NEMO SX

UNIVERSAL & INNOVATIVE SYSTEM FOR THE ENERGY MANAGEMENT

IME

A Group brand | legrand

IME

Elements of Energy efficiency

Making energy efficiency means
reduce operating costs in a system.

Today this is mandatory in several applications.

Costs reduction

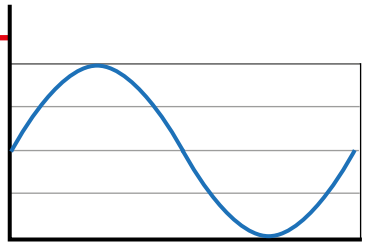
- Reduce the consumption
- Save the energy
- Maintain the productive levels

- Optimize the consumption of water, gas and electric energy
- Consume when the costs are less

- Avoid penalties

Service & production

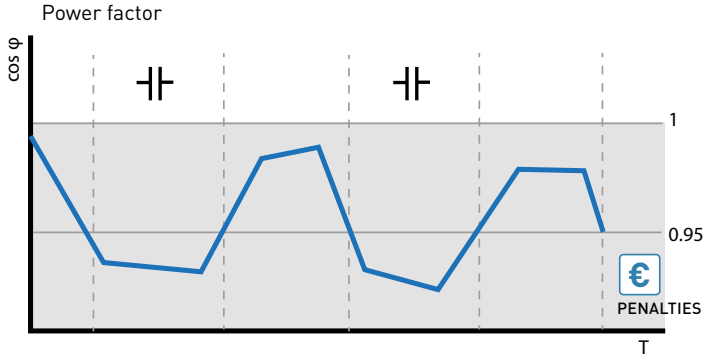
Ensure the quality of energy and service continuity



Monitoring & analysis

Penalties

The energy provider applies additional costs dr the user works with a power factor lower than the predefined values (costs for excessive reactive energy). Low values are determined by inductive loads and / or harmonic disturbances that require specific corrective actions, usually implemented by power factor correction regulators.

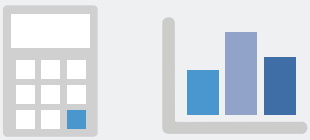


Energy management advantages

The **NEMO SX IME** energy management system allows for the precise management and use of energy within a building. It allows full control of all activities in order to improve their functioning by anticipating possible breakdowns.

Counting and measuring consumptions to

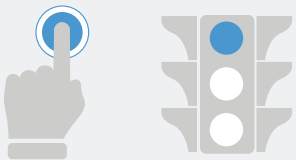
reduce costs



- **be aware** of its consumption;
- **control** consumptions;
- **adopt** a constant operating regime to smooth consumption over time.

Monitor and control the installation status to

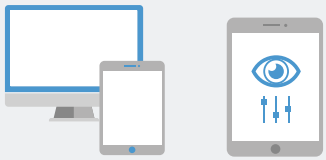
ensure continuity of service



- **visualize** and assess technical alarms in real time;
- **know** installation status;
- **prevent** damage to parts of the installation.

Analyse data to

improve processes



- **determine** annual energy needs to define a distribution of consumption;
- **analyse** the trend over time to control performance;
- **log** events to prevent critical issues.

The actions and the functions

The **NEMO SX IME** energy management system allows you to control your installation in only a few steps.

actions...

set

Set the system with functions that are customised to your needs.

configure

Programme all devices, locally and remotely, to be able to dialogue both with them and with other external systems.

supervise

Monitor and control all processes by means of IT instruments to optimise energy consumption any time, anywhere.

... and functions

register

Register the consumption of all the users of the installation.

measure

Measure analogue or electrical magnitudes (current, voltage, power, etc...).

signalling

Display the status of electrical protection devices or circuits, both locally and remotely.

control

Operate electrical protection devices or motorized controls, both locally or remotely, by means of manual or automatic actions.

communicate

Send all information remotely, out of the electrical switchboard.

