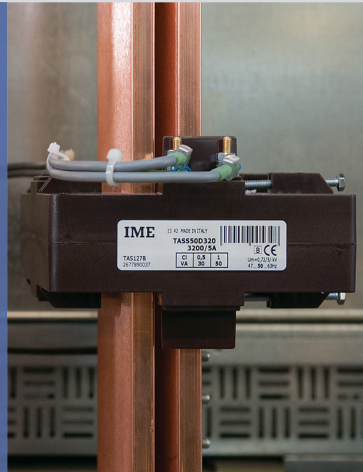


# QUICK SELECTION GUIDE 2021



SOLUTIONS FOR THE  
MEASURE, SUPERVISION  
AND MANAGEMENT  
OF ENERGY



A Group brand |  legrand





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## Energy meters

Energy meters, show active energy values in class 1 on the display (According to the EN / IEC 62053-21 standard) and reactive in class 2 (according to the EN / IEC62053-23 standard). Depending on the model, the most important electrical data are displayed



### Conto D1

Direct-connected unidirectional energy meter on 1PH+N single phase networks up to 10kW  
1 DIN module - 20mA starting current  
True RMS of: kWh, kvarh, A, V, kW, kvar, kVA, cosφ, h

Cat. Nos.	Current	Voltage	Aux	Output
CE11165A4	up to 45A	230V	Self supplied	RS485 Modbus RTU



### Conto D1

Direct connection for single-phase network. It makes available active energy counting of the pulse output to integration of consumption supervision systems. 1F+N up to 7kW - 1 DIN module - 20mA starting current

Cat. Nos.	Current	Voltage	Aux	Output
CE11165A0	up to 32A	230V	Self supplied	-
CE11165A2	up to 32A	230V	Self supplied	pulses



### Conto D2-b

Direct connection for single-phase network up to 8kW  
2 DIN module - 20mA starting current

Cat. Nos.	Current	Voltage	Aux	Output
CE21175A0	36A	230V	Self supplied	-



### Conto D2

Bidirectional energy meter with direct insertion on single-phase 1F + N networks up to 15kW. 2 DIN modules - starting current 20mA. True effective value measurements (TRMS) of: kWh, kvarh (total, partial, tariff), A, V, kW (average, peak), kvar, kVA, Hz, cosphi, h. Digital input for dual tariff management or pulses from third party devices (water, gas).

Cat. Nos.	Current	Voltage	Inputs	Output
CE2DF30PCL1	up to 63A	230V	pulses	pulses
CE2DF3DTCL1	up to 63A	230V	Double rate or pulses	RS485 Modbus RTU



### Conto D4-Pd

Bidirectional energy meter with direct connection on three-phase 3PH / 3PH + N networks up to 40kW  
4 DIN modules - starting current 20mA. True effective value measurements (TRMS) of: kWh, kvarh (total, partial, tariff), A, V, kW (average, peak), kvar, kVA, Hz, cosphi, h. Digital input for dual tariff management or pulses from third party devices (water, gas).

Cat. Nos.	Current	Voltage	Inputs	Output
CE4DF30PCL1	up to 63A	400V	pulses	pulses
CE4DF3DTCL1	up to 63A	400V	Double rate or pulses	RS485 Modbus RTU
CE4DF3MTCL1	up to 63A	400V	Double rate or pulses	M-Bus



### Conto D6-Pd

Unidirectional energy meter with direct insertion on three-phase 3F + N networks up to 85kW 6 DIN modules - starting current 40mA. True effective value measurements (TRMS) of: kWh, kvarh (total, partial, tariff), A, V, kW (average, peak), kvar, kVA, Hz, cosphi, h. Digital input for dual tariff management

Cat. Nos.	Current	Voltage	Aux	Output
CE6DT1252	up to 125A	400V	Double rate	Pulses
CE6DT1256	up to 125A	400V	Double rate	Pulses + RS485 ModBus RTU



### Conto D4-Pt

Bidirectional energy meter with insertion on CT for 3ph / 3ph / 1ph + N networks of any power depending on the CT report. 4 DIN modules - starting current 10 mA

True effective value measurements (TRMS) of: kWh, kvarh (total, partial, tariff), A, V, kW (average, peak), kvar, kVA, Hz, cosphi, h. Digital input for dual tariff management or pulses from third party devices (water, gas).

Cat. Nos.	Current	Voltage	Inputs	Output
CE4TB0PCL1	TA/5A - TA/1A	400V or TV	Pulses	Pulses
CE4TBDTCL1	TA/5A - TA/1A	400V or TV	Double rate or pulses	RS485 Modbus RTU
CE4TBMTC1	TA/5A - TA/1A	400V or TV	Double rate or pulses	M-Bus

# Energy meters

Unidirectional and bidirectional multi-measure energy meters, suitable for applications for fiscal purposes. The display shows the active energy consumption count (kWh) in class B EN 50470 MID certified, energy reactive (kvarh) in class 2 EN / IEC 62053-23 and the main electrical quantities. Start of counting hours of operation linked to the starting current.



### Conto D1 MID

Unidirectional energy meter with direct insertion on single-phase 1F + N networks up to 10kW  
1 DIN module - starting current 20mA  
True effective value measurements (TRMS) of kWh

Cat. Nos.	Current	Voltage	Aux	Output
CE1DMID12	up to 45A	230V	Self supplied	Pulses



### Conto D2 MID

MID bidirectional energy meter with direct insertion on single-phase 1F + N networks up to 15kW.  
2 DIN modules - starting current 40 mA.

True effective value measurements (TRMS) of: kWh, kvarh (total, partial, tariff), A, V, kW (average, peak), kvar, kVA, Hz, cosphi, h. Digital input for dual tariff management or pulses from third party devices (water, gas).

Cat. Nos.	Current	Voltage	Inputs	Output
CE2DF30PMID	up to 63A	230V	Pulses	Pulses
CE2DF3DTMID	up to 63A	230V	Double rate	RS485 Modbus RTU
CE2DF3MTMID	up to 63A	230V	Double rate	M-Bus



### Conto D4-Pd MID

MID bidirectional energy meter with direct connection on 3ph / 3ph + N three-phase networks (same device) up to 40kW. 4 DIN modules - starting current 20mA.

True effective value measurements (TRMS) of: kWh, kvarh (total, partial, tariff), A, V, kW (average, peak), kvar, kVA, Hz, cosphi, h. Digital input for double tariff management or pulses from third-party devices (water, gas).

Cat. Nos.	Current	Voltage	Inputs	Output
CE4DF30PMID	up to 63A	400V	Pulses	Pulses
CE4DF3DTMID	up to 63A	400V	Double rate	RS485 Modbus RTU
CE4DF3MTMID	up to 63A	400V	Double rate	M-Bus



### Conto D6-Pd MID

Unidirectional energy meter with direct insertion on three-phase 3F + N networks up to 85kW 6 DIN modules - starting current 40mA. True effective value measurements (TRMS) of: kWh, kvarh (total, partial, tariff), A, V, kW (average, peak), kvar, kVA, Hz, cosphi, h. Digital input for dual tariff management

Cat. Nos.	Current	Voltage	Inputs	Output
CE6DMID52	up to 125A	400V	Double rate	Pulses
CE6DMID56	up to 125A	400V	Double rate	Pulses + RS485 ModBus RTU



### Conto D4-Pt MID

Bidirectional energy meter with insertion on CT for 3F / 3F + N networks of any power depending on the CT report. 4 DIN modules - starting current 10 mA. True effective value measurements (TRMS) of: kWh, kvarh (total, partial, tariff), A, V, kW (average, peak), kvar, kVA, Hz, cosphi, h. Digital input for dual tariff management or pulses from third party devices (water, gas).

Cat. Nos.	Current	Voltage	Inputs	Output
CE4TBDTMID	from TA/5A	400V or from TV (3F)	Double rate	RS485 ModBus RTU
CE4TBM TMID	from TA/5A	400V or from TV (3F)	Double rate	M-Bus
CE4TB0PMID	from TA/5A	400V or from TV (3F)	impulsi	Pulses

## Multifunction tools with energy metering

Bidirectional metering of active energy (kWh) in class 1 and reactive (kvarh) in class 2 according to EN / IEC 61557-12  
 Multifunction with backlit LCD display for three-phase 3PH / 3F + N LV networks  
 True effective value measurements (TRMS) of: A, V, Hz, kW, kvar, kVA (instantaneous, average and peak), cosφ, h, total THD



**NEMO D4-e**  
 4 DIN modules insertion on TA /5A

Cat. Nos.	Current	Voltage	Aux	Output
MF45A00	from TA /5A	up to 500V	230Vac	-



**NEMO D4-ec**  
 4 DIN modules 63A or 125A direct insertion via miniaturized Rogowski with closed core prewired cable L. 0,3m quick connection.  
 No configuration needed.

