Enerlin'X

Catalogue 2016

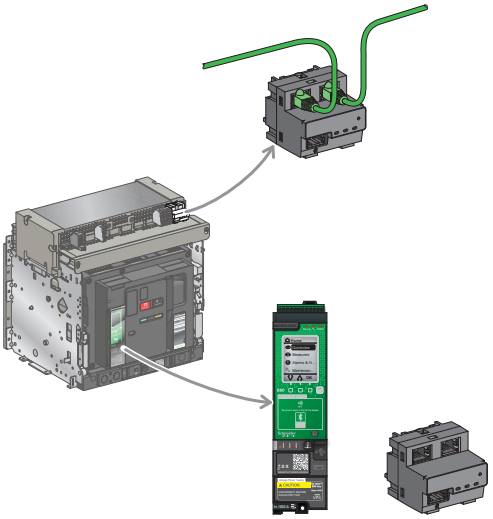
Digital system for Smart Panels

schneider-electric.com

Life Is On Schneider Electric

What's new in 2016

Connected circuit breaker
with eIFE Internet add-on module for new drawout Masterpact MTZ



Internet connection with eIFE Internet add-on module or Micrologic X + IFE interface

The eIFE module is directly mounted on the chassis saving space and wiring.
Therefore, an IP address is provided to drawout Masterpact MTZ.
The IFE interface remains the solution for fixed version.
Micrologic X trip unit + IFE interface is an alternative for connecting any Masterpact MTZ to Internet, with extended possibilities (refer to Masterpact MTZ catalogue).

Connected metering and space saving
with PowerTag + Acti 9 Smartlink SI B Ethernet wireless system

PowerTags power meters measure the current across the device and the load power.
Data from multiple meters is centralized in a Smartlink SI B Ethernet gateway, wireless.
Power tags are directly plugged into any ACTI 9 or Multi9 modular circuit breakers and switches.

Values can be sent by the gateway to any supervision system through Ethernet.

PowerTags rating: up to 63 A - Class 1 current transformer accuracy - Class 1 energy metering.

What's new in 2016

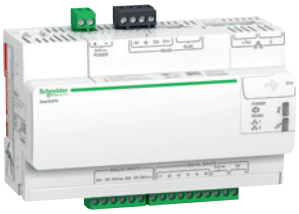
Simple and real-time operation
with connected gateways and servers

Acti9 Smartlink SI B Ethernet

IFE switchboard server

Gateways (Acti 9 Smartlink SI B Ethernet) and switchboard server (IFE) provide valuable information through a common media : Internet.
Locally and from the distance, any authorized operator gets a clear vision of the building or process.
Vital values (temperature, pressure, electrical, etc...) and operational status are displayed on his PC.
Necessary actions can be taken immediately.

Optimized energy and operation monitoring
thanks to Enerlin'X Ethernet gateways and servers



Energy server Com'X510 data logger

IFE Switchboard server

Com'X 510: compact plug and play gateways and data logger. It is the essential part of an entry level energy management system, used to collect and store building data.

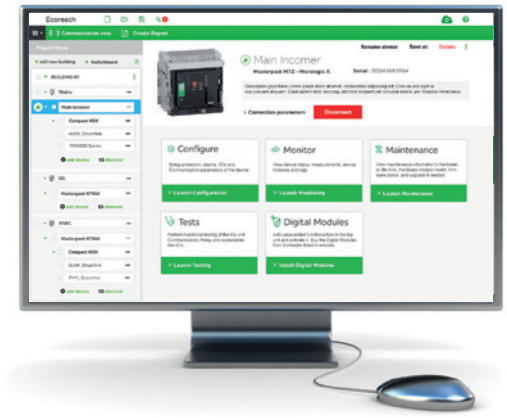
- Consumption of wages (Water, Air, Gas, Electricity, and Stream).
- Environmental parameters (Temperature, Humidity, CO_2).

Com'X 510 provides access to reports such as on-board device and circuit summary pages, as well as on-board data logging. Data can be securely accessed in real time or transmitted as a report to an Internet database server.

_IFE s: switchboard server. It is mainly dedicated to communication with circuit breakers (ULP protocole or Modbus), where it is used to collect and store circuit breakers status, electrical values.

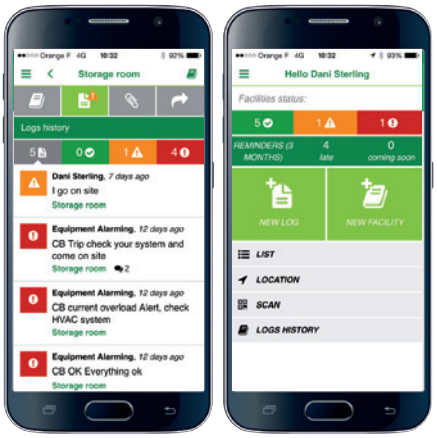
What's new in 2016

Quicker, easier Smart panel projects
with Ecoreach software



Ecoreach software for PC is a precious tool during commissioning, testing and maintenance phases of the project life cycle.
Thanks to its connected devices automatic discovery, communication tests and other functions, a lot time can be saved and errors avoided.
Ecoreach generates reports and safe repository of projects in the Cloud.

Improved maintenance team efficiency
with Facility Hero, a service from Schneider Electric



Facility Hero is a 100% collaborative mobile app designed for maintenance teams. Technicians in the field are in constant contact with their maintenance community: manager, customer, contractors and peers for fast and effective interventions.
Maintenance information are available at anytime and from everywhere. Smart assets using IoT (Internet of things) provide alarm notifications to Facility Hero with e-mail, SMS, http to keep key processes up and running.

Access to video: click or scan the QR code

Contents


1 MEASURE
2 CONNECT
3 ACT

Energy and assets management has never been simpler

Tested, validated, documented architectures make it easier to connect

Smart Panels have been certified through Schneider Electric's "TVDA" quality process.
Tested in performance labs by experts, in various possible configurations.
Validated full functional compatibility of devices.
Documented, with user guide, predefined CAD panel designs & wiring diagrams.

1. MEASURE

Embedded and stand-alone metering & control capabilities

2. CONNECT

- Integrated communication interfaces
- Ready to connect to energy management platforms

3. ACT

- Data-driven energy efficiency actions
- Real-time monitoring and control of energy consumption and electrical assets
- Online access to energy and site information
- Preventive maintenance alarming

1. MEASURE

Switchboards are the most convenient location to collect data about electrical supplies throughout the building

Schneider Electric provides best-in-class devices for electrical protection, control, and measurement, as well as efficient switchboard build-up systems.

We also create new, digital possibilities through better connectivity, thanks to the Enerlin'X system components embedded in our power operating devices.

30% of energy used in commercial buildings is wasted on average

Source: US Environmental Protection Agency, US Department of Energy 2016.

Power and energy stand-alone metering

PowerLogic meters

Monitor key distribution points 24 hours a day, from generators, substations, and service entrances, to mains, feeders, and loads. All data is accessible locally or remotely. Help improve network reliability by tracking real-time power quality, equipment status, trending loads, and logging events and alarms.

Acti 9 energy metering solutions

Energy meters for a variety of applications: single-phase (iEM2000 series) or three-phase (iEM3000 series) circuits, basic kWh meters for elementary applications to MID-compliant meters for billing applications, and advanced energy meters capable of measuring a variety of electrical parameters.
Data is visible locally or accessible remotely.
The new powerTag + Acti9 Smartlink SI B Ethernet Wireless solution brings new advantages:

- compacity, as the powerTag is simply plugged in the circuit breaker terminal
- wireless communication with the Acti9 Smartlink SI B Ethernet Wireless receiver
- class 1 precision Energies measurement, Power, Currents, Voltages measurement.

Power supply and protection monitoring, class 1 embedded metering

Masterpact, Compact, Powerpact circuit breakers with Micrologic control units

Operating status, electrical measurements, diagnosis, maintenance information. The embedded, pluggable control units reduce the installation cost and provide valuable data to facility managers and maintenance technicians in their daily and periodic tasks. NovaAPP makes information from main breaker visible on their smartphone.

Acti 9 circuit breakers, residual current devices, surge arresters

Each Acti 9 protection device also contributes to electrical supply reliability. Easy-to-fit auxiliaries transmit real-time status to the Enerlin'X system and additional RCA modules enable digitally controlled resetting after a trip.

Circuit and load controls

Acti 9 contactors and impulse relays, remote controlled Compact and Masterpact

To improve user comfort, lighting or other loads are switched on and off, separately or all together, via the digital system. Can be done via remote instruction or predefined schedule.

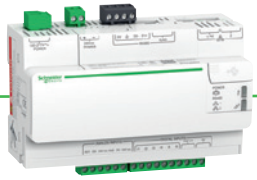
2. CONNECT

Simply plug switchboard to the Ethernet LAN

Ethernet is today the most widespread communication protocol in professional buildings, providing fast data transmission. Thanks to the Enerlin'X digital system, switchboards can be connected via Ethernet like any other device through an RJ45 socket.

Enerlin'X digital system

Fitted inside the switchboards, Enerlin'X components aggregate electrical and other energy data from across your building.



