UNIVERSAL & INNOVATIVE SYSTEM FOR THE ENERGY MANAGEMENT

NEMO SX

IME

A Group brand | legrand

ENERGY EFFICIENCY

EFFECTIVE ACTION TAKEN TO ENSURE ENERGY EFFICIENCY NOT ONLY REDUCES ENERGY CONSUMPTION AND GREENHOUSE GAS EMISSIONS, BUT ALSO YIELDS FINANCIAL BENEFITS **AS WELL AS EASIER USE AND FUNCTION OF INSTALLATIONS.**

CONTENTS

IME

The NEMO SX IME **ENERGY MANAGEMENT** system was created to supervise and manage energy consumption within the building, guaranteeing reliability and continuity of service for maximum efficiency.

KNOWING ENERGY CONSUMPTIONS is the FIRST STEP towards energy efficiency.

CONTROLLING THEM is the SECOND, ...

The IME solutions

IME offers various solutions by which to **MEASURE and SUPERVISE** electrical systems that can adapt to all needs and ensure their full control and management.
The versatility of the IME solutions guarantees their interfacing with other ENERGY MANAGEMENT systems.

SIMPLE INSTALLATIONS THAT MEASURE CONSUMPTION

devices for the measurement of electrical magnitudes and data collection.

AUTOMATED INSTALLATIONS

devices for monitoring and automating distribution panels to guaranteecontinuity of service and a timely control of the installation.

CENTRALISED INSTALLATIONS

systems for the all-round supervision of installations, able to offer all functions to allow for the optimal management of all devices.

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ENERGY MANAGEMENT

the actions...

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

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 the 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.

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ENERGY MANAGEMENT advantages

The **NEMO SX** 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

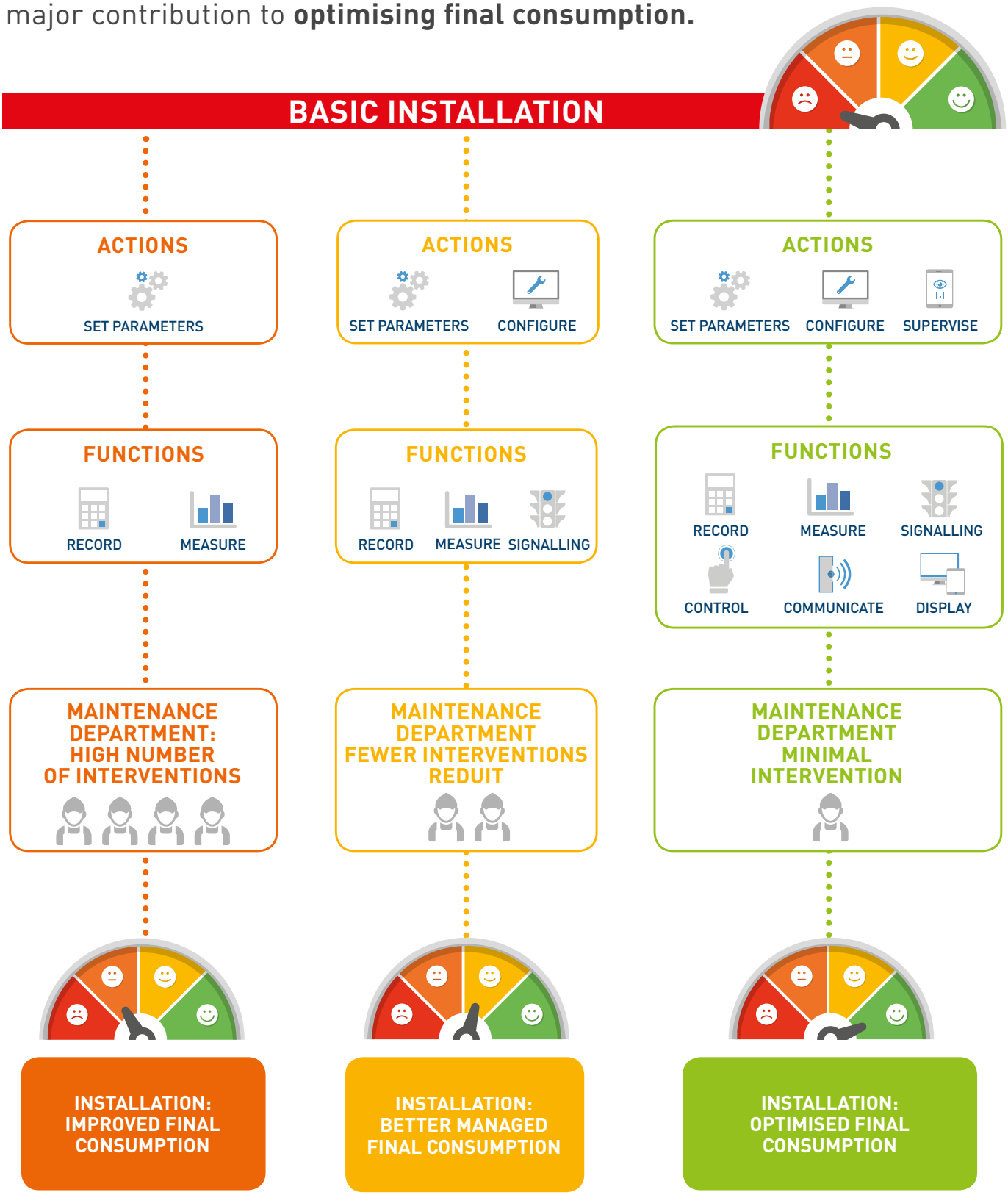
- **visualize** and assess technical alarms in real time;
- **know** installation status;
- **prevent** damage to parts of the installation.

