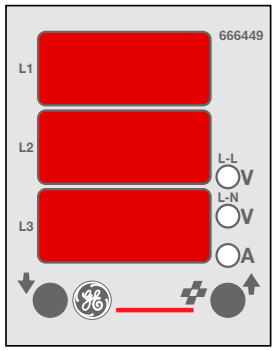
PRODUCT DETAILS

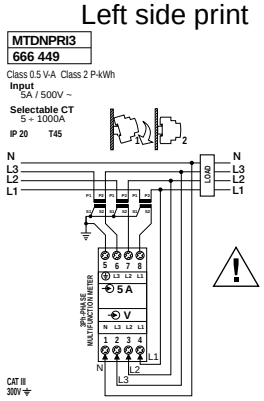
Led three phase multifunction meter 2DIN modules type MTDADV52M

Identification codes			
Bar Code		Internal Code	666449

Front print

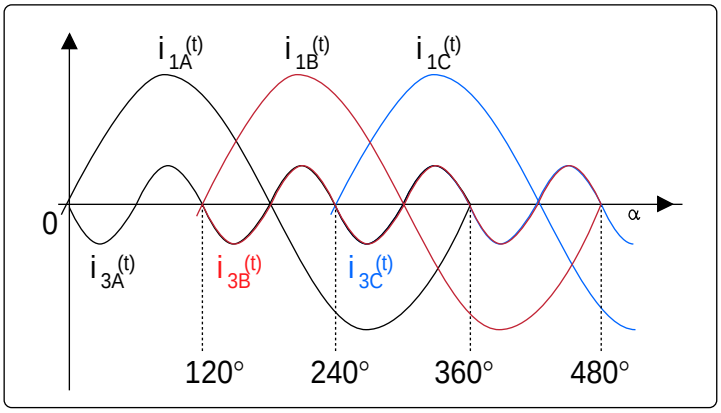


Left side print



GENERAL DESCRIPTION

2 modules DIN (the smaller present on the market) is the best solution in order to save space on cabinets and in meantime to have a good readability of measures; main scope of multifunction meters in an electrical net.
Nine red leds with high intensity on three lines, permit to show 3 measurements at the same time.
Two buttons on front permit to change the measurement pages easily and in natural way.
During the setting phase, the instrument shows the different possibilities present in the device; so it is not necessary to have in the hands the user's manual all the time.
"Power supply" page can be used in all the cases on which is important the information of "lost power supply" (example in refrigerating machines and/or coldstorage)
The possibility to reset the energy consumption and time, permits to show in easy way the relative consumption in a certain time.
Current on neutral wire: meaning of I unbalanced measurement (unbalanced current). It is frequent now, also in normal distribution nets, the use of devices onwhich the load is not linear. With the scope to calculate correctly the neutral cable and to verify the correspondence with the project data, measurement of currenton neutral (or unbalanced current measure) become fundamental.
These loads absorb not sinusoidal currents, generating harmonic waves as consequence. Third harmonic waves and their multiples, in a 3phase system, are in phase between them constituting homopolar terns.
In a 4 wire systems these homopolar terns (**Io**) makes an aritmetical sum and go along the neutral cable; as result the current on it is: **Ino=3*Io**. So, as example, a third harmonic component I3, present on 3 phases with amplitude 40% respect to the fundamental, causes on neutral a current higher than the fundamental (1,2*Inom)
It was in the past a rare situation. Current on neutral was caused principally by the unbalanced loads and the solution was to calculate the section of neutral cablesequal or less to the phase cables section.
Now the standard CEI 64-8 art. 524.3, explain well that: neutral cable in multiphase circuits, on which the phase cables have section more than 16mm2 (copper wire) or 25mm2 (aluminium cable), can have less section (min 16mm2 or 25mm2 in any case) on condition that the section supports the current present on neutral: **unbalancedcurrent added of eventual harmonic waves**,
Our device it is able to measure this current.