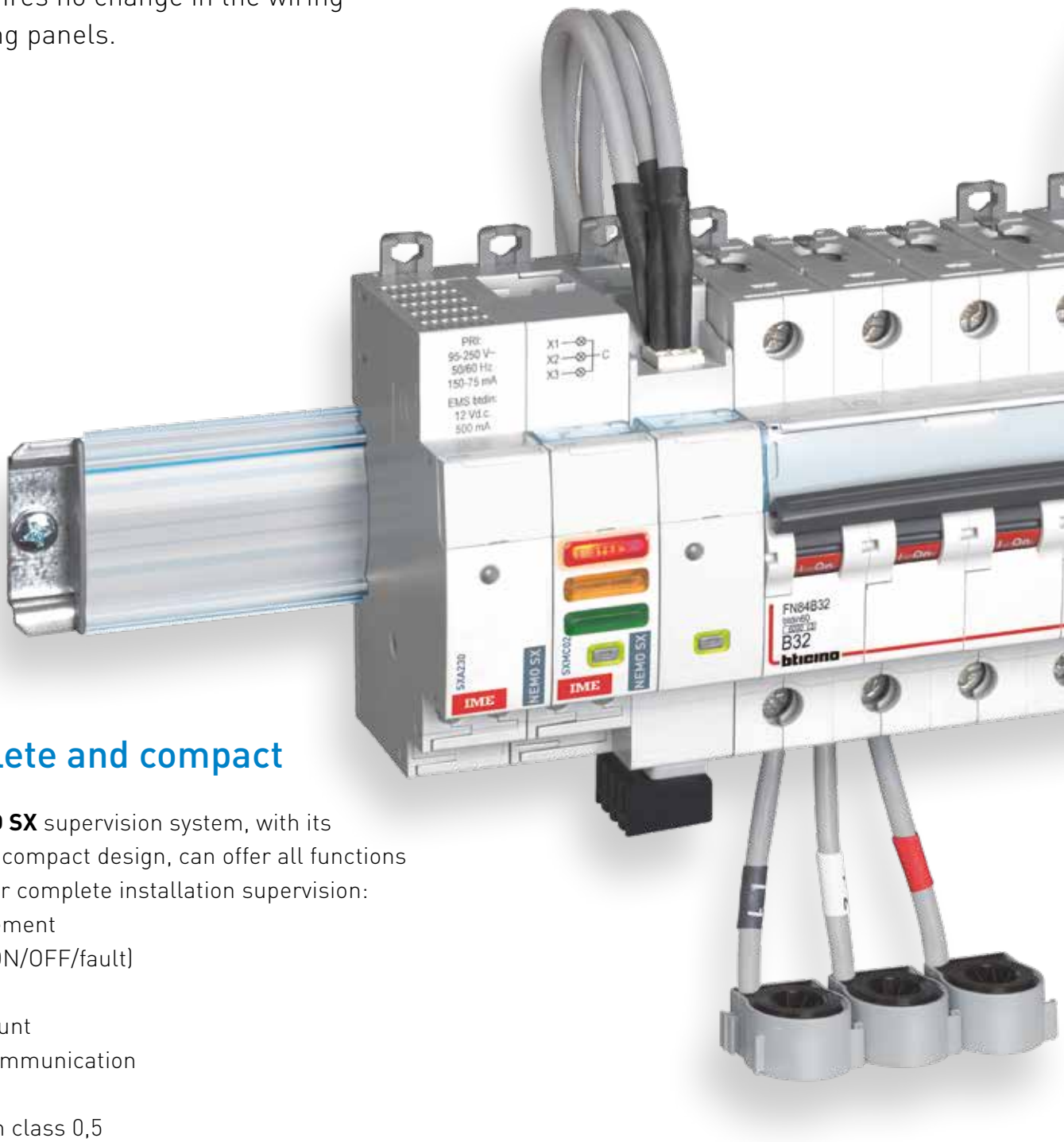
display

Display the data locally or remotely, on built-in screens or on PCs, smartphones or tablets with an Internet connection.

NEMO SX
Supervision system

NEMO SX is the new simplified supervision system

able to display, measure and control the installation from remote or local position. An autonomous system able to be integrated, which, thanks to the innovative automatic connection system, simplifies the assembly stages and requires no change in the wiring of existing panels.



Complete and compact

The **NEMO SX** supervision system, with its extremely compact design, can offer all functions to allow for complete installation supervision:

- measurement
- status (ON/OFF/fault)
- control
- pulse count
- serial communication
- display
- precision class 0,5

Simple

Simple to choose

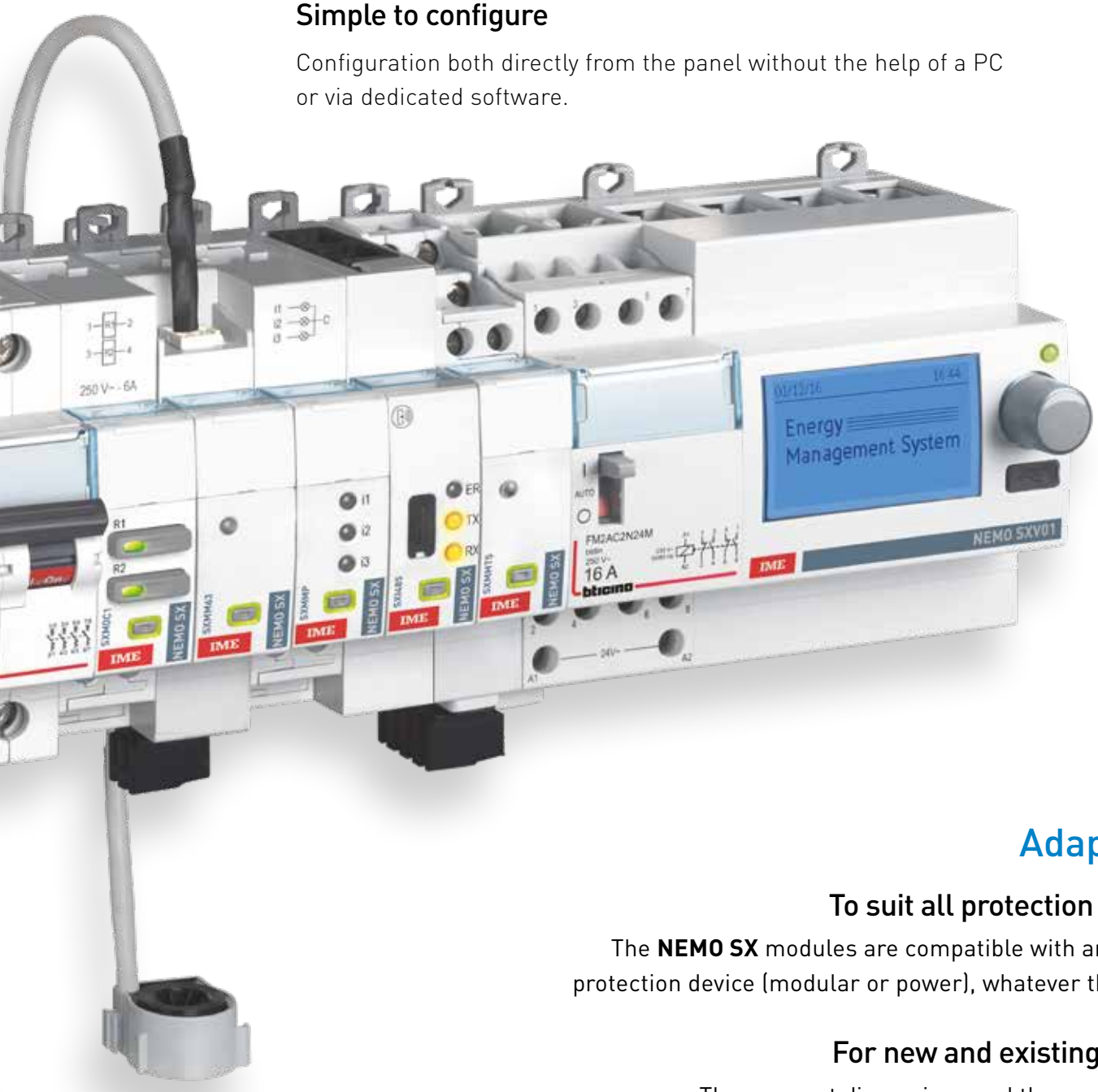
Only 8 modules with dedicated functions to supervise all installations.

Simple to install

Quick, pre-cabled connections on rail or with patch cords that do not hinder electrical switchboard cabling.

Simple to configure

Configuration both directly from the panel without the help of a PC or via dedicated software.



Adaptable

To suit all protection devices

The **NEMO SX** modules are compatible with any type of protection device (modular or power), whatever the brand.

For new and existing panels

The compact dimensions and the possibility of connecting the system via 2 different solutions make it easy to install in new or existing switchboards.

Advantages of the NEMO SX system

Very small dimensions:

- All the measuring, load status and control modules occupy 1 DIN module
- The NEMO SX system is suitable for mounting in solutions with limited spaces Current sensor range:
- Thanks to the measuring module with external CT inputs, it is easily adaptable to any type of traditional current transformer
- Micro current sensors with mV output for 63 A primary currents (available for single-phase and three-phase and three-single-phase) and 125 A (available in three-phase)
- Opening current sensors with mV output for currents from 630 A up to 6300 A.





