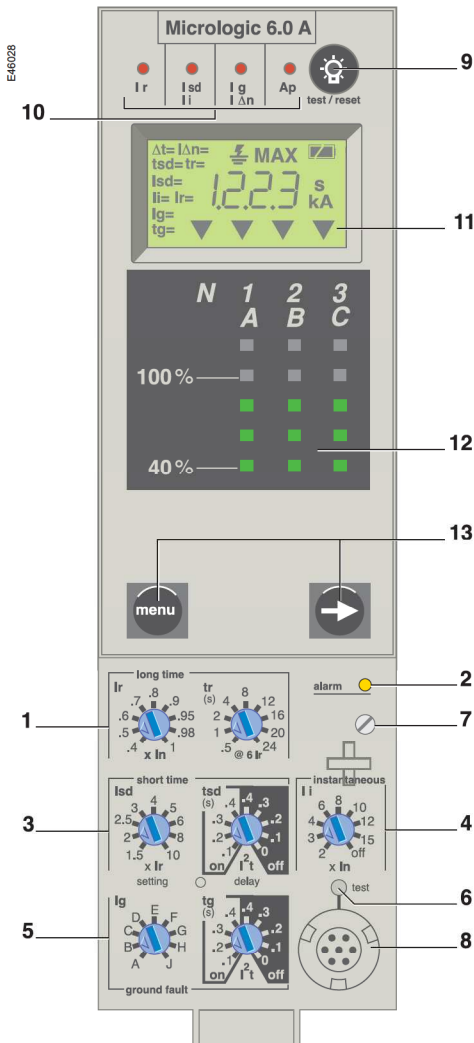


Micrologic A control units protect power circuits. They also offer measurements, display, communication and current maximeters. Version 6 provides earth-fault protection, version 7 provides earth-leakage protection.



- 1 long-time threshold and tripping delay
- 2 overload alarm (LED) at 1,125  $I_r$
- 3 short-time pick-up and tripping delay
- 4 instantaneous pick-up
- 5 earth-leakage or earth-fault pick-up and tripping delay
- 6 earth-leakage or earth-fault test button
- 7 long-time rating plug screw
- 8 test connector
- 9 lamp test, reset and battery test
- 10 indication of tripping cause
- 11 digital display
- 12 three-phase bargraph and ammeter
- 13 navigation buttons

## Protection

Protection thresholds and delays are set using the adjustment dials.

### Overload protection

True rms long-time protection.

Thermal memory: thermal image before and after tripping.

Setting accuracy may be enhanced by limiting the setting range using a different long-time rating plug.

Overload protection can be cancelled using a specific LT rating plug "Off".

### Short-circuit protection

Short-time (rms) and instantaneous protection.

Selection of  $I^2t$  type (ON or OFF) for short-time delay.

### Earth-fault protection

Residual or source ground return earth fault protection.

Selection of  $I^2t$  type (ON or OFF) for delay.

### Residual earth-leakage protection (Vigi).

Operation without an external power supply.

$\Delta$  Protected against nuisance tripping.

$\sim$  DC-component withstand class A up to 10 A.

### Neutral protection

On three-pole circuit breakers, neutral protection is not possible.

On four-pole circuit breakers, neutral protection may be set using a three-position switch: neutral unprotected (4P 3d), neutral protection at 0.5  $I_r$  (4P 3d + N/2), neutral protection at  $I_r$  (4P 4d).

### Zone selective interlocking (ZSI)

A ZSI terminal block may be used to interconnect a number of control units to provide total discrimination for short-time and earth-fault protection, without a delay before tripping.

### Overload alarm

A yellow alarm LED goes on when the current exceeds the long-time trip threshold.

## "Ammeter" measurements

Micrologic A control units measure the true (rms) value of currents.

They provide continuous current measurements from 0.2 to 20  $I_n$  and are accurate to within 1.5 % (including the sensors).

