



Automatic power factor controller, 8 relay steps, graphic display DCRG8

Product designation

Product type designation

### Auxiliary supply

Rated auxiliary supply voltage  $U_s$

AC

|     |     |     |
|-----|-----|-----|
| min | VAC | 100 |
| Max | VAC | 415 |

DC

|     |     |     |
|-----|-----|-----|
| min | VDC | 110 |
| Max | VDC | 250 |

Auxiliary operating range

90...484VAC /  
93.5...300VDC

Auxiliary rated frequency

Hz 50/60  $\pm 10\%$

Power consumption Max

VA 27 (with 4 EXP modules)

Power dissipation Max

W 10.5 (with 4 EXP modules), 5.5 (with no EXP modules)

Immunity time for microbreakings

ms  $\geq 35$ ms (110VAC);  
 $\geq 80$ ms (220...415VAC)

### Voltage inputs

Rated voltage ( $U_e$ )

VAC 600VAC L-L (rated max)

Operating range

50...720VAC L-L (415VAC L-N)

Frequency range

Hz 45...65 Hz / 360...440 Hz

Type of measure

True RMS value

No-voltage release

ms  $\geq 8$

Measurement input impedance

k $\Omega$   $> 1.10\text{M}\Omega$  L-L,  
 $> 0.55\text{M}\Omega$  L-N

Type of connection

Single phase, two phase, three phase with or without neutral or balanced three phase system

### Current inputs

Number of current input

Nr. 3

|                                                                |                |                                                                      |
|----------------------------------------------------------------|----------------|----------------------------------------------------------------------|
| Type of input                                                  |                | Shunt supplied by external current transformer (low voltage). Max 5A |
| Measurement range                                              |                | 0.025...6A~ for 5A scale;<br>0.025...1.2A~ for 1A scale              |
| Measurement method                                             |                | True RMS value                                                       |
| Constant overload                                              | I <sub>e</sub> | 1.2 I <sub>e</sub>                                                   |
| Overload peak                                                  | A              | 50A for 1s                                                           |
| Burden per phase                                               | W              | <0.6VA                                                               |
| <b>Measurement data</b>                                        |                |                                                                      |
| Type of voltage and current measurement                        |                | True RMS value                                                       |
| Power factor adjustment                                        |                | 0.5ind...0.5cap.                                                     |
| Type of temperature sensor                                     |                | Internal + PT100 with EXP1004 + NTC with EXP1016                     |
| Temperature measurement range                                  | °C             | 0...+212                                                             |
| <b>Relay outputs</b>                                           |                |                                                                      |
| Number of relay output                                         | Nr.            | 8 (up to 18 with EXP10 06 - EXP10 07)                                |
| Contact arrangement                                            |                | 7 NO-SPST + 1 C/O-SPDT                                               |
| Rated current                                                  |                | 5A 250V AC1                                                          |
| UL/CSA and IEC/EN 60947-5-1 designation                        |                | B300                                                                 |
| Maximum current at common contact terminal                     | A              | 10                                                                   |
| Maximum switching voltage                                      | VAC            | 415                                                                  |
| Electrical life (with rated load)                              | cycles         | 10 <sup>5</sup>                                                      |
| Mechanical life                                                | cycles         | 30 x 10 <sup>6</sup>                                                 |
| <b>Static Outputs</b>                                          |                |                                                                      |
| Number of static output                                        |                | 0 (up to 8 with EXP1001)                                             |
| <b>Insulations</b>                                             |                |                                                                      |
| Rated insulation voltage U <sub>i</sub> IEC/EN                 | V              | 600                                                                  |
| Rated impulse withstand voltage U <sub>imp</sub>               | kV             | 9.5                                                                  |
| Operating frequency withstand voltage                          | kV             | 5.2                                                                  |
| <b>Functions</b>                                               |                |                                                                      |
| Automatic recognition of current flow direction                |                | Yes                                                                  |
| 4-quadrant operation                                           |                | Yes                                                                  |
| Master-Slave function                                          |                | Yes                                                                  |
| Independent auxiliary supply input                             |                | Yes                                                                  |
| Three-phase voltage control                                    |                | Yes                                                                  |
| Current inputs                                                 |                | 3                                                                    |
| Dynamic (FAST) power factor correction                         |                | Yes                                                                  |
| Power factor correction by single phase                        |                | Yes                                                                  |
| Possibility of connecting inductive steps                      |                | No                                                                   |
| Possibility of use in medium voltage                           |                | Yes                                                                  |
| Possibility of phase-neutral insertion on a three-phase system |                | Yes                                                                  |
| Analog outputs                                                 |                | Yes                                                                  |
| Input programmable as function or external temperature sensor  |                | Yes                                                                  |