Descrizione:	Multimetro trifase digitale Modulare 2DIN MTDNPRI3 666449				
Disegnato:	Controllato:		Numero disegno: RANM2GE D 4007		
Data:8 Novembre 2007	Revisione 1 data: 19 mar 2009	Revisione data:	Revisione data:	Revisione data:	Revisione data:

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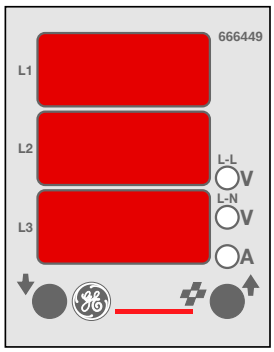
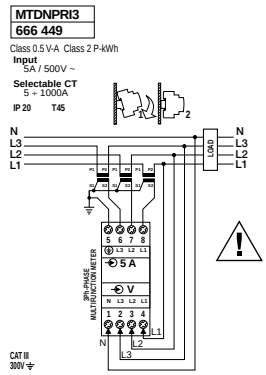


Left side print



TECHNICAL CHARACTERISTICS

MEASUREMENTS

- Ph-Ph voltage	VL1, VL2, VL3
- Ph-N voltage	VL1-N, VL2-N, VL3-N
- Medium voltage of phase	VLmedia
- Phase current	I1, I2, I3
- Medium current of phase	medium I
- Current on neutral	Iun (< unbalance>)
- Phase Active Power (+/-)	L1, L2, L3
- Total Active Power (+/-)	PW
- Phase Reactive Power	L1, L2, L3
- Total Reactive Power	Pvar
- Phase Apparent Power	L1, L2, L3
- Total Apparent Power	PVA
- Total Active Energy (import)	+kWh
- Total Active Energy(export	-kWh
- Total Reactive Energy	kvarh
- Total and Partial working time	hh:mm
- Phase Power Factor	ind/cap L1,L2, L3
- Total Equivalent Power factor	total ind/cap
- Frequency	Hz
- Sequence of phases	L1>L2>L3 (solo simbolo)

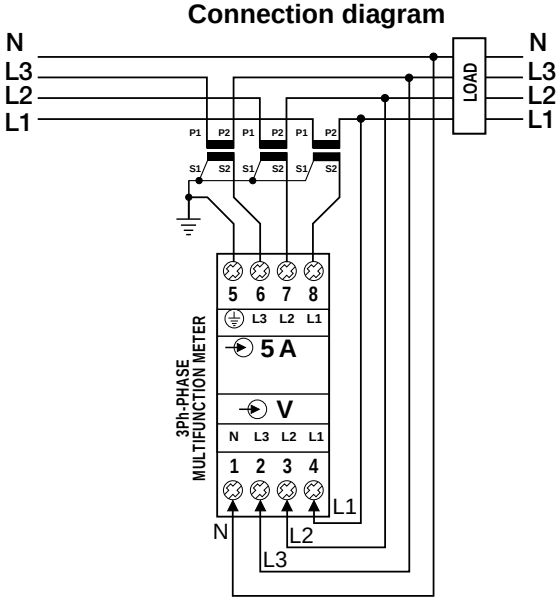
- Phase-neutral Asimmetry voltage (>L1 L2 L3-N)- (<L1 L2 L3-N)

*resettable parameters

"RMS"

true values up 20th harmonic waves

Connection diagram



Auxiliary power supply	
- nominal value U AUX	230V 50/60 Hz selfsupplied
- range	0.6...1.1 UAUX
- max absorbed power	2 VA
Input voltmeter circuit	Ph-Ph voltage
- direct insertion	max 500 V
- permanent overload)	120%
- thermic overload (1s	150%
- input impedance	2 Mohm Ph-N/Ph-Ph

PRODUCT DETAILS

Led three phase multifunction meter 2DIN modules type MTDNPRI3

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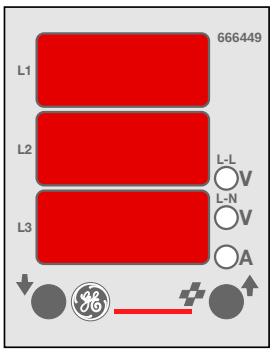