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.

MAXIMUM NUMBER OF FUNCTIONS AND ACTIONS = **MINIMUM NUMBER OF INTERVENTIONS AND CONSUMPTION**

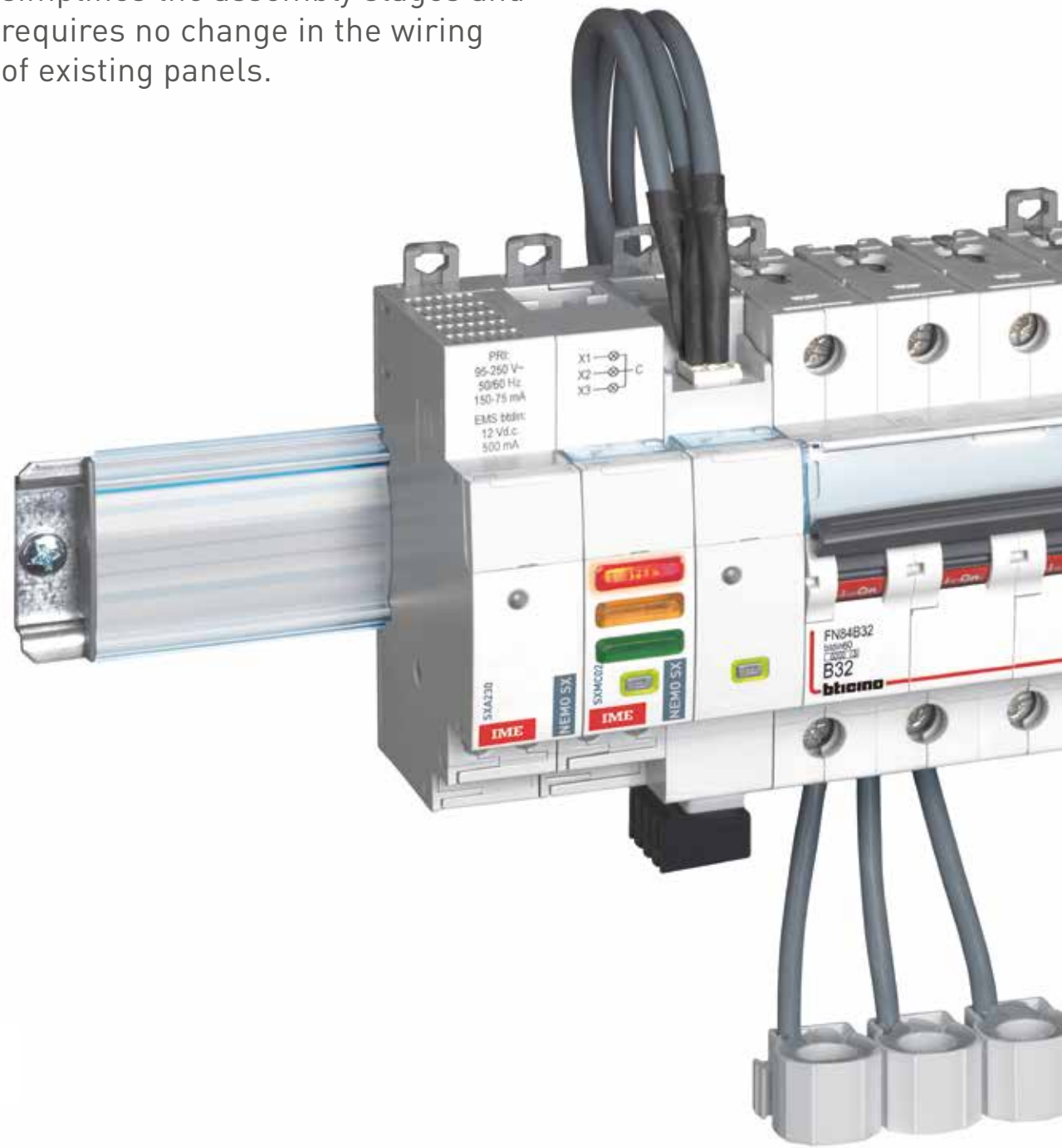
In an electrical infrastructure, having more functions and actions reduces the number of human interventions and makes a major contribution to **optimising final consumption.**



NEMO SX

a new 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.



