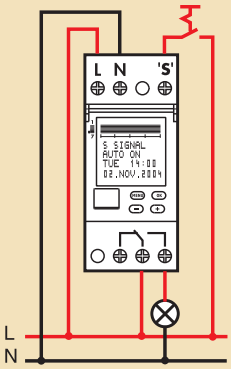


MENU
Menu selection, one step back, pressing >1s = back to main display

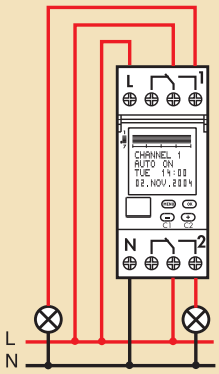
OK
Confirmation of selection and parameters

− **+**
Selection in the menu, adjusting parameter and selection of the channel (2 channel version only)

AstroRex D21
Cat. no. 0047 64



AstroRex D22
Cat. no. 0047 67



'S' = A control i/p signal is superimposed on all program commands (OR circuit), while the control signal is applied, the output is switched 'ON' when the control signal is switched 'OFF', the output is switched 'OFF' after a delay time. Unless an 'ON' command is applied by a program (0 min.... 23 hrs-5 min)

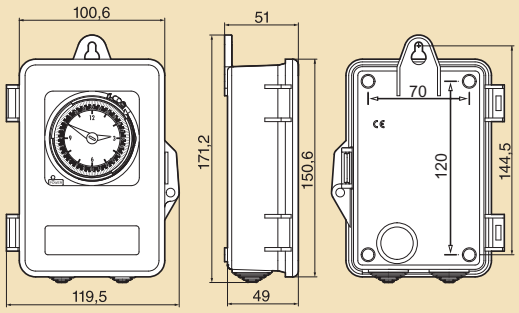
Dimensions in mm,
1 inch = 25.4mm

Rex time switches

■ Dimensions

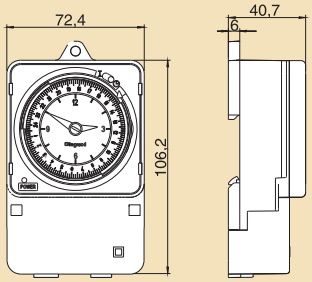
MaxiRex 4QTB and MaxiRex 4QWB

Cat. no. 6499 14 A and 6499 36 A



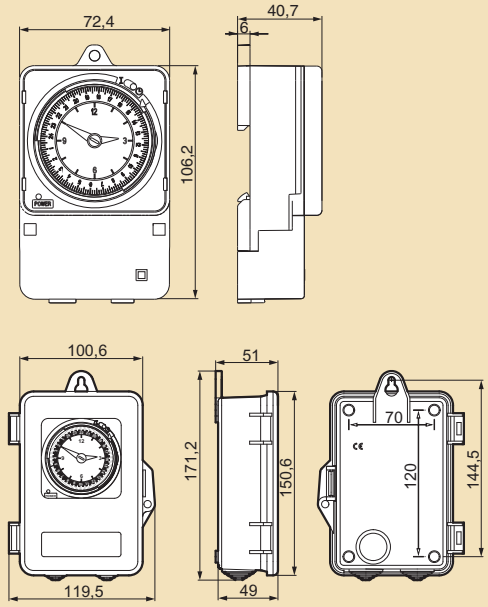
MaxiRex 4QT and MaxiRex 5QW

Cat. no. 6499 15 and 6499 39 with terminal cover



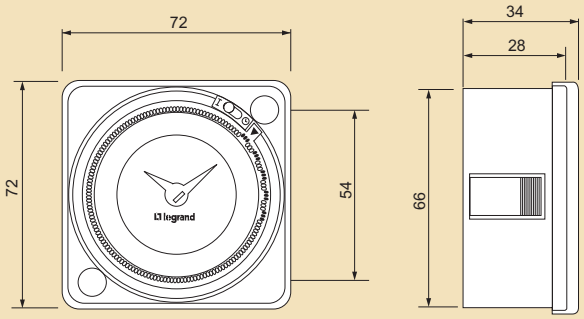
MaxiRex QT

Cat. no. 6499 64

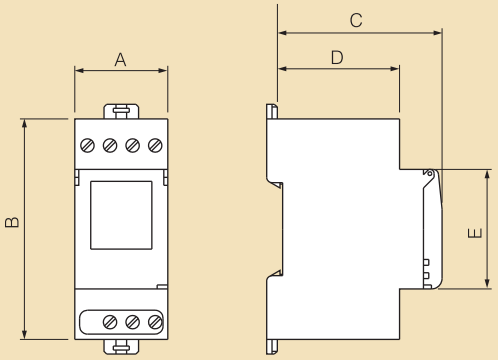


EconoRex

Cat. no. 0499 86



Rex modular time switches



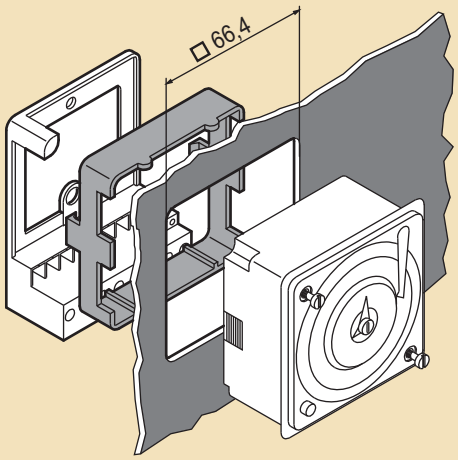
Catalogue no.	Description	A	B	C	D	E
0037 40	MicroRex QT11	17.5	86	60	44	45
0037 53	MicroRex QT31	53	90	60	44	45
0037 55	MicroRex QW31	53	90	60	44	45
0047 61	AlphaRex D21	36	83	60	44	45
0047 71	AlphaRex D22	36	83	60	44	45
0047 64	AstroRex D21	36	83	60	44	45
0047 67	AstroRex D22	36	83	60	44	45

Dimensions in mm,
1 inch = 25.4mm

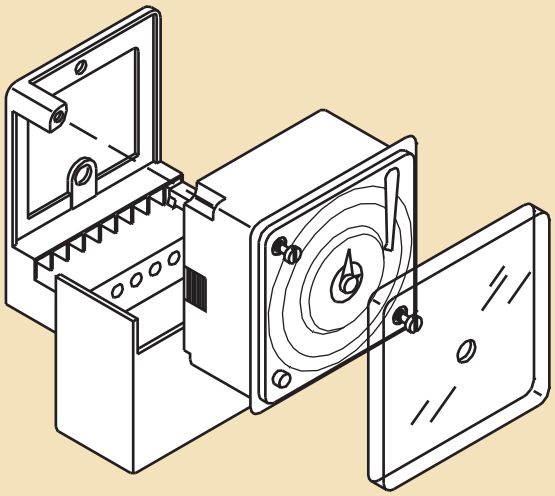
■ Technical data

Installation

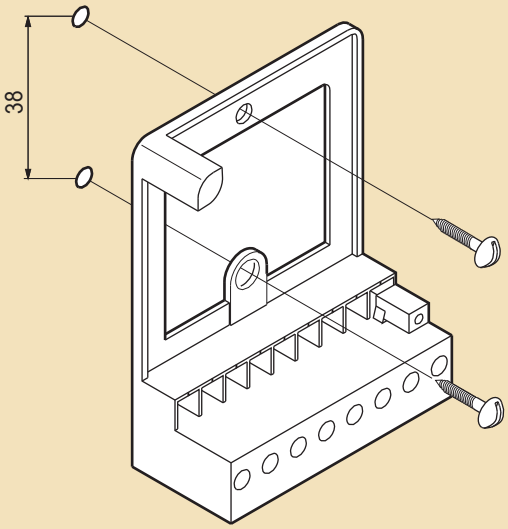
Door mounting with support 0498 32



Mounting

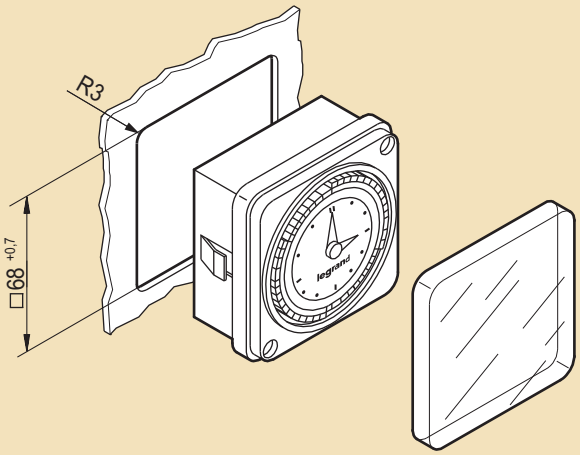


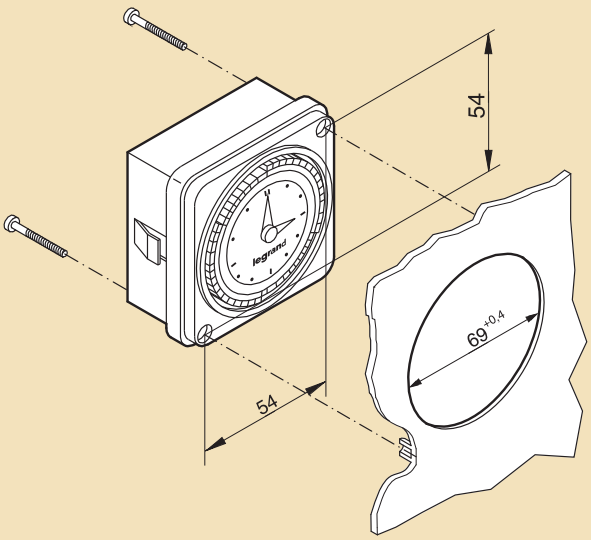
Wall mounting



EconoRex MQT
Front panel and wall installation

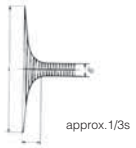
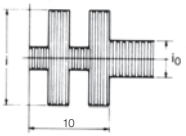
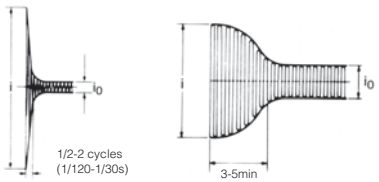
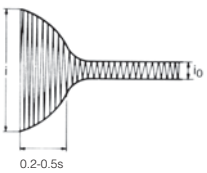
Fixing