Cat. Nos.	Current	Voltage	Aux	Output
MKD4R63FC001	63A	up to 500V	230Vac	-
MKD4R125FC001	125A	up to 500V	230Vac	-

## Multifunction instruments with single harmonic analysis

Insertion on 1F + N / 3F / 3F + N lines for LV networks via CT and VT (primary max 1kV) Large 4-line backlit LCD display.  
 Bidirectional metering of active energy (kWh) in class 0.5 and reactive (kvarh) in class 1 according to EN / IEC 61557-12  
 Harmonic analysis for current and voltage up to 50th order + crest factor. Threshold of the count of hours of operation settable in power. True effective value measurements (TRMS) of: kWh, kvarh, A, V, kW, kvar, kVA, Hz, cosφ, h, average values of A, kW, kvar, kVA



**NEMO D4-Le**  
 4 DIN modules

Cat. Nos.	Current	Voltage	Aux	Output
MFD4411	from CT/5A -CT/1A	80...500 V or from VT	80...265 Vac 100...300 Vdc	Pulses or alarms
MFD4421	from CT/5A -CT/1A	80...500 V or from VT	80...265 Vac 100...300 Vdc	Pulses or alarms + RS485 Modbus RTU/TCP



**KIT NEMO D4-Le + Rogowski coils**  
 KIT ready for installation including 1 multifunction + 3 Rogowski coils  
 3 current ranges that can be selected on each KIT: 20...1000A, 60...3000A, 100...5000A

Cat. Nos.	Current	Voltage	Aux	Output
KRNEMOD4LE080	from Rogowski ø80	80...500 V or from VT	80...265 Vac 100...300 Vdc	Pulses or alarms + RS485 Modbus RTU/TCP
KRNEMOD4LE142	from Rogowski ø142	80...500 V or from VT	80...265 Vac 100...300 Vdc	Pulses or alarms + RS485 Modbus RTU/TCP
KRNEMOD4LE190	from Rogowski ø190	80...500 V or from VT	80...265 Vac 100...300 Vdc	Pulses or alarms + RS485 Modbus RTU/TCP



**NEMO 72-Le**  
 flush mounting, 72x72mm

Cat. Nos.	Current	Voltage	Aux	Output
MF72411	from CT/5A -CT/1A	80...500 V or from VT	80...265 Vac 100...300 Vdc	Pulses or alarms
MF72421	from CT/5A -CT/1A	80...500 V or from VT	80...265 Vac 100...300 Vdc	Pulses or alarms + RS485 Modbus RTU/TCP



**NEMO 96 HDLe**  
flush mounting, 96x96mm - expandable with plug-in modules

Cat. Nos.	Current	Voltage	Aux	Output
MF96411	from CT/5A -CT/1A	80...500 V or from VT	80...265 Vac 100...300 Vdc	Pulses + 1 plug-in module
MF96421	from CT/5A -CT/1A	80...500 V or from VT	80...265 Vac 100...300 Vdc	Pulses + RS485 Modbus RTU/ TCP + 1 plug-in module



**KIT NEMO 96 HDLe + Rogowski coils**  
KIT ready for installation including 1 multifunction + 3 Rogowski coils  
3 current ranges that can be selected on each KIT: 20...1000A, 60...3000A, 100...5000A

Cat. Nos.	Current	Voltage	Aux	Output
KRNEMOHDLE080	from Rogowski ø80	80...500 V or from VT	80...265 Vac 100...300 Vdc	Pulses + RS485 Modbus RTU/ TCP + 1 plug-in module
KRNEMOHDLE142	from Rogowski ø142	80...500 V or from VT	80...265 Vac 100...300 Vdc	Pulses + RS485 Modbus RTU/ TCP + 1 plug-in module
KRNEMOHDLE190	from Rogowski ø190	80...500 V or from VT	80...265 Vac 100...300 Vdc	Pulses + RS485 Modbus RTU/ TCP + 1 plug-in module

## Multifunction instruments expandable with plug-in modules

Insertion on 1F + N / 3F / 3F + N lines for LV / MV networks

Large 4-line backlit LCD display. Bidirectional metering of active energy (kWh) bidirectional in class 0.5 and reactive (kvarh) in class 1 according to EN / IEC 61557-12. Threshold of the count of hours of operation settable in power True effective value measurements (TRMS) of: kWh, kvarh, A, V, kW, kvar, kVA, Hz, cosφ, h, average values of A, kW, kvar, kVA



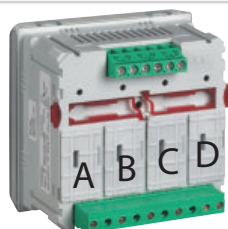
**NEMO 96 HD**  
Connected on LV networks by means of CT and VT (primary max 1kV)  
flush mounting 96x96mm

Cat. Nos.	Current	Voltage	Aux	Output
MF96001	from CT/5A -CT/1A	80...500 V or from VT	80...265 Vac 100...300 Vdc	up to 4 plug-in modules



**NEMO 96 HD+**  
Connected on LV/MV networks by means of CT and VT, I/U harmonic analysis  
flush mounting 96x96mm

Cat. Nos.	Current	Voltage	Aux	Output
MF96021A	from CT/5A -CT/1A	80...690 V or from VT	80...265 Vac 100...300 Vdc	up to 4 plug-in modules



**NEMO 96 Plug-in modules**  
The purpose of the plug-in modules is to add new functions to the Nemo 96 HD/HD+ /HDLe

Cat. Nos.	Description	Position	HDle	HD+	HD
IF96001 <sup>1</sup>	RS485 Modbus RTU/TCP	A	☑	☑	☑
IF96002 <sup>1</sup>	RS232 Modbus RTU/TCP	A	☑	☑	☑
IF96007A <sup>1</sup>	Profibus EN50170 - DP0	A	☑	☑	☑
IF96009 <sup>1</sup>	LonWorks	A	☑	☑	☑
IF96013 <sup>1</sup>	M-Bus EN1434-3	A	☑	☑	☑
IF96014 <sup>1</sup>	RS485 BACnet MS-TP	A	☑	☑	☑
IF96015 <sup>1</sup>	Ethernet	A	☑	☑	☑
IF96003	2 energy pulse outputs (SPST)	A-B-C-D		☑	☑
IF96004	2 x 0/4...20mA analogue outputs	C-D		☑	☑
IF96005	2 alarm relay outputs (SPST)	A-B-C-D		☑	☑
IF96006	Neutral current direct connection (max.5A) or with external dedicated CT	C		☑	☑
IF96016	Temperature measurement 2 inputs from PT100	C		☑	☑
IF96010	2 input SPST-NO - 2 relay outputs SPST-NO	C-D		☑	☑
IF96011	2 input 12/24Vcc - 2 relay outputs SPST-NO	C-D		☑	☑

# NEMO 96EA NETWORK ANALYZER

## NETWORK ANALYZER ORIENTED TO QUALITY OF ENERGY



NEMO 96 EA is a Class S Power Quality Analyzer, allowing you to monitor the quality of the network that is measuring and recording events that may occur. It will help you manage and guarantee the reliability and energy efficiency of your installation in order to minimize losses due to disturbances in the distribution networks. NEMO 96 EA has an 8Mb internal memory for the recording of real time data (current, voltage, powers, frequency,...) and integrated data (energies). It can also save the energy NEMO 96 EA quality events (voltage drops, overvoltage, rapid voltage change and interruptions of the voltages). It calculates the instantaneous flicker intensity.

### Integrated memory

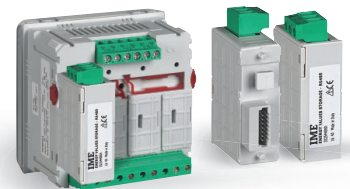
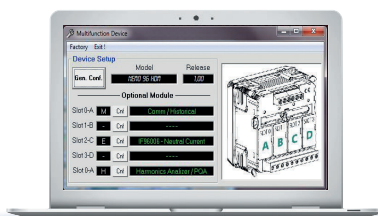
Thanks to integrated memory, is possible choose what parameters to store and keep track of for the future analysis.

### Parameter display and thresholds and alarm management

NEMO 96 EA is able to display all network parameters and setting alarm thresholds.

### Energy quality display

IDM EVO software can remotely view the power quality parameters of your network.



### Reply of display

IDM EVO software lets you remotely replicate the parameters displayed on the display of the control panel and handle them through dedicated functions.

### Remote configuration

IDM EVO software in addition to the display function, the IDM EVO software also allows the complete configuration of the device and the connected modules.

### Accessoriability with standard modules

NEMO 96 EA can be equipped with up to 3 additional modules, including those normally in the catalog for the NEMO 96 range.



# Nemo 96EA

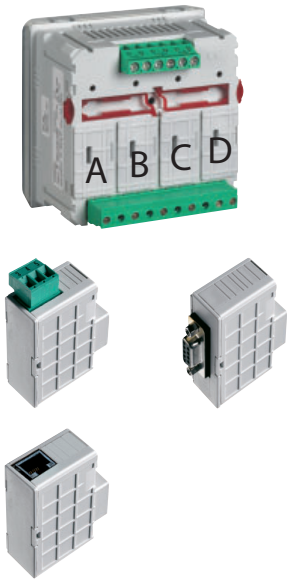
Multifunction measuring center



## NEMO 96 EA

Network analyser, class S, connected on LV/MV networks by means of CT and VT flush mounting 96x96mm

Cat. Nos.	Current	Voltage	Aux	Output
MFQ96021	from CT/5A -CT/1A	80...690 V o from VT	80...265 Vac 100...300 Vdc	RS485 Modbus RTU/TCP + up to 3 plug-in modules



## NEMO 96 PLUG-IN MODULES

The purpose of the plug-in modules is to add new functions to the Nemo 96 EA

Cat. Nos.	Description	Position	EA
IF96002 <sup>1</sup>	RS232 Modbus RTU/TCP	A	<input checked="" type="checkbox"/>
IF96015 <sup>1</sup>	Ethernet	A	<input checked="" type="checkbox"/>
IF96003	2 energy pulse outputs (SPST)	B-C-D	<input checked="" type="checkbox"/>
IF96004	2 x 0/4..20mA analogue outputs	C-D	<input checked="" type="checkbox"/>
IF96005	2 alarm relay outputs (SPST)	B-C-D	<input checked="" type="checkbox"/>
IF96006	neutral current direct connection (max.5A) or with external dedicated CT	C	<input checked="" type="checkbox"/>
IF96016	Temperature measurement 2 inputs from PT100	C	<input checked="" type="checkbox"/>
IF96010	2 input SPST-NO - 2 relay outputs SPST-NO	C-D	<input checked="" type="checkbox"/>
IF96011	2 input 12/24Vcc - 2 relay outputs SPST-NO	C-D	<input checked="" type="checkbox"/>

<sup>1</sup> Communication modules are as an alternative to them.

# ENERGY SUPERVISION

## A COMPLETE AND VERSATILE SOLUTION FOR:

- direct system control
- checking the correct operation of the installation
- supervising the system using a PC, tablet and smartphone, through web server and dedicated software
- issuing CSV files for re-invoicing and consumption analysis purposes



### Energy view (partial)



### Advanced daily / monthly / annual display



### Comparison of 2 zones per Day / Month / Year



### THD view



### Harmonic view



### Alarm view

Time	Device	Address(per modulo)	Type
2019-02-04 11:31:24	Tribase MC	School: 13	TRIPPED
2019-02-04 11:31:24	Air Conditioning	School: 13	TRIPPED
2019-02-04 10:11:19	Tribase MC	School: 13	TRIPPED
2019-02-04 10:11:19	Air Conditioning	School: 13	TRIPPED
2019-02-01 14:35:12	Tribase MC	School: 13	TRIPPED
2019-02-01 14:35:12	Air Conditioning	School: 13	TRIPPED
2018-12-23 11:24:23	Tribase MC	School: 13	TRIPPED
2018-12-23 11:24:23	Air Conditioning	School: 13	TRIPPED
2018-12-12 15:03:04	Tribase MC	School: 13	TRIPPED
2018-12-12 15:03:04	Air Conditioning	School: 13	TRIPPED
2018-11-23 15:31:50	Tribase MC	School: 13	TRIPPED
2018-11-23 15:31:50	Air Conditioning	School: 13	TRIPPED

## Web server

Thanks to the Web server, combined with CONTO meters, NEMO multifunction meters or the NEMO SX system it is possible, among other things:

- Display the status of devices;
- Display and management of electrical quantities;
- Remote control;
- Generation and sending of reports containing consumptions data.