Com'X 200 energy data logger

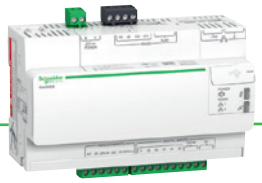
- Collects W.A.G.E.S data from various devices throughout the building
- Delivers batches of data ready to be processed by StruxureWare™ solutions or Facility Insight Services (direct connectivity) or any online service

Acti 9 Smartlink

- Digital interface for Acti 9 or third-party devices
- Mounted between DIN rail, no extra space required: 100% prefabricated connections
- 4 versions: SI B (Ethernet to Cloud, Modbus, Master), Modbus Slave (Modbus communication only), EL B (Ethernet to Cloud only, for extra small buildings)
- Automatic e-mail sent upon critical events (configurable), status and alarms with smartphone apps
- Embedded web pages for energy monitoring & control master

The design of Enerlin'X is largely inspired by feedback from professionals working with switchboards. They asked for:

- grouping of similar functions in the smart components (e.g. Acti 9 Smartlink)
- error-free cabling, fast connection-disconnection
- space-savings in the enclosure.



Com'X 510 energy server

- Collects W.A.G.E.S [(1)] data from devices sensors throughout the building
- Provides detailed and global views of energy consumption allowing to detect the most important savings ipportunities accessible ia web browser

(1) Water, Air, Gas, Electricity, Stream

Enerlin'X IFE

- Ethernet communication interface for power circuit breakers
- Embedded web pages for energy control, and maintenance
- Modbus master, with automatic detection and configuration of "slave" devices
- Switchboard server aggregates, computes, and displays data from all devices in the switchboard, connected either by Modbus SL or Ethernet
- utomatic e-mail sent upon critical events (configurable)

Enerlin'X IFM

- Modbus connection and data collection for one Compact or Masterpact device

Enerlin'X IO

- Provides tailored additional functions such as withdrawal cradle position

2. CONNECT

Tested, validated, documented Smart Panel architectures

Smart Panels have been certified through Schneider Electric's "TVDA" quality process.
Tested in performance labs by experts, in various possible configurations.
Validated full functional compatibility of devices.
Documented, with user guide, predefined CAD panel designs & wiring diagrams.

Numerous tests carried out in Schneider Electric labs ensure SmartPanels digital architectures are validated and ready to implement.
Technical guides available online explain, step by step, how to arrange Enerlin'X components to transform switchboards into Smart Panels.

Design

Just follow the methodology developed across tested and validated examples, to flawlessly design the digital parts of your switchboards, and achieve features meeting your customers ultimate expectations.

Select

Create the exact list of items (auxiliaries, interfaces, connections) to collect data from each breaker of meter in the switchboard.

Order

68 pages for a full description of each and every Enerlin'X device, together with tips and recommendations to get the best out of it.

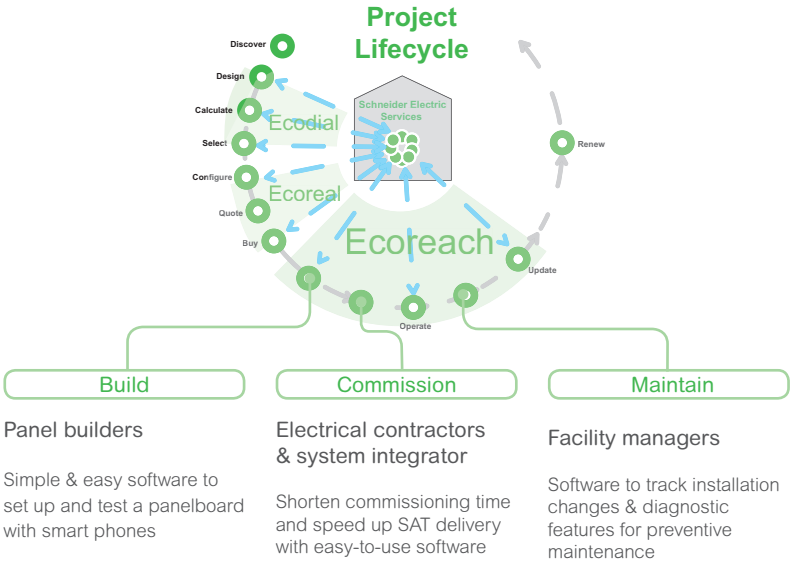
Assemble

Digitized switchboard design and assembly method, to optimize space usage, electromagnetic compatibility, and Prisma system conveniences.

Ecoreach software: customer engineering tool

As a part of Schneider Electric services library, Ecoreach software is dedicated to project management

With Ecoreach, electrical devices are configured, tested and commissioned in the simplest way.
Ecoreach reduces the commissioning time of Smart panels by 70 % and supports the system during operation & maintenance.



Panel builders

Simple & easy software to set up and test a panelboard with smart phones

Electrical contractors & system integrator

Shorten commissioning time and speed up SAT delivery with easy-to-use software

Facility managers

Software to track installation changes & diagnostic features for preventive maintenance

Compatibility		
Products - Family	**Devices**	**Accessories**
Masterpact NT/NW/MTZ	Control unit Micrologic X, Communication modules like ULP, IFE, eIFE, and I/O modules	M2C Output modules
Ethernet LCD touch screen	FDM128	

Smartest software: Smartlink configuration tool

Smarttest for PC makes Smartlink configuration and test simple, quicker and error-free
Free download on schneider-electric.com.

Compatibility		
Products - Family	**Devices**	**Accessories**
Acti9 Smartlink	Smartlink SI B Ethernet Smartlink Modbus Slave	Circuit breaker OFSD contacts iACT24, for contactors remote Ctrl iATL24, for impulse relay remote Ctrl Dry contacts, actuators, on standard I/O Pulse meters, Modbus meters PowerTags wireledd power sensors 0-10V, 4-20 mA sensors

3. ACT

Schneider Electric serves the needs of any building, regardless of size and criticality, and helps finding savings opportunities. Our energy management solutions provide different mixes of energy management, network management, and maintenance features tailored to each site.
Clear visibility of the energy supply system and consumption is provided by locally installed software while online services offer improved mobility and convenience.

Local monitoring & control: Enerlin'X FDM128

- Full monitoring & control of 8 power devices thanks to intelligent LCD touchscreen fitted on the front face of the Smart Panel.
- Simple installation, only Ø22 mm hole on switchboard front panel Pre-programmed.
- Auto discovery of Modbus SL devices.
- Access to switchgear settings, status, and measurements.

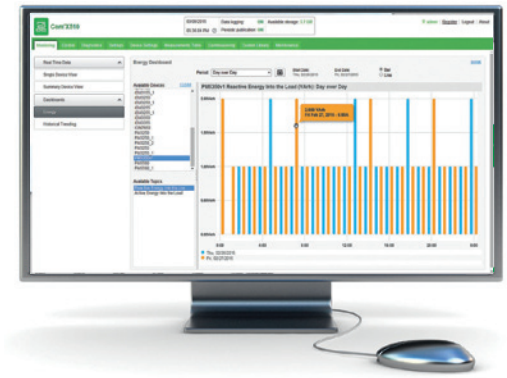
Distant + local monitoring & control: Powerview

Web pages

User-friendly displays of all data stored in Enerlin'X devices, accessible via Ethernet and viewable with web browsers. Including: user-configurable e-mail notification feature.

Remote access

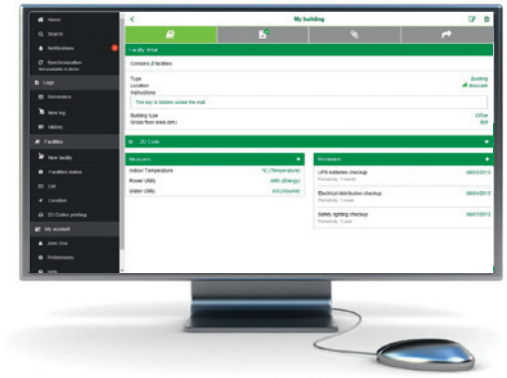
Powerview webpages accessible anytime anywhere through secure, private Internet access. User-configurable e-mail notification feature also included.



Local monitoring: Com'X 510 hosted web pages

All-in-one energy management for small and medium buildings, allowing you to detect the most important opportunities for savings.

- Provides user-comprehensive views of consumptions (dashboards, historical trends over months) through usual web browser.
- Connection to Local Area Network: WiFi or Ethernet.
- Aggregates electrical data with Water, Air, Gas, Steam (WAGES).



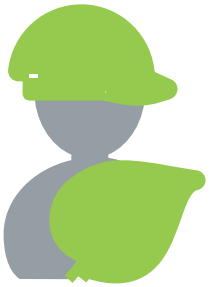
Distant management: Facility Hero

- Maintenance and asset management logbook.
- Available in webpage and app formats: freeware with optional features.
- Real-time information available anytime, anywhere.
- Instant notifications on any discrepancies.

SERVICES

Facility Insights Copilot

- Service packages to improve facility operation, energy costs, network and asset management.
- 4 level suite, with options suitable for small and medium buildings, for industry, retail, public and healthcare markets.
- Encompassing:
  - > data acquisition hardware: meters, gateways and sensors (Smart Panels)
  - > cloud hosted web platform providing access to all energy and maintenance data
  - > networks of certified partners ("EcoXpert services") supported by Schneider Electric experts.



Access to video: click or scan the QR code

3. ACT (continuing)

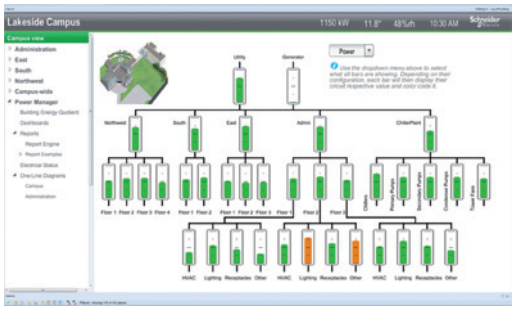
Large and critical buildings management

SmartStruxure Solution and Power Manager for large buildings

Schneider Electric introduces **SmartStruxure Solution**, a monitoring platform for connected buildings larger than 10 000 m²: dashboards, animated online electrical diagrams, reports allow efficient building management from any standard web browser.