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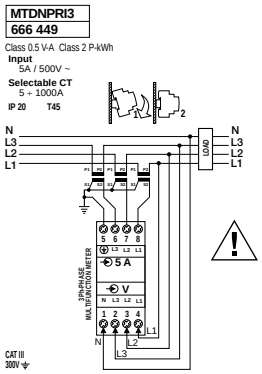

TECHNICAL CHARACTERISTICS

Input ammeter circuit	current
- current by means of C.T.	5A
- permanent overload	120%
- thermic overload (1 s)	200%
- range adjustament, CT ratio	5...1000
Voltage measurement range	
- VLN measurement range (voltage phase, direct insertion) 0...290V	
- accuracy class	0.5% f.s ±2 digit
Current Measurement range:	
- insertion by means of C.T.	0.05...5.00A
- accuracy class on range 0.005...5.00A	0.5% f.s ±2 digit
Frequency measurement range:	
- nominal value	50 / 60 Hz
- range	45...80 Hz
- accuracy class	0.3% vm ± 1 digit
- response time	< 300mS
Active Power (P1, P2, P3)	
- range	870 kW
- accuracy class	1% f.s ±2 digit
Reactive Power (Q1, Q2, Q3)	
- range	870 kVA
- accuracy class	1% f.s ±2 digit
Apparent Power measurement (S1, S2, S3)	
- range	870 KVA
- accuracy class	1% f.s ± 2 digit
Active Energy measure (Wh)	
- import/export kWhmeter	2, different
- resettable	yes
- calculating period	15 minutes
- energy counting	999999 kWh
- accuracy class with current 0,05...1.0 In	2% fs ±2 digit
Reactive Energy measure (varh)	
- energy counting	999999 kvarh
- resettable	yes
- calculating period	15 minutes
- accuracy class with current 0,05...1.0 In	2% fs ±2 digit

PRODUCT DETAILS

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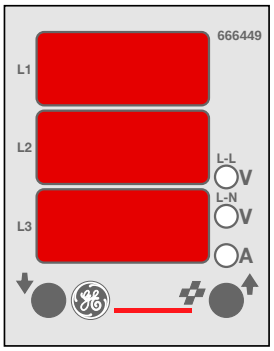

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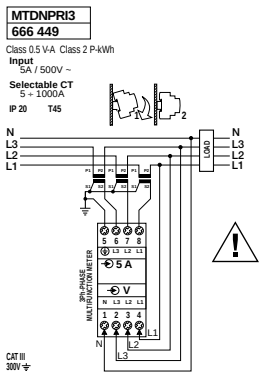


TECHNICAL CHARACTERISTICS

Power Factor measurement
- range cosø
- accuracy class with current 0.1...1.0 In and voltage 0.8...1.2 Un 2% fs ±2 digit
-cosø value measured in continuous wave (from 0,00 to 1,00 in all quadrants) permits to display the Active Power in import and export, as consequence inductive and catacitive Reactive Power too.

Phase-phase average voltages measurement V=(V12+V23+V31)/3

Phase average currents measurement I= (I1+I2+I3)/3

Working time
-Total working time (with presence of voltage)
- Partial working time (from previous reset)

Compatible current transformers

- Nominal current	5 A
- Ratio	1...200

Visualization

- display	3 numerical lines
- number of characters	9 on three lines
- colour	RED

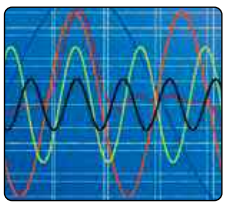
Digital filter

- Average (to stabilize the measures)	1...15

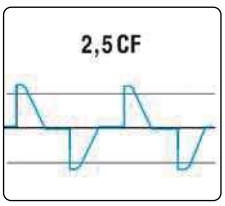
Ambient temperature:

- nominal temperature	0...+45 °C
- range	-5...+55 °C
- storage temperature	-10...+70 °C
- humidity	10...95 %
- atmospheric pressure	70...110 kPa

MEASUREMENT'S TYPOLOGY



True RMS up to the 20thharmonic wave



Crest factor up to 2,5 (Voltage and Current)