### Features:

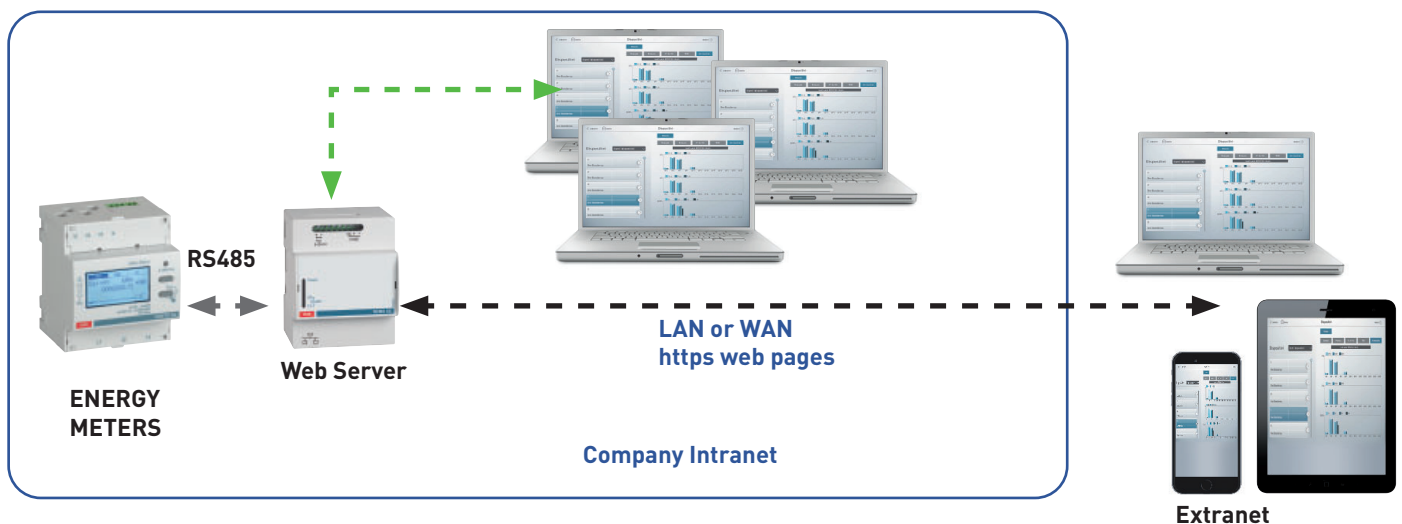
- Status display
- Display of electrical quantities
- Billing functions
- Ability to manage all currencies in the world  
Multi-tariff
- Remote control
- The generation and sending of consumption reports
- Display of alarms
- Performs the analysis and storage of consumption on CSV files

# WEBSERVER

## Application example

### ARCHITECTURE: EXAMPLE

1 SITE

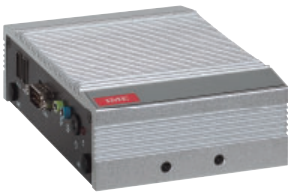




### Mini Web server DIN version

Allow remote configuration, test, control and visualization, via a web browser on PCs, smartphones, web viewers, tablet computers, of data collected from: protection devices, meters and multi-function measuring units and NEMO SX energy management

Cat. Nos.	Description
SXWS10	For 10 Modbus addresses or 10 pulse modules
SXWS32	For 32 Modbus addresses or 32 pulse modules



### Web server

Allow remote configuration, test, control and visualization, via a web browser on PCs, smartphones, web viewers, tablet computers, of data collected from: protection devices, meters and multi-function measuring units and NEMO SX energy management

Cat. Nos.	Description
SXWS225	It manages up to 255 Modbus addresses



### IF with built-in datalogger

Ethernet-RS485/Datalogger multisession converter interface (up to 4), 4 DIN modules makes it possible to interface Conto and Nemo multifunction meters to an Ethernet 10/100 MB network. Direct connection up to 31 devices on the RS485 line or up to 247 devices using repeaters. Two methods of Bridge (Modbus RTU or TCP) or Datalogger function for storing energy data for each device connected and on request generating consumption reports for a period selected with the possibility of delivery to the system administrator by mail.

In this configuration it is possible to manage up to 64 different energy meters/multifunction and users with individual access to a system administrator.

Cat. Nos.	Input	Output	Aux
IF4E011	RS485	Ethernet RJ45	80...270 Vac + 100...300 Vdc



### Communication interfaces RS485 / Modbus TCP-IP module

Modbus RS485 - Modbus TCP / IP conversion, allowing the devices in the electrical panel to be connected to an Ethernet network.

Cat. Nos.	Description
SXIIP	RS485 / Ethernet conversion (for connection to an IP network)



### Interface RS485-KNX

KNX/Modbus RS485 converter interface, for Conto energy meters and Nemo multifunctions, up to 31 struments

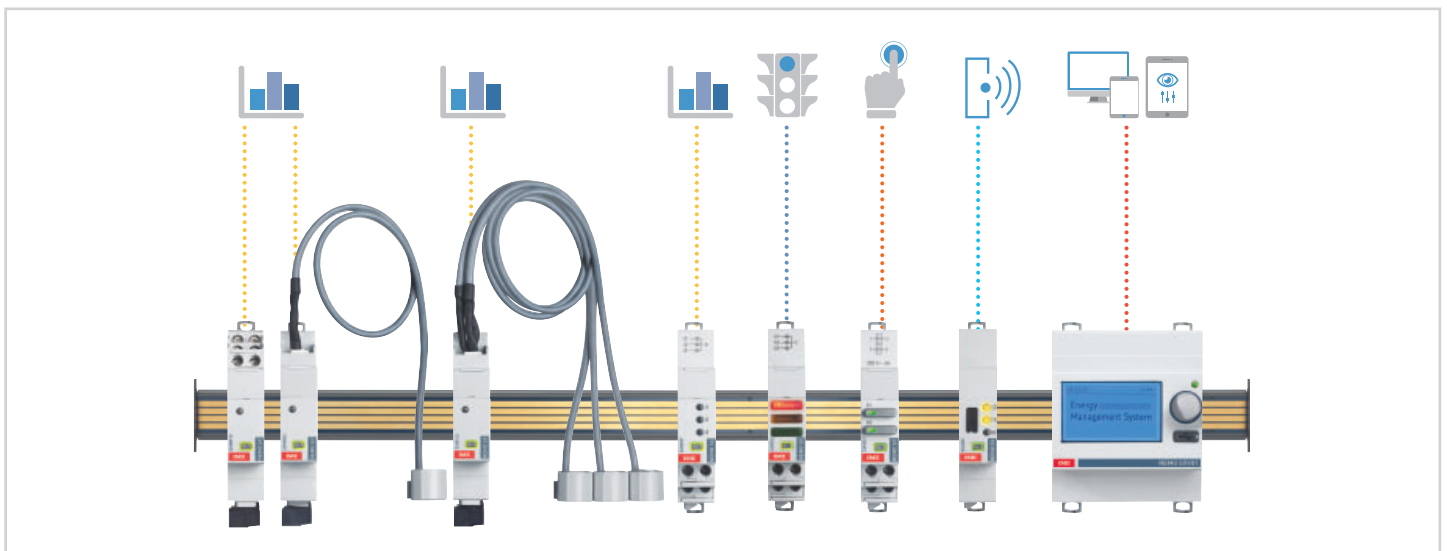
Cat. Nos.	Input	Output	Aux
IF1KNX	RS485	KNX	95...250Vac

# NEMO SX

## MEASUREMENT AND MANAGEMENT SYSTEM

**NEMO SX** system is made up of several DIN modules. Each of them performs a specific function: measurement, command or control of the status of protection or any kind of other devices.

**NEMO SX** is an independent and integrable system which, thanks to its type of automatic connection, simplifies the assembling step and does not require any modification of existing panels. Its mechanical features mean that it can be used with a wide range of protection devices or all type of other devices in all distribution panels and cabinets.



New **NEMO SX** measurement and energy management system completes the already existing IME measurement offers, by also offering possibilities of:

### Check if the system is running properly

- Measure electrical
- Display the status of circuit breakers and loads, faults and general system conditions locally or remotely.



MISURARE



SEGNALARE

### Monitor the system in the installation or remotely

- Monitor and control all the processes via computing tools to optimise energy consumption at any time and everywhere:
- Check the status of devices or loads
- Remote control circuits
- Programmed maintenance
- Corrective actions on the system
- Management of signals and alarms
- Historical analysis of consumptions over time



SUPERVISIONARE

### Directly control the system

- Take the control devices locally or remotely, via manual or automatic actions.



COMANDARE

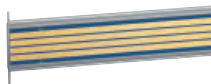
# Measurement and energy management system NEMO SX



### Power supply module

stabilized power supply

Cat. Nos.	Description
SXAA230	stabilized power supply



### Communication rails for rail DIN35

Allows data transmission between the different modules of NEMO SX energy management system

Cat. Nos.	Description
SXAR18	18 modules
SXAR24	24 modules
SXAR36	36 modules
SXARC	Plastic cover for communication rail



### Communication patch cords

Allows data transmission between the different modules of NEMO SX energy management system  
Can be used instead of communication rails or to create a link between two rows (individually connected with communication rails)

Cat. Nos.	Description
SXAC250	Kit 10 cables L=250mm
SXAC500	Kit 10 cables L=500mm
SXAC1000	Kit 10 cables L=1000mm
SXACA	Communication patch cord connector (maximum length 3m)



### Measurement modules

NEMO SX measuring devices available with rogowsky coils supplied or external CTs.