Dimensions in mm,
1 inch = 25.4mm

Lexic time switches
for the use of time switches and staircase switches

Mode of loading :	Conduct :	Rule :
Load ohmic	Starting current is permanent current i = i0	Nominal current according to the label (IN)
Electronical ballast for : → 12 V halogen lamps → Fluo lamps (EVG,s)	i / io = 2	1...2 times starting current Current is limited electronically Without any problems. (until IN x 0.8)
→ Incandescent lamps → Halogen lamps (230 V, 50 Hz)	Starting current (i / i0 = 10...15) 	10...15 times starting current Great load of incandescent lamps or load of halogen lamps. (see tabloid) Use a contactor! (from IN x 0,4)
→ Compact fluorescent lamps with ballast → Fluorescent lamps (with electrical ballast)	Starting current (i / i0 = 16) 	16 times starting current critical Use a contactor! (from IN x 0,03)
Fluo lamps: → Inductive, duo, serial compensated	Course of current with fluo tubes (i / i0 = 3) 	3 times starting current (see tabloid) Without any problems (until IN x 0,7)
Gas discharge lamp in shunt compensation: → Fluo lamps → Mercury vapour lamps → Metal halogen vapour lamps → Sodium vapour lamps	 Course of current on capacitor - load. (i / i0 = 20...40)	20...40 times starting current The shunt compensation is very problematic for all switching contacts. Parallel capacitors : time - switches max. 4,7 µF staircase - switches max. 7,0 µF Use a contactor!
Transformer: → Halogen lamp transformer → Separation transformer	Conduct similar to shunt compensation	20...30 times starting current max. 1 / 10 of the nominal load is permissible. Use a contactor!
Motor load: (with starting capacitor) → Ventilator → Pump → Compressor	Course of current on motor load. (i / i0 = 10...50) 	10...50 times starting current Different drives, max. 1 / 10 of the nominal load is permissible. Use a contactor!

The type of load substantially affects its lifespan. In time switches and staircase lighting timers only the current at the start is critical.
Failure through a closed contact is not a problem because of the small number of operations. (inductive load cos φ = < 0.6)

Dimensions in mm,
1 inch = 25.4mm

Lexic
Rex-time lag switch

0047 02

Dimensions (p. 170)
Technical data (p. 156-157)

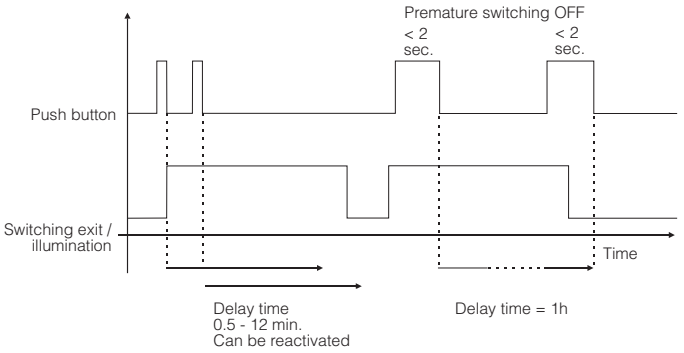
Switching contact: 1 make contact µ, 16 A

Pack	Cat. nos.	Time lag switch	Number of 17.5 mm modules
10/100	0047 02	**Rex800 multi** Time lag switch 0.5 sec - 12 min. 230 V~	1

Rex800 multi
Multi-fuctionlal staircase timer:
- standard staircase timer
- staircase timer with pre-warning fuction
- staircase timer with long time function (1h)
- staircase timer with early warning and long time fuction
- disconnectable time relais
- disconnectable time relais with early warn function
- electronic relais

lighting time switch 0,5-12 min.
for all driving voltages from 8-230 V/AC DC
3-/4-wire connection, 16A/230V~, 50/60 Hz,
2000 W lamp load resistance/Halogen bulbs 230 V,
1000 VA fluorescent lamps, serial compensation
120 VA fluorescent lamps, parallel compensation
Parallel compensation: C <= 100µF at the maximum
maximum length of trip lines: 100 m

Function diagram

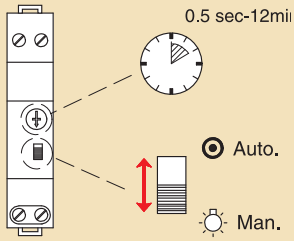


Programming
Short duration: When push button is pressed for less than 2 seconds, light will remain ON for pre-set period, eg. 2 minutes
Long duration: When push button is pressed for more than 2 seconds, light will remain ON for 1 hour, eg. during maintenance or housekeeping

Lexic
Rex-time lag switch

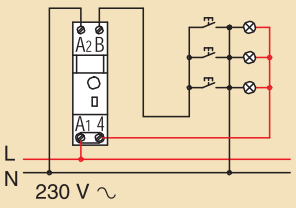
■ Technical data

Rex800

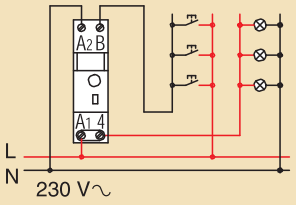


■ Wiring diagram

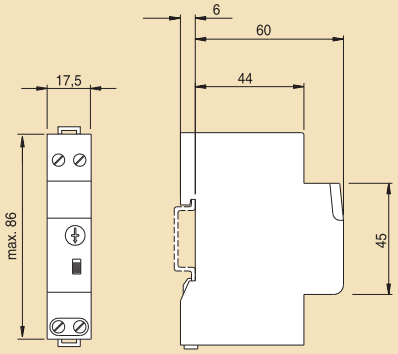
Rex800
3-wire connection



Rex801
4-wire connection



■ Dimensions

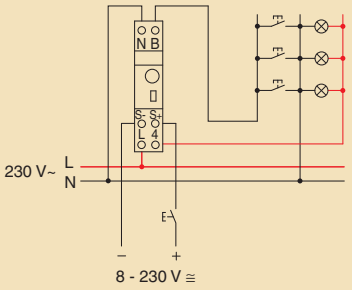


Dimensions in mm, 1 inch = 25.4mm

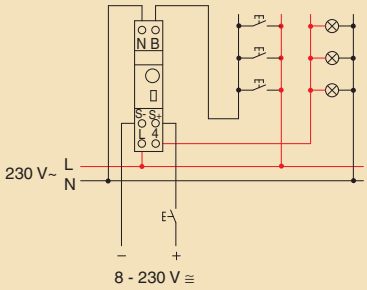
Rex - time lag switch
Rex800 multi

■ Wiring diagram
Rex - time lag switch
Cat. nos. 0047 02

3-wire connection



4-wire connection

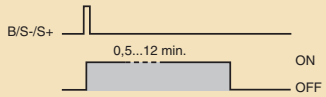


Attention: standard setting is fuction B

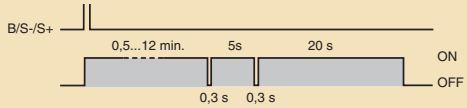
Functions E and F can not be used in houses with flats!

■ Selectable functions

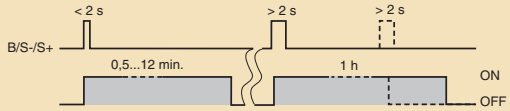
A



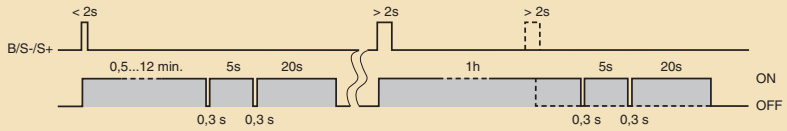
B



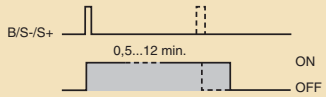
C



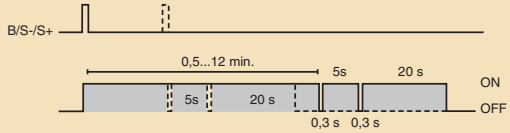
D



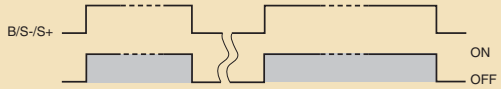
E

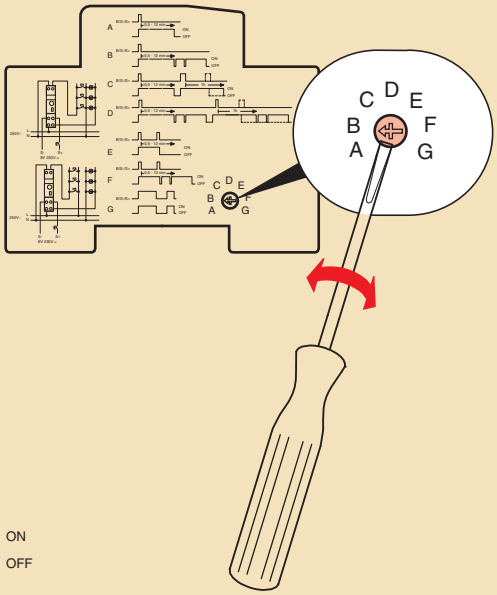


F



G





Dimensions in mm,
1 inch = 25.4mm

Lexic
multifunctional time delay relay

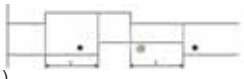
0047 44

Dimensions (p. 170)
Technical data (p. 158-160)