COMPLET AND COMPACT

The new **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

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 and via dedicated software that can be downloaded from www.imeitaly.com

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.

IME

NEMO SX

complete, compact and multifunctional

MEASUREMENT

SIGNALLING

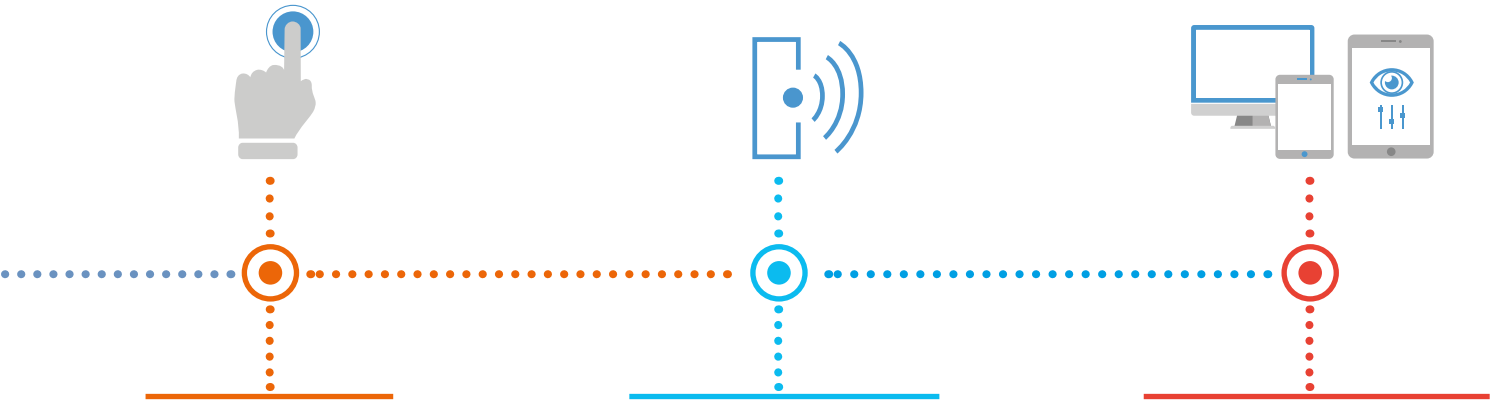
With the same performance as the "classic" models of measuring units, the NEMO SX measuring modules can be used to measure the electrical energy consumed by a single-phase or three-phase circuit and the different electrical values:
- Active (kW), reactive (kVAR) and apparent (kVA) power on all phases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

COMMUNICATION

PROGRAMMING AND DISPLAY

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.

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.

