

GMN3T

Installation and use instructions

5 A CT connection three-phase energy analyzer with Modbus, pulse or M-Bus interface

Code 8021804

The analyzer measures active and reactive energy, summing imported energy and exported energy. It provides a digital display and a digital input or Modbus command. It can be equipped with an optional output to communicate measurements, pulse output, RS485 Modbus port or M-Bus port. It measures three DIN modules, with backlit LCD display with sensitive touch screen area for page scrolling and parameters setting.

Installation och användningsinstruktioner

5A CT-kopplad 3-fas energimätare med puls, M-Bus och Modbus gränssnitt

Artikelnummer 8021804

Kompakt energimätare som mäter aktivt och reaktivt energiförbrukning. Det finns gränssnitt för kommunikation via puls, Modbus och M-Bus. Mätarmängd presenteras i en bakgrundbelyst LCD-skärm med känslig beröringsyta. En optional hantering sker med hjälp av tre touchfält i displayens underkant. Energimätaren har stöd för att mätta energi med två tariffier.

Installations- och Gebrauchsanleitung

Energianalysator, dreifasig, 5 A CT-Anschluss mit Modbus, Impuls- oder M-Bus-Schnittstelle

Artikelnummer 8021804

Der Energiemessgerät misst die Wirk- und Blindenergieleistung und bezogene und gelieferte Energie. Es werden zwei Energiearten über Digitalanzeige oder Modbus-Befehle verwaltet. Das Gerät verfügt über einen optionalen Ausgang für die Übermittlung der Messdaten. Es ist mit drei Modulen für die DIN-Schnittstellen sowie mit einem LCD-Display mit Hintergrundbeleuchtung und Touchscreen für die Navigation unter Hilfe von drei Berührungsfeldern ausgestattet.

EN: Features

Electrical specifications	
Power	Auxiliary power supply 90 to 260 V ac/dc
Consumption	≤ 1 W, ≤ 10 VA
Rated current	5 A
Maximum current (continuing)	6 A
Maximum current (short-term)	10 A
Start up current	0.2 A
Rated line voltage	400 V (PF option)
Frequency	50 Hz (PF option)
Accuracy class	Class 1 (EN62053-21) / Class B (EN62073-3)
Accuracy class	Class 2 (EN62073-3)
Reactive energy	Class 2 (EN62073-3)

For MID certification:
The meter is intended to be installed in a Mechanical Environment "M2" as per MID Directive. M2 classes applies to instruments used in locations with significant or high levels of vibration and shock, e.g. transmitted from machines and passing vehicles in the vicinity of adjacent to heavy machines, conveyor belts, etc. The meter is intended to be installed in Electromagnetic Environment "T2" as per MID Directive. Class 2 applies to instruments used in locations with electromagnetic disturbances corresponding to those likely to be found in other industrial buildings.

Output specifications	
Modbus RS485 port output	Proportional to measured active energy (EN62053-21)
M-Bus port output	M-Bus protocol (EN13751-3) frames
CT output	See Parameter menu (Fig. 25)

LED specifications

Pulse weight	
Proportional to the product of the CT and VT ratios	CT VT
Weight (pulses/kWh)	1000
10	70.3-700
100	7.1-71
1000	0.71

General features

Use a slightly dampened cloth to clean the instrument display, do not use abrasives or solvents.

CLEANING AND WARRANTY

In the event of malfunctions, first or last resort on the warranty, contact the GARD branch or distributor in your country.

SI: Eenskkaper

Elektriska specifikationer	
Effektförbrukning	Vanligt 30 till 360 VA ac/dc
Max ström	5 A
Max ström (fortfarande)	6 A
Max ström (kortvarigt)	10 A
Startström	0,2 A
Nätnätsspänning	400 V (PF alternativ)
Frekvens	50 Hz (PF alternativ)
Gen noggrannhet	Klass 1 (EN62053-21) / Klass B (EN62073-3)
Reaktiv energi	Klass 2 (EN62073-3)

