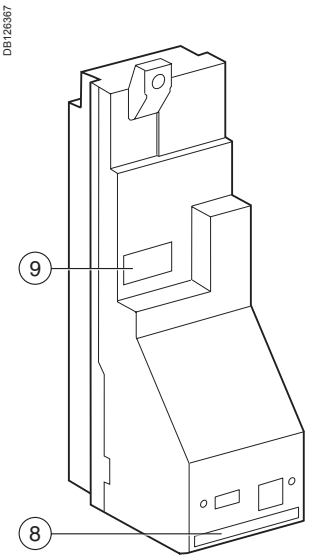
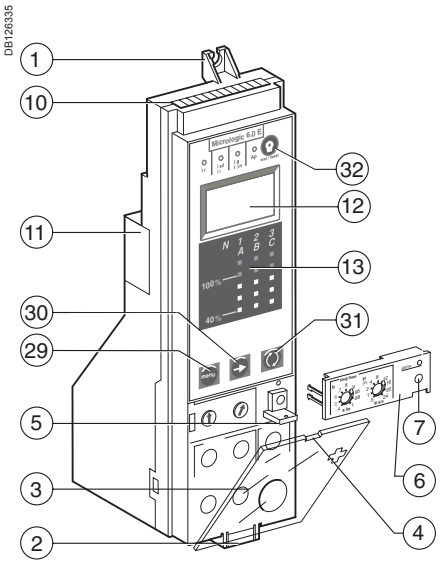
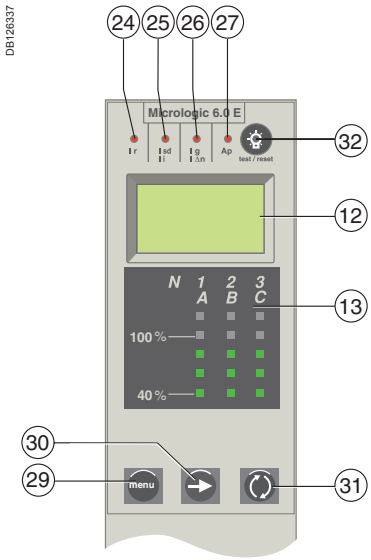
Presentation







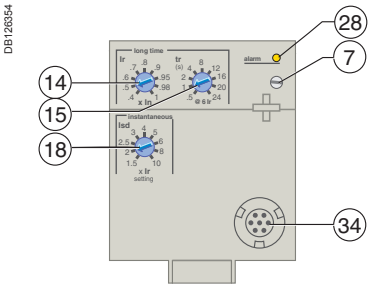
1 top fastener
2 bottom fastener
3 protective cover
4 cover opening point
5 lead-seal fixture for protective cover
6 long-time rating plug
7 screw for long-time rating plug
8 connection with circuit breaker
9 infrared link with communication interfaces
10 terminal block for external connections
11 battery compartment
12 digital display
13 three-phase bargraph and ammeter

Adjustment dials
14 long-time current setting Ir
15 long-time tripping delay tr
16 short-time pickup Isd
17 short-time tripping delay tsd
18 instantaneous pick-up Isd
19 instantaneous pick-up Ii
20 ground-fault pick-up Ig
21 ground-fault tripping delay tg
22 earth-leakage pick-up IΔn
23 earth-leakage tripping delay Δt

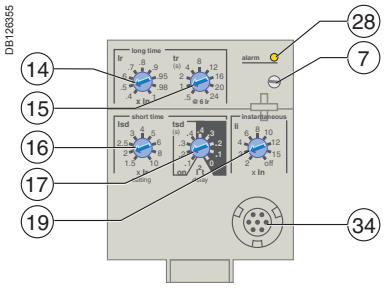
Indications
24 LED indicating long-time tripping
25 LED indicating short-time tripping
26 LED indicating ground-fault or earth-leakage tripping
27 LED indicating auto-protection tripping
28 LED indicating an overload