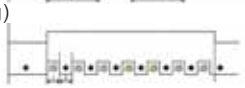
For controlling the switching ON and / or OFF of equipment (lighting, ventilation, control systems, signalling systems) for preset periods
from 0.1 s to 100 hours
Supply voltage: 12 V - 230 V AC/DC ±10%
Output: 8 A - 250 V AC (cos φ = 1) per change over switch

Pack	Cat. nos.	Time delay relay	Number of 17.5 mm modules
1	**0047 44**	**Rex801** With 10 functions	1

ON/OFF delay
Control input Y1
Contact

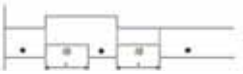


Flasher (impulse starting)
Control input Y1
Contact

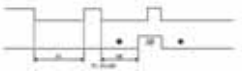


Flasher (off-time starting)
Control input Y1
Contact

Passing contact
Control input Y1
Contact



Additive ON delay
Control input Y1
Contact



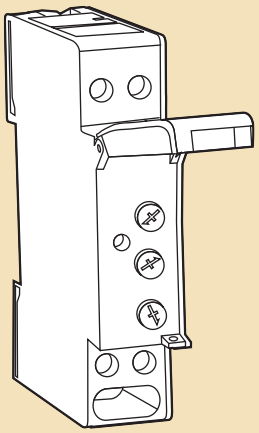
Additive fleeting ON
Control input Y1
Contact

For protection against transient voltage surges

Lexic VSP (p. 139-143)

Lexic
multifunctional time delay relay

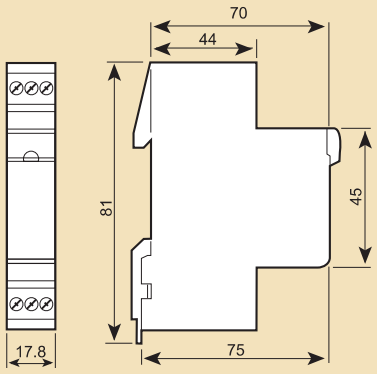
■ Technical data



Characteristics

Distribution voltage	between A1 – A2 : 12 V to 230 V AC / DC
Tolerance	-10 % to +10 %
Frequency	50 to 60 Hz
Control voltage	equal to distribution voltage
Time domain	0.1 seconds up to 100 hours
Power draw	230 V AC / DC = 1.4 W, 12 V AC / DC = 0.5 W
Repeating accuracy	± 0.2 %
Setting accuracy	± 5 % at 25°C
Control impulse	50 ms
Delay time	max. 100 ms
Bridging time in case of voltage cutoff	200 ms
Breaking capacity	8 A (4) 250 V
Bulbs	2 A 250 V
Electrical lifetime	10^5 hysteresis at 2000 W cos φ = 1
Mechanical lifetime	10^7 hysteresis
Length of trip line	max. 20 m
Ambient temperature	- 20°C… + 60°C
Storing temperature	- 30°C… + 70°C
Cross section for connection	single wire 1… 4 mm², multiwire 1.5… 2.5 mm²

■ Dimensions

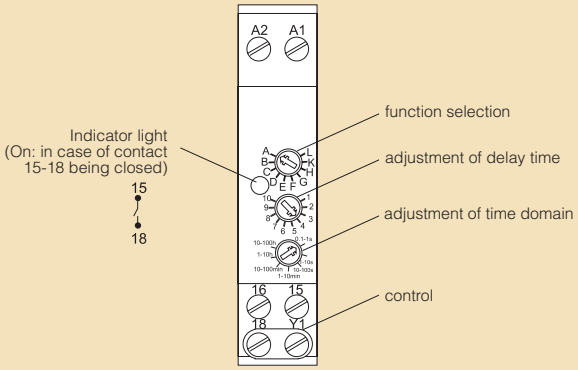


Dimensions in mm, 1 inch = 25.4mm

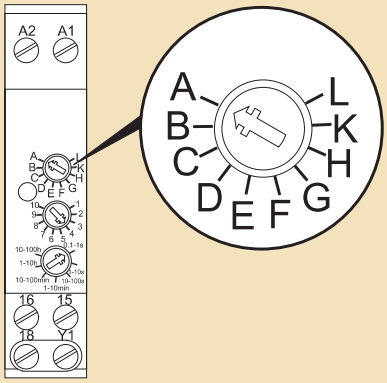
Lexic
multifunctional time delay relay (continued)

■ Technical data

Key parts

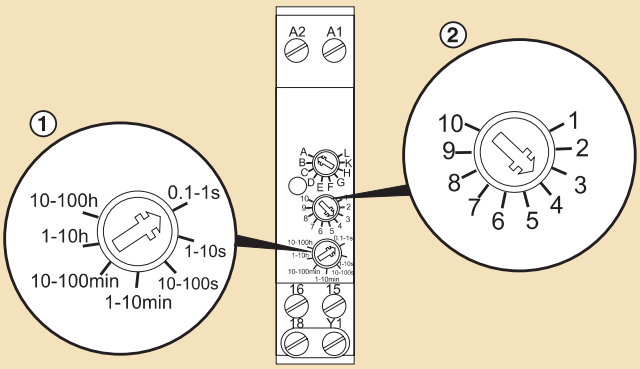


Function selection



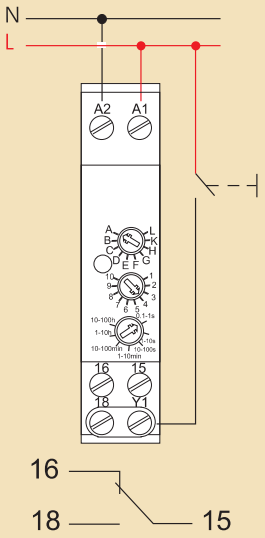
A – with delayed response time
B – with delayed response time, additive
C – with delayed release time
D – with delayed response and release time
E – time relay with flashing indicator, starting with impulse
F – time relay with flashing indicator, starting with break
G – pulse shaper
H – wiping contact relay
K – wipe contact flick contactor
L – wipe contact flick contactor, additive

Adjustment of delay time



1 – adjustment of delay tolerance
2 – precise adjustment of delay time
The position of the delay selector switch 1 multiplied by the potentiometer adjustment 2 = delay time T.
Example: 1 - 10 seconds x 4 = 4 seconds

Connection



In case the time switch is connected to the mains supply, the connection to protective low voltage is not allowed and vice versa, i.e. in case the time switch is connected to protective low voltage, the connection to the mains supply is not allowed.

Remote control dimmer

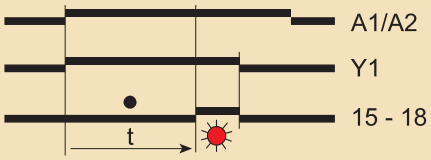
Lexic dimmer (p. 163)

Dimensions in mm,
1 inch = 25.4mm

Lexic
multifunctional time delay relay

■ Technical data

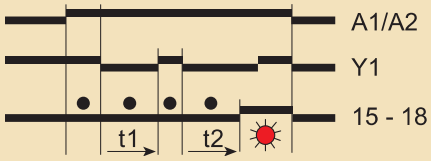
Function A



Time relay with delayed response time

When feeding the control voltage, a certain period of time begins to pass, and at the end of this time period the make contact changes from 15-16 to 15-18. After an interruption, the time period begins to pass again.

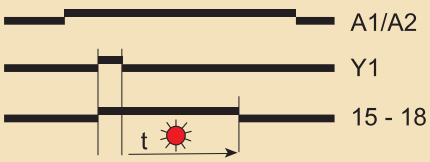
Function B



Time relay with delayed response time, additive

If the sum of control voltage interruptions is equal to the adjusted time, the make contact will close. The make contact remains closed until the distribution voltage is disconnected.

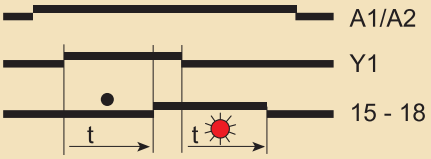
Function C



Time relay with delayed release time

When feeding the control voltage, the make contact changes from 15-16 to 15-18. By interrupting the control voltage, a certain period of time begins to pass, and at the end of this time period the make contact returns to the neutral position 15-16.

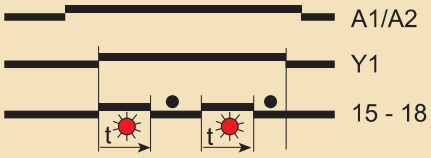
Function D



Time relay with delayed response and release time

When feeding the control voltage, a certain period of time begins to pass, and at the end of this time period the make contact changes from 15-16 to 15-18. If the control voltage is interrupted then, a further time lapse starts which is as long as the first one. At its end the make contact returns to neutral position 15-16. After an interruption of the delayed response time, the period of time begins to pass again.

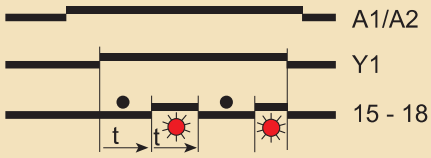
Function E



Time relay with flashing indicator, starting with impulse

As long as the control voltage is fed, the make contact changes between 15-16 and 15-18. When feeding the control voltage, the make contact immediately changes to 15-18.

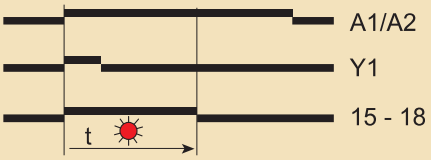
Function F



Time relay with flashing indicator, starting with break

As long as the control voltage is fed, the make contact changes between 15-16 and 15-18. When feeding the control voltage, the make contact remains at 15-16 for the time being.