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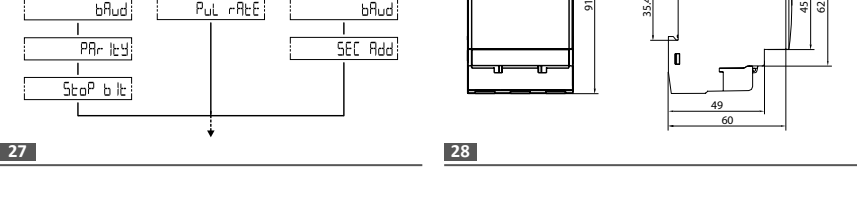
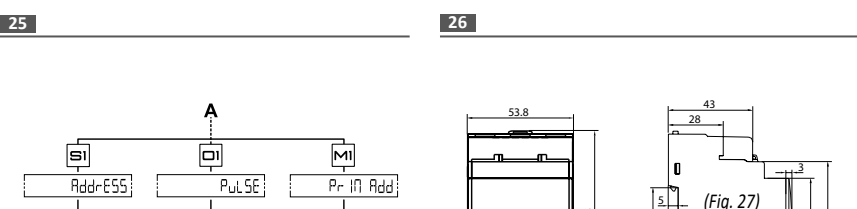
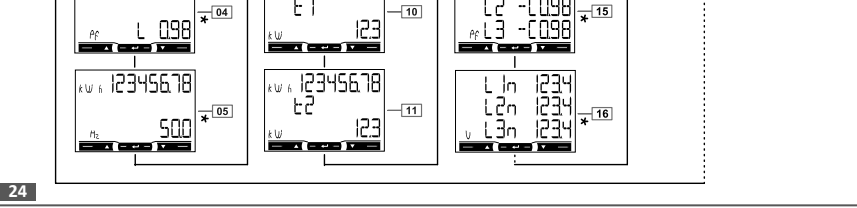
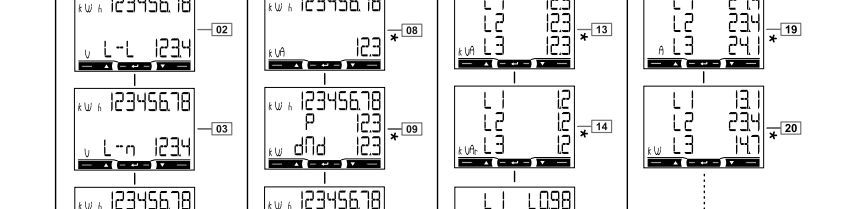
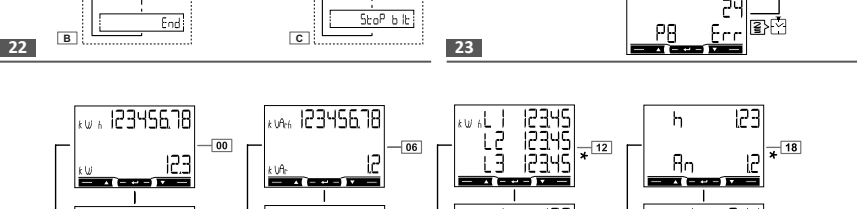
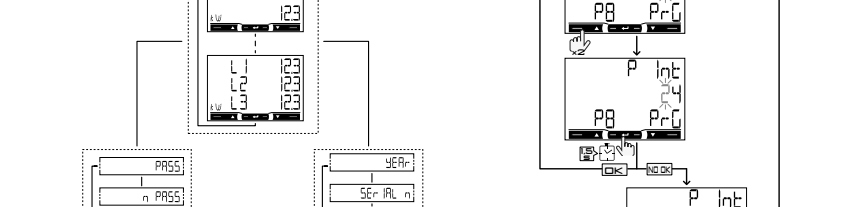
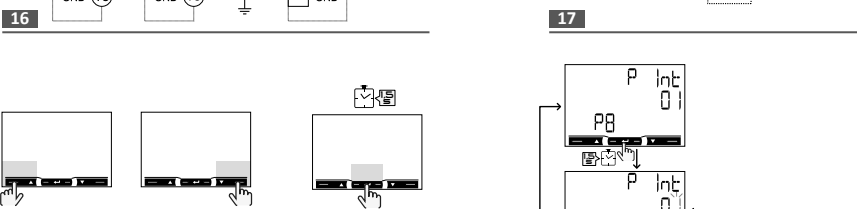
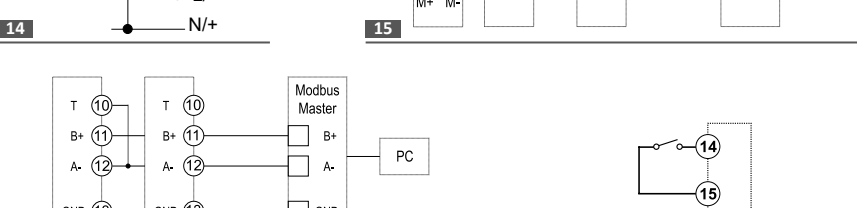
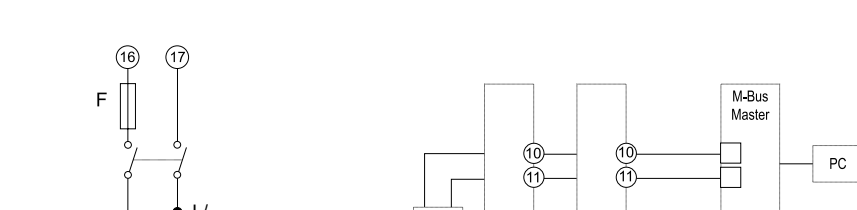
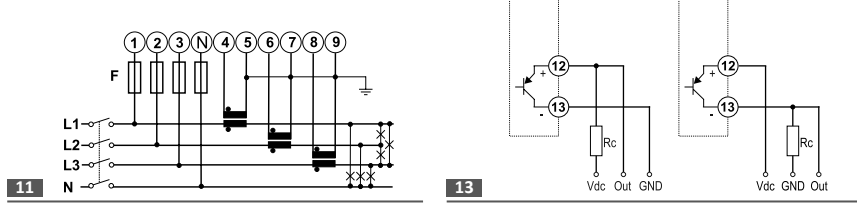
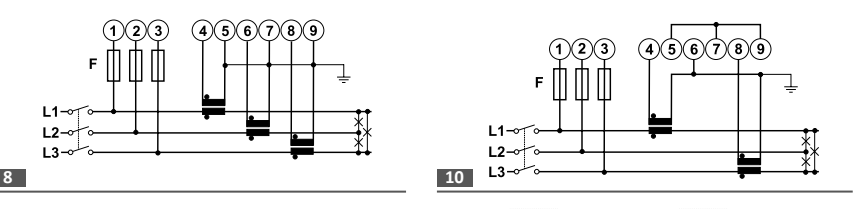
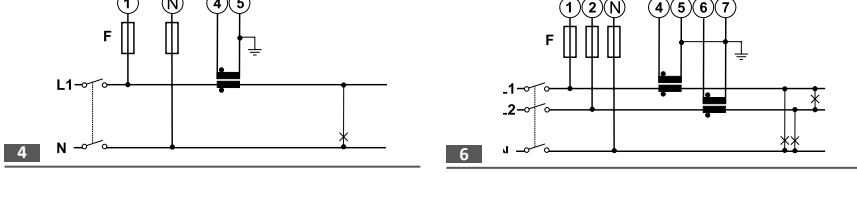
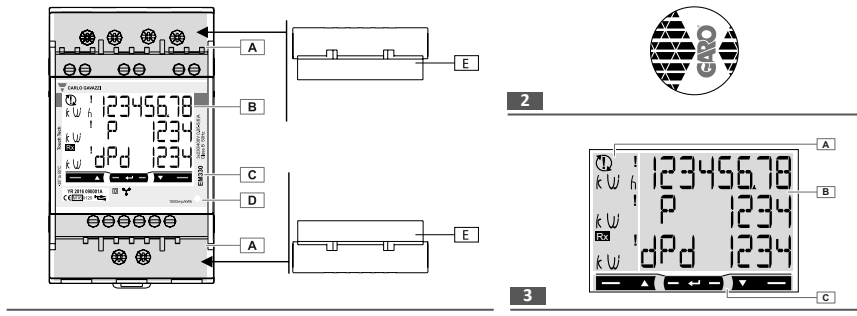
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General features