|                                                                                       |     |
|---------------------------------------------------------------------------------------|-----|
| USB communication interface                                                           | Yes |
| RS232 communication interface                                                         | Yes |
| Opto-isolated RS485 communication interface                                           | Yes |
| Ethernet communication interface                                                      | Yes |
| Opto-isolated Profibus-DP interface                                                   | Yes |
| GPRS/GSM modem                                                                        | Yes |
| Optical USB communication port on front                                               | Yes |
| Optical Wi-Fi communication port on front                                             | Yes |
| Fast setting of current transformer                                                   | Yes |
| Compatible with Xpress configuration and remote control software                      | Yes |
| Compatible with Synergy and Synergy Cloud, supervision and energy management software | Yes |
| Compatible with Sam1 App                                                              | Yes |
| Calendar-clock with backup reserve power                                              | Yes |
| Data logging memory                                                                   | Yes |
| Event logging: alarms, setup changes, etc.                                            | Yes |
| Customisable internal counters                                                        | Yes |

### Connections

|                         |                                           |
|-------------------------|-------------------------------------------|
| Type of terminal        | Plug-in, removable                        |
| Conductor cross section |                                           |
|                         | min mm <sup>2</sup> 0.2                   |
|                         | Max mm <sup>2</sup> 2.5                   |
|                         | min AWG 24AWG (18AWG according to UL/CSA) |
|                         | Max AWG 12                                |
| Tightening torque (Max) |                                           |
|                         | Nm 0.56                                   |
|                         | lbin 5lbin (4-5lbin according to UL/CSA)  |

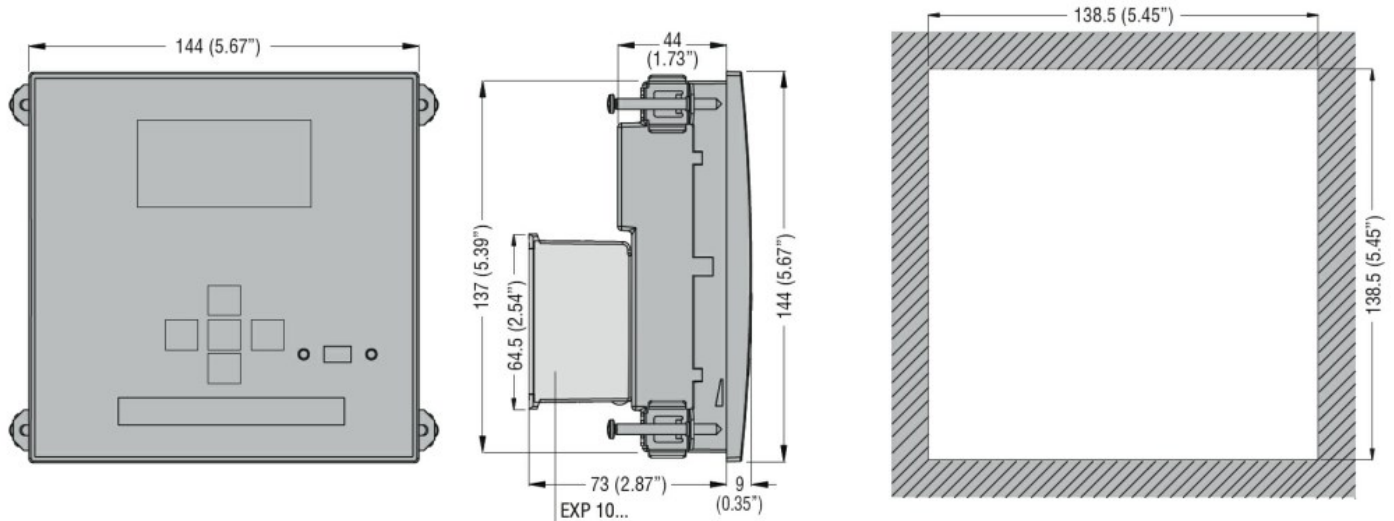
### Ambient conditions

|                          |                            |
|--------------------------|----------------------------|
| Temperature              |                            |
| Operating temperature    |                            |
|                          | min °C -20                 |
|                          | max °C +70                 |
| Storage temperature      |                            |
|                          | min °C -30                 |
|                          | max °C +80                 |
| Relative humidity        | % <80%                     |
| Maximum Pollution degree | 2                          |
| Overvoltage category     | 3                          |
| Measurement category     | III                        |
| Climatic sequence        | Z/ABDM (IEC/EN 60068-2-61) |
| Shock resistance         | 15g (IEC/EN 60068-2-27)    |
| Vibration resistance     | 0.7g (IEC/EN 60068-2-6)    |