Measurements performed and precision

- Current (0.5 precision): phase: I1, I2, I3 - neutral: IN
- Voltage (0.5 precision): phase / phase: U12, U23, U31-phase/neutral: V1N, V2N, V3N
- Frequency (accuracy 0.1)
- Power: total instantaneous, phase active (precision 0.5); total instantaneous reactive, phase (precision 2); apparent total instantaneous, phase (accuracy 0.5);
- Power factor (precision 1)
- Energy: total / partial active energy, positive and negative (precision 0,5); total / partial reactive energy, positive and negative (precision 2).
- THD (precision 5): THD voltages: V1, V2, V3 or U12, U23, U31; THD currents: I1, I2, I3, IN.
- Voltage / current harmonic analysis: odd harmonics up to 15th

Cat. Nos.	Description
SXMM63	Single-phase measuring module and closed Rogowski coil up to 63 A
SXMT63	3-phase measuring module and closed Rogowski coil up to 63 A
SXMMT5	5 A measuring module connected via current transformers (CT)



### State reporting module

Equipped with 3 LED lights: green, red and yellow Indicates various type of information, according to selected configuration: contacts position, plugged-in or drawn-out product, etc...

Equipped with DIP switches (on the side) allowing product configuration: selection of information type and of the LED behaviour

Cat. Nos.	Description
SXMC02	LED module Equipped with 3 LED lights: green, red and yellow



### Control module

Enables to remotely control different electrical loads or motorised controls associated to 4 rail mounting protection devices or head equipment.

Equipped with DIP switches (on the side) allowing product configuration: contact type (NO + NC, 2 NO, etc...) and function (maintained or momentary contact)

Cat. Nos.	Description
SXM0C1	Control module with two buttons



### Communication interfaces RS485 module

RS485 / NEMO SX energy management system conversion

Cat. Nos.

SXI485

Description

Communication interfaces module NEMO SX to RS485



### Pulse concentrator module

For collecting and transmitting measurements taken by universal pulse energy meters (water, gas, etc...)  
Up to 3 pulse circuits

Cat. Nos.

SXMIMP

Description

Pulse concentrator module



### Mini modular configurator

Optional module for «stand alone» supervision need. Enables to configure, test and control NEMO SX energy management system and to visualize supervision data No computer or IP connection required.

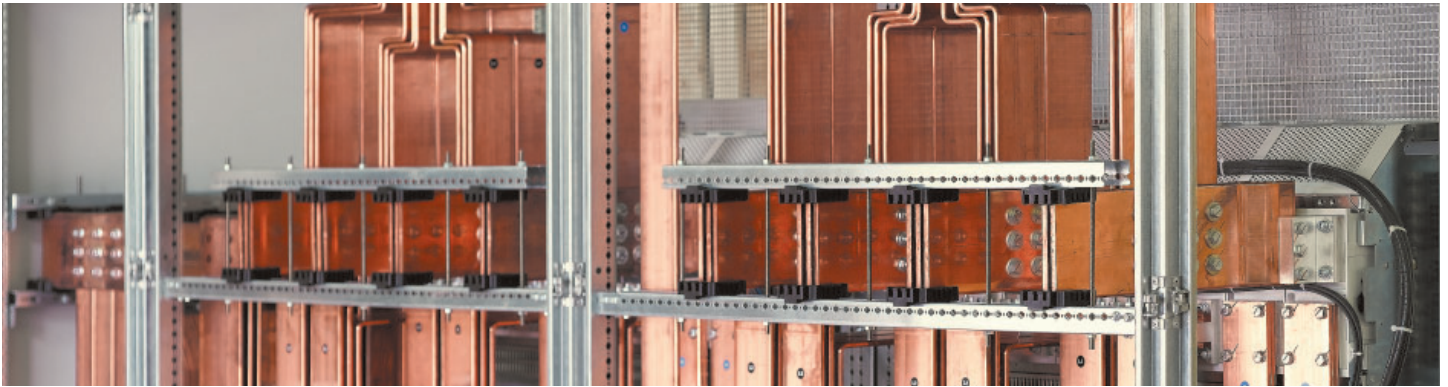
Cat. Nos.

SXV01

Description

Stand alone configuration module

# LOW VOLTAGE TRANSFORMERS



## GUIDE TO CHOOSE A CT

### To choose the CT properly you need to know:

#### - System rated current

This is used to determine the transformer's primary current, e.g.:

System rated current: 425A = CT 500/5A

#### - Power bar/cable size

This makes it possible to choose a CT with a window that is large enough to pass the phase bar/cord through, the tendency is always to choose a slightly bigger window so as to have a little play that is useful during installation, e.g.:  
Cord of 120mm<sup>2</sup> (max. outer diam. 21.5mm) = I choose model TA327 with  $\varnothing$ 27mm hole.

#### - Measurement class

Classes 0.5/1 recommended for measuring power, electricity and  $\cos\phi$

Class 3 to be used for current measures on ammeters only

#### - Performance (VA)

This represents the maximum load that can be connected to the secondary terminals of the CT. The load consists of the self consumption of the measurement instrument + adsorption of the cables connecting the CT and the instrument. This latter depends on the length and cross-section of the cable.

The following is a table for calculating the absorption of the cables connecting the CT and the instrument.

Power absorbed (VA) by the cables connecting the CT and the instrument		
cross section mm <sup>2</sup> copper	*VA per meter of bipolar cable at 20°C	
	secondary 5A	secondary 1A
1	1	0.04
1.5	0.685	0.0274
2.5	0.41	0.0164
4	0.254	0.0102
6	0.169	0.0068
10	0.0975	0.0039
16	0.062	0.0025

\*The VA absorbed by the connection cables rises 4% for every 10% variation in the temperature.

## CT/5A or CT/1A?

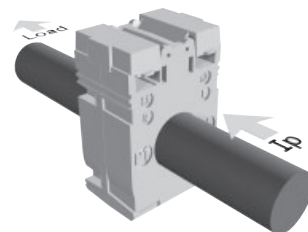
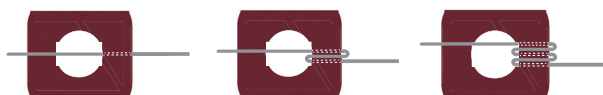
From the table shown above, it can be seen that using the same cross section the CT/1A absorbs 25 times less than the CT/5A because of the very long sections ( $\geq$ 20m). You are advised to choose a CT/1A so as to reduce the section and relative cost of the cables as well as ensuring more precise reading.



When taking industrial electrical measurements they are the first link in the measurement chain. Current transformers make it possible to work back to the precise current value applied to the primary through the measurement of the secondary current. They are used from the simplest applications with analogic indicators to the most complex where the use of transducers, energy meters or multifunction instruments is contemplated and, finally, in monitoring systems.

**CT with cable/passing bar (Primary currents: 40...8000A)**

By making several passages (turns) of the cable inside the transformer, it is possible to reduce the value of the primary current while keeping the unchanged secondary current values, performances, class (actual primary current = rated primary current: n° of turns; example 150/5A with 2 cable passages = 75/5A with 3 cable passages = 50/5A)



**CT with primary winding (Primary currents: 5...600A)**



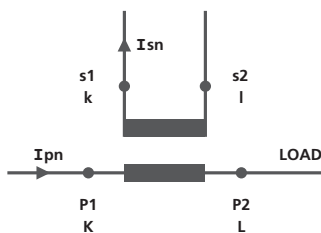
**Open core CT (Primary currents: 60...5000A)**

Ideal for being installed in existing systems, they can be installed without breaking the primary circuit or modifying the system.



**CT connections**

The terminals of current transformers are marked with double wording: Primary circuit P1(K) - P2(L) Secondary circuit s1(k) - s2(l)



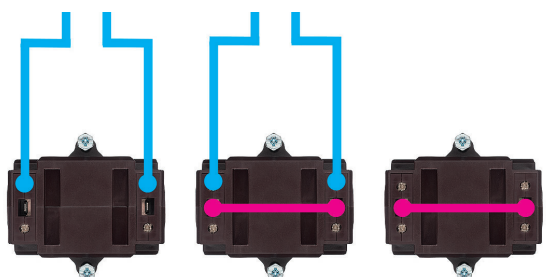
**Mounting**

Some models have also been fitted with arrows indicating the proper way of CT connection on the cable/bar to avoid current inversion errors.



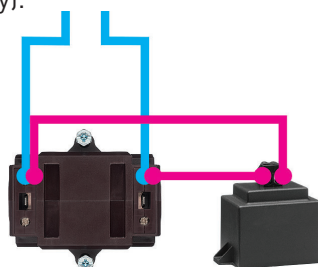
**Connection**

The secondary terminals, depending on the models, might be nut tightening, screws, double faston + screw, the latter useful for short circuiting the CT secondary before disconnecting the devices to avoid dangerous voltages generated by the opening of the circuit (no-load operation).



**Safety**

In any event, to avoid this situation for all current transformers, IME suggest a fully static accessory (ATAP015) able to instantly reclose the CT secondary circuit, which was open due to connection breakdown or device removal, allowing the instantaneous and automatic restore of standard conditions. Secondary terminal protection degree IP20 (for the TAS...TAU...TAQ... BSA... models only with the use of the sealable terminal cover accessory).