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CLEANING AND WARRANTY

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GENERAL WARNINGS

⚠ DANGER: Live parts. Heart attack, burns and other injuries. Disconnect the power supply and load before installing the analyzer. Protect terminals with covers. The energy analyzer should only be installed by qualified/authorized personnel.

⚠ These instructions are an integral part of the product. They should be consulted for all situations tied to installation and use. They should be kept with easy reach of operators, in a clean place and in good conditions.

NOTE: Programming at first start-up. Due to MID certification.

⚠ Before mounting and switching on the instrument, check the integrity of the seals (Fig. 2). When switching on the instrument for the first time set the system, CT and VT ratios. See Parameters menu (Fig. 25) for a description of the parameters.

NOTE: AFTER CONFIRMING THE CHANGE YOU'LL NO LONGER BE ABLE TO MODIFY THE CT AND VT RATIOS. To do that you will have to send the instrument to the manufacturer for a new certification.

- 1 Set the system (SYSTEM) see Parameters menu (Fig. 25) for a description of systems available.
- 2 Set the CT ratio (CT RATIO).
NOTE: After you have confirmed the value, the system will display an Error indication and return to step 1 (if the CT x VT ratio is not correct).
- 3 Set the VT ratio (VT RATIO).
NOTE: After you have confirmed the value, the system will sequentially display the CT and VT ratios.
NOTE: If you wish to re-set the values select no to return to step 2.
- 4 Confirm the previously set CT and VT ratios (CONFIRM). The system will confirm the previously set CT and VT ratios (CONFIRM).
NOTE: select no to return to step 1.

