CD14400

Coupling device

CD14400_D00346_03_M_XXEN/11.2022

Manual

Intended use

The CD14400 can be used with an NGR monitor in HRG systems with a system voltage up to ULL = 14.4 kV (UNGR = 8.4 kV). The maximum operating altitude is 5000 m above mean sea level.

Functional description

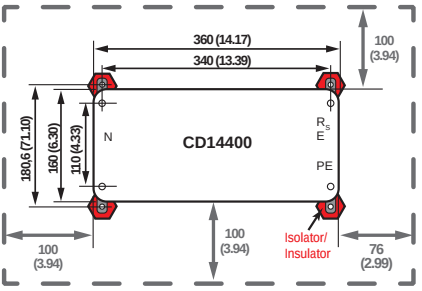
The combination of an NGR monitor and a coupling device extends the range of application of the NGR monitor up to a system voltage of 14.4 kV. The duty time is limited to 60 s (1 minute), the cool-down period is 120 minutes.

Safety instructions

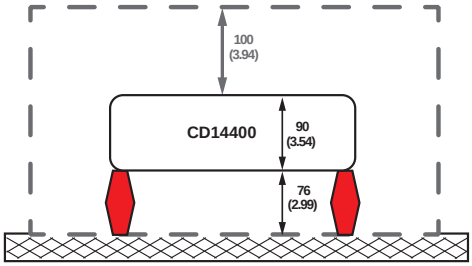
Part of the device documentation in addition to this manual are the enclosed "Important safety instructions for Bender products". All work activities necessary for the installation, connection and commissioning are to be carried out by electrically skilled persons only! It is essential to follow the current safety instructions.

Danger of an electric shock!
The coupling device is operated with voltages up to 8.4 kV. Wrong connection can lead to death, serious physical injury or substantial damage to property. Before working on the coupling device, make sure that the operating area is de-energized!!

Dimension diagram and installation



Dimension diagram, all dimensions in mm (in)
Tightening torque, cover screws: 2.5 Nm (22.1 lb-in)
Minimum distance to neighboring devices



Danger of an electric shock!
Inappropriate installation and connection can result in death, serious physical injury or substantial damage to property.

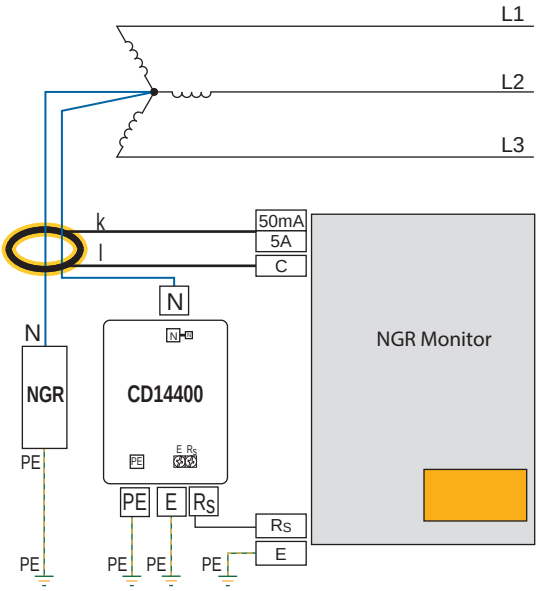
The device is suitable for screw mounting:
Four M8 fastening screws, tightening torque 21 Nm (186 lb-in).

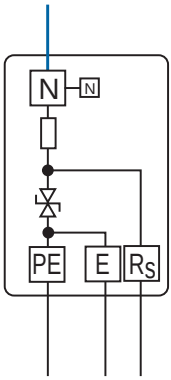
Connection

Unscrew the cover, connect suitable cable to the appropriate socket.

The increased protection IP54 is achieved by feeding the cable through a membrane. To do this, push the cable through the membrane during installation and connect it. The membrane wraps around the cable and closes the opening.

