



## RECmax-CVM D4-10

RECmax-CVM D4-10, Self-reclosing residual current relay with power analyzer functions, 4-pole D-curve

Code: P2B241.

- > Poles: 4
- > In (A): 10 A
- > Breaking element: built-in
- > Curve: D

### Description

Self-resettable cut-off device with ultra-immunised circuit breaker and residual current protection and built-in power analyzer. Programmable unit with display, which measures leakage currents (residual current protection) and orders the disconnection or reclosing of the circuit breaker (circuit breaker protection) using an engine that regulates it mechanically. The measurement of leakage currents,  $I_{\Delta n}$ , requires an external residual current transformer of the **WGC** type, which comes in the kit. It also has a built-in power analyzer that enables monitoring of up to 19 electrical parameters using the display or the built-in communications, with voltage measurement built into the unit and current measurement through the use of an external **MC1** (for 2 poles) or **MC3** (for 4 poles) current transformer, which comes in the kit.

This system is commonly used in single-phase and three-phase electrical installations that require a highly continuous electric supply. It has inputs/outputs that allow users to have information about and control of the status of the electrical installation where it is working. LED display and backlit (LCD) display:

- Overcurrent and residual current protection and reclosing
- Trip current intensity of the protection.
- Number of reclosings
- Protection status messages.
- Measurement of electrical values (voltage, current, active power,  $\cos \varphi$ ) (other values via communications).

### Application

The **RECmaxCVM** kit ensures circuit breaker and residual current protection with automatic reclosing by default after a differential relay, overload or short-circuit trip. It also measures the electrical parameters of the circuit it protects. It is a very suitable solution for infrastructures located in areas that make it difficult to control and monitor. It can be installed in the electric panels of:

- Telephone systems
- TDT systems
- Information systems, UPS systems



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Residual current circuit breaker with automatic reclosing and measurement

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## Specifications

### AC power supply

|                       |                     |
|-----------------------|---------------------|
| Installation category | CAT III 300 V       |
| Consumption           | 7 VA                |
| Frequency             | 50 / 60 Hz.         |
| Nominal voltage       | 230V ~ ± 20% (L1-N) |

### Mechanical characteristics

|                                  |                       |
|----------------------------------|-----------------------|
| Size (mm) width x height x depth | 133 x 111.5 x 82 (mm) |
| Envelope                         | Plastic V0            |
| Fastening                        | DIN rail              |

### Environmental characteristics

|                                          |                |
|------------------------------------------|----------------|
| Protection class                         | IP 20          |
| Relative humidity (without condensation) | 5 ... 95 %     |
| Storage temperature                      | -30 ... +70 °C |
| Working temperature                      | -10 ... +55 °C |

### Electrical characteristics

|                 |         |
|-----------------|---------|
| Earthing system | TT - TN |
|-----------------|---------|

### Current measurement circuit

|                               |                |
|-------------------------------|----------------|
| Installation category         | CAT III 300 V~ |
| Nominal current (In)          | ... / 250 mA   |
| Phase current measuring range | 1 ... 100 % In |
| Minimum current measurement   | 0,2 % In       |

### Voltage measurement circuit

|                           |               |
|---------------------------|---------------|
| Installation category     | CAT III 600 V |
| Input impedance           | 400 kΩ        |
| Frequency measuring range | 50/60 Hz      |
| Voltage measuring range   | 50/60 Hz      |
| Nominal voltage           | 230 V ~ ±20 % |

### Standards

|                                       |                                                                                                                                     |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Electrical safety, Maximum height (m) | 2000                                                                                                                                |
| Standards                             | IEC TR 60755, IEC 60898-1, DIN EN 50022, IEC 60947-2-M, IEC 61010-1-3ª Ed., IEC 61000-6-4, IEC 62053-21, IEC 62053-23, IEC 61557-12 |



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### User interface

|              |        |
|--------------|--------|
| LED          | 2 LED  |
| Keyboard     | 3 keys |
| Display type | LCD    |