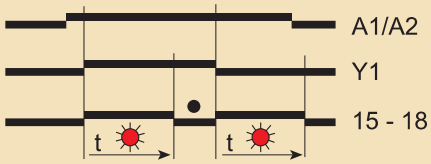
Function G



Pulse shaper

When feeding the control voltage, a certain period of time begins to pass, and at the end of this time period the make contact changes from 15-16 to 15-18.

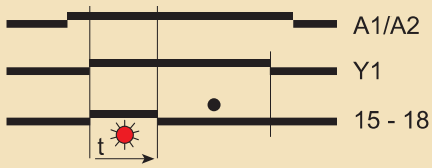
Function H



Wiping contact relay

When feeding the control voltage, a certain period of time begins to pass, and at the end of this time period the make contact changes from 15-16 to 15-18. In case of cutting off the control voltage during the wiping time, the make contact immediately returns to 15-16, and the remaining time is deleted.

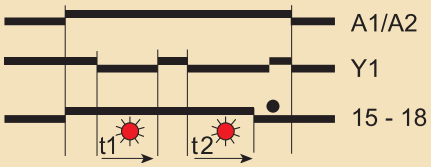
Function K



Wipe contact flick contactor

When feeding the control voltage, the make contact changes from 15-16 to 15-18 and returns after the wiping time has passed. In case of cutting off the control voltage during the wiping time, the make contact immediately returns to 15-16, and the remaining time is deleted.

Function L



Wipe contact flick contactor, additive

When the distribution voltage A1-A2 is connected and the control voltage is fed, the make contact changes from 15-16 to 15-18. If the sum of control voltage interruptions is equal to the adjusted time, the make contact will open and can only be closed after a voltage cutoff.

Safety instructions

- The product may only be installed and mounted by an expert
- The electrical safety can only be guaranteed on condition that the product and all accessories supplied are installed in the according product specific environment and that the EMC regulations are kept.
- In case of any intervention in the product, Legrand accept no liability.

Dimensions in mm,
1 inch = 25.4mm

Modular power management solutions

> Time switches

- Din channel mounting
- Analogue, digital and astronomical versions
- 24 hrs. and 7 days programmes

> Contactors

- Din channel mounting
- Current rating 20 A to 63 A
- 2 pole / 3 pole / 4 pole

Lexic
power contactors

0040 69

0040 78

Dimensions (p. 170)
Technical data (p. 162)

Conform to IEC 61095
Label holder
Manual ON and OFF on front face (use screw driver)
ON and OFF indicator

Power contactors with 230 V~ coil

Double pole - 250 V~
230 V~ coil

Pack	Cat. nos.	I max	Type of contact	Number of 17.5 mm modules
1/42	0041 28	25 A	2 N/O	1
1/42	0041 29	25 A	2 N/C	1
1/42	**0040 68**	40 A	2 N/O	2

Triple pole – 400 V~
230 V~ coil

Pack	Cat. nos.	I max	Type of contact	Number of 17.5 mm modules
1/12	0040 69	40 A	3 N/O	3
1/12	0040 77	63 A	3 N/C	3

Four pole – 400 V~
230 V~ coil

Pack	Cat. nos.	I max	Type of contact	Number of 17.5 mm modules
1/12	**0040 70**	40 A	4 N/O	3
1/12	**0040 78**	63 A	4 N/O	3
1/12	**0040 79**	63 A	4 N/C	3

Auxiliary devices for contactors

Auxiliary changeover switch
Fitted on left hand side of contactor
Used to signal the position status of the contacts on the product to which it is connected.

Pack	Cat. nos.	I max	Voltage	Changeover switch	Number of 17.5 mm modules
1/42	0040 85	5 A	250 V~	N/C + N/O	0.5
1/42	0041 85	5 A	250 V~	N/C + N/O	0.5

For cat nos.0041 28 & 0041 29 use 0041 85

■ Technical characteristics

Operating characteristics of contactor

Cat. no.	0041 28	0041 29	0040 68	0040 77	0040 79
Power circuit					
Rated operating current (Ie) - at AC 7a	20 A	20 A	40 A	40 A	63 A
- at AC 7b					
Nominal Voltage (Un)	250 V	250 V	250 V	400 V	400 V
Rated operating voltage (Ui)	250 V	250 V	250 V	400 V	400 V
Rated impulse withstand voltage (U imp)	4 kV	4 kV	4 kV	4 kV	4 kV
Rated operating voltage (Ue) - across the poles (between upstream & downstream of a contact)	250 V	250 V	250 V	400 V	400 V
- phase to phase (between 2 contacts)	400 V	400 V	400 V	400 V	400 V
Rated breaking and making capacity - At AC7a	1.5 x Ie	1.5 x Ie	1.5 x Ie	1.5 x Ie	1.5 x Ie
- At AC7b	8 x Ie	8 x Ie	8 x Ie	8 x Ie	8 x Ie
Dissipated power per contact	1.5 VA				
Frequency	50 / 60 Hz				
Isolating distance	complies with standard NF EN 61095, i.e. > 3mm				
Degree of pollution (as per IEC 61095)	2				
Short circuit protection by Lexic MCB	20 A	20 A	40 A	40 A	63 A
Control circuit					
Rated voltage (Uc)	230 V				
Operating voltage	from 0.85 Uc to 1.1 Uc				
Control circuit/power circuit insulation voltage	4 kV				
Max. Speed	1200 actuations per hour				
Coil consumption - Inrush (VA)	12 VA	13 VA	14 VA	20 VA	21 VA
- Hold (VA)	3.2 VA	3.2 VA	3.2 VA	6.2 VA	6.2 VA
State change time	50 ms				
Endurance					
Number of off load actuations using handle	1000	1000	1000	1000	1000
Number of off load actuations using electrical control	2,000,00	2,000,000	2,000,000	2,000,000	2,000,000
Number of actuations at Ie in AC7a : 100 000	100,000	100,000	100,000	100,000	100,000
Others					
Terminal capacity - Rigid	1x4 mm² or 2 x 2.5 mm²		1 x 25 mm² or 2 x 16 mm²		
- Flexible	1x4 mm² or 2 x 2.5 mm²		1 x 25 mm² or 2 x 16 mm²		
Operating temperature	- 5°C to + 40°C				
Storage temperature	- 20°C to + 70°C				
Add on accessories - Auxiliary changeover switch	•	•	•	•	•

• Recommendations

Derating of contactors mounted in modular boxes if the internal temperature is > 40 °C

Contactor rating	40 °C	50 °C	60 °C	70 °C
Ie = 16 A	16 A	14 A	12 A	10 A
Ie = 20 A	20 A	18 A	16 A	14 A
Ie = 40 A	40 A	36 A	32 A	29 A
Ie = 63 A	63 A	57 A	50 A	46 A

Install a spacing unit every two contactors (Cat.No 0044 40 or 0044 41)

■ Contactors performance(1)

1 - Lighting

Maximum number of lamps per phase according to the circuit:

- 230 V~ single phase: values in the table
- 400 V~ 3-phase + neutral (connection between phase and neutral): values in the table per phase (multiply by 3)
- 230 V~ 3-phase without neutral (connection between phase): values in the table divided by √3

- Incandescent lamps - Tungsten and 230 V halogen filament

Power unit	40 W	60 W	75 W	100 W	150 W	200 W	300 W	500 W	1 000 W
16 A	40	32	27	21	13	11	8	4	2
20 A	47	37	30	23	15	12	8	5	2
40 A	118	87	72	52	36	26	18	11	7
63 A	156	115	96	71	48	35	25	15	8

Halogen lamps with 12 V ferromagnetic transformer

Power unit	20 W	50 W	75 W	100 W	150 W
16 A	16	11	9	7	4
20 A	19	12	10	8	5
40 A	45	29	25	20	15
63 A	64	42	34	28	19

- Fluorescent tubes - Compact fluorescent without compensation

Power unit	7 W	10 W	18 W	26 W
16 A	52	47	42	27
20 A	56	51	43	28
40 A	105	94	68	53
63 A	128	113	88	79

Compact fluorescent with integrated power supply

Power unit	7 W	11 W	15 W	20 W	23 W
16 A	98	82	62	51	41
20 A	102	85	63	52	42
40 A	125	106	94	71	56
63 A	146	128	113	88	78

Simple and double

Power unit		15 W	18 W	20 W	36 W	40 W	58 W	65 W	115 W	140 W
Non compensated	**16 A**	24	24	24	22	22	15	15	8	8
	20 A	28	28	28	26	26	17	17	10	10
	40 A	75	75	75	65	65	40	40	22	22
	63 A	105	105	105	93	93	58	58	33	33
Parallel compensated	**16 A**	16	16	16	16	16	11	11	6	6
	20 A	18	18	18	18	18	13	13	6	6
	40 A	40	40	40	40	40	30	30	14	14
	63 A	60	60	60	60	60	43	43	20	20
Serial compensated(2)	**16 A**	-	32	32	18	18	11	11	7	7
	20 A	-	38	38	21	21	13	13	9	9
	40 A	-	85	85	45	45	29	29	18	18
	63 A	-	120	120	65	65	40	40	24	24

With electronic ballast

Power unit		18 W	36 W	58 W
Single	**16 A**	32	28	17
	20 A	35	30	18
	40 A	64	35	27
	63 A	79	46	31
Double(2)	**16 A**	16	14	8
	20 A	17	15	9
	40 A	32	18	14
	63 A	40	22	15

- Discharge lamps

Sodium vapour high pressure or metal iodide

Power unit		70 W	150 W	250 W	330 W	400 W	1000 W
Without compensation	**16 A**	9	5	3	3	2	-
	20 A	10	6	3	3	2	1
	40 A	22	15	9	8	6	2
	63 A	30	19	11	9	7	3
With compensation	**16 A**	6	6	3	2	2	1
	20 A	8	8	3	2	2	1
	40 A	20	20	8	8	7	3
	63 A	25	25	11	10	9	5

