Cirprotec

Grounding system monitor

PROTECTING PEOPLE AND PROPERTY AGAINST
GROUNDING FAULTS

MERSEN
Expertise, our source of energy

CONFIGURABLE GROUNDING SYSTEM MONITORING

GMD®

GMD® is a control device that continuously monitors the state of the ground connection:

- Ensures proper operation of surge protection devices (SPDs) that discharge energy through the facility ground connection.
- Provides additional safety information to avoid indirect contact.
- Reduces preventative maintenance costs.

By the loop resistance calculation method, GMD® checks the impedance of the actual leakage path of an indirect contact, enabling it to **detect the following possible incidents,** both in the installation itself and in transformer centre to which it is connected:

- **Deterioration of the ground connection** due to ageing of the earth rods, due to theft or increased soil resistivity during dry periods.
- **Breakage or incorrect wiring of the neutral cable.**

Ratings and features

- The system of grounding measurement by loop impedance can be applied to the various neutral configurations: TT, TNS and TNC-S
- Un (L-N/L-L): 120/208 V, 230/400 V
- Monobloc DIN rail format
- Alarm function on the ground value (PE). Activates the output if it detects a value shown on the display exceeding a maximum preset by the user

24/7

Grounding system monitoring

Easy to install

Panel mounting

Assists with maintenance

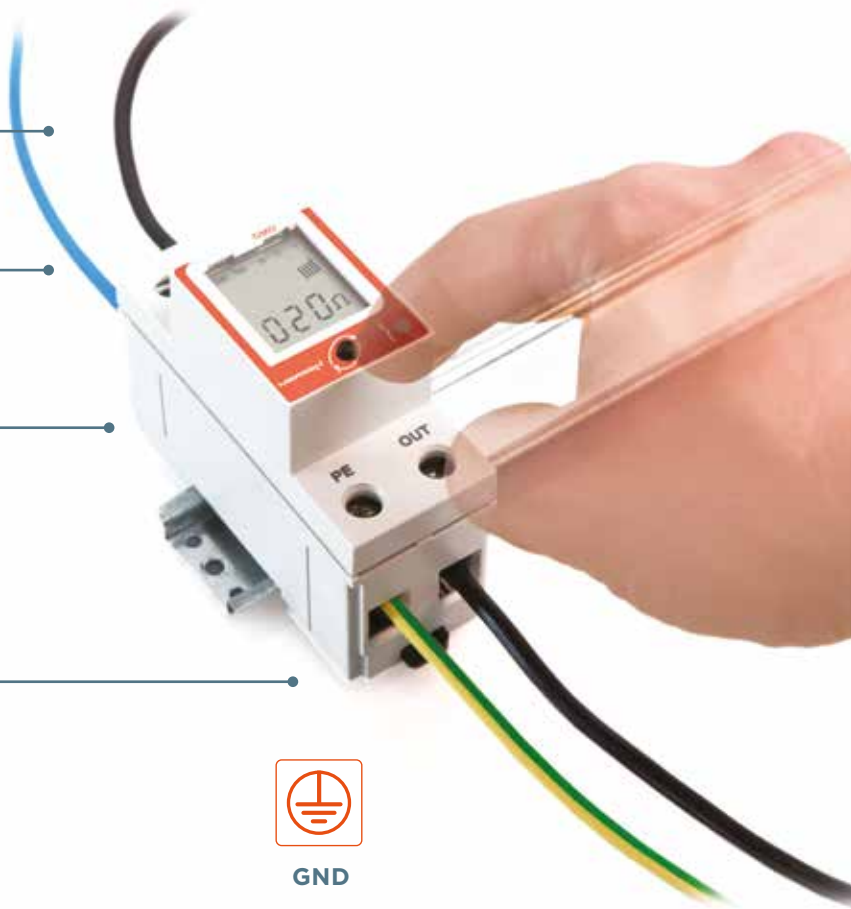
Complementary to regular grounding system maintenance

Real-time monitoring of the grounding system condition

Monitors

Cable theft / Soil resistivity

Cable breakage / poor connection



GMD®

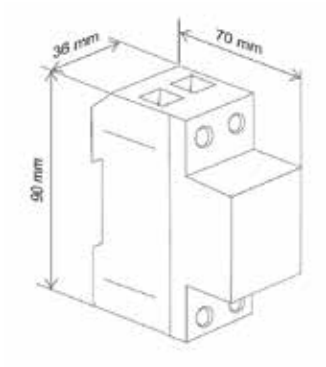
Importance of grounding systems

- Having proper grounding and checking it regularly is very important.
- A ground in proper condition avoids risk of death for people and destruction of property.
- A ground in proper condition ensures protection against voltage surges.