Flexibility

- Centralized display of measurements on DIN module easily adaptable to the door
- Acquisition of the voltage measurement for each measurement module so that Voltages and Currents (V and I) can be compared for each measurement point
- System auxiliary power supply from dedicated power supply (networks from 95 to 240 Va.c.)

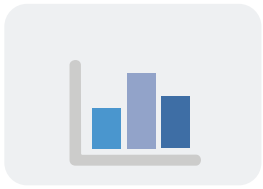
Multi-departure:

- System suitable for measuring panels where there are multiple starts. Thanks to the measuring sensors, high flexibility is possible Precision
- Measurements made by the NEMO SX system comply with IEC / EN 61557-12
- Accuracy class of active Energy measurement: 0.5 (Ea, IEC / EN 61557-12)
- Accuracy class of active power measurement: 0.5

IME

NEMO SX

Complete, compact and multifunctional



MEASUREMENT

SIGNALLING

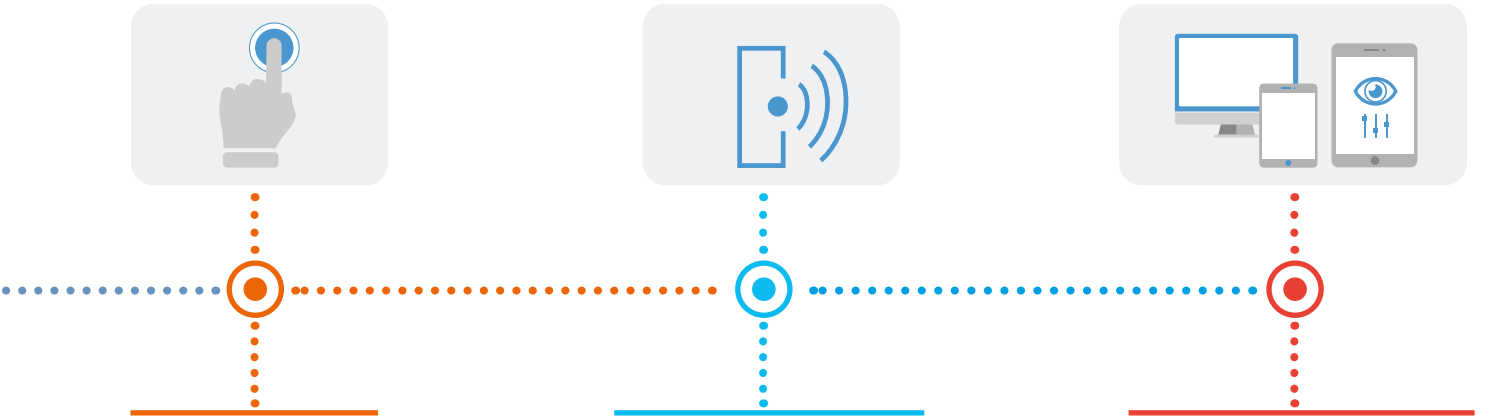
With the same performance as the "classic" models of measuring units, the NEMO SX measuring modules can be used to measure the electrical energy consumed by a single-phase or three-phase circuit and the different electrical values:
- Active (kW), reactive (kVAR) and apparent (kVA) power on all phases or cumulative
- Simple and compound voltages
- Current consumption on each phase
- Frequency and Cosφ
- Harmonics

Concentrator module for energy count by means of pulses: collects data from meters with pulse output like electrical energy meters or water and gas meters....
Up to 3 pulse circuits.

Compact modules indicating the status of the associated device:
Contacts:
- open
- closed
- triggered

In addition, for the LED version:
- MCCB plugged-in / drawn-out
- springs loaded for opening / closing of ACBs

All the modules of the new **NEMO SX** supervision system have compact dimensions, in order to limit as much as possible the space used in the electrical switchboard.



CONTROL

Universal control module. Enables to remotely control different electrical loads such as relays, contactors, and motorised controls of modular or power circuit breakers, whatever their brand.

COMMUNICATION

The NEMO SX / RS 485 communication interface allows the conversion of data from the NEMO SX network to the MODBUS RS 485 network, in order to display and operate the data outside the electrical enclosure.