Mercury vapour high pressure

Power unit		50 W	80 W	125 W	250 W	400 W	700 W	1000 W
Without compensation	**16 A**	11	9	7	3	1	-	-
	20 A	12	10	8	3	2	1	-
	40 A	36	27	19	10	7	4	3
	63 A	52	39	27	14	10	6	4
With compensation	**16 A**	9	7	5	3	1	-	-
	20 A	10	8	6	3	2	1	-
	40 A	25	21	14	7	4	3	2
	63 A	30	25	16	9	5	3	2

2 - Motors - Maximum (kW)

	16 A	20 A	40 A	63 A
230 V single phase motor with capacitor	0.9	1.1	2.5	4
400 V 3-phase motor	2.7	3.3	7.5	12

3 - Heating -

Maximum power according to the number of operations per day (kW)

Operations per day	16 A	20 A	40 A	63 A
230 V single phase supply				
≤50	3.5	4.5	9	14
75	3	3.5	7.5	12
100	2.5	3	6	9.5
250	1.5	2	4	6
500	1	1	2.5	4.5
400 V 3-phase supply				
≤50	10	13	26	41
75	9	11	22	35
100	7	9	17	26
250	3	4	8	13
500	2	3	6	9

(1) For a service life of 10 years with 200 day's annual use
(2) Power unit (W), to multiply by 2 (e.g. 2 x 18 W)

Lexic
Remote control dimmer

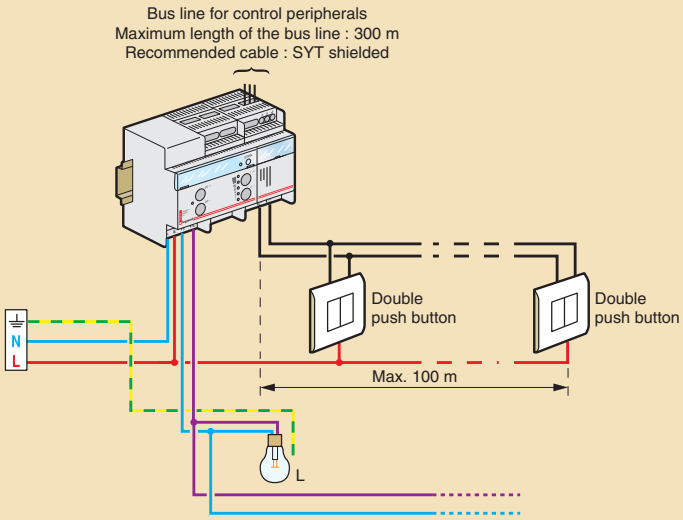
0036 71

Dimensions (p. 170)
Technical data (p. 163)

Pack	Cat. nos.	Dimmers	Number of 17.5 mm modules
1	0036 71	DIN rail mounting For incandescent and halogen lamps 230 V~, ELV halogen lamps with ferromagnetic or electronic transformers Can be controlled with simple non illuminated double push-buttons or BUS peripheral	6

Lexic
Remote control dimmer

■ Dimmer for incandescent and halogen lamps Cat. No. 0036 71



■ Compatible load

Cat.No			❶	❷	❸ Ø-26-/-Ø-36	❹	❺	❻
0036 71	**Max.**	**1-000 W**	yes	yes	no	yes	yes	no
	Min.	**40 W**						

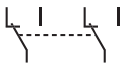
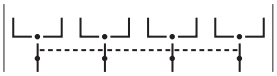
❶ Incandescent lamps
❷ Halogen lamps 230 V
❸ Fluorescent lamps Ø 26 or 36 mm
❹ Halogen lamps with ferromagnetic transformer
❺ Halogen lamps with electronic transformer
❻ Fluocompact lamps with separated electronic ballast 1-10 V

Lexic
change over switches

0043 82

Dimensions (p. 170)

250 V~ - 50/60 Hz
Conform to IEC 60669-1
Power dissipation : 1.5 W per pole
AC 22 as per IEC 60947-3
Terminal capacity - Rigid : 4 mm²
Flexible : 4 mm²
Degree of protection : IP20

Pack	Cat. nos.	Changeover switches	Nominal rating (A)		Number of 17.5 modules
		Two-way - 250 V~			
10/100	0043 82		20		1
		Double two-way - 400 V~			
5/50	**0043 83**		20		2
		Double two-way with centre off - 400 V~			
5/50	0043 86		20		2
		Four Pole two-way centre off - 400 V~			
2/20	6040 22		40		4

Lexic
push-buttons and control switches

0044 53

0044 54

Dimensions (p. 170)

Supplied in push-button position
Can be converted to control switches
Accept insertion of supply busbars
Conform to standard IEC 60669-1
AC 12 according to IEC 60947-5-1
Nominal rating : 20 A
Rated voltage : 250 V
Power dissipation : 2 kW per pole
Nominal frequency : 50/60 Hz
Terminal capacity - Rigid : 4 mm²
Flexible : 4mm²
Degree of protection : IP20

Pack	Cat. nos.	Single functions		Number of 17.5mm modules
		20 A - 250 V~		
10/100	0044 53	1 N/O		1
10/60	0044 54	1 N/C		1
10/60	0044 55	2 N/O		1

Pack	Cat. nos.	Dual functions		Number of 17.5mm modules
10/100	0044 63	1 N/O + green indicator[1]		1
10/60	0044 64	1 N/C + red indicator[1]		1

[1] supplied with E10 lamps 230 VA

Lexic
indicators


0044 84


0044 85


0044 86

Dimensions (p. 170)

Supplied with diffuser and lamp E-10 - 230 V~
Replaceable diffuser and lamp
Allow supply busbar to be inserted

Pack	Cat. nos.	Single indicators 250 V~	Number of 17.5 mm modules
10/100	0044 83	Green	1
10/100	0044 84	Red	1
10/100	0044 85	Orange	1
10/100	0044 86	Blue	1

		Replacement lamps E-10 - 1.2 W
10/200	0044 36	230 V neon

Lexic
ammeter and voltmeter

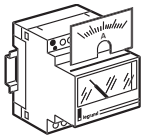

0046 02


0046 00


0046 63

Dimensions (p. 170)
Technical data (p. 166-169)

Pack	Cat. nos.	Ammeters	Number of 17.5 mm modules
		Analogue ammeter Measures the intensity of the current circulating in an electrical circuit in Amperes (A)	
		Direct connection	
1/12	0046 02	To alternating or direct current Range : 0-30 A	4
		Connected using a 5 A current transformer (CT)	
1/12	0046 00	The meter is fitted with an appropriate dial for the intensity of the current being measured	4
		Measuring dials for ammeter cat. no 0046 00	
2/84	0046 10	0-50 A	
2/84	0046 13	0-100 A	
2/84	0046 15	0-200 A	
2/84	0046 17	0-300 A	
2/84	0046 18	0-400 A	
2/84	0046 20	0-600 A	
2/84	0046 21	0-800 A	
2/84	0046 22	0-1-000 A	
2/84	0046 23	0-1-200 A	



		Voltmeters	Number of 17.5 mm modules
		Analogue voltmeter Used to measure the AC or DC voltage (V) in an electrical circuit	
1/12	0046 60	Range 0-500 V	4

		Digital ammeter / voltmeter	
1	0046 63	Display A, kA, V Measures the current or the voltage of the circuit depending on the connection made - Ammeter mode: connected via a 0 - 5 A current transformer (CT) Reading range adjusted according to CT used (100, 400, 600 or 1-000 A) Voltage: 230 V± - 50/60 Hz Scale: 0 - 4-000 A - Voltmeter mode: measures the AC or DC voltage of an electrical circuit; scale 0 - 500 V	4

Lexic
selector switch and current transformer

0046 52

0047 79

Pack	Cat. nos.	Selector switches	
		For manual switching of circuits being measured	
1/20	0046 50	**4-position ammeter selector switch** For measuring currents in a 3-phase circuit using only one ammeter with a current transformer (3 modules)	
1/20	0046 52	**4-position voltmeter selector switch** For measuring phase-to-phase voltages of a 3-phase circuit without neutral using only one voltmeter (3 modules)	
1/20	0046 53	**7-position voltmeter selector switch** For measuring phase-to-phase voltages and phase-neutral voltages of a 3-phase circuit with neutral (3 modules)	

Current transformers (CT)

Used with ammeters or electricity meters
Supply a current of 0 to 5 A to the secondary which is proportional to the primary current
Fix to plate or rail EN 50022

Pack	Cat. nos.	Transformation ratio	Precision in %	Power in VA
1/12	0046 31	50/5	3	1.25
1/12	0046 34	100/5	1	2.5
1/12	0046 36	200/5	1	5.5
1/12	0047 75	300/5	1	11
1/12	0046 38	400/5	1	12
1/12	0047 76	600/5	1	12
1/12	0047 77	800/5	1	15
1/12	0047 78	1000/5	1	20
1/12	0047 79	1250/5	1	15

Lexic
ammeter, voltmeter and current transformer

■ Technical data

Ammeter

Type of measurement	Analogue Ferromagnetic		Digital Electronic via shunt
Frequency	50 to 60 Hz		50 to 60 Hz
Precision	± 1.5 %		± 1% to + 1 digit
Operating temperature	– 10°C to + 40°C		– 10°C to + 40°C
Storage temperature	– 20°C to + 80°C		– 20°C to + 70°C
Consumption :			
• voltage circuit	-		4.5 VA
• measurement circuit	1.1 VA		1 VA
Connection	Direct	Via CT	-
Size	6 mm²	4 mm²	2 x 2.5 mm²
Conformity to standards	EN 61010-1		EN 61010-1

Current transformers (CT)