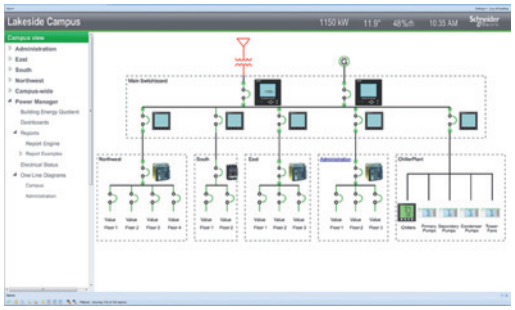
Power Manager is an additional option to this platform, for monitoring, measuring, and optimizing building power in the same way as HVAC, lighting, and fire safety systems.

Power Manager is simple to implement when combined to Smart Panels for collecting the necessary information.



The distribution diagram shows the "electrical health" of each circuit.

Global view of critical energy records with relation to weather conditions, monthly trends, etc...



Circuit breakers status and electrical values are indicated on the online distribution diagram.

Example
Power and energy management in a hotel chain

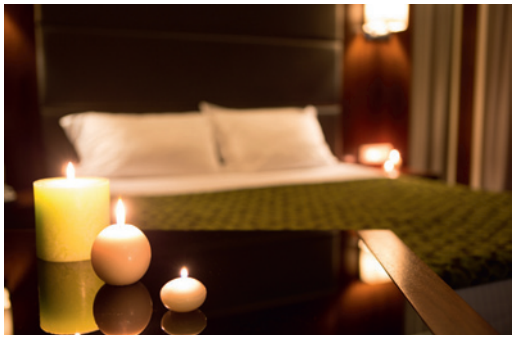
Power and energy management in a hotel chain

Our customer, an operator of a large chain of hotels, wanted to implement a global energy monitoring system

'I was doubtful about the final cost to setup this system. But there was no bad surprise at all. And our facility managers keep it working without any problem.'
Financial director

The challenge

- Ensure and monitor customer comfort across all branches.
- Boost confidence regarding customer healt and safety, and increase regulatory compliance.
- Optimize energy and fluid consumption, to save money and enable green marketing.



Increased comfort and safety of guests

When an issue occurs that might impact guest comfort and safety, hotel staff are immediately informed.

Comfort and safety dashboards are widespread

Every staff member has permanent access to a real-time comfort and safety dashboard showing:

- deep freezer temperature Key values of heating and air conditioning systems
- sanitary hot water temperature
- air temperature and humidity on each floor.

Business efficiency

Historical data from alarms from all hotels enables an evolution towards predictive maintenance, with clear benefits for planning and budgeting.

Best practices shared across the company

Every three months, hotel managers meet together with corporate technical and financial directors to share best practices and compare improvements. One manager said: 'We decided to equip a pilot site with solar water heating. By relating its energy consumption to the other sites, we could calculate the savings and payback, and decide upon investing in this equipment for other sites'.

Full staff involvement

Each hotel manager and his technical staff have full-time access to details of energy consumption. The entire staff is informed about energy and water savings.

The system detects and flags abnormal consumption, and breaks electrical consumption down into:

- HVAC
- food conservation (deep freezers and fridges)
- general lighting and lifts
- cooking and dishwashing equipment
- guest rooms.

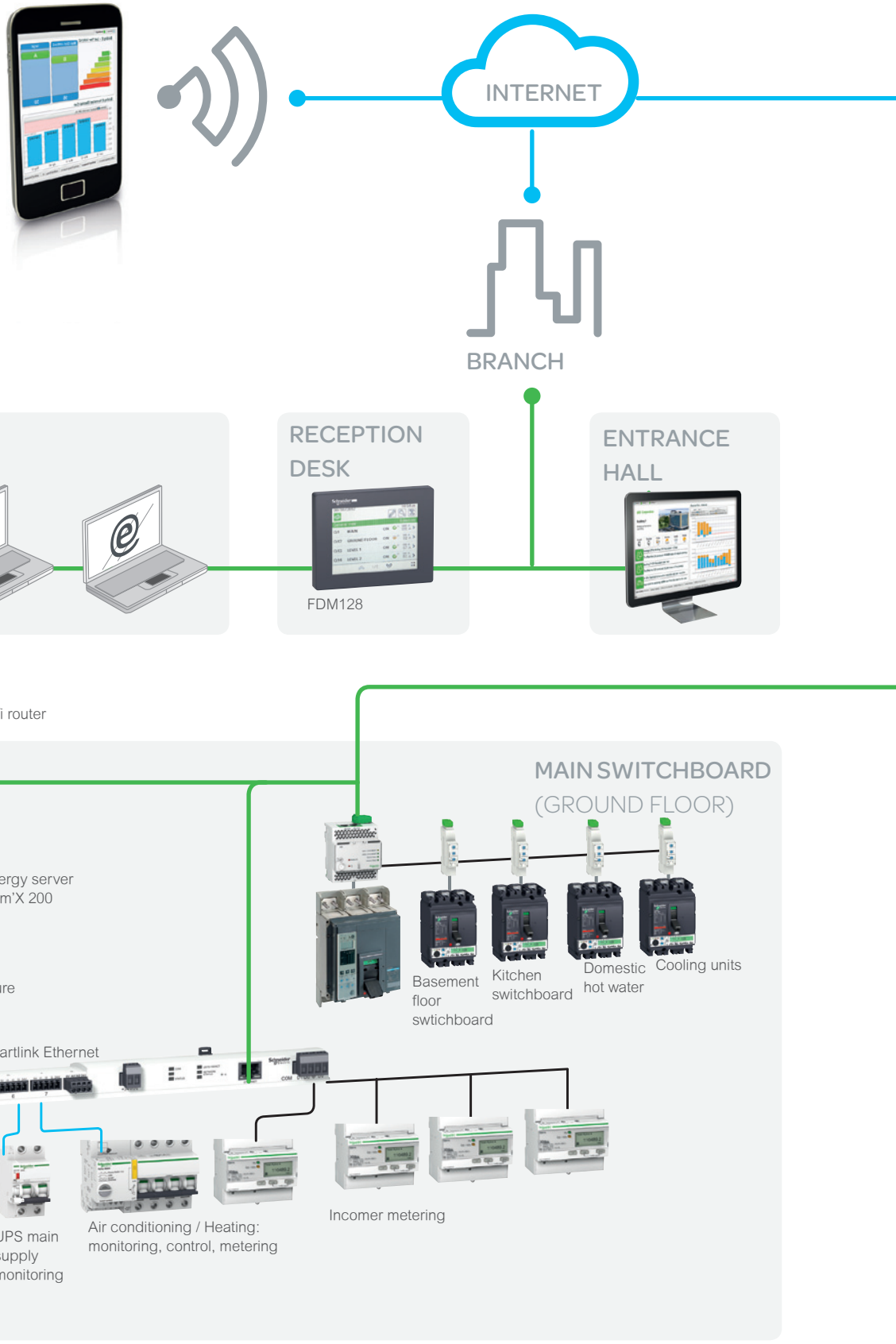
Sustainability information and green marketing

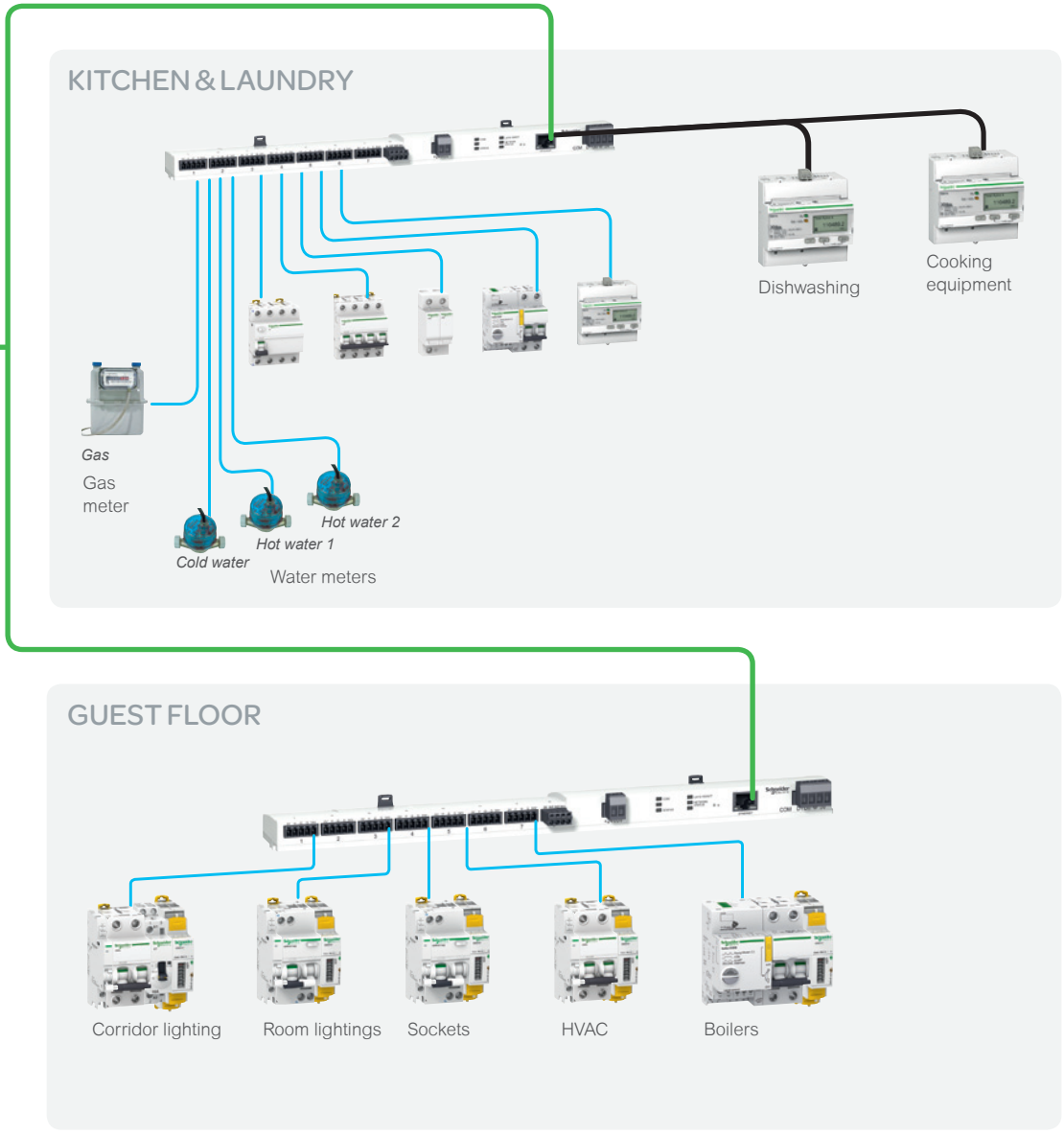
Screens inform guests of environment-friendly behaviours and display recent resource saving achieved thanks to their support and awareness.