### Measurement accuracy

|                                     |                                                                                                   |
|-------------------------------------|---------------------------------------------------------------------------------------------------|
| Phase current measurement           | 5 % (for $I_N > 10\%$ F.E.), value calculated from the vector sum measured in the phase currents. |
| Neutral current measurement         | 5 % (for $I_N > 10\%$ F.E.), calculated value of the vector sum measured in phase currents.       |
| Reactive energy measurement (kvarh) | 2%                                                                                                |
| Reactive power measurement (kvar)   | 2 % $\pm 2$ digit                                                                                 |
| Active energy measurement (kWh)     | 1%                                                                                                |
| Active power measurement (kW)       | 1% $\pm 2$ digits                                                                                 |
| Phase voltage measurement           | 0,5 % $\pm 1$ digit                                                                               |

### Differential protection

|                                   |                                            |
|-----------------------------------|--------------------------------------------|
| Sensitivity ( $I_{\Delta n}$ ), A | 0,03 - 0,1 - 0,3 - 0,5 - 1 A (programable) |
| Delay time ( $t_{\Delta}$ )       | Programmable trip delay (IEC 60947-2-M)    |
| Transformer                       | External, WGC-20SC series                  |

### Thermal-magnetic protection

|                                                                                                                                   |               |
|-----------------------------------------------------------------------------------------------------------------------------------|---------------|
| Trip curve, Type                                                                                                                  | D             |
| Nominal current $I_n$ (A)                                                                                                         | 10            |
| Rated short-circuit breaking capacity ( $I_{cn}$ ) / service short-circuit breaking capacity ( $I_{cs}$ ) (IEC 60898)             | 6 kA          |
| Voltage breaking capacity (IEC 60898)                                                                                             | 230 / 400 V ~ |
| Ultimate short-circuit breaking capacity ( $I_{cu}$ ) / service short-circuit breaking capacity ( $I_{cs}$ ), in DC (IEC 60947-2) | 10 kA         |
| DC voltage breaking capacity (IEC 60947-2)                                                                                        | 60 V          |
| AC ultimate short-circuit breaking capacity ( $I_{cu}$ ) (IEC 60947-2)                                                            | 10 kA         |
| V~ Breaking capacity (IEC 60947-2)                                                                                                | 415 V ~       |
| Nominal voltage                                                                                                                   | 240 / 415 V ~ |

### Serial communication

|                   |            |
|-------------------|------------|
| Protocol          | Modbus/RTU |
| Technology / Type | RS-485     |

### RECmax-CVM

MCB/RCD and power analyzer with reclosing and transformers included



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| CODE             | TYPE                | Poles | In (A) | Curve |
|------------------|---------------------|-------|--------|-------|
| 2 Poles, C Curve |                     |       |        |       |
| P2B111.          | RECmax-CVM 2P C2-10 | 2     | 10 A   | C     |
| P2B211.          | RECmax-CVM C2-10    | 2     | 10 A   | C     |
| P2B113.          | RECmax-CVM 2P C2-20 | 2     | 20 A   | C     |
| P2B212.          | RECmax-CVM C2-16    | 2     | 16 A   | C     |
| P2B213.          | RECmax-CVM C2-20    | 2     | 20 A   | C     |
| P2B115.          | RECmax-CVM 2P C2-32 | 2     | 32 A   | C     |
| P2B214.          | RECmax-CVM C2-25    | 2     | 25 A   | C     |
| P2B116.          | RECmax-CVM 2P C2-40 | 2     | 40 A   | C     |
| P2B215.          | RECmax-CVM C2-32    | 2     | 32 A   | C     |
| P2B117.          | RECmax-CVM 2P C2-50 | 2     | 50 A   | C     |
| P2B216.          | RECmax-CVM C2-40    | 2     | 40 A   | C     |
| P2B118.          | RECmax-CVM 2P C2-63 | 2     | 63 A   | C     |
| P2B217.          | RECmax-CVM C2-50    | 2     | 50 A   | C     |
| 4 Poles, C Curve |                     |       |        |       |
| P2B121.          | RECmax-CVM 4P C4-10 | 4     | 10 A   | C     |
| 2 Poles, C Curve |                     |       |        |       |
| P2B218.          | RECmax-CVM C2-63    | 2     | 63 A   | C     |
| 2 Poles, D Curve |                     |       |        |       |
| P2B231.          | RECmax-CVM D2-10    | 2     | 10 A   | D     |
| P2B232.          | RECmax-CVM D2-16    | 2     | 16 A   | D     |
| 4 Poles, C Curve |                     |       |        |       |
| P2B124.          | RECmax-CVM 4P C4-25 | 4     | 25 A   | C     |
| 2 Poles, D Curve |                     |       |        |       |
| P2B233.          | RECmax-CVM D2-20    | 2     | 20 A   | D     |
| 4 Poles, C Curve |                     |       |        |       |
| P2B125.          | RECmax-CVM 4P C4-32 | 4     | 32 A   | C     |
| 2 Poles, D Curve |                     |       |        |       |
| P2B234.          | RECmax-CVM D2-25    | 2     | 25 A   | D     |
| 4 Poles, C Curve |                     |       |        |       |
| P2B126.          | RECmax-CVM 4P C4-40 | 4     | 40 A   | C     |
| 2 Poles, D Curve |                     |       |        |       |
| P2B235.          | RECmax-CVM D2-32    | 2     | 32 A   | D     |
| 4 Poles, C Curve |                     |       |        |       |
| P2B127.          | RECmax-CVM 4P C4-50 | 4     | 50 A   | C     |
| 2 Poles, D Curve |                     |       |        |       |
| P2B236.          | RECmax-CVM D2-40    | 2     | 40 A   | D     |
| P2B237.          | RECmax-CVM D2-50    | 2     | 50 A   | D     |



