



Order code: MP1G99TTAAB

Mains Decoupling Relay

Datasheet

Product description

- ▶ G99 compliant Type Tested intertie protection relay for on-grid applications such as generator sets, renewable energy resources, cogeneration, microturbines, etc.
- ▶ By default non-adjustable Frequency and Loss of Mains protection setpoints from production as prescribed by the Engineering Recommendation G99

- ▶ Suitable for standard DIN rail installation or door-mount (optional)
- ▶ By default voltage protection settings disabled by integrated mechanical lock
- ▶ Voltage protection settings can be adjusted only by authorized personnel
- ▶ Configuration of other setpoints through the front panel

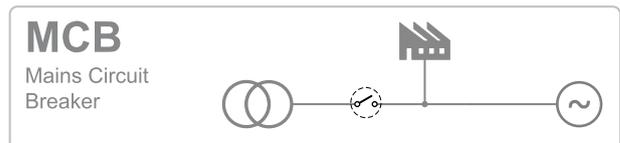
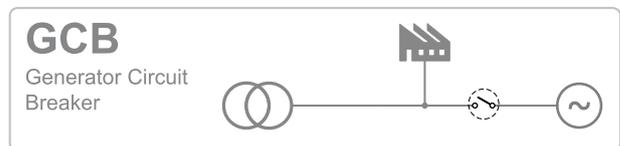
Key features

- ▶ True RMS measurement
- ▶ Vector Shift and Rate of Change of Frequency (ROCOF) protection in one unit
- ▶ Voltage symmetrical components evaluation for better detection of voltage asymmetry failures
- ▶ Two stage settings of voltage and frequency protections
- ▶ Adjustable time delay of Automatic fault reset*
- ▶ Free assignment of 5 relay outputs
- ▶ Free assignment of 4 binary switches
- ▶ Support of 3-phase and 1-phase applications
- ▶ Last 5 trips record providing evidence of cause of trip
- ▶ Universal power supply

Note:

* Set as per G99 to 20 s.

Application overview



Technical data

Power Supply

Power supply range	8-40 V DC 85-263 V AC 110-370 V DC
Maximal power consumption	8 W
Max. Power Dissipation	13 W

Operating conditions

Operating Temperature	-20 °C to +70 °C
Protection degree	IP20
Heat radiation	13 W

Voltage measurement

Measurement inputs	3 phase mains voltage
Measurement type	True RMS
Voltage range	120-230 V Ph-N 400 V Ph-Ph
Maximal measured voltage	340 V Ph-N 600V Ph-Ph
Voltage accuracy	1 % from nominal value at 50 Hz ±10 % and 25 °C 1.5 % within the complete temperature range
Measurement input impedance	400 kΩ

Frequency measurement

Frequency range	40-70 Hz
Frequency accuracy	0.1 Hz within 40-70 Hz

Signal relay contacts

Max switched voltage / current	250 V / 4 A
Max switched power	Resistive load: 1000 VA AC, 200 WDC Inductive load 50 VA AC, 25 WDC
Rated voltage / current relay	Resistive load: 250 V / 4 A AC, 200 V / 1 A 24 V / 4 A DC Inductive load: 250 V / 2 A AC, 200 V / 1A 24 V / 3 A DC
Minimum load	1 W / 1 VA at $U_{min} > 10 V$
Lifetime	10^5 cycles

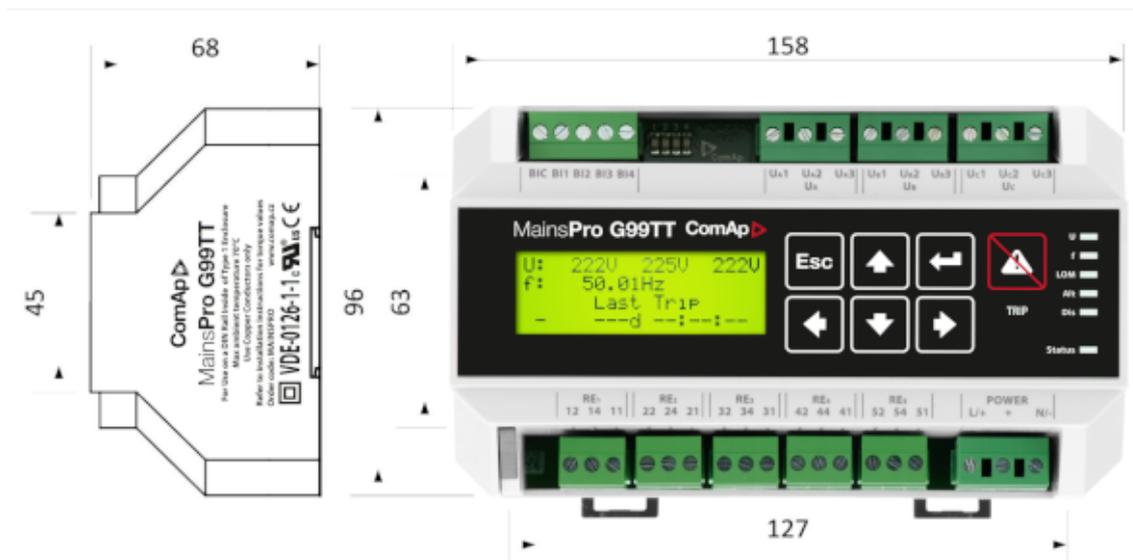
Binary inputs

Number	4 isolated
Input resistance	4.2 kΩ
Close/Open indication	0-2 V DC close contact 0-36 V DC open contact