**Cable/  
passing bar**



	<b>TAIBB (NT516)</b>			<b>TA221 (NT811)</b>				<b>TA327 (NT812)</b>				<b>TA432 (NT814)</b>			<b>TA540 (NT815)</b>			
Dimensions (mm)	44x65			49.5x80				56x80				70x95			70x95			
Cable (mm)	Ø21			Ø21				Ø27				Ø32			Ø40			
Window (mm)	16x12.5			20.5x10.5				25.5x15.5 32.5x10.5				25.5x25.5 32.5x20.5			40.5x20.5 50.5x12.5			
Ratio	Cat. Nos.	VA			Cat. Nos.	VA			Cat. Nos.	VA			Cat. Nos.	VA		Cat. Nos.	VA	
		cl.0.5	cl.1	cl.3		cl.0.5	cl.1	cl.3		cl.0.5	cl.1	cl.3		cl.0.5	cl.1		cl.0.5	cl.1
40/5A	TABB50B400	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	
50/5A	TABB50B500	-	-	1.5	TA22150B500	-	-	2.5	TA32750B500	-	-	1.5	-	-	-	-	-	
60/5A	TABB50B600	-	-	2	TA22150B600	-	1.5	3	TA32750B600	-	-	2.5	-	-	-	-	-	
75/5A	TABB50B750	-	1.5	2.5	TA22150B750	-	2	4	TA32750B750	-	1.5	3	-	-	-	-	-	
80/5A	TABB50B800	-	1.5	2.5	TA22150B800	-	3	4	TA32750B800	-	2.5	3.5	-	-	-	-	-	
100/5A	TABB50C100	1.5	2.5	-	TA22150C100	1.5	3	-	TA32750C100	1.5	3	-	TA43250C100	-	2	-	-	
120/5A	TABB50C120	2	3.5	-	TA22150C120	2.5	4	-	TA32750C120	2	3.5	-	TA43250C120	-	2	-	-	
125/5A	TABB50C125	2	3.5	-	TA22150C125	2.5	4	-	TA32750C125	2	3.5	-	TA43250C125	-	2	-	-	
150/5A	TABB50C150	3	4	-	TA22150C150	4	6	-	TA32750C150	3	4	-	TA43250C150	1	3	-	-	
160/5A	TABB50C160	3	4	-	TA22150C160	4	6	-	TA32750C160	3	5	-	TA43250C160	1.5	3	-	-	
200/5A	TABB50C200	4	5.5	-	TA22150C200	6	8	-	TA32750C200	4	7	-	TA43250C200	3	5	-	-	
250/5A	TABB50C250	5	6	-	TA22150C250	8	10	-	TA32750C250	6	8	-	TA43250C250	3	5	-	-	
300/5A	TABB50C300	6	7.5	-	TA22150C300	8	10	-	TA32750C300	8	10	-	TA43250C300	5	8	TA54050C300	2	4
400/5A	-	-	-	-	-	-	-	-	TA32750C400	10	12	-	TA43250C400	8	10	TA54050C400	4	6
500/5A	-	-	-	-	-	-	-	-	TA32750C500	12	15	-	TA43250C500	10	12	TA54050C500	4	6
600/5A	-	-	-	-	-	-	-	-	TA32750C600	15	20	-	TA43250C600	12	15	TA54050C600	6	8
800/5A	-	-	-	-	-	-	-	-	-	-	-	-	TA43250C800	10	12	TA54050C800	8	12
1000/5A	-	-	-	-	-	-	-	-	-	-	-	-	TA43250D100	12	15	TA54050D100	10	12
1200/5A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TA54050D120	12	15
Sealable terminal cover	ATACOP12				ATACOP13				ATACOP13				ATACOP13			ATACOP13		

**Cable/  
passing bar**



	<b>TAS64 (NT569)</b>			<b>TAS65 (NT518)</b>			<b>TAS84 (NT574)</b>			<b>TAS102 (NT766)</b>			<b>TAS127B (NT523)</b>		
Dimensions (mm)	90x130			90x94			96x116			98x129			125x160		
Window (mm)	51x31 64x11			32x65			34x84			38x102			54x127		
Ratio	Cat. Nos.	VA		Cat. Nos.	VA		Cat. Nos.	VA		Cat. Nos.	VA		Cat. Nos.	VA	
		cl.0.5	cl.1		cl.0.5	cl.1		cl.0.5	cl.1		cl.0.5	cl.1		cl.0.5	cl.1
600/5A	TASI50C600	4	6	TASL50C600	8	12	TASO50C600	6	10	-	-	-	-	-	-
800/5A	TASI50C800	6	8	TASL50C800	12	15	TASO50C800	8	12	-	-	-	-	-	-
1000/5A	TASI50D100	8	10	TASL50D100	15	20	TASO50D100	10	15	TAMP50D100	10	12	-	-	-
1200/5A	TASI50D120	10	12	TASL50D120	15	20	TASO50D120	12	15	TAMP50D120	12	15	-	-	-
1250/5A	TASI50D125	10	12	TASL50D125	15	20	TASO50D125	12	15	TAMP50D125	12	15	-	-	-
1500/5A	TASI50D150	10	12	TASL50D150	20	25	TASO50D150	15	20	TAMP50D150	12	15	TASS50D150	20	30
1600/5A	TASI50D160	10	12	TASL50D160	20	25	TASO50D160	15	20	TAMP50D160	12	15	TASS50D160	20	30
2000/5A	-	-	-	TASL50D200	20	25	TASO50D200	20	25	TAMP50D200	20	25	TASS50D200	25	30
2500/5A	-	-	-	-	-	-	TASO50D250	25	30	TAMP50D250	20	25	TASS50D250	30	50
3000/5A	-	-	-	-	-	-	-	-	-	TAMP50D300	20	25	TASS50D300	30	50
4000/5A	-	-	-	-	-	-	-	-	-	-	-	-	TASS50D400	30	50
Sealable terminal cover	ATACOP03			ATACOP04			ATACOP04			ATACOP04			ATACOP04		

■ In stock also in the version with terminals on the long side. Ordering code: add "3" at the end of the standard code. standard.

## Open core CT



Dimensions (mm) Window (mm)	TRA230 (NT869)				TRA580 (NT841)			TRA812 (NT842)				TRA816 (NT863)		
	92x110				120x150			150x190				185x230		
	20.5x30.5				50.5x80.5			80.5x120.5				80.5x160.5		
Ratio	Cat. Nos.	VA			Cat. Nos.	VA		Cat. Nos.	VA			Cat. Nos.	VA	
		cl.0.5	cl.1	cl.3		cl.0.5	cl.1		cl.0.5	cl.1	cl.3		cl.0.5	cl.1
60/5A	TA23050B600	-	-	1	-	-	-	-	-	-	-	-	-	-
100/5A	TA23050C100	-	-	1.5	-	-	-	-	-	-	-	-	-	-
150/5A	TA23050C150	-	1.5	2.5	-	-	-	-	-	-	-	-	-	-
200/5A	TA23050C200	1	2.5	-	-	-	-	-	-	-	-	-	-	-
250/5A	TA23050C250	1.5	3	-	TA58050C250	1	2	-	-	-	-	-	-	-
300/5A	TA23050C300	1.5	4	-	TA58050C300	1.5	3	-	-	-	-	-	-	-
400/5A	TA23050C400	2.5	6	-	TA58050C400	1.5	3	-	-	-	-	-	-	-
500/5A	-	-	-	-	TA58050C500	2.5	5	TA81250C500	-	4	12	-	-	-
600/5A	-	-	-	-	TA58050C600	2.5	5	TA81250C600	-	5	14	-	-	-
800/5A	-	-	-	-	TA58050C800	3	7	TA81250C800	3	7	-	-	-	-
1000/5A	-	-	-	-	TA58050D100	5	10	TA81250D100	5	10	-	-	-	-
1200/5A	-	-	-	-	-	-	-	TA81250D120	6	11	-	-	-	-
1500/5A	-	-	-	-	-	-	-	TA81250D150	8	15	-	-	-	-
2000/5A	-	-	-	-	-	-	-	-	-	-	-	TA81650D200	15	20
2500/5A	-	-	-	-	-	-	-	-	-	-	-	TA81650D250	15	20
3000/5A	-	-	-	-	-	-	-	-	-	-	-	TA81650D300	20	25
4000/5A	-	-	-	-	-	-	-	-	-	-	-	TA81650D400	20	25
5000/5A	-	-	-	-	-	-	-	-	-	-	-	TA81650D500	20	25
Sealable terminal cover	ATACOP13				ATACOP13			ATACOP13				ATACOP13		

## Primary winding



Dimensions (mm) Primary terminals	56x80						56x80					
	screw type, max. cross section 6mm <sup>2</sup> /10mm <sup>2</sup> with wire terminals						M6 with nut tightening					
	Rapporto	Cat. Nos.	VA		Cat. Nos.	VA		Cat. Nos.	VA		Cat. Nos.	VA
cl.0.5			cl.1	cl.0.5		cl.1	cl.0.5		cl.1	cl.0.5		cl.1
5/5A	TAQ2M50A500	2	4	TAQ6M50A500	6	7.5	-	-	-	-	-	-
10/5A	TAQ2M50B100	2	4	TAQ6M50B100	6	7.5	-	-	-	-	-	-
15/5A	TAQ2M50B150	2	4	TAQ6M50B150	6	7.5	-	-	-	-	-	-
20/5A	TAQ2M50B200	2	4	TAQ6M50B200	6	7.5	-	-	-	-	-	-
25/5A	TAQ2M50B250	2	4	TAQ6M50B250	6	7.5	-	-	-	-	-	-
30/5A	TAQ2M50B300	2	4	TAQ6M50B300	6	7.5	-	-	-	-	-	-
40/5A	TAQ2M50B400	2	4	TAQ6M50B400	6	7.5	-	-	-	-	-	-
50/5A	-	-	-	-	-	-	TAQ2L50B500	2	4	TAQ6L50B500	6	7.5
60/5A	-	-	-	-	-	-	TAQ2L50B600	2	4	TAQ6L50B600	6	7.5
75/5A	-	-	-	-	-	-	TAQ2L50B750	2	4	TAQ6L50B750	6	7.5
80/5A	-	-	-	-	-	-	TAQ2L50B800	2	4	TAQ6L50B800	6	7.5
100/5A	-	-	-	-	-	-	TAQ2L50C100	2	4	-	-	-
Sealable terminal cover	ATACOP13			ATACOP13			ATACOP13			ATACOP13		

# NETWORK PROTECTION

## DELTA DIFFERENTIAL RELAYS WITH SEPARATE TOROIDS

DELTA relays are ideal for use in the industrial and tertiary sectors, in public lighting and in the construction of automatic machinery. The offer includes class A and B devices compliant with CEI EN 60947-2 annex M.

### Permanent connection control.

An important feature of the Delta series is the permanent connection control of circuit between residual current relay and C.T.: by detecting of any anomaly in the connection between C.T. and E.L.R., the protection automatically intervenes, without waiting for the periodic check to carry out by test push button.

### $\Delta t$ intervention time adjustment.

The  $\Delta t$  tripping time adjustment makes this series ideal for the creation of selective protection systems; adjustment in  $I_{\Delta n}$  current makes it possible to protect people and property against undesired or dangerous dispersions.

