

## Earth Leakage Relays

Contrel offer a full range of electronic earth leakage sensors. They differ from the standard RCD passive product, in that they are constantly monitoring the circuit, and are therefore said to provide active protection, the electronic circuitry is not only checking for earth leakage currents, but it is also checking itself and the external current toroidal transformer (CT) loop to make sure it is healthy.

The great advantage of using electronic circuitry is that we can offer a fully adjustable sensor for both time and current. All Contrel sensors are built around this principal, the only difference being the packaging of the sensor, whether or not it is din-rail mounted and whether it uses an external CT or has its own CT built-in.

Toroidal transformers with apertures from 35 - 210mm internal ID are available, or for those applications where you need to fit an individual CT to each bus-bar, a summation system can be used.



Earth Leakage Relays			
Type	DIN rail mounting	Settings adjustment	Transformer location
ELR-3C	Yes	Potentiometers	Remote
ELR-3E1	Yes	Dipswitches	Remote
ELRC-B	Yes	Potentiometers	Remote
ELR-7	No	Potentiometers	Remote
ELRC-1/35	No	Dipswitches	Internal 35mm
ELRC-1/60	No	Dipswitches	Internal 60mm
ELRC-1/80	No	Dipswitches	Internal 80mm
ELRC-1/110	No	Dipswitches	Internal 110mm

**Standard Range of Adjustment**  
 Current: 0.025A(25mA) - 25A Time: 20mS - 5seconds

Toroidal Transformers (CTs)				
Type	Internal Diameter	width	height	depth
CT - 1/35	35mm	100mm	110mm	30mm
CT - 1/60	60mm	100mm	110mm	30mm
CT - 1/80	80mm	150mm	160mm	30mm
CT - 1/110	110mm	150mm	160mm	30mm
CT - 1/160	160mm	275mm	270mm	44mm
CT - 1/210	210mm	300mm	300mm	40mm

This is a representative selection of the range. For the complete information with full technical specifications please ask for the separate catalogue.

## Multifunction Meters

Contrel digital multifunction meters of the EMM series allow the measurement of all the main electrical parameters in a distribution network. Using 3 or 4 red LED displays, (depending on the model) allows easy reading of more than 30 different electrical values.

The Multifunction meters, EMM replace in one device, all the functions of voltmeters, ammeters, energy meters, cosphimeters, wattmeters, frequency meters and thermometers, with great economic saving on time of installation, and overall dimensions.

Parameter selection by button is very simple, and is confirmed by indicative LEDs.

Models with the fourth display, allow simultaneous reading of two different parameters, the fourth display showing the peak values of currents and active power, either as instantaneous or average values ( $\Sigma$ ).



EMM - Multifunction Meters		
Type	Mounting	Measures
EMM - 4 depth 80mm	Flush, DIN 96 x 96mm	Voltage: < 0.5% Current: < 0.5% Power: < 1%
EMM - R4 depth 50mm	R = reduced depth	
EMM - 4e depth 80mm	Flush, DIN 96 x 96mm	Voltage: < 0.5% Current: < 0.5% Power: < 1%
EMM - 4Re depth 50mm	R = reduced depth	
EMM - R3 VA depth 50mm	Flush, DIN 96 x 96mm	Voltage: < 0.5% Current: < 0.5%
	R = reduced depth	
EMM - $\mu$ D3e	DIN rail (3 modules of 17.5mm)	Voltage: < 0.5% Current: < 0.5% Power: < 1% Energy: < 1%
EMM - $\mu$ D3 VA	DIN rail (3 modules of 17.5mm)	Voltage: < 0.5% Current: < 0.5%
EMM - D4	DIN rail (6 modules of 17.5mm)	Voltage: < 0.5% Current: < 0.5% Power: < 1%
EMM - D4e	DIN rail (6 modules of 17.5mm)	Voltage: < 0.5% Current: < 0.5% Power: < 1% Energy: < 1%

Some models in the EMM range have digital outputs (for pulse or alarm signals) and are fitted with a serial RS 485 interface (using MODBUS-RTU protocol)

Specific versions of EMM's can provide simple solutions for measuring currents and voltages only [Voltmeter/Ammeter], and the active and reactive energy consumption [Energy Counters].

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