Navigation
29 menu selection button
30 menu scroll button
31 "Quick View" navigation button (Micrologic E only)
32 fault-trip reset and battery test button

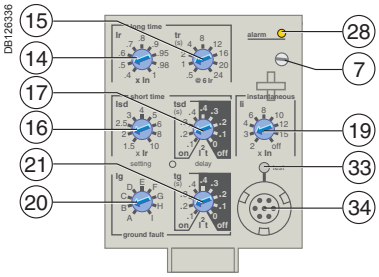
Test
33 test button for ground-fault and earth-leakage protection
34 test connector



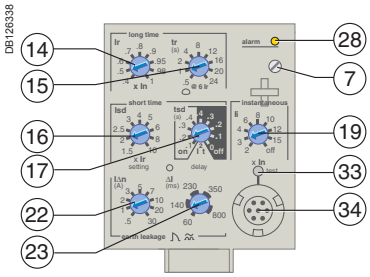
Micrologic 2.0 A/E



Micrologic 5.0 A/E



Micrologic 6.0 A/E

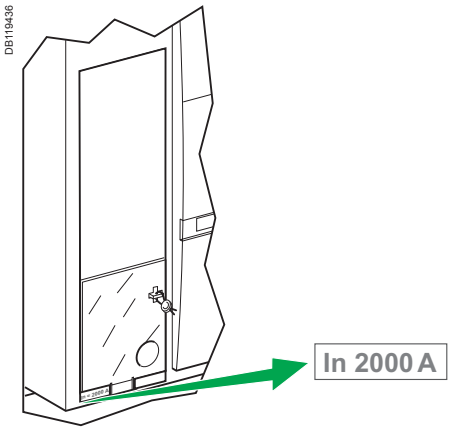


Micrologic 7.0 A

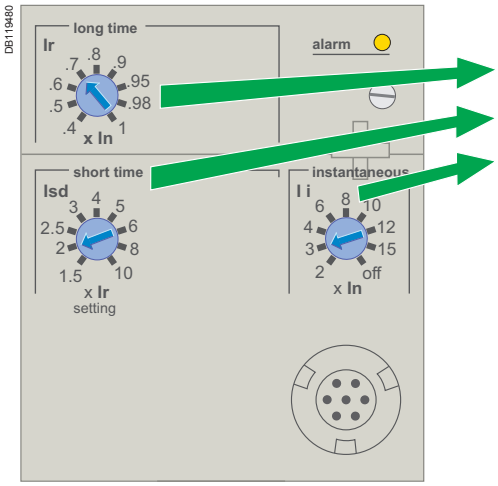
Setting the Micrologic 5.0 A/E control unit

See pages 10 to 12 for information on the available settings.

The rating of the circuit breaker in this example is 2000 A.