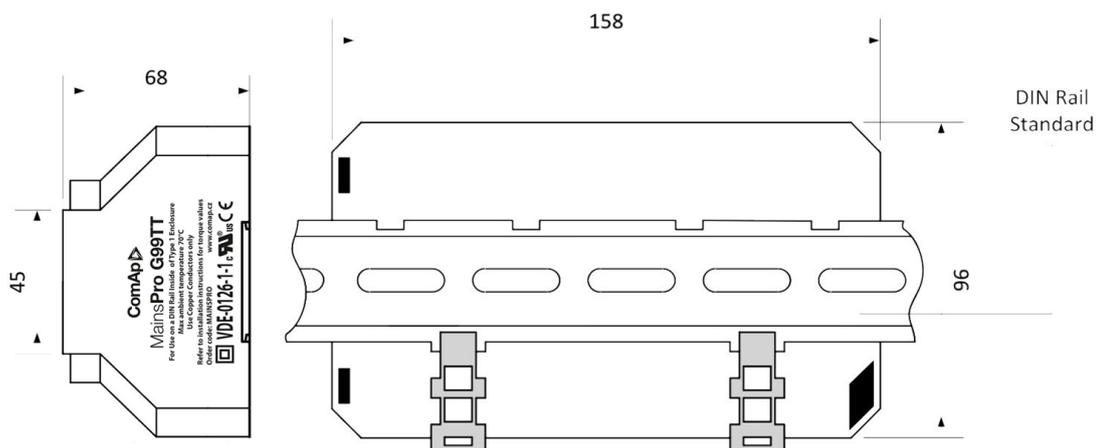
Display

Type	Build-in monochromatic
Resolution	4 lines × 20 symbols

Dimensions, terminals and mounting



DIN rail mounting



MainsPro G99TT can be also mounted into panel doors as a standalone unit. For this way of installation is recommended to use MainsPro G99TT Frame.

Functions and protections

The described product fully supports the following functions and protections as defined by ANSI (American National Standards Institute):

Description	ANSI code	Description	ANSI code
Undervoltage	27	Underfrequency	81L
Overvoltage	59	Overfrequency	81H
Voltage asymmetry	47	Rate of change of frequency	81R
Vector shift	78		

Related products

Product	Description	Order code
MainsPro	Mains Decoupling Relay	MAINSPRO

Certificates and standards

Description	Code	Description	Code
Electromagnetic compatibility	EN 50263	Electrical fast transient/burst immunity	IEC 60255-22-4 EN 61000-4-4 IEC C37.90.1
Safety standard	IEC 61010-1	Surge immunity test	IEC 60255-22-5 EN 61000-4-5
Electrical relays test	IEC 60255-3 IEC 60255-5 IEC 60255-6	Immunity to conducted disturbances induced by radio-frequency field	IEC 60255-22-6 EN 61000-4-6 IEC C37.90.2
Sine vibration tests	IEC 60255-21-1	Test of power frequency magnetic field	IEC 61000-4-8
Shock and impact test	IEC 60255-21-2	Power frequency immunity tests	IEC 60255-22-7 EN 61000-4-16
Seismic test	IEC 60255-21-3	Interruptions to an alternative component (ripple) in DC auxiliary energizing quantity of measuring relay	IEC 60255-11 EN 61000-4-17 EN 61000-4-26
Electromagnetic compatibility requirements	IEC 60255-26	Voltage dips, short interruptions and voltage variations	IEC 61000-4-11
1 MHz burst immunity test	IEC 60255-22-1 IEC 61000-4-18 IEC C37.90.1	Environmental testing (-30 °C)	IEC 60068-2-1
Damped oscillatory wave 100 kHz immunity test	IEC 61000-4-18 IEC C37.90.1	Environmental testing (+70 °C)	IEC 60068-2-2
Ring oscillatory wave immunity test	IEC 61000-4-12 IEC C37.90.1	Environmental testing - temperature change (-25 °C to +70 °C)	IEC 60068-2-14
Test of electric discharge resistance	IEC 60255-22-2 EN 61000-4-2	Environmental testing Damp heat, steady state Temp. +40 °C, humidity: 93 %	IEC 60068-2-78
Radiated electromagnetic field immunity test	IEC 60068-2-2 EN 61000-4-3 IEC C37.90.2		

Certificates and standards

<ul style="list-style-type: none"> ▶ G98, G99 ▶ IEC 60255 ▶ IEn NR 005/2012 ▶ VDE-A-RN 4105 ▶ IEC 60255-1 	<ul style="list-style-type: none"> ▶ IEC 60255-26 ▶ IEC 60255-27 ▶ IEC 60255-127 ▶ EN 60068-2-30:2005 25/55°C, RH 95%, 48hours 	
<p>List of standards is available on: https://webstore.iec.ch/</p>		