### Version with harmonic filter.

With the evolution of system requirements and the introduction into the systems of devices fitted with power electronics, the F models have been created with harmonic filter for systems that are subject to considerable disruption.



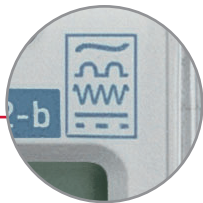
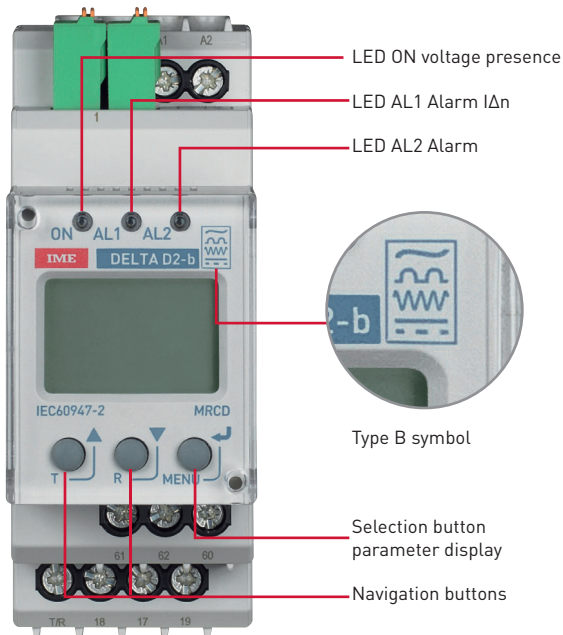
# Type B differential relays with external toroid

Type B differential relay conforming to EN60947-2 annex M  
 $I\Delta n$  selectable from 0.03 to 3A.

Positive / negative safety relay output (programmable)

Instant display of the leakage current in TRMS

Connection to a single TDB toroid for measuring alternating and continuous fault currents without any calibration procedure.



Type B symbol

## Why the type B differential

In the industrial, tertiary and medical sectors, devices with electronic control and regulation devices are increasingly used which, in the event of earth faults or not, can give rise to leakage currents with waveforms characterized by a high continuous component and / or high frequency, which are not foreseen for differential switches AC or A , could be the cause of a non-tripping or an untimely tripping

## Fields of application

Type B residual current relays can be used in circuits with frequency converters, medical devices (such as X-RAY or TAC machines), inverters for photovoltaic systems, power lines for lifts, laboratory test equipment, cranes for industry, crafts and trade, mechanical workshop (arc welders, numerical control machines), three-phase charging station for electric cars, three-phase UPS.



**DELTA D2-b**  
2 DIN

Cat. Nos.	1° relay	2° relays	Aux
RDBMRCD230	TRIP	pre alarm a 50...100% $I\Delta n$	100...250 Va.c./d.c.
RDBMRCD24	TRIP	pre alarm a 50...100% $I\Delta n$	24...60 Va.c. - 24...78 Vd.c.

1° relay

TRIP

TRIP

2° relays

pre alarm a 50...100%  $I\Delta n$

pre alarm a 50...100%  $I\Delta n$

Aux

100...250 Va.c./d.c.

24...60 Va.c. - 24...78 Vd.c.



**TOROIDI FOR DELTA D2-b**  
closed core toroid

Cat. Nos.	diameter (mm)
TDB35	35
TDB60	60
TDB120	120
TDB210	210

diameter (mm)

35

60

120

210

## Residual current relays

Class A EN60947-2:2007 appendix B and M - edition 8, I $\Delta$ n ranges that can be selected from 0.03 to 30A. All the relays can be used in positive or negative safety mode that can be selected and they carry out the automatic permanent test of continuity of the connection to the differential ring transformer (Del - Del A).



### DELTA D2-L (NT544)

2 DIN modules - manual or automatic reset (3 attempts) that can be selected

Cat. Nos.	1st relay	2nd relay	Aux
RD1AF13B	TRIP	-	230 Vac
RD1AF1HB	TRIP	-	20...150 Vdc + 48 Vac



### DELTA D4-s (NT871)

4 DIN modules - manual or automatic reset (10 attempts) that can be selected - LED bar indicator I $\Delta$ n%

Cat. Nos.	1st relay	2nd relay	Aux
RD4B213B	TRIP	TRIP or pre-alarm 50% I $\Delta$ n	230 Vac
RD4B21HB	TRIP	TRIP or pre-alarm 50% I $\Delta$ n	20...150 Vdc + 48 Vac



### DELTA 48-s (NT556)

Flush mounting 48x48mm - manual or automatic reset (3 attempts) that can be selected

Cat. Nos.	1st relay	2nd relay	Aux
RD1DF13B	TRIP	-	230 Vac
RD1DF1HB	TRIP	-	20...150 Vdc + 48 Vac



### DELTA 72-s (NT552)

Flush mounting 72x72mm - manual or automatic reset (3 attempts) that can be selected - LED bar indicator I $\Delta$ n%

Cat. Nos.	1st relay	2nd relay	Aux
RD1EP13B	TRIP	pre-alarm 50% I $\Delta$ n	230 Vac
RD1EP1HB	TRIP	pre-alarm 50% I $\Delta$ n	20...150 Vdc + 48 Vac



### DELTA 72-h (NT649)

Flush mounting 72x72mm - manual reset - LED Display indicator I $\Delta$ n

Cat. Nos.	1st relay	2nd relay	Aux
RD3E217B	TRIP	TRIP or pre-alarm 50% I $\Delta$ n	230 Vac
RD3E21HB	TRIP	TRIP or pre-alarm 50% I $\Delta$ n	20...150 Vdc + 48 Vac



### DELTA 96-s (NT691)

Flush mounting 96x96mm - manual reset - LED bar indicator I $\Delta$ n%

Cat. Nos.	1st relay	2nd relay	Aux
RD1G213B	TRIP	pre-alarm 50% I $\Delta$ n	230 Vac
RD1G21HB	TRIP	pre-alarm 50% I $\Delta$ n	20...150 Vdc + 48 Vac

## Residual current relays with strengthened harmonic filter

Class A EN60947-2:2007 appendix B and M - edition 8,  $I_{\Delta n}$  ranges that can be selected from 0.05 to 30A. The strengthened harmonic filter makes it possible to avoid untimely tripping in systems subject to considerable harmonic disturbances. All the relays can be used in positive or negative safety mode that can be selected and they carry out the automatic permanent test of continuity of the connection to the differential toroid (Del - Del A).



### DELTA D4-h (NT897)

4 DIN modules - manual or automatic reset that can be selected - LED Display indicator  $I_{\Delta n}$ , with harmonic filter

Cat. Nos.	1st relay	2nd relay	Aux	Output
RDD42130	TRIP	TRIP or pre-alarm 50% $I_{\Delta n}$	230 Vac	-
RDD421H0	TRIP	TRIP or pre-alarm 50% $I_{\Delta n}$	20...150 Vdc + 48 Vac	-
RDD42131	TRIP	TRIP or pre-alarm 50% $I_{\Delta n}$	230 Vac	RS485 Modbus RTU/TCP
RDD421H1	TRIP	TRIP or pre-alarm 50% $I_{\Delta n}$	20...150 Vdc + 48 Vac	RS485 Modbus RTU/TCP



### DELTA D4-F (NT865)

4 DIN modules - manual reset - LED bar indicator  $I_{\Delta n}\%$

Cat. Nos.	1st relay	2nd relay	Aux
RD3B213B	TRIP	pre-alarm at 50% $I_{\Delta n}$ or on power fail	230 Vac
RD3B21HB	TRIP	pre-alarm at 50% $I_{\Delta n}$ or on power fail	20...150 Vdc + 48 Vac



### DELTA 72-F (NT745)

Flush mounting 72x72mm - manual reset - LED bar indicator  $I_{\Delta n}\%$

Cat. Nos.	1st relay	2nd relay	Aux
RD2E213B	TRIP	TRIP or pre-alarm 50% $I_{\Delta n}$	230 Vac
RD2E21HB	TRIP	TRIP or pre-alarm 50% $I_{\Delta n}$	20...150 Vdc + 48 Vac



### DELTA 96-F (NT746)

Flush mounted 96x96mm - manual reset - LED bar indicator  $I_{\Delta n}\%$

Cat. Nos.	1st relay	2nd relay	Aux
RD2G213B	TRIP	TRIP or pre-alarm 50% $I_{\Delta n}$	230 Vac
RD2G21HB	TRIP	TRIP or pre-alarm 50% $I_{\Delta n}$	20...150 Vdc + 48 Vac

## Accessori



### DEL

Toroidi differenziali a nucleo chiuso

Codice	Ø Foro
TDGA2	28mm
TDGB2	35mm
TDGH2	60mm
TDGC2	80mm
TDGD2	110mm
TDGE2	140mm
TDGF2	210mm

\* $I_{\Delta n}$  minima impostabile sul relè differenziale al quale verrà abbinato il toroide scelto.



### DEL A (NT641)

Open-core ring current transformers

Cat. Nos.	Ø Hole	$I_{\Delta n}$ min*
TDAA2	110mm	0.5A
TDAB2	150mm	0.5A
TDAC2	300mm	1A

\* $I_{\Delta n}$  minima impostabile sul relè differenziale al quale verrà abbinato il toroide scelto.



### DELTA TCS (NT817)

4 DIN modules - Monitor of switch release circuit with current launch coil, monitoring of 1 or 2 circuits that can be selected with voltage between 24...440 Vac/Vdc

Cat. Nos.	1st relay	2nd relay	Aux
RD2G213B	TRIP	TRIP or pre-alarm 50% $I_{\Delta n}$	230 Vac
RD2G21HB	TRIP	TRIP or pre-alarm 50% $I_{\Delta n}$	20...150 Vdc + 48 Vac

# DIGITAL INDICATORS

## ELECTRONIC INDICATORS WITH DIGITAL DISPLAY

Digital indicators are multi-range instruments for insertion on transducers, shunts, field sensors, current transformers, voltage transformers or direct.

Recessed solutions are available, for installation on a DIN35 guide or light bars with LED indicators.