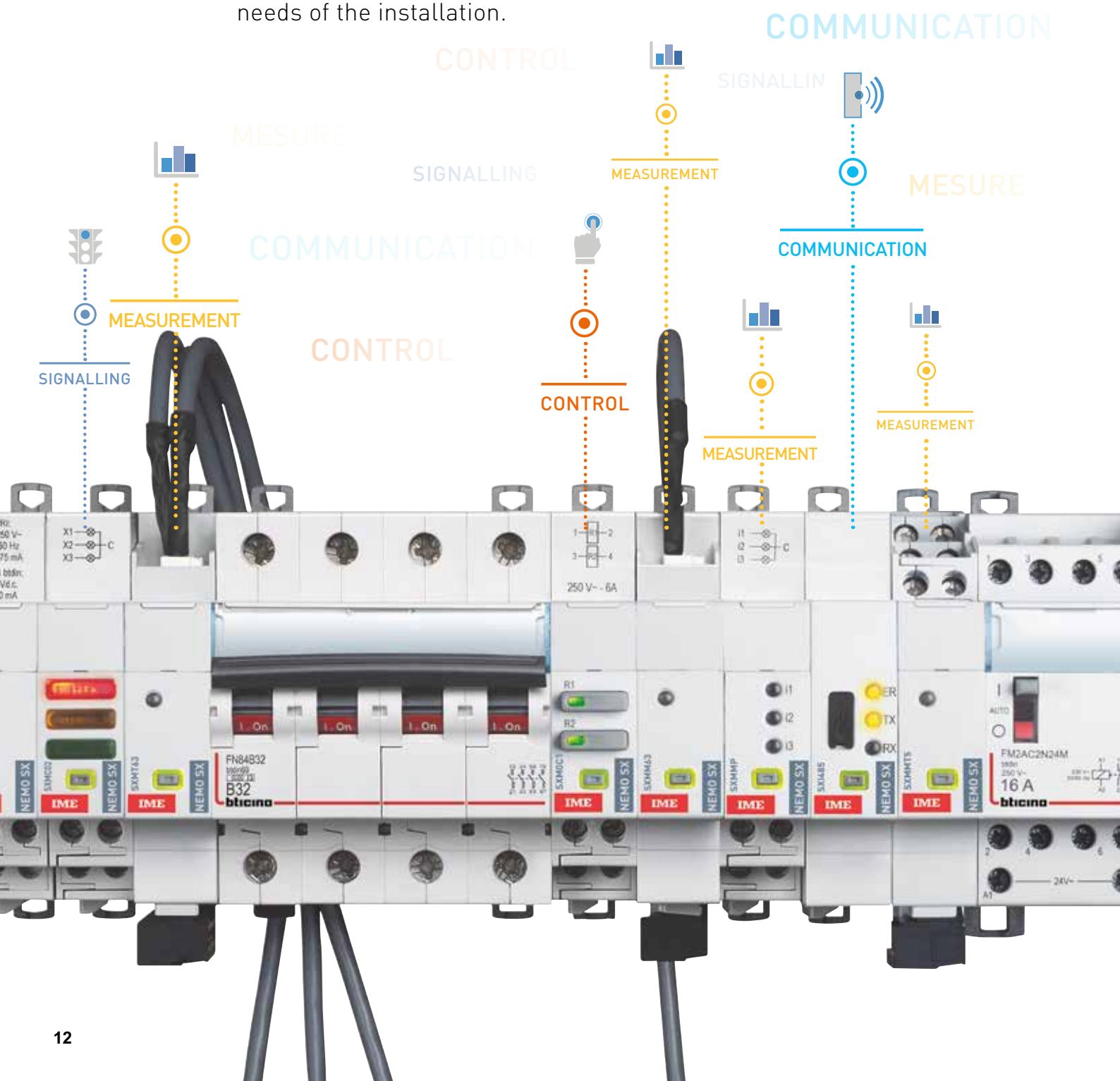
PROGRAMMING AND DISPLAY

Stand alone configuration module for the control of the entire installation, locally, in the enclosure:
- system configuration
- test
- consumption display
- alarm control
- device control
- memory storage of the alarms

NEMO SX
simple to choose...

The **NEMO SX** system consists of DIN rail mounting modules.

The **NEMO SX** system does not require a minimum number of modules and it also allows very simple monitoring. Thanks to its scalability, new functions can be added at any time depending on the needs of the installation.



...simple to install

The **NEMO SX** system is powered at safety extra low voltage (SELV) and has 2 types of connection:

- by means of the innovative **communicaton rail** system
- by means of the quick fit **patch cords.**

Quick and simple data connection

In both cases, the data connection is simple and immediate and **does not require any other additional space in the electrical enclosure.** In the case of the communication rail, the connection is made automatically via the rear contacts, when the NEMO SX modules are fixed on the DIN rail of the electrical panel.

COMMUNICATION RAIL

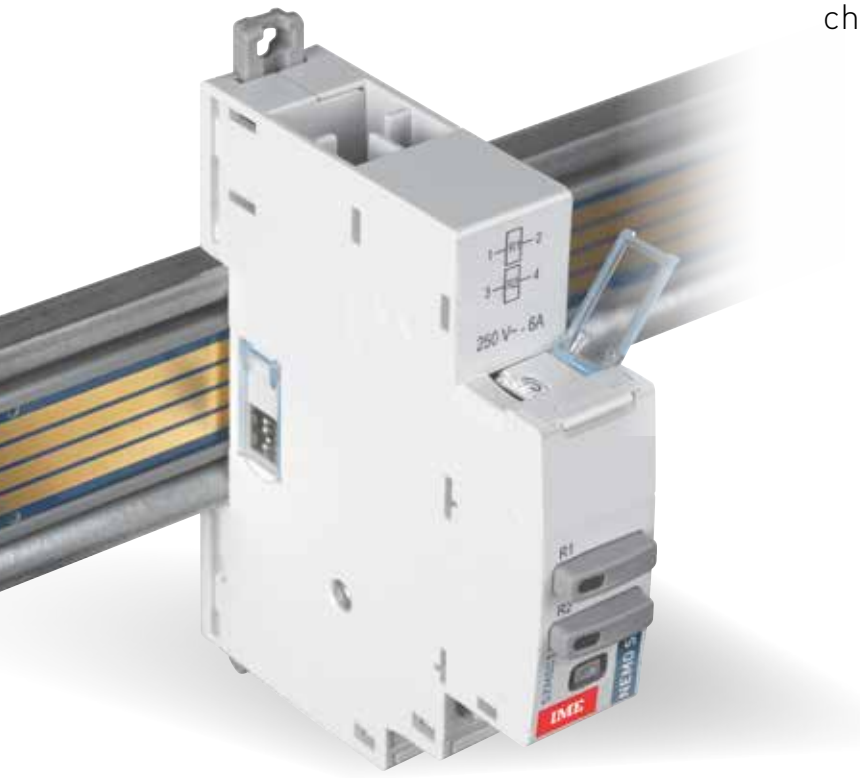
Connection is made automatically with the connectors at the back side of the NEMO SX modules.

PATCH CORDS

All NEMO SX modules are equipped at the bottom with ports for connection to the bus via dedicated patch cords.

NEMO SX
simple to configure

The **NEMO SX** system has been developed in order to be able to manage, simply and immediately, all functions, both from the electrical panel without using a PC and by means of a free of charge software with external devices.



Function configuration

The universal signalling and control modules include 4 DIP switches that enable different function types to be set.

Address configuration

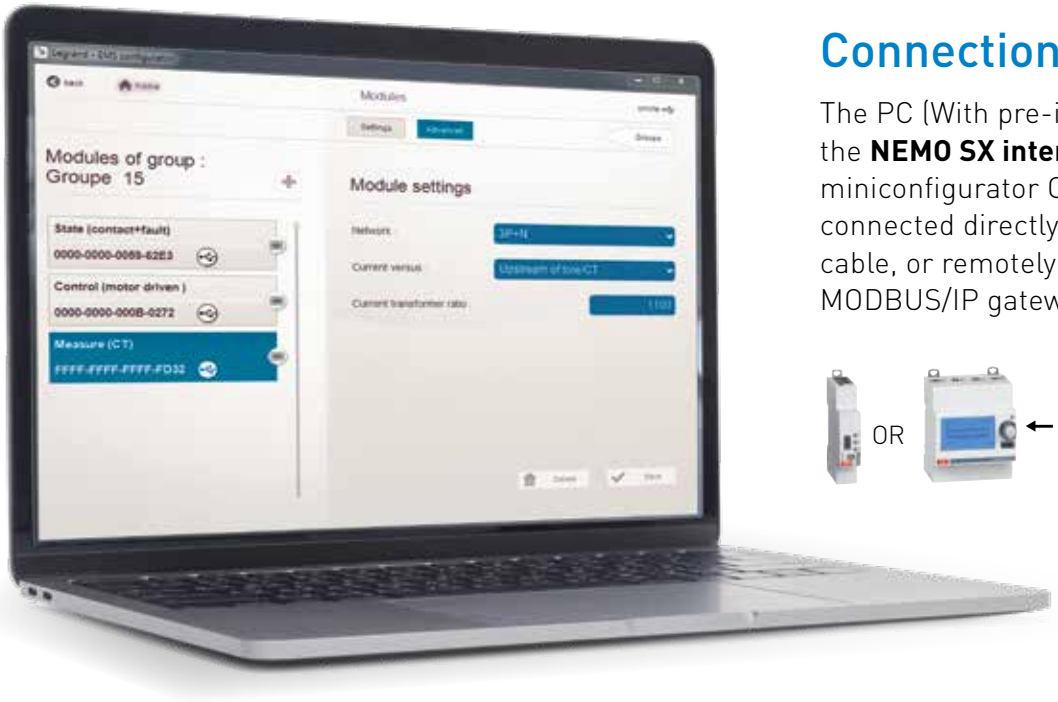
All modules are equipped with a selector for configuring the address locally. This configuration can also be done remotely via PC.