Standards CEI
- Safety CEI EN 61010-1 300V CATIII
- Accuracy class CEI EN 60688
- Electromagnetic compatibility (immunity)CEI EN 61000-6-2 (ex EN 50082-2)
- Electromagnetic compatibility (emission)CEI EN 61000-6-4 (ex EN 50081-2)
- Protection IP CEI EN 60529

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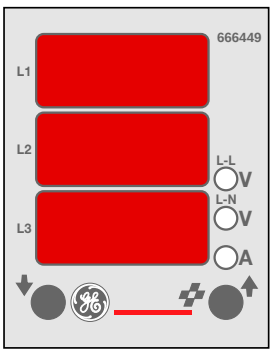

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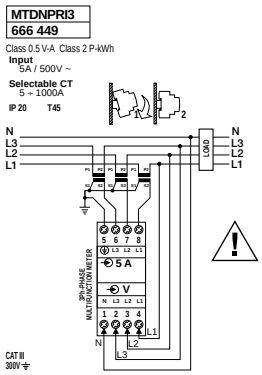
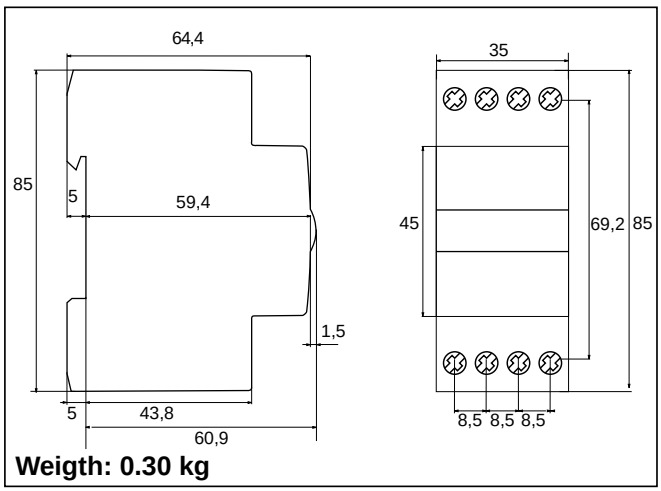


TECHNICAL CHARACTERISTICS

Mechanical characteristics

- mounting guida DIN50022
- protection IP20 frontal IP30



Weigth: 0.30 kg

OPERATION

Instrument furnished already calibrated with the following data:

Average = 3
default page = lost voltage
Current transformer = 25/5A
Nominal voltage = 213V (ph-n) and 400V (ph-ph)

When powered the device makes a self test (all segments of leds light-on for some seconds).
Changement of pages can be effected “'FORWARD”' by short pressure of right button, or “'BACKWARD”' by short pressure of left button.
Maintaining pressure on buttons you can have: fast forward, reset or configuration of parameters.
When one of the button is pressed, the “'title”' of the page is shown.

CONFIGURATION SELECTION MENU

Make a long pressure (4 seconds about) on the RIGHT button, while you stay in a page where the resettable parameters are NOT allowed.
So not on the pages of Energy or Hour-counter otherwise you obtain the reset of these values without enter on the configuration pages.
The following page appears:
Where in the central line you''ll see the device type and release n°. Dot on upper right side of display flashes, three leds light-on meaning the
configuration mode. This situation will remain until the end of procedure.
After 4 seconds the pages with configuration parameters start to be displayed; one page every 4 seconds showing the actual selected value.
If it is necessary to see the values without any modification don’t touch nothing until the automatic end of the showed pages.
To change the values of parameters, it is enough to press the RIGHT button while this parameter is displayed.
The value change immediately and closed to him a flashing points appear meaning that the value is in modification phase.
To fast forward maintain pressure on the RIGHT button.
The following can be made by pressing the left button:
- pressed during the automatic display of the pages, it increases the time you stay on this page until it is released.
- pressed during the setting of some value (when all the points on the right flashes) decrease step by step this value and it increases the time you stay on this page until it is released.

The modified value is automatically saved in permanent way when the automatic display of the pages starts again.
The following pages can be present or not depending by the model of instruments.