72x36 mm



72x72 mm



96x96 mm





### AC/DC lines 10A/500V, CT/VT direct connection or 50/400Hz in frequency

Multi-range digital indicators for connection on AC/DC networks direct up to 10Aac/dc - 500Vac/dc, from CT or from VT - frequency 50/400 Hz

Cat. Nos.	Technical note	Dimensions (mm)	Model	Program display	Aux
DG3P06P5	NT874	72x36x108	DGP 36 P2k	±1999 - measurement units as per Note 1	230 Vac
DG3P0MP5	NT874	72x36x108	DGP 36 P2k	±1999 - measurement units as per Note 1	20...60 Vac 20...150 Vdc
DG8P06P5	NT877	72x72x108	DGQ 72 P2k	±1999 - measurement units as per Note 1	230 Vac
DG8P0MP5	NT877	72x72x108	DGQ 72 P2k	±1999 - measurement units as per Note 1	20...60 Vac 20...150 Vdc
DG9P06P5	NT878	96x96x108	DGQ 96 P2k	±1999 - measurement units as per Note 1	230 Vac
DG9P0MP5	NT878	96x96x108	DGQ 96 P2k	±1999 - measurement units as per Note 1	20...60 Vac 20...150 Vdc

Note 1 - adhesive label with the following units A, V, °C, %, W, Hz, kW, MW, kg, bar, var, kvar, Mvar, RPM, m/min, rpm/min, kg/cm<sup>2</sup>, m<sup>3</sup>/h, kA, kV, mA, mV, m, m/h.  
Other engineering units on request.



### DC field sensors mA/mV/V

Digital multi-range indicators for connection on transducers, shunts and field sensors from field signals 1/5/10/20/4...20mA - 50/60/75/100/150mV - 1/5/10V

Cat. Nos.	Technical note	Dimensions (mm)	Model	Program display	Aux
DG3P0NP1	NT850	72x36x108	DGP 36 P2k	±1999 - measurement units as per Note 1	80...270 Vac 100...300 Vdc
DG3P0MP1	NT850	72x36x108	DGP 36 P2k	±1999 - measurement units as per Note 1	20...60 Vac 20...150 Vdc
DG8P0NP1	NT852	72x72x108	DGQ 72 P2k	±1999 - measurement units as per Note 1	80...270 Vac 100...300 Vdc
DG8P0MP1	NT852	72x72x108	DGQ 72 P2k	±1999 - measurement units as per Note 1	20...60 Vac 20...150 Vdc
DG9P0NP1	NT853	96x96x108	DGQ 96 P2k	±1999 - measurement units as per Note 1	80...270 Vac 100...300 Vdc
DG9P0MP1	NT853	96x96x108	DGQ 96 P2k	±1999 - measurement units as per Note 1	20...60 Vac 20...150 Vdc

Note 1 - adhesive label with the following units A, V, °C, %, W, Hz, kW, MW, kg, bar, var, kvar, Mvar, RPM, m/min, rpm/min, kg/cm<sup>2</sup>, m<sup>3</sup>/h, kA, kV, mA, mV, m, m/h.  
Other engineering units on request.



### AC/DC lines and DC field sensors

Digital multi-range indicators for connection on AC/DC lines or on transducers, shunts and field sensors

Cat. Nos.	Technical note	Dimensions (mm)	Model	Program display	Aux
DG4P06P2	NT530	96x48x103	DGP 96 P2k	±1999 - measurement units as per Note 1	80...270 Vac 100...300 Vdc
DG4P0HP2	NT530	96x48x103	DGP 96 P2k	±1999 - measurement units as per Note 1	20...60 Vac 20...150 Vdc
DG4Q06P2	NT550	96x48x103	DGP 96 P10k	1999 - measurement units as per Note 1	80...270 Vac 100...300 Vdc
DG4Q0HP2	NT550	96x48x103	DGP 96 P10k	1999 - measurement units as per Note 1	20...60 Vac 20...150 Vdc

Note 1 - adhesive label with the following units A, V, °C, %, W, Hz, kW, MW, kg, bar, var, kvar, Mvar, RPM, m/min, rpm/min, kg/cm<sup>2</sup>, m<sup>3</sup>/h, kA, kV, mA, mV, m, m/h.  
Other engineering units on request



### AC lines

Digital multi-range indicators from CT or direct connection up to 500V

Cat. Nos.	Technical note	Dimensions (mm)	Model	Program display	Aux
DG4G06C1	NT533	96x48x103	DGP 96	999 - measurement units as per Note 2	80...270 Vac 100...300 Vdc
DG4G0HC1	NT533	96x48x103	DGP 96	999 - measurement units as per Note 2	20...60 Vac 20...150 Vdc

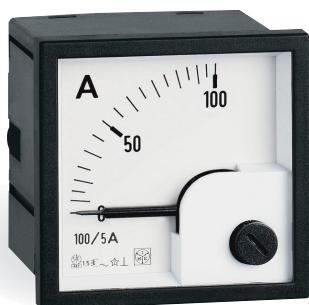
Other engineering units on request

Note 2 - adhesive label with the following units A, V, kA.

# ANALOGUE INDICATORS

## ANALOG INDICATORS OF MEASUREMENT

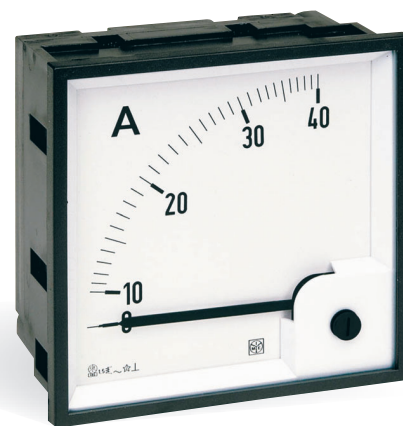
Analogue instruments for flush-mounting or DIN rail with direct input, from current transformers, voltage transformers, shunts or field transducers. Hand indicators with a choice of scale. Sequenzimeters and synchronoscopes complete the offer.



48x48 mm



72x72 mm



96x96 mm

### Ammeters (NT755)

Analog indicators on transformers /5A connection, with moving iron equipment, Accuracy 1,5



Cat. Nos. RQ48E 48x48mm	Cat. Nos. RQ72E 72x72mm	Cat. Nos. RQ96E 96x96mm	CT ratio	Scale 0...In
AN12D 1 A500	AN22D 1 A500	AN32D 1 A500	5/5A	0...5A
AN125 1 B100	AN225 1 B100	AN325 1 B100	10/5A	0...1A
AN125 1 B150	AN225 1 B150	AN325 1 B150	15/5A	0...15A
AN125 1 B200	AN225 1 B200	AN325 1 B200	20/5A	0...20A
AN125 1 B250	AN225 1 B250	AN325 1 B250	25/5A	0...25A
AN125 1 B300	AN225 1 B300	AN325 1 B300	30/5A	0...30A
AN125 1 B400	AN225 1 B400	AN325 1 B400	40/5A	0...40A
AN125 1 B500	AN225 1 B500	AN325 1 B500	50/5A	0...50A
AN125 1 B600	AN225 1 B600	AN325 1 B600	60/5A	0...60A
AN125 1 B750	AN225 1 B750	AN325 1 B750	75/5A	0...75A
AN125 1 B800	AN225 1 B800	AN325 1 B800	80/5A	0...80A
AN125 1 C100	AN225 1 C100	AN325 1 C100	100/5A	0...100A
AN125 1 C120	AN225 1 C120	AN325 1 C120	120/5A	0...120A
AN125 1 C125	AN225 1 C125	AN325 1 C125	125/5A	0...125A
AN125 1 C150	AN225 1 C150	AN325 1 C150	150/5A	0...150A
AN125 1 C160	AN225 1 C160	AN325 1 C160	160/5A	0...160A
AN125 1 C200	AN225 1 C200	AN325 1 C200	200/5A	0...200A
AN125 1 C250	AN225 1 C250	AN325 1 C250	250/5A	0...250A
AN125 1 C300	AN225 1 C300	AN325 1 C300	300/5A	0...300A
AN125 1 C400	AN225 1 C400	AN325 1 C400	400/5A	0...400A
AN125 1 C500	AN225 1 C500	AN325 1 C500	500/5A	0...500A
AN125 1 C600	AN225 1 C600	AN325 1 C600	600/5A	0...600A
AN125 1 C800	AN225 1 C800	AN325 1 C800	800/5A	0...800A
AN125 1 D100	AN225 1 D100	AN325 1 D100	1000/5A	0...1kA
AN125 1 D120	AN225 1 D120	AN325 1 D120	1200/5A	0...1.2kA
AN125 1 D125	AN225 1 D125	AN325 1 D125	1250/5A	0...1.25kA
AN125 1 D150	AN225 1 D150	AN325 1 D150	1500/5A	0...1.5kA
AN125 1 D160	AN225 1 D160	AN325 1 D160	1600/5A	0...1.6kA
AN125 1 D200	AN225 1 D200	AN325 1 D200	2000/5A	0...2kA
AN125 1 D250	AN225 1 D250	AN325 1 D250	2500/5A	0...2.5kA
AN125 1 D300	AN225 1 D300	AN325 1 D300	3000/5A	0...3kA
AN125 1 D400	AN225 1 D400	AN325 1 D400	4000/5A	0...4kA

In stock even in version with full scale value at the end 2In and 5In.

Cat. Nos. 2In: replace number underline with "2"

Cat. Nos. 5In: replace number underline with "5"

### Voltmeters (NT759)

Direct connection analog indicators, with moving iron equipment, Accuracy 1,5



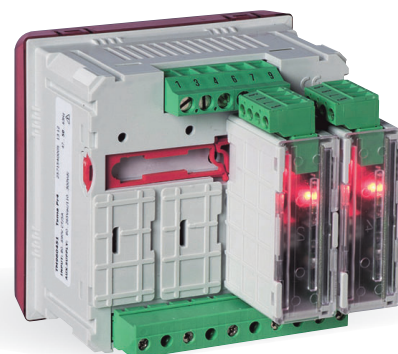
Cat. Nos. RQ48E 48x48mm	Cat. Nos. RQ72E 72x72mm	Cat. Nos. RQ96E 96x96mm	Range	Scale
AN15DDC300	AN25DDC300	AN35DDC300	300V	0...300V
AN15DDC500	AN25DDC500	AN35DDC500	500V	0...500V

# TRANSDUCERS

## PRECISION AND SAFETY IN MEASUREMENT

Tema transducers are signal conversion devices, used to measure voltage and current of the main electrical quantities.