Programming and display

The stand alone NEMO SX configuration module allows to configure the system and to visualize all installed modules, without need of any ip or pc connection.

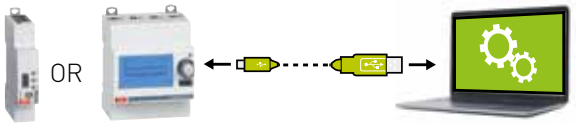
Function

All modules are also equipped with a multifunction 3-colour LED button to instantly identify the operating status. correct operation, stand-by, being programmed, being updated, no NEMO SX communication, etc.



Connection

The PC (With pre-installed software) and the **NEMO SX interface** Cat. No SXI485 or miniconfigurator Cat. No SXV01 can be connected directly using a USB/USB micro cable, or remotely via an IP network and a MODBUS/IP gateway Cat. No SXIIP.



Configuring the address

The software can be used to detect all NEMO SX modules in the system and assign them an address automatically. The numerical selector switches must be in position "0".

Configuring functions

The software can be used to assign different operating types to the universal modules. The micro-switches must be in position "0".

NEMO SX
adaptable for all installations

The **NEMO SX** modules are optimised for installation on DIN rail associated with MCBs, but can also manage power circuit breakers.

Signalling

The universal, configurable signalling module can be associated with all type of signalling auxiliaries of DIN rail mounting MCBs or power circuit breakers.

Control

Enables to locally or remotely control different electrical loads or motorised controls associated to DIN rail mounting protection devices or head equipment. Equipped with DIP switches (on the side) allowing product configuration:
- the contact type
- the function (maintained or momentary contact).

Measurement

The high current measurement module with external CTs enables the measurement by means of CT with KTA ratio of up to 6400 A, which can therefore also be used in large power centre panels.

up to **6300 A**

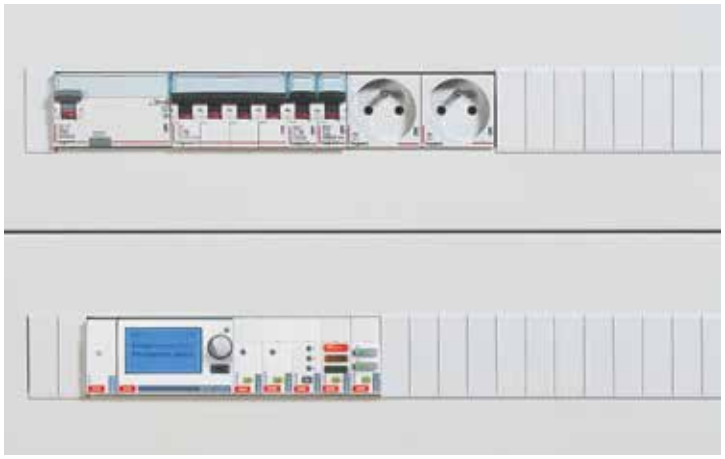
NEMO SX measurement modules with flexible open Rogowski coils or with current transformers are ideal for the needs of installations **up to 6300 A**

Measurement with open coils

Three-phase measurement modules with flexible open Rogowski coils can be used to measure currents up to 630 A, 1600 A, 3200 A and 6300 A, depending on the size chosen. They have been specially designed for quick and easy installation. The supports provided are used to fix and centre the coils on the busbars horizontally or vertically.

Measurement with CT

High-current measurement modules for current transformers can be used to take measurements using conventional current transformers (5 A). They can therefore be used in large distribution panels.



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NEMO SX
application examples



Example 1 "STAND-ALONE" CONFIGURATION

IDEAL FOR INDIVIDUAL INSTALLATIONS WHERE THERE IS A LOCAL NEED TO:

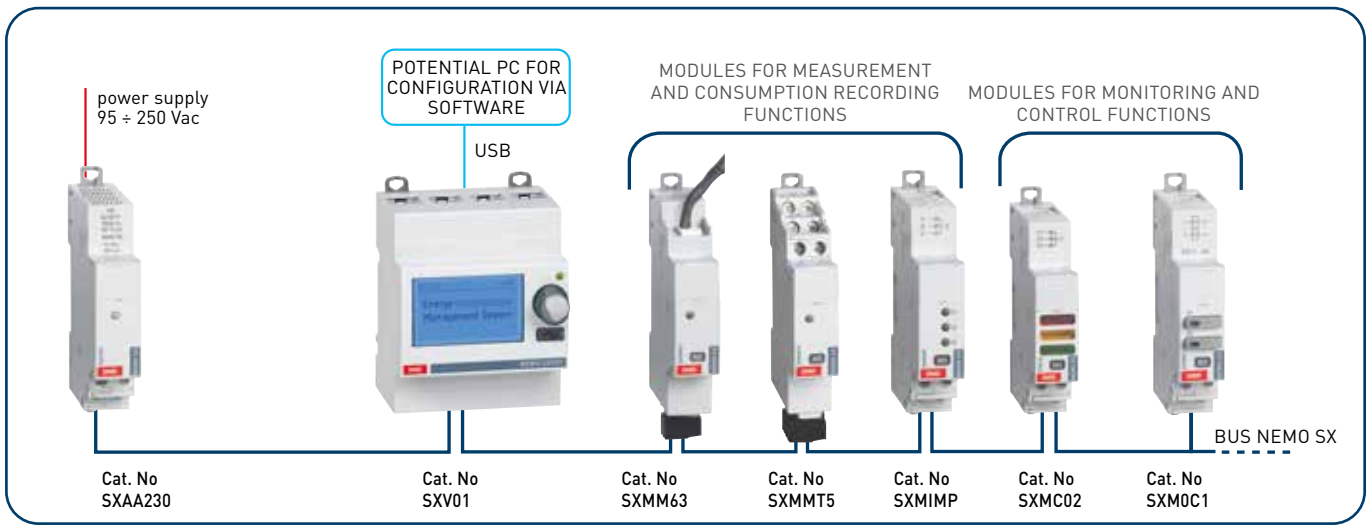
- monitor parameters (electricity, water, gas, calories, etc.) of consumption and/or production
- check the status of various devices (switches, contactors, relays, end runs, etc.)
- locally control various devices (switches, contactors, relays, etc.)
- register alarms (up to 20)
- generate simple load control automations
- configure the installation simply

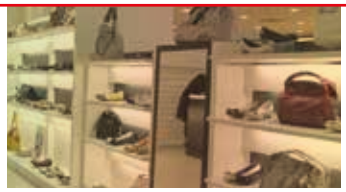
Scope of application:

Residential buildings and small commercial businesses potentially with photovoltaic and/or thermal solar energy production plants.

