

Atto RCM D4 ECT

Residual Current Monitoring



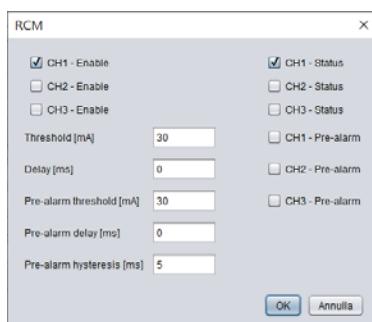
The **Atto RCM D4 ECT** is an RCM or residual current device designed to **monitor current leakage** (differential currents) within low voltage electrical systems in order to improve preventive maintenance. The instrument is equipped with **three measurement channels and two integrated alarms** that alert in case the threshold values are exceeded as well as can be used for communication and/or deactivation purposes. It is equipped with two digital inputs and two digital outputs, an RS485 port (Modbus RTU protocol), two status LEDs and the firmware can be upgraded remotely. The Atto RCM D4 ECT **is a monitoring device**, which cannot be used for protection or life-saving purposes in electrical installations. Therefore it does not contribute to fulfilling the obligation of protection in the event of a fault.

Operation



The Atto RCM D4 ECT monitors the differential currents within an electrical circuit. The instrument can be used in single-phase, two-phase, three-phase without neutral or three-phase with neutral systems using ECT type residual current transformers. It is equipped with **three differential channels**, allowing the simultaneous monitoring of three distinct loads. By passing all the conductors of the circuit (phases and neutral) inside a single ECT type differential current transformer, the instrument is able to detect and monitor the difference between the current flowing in one direction (for example in the single phase the conductor under voltage) and the one that flows in the opposite direction (for example in the single-phase the one that returns through the neutral conductor). The Atto RCM D4 ECT is equipped **with two configurable alarms** (pre-alarm and alarm) which, when the threshold is exceeded, can be used for communication purposes and/or for deactivating a load if paired to a specific relay. The Atto RCM D4 ECT is also equipped with two pre-configured digital inputs, one of which can be used for the output function test and the other for the reset of the differential intervention (threshold exceeded). Two LEDs on the front panel indicate the status of the device and the operation of the RS485 port.

Configuration

Configuration parameters such as thresholds, delay times, hysteresis, communication speed, etc. can be modified using our Energy Brain software, the Modbus protocol or through a specific web page on the master Electrex instruments of the Net series with embedded web server.



ECT series current transformers

- **ECT TA 100A 13MM:** closed ring current transformer, accuracy class 0.5. Plastic shell. Internal window diameter 13 mm. 
- **ECT TA 200A 19MM:** closed ring current transformer, accuracy class 0.5. Plastic shell. Internal window diameter 19 mm.
- **ECT TA 400A 30MM:** closed ring current transformer, accuracy class 0.5. Plastic shell. Internal window diameter 30 mm.
- **ECT CTS 16-100 SPLIT CORE:** split core current transformer, accuracy class 0.5. Plastic shell. Internal window diameter 16 mm. 
- **ECT CTS 24-200 SPLIT CORE:** split core current transformer, accuracy class 0.5. Plastic shell. Internal window diameter 24 mm.
- **ECT CTS 36-400 SPLIT CORE:** split core current transformer, accuracy class 0.5. Plastic shell. Internal window diameter 35,9 mm.

Serial communication

The Atto RCM D4 ECT is equipped with an RS485 serial port with surge protection. The communication protocol used is the "full compliant" Modbus-RTU suitable for communications with PLC and SCADA programs. The processed data is read as numerical registers composed of mantissa and exponent in IEEE format. A transmission up to 38,400 bps with max. 125 registers that can be requested (equal to about 62 parameters) ensure unsurpassed communication speed.

Power supplies and special versions on request

The **Atto RCM D4 ECT** can also be requested in other configurations with different power supplies:

- Transformer power supply 230/240 Vac, 115/120 Vac or 400Vac
- Switching power supply 15÷36Vac/18÷60Vdc
- Switching power supply 9÷24Vac/9÷36Vdc.