'We understood why we regularly had penalties from energy providers. The rated power was exceeded everyday for some minutes, when all rooflops were starting. We rescheduled all automatic equipment, and we could even lower our rated power subscription'
Hotel director

The solution architecture

- E-mail notifications
- Access to dashboards





'Most surprising was how each local electrical contractor could replicate and connect the system in each hotel, without much technical coordination'
Corporate energy officer

Smart Panels design

Locate sources of useful information in the switchboard

Masterpact ①, Compact ②, Powerpact(1) circuit breakers

Auxiliary contacts indicate breaker status.
Embedded sensors provide electrical values.
Status contacts and sensors are monitored by the embedded Micrologic control unit.

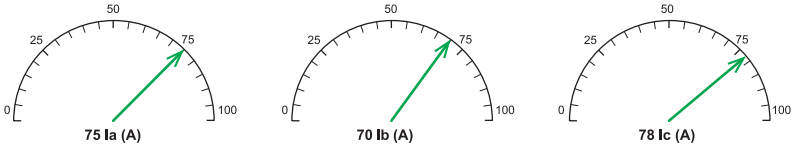
Web pages generated IFE Interface, IFE switchboard server (or embedded eIFE with drawout Masterpact MTZ)

IFE interface, and eIFE imbedded interface (for drawout Masterpact MTZ)

Monitoring of electrical values - Breaker status

Basic Readings: Micrologic H (Arch 1)

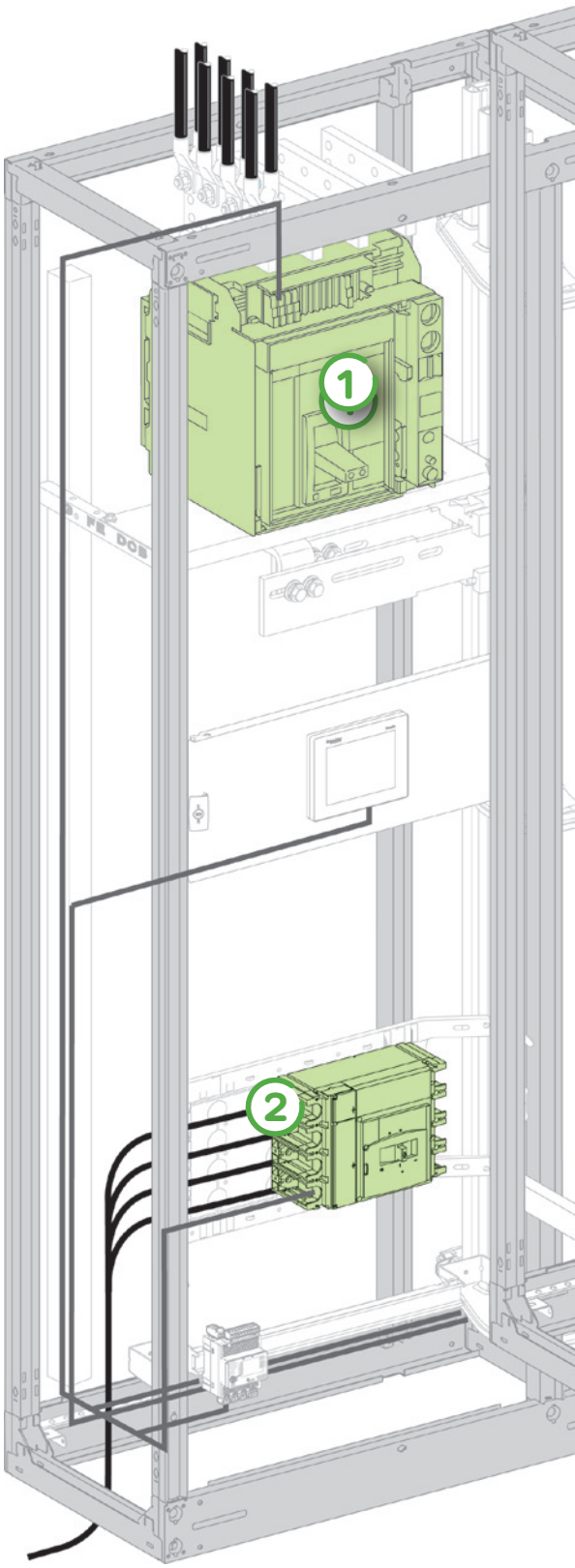
◉ Load Current (A)	○ Power	○ Voltage LL	○ Voltage LN



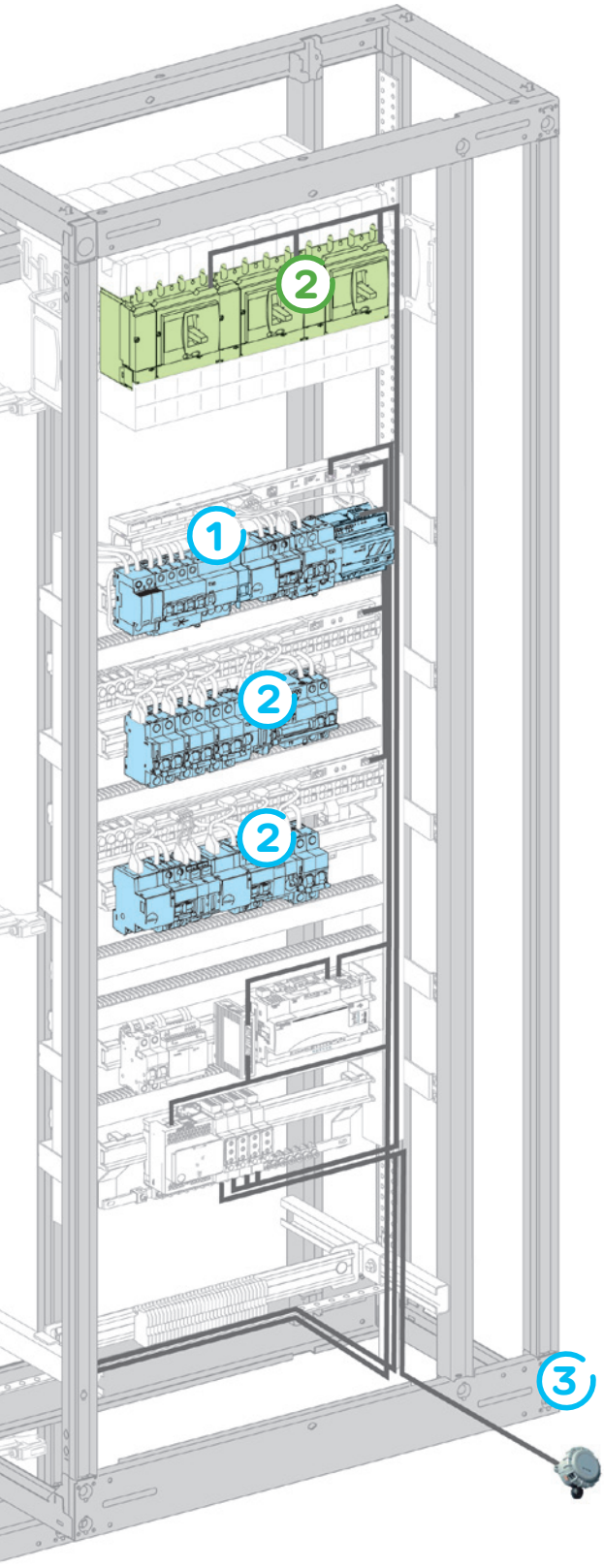
Parameter	Minimum	Present	Maximum
Breaker Status		Open	

Information for Maintenance

Micrologic H (Arch 1)	
Breaker operation Counters	
Counters	**Value**
Total number of indication contacts (OF) operation	54
Indication contacts (OF) operation since last reset	54
Trip indication contact (SD) operation	---
Fault trip indication contact (SDE) operation	78
Breaker operation Counters	
Counters	**Value**
Contact wear indicator	--- %
Cradle Counters	
Counters	**Value**
Cradle connected	62
Cradle disconnected	20
Cradle test	7



(1) Except Powerpact M



Miniature circuit breakers, remote controlled MCB (Reflex), actuators (relays, impulse relays) 1

Auxiliary contacts indicate open/closed status.
Specific input on actuators and Reflex ensures remote control.