Installation

- maximum capacity for expansion: 32 devices
- maximum distance between two devices: 3 m
- maximum consumption of the entire system: 1500 mA, divided up into 3 inter-connected groups
- maximum consumption of each group: 500 mA supplied by a single power supply (Cat.No SXAA230)





Example 2 CONNECTED CONFIGURATION

IDEAL FOR INDIVIDUAL INSTALLATIONS WHERE, IN ADDITION TO THE SERVICES DESCRIBED IN EXAMPLE 1, THE FOLLOWING IS REQUIRED:

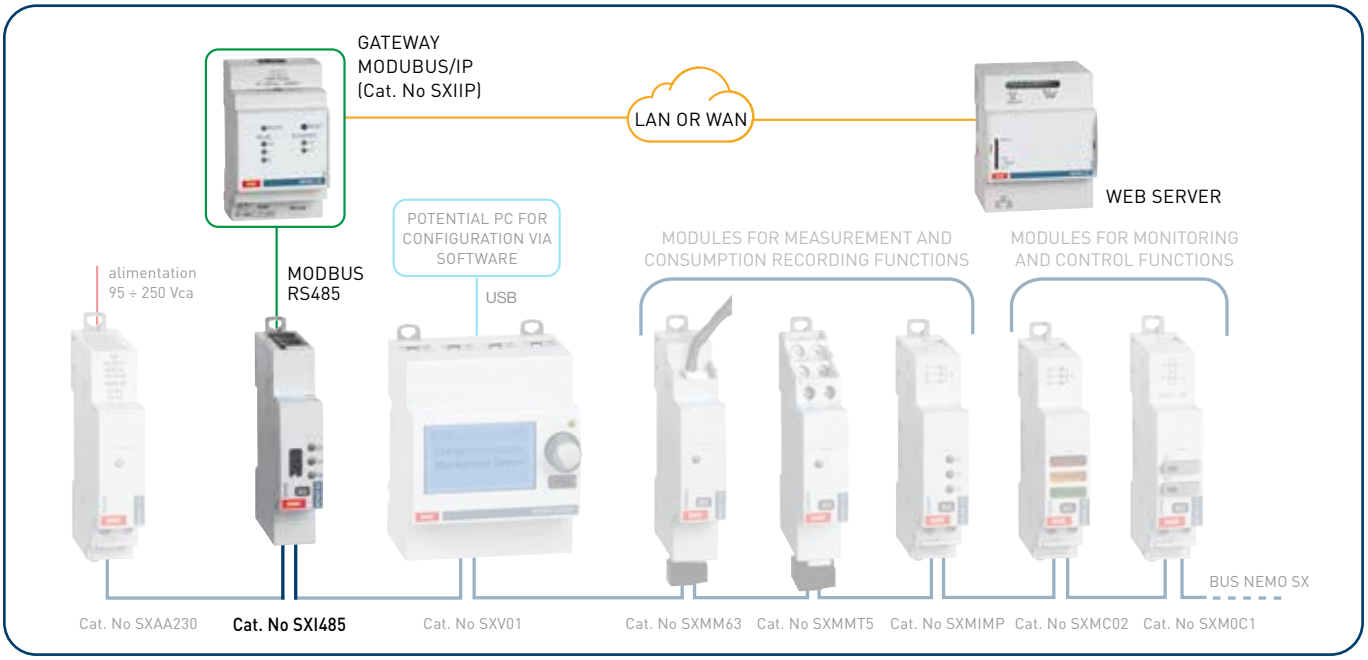
- record the trend of various electrical parameters (voltage, current, power, power factor, frequency, harmonic distortion rate, etc.)
- create histograms and energy reports
- record events and alarms
- save data to files and automatically send out e-mails/text messages
- implement automation and load management systems
- access the system via various devices (smartphones, tablets, PCs, etc.)

Scope of application:

Residential buildings and small commercial businesses where the need, above all, is to make installation monitoring and control possible from a remote position.

Installation

- maximum expansion possible: 32 devices
- maximum distance between two devices: 3 m
- maximum consumption of the system: 1500 mA, divided up into 3 inter-connected groups
- maximum consumption of each individual group: 500 mA supplied by a single power supply (Cat.No SXAA230)



NEMO SX
application examples



Example 3 "ON-LINE" CONFIGURATION

IDEAL FOR INSTALLATIONS WHERE, IN ADDITION TO THE SERVICES DESCRIBED IN EXAMPLE 2, IT IS POSSIBLE TO INTEGRATE INDIVIDUAL BUS NEMO SX SYSTEMS BETWEEN THEM AND OTHER MODBUS DEVICES ABLE, FOR EXAMPLE, TO:

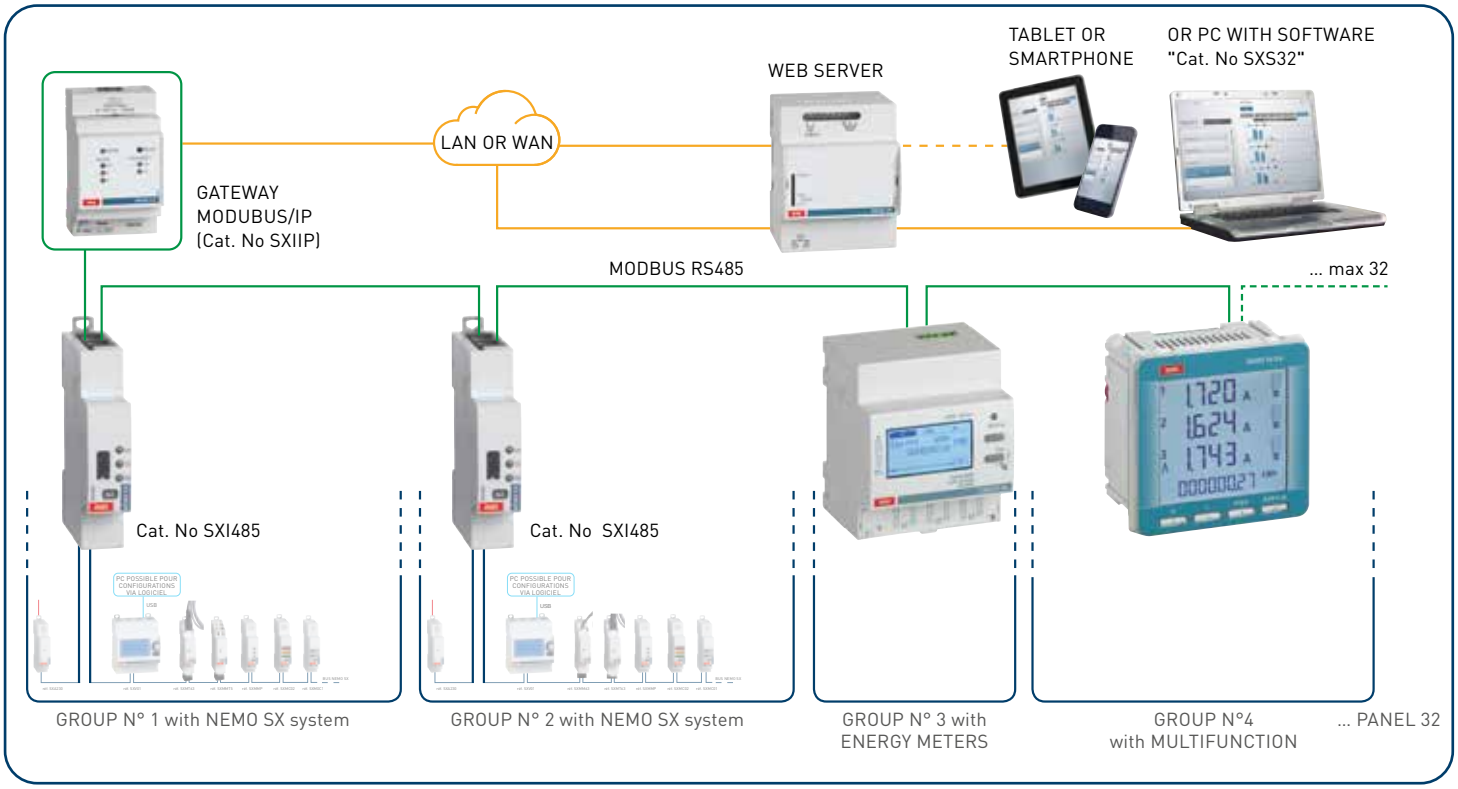
- ensure additional measurement and control functions
- manage and monitor the parameters of the electronic protection relays typical of large switches (boxed and open)
- manage and monitor the automatic switching parameters between two power sources, etc.

Scope of application:

Buildings with simple installations, also consisting of several electric cabinets, with the need to control and monitor electrical loads.

Installation:

- maximum capacity for expansion: 32 MODBUS devices
- maximum length of RS485 bus: 1000 m
- maximum logical addresses: 247





Example 4 "MULTI-SITE" CONFIGURATION

IDEAL FOR INDIVIDUAL PLANTS WHERE, IN ADDITION TO THE SERVICES DESCRIBED IN EXAMPLE 3, THE FOLLOWING IS REQUIRED:

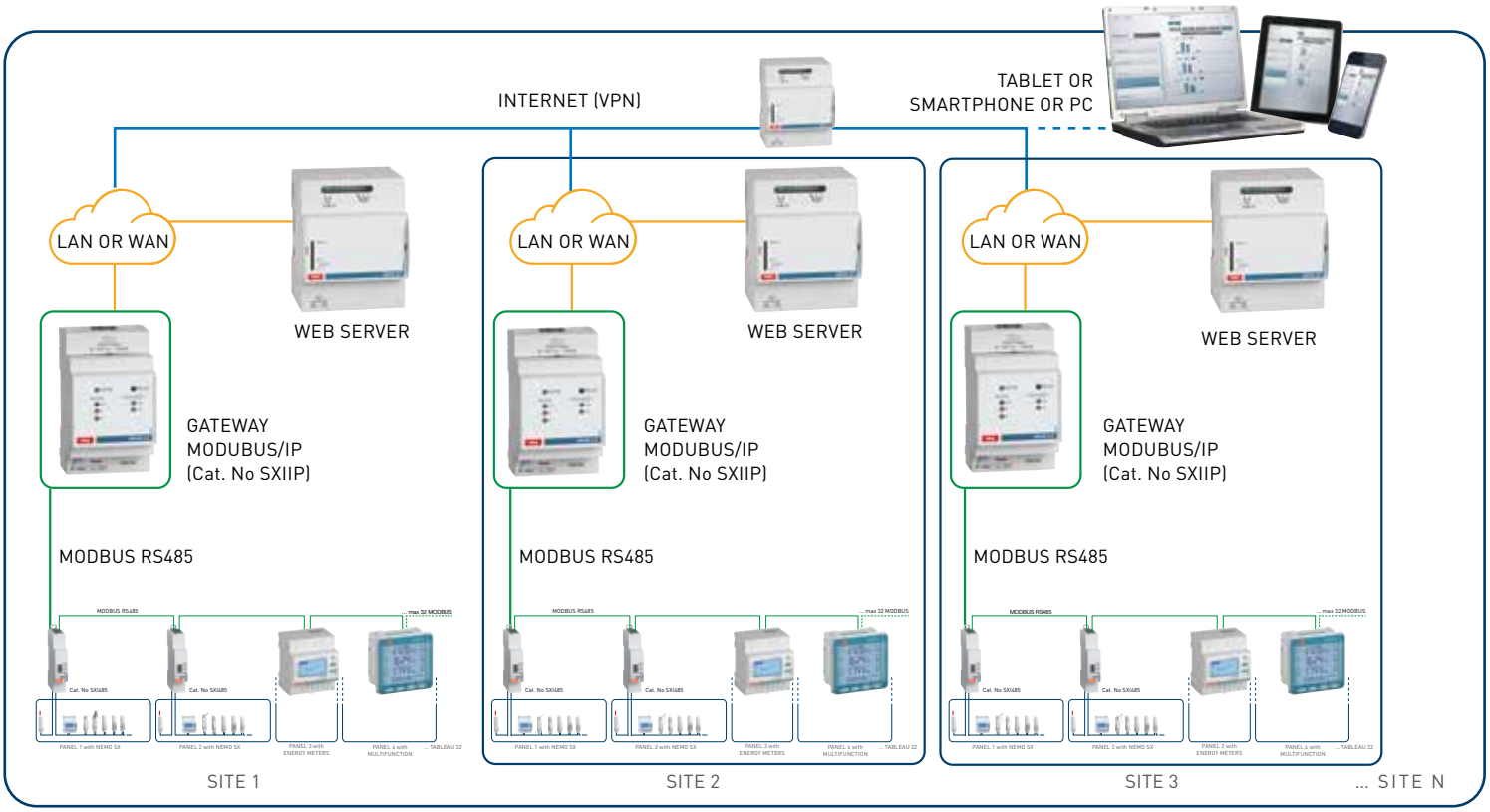
- remotely manage individual installations situated in different locations with the help of devices (smartphone, tablet, PC, etc.) connected to the Internet
- have several levels of visualization: local (1 site) or remote, with a multi-site "administrator" view.