Catalogue numbers / Reference numbers

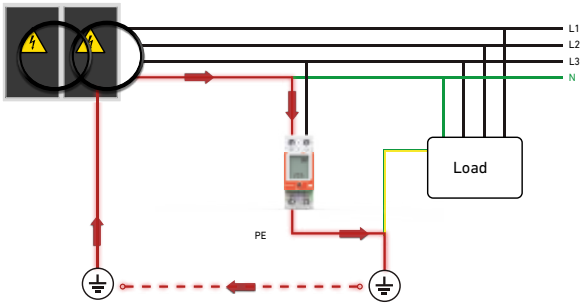
REFERENCE NUMBER	CATALOGUE NUMBER	Un [V]	FREQUENCY [Hz]	SETTING THRESHOLD	OUTPUT RELAY	RESPONSE TIME
83060251	**GMD-120V**	120	50 / 60	1...500 Ω	1 (OUT-N)	inst.
83060250	**GMD-230V**	230	50 / 60	1...500 Ω	1 (OUT-N)	inst.

Dimensions



Measurement

Measurement loop or leakage current loop in TT systems.



TELECOM	WATER TREATMENT	COMMERCIAL	DATA CENTER	INDUSTRIAL
				

Why GMD?

Through a single button, a display and an intuitive navigation system, **GMD** offers the following features:

Bar display

Loop resistance measurement and display.

From milliohms to over 500 ohms.

Numerical output

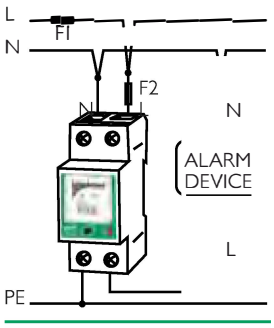
Adjusting the displayed loop resistance value.

This adjustment is done by subtracting a user-defined variable from the ac-tual value measured by the GMD. This way users can match the value of the ground connection of the installation with the valued measured and displayed by GMD. (If you select this option, the ohm symbol on the display will start blinking). The reading displayed by the GMD does not necessarily have to be greater than the grounding resistance.

Alarm

Alarm function triggered by the PE reading.

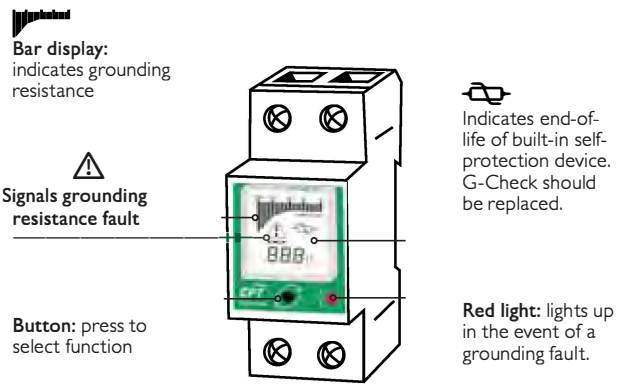
If the GMD detects that the value displayed exceeds a user-specified limit, it will trigger the signal. The control circuit on the alarm device should be wired as specified in the following diagram.



The alarm element should be single phase and be connected directly be-tween the GMD and the neutral outputs. The GMD output connects directly to each phase, so that depending on the model and network its output will be 120 or 230V.

Instructions for use

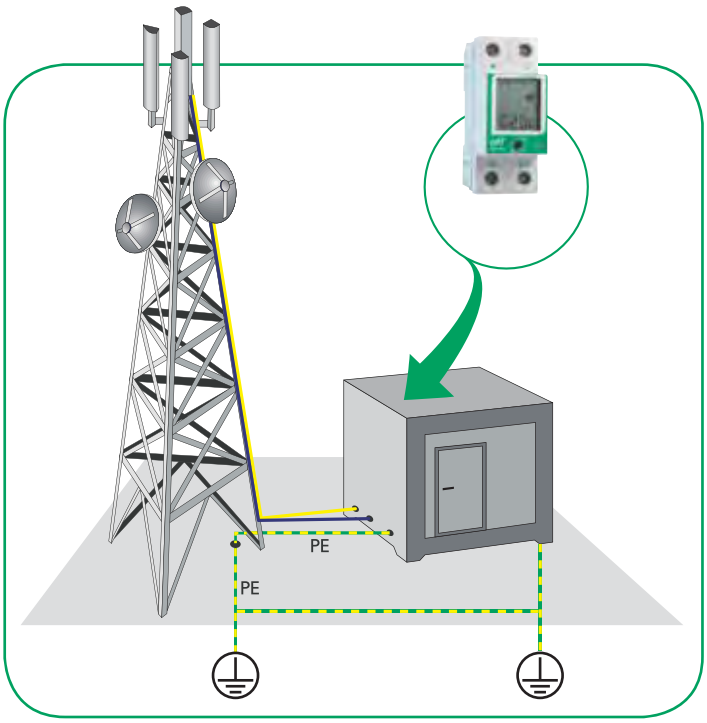
Thanks to a single button and very user-friendly menus, **GMD** can be set up in very little time.