Set the threshold values



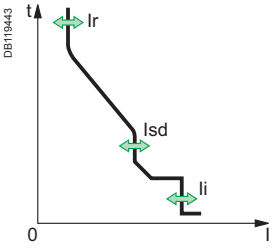
In = 2000 A

Ir = 0.7 x In = 1400 A

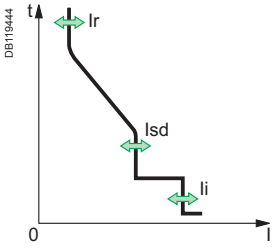
Isd = 2 x Ir = 2800 A

Ii = 3 x In = 6000 A

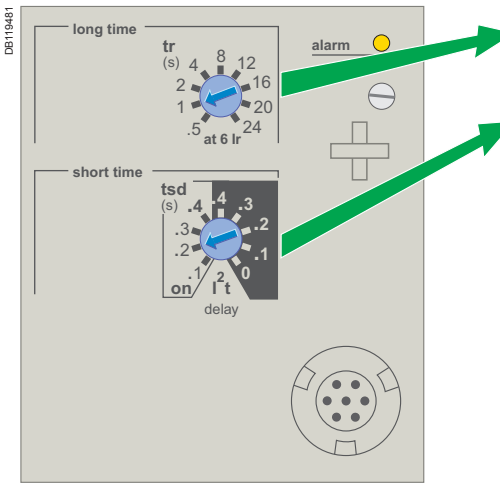
I²t ON curve



I²t OFF curve



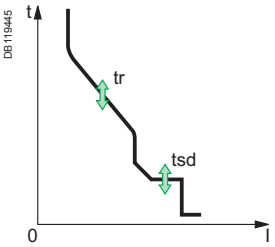
Set the tripping delays



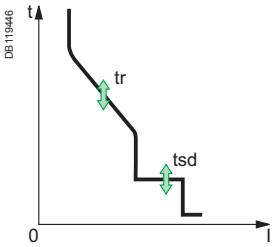
tr = 1 s

tsd = 0.2 s

I²t ON curve



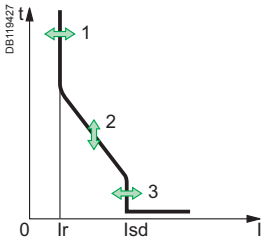
I²t OFF curve



Current protection
Micrologic A and Micrologic E

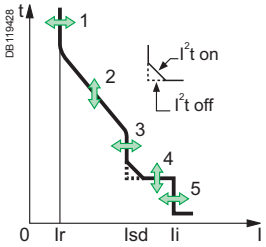
Protection settings
You can set the tripping curve of your control unit to match the needs of your installation using the parameters presented below.

Micrologic 2.0 A/E



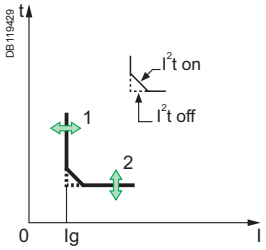
1. current setting Ir (long time)
2. tripping delay tr (long time) for 6 x Ir
3. pick-up Isd (instantaneous)

Micrologic 5.0 A/E, 6.0 A/E, 7.0 A



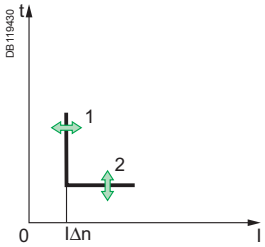
1. current setting Ir (long time)
2. tripping delay tr (long time) for 6 x Ir
3. pick-up Isd (short time)
4. tripping delay tsd (short time)
5. pick-up Ii (instantaneous)

Micrologic 6.0 A/E



1. pick-up Ig (ground fault)
2. tripping delay tg (ground fault)

Micrologic 7.0 A



1. pick-up IΔn (earth leakage)
2. tripping delay Δt (earth leakage)

Long-time protection
The long-time protection function protects cables (phases and neutral) against overloads. This function is based on true rms measurements.

Thermal memory
The thermal memory continuously accounts for the amount of heat in the cables, both before and after tripping, whatever the value of the current (presence of an overload or not). The thermal memory optimises the long-time protection function of the circuit breaker by taking into account the temperature rise in the cables. The thermal memory assumes a cable cooling time of approximately 15 minutes.

Long-time current setting Ir and standard tripping delay tr

Micrologic control unit		Accuracy	2.0 A/E, 5.0 A/E, 6.0 A/E and 7.0 A								
Current setting tripping between 1.05 and 1.20 x Ir	Ir = In (*) x …		0.4	0.5	0.6	0.7	0.8	0.9	0.95	0.98	1
			other ranges or disable by changing rating plug								
Time delay (s)	tr at 1.5 x Ir	0 to - 30 %	12.5	25	50	100	200	300	400	500	600
	tr at 6 x Ir	0 to - 20 %	0.5	1	2	4	8	12	16	20	24
	tr at 7.2 x Ir	0 to - 20 %	0.34	0.69	1.38	2.7	5.5	8.3	11	13.8	16.6

** In: circuit breaker rating*

The accuracy of the Ir setting may be enhanced by using a different long-time rating plug.
See "Changing the long-time rating plug" in the technical appendix.