Web pages (partial) generated by Acti 9 Smartlink Ethernet

Digital Channels

Name	Status	Control	Product	Label
Lighting 1.1		OPEN CLOSE	OF+SD24	L1.1
Lighting 1.2		OPEN CLOSE	OF+SD24	L1.2
Lighting 2.1		OPEN CLOSE	OF+SD24	L2.1
Lighting 2.2		OPEN CLOSE	OF+SD24	L2.2
Lighting 2.3		OPEN CLOSE	OF+SD24	L2.3
Ventilation 1		OPEN CLOSE	OF+SD24	V1

Energy meters 2

Meters: periodical Wh pulse on binary output - Wireless metering modules : periodical values sent

Web pages (partial) generated by Acti 9 Smartlink Ethernet

Monitoring energy meters

Pulse Meters

Name	Value	Product	Label
Lighting 1	1276 kWh	iEM2000T	L1
Lighting 2	5413 kWh	iEM2000T	L2
Lighting 3	213 kWh	PowerTag	L3
Ventilation 1	187 kWh	PowerTag	V1
Ventilation 2	311 kWh	PowerTag	V2

Analog sensor 3

Temperature sensor sends a 0-10 V signal.

Web pages (partial) generated by Acti 9 Smartlink Ethernet

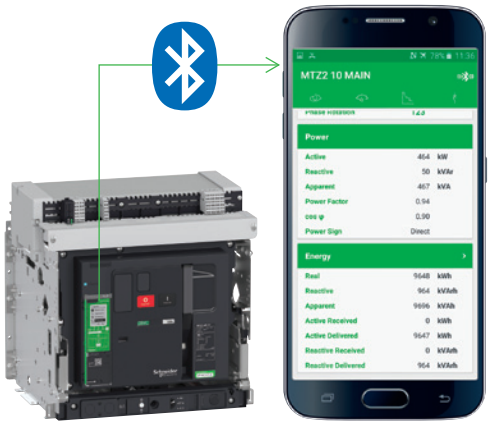
Monitoring analog sensors

Analog Channels

Name	Value	Product	Label
Outside temperature	18°C	Crouzet 89750150	Text 1

Masterpact , Compact NS, Powerpact P, R

Get circuit breaker status and electrical values



Masterpact MTZ

The first air circuit breaker to embed Class 1 accuracy for active power and energy measurement, compliant and third-party certified as per IEC 61557-12.

The Micrologic X trip unit and its eIFE interface module make the Masterpact MTZ a connected circuit breaker, providing data, wireless and Ethernet communication for mobile smart devices.

Compact NS, Powerpact P, R

Micrologic family

A E P H

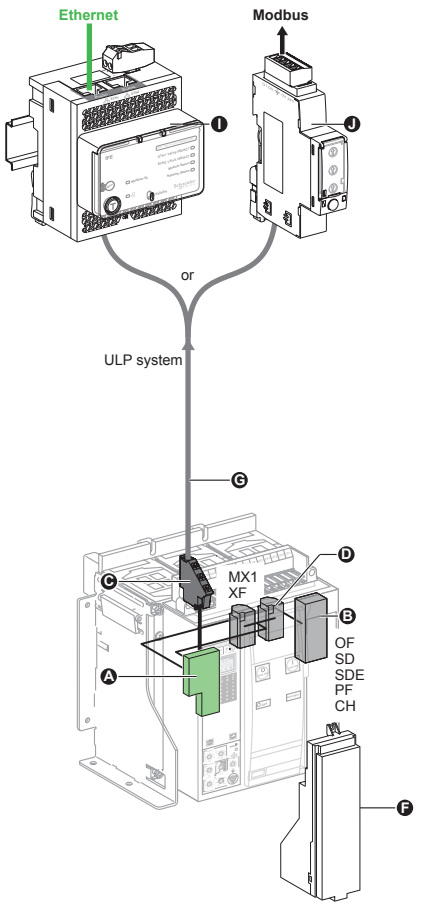
BCM ULP communication module
Provides ULP communication port to a Micrologic trip unit, giving monitoring and control access from upper networks.

Available functions	Micrologic type			
Status indications				
ON/OFF (O/F)	A	E	P	H
Spring charged CH	A	E	P	H
Ready to close	A	E	P	H
Fault-trip SDE	A	E	P	H
Connected / disconnected / test position CE/CD/CT	A	E	P	H
Controls				
MX1 open	A	E	P	H
XF close	A	E	P	H
Measurements				
Instantaneaous measurement information	A	E	P	H
Averaged measurement information		E	P	H
Maximeter / minimeter	A	E	P	H
Energy metering		E	P	H
Demand for current and power		E	P	H
Power quality				H
Operating assistance				
Protection and alarm settings			P	H
Histories		E	P	H
Time stamped event tables			P	H
Maintenance indicators	A	E	P	H

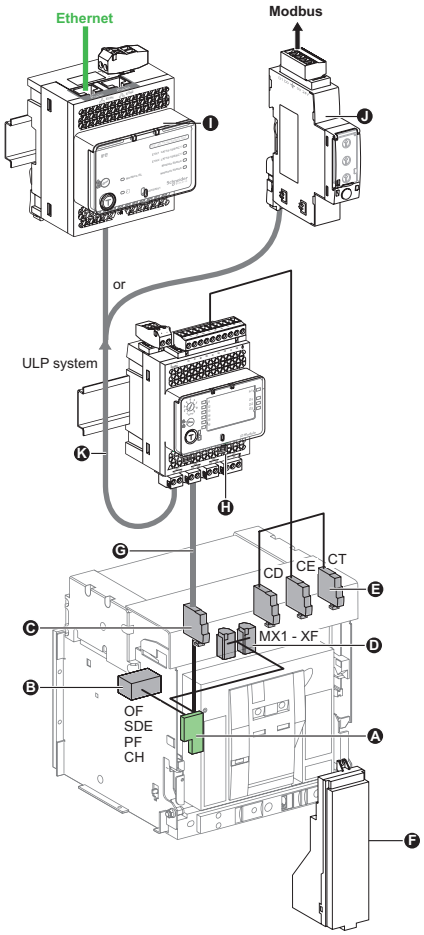
Micrologic trip units : A, E, P, H
Masterpact, Compact NS, Powerpact P, R circuit breakers can be equipped with a Micrologic trip unit. This adjustable unit is mainly designed for tripping the circuit breaker in case of necessity and monitoring the downstream circuit. Alarms may be programmed for remote indications. Electrical measurements, operation data for predictive maintenance, are provided for local display or distant monitoring. The new Micrologic X provides data, wireless and Ethernet and communication for mobile smart devices.

Enerlin'X functions

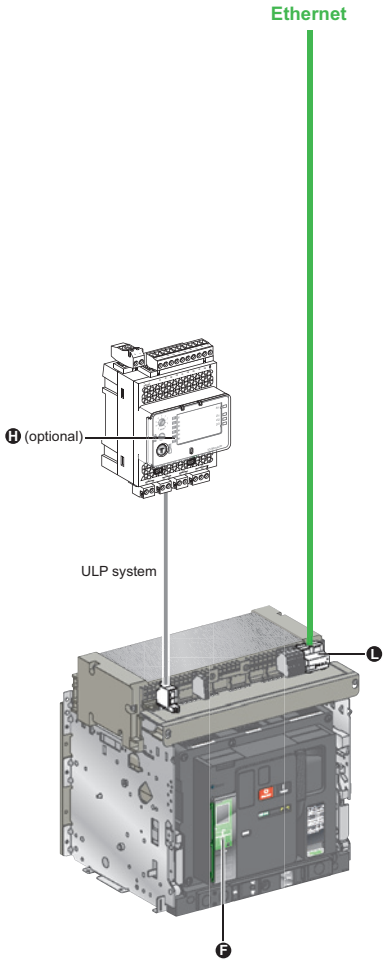
Fixed Masterpact circuit breaker



Drawout Masterpact circuit breaker



Drawout Masterpact MTZ circuit breaker



ULP system
is a fast communication link dedicated to circuit breaker monitoring and control. Based on a RS485 physical liaison with cable segments up to 5 meters, it is well adapted to severe environment.
A choice of 6 pre-connectorized cables with different length is provided.

IFE, eIFE interfaces
ULP to Ethernet interface module
Provides and IP address to any circuit breaker (eIFE is dedicated to Masterpact MTZ) directly accessible from an Ethernet compatible display (FDM128), a PC with common browser, or IFE switchboard server which generates its own wab pages.

IFM
ULP to Modbus Interface module
Makes all available data of a circuit breaker fitted with an ULP port accessible via a Modbus network. IFM acts as a Modbus slave, accessible from a Modbus master (IFE switchboard server, Acti 9 Smartlink Ethernet or Com'X 200).