A digital LCD screen continuously displays the most heavily loaded phase ( $I_{max}$ ) or displays the  $I_1$ ,  $I_2$ ,  $I_3$ ,  $I_n$ ,  $I_b$ ,  $I_{\Delta n}$ , stored-current (maximeter) and setting values by successively pressing the navigation button.

The optional external power supply makes it possible to display currents < 20 %  $I_n$ . Below 0.05  $I_n$ , measurements are not significant. Between 0.05 and 0.2  $I_n$ , accuracy is to within 0.5 %  $I_n$  + 1.5 % of the reading.

## Communication option

In conjunction with the COM communication option, the control unit transmits the following:

- settings
- all "ammeter" measurements
- tripping causes
- maximeter readings.

## Fault indications

LEDs indicate the type of fault:

- overload (long-time protection  $I_r$ )
- short-circuit (short-time  $I_{sd}$  or instantaneous  $I_i$  protection)
- earth fault or earth leakage ( $I_g$  or  $I_{\Delta n}$ )
- internal fault ( $A_p$ ).

## Battery power

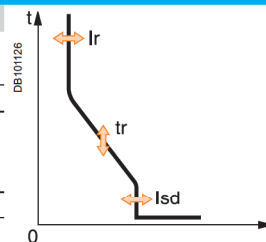
The fault indication LEDs remain on until the test/reset button is pressed. Under normal operating conditions, the battery supplying the LEDs has a service life of approximately 10 years.

## Test

A mini test kit or a portable test kit may be connected to the test connector on the front to check circuit-breaker operation. For Micrologic 6.0 A and 7.0 A control units, the operation of earth-fault or earth-leakage protection can be checked by pressing the test button located above the test connector.

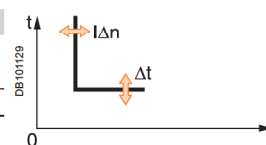
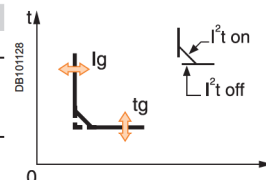
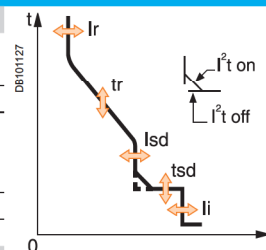
**Note:** Micrologic A control units come with a transparent lead-seal cover as standard.

Protection		Micrologic 2.0 A									
<b>Long time</b>		<b>Micrologic 2.0 A</b>									
Current setting (A)	$I_r = I_n \times \dots$	0.4	0.5	0.6	0.7	0.8	0.9	0.95	0.98	1	
Tripping between 1.05 and 1.20 x $I_r$		Other ranges or disable by changing long-time rating plug									
Time setting	<b>tr (s)</b>	0.5	1	2	4	8	12	16	20	24	
Time delay (s)	Accuracy: 0 to -30 %	1.5 x $I_r$	12.5	25	50	100	200	300	400	500	600
	Accuracy: 0 to -20 %	6 x $I_r$	0.7 <sup>(1)</sup>	1	2	4	8	12	16	20	24
	Accuracy: 0 to -20 %	7.2 x $I_r$	0.7 <sup>(2)</sup>	0.69	1.38	2.7	5.5	8.3	11	13.8	16.6
Thermal memory		20 minutes before and after tripping									
(1) 0 to -40 % - (2) 0 to -60 %											
<b>Instantaneous</b>											
Pick-up (A)	$I_{sd} = I_r \times \dots$	1.5	2	2.5	3	4	5	6	8	10	
Accuracy: $\pm 10$ %											
Time delay		Max resettable time: 20 ms Max break time: 80 ms									



Ammeter		Micrologic 2.0 A			
<b>Continuous current measurements</b>					
Display from 20 to 200 % of $I_n$		$I_1$	$I_2$	$I_3$	$I_n$
Accuracy: 1.5 % (including sensors)		No auxiliary source (where $I > 20$ % $I_n$ )			
Maximeters		$I_1$ max	$I_2$ max	$I_3$ max	$I_n$ max