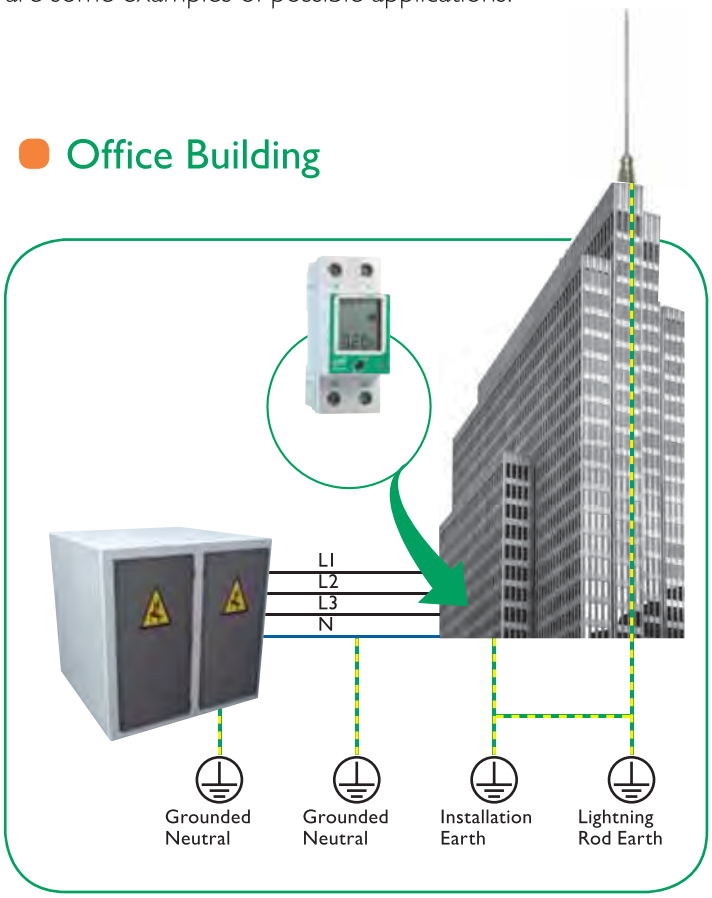
Applications

The grounding system of any electrical installation is essential. Therefore, GMD is useful for any type of installation, whether remote or in the city. The following are some examples of possible applications.