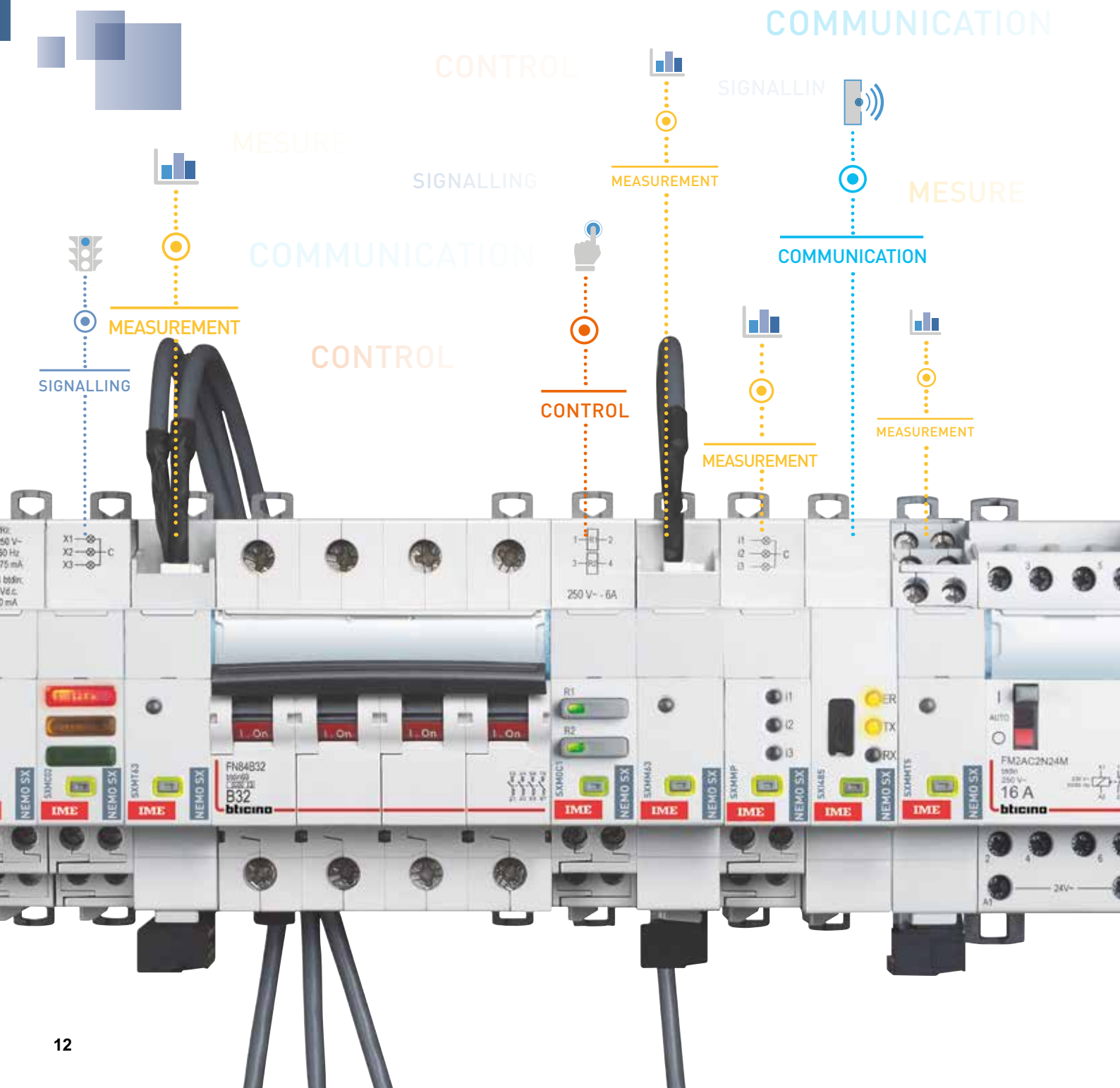
Stand alone configuration module for the control of the entire installation, locally, in the enclosure:
- system configuration
- test
- consumption display
- alarm control
- device control
- memory storage of the alarms

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.