Protection		Micrologic 5.0 / 6.0 / 7.0 A									
<b>Long time</b>		<b>Micrologic 5.0 / 6.0 / 7.0 A</b>									
Current setting (A)	$I_r = I_n \times \dots$	0.4	0.5	0.6	0.7	0.8	0.9	0.95	0.98	1	
Tripping between 1.05 and 1.20 x $I_r$		Other ranges or disable by changing long-time rating plug									
Time setting	<b>tr (s)</b>	0.5	1	2	4	8	12	16	20	24	
Time delay (s)	Accuracy: 0 to -30 %	1.5 x $I_r$	12.5	25	50	100	200	300	400	500	600
	Accuracy: 0 to -20 %	6 x $I_r$	0.7 <sup>(1)</sup>	1	2	4	8	12	16	20	24
	Accuracy: 0 to -20 %	7.2 x $I_r$	0.7 <sup>(2)</sup>	0.69	1.38	2.7	5.5	8.3	11	13.8	16.6
Thermal memory		20 minutes before and after tripping									
(1) 0 to -40 % - (2) 0 to -60 %											
<b>Short time</b>											
Pick-up (A)	$I_{sd} = I_r \times \dots$	1.5	2	2.5	3	4	5	6	8	10	
Accuracy: $\pm 10$ %											
Time setting tsd (s)	Settings	$I^2t$ Off	0	0.1	0.2	0.3	0.4				
		$I^2t$ On	-	0.1	0.2	0.3	0.4				
Time delay (ms) at 10 x $I_r$ ( $I^2t$ Off or $I^2t$ On)	tsd (max resettable time)		20	80	140	230	350				
	tsd (max break time)		80	140	200	320	500				
<b>Instantaneous</b>											
Pick-up (A)	$I_i = I_n \times \dots$	2	3	4	6	8	10	12	15	off	
Accuracy: $\pm 10$ %											
Time delay		Max resettable time: 20 ms Max break time: 50 ms									
<b>Earth fault</b>		<b>Micrologic 6.0 A</b>									
Pick-up (A)	$I_g = I_n \times \dots$	A	B	C	D	E	F	G	H	J	
Accuracy: $\pm 10$ %	$I_n \leq 400$ A	0.3	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1	
	$400$ A < $I_n$ < $1250$ A	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1	
	$I_n \geq 1250$ A	500	640	720	800	880	960	1040	1120	1200	
Time setting tg (s)	Settings	$I^2t$ Off	0	0.1	0.2	0.3	0.4				
		$I^2t$ On	-	0.1	0.2	0.3	0.4				
Time delay (ms)	tg (max resettable time)		20	80	140	230	350				
	tg (max break time)		80	140	200	320	500				
<b>Residual earth leakage (Vigi)</b>		<b>Micrologic 7.0 A</b>									
Sensitivity (A)	$I_{\Delta n}$	0.5	1	2	3	5	7	10	20	30	
Accuracy: 0 to -20 %											
Time delay $\Delta t$ (ms)	Settings		60	140	230	350	800				
	$\Delta t$ (max resettable time)		60	140	230	350	800				
	$\Delta t$ (max break time)		140	200	320	500	1000				



Ammeter		Micrologic 5.0 / 6.0 / 7.0 A					
<b>Continuous current measurements</b>							
Display from 20 to 200 % of $I_n$		$I_1$	$I_2$	$I_3$	$I_n$	$I_g$	$I_{\Delta n}$
Accuracy: 1.5 % (including sensors)		No auxiliary source (where $I > 20$ % $I_n$ )					
Maximeters		$I_1$ max	$I_2$ max	$I_3$ max	$I_n$ max	$I_g$ max	$I_{\Delta n}$ max

**Note:** All current-based protection functions require no auxiliary source.  
The test / reset button resets maximeters, clears the tripping indication and tests the battery.