Part number (analyzer side)	
GNM3T	SA 400 V/L/230 V/L pulse
GNM3T-RS485	SA 400 V/L/230 V/L Modbus RS485 port
GNM3T-MBUS	SA 400 V/L/230 V/L M-Bus port

Area (Fig. 1)	
A	Current, voltage and communication connection terminals.
B	Backlit LCD display with sensitive touch screen areas.
C	Model, feature summary and serial number.
D	LED.
E	Sealable terminal caps

In case you want to mount the sealing terminal caps (Fig. 1 E) remember to lock them with the appropriate sealing.

- ### Connection diagrams
- Fig. 4** One phase, 2 wires (CT connection). 315 mA fuse (F), if required by local law.
Fig. 5 Two phase, 3 wires (CT connection). 315 mA fuse (F), if required by local law.
Fig. 6 Three phase, 3 wires (CT connection). 315 mA fuse (F), if required by local law.
Fig. 7 Three phase, 3 wires (Arcon CT connection). 315 mA fuse (F), if required by local law.
Fig. 11 Three phase, 4 wires (CT connection). 315 mA fuse (F), if required by local law.
Fig. 13 Pulse output (two possible connections).
Fig. 14 M-Bus with Master.
Fig. 15 M-Bus with Master.
Fig. 16 RS485 Modbus with Master.
Fig. 17 Note: additional instruments with RS485 are connected in parallel. The serial output must only be terminated on the last instrument. Do not connect terminals A, and F. For connections longer than 1000 m use a signal repeater. Maximum 247 transceivers on the same bus.
Fig. 18 Note: open contact = tariff 1, closed contact = tariff 2.

Connection check

The analyzer checks some initial assumptions are correct and signals any faults. The check is based on some initial assumptions on the system to be measured. Specifically, it is assumed that each system phase is characterized by:
• a load with PF=0.76 (<0.7) power factor if inductive or PF=0.996 (>0.9) if capacitive
• current value at least equal to 10% rated current (8 A)
Controls and signals following are the controls in the order in which they are run and corresponding signals:
Control
Voltage order
Current direction
Involvement of the involved phase
Involvement of the involved phase

Menu map (Fig. 22)

Page	Description
A	Measurement menu. Measurements displayed by default when turned on. Pages are characterized by the reference unit of measure.
B	Parameter menu. Parameter settings pages. Require login password.
C	Information menu. The pages display information and set parameters without having to enter a password.

Commands Navigation

Operation	Command	Operation	Command
View the next page	Fig. 18	Increase the value of the parameter	Fig. 18
View the previous page	Fig. 19	Decrease the value of the parameter	Fig. 19
Open the parameter menu	Fig. 20 (page End)	View the previous value option	Fig. 19
Exit the parameter menu	Fig. 21	Confirm a value	Fig. 20
Open the information menu	Fig. 21	Open the parameter settings page	Fig. 20
Exit the information menu	Fig. 21	Quickly confirm the 0000 default password	Fig. 21

Setting a parameter (Fig. 23)

Procedure: example how to set P=10.24.
NOTE: the first displayed value is the current one. Settings are applied when the value is confirmed. The value is being edited if **Prig** appears, the user sets a value out of range. For example, if the user sets a value being the title page is displayed (P in the figure) and **Prig** disappears. After another 120 s, the measurement page set in **HOME** returns.

Measurement menu (Fig. 24)

NOTE: only displayed if full display mode is set (Mode = Full).

Page	Description	Page	Description
00	Total imported active energy	08	Total imported active energy
01	Total active energy	09	Total imported active energy
02	Total imported active energy	09	Requested average power (P = demand) calculated for the set interval. The value remains the same for the entire interval. It is > 0 during the first start up interval.
03	Total imported active energy	09	Maximum requested power (GMD = Peak demand) reached since last reset
04	Total imported active energy	10	Active energy imported with tariff 1 (11). Displayed if tariff management is on (Tariff = on).
05	Total imported active energy	10	Active energy imported with tariff 2 (12). Displayed if tariff management is on (Tariff = on).
06	Total active power	11	Active power
07	Total active power	11	Run hour meter

Single phase measurement pages

NOTE: the phase measurement pages and indicated information for each depend on the type of system analyzed.

Page	Description	Page	Description
12	Forbrukad energi (kWh). Om förbrukningsmätning ("easy connection") är aktiverad mäts förbrukning oavsett effektkräkning.	17	Main voltage
13	Skärfaktor effekt (V/L)	18	Run hour meter, neutral current
14	Reaktiv effekt (kVAr)	19	Current
15	Effektfaktor (PF L= induktiv last, C = kapacitiv last)	20	Active power

Measurement faults

If the measured signal exceeds the admitted accuracy limits, a specific message appears:
• **EE** blinking: the measured value is out of