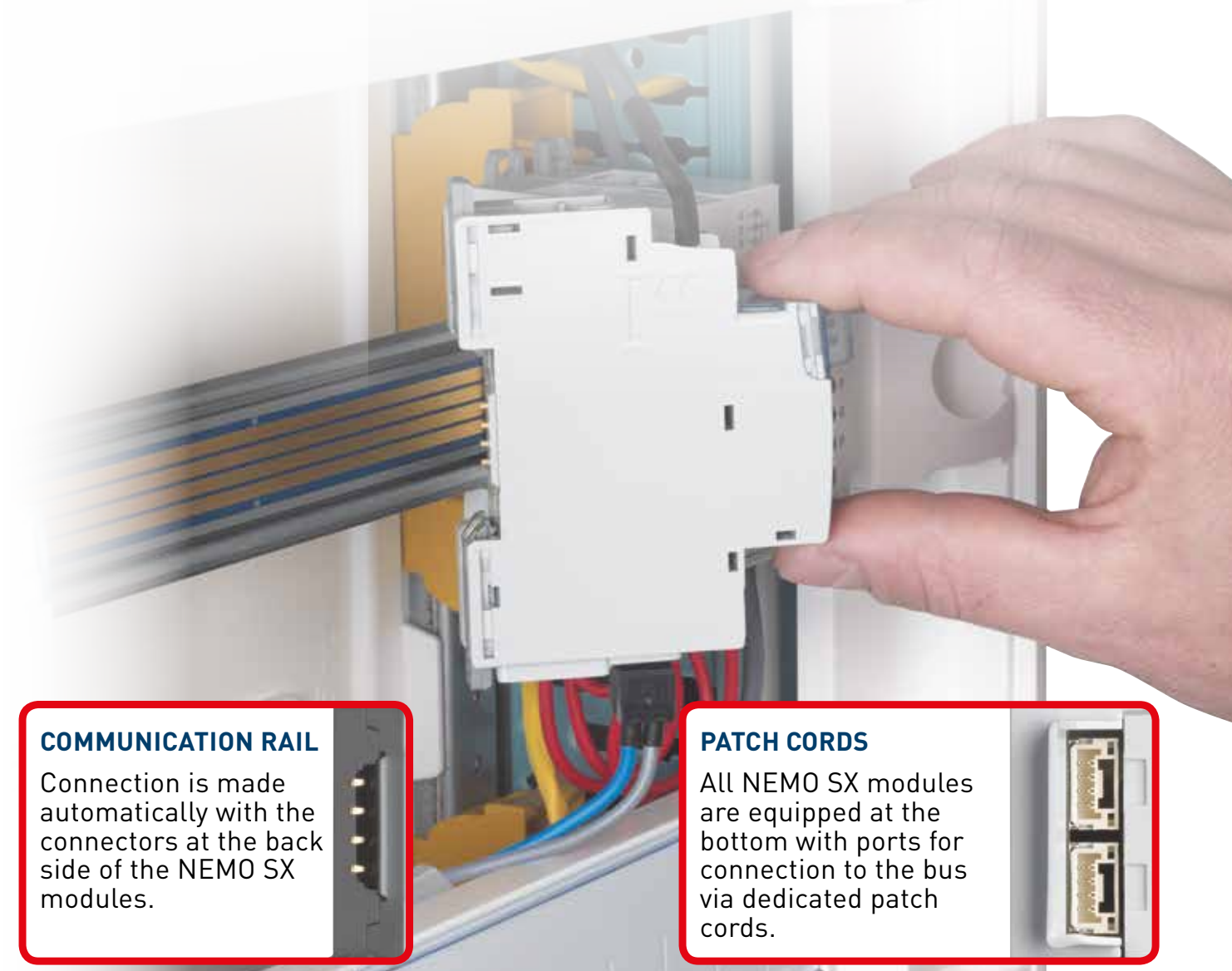
...simple to install

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.

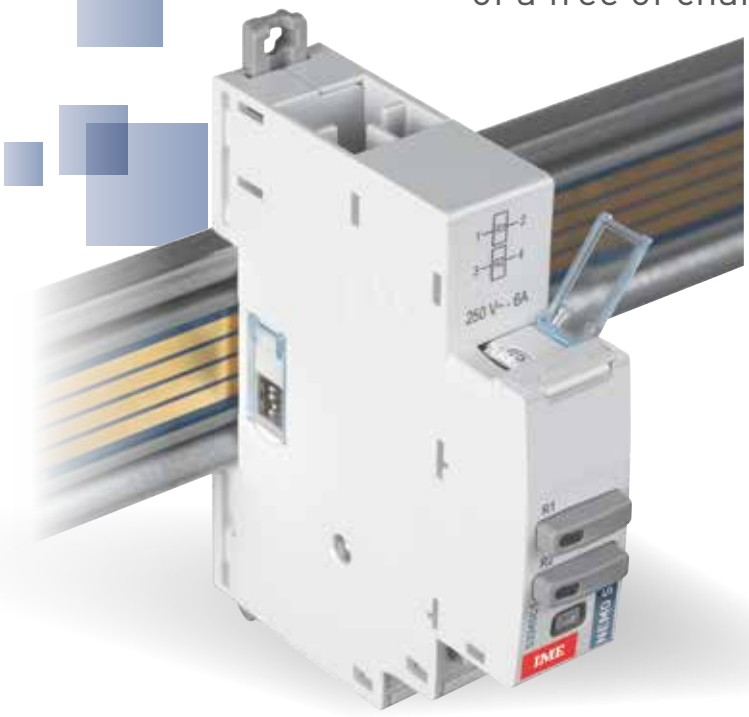
PATCH CORDS

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.

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.