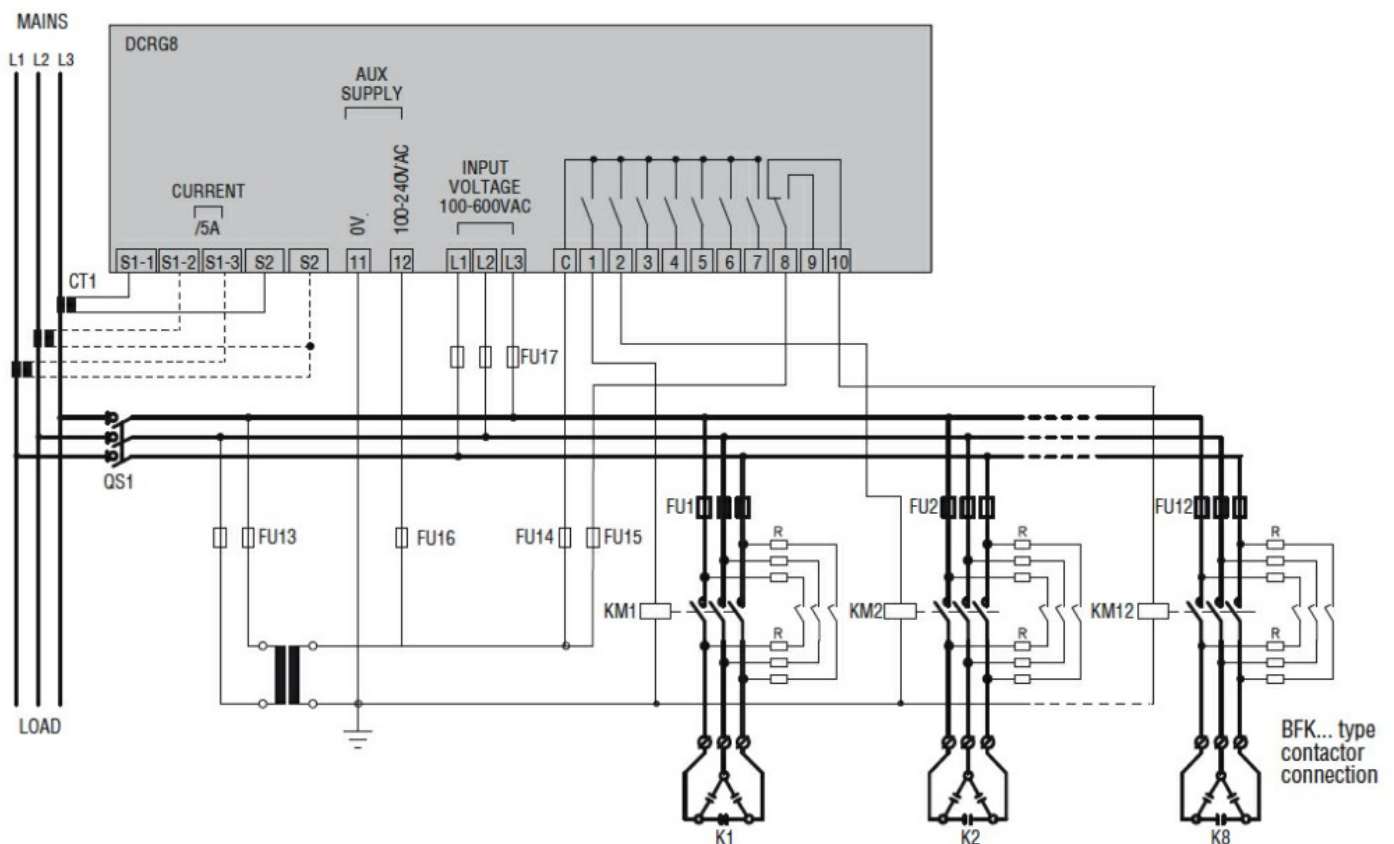
### Housing

|           |               |
|-----------|---------------|
| Execution | Flush mount   |
| Material  | Polycarbonate |

|                        |                                          |
|------------------------|------------------------------------------|
| Mounting               | Flush-mount<br>144x144mm<br>(5.67x5.67") |
| Degree of protection   | IP65 on front,<br>IP20 terminals         |
| Dimensions (W x H x D) | mm 144 x 144 x 53.2                      |
| Weight                 | g 980                                    |
| <b>Dimensions</b>      |                                          |



## Wiring diagrams



## Certifications and compliance

### Compliance

CSA C22.2 n°14  
IEC 61010-1  
IEC/EN 61000-6-2

IEC/EN 61000-6-3

UL 508

Certificates

cULus

EAC

RCM

ETIM classification

ETIM 8.0

EC001443 -  
Effective power  
(cos phi)  
monitoring relay