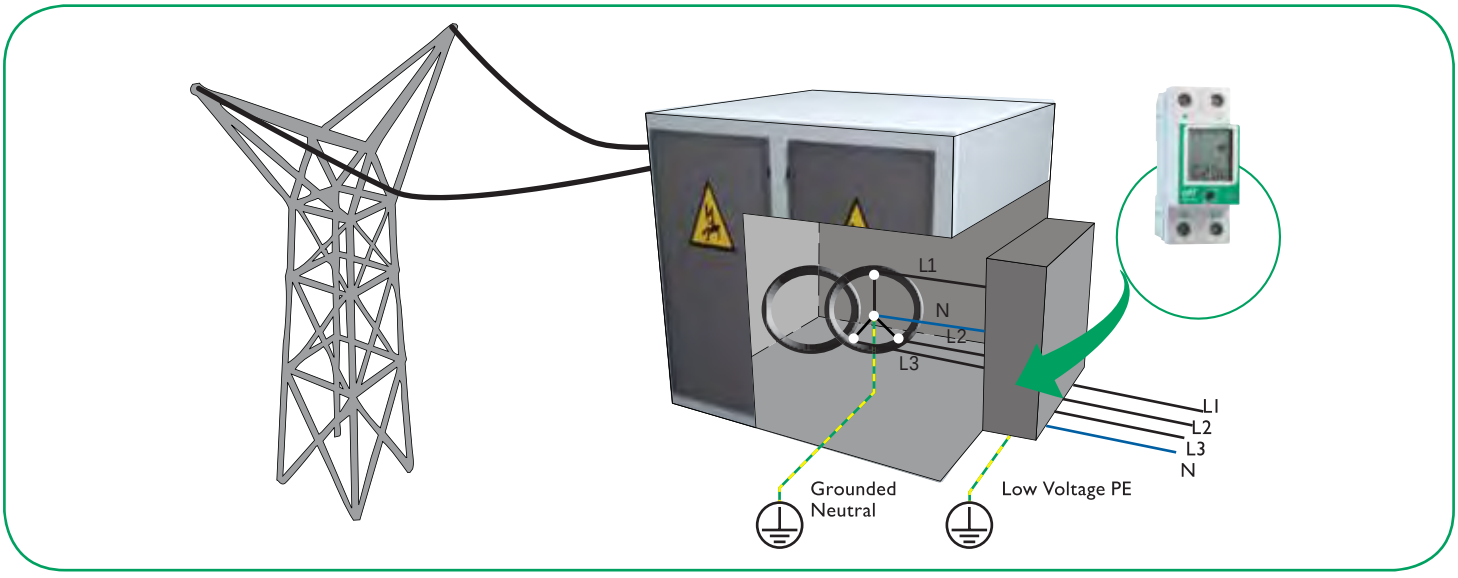
Telecommunications tower



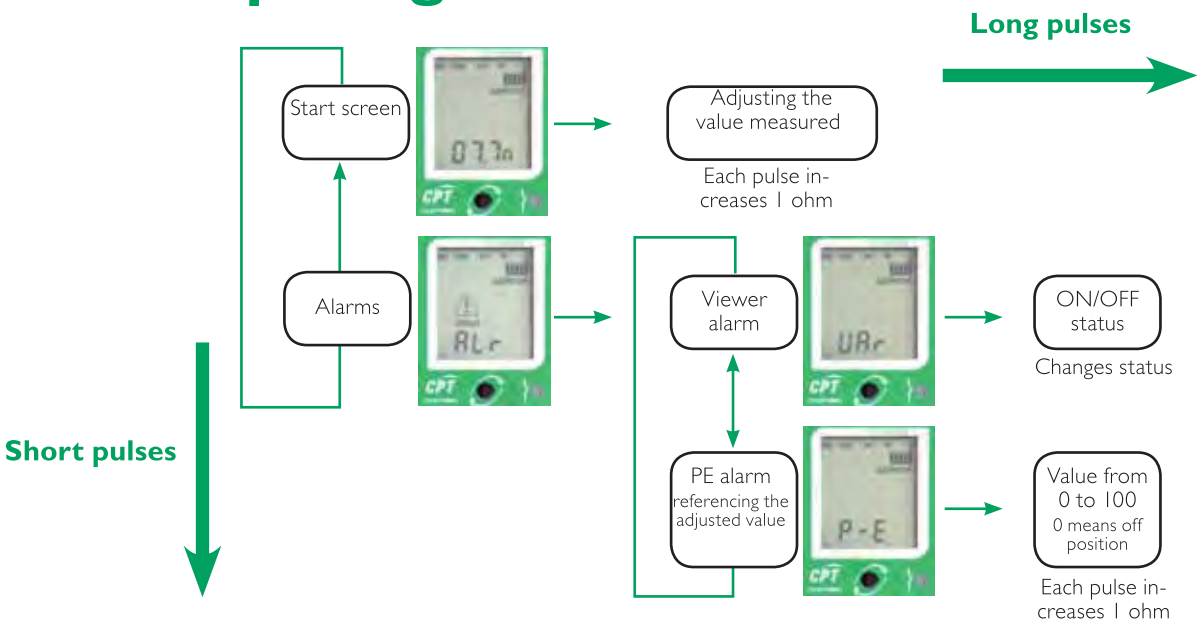
Office Building



Medium Voltage / Low Voltage Transformer



Set-up Diagram



Installation Recommendations

• To be installed only by qualified personnel. Follow terminal signs; improper connection of P-N or PE may result in distorted readings or damage to the equipment. Do not wire the netural or phase to OUT; follow instructions in the diagram.

• Install GMD with near upstream-located RCD and MCB protection against earth leakage, shortcircuit and overload.

• Wire all GMD connections without voltage and then trigger the differential and the magnetothermal circuit breakers.

• The device reading may be affected by fluctuations of the rated voltage, the neutral voltage with respect to grounding, or high harmonic distortion.

Parts list and Specifications

Code	Part number	Description
83060250	GMD-230V	230V grounding monitor with alarm output
83060251	GMD-120V	120V grounding monitor with alarm output

Specification Data
Grounding system monitor for continuous status checking. It displays the measured value of loop resistance in the installation, thus ensuring safety. When the alarm value specified by users is exceeded, the G-Check triggers an alarm system through an output connection. Valid for grounding arrangements TT, TNS and TNC-S. The main specs are shown in the table below.

Specifications		
Code	83060250	83060251
Rated voltage U_N	230 V +/-20%	120 V +/-20%
Frequency	50 Hz	
Output characteristics (referred to neutral)		
Rated current I_{OUT}	0.3 A (70VA)	
Peak current (1 cycle)	7A	
Grounding resistance monitoring characteristics		
Alarm activation value R_a	Adjustable	
Maximum measured value	500 ohms	

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