Wiring diagram





So that the connection between NGR and star point is also monitored, the "N" terminal of the CD14400 should be connected directly to the star point of the transformer.
A direct connection between the "N" connections of the CD14400 and the NGR is not recommended, as in this case a line interruption between the star point and the NGR connection "N" would not be monitored.

Wiring diagram (left), CD14400 internal wiring diagram (right)

Notes on the wiring diagram:

Terminal	Use	Connecting cable	
		Metrisch	Imperial
N	Connection to the star point of the HRG system; cable lug M5 or M10	≥ 1.5 mm²	AWG16 or bigger
R_S	Connection to R_S of the NGRM…	1.5 mm²	AWG16
E	Connection to E of the NGRM…; Internally connected to PE	1.5 mm²	AWG16
PE	Connection to protective earth conductor; internally connected to E; M5 cable lug	≥ 1.5 mm²	AWG16 or bigger

Commissioning

After connecting the CD14400 to the NGR monitor, perform a field calibration.

To obtain the best possible results in a field calibration, the NGR monitor should be in operation for at least one hour in the operational environment.

Technical data

Insulation coordination DIN EN 50178:1997

Definitions
- Measuring circuit (IC1) ..... N
- Output circuit (IC2) ..... R_S
- Protective circuit (IC3) ..... E, PE

Rated voltage ..... 8400 V
Overvoltage category III
Pollution degree 2
Rated insulation voltage
No galvanic separation between the circuits!
- IC1 / (IC2 – IC3) ..... 8400 V
- IC2 / IC3 ..... 50 V

Voltage range

U_n ..... DC, 50/60 Hz, 10 . . . 3200 Hz 8400 V
I_n ..... 84 mA
Operating time .....
- without ground fault (1900 V) ..... unlimited
- with ground fault (4200 V) ..... 90 seconds
- with ground fault (8400 V) ..... 60 seconds

Cool-down period ..... 120 minutes
Overload capacity ..... 1.15 x Un for < 30 seconds

Resistance

100 kΩ ..... ±0.5 %
Temperature coefficient ..... 20 ppm/K
Environment
Ambient temperature ..... –40 . . . +70 °C
Ambient temperature for UL ..... –40 . . . +60 °C
Humidity ..... ≤ 98 %

Classification of climatic conditions acc. to IEC 60721

(with respect to temperature and rel. humidity)
Stationary use (IEC 60721-3-3) 3K22
Transport (IEC 60721-3-2) 2K11
Long-term storage (IEC 60721-3-1) 1K22

Classification of mechanical conditions acc. to IEC 60721

Stationary use 3M12
Transport 2M4
Long-term storage 1M12

Connection

Connection RS and E
- Tightening torque ..... 0.5 . . . 0.6 Nm (4.4 . . . 5.3 lb-in)
- Conductor sizes ..... AWG 24-12
- Stripping length ..... 7 mm
- Conductor rigid ..... 0.2 . . . 4 mm^2
- Conductor flexible ..... 0.2 . . . 2.5 mm^2
- Multiple conductor, flexible with ferrule .....
  - without plastic sleeve ..... 0.25 . . . 1.5 mm^2
  - with plastic sleeve ..... 0.25 . . . 2.5 mm^2
- Multiple conductor, flexible with TWIN ferrule .....
  - with plastic sleeve ..... 0.5 . . . 1.5 mm^2

Connection N and PE
- Tightening torque cable lug M10 ..... 17 Nm (150 lb-in)
- Tightening torque cable lug M5 ..... 2.2 Nm (19.5 lb-in)

Other

Tightening torque
- Cover screws ..... 2.5 Nm (22.1 lb-in)
- Fastening screws ..... 21 Nm (186 lb-in)

Operating mode ..... in case of a ground fault maximum 60 s
Mounting ..... any position
Operating altitude ..... up to 5000 m AMSL
Degree of protection, internal components (DIN EN 60529) IP54
Flammability class ..... UL 94V-0
Weight ..... < 4.4 kg

Ordering details

Name	ULL	UNGR	Ordering no.
CD14400	up to 14400 V	8400 V	B98039054

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The Power in Electrical Safety©

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