Solutions are available for installation on DIN35 and toroidal guides with integrated transducer.



## Transducers for alternating voltage and current

Compact transducers in 2 DIN module format, alternating voltage and current measurement with accuracy in class 0.5 EN60688 from 0% to 120% of the input value - selectable output by front dip switch 0...5/10/20mA - 4...20mA - 0...5/10V - 2...10V



### TEMA I4 (NT554)

Current measurement of the average value, calibration placed in ratio with the TRMS Response time  $\leq 300\text{ms}$

Cat. Nos.	Current	Aux	No. of Outputs
TM3I330	5A	230 Vac	1
TM3IH30	5A	20...150 Vdc + 48 Vac	1
TM3I310	1A	230 Vac	1
TM3IH0	1A	20...150 Vdc + 48 Vac	1



### TEMA I4e (NT628)

Current measurement of the TRMS even in systems subject to considerable harmonic disturbances Response time  $\leq 100\text{ms}$

Cat. Nos.	Current	Aux	No. of Outputs
TM4I330	5A	230 Vac	1
TM4IH30	5A	20...150 Vdc + 48 Vac	1
TM4I310	1A	230 Vac	1
TM4IH10	1A	20...150 Vdc + 48 Vac	1



### TEMA U4 (NT555)

Voltage measurement of the average value, calibration placed in ratio to the TRMS Response time  $\leq 300\text{ms}$

Cat. Nos.	Current	Aux	No. of Outputs
TM3U320	110V	230 Vac	1
TM3UH20	110V	20...150 Vdc + 48 Vac	1
TM3U390	400V	230 Vac	1
TM3UH90	400V	20...150 Vdc + 48 Vac	1



### TEMA U4e (NT629)

Voltage measurement of the TRMS even in systems subject to considerable harmonic disturbances Response time  $\leq 100\text{ms}$

Cat. Nos.	Current	Aux	No. of Outputs
TM4U320	110V	230 Vac	1
TM4UH20	110V	20...150 Vdc + 48 Vac	1
TM4U390	400V	230 Vac	1
TM4UH90	400V	20...150 Vdc + 48 Vac	1

## Multimeasure transducers

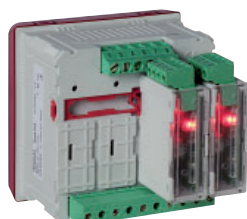
Transducers that can be entirely configured on site, main electrical measurements taken with accuracy in class 0.5 EN60688 - response time  $\leq 300\text{ms}$



### TEMA fP (NT514)

Connection on LV/MV single phase and three phase line  
True RMS of: kW, kvar, kVA, Hz,  $\cos\phi$ , h, phase angle  
Programmable analogue output  $\pm 5/10/20\text{mA}$  - 4...20mA -  $\pm 10\text{V}$  - 1...5 V

Cat. Nos.	Current	Voltage	Aux	No. of Outputs
TM8P03120	5A	500V	230Vac	1
TM8P0H120	5A	500V	230Vac	1



### TEMA Pr4 (NT848)

Connection on LV/MV single phase and three phase line  
True RMS of: A, V, kW, kvar, kVA, Hz,  $\cos\phi$ , h  
4 programmable analogue outputs 0...20mA - 4...20mA

Cat. Nos.	Current	Voltage	Aux	No. of Outputs
TM960451	5A	80...690 V (F-F)	80...265 Vac + 110...300 Vdc	4
TM960452	5A	50...400 V (F-N)	11...60 Vdc	4

#### Accessories

ATM96002	Tema Pr4 programming kit
IF96005	Alarm module 2 relay outputs assignable to the measurements made by Tema Pr4

## CT with built-in transducer

Current transformer with built-in transducer for measuring of alternating current (TT35 - TT35A) and direct current (HT35Bm) with accuracy in class 1 EN60688 - hole for passing cable 35mm in diameter.



### TT35 (NT433)

2 wire technology for A.C. lines - Response time  $\leq 500\text{ms}$

Cat. Nos.	Current	Aux	Output
TT1AA502A	5/10/15/20/25/30/35/40/45A	10...34 Vdc	4...20mA
TT1AB152A	15/30/45/60/75/90/105/120/135A	10...34 Vdc	4...20mA
TT1AB252A	25/50/75/100/125/150/175/200/225A	10...34 Vdc	4...20mA
TT1AB502A	50/100/150/200/250/300/350/400/450A	10...34 Vdc	4...20mA



### TT35A (NT434)

4 wire technology for A.C. lines - Response time  $\leq 500\text{ms}$

Cat. Nos.	Current	Aux	Output
TT1BA5023	5/10/15/20/25/30/35/40/45A	230 Vac	4...20mA
TT1BA2523	25/50/75/100/125/150/175/200/225A	20...150 Vdc + 48 Vac	4...20mA
TT1BA2533	25/50/75/100/125/150/175/200/225A	230 Vac	0...10V



### HT35Bm (NT763)

4 wire technology for D.C. lines - Response time  $\leq 300\text{ms}$

Cat. Nos.	Current	Aux	Output
HT1BM1027	10/20/30/40/50/60/70/80/90/100A	80...265 Vac + 110...300 Vdc	4...20mA
HT1BM102C	10/20/30/40/50/60/70/80/90/100A	20...60 Vdc + 24 Vac	4...20mA

# LOADS CONTROL



## Load management relay

Load management relay, for single phase network up to 6 kW.



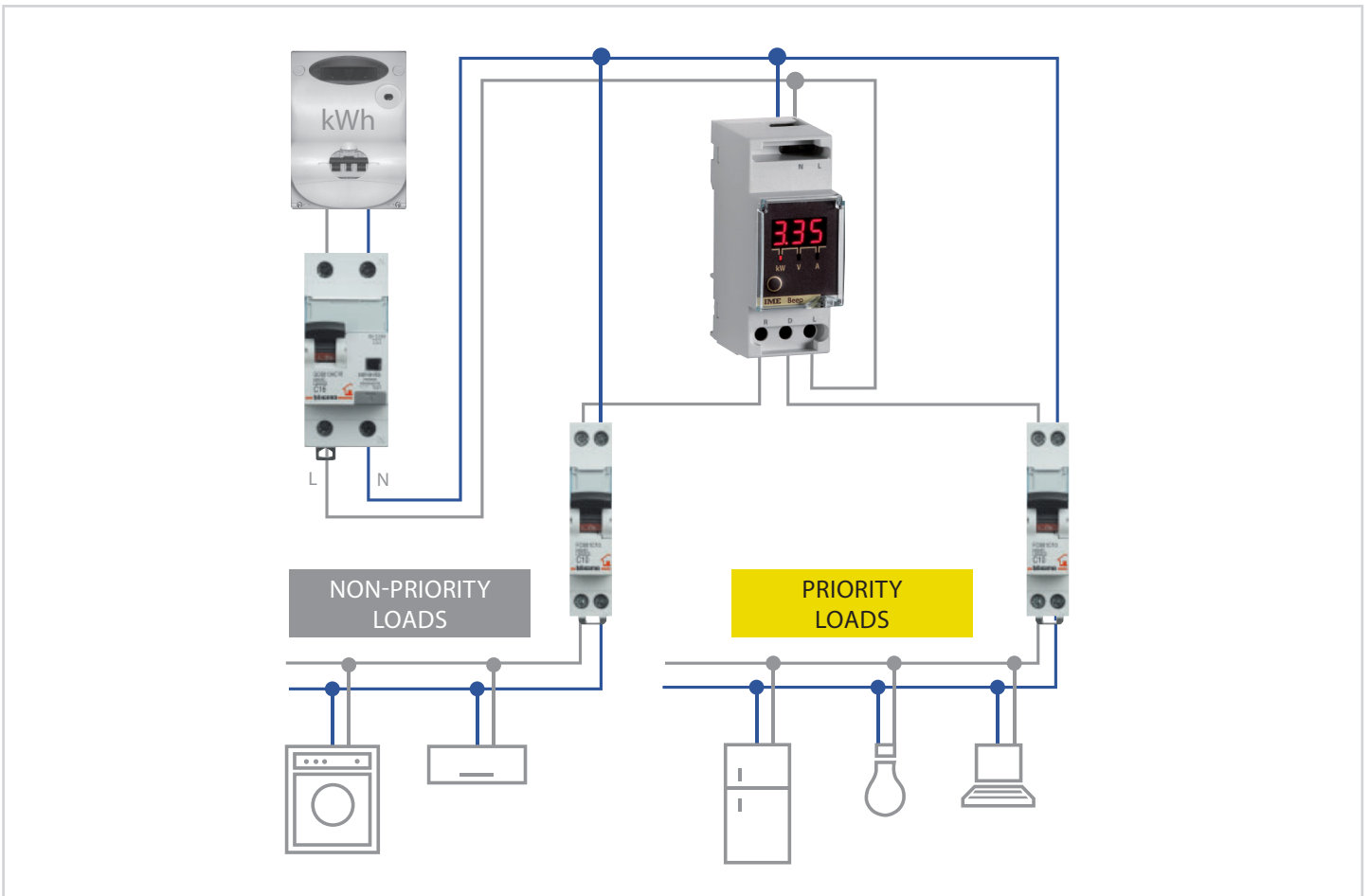
### Beep

Beep is a consumption management relay for single phase networks with users up to 6 kW, designed to solve this problem.

It continuously monitors the power used and, if the power threshold that can be set is exceeded, it emits a warning by means of a buzzer so that the loads can be manually removed in order to reduce the power before the electricity cuts out or, if the relay-type output is enabled, it automatically cuts off the non-priority loads. These are then reactivated after a lapse of time that can be programmed.

Thanks to the programming of the overload threshold (up to 6.5 kW), it can be used on users with different powers 3-4,5-6 kW (default setting per user 3 kW) and it is able to manage non-priority loads up to 16A. During normal functioning, if the front key is pushed, it is possible to display with red LEDs, the real time values of the active power (kW), the voltage (V) and the current (A).

Cat. Nos.	Input	Alarm intervention threshold	Output	Aux
RM2P133	230V - 28A	0...6,5kW	1 (SPST 250Vac-16A)	230Vac





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