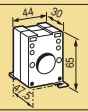
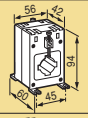
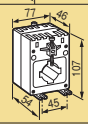
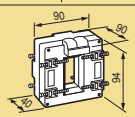
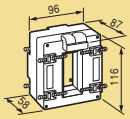
Index of protection	**IP 20**
Operating frequency	50/60 Hz
Connection size : cage terminals	2 x 2.5 mm²
clips	6.3 x 0.8
Operating temperature	- 10°C to + 60°C
Storage temperature	- 20°C to + 70°C
Conformity to standards	IEC 60044-1

Voltmeter

Type of measurement	Analogue Ferromagnetic	Digital Electronic integration
Frequency	50 to 60 Hz	50 to 60 Hz
Precision	± 1.5 %	± 1% to ± 1 digit
Operating temperature	– 10°C to + 40°C	– 10°C to + 40°C
Storage temperature	– 20°C to + 80°C	– 20°C to + 70°C
Consumption	3 VA	4.5 VA
Connection size	2 x 2.5 mm²	2 x 2.5 mm²
Conformity to standards	EN 61010-1	EN 61010-1

■ Current transformers (CT)

Dimensions

		Opening for cable max. Ø (mm)	Opening for bar w. x th. (mm)	Fixing centres on plate (mm)
CT single-phase				
CT 50/5 100/5 200/5		Ø 21	16 x 12.5	on rail EN 50 022
CT 300/5		Ø 23	20.5 x 12.5 25.5 x 11.5 30.5 x 10.5	50 x 45
CT 400/5		Ø 35	40.5 x 10.5	54 x 45
CT 600/5 800/5 1-000/5		-	32 x 65	on bar
CT 1-250/5		-	34 x 84	on bar

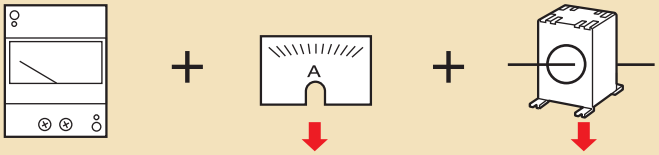
Bold catalogue numbers are products normally available with Legrand (India) stockists.
Cat. nos. that are not bold - delivery within 4 - 8 weeks from the date of order.
Bold packing quantity is our mandatory packing. Orders to be placed by Legrand (India) stockists in multiples of the same.

Lexic
ammeter

■ Technical data

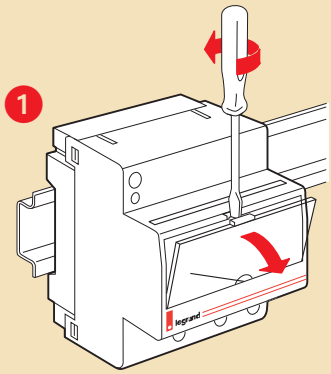
Installation

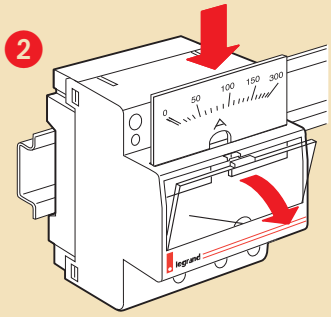
Analogue ammeter
0046 00

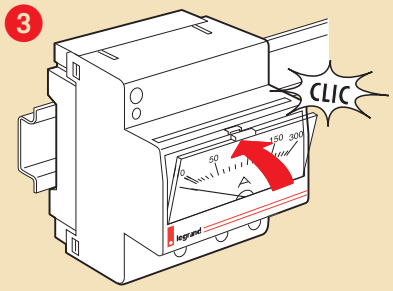


IMAX : 5 A

0046 10	0-50 A	**0046 30**	50/5 A
0046 13	0-100 A	**0046 23**	100/5 A
0046 15	0-200 A	**0046 35**	200/5 A
0046 17	0-300 A	**0046 37**	300/5 A
0046 18	0-400 A	**0046 38**	400/5 A
0046 20	0-600 A	**0046 40**	600/5 A
0046 21	0-800 A	**0046 41**	800/5 A
0046 22	0-1000 A	**0046 42**	1000/5 A
0046 23	0-1200 A	**0046 43**	1200/5 A



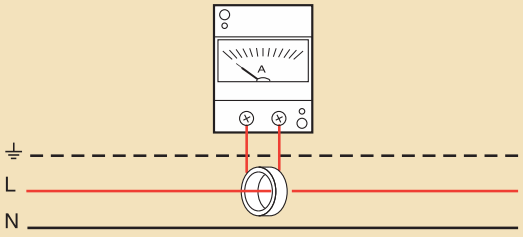




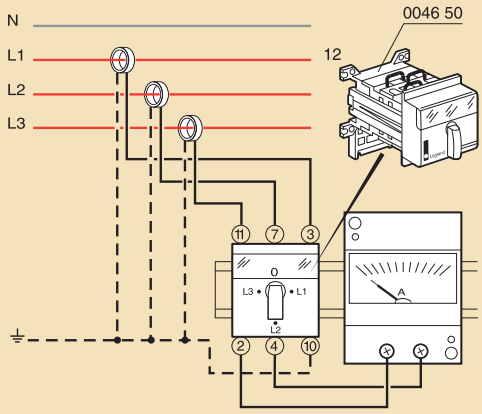
Connection

Analogue ammeter
0046 00

Single phase



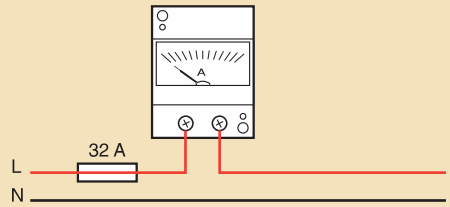
Three phase



0-30 A Analogue ammeter
0046 02

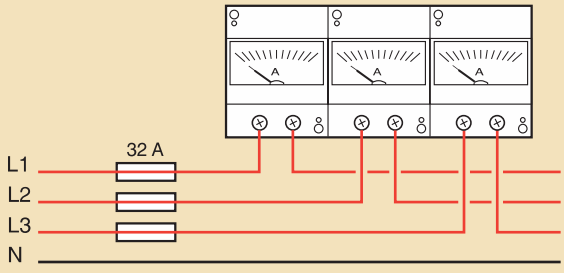
Single phase

IMAX : 30 A



Three phase

IMAX : 30 A



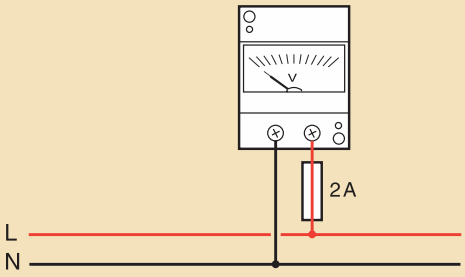
Dimensions in mm,
1 inch = 25.4mm

Lexic
ammeter and voltmeter

■ Technical data

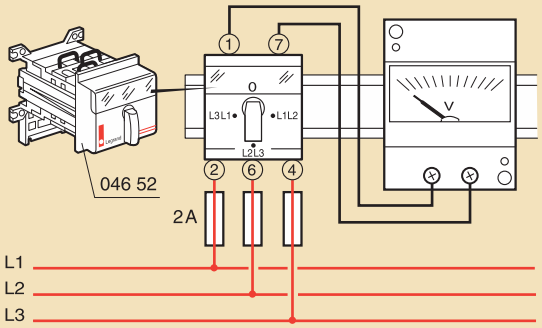
Connection

Analogue voltmeter
0046 60
Single phase



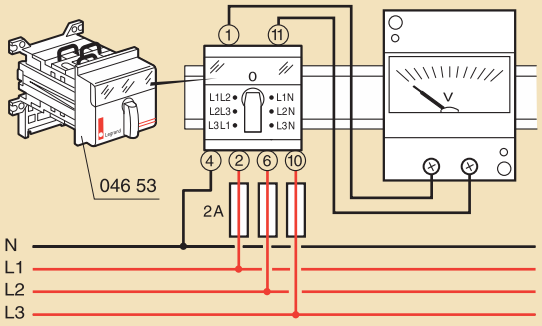
Three - phase

With 4 position switch cat. no. 0046 52 : Measurement between phases in three phase circuit.



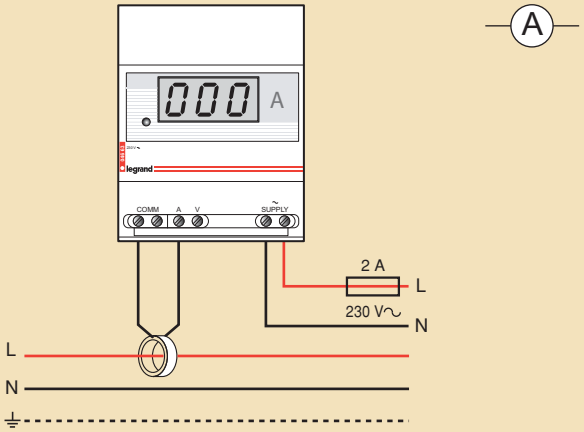
Three-phase

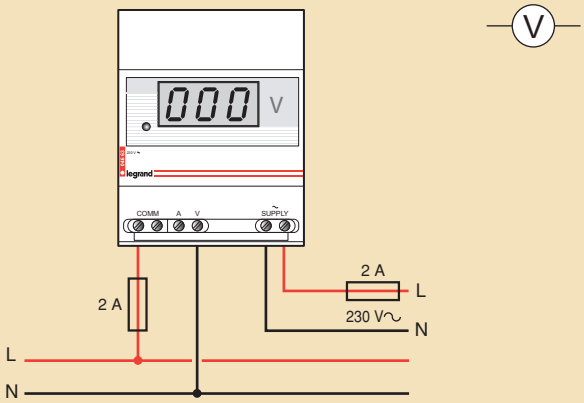
With 7 position switch cat. no. 0046 53 : Measurement between phases and between phase and neutral in a three-phase + neutral circuit.