NEMO SX
application examples



EXAMPLE 1 "STAND-ALONE" CONFIGURATION

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

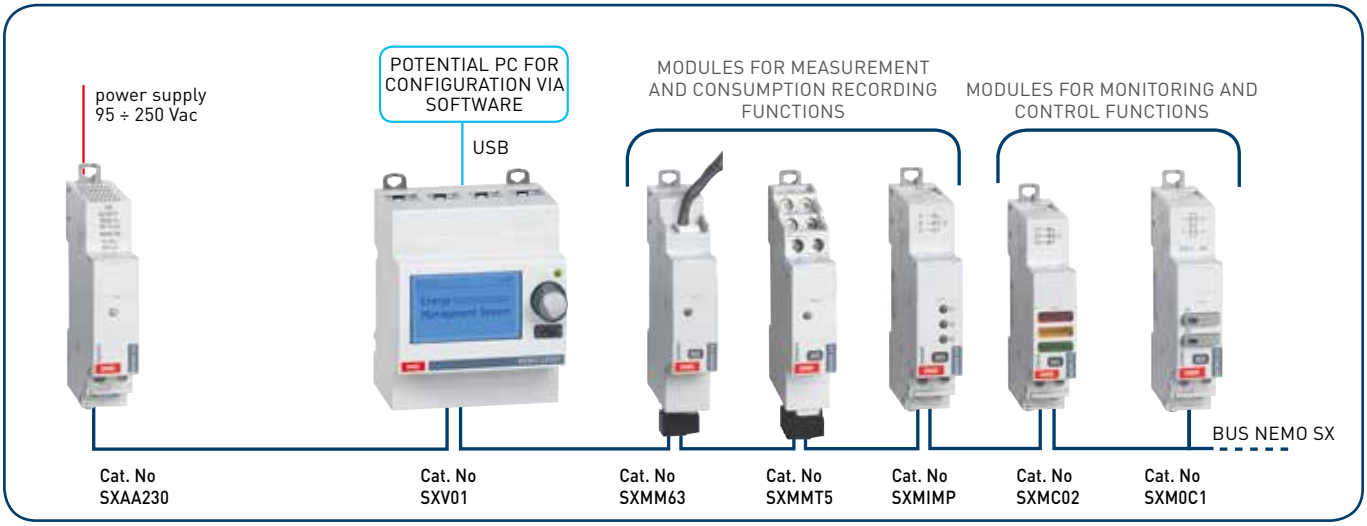
- monitor parameters (electricity, water, gas, calories, etc.) of consumption and/or production
- check the status of various devices (switches, contactors, relays, end runs, etc.)
- locally control various devices (switches, contactors, relays, etc.)
- register alarms (up to 20)
- generate simple load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

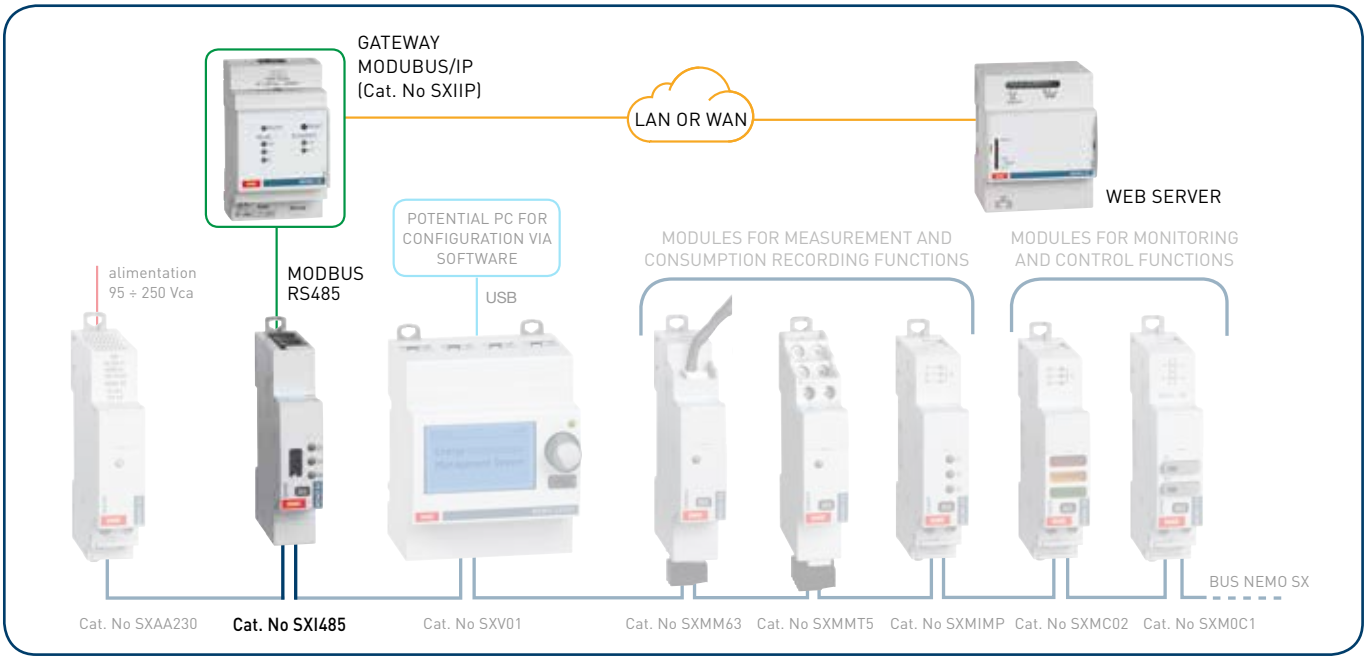
- record the trend of various electrical parameters (voltage, current, power, power factor, frequency, harmonic distortion rate, etc.)
- create histograms and energy reports
- record events and alarms
- save data to files and automatically send out e-mails/text messages
- implement automation and load 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 EMS SYSTEMS BETWEEN THEM AND OTHER MODBUS DEVICES ABLE, FOR EXAMPLE, TO:

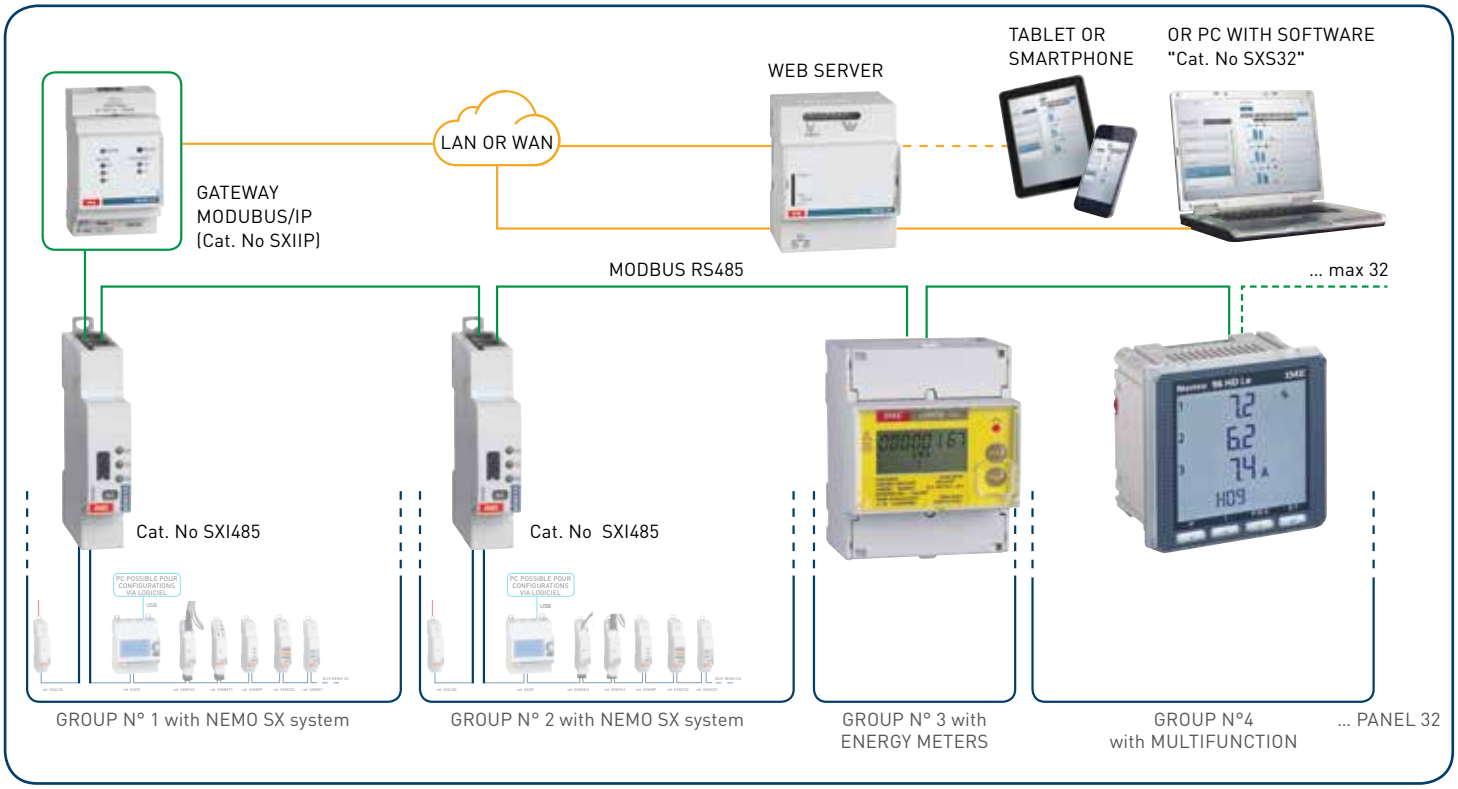
- ensure additional measurement and control functions
- manage and monitor the parameters of the electronic protection relays typical of large switches (boxed and open)
- manage and monitor the automatic switching parameters between two power sources, etc.