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| CODE             | TYPE                | Poles | In (A) | Curve |
|------------------|---------------------|-------|--------|-------|
| P2B131.          | RECmax-CVM 2P D2-10 | 2     | 10 A   | D     |
| 4 Poles, C Curve |                     |       |        |       |
| P2B221.          | RECmax-CVM C4-10    | 4     | 10 A   | C     |
| P2B222.          | RECmax-CVM C4-16    | 4     | 16 A   | C     |
| P2B223.          | RECmax-CVM C4-20    | 4     | 20 A   | C     |
| P2B224.          | RECmax-CVM C4-25    | 4     | 25 A   | C     |
| P2B225.          | RECmax-CVM C4-32    | 4     | 32 A   | C     |
| P2B226.          | RECmax-CVM C4-40    | 4     | 40 A   | C     |
| 2 Poles, D Curve |                     |       |        |       |
| P2B137.          | RECmax-CVM 2P D2-50 | 2     | 50 A   | D     |
| 4 Poles, C Curve |                     |       |        |       |
| P2B227.          | RECmax-CVM C4-50    | 4     | 50 A   | C     |
| 2 Poles, D Curve |                     |       |        |       |
| P2B138.          | RECmax-CVM 2P D2-63 | 2     | 63 A   | D     |
| 4 Poles, C Curve |                     |       |        |       |
| P2B228.          | RECmax-CVM C4-63    | 4     | 63 A   | C     |
| 4 Poles, D Curve |                     |       |        |       |
| P2B141.          | RECmax-CVM 4P D4-10 | 4     | 10 A   | D     |
| P2B241.          | RECmax-CVM D4-10    | 4     | 10 A   | D     |
| P2B242.          | RECmax-CVM D4-16    | 4     | 16 A   | D     |
| P2B143.          | RECmax-CVM 4P D4-20 | 4     | 20 A   | D     |
| P2B243.          | RECmax-CVM D4-20    | 4     | 20 A   | D     |
| P2B244.          | RECmax-CVM D4-25    | 4     | 25 A   | D     |
| P2B245.          | RECmax-CVM D4-32    | 4     | 32 A   | D     |
| P2B146.          | RECmax-CVM 4P D4-40 | 4     | 40 A   | D     |
| P2B246.          | RECmax-CVM D4-40    | 4     | 40 A   | D     |
| P2B147.          | RECmax-CVM 4P D4-50 | 4     | 50 A   | D     |
| P2B247.          | RECmax-CVM D4-50    | 4     | 50 A   | D     |
| P2B148.          | RECmax-CVM 4P D4-63 | 4     | 63 A   | D     |

All models feature the WGC20/30-SC residual current transformer and MC-3 or MC-1 measuring transformer with connected terminal. C/D curve circuit breaker with 6 kA cut off power (IEC 60898).