I/O
I/O application module
I/O is dedicated to breakers with ULP liaison. It ensures the monitoring of the chassis position by means of CE, CD, CT contacts and control of applications around the circuit breaker (lighting or load control, coding system, pulse metering acquisition...).

- A *BCM ULP*
- B *OF, SDE... microswitches*
- C *COM terminal block(E1 to E6)*
- D *MX1 and XF communicating voltage releases*
- E *CE, CD and CT contacts*
- F *Micrologic trip unit*
- G *Breaker ULP cord*
- H *I/O module*
- I *IFE interface module*
- J *IFM module*
- K *ULP cable*

Compact NSX, Powerpact H, J, L

Get circuit breaker status and electrical values

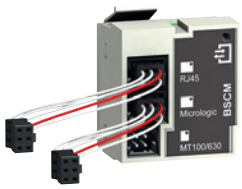
Available information and functions

Micrologic trip units for 3 poles, 4 poles Compact circuit breakers

Available functions	Micrologic type	
Status indications		
ON/OFF (O/F)	A	E
Fault-trip SDE	A	E
Connected / disconnected / test position CE/CD/CT (I/O module only)	A	E
Controls		
Open	A	E
Close	A	E
Measurements		
Instantaneous measurement information	A	E
Averaged measurement information		E
Maximeter / minimeter	A	E
Energy metering		E
Demand for current and power		E
Power quality		E
Operating assistance		
Protection and alarm settings	A	E
Histories	A	E
Time stamped event tables	A	E
Maintenance indicators	A	E

Embedded trip unit and communication module

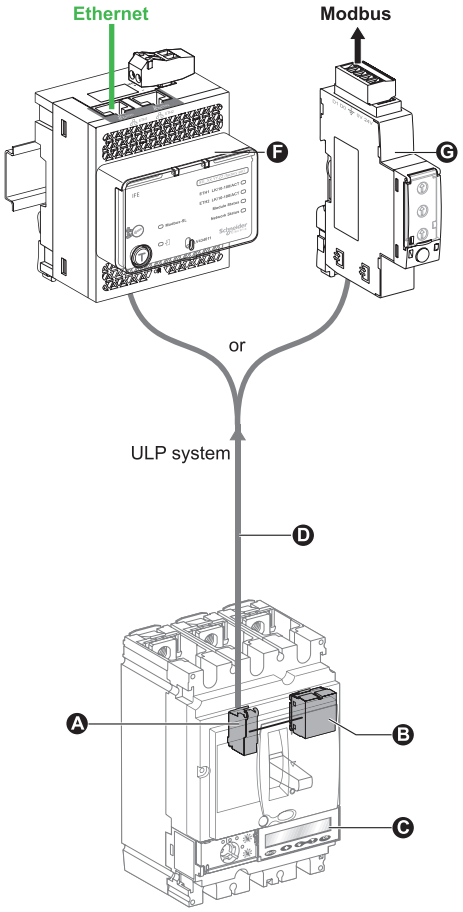
Micrologic trip unit
All Compact circuit breakers are equipped with a Micrologic trip unit. This adjustable unit is mainly designed for tripping the circuit breaker in case of necessity and monitoring the downstream circuit Alarms may be programmed for remote indications.
Electrical measurements, operation data for predictive maintenance, are provided for local display or distant monitoring.



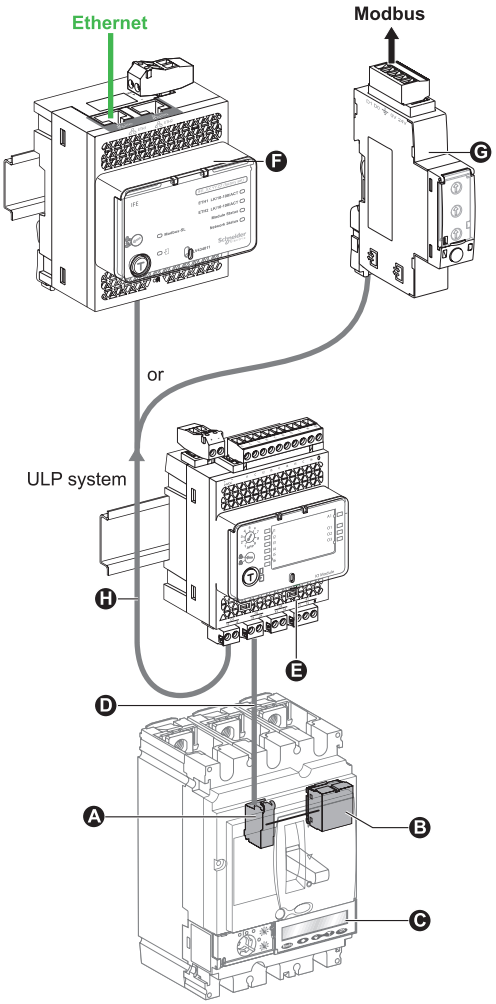
BSCM module
This module provides an ULP communication port to a Micrologic trip unit, giving monitoring and control access from upper networks, Modbus or Ethernet.

Enerlin'X functions

Fixed Compact NSX circuit breaker



Drawout Compact NSX circuit breaker



- **A** *Internal terminal block for communication via NSX cord*
- **B** *BSCM module*
- **C** *Micrologic trip unit*
- **D** *NSX cord*
- **E** *I/O module*
- **F** *IFE interface module*
- **G** *IFM module*
- **H** *ULP cable*

ULP system

is a fast communication link dedicated to circuit breaker monitoring and control. Based on a RS485 physical liaison with cable segments up to 5 meters, it is well adapted to severe environment. A choice of 6 pre-connectorized cables with different length is provided.

IFE interface

ULP to Ethernet interface module

Provides and IP address to any circuit breaker fitted with an ULP port. The IFE interface makes all available data from the circuit breaker accessible from an Ethernet compatible display (FDM128), a PC with common browser, or IFE switchboard server which generates its owns web pages.

IFM

ULP to Modbus Interface module

Makes all available data of a circuit breaker fitted with an ULP port accessible via a Modbus network. IFM acts as a Modbus slave, accessible from a Modbus master (IFE switchboard server, Acti 9 Smartlink Ethernet or Com'X 200).

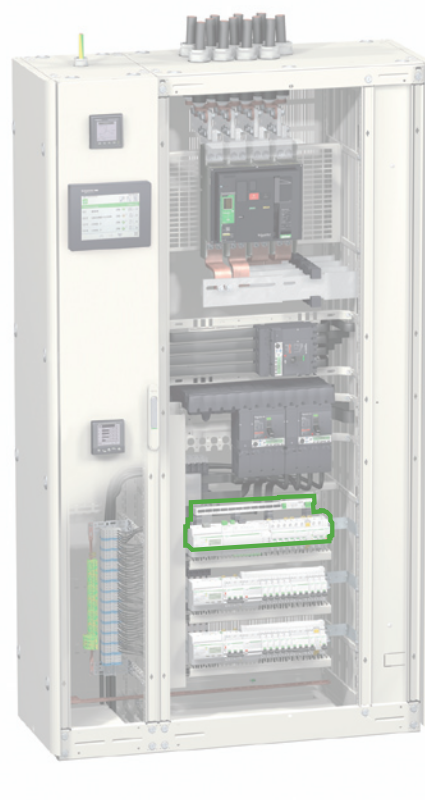
I/O

I/O application module

I/O is dedicated to circuit breaker with ULP liaison. It provides the monitoring and control of any application around the circuit breaker (lighting or load control, cooling system, pulse metering acquisition...).

Acti9 Smartlink system

Mesure & Connect: circuit breakers status, electrical values, loads controls



Acti 9 Smartlink type	SI B Ethernet wireless	EL B Elec	Modbus Slave
Applications			
Breaker status monitoring	●	●	●
Load alarming	●	●	
Basic energy metering (E)	●	●	●
Extended load monitoring (E,U,I,P,PF)			
Load control	●		●
Scheduling (App)	●		
User interfaces			
Embedded web pages (web server)	●		
Web, smartphone app. (via Cloud)		●	
BMS, controller (via Ethenet or Modbus TCP/IP)	●		●
Device connectivity (nb of devices)	**> 7**	**7 max**	**> 7**
Pulse output meters	●	●	●
Modbus RS485 meters	●		
Wireless energy sensors (Power tags)	●		
Analog sensors	●	●	
Binary aux. contacts	●	●	●
Relays (coil control)	●	●	●

Monitored auxiliaries and devices

iOF+SD24

OF+SD24

Circuit breaker OF/SD auxiliaries
Open/Closed/Trip indication

iEM2000T

iEM3110

Energy meters
1 or 3 phase power + energy (class1) metering

Power tag
(on top of circuit breaker)