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:

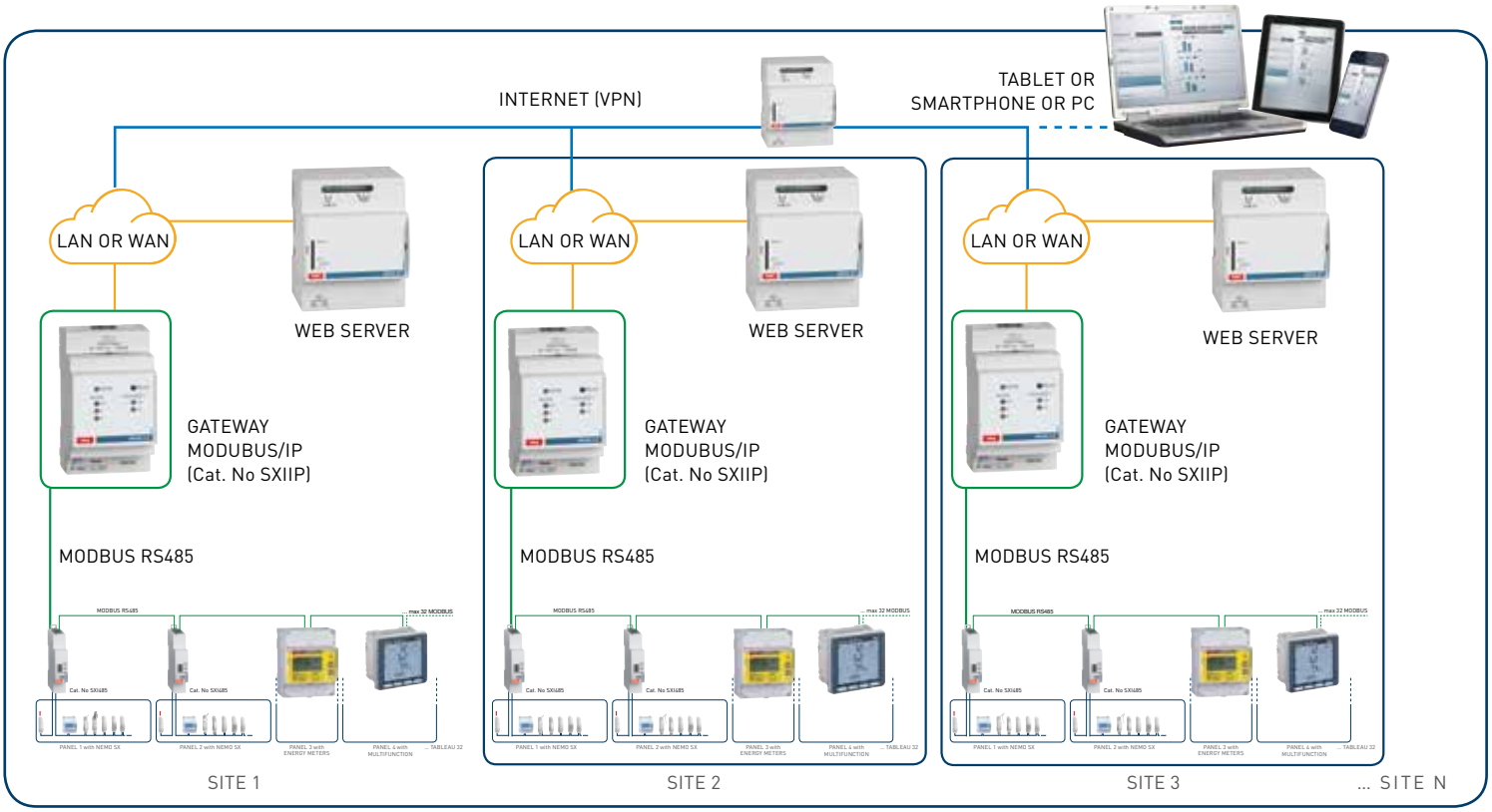
- remotely manage individual installations situated in different locations with the help of devices (smartphone, tablet, PC, etc.) connected to the Internet
- have several levels of visualization: local (1 site) or remote, with a multi-site "administrator" view.

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



NEMO SX: energy management system

modules


SXMM63


SXMT63


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

Direct connection up to 63 A
Measuring module and
closed Rogowski coil up to 63 A

Cat. No		Number of modules
SXMM63	Single-phase measuring module andup to 63 A Consumption: 0.409 W - 34.1 mA (12 V =)	1
SXMT63	3-phase measuring module up to 63 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

Pulse concentrator

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

		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

		Number of modules
SXMC02	Equipped with 3 LED lights: green, red and yellow Consumption: 0.377 W - 31.4 mA (12 V =)	1

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)

		Number of modules
SXM0C1	2 relays: 240 V A - 6 A Consumption: 0.456 W - 38 mA (12 V =)	1

NEMO SX: energy management system

connection and configuration

SXAR18/24/36 SXAC250-500-1000 SXS32/255 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

Cat. No	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
	Allows remote configuration, test, control and visualization of data collected from EMDX³ electrical energy meters and multi-function measuring units and NEMO SX energy management system on one computer connected to the network
SXS32	Software licence agreement (user key) for 32 Modbus adresses or 32 pulse modules
SXS255	Software licence agreement (user key) 255 Modbus adresses or 255 pulse modules
	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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