Connection

Digital ammeter / voltmeter
0046 63
Single phase





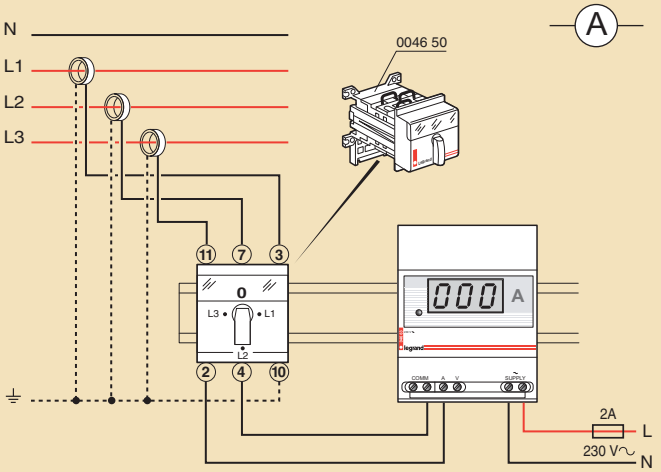
Dimensions in mm,
1 inch = 25.4mm

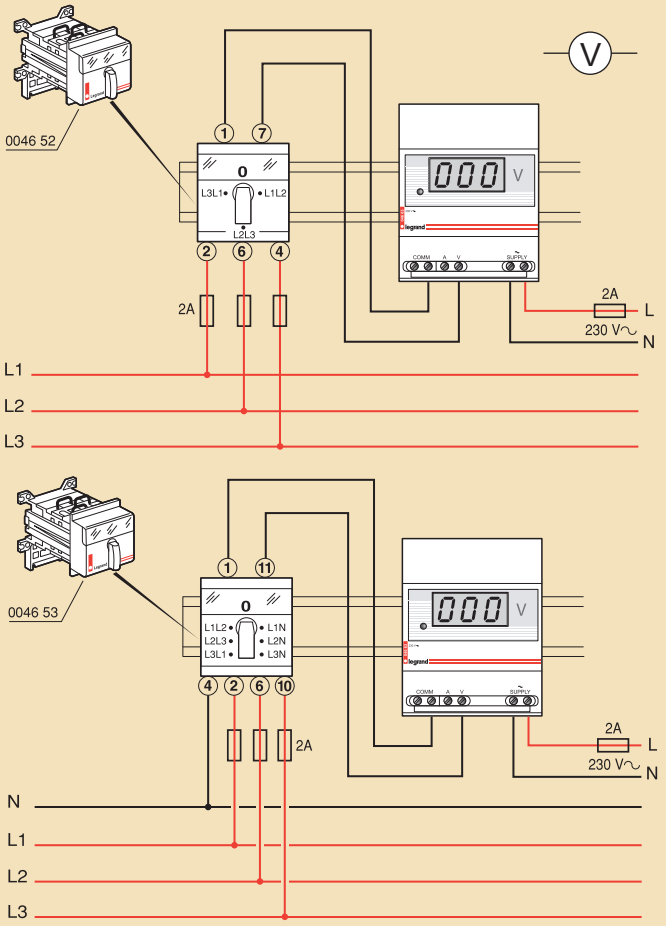
Lexic
ammeter and voltmeter

■ Technical data

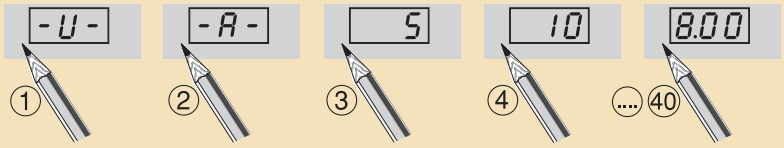
Connection

Digital ammeter / voltmeter
0046 63
Three phase





- **Display**

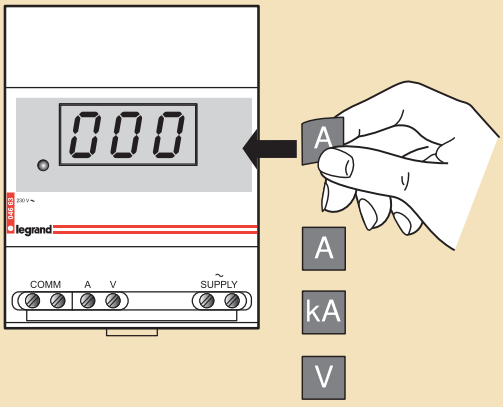


-U- = 500V -A 5 = 5A 10 = 10A 8.00 = 8kA

A	5.00	10.0	15.0	20.0	25.0	30.0	40.0	50.0	60.0	70.0	75.0	80.0	100
	120	150	160	200	250	300	400	500	600	700	750	800	
kA	1.00	1.20	1.50	1.60	2.00	2.50	3.00	4.00	5.00	6.00	7.00	7.50	8.00
V	500												

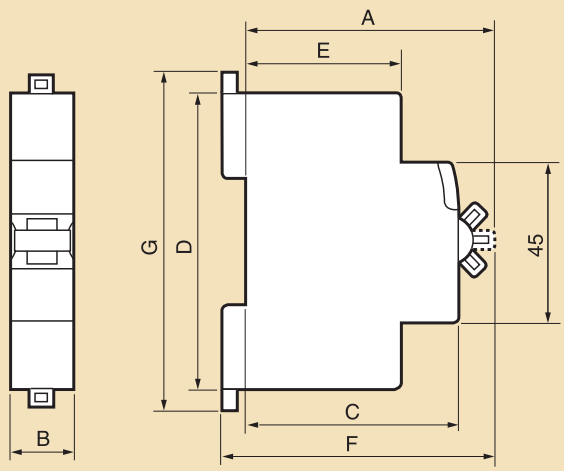
Select the desired measure (V or A) by pressing repeatedly on the button.If“A”is selected,press repeatedly on the button to choose the desired rating (see table below).When the selection display is cleared,your selection has been saved.

- **Marking**



Dimensions in mm,
1 inch = 25.4mm

■ Dimensions



Products	A	B						C	D	E	F	G
		SP	SPN	DP	TP	TPN	FP					
Lexic MCBs (0.5 to 63A)	70	17.7	35.6	35.6	53.4	71.2	71.2	60	83	44	76	94
Lexic MCBs (80 - 125A)	70	26.7	-	53.4	80.1	-	106.8	60	83	44	76	89
Lexic Isolators	70	-	-	35.6	53.4	-	71.2	60	83	44	76	94
Lexic RCCB - type AC (DP)	70	-	-	35.6	-	-	-	60	83	44	76	94
Lexic RCCB - type AC (FP)	71.5	-	-	-	-	-	71.2	60	83	44	77.5	94
Lexic RCCB - type A - S (DP)	70	-	-	35.6	-	-	-	60	83	44	76	94
Lexic RCCB - type A - S (FP)	71.5	-	-	-	-	-	71.2	60	83	44	77.5	94
Lexic RCCB - type Hpi (DP)	70	-	-	35.6	-	-	-	60	83	44	76	94
Lexic RCCB - type Hpi (FP)	71.5	-	-	-	-	-	71.2	60	83	44	77.5	94
Lexic RCBO - type AC	70	-	-	71.2	-	-	142.4	60	83	44	76	94
Lexic RCBO - type AC (DP 2 mod.)	70	-	-	35.6	-	-	-	60	83	44	76	94
Lexic RCBO - type Hpi (DP 2 mod.)	70	-	-	35.6	-	-	-	60	83	44	76	94
Auxiliary contacts cat. no. 0073 50/51/52/53	70	8.7						60	83	44	76	83
Auxiliary contacts cat. no. 0073 54	70	17.7						60	83	44	76	83
Shunt trip cat. no. 0073 60/61	70	17.7						60	83	44	76	83
Minimum voltage trip cat. no. 0037 54	70	17.7						60	83	44	76	83
Remote control for MCB / RCBO	74	54						74	83	44	80.5	89
Lexic MPCB	82.5	44.5						72.2	89	44	87.3	91
Lexic VSP	60	17.7	-	35.6	53.4	-	71.2	-	86	44	70	-
Lexic changeover switch cat. no. 0043 82	68	17.7						60	83	44	74	94
Lexic changeover switch cat. no. 0043 83/86	68	35.6						60	83	44	74	94
Lexic push button cum switch	68	17.7						60	83	44	74	94
Lexic indicators	68	17.7						60	83	44	74	-
Lexic dimmer	66	72						60	88	44	72	90
Lexic contactors 20 A	62	17.8						60	83	44	67.5	-
Lexic contactors 40 A (2 mod.)	60	35.6						61	80	44	67	-
Lexic contactors 40 A / 63 A (3 mod.)	60	54						61	80	44	67	-
Lexic ammeter	60	70						60	83	44	66	-
Lexic voltmeter	60	70						60	83	44	66	-
Lexic selector switch	60	52.5						69	74	44.5	74	-

Dimensions in mm,
1 inch = 25.4mm

Loadster
circuit breakers upto 60 A


L43105RO


L43205RO

Dimensions (p. 172)
Technical data (p. 173)

Conforms to IEC 60947-2
Breaking capacity upto 3 kA
Surface mounting

Single pole 240/415 V~

Pack	Cat. nos.	Nominal rating (A)
1/55	L43001RO	0.5
1/55	L43003RO	1
1/55	L43004RO	2
1/55	L43005RO	2.5
1/**55**	**L43105RO**	5
1/55	L43107RO	7.5
1/**55**	**L43110RO**	10
1/55	L43112RO	12.5
1/**55**	**L43115RO**	15
1/**55**	**L43120RO**	20
1/55	L43125RO	25
1/**55**	**L43130RO**	30
1/55	L43135RO	35
1/55	L43140RO	40
1/55	L43150RO	50
1/55	L43160RO	60