Current protection
Micrologic A and Micrologic E

For the characteristics and external wiring of the zone selective interlocking function, see "Zone selective interlocking" in the technical appendix.

The portable test kit can be used to test the wiring between circuit breakers for the zone selective interlocking function.

Short-time protection

■ The short-time protection function protects the distribution system against impedant short-circuits.
■ The short-time tripping delay can be used to ensure discrimination with a downstream circuit breaker.
■ This function carries out true rms measurements.
■ The I^2t ON and I^2t OFF options enhance discrimination with downstream protection devices.
■ Use of I^2t curves with short-time protection:
□ I^2t OFF selected: the protection function implements a constant time curve;
□ I^2t ON selected: the protection function implements an I^2t inverse-time curve up to 10 Ir. Above 10 Ir, the time curve is constant.
■ Zone selective interlocking (ZSI).
The short-time and ground-fault protection functions enable time discrimination by delaying the upstream devices to provide the downstream devices the time required to clear the fault. Zone selective interlocking can be used to obtain total discrimination between circuit breakers using external wiring.

Short-time pick-up Isd and tripping delay tsd

Micrologic control unit			2.0 A/E, 5.0 A/E, 6.0 A/E and 7.0 A								
Pick-up	Isd = Ir x … accuracy ± 10 %		1.5	2	2.5	3	4	5	6	8	10
Time delay (ms)	settings	I^2t OFF	0	0.1	0.2	0.3	0.4				
at 10 Ir		I^2t ON		0.1	0.2	0.3	0.4				
I^2t ON or	tsd (max resettable time)		20	80	140	230	350				
I^2t OFF	tsd (max break time)		80	140	200	320	500				

Instantaneous protection

■ The instantaneous-protection function protects the distribution system against solid short-circuits. Contrary to the short-time protection function, the tripping delay for instantaneous protection is not adjustable.
The tripping order is sent to the circuit breaker as soon as current exceeds the set value, with a fixed time delay of 20 milliseconds.
■ This function carries out true rms measurements.

Instantaneous pick-up Isd

Micrologic control unit		2.0 A/E								
Pick-up	Isd = Ir x … accuracy ± 10 %	1.5	2	2.5	3	4	5	6	8	10

Instantaneous pick-up Ii

Micrologic control unit		5.0 A/E, 6.0 A/E and 7.0 A								
Pick-up	Ii = In (*) x … accuracy ± 10 %	2	3	4	6	8	10	12	15	OFF

** In: circuit-breaker rating*

Current protection
Micrologic A and Micrologic E

Protection of the neutral conductor on four-pole circuit breakers

Protection of the neutral conductor depends on the distribution system.
There are three possibilities.

Type of neutral	Description
Neutral unprotected	The distribution system does not require protection of the neutral conductor.
Half neutral protection (at 0.5 In)	The cross-sectional area of the neutral conductor is half that of the phase conductors. ■ The long-time current setting Ir for the neutral is equal to half the setting value. ■ The short-time pick-up Isd for the neutral is equal to half the setting value. ■ The instantaneous pick-up Isd (Micrologic 2.0 A/E) for the neutral is equal to half the setting value. ■ The instantaneous pick-up Ii (Micrologic 5.0 A/E / 6.0 A/E / 7.0 A) for the neutral is equal to the setting value.
Full neutral protection (at In)	The cross-sectional area of the neutral conductor is equal to that of the phase conductors. ■ The long-time current setting Ir for the neutral is equal to the setting value. ■ The short-time pick-up Isd for the neutral is equal to the setting value. ■ The instantaneous pick-ups Isd and Ii for the neutral are equal to the setting value.

Neutral protection for three-pole devices

Neutral protection is not available on three-pole devices.