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 **ELECTREX**
the energy saving technology

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Engineered and manufactured in Italy
Made in Italy
Pensato, progettato e prodotto in Italia

TECHNICAL SPECIFICATIONS

Functional characteristics		
Measures	12bit A/D converter (6 channels)	
	Continuous sampling of differential voltages and currents (64 samples per period, with PLL)	
RS-485 port	Galvanically isolated	
	Baud rate from 2400 to 38400 bps	
	Surge protection	
Digital inputs	Modbus-RTU protocol, full compliant	
	Galvanically isolated	
	Functions: Test and reset of differential intervention	
	To be powered externally	10-30Vdc
Digital outputs	Absorbed current	2 ... 10mA
	Galvanically isolated	
	Functions: Alarm and pre-alarm intervention; alarm signals, command outputs	
	NPN according to DIN 43864 (max 27Vdc, 27mA)	

Front Panel	
2 Led	Operating status and RS485 port communication status

Accuracy	
Current (mA) including ECT type CT	0.25% of reading +/- 1 digit minimum value: 5 mA
Voltage (V)	0.25% of reading +/- 1 from 40 to 300V minimum value: 10 V
Frequency (Hz)	0,02Hz from 45 to 65 Hz

Mechanical characteristics	
Working temperature	-25/+70 °C
Relative Humidity	95% R.H. non-condensing
Enclosure	Self-extinguishing plastic material class UL94 V-0
Protection Degree	IP40 (front panel), IP20 (terminals side)
Size	70 x 90,5 x 62 mm (4 DIN rail modules)
Mounting	DIN rail
Terminals	screw, maximum cable section 2,5 mm ²
Weight	Net: about 260 g
	Including packaging: about 315 g

Reference standards	
Safety	CEI EN 61010-1 CAT III-300V, class 2
E.M.C.	CEI EN 61326-1A
Digital Outputs	DIN 43864
General prescriptions	Analyzes in accordance with the principles expressed in the CEI EN 62020 standard
MTBF (100.000 h)	MIL-HDBK-217F

Electrical Characteristics		
Network type	single-, bi-phase & 3-phase, balanced or unbalanced, 3- and 4-wires, 1, 2 or 3 CTs	
Voltage Inputs	Direct insertion	from 20 to 500V phase-phase (max. 1,7 crest factor)
	Max voltage to ground	300 Vrms
	Input burden	< 0,3 VA
	Input impedance	> 2 MΩ
	Overload	max. 900 Vrms phase-phase for 1 sec.
Current Inputs (external ECT type CTs)	External ECT type CTs	max. 400A primary output in mA secondary
	Load on the CT	< 0,7 VA
	Overload	max. 40 Arms peak for 1 sec
Power supply	230/240 Vac +/- 10% 50/60 Hz	
	115/120 Vac +/- 10% 50/60Hz	
	400 Vac +/- 10% 50/60 Hz	
	15+36 Vac 50/60 Hz, 18+60 Vdc	
	9+24 Vac 50/60 Hz, 9+36 Vdc	
Self consumption	< 2,5 VA	
Frequency	45-65 Hz	

CODES FOR ORDERING		
TYPE	CODE	
ATTO RCM D4 ECT RS485 18-60Vdc 2DI 2DO 4COMMON	PFA74D1-D8-B	
ECT TA 100A 13MM (specific CT)	PFAE000-01	
ECT TA 200A 19MM (specific CT)	PFAE000-08	
ECT TA 400A 30MM (specific CT)	PFAE000-07	
ECT CTS 16-100 SPLIT CORE (specific CT)	PFAE000-02	
ECT CTS 24-200 SPLIT CORE (specific CT)	PFAE000-05	
ECT CTS 36-400 SPLIT CORE (specific CT)	PFAE000-04	

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Subject to modification without notice
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