Scope of application:

Sites (filiales de banques, points de vente de carburants, chaînes de magasin ou de restaurants, écoles, etc.) dotés d'installations simples, qui doivent être supervisées par une entité administratrice unique.

Installation:

- maximum capacity for expansion: 32 MODBUS devices - 32 devices
- maximum length of bus RS485: 1000 m
- maximum logical addresses: 247



IME

NEMO SX: energy management system

modules


SXMM63


SXMT63


SXMR02


SXMMT5


SXMIMP


SXMC02


SXM0C1

Conform to IEC/EN 61131-2 (Programmable controllers)
NEMO SX energy management system enables to measure, control and visualize the state of 4 rail mounting protection devices (MCBs, RCCBs, RCBOs, etc...) and head equipment, locally (“Stand alone”) or remotely. All the modules of the system are equipped with two specific communication ports: one at the backside (for communication rail) and one underneath (for communication patch cords). Power supply with specific module SXAA230.
Remote configuration possible with the help of the Energy Management Configuration Software, available for free download via IME WEB site (giving also access to a 30-day trial version of Energy Management Software)

Measurement modules

For measuring current, voltage, active/reactive power and other values
Conform to IEC/EN 61557-12
Accuracy: class 0.5

Cat. No		Number of modules
	Direct connection up to 63 A with closed Rogowski coils	
	Allow the passage of prong-type supply busbars (upper side) Supplied with closed Rogowski coils	
SX3M63	3 x single-phase measuring module + 3 coils Consumption: 0,418 W - 34,8 mA (12 V =)	1
SXMM63	Single-phase measuring module + 1 coil Consumption: 0.409 W - 34.1 mA (12 V ⎓)	1
SXMT63	3-phase measuring module + 3 coils Consumption: 0.418 W - 34.8 mA (12 V =)	1
	Direct connection up to 125 A with closed Rogowski coils	
	Allow the passage of prong-type supply busbars (upper side) Supplied with closed Rogowski coils	
SXMT125	3-phase measuring module + 3 coils Consumption: 0.418 W - 34.8 mA (12 V ⎓)	1
	Direct connection with open, fexible Rogowski coils	
	Allow the passage of prong-type supply busbars (upper side) Supplied with opened, fexible Rogowski coils and fixing supports for busbars	
SXMR02	3-phase measuring module + 3 coils up to 630 A Consumption: 0.418 W - 34.8 mA (12 V =)	1
SXMR04	3-phase measuring module + 3 coils up to 1600 A Consumption: 0.418 W - 34.8 mA (12 V =)	1
SXMR06	3-phase measuring module + 3 coils up to 3200 A Consumption: 0.418 W - 34.8 mA (12 V =)	1
SXMR08	3-phase measuring module + 3 coils up to 6300 A Consumption: 0.418 W - 34.8 mA (12 V =)	1
	Connection with CT	
SXMMT5	5 A measuring module connected via current transformers (CT) Consumption: 0.391 W - 32.6 mA (12 V ⎓)	1

Extension kits for Rogowski coils

	Supplied with connectors
ROGEXTM1	Length: 1 m
ROGEXTM3	Length: 3 m

Universal control module

Enables to remotely control different electrical loads or motorised controls associated to 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. No		Number of modules
SXM0C1	2 relays: 240 V A - 6 A Consumption: 0.456 W - 38 mA (12 V =)	1

Pulse concentrator

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

Cat. No		Number of modules
SXMIMP	Up to 3 pulse circuits Consumption: 0.288 W - 24 mA (12 V =)	1

State reporting module

Universal signalling module
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. No		Number of modules
SXMC02	Equipped with 3 LED lights: green, red and yellow Consumption: 0.377 W - 31.4 mA (12 V =)	1

NEMO SX: energy management system

connection and configuration


SXAR18/24/36


SXAC250-500-1000


SXAA230


SXV01


SXI485


SXIIP


SXWS10/32/255

Conform to IIEC/EN 61131-2 (Programmable controllers)
NEMO SX energy management system enables to measure, control and visualize the state of 4 rail mounting protection devices (MCBs, RCCBs, RCBOs, etc...) or head equipment, locally (“Stand alone”) or remotely. All the modules of the system are equipped with two specific communication ports: one at the backside (for communication rail) and one underneath (for patch cords).
Power supply with specific module.
Remote configuration possible with the help of the Energy Management Configuration Software, available for free download via IME web site (giving also access to a 30-day trial version of Energy Management Software)

Cat. No	Connection accessories
	Communication rails To be fitted on rail or spacer Allows data transmission between the different modules of NEMO SX energy supervision system
SXAR18	18 modules
SXAR24	24 modules
SXAR36	36 modules
	Plastic cover for communication rail Must be used for protection of the unused parts of the communication rail. Can be cut to the required length. Fixing: direct clip on to the rail
SXARC	Length: 36 modules
	Communication patch cords Allows data transmission between the different modules of NEMO SX energy supervision system Can be used instead of communication rails or to create a link between two rows (individually connected with communication rails)
SXAC250	Length 250 mm
SXAC500	Length 500 mm
SXAC1000	Length 1000 mm
	Communication patch cord connector Enables to extend communication patch cords length by clipping them together
SXACA	Max. length: 3 m

	Power supply module
SXAA230	500 mA 12 V = stablized power supply module for CX3 energy management system

Cat. No	Stand alone configuration module
	Optional module for "stand alone" supervision need
SXV01	Enables to configure, test and control NEMO SX energy management system and to visualize supervision data No computer or IP connection required Consumption: 0.438 W - 36.5 mA (12 V =)

	Remote configuration and supervision
	Energy management multi-support web servers Allow remote configuration, test, control and visualization, via a web browser on PCs, smartphones, web viewers, tablet computers, of data collected from: protection devices, electricity meters and multi-function measuring units and NEMO SX energy management system
SXWS10	For 10 Modbus adresses or 32 pulse modules
SXWS32	For 32 Modbus adresses or 32 pulse modules
SXWS255	For 255 Modbus adresses or 32 pulse modules

	Communication interfaces
SXI485	RS485 / NEMO SX energy management system conversion Consumption: 0.344 W - 28.7 mA (12 V =)
SXIIP	RS485 / Ethernet conversion (for connection to an IP network)

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AD-EX/IME-SX21C/GB - Version 02/2021