Double pole 240/415 V~

		Nominal rating (A)
1/24	L43205RO	5
1/24	L43210RO	10
1/24	L43215RO	15
1/24	L43220RO	20
1/24	L43225RO	25
1/24	L43230RO	30
1/24	L43235RO	35
1/24	L43240RO	40
1/24	L43250RO	50
1/24	L43260RO	60


L43305RO


L43420RO

Dimensions (p. 172)
Technical data (p. 173)

Conforms to IEC 60947-2
Breaking capacity 3 kA
Surface mounting

Triple pole 240/415 V~

Pack	Cat. nos.	Nominal rating (A)
1/16	L43305RO	5
1/16	L43310RO	10
1/16	**L43315RO**	15
1/16	L43320RO	20
1/16	L43325RO	25
1/16	**L43330RO**	30
1/16	L43335RO	35
1/16	L43340RO	40
1/16	L43350RO	50
1/16	**L43360RO**	60

Four pole 240/415 V~

		Nominal rating (A)
1/12	L43405RO	5
1/12	L43410RO	10
1/12	L43415RO	15
1/12	L43420RO	20
1/12	L43425RO	25
1/12	**L43430RO**	30
1/12	L43435RO	35
1/12	L43440RO	40
1/12	L43450RO	50
1/12	**L43460RO**	60

Note: Breaking capacity for current rating 0.5 A to 2.5 A is 1500 A
Breaking capacity for current rating 5 A to 60 A is 3000 A

Loadster
isolators

Loadster Isolators

L43299IO

Dimensions (p. 172)

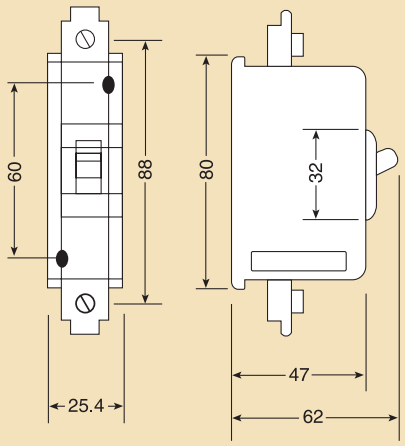
Pack	Cat. nos.	Single pole + Neutral 240/415 V~
		Nominal rating (A)
1/16	L43098IO	30
1/16	L43099IO	60
1/16	L43100IO	100

		Triple pole 240/415 V~
		Nominal rating (A)
1/16	L43298IO	30
1/16	L43299IO	60
1/16	L43300IO	100

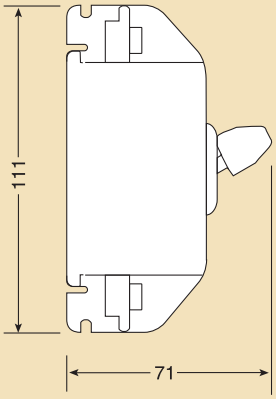
		Four pole 240/415 V~
		Nominal rating (A)
1/12	L43398IO	30
1/12	L43399IO	60
1/12	L43400IO	100

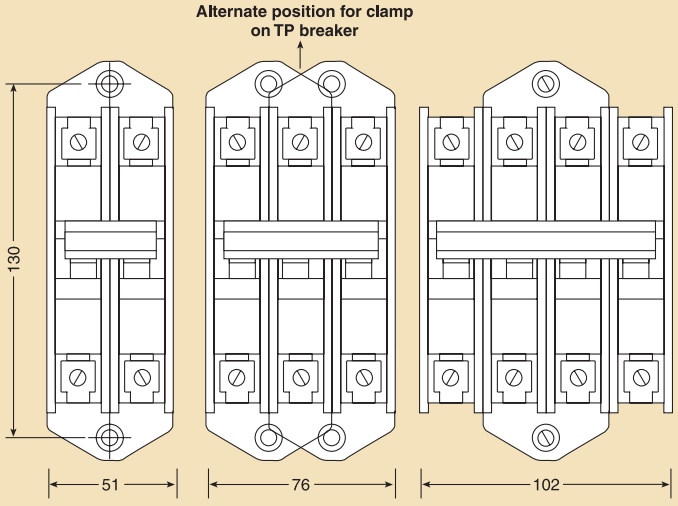
■ Dimensions

Side view of single pole Loadster



Side view of multiple pole Loadsters





Dimensions in mm,
1 inch = 25.4mm

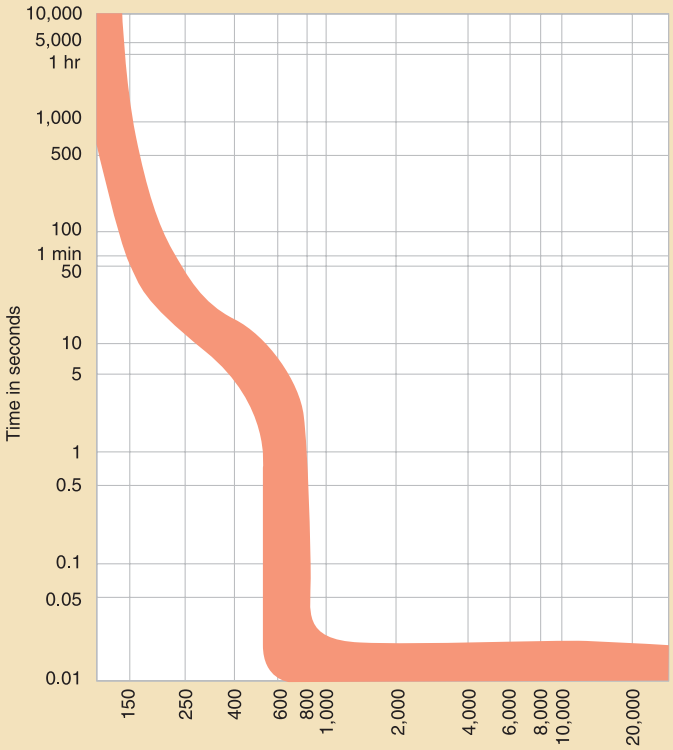
Bold catalogue numbers are products normally available with Legrand (India) stockists.
Cat. nos. that are not bold - delivery within 4 - 8 weeks from the date of order.
Bold packing quantity is our mandatory packing. Orders to be placed by Legrand (India) stockists in multiples of the same.

Loadster MCBs

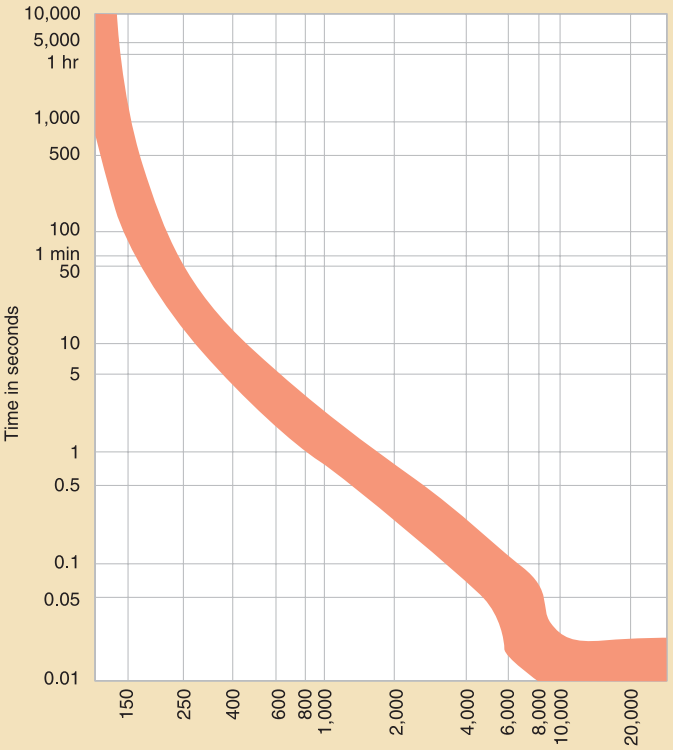
■ Technical data

Tripping characteristics at reference ambient temperature 40° C

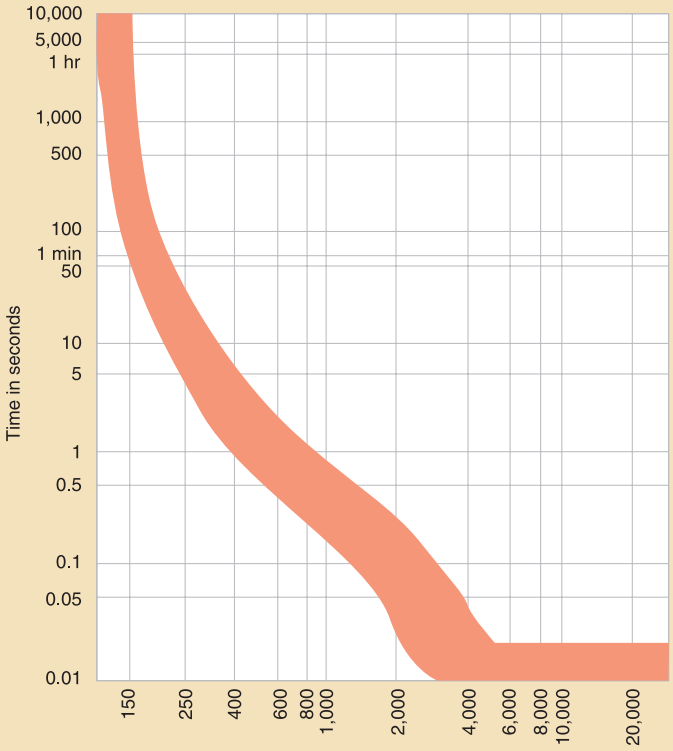
Percent rated current (0.5/2.5 amps.)



Percent rated current (5/10 amps.)



Percent rated current (15-30 amps.)



Percent rated current (35-60 amps.)