



CD1000-2

Coupling device



Intended use

The CD1000-2 can be employed with an NGR monitor in HRG installations with a system voltage U_{LL} up to 1000 V ($U_{NGR} \leq 600$ V). It can be used at maximally 5000 m AMSL.

Functional description

The duty time is unlimited. To provide the necessary cooling at a voltage of $U_{LL} > 690$ V ($U_{NGR} > 400$ V), the CD1000-2 should be mounted on a grounded metal plate of at least 300 x 300 mm.

Safety instructions

Part of the device documentation in addition to this manual are the enclosed "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!

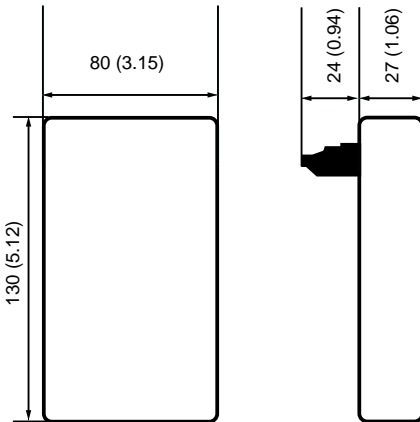
The coupling device is operated with voltages up to 600 V. Wrong connection can lead to death, serious physical injury or substantial damage to property. Before working on the coupling device, make sure that the operating area is de-energized!

Expected surface temperatures during an HRG ground fault

	U_{LL}	U_{NGR}	Surface temperature at ambient temperature		Duty time
			25 °C	70 °C	
without heat sink	690 V	400 V	45 °C	90 °C	∞
with heat sink 300 x 300 mm	1000 V	577 (600) V	30 °C	75 °C	∞
	Overload capacity \leq 1200 V	690 V	70 °C	115 °C	< 30 min

Dimension diagram

All dimensions in mm (in)



CD1000-2 dimension diagram from the top (left) and the side (right)

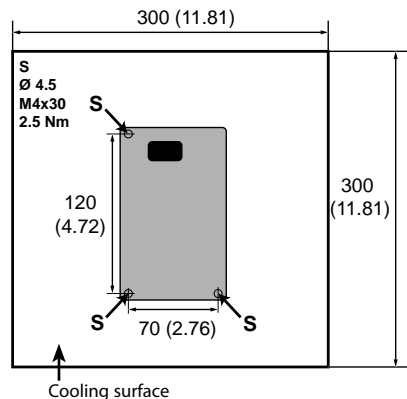
Installation and connection



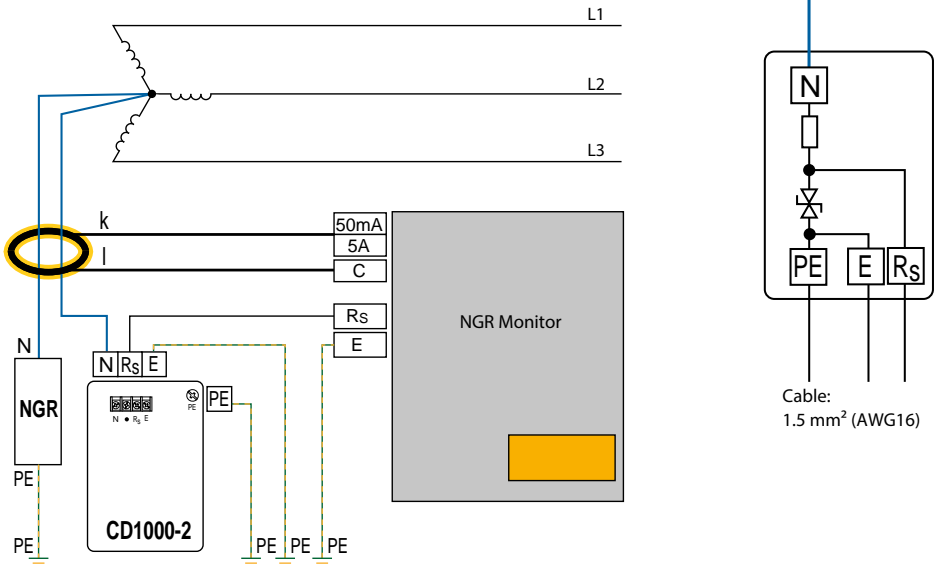
DANGER of an electric shock!

Inappropriate installation and connection can result in death, serious physical injury or substantial damage to property.

The device is suitable for screw mounting. For $U_{LL} > 690$ V, a cooling surface of 300 x 300 mm (11.81 in²) must be provided.



Wiring diagram



Wiring diagram (left), CD1000-2 internal wiring diagram (right)

- i** So that the connection between NGR and star point is also monitored, the "N" terminal of the CD1000-2 should be connected directly to the star point of the transformer.
 A direct connection between the "N" connections of the CD1000-2 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.

Notes on the wiring diagram:

Terminal	Use	Connecting cable	
		Metrisch	Imperial
N	Connection to the star point of the HRG system	1.5 mm ²	AWG16
R _s	Connection to R _s of the NGRM...		
E	Connection to protective earth conductor (internally connected to PE)		
PE	Connection to the protective conductor (internally connected to E, cable lug M4)	≥ 1.5 mm ²	≥ AWG16

Commissioning

After connecting the CD1000-2 to the NGR monitor, perform a field calibration.

- i** 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

Definition	
Measuring circuit (IC1)	N
Output circuit (IC2)	R _S
Protective circuit (IC3)	E, PE
Rated voltage	600 V
Overtoltage category	III
Pollution degree	2
Rated insulation voltage	
No galvanic separation between the circuits!	
IC1 / (IC2 – IC3)	600 V
IC2 / IC3	50 V

Voltage range

U_n	DC, 50/60 Hz, 10...3200 Hz	600 V
I_n		30 mA
Overload capacity	1.15 x U_n for < 30 minutes	

Resistance

20 k Ω	± 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

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

Other

Operating mode	continuous operation
Mounting	any position
Screw type for mounting screws	M4x30
Tightening torque for mounting screws ()	2.5 Nm (22.1 lb-in)
Operating altitude	up to 5000 m AMSL
Degree of protection, internal components (DIN EN 60529)	IP30
Flammability class	UL 94V-0
Weight	< 700 g

Ordering details

Name	U_{LL}	U_{NGR}	Ordering no.
CD1000-2	up to 1000 V	600 V	B98039053



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