Controlled, monitored auxiliaries and devices

iATL 24

Impulse relay auxiliary
24V or 230V impulse relay control and monitoring

iACT 24

Contactor auxiliary
24V or 230V contactor control and monitoring

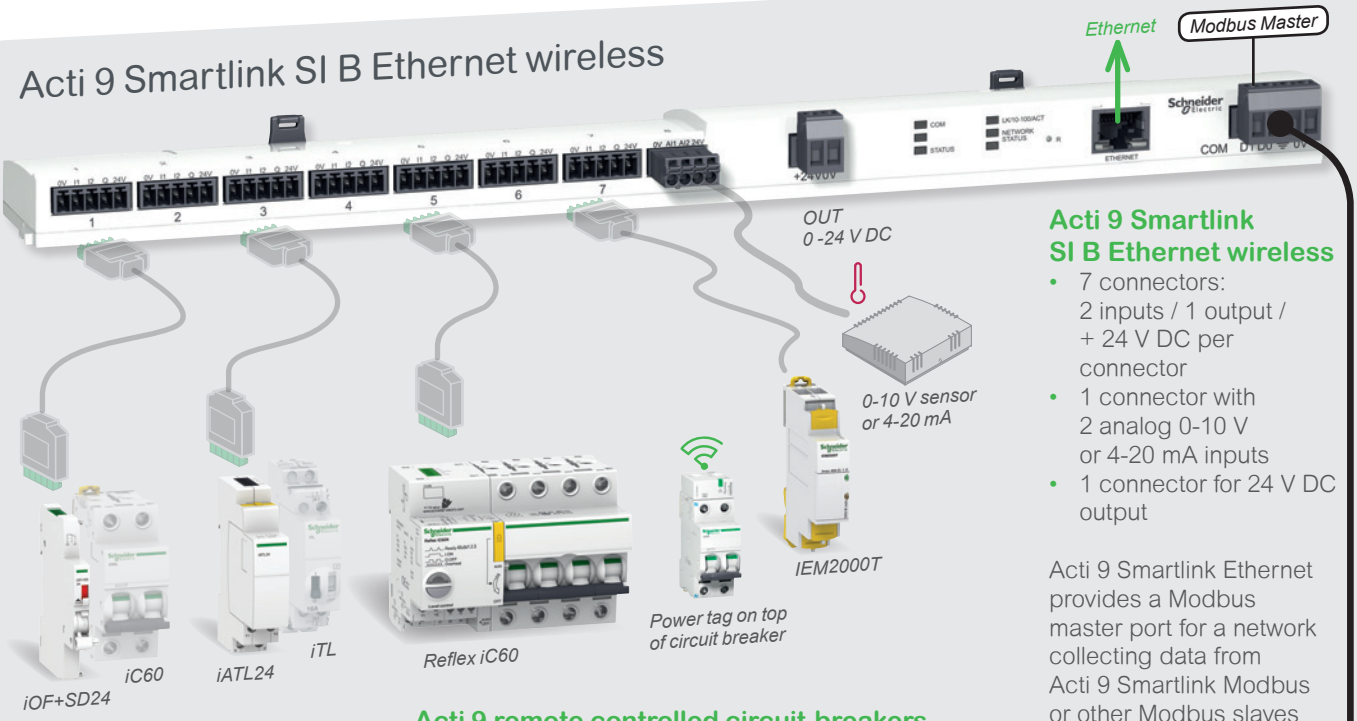
RCA iC60

Circuit breaker remote control
Remote Open/Close/Reset
Status monitoring

ReflexTM iC60

Circuit breaker with integrated monitoring and control
Remote Open/Close/Reset
Status monitoring

Acti 9 Smartlink SI B Ethernet wireless



Acti 9 circuit-breakers, pulse relays

They are monitored or controlled By the I/O's via specific adaptors (iOF+SD24 and iATL24)

Acti 9 remote controlled circuit-breakers, actuators, counters

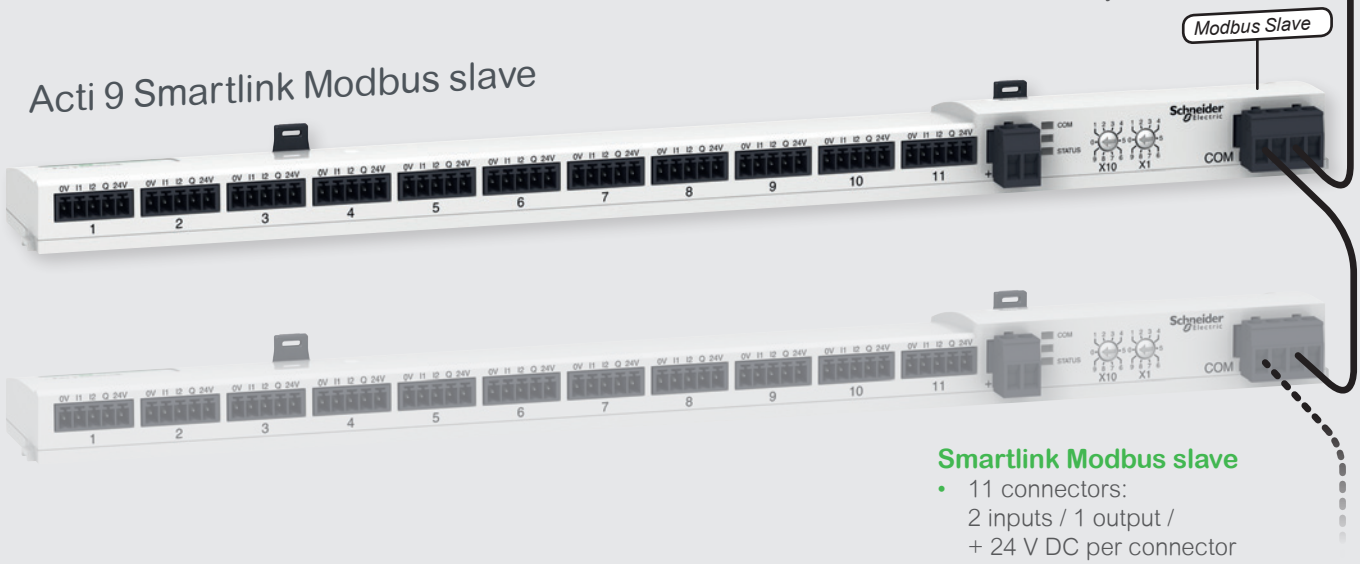
Reflex iC60, relays, energy meters with impulse output are directly connected

Acti 9 Smartlink SI B Ethernet wireless

- 7 connectors: 2 inputs / 1 output / + 24 V DC per connector
- 1 connector with 2 analog 0-10 V or 4-20 mA inputs
- 1 connector for 24 V DC output

Acti 9 Smartlink Ethernet provides a Modbus master port for a network collecting data from Acti 9 Smartlink Modbus or other Modbus slaves (counters, power meters…).
Wireless communication with PowerTag sensors.
It also provides an Ethernet gateway facility.

Acti 9 Smartlink Modbus slave



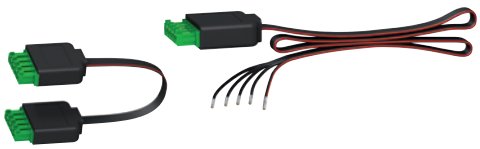
Smartlink Modbus slave

- 11 connectors: 2 inputs / 1 output / + 24 V DC per connector
- 1 connector for 24 V DC output

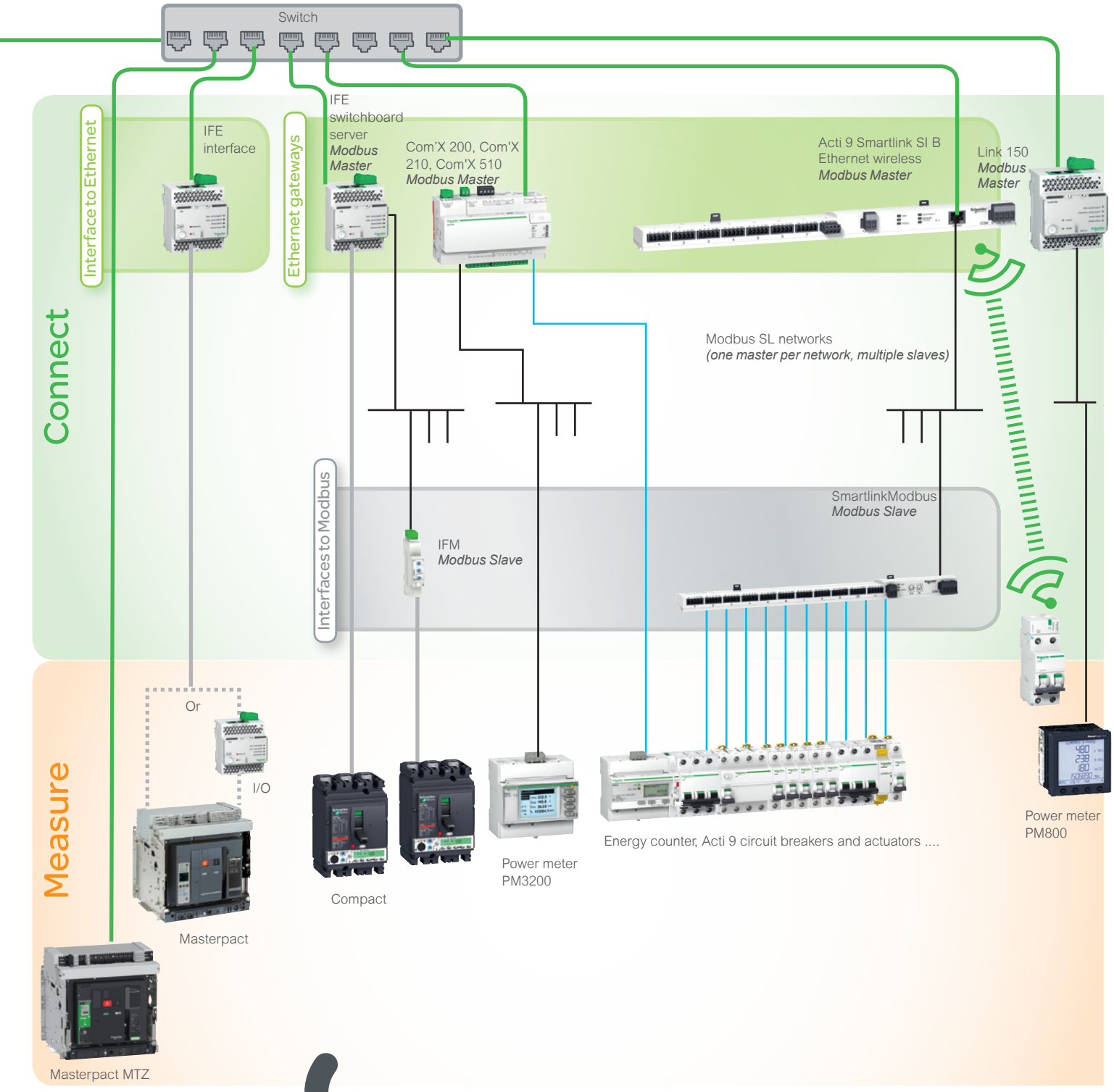
Smartlink Modbus provides a Modbus slave interface facility for Acti 9 components.

Smartlink cables

A standard connection design with the corresponding cables have been developed for error-free and fast cabling.



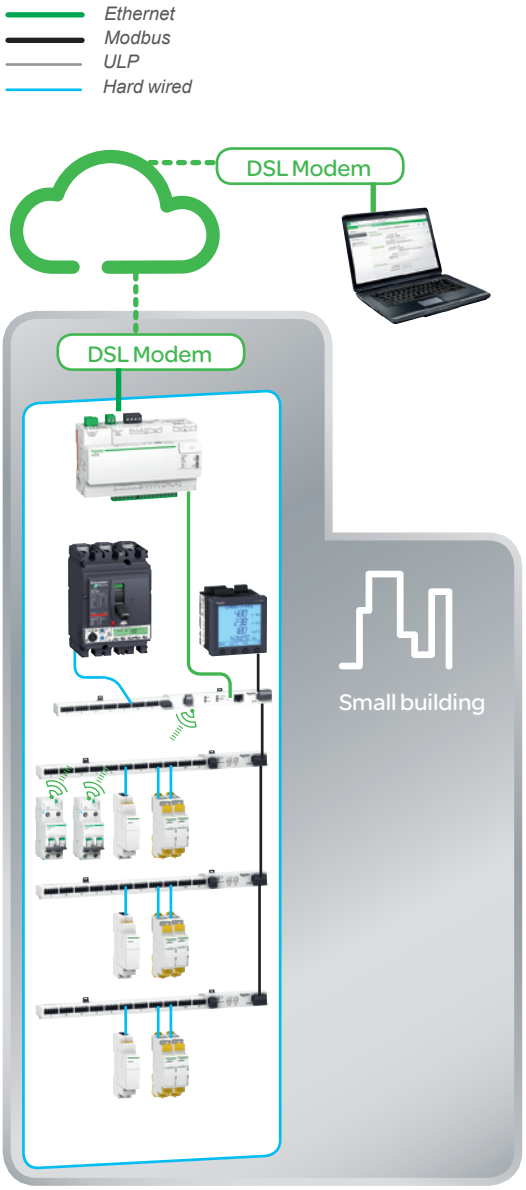
Enerlin'X gateways and interfaces connectivity



Ethernet
Modbus
ULP
Hard wired

- This diagram clearly shows the equipment involved into the "Measure" and "Connect" functionalities defining the Smart Panel concept.
- Interface: provides a network port to one or several devices (circuit breakers, actuators, counters,...) from their hard wired or ULP links.
- Gateway: ensures the communication between two networks with different protocols (Ethernet and Modbus).

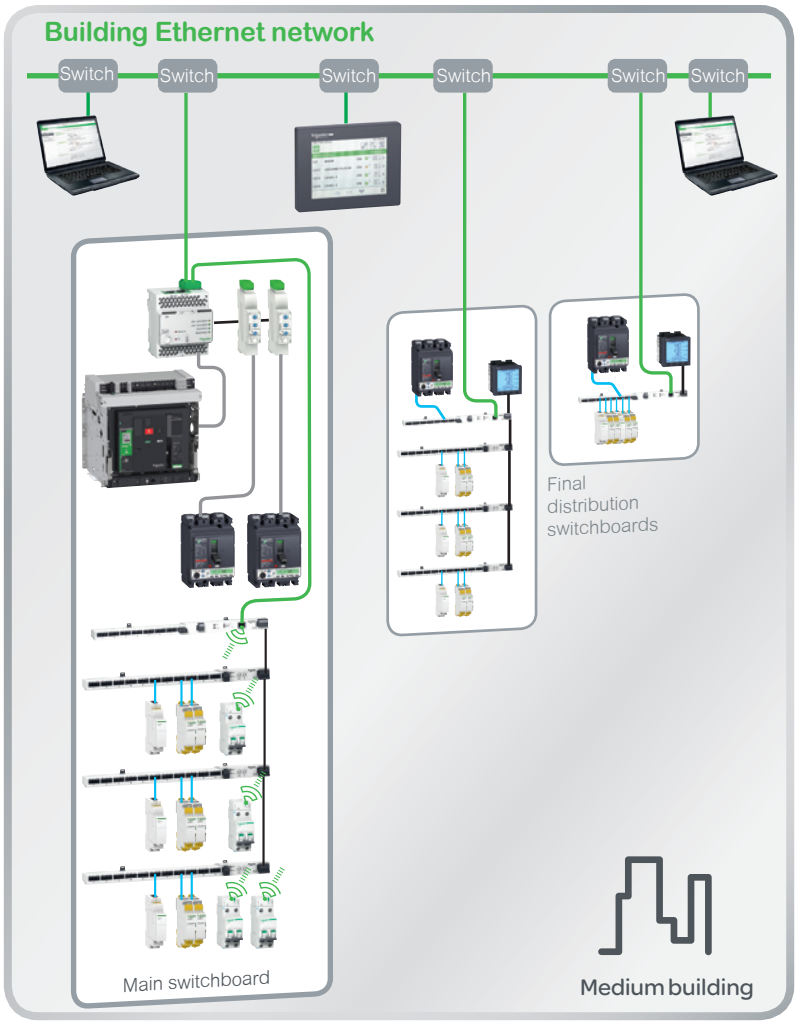
Examples of digitized switchboards architecture



Unique switchboard:

4 Acti 9 Smartlink's ensure the monitoring and control of circuit-breakers and actuators, and collect the PowerTags values on single - phase circuit breakers.
The Modbus master, an Acti 9 Smartlink Ethernet, collects the data from the Acti 9 Smartlink Modbus slaves then sends all status and values to the Com'X 200 energy server by an Ethernet liaison. The Com'X 200 acts as gateway, connecting the switchboard to the Cloud via a DSL modem.

Display
The related energy dashboards generated by the Energy Operation web services are available on any PC connected to the web.



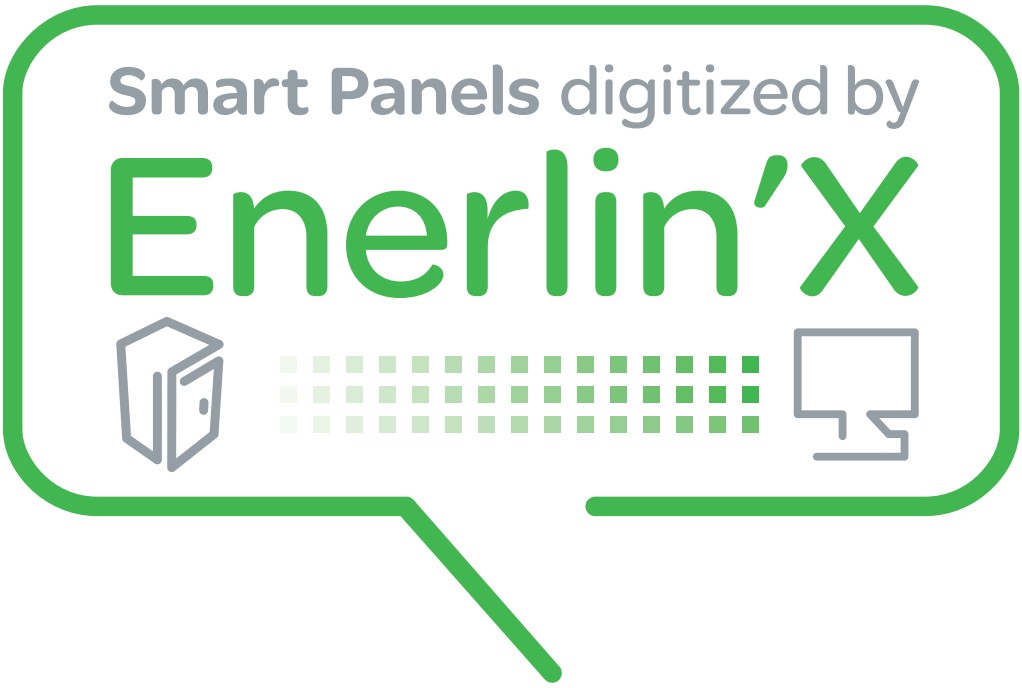
Main switchboard:

4 Acti 9 Smartlink ensure the monitoring and control of circuit-breakers and actuators, the Acti 9 Smartlink SI B Ethernet Wireless collects the PowerTags values on single - phase circuit breakers.
The main incomer is monitored and controlled directly by the IFE switchboard server, through an ULP link. Other circuit breakers are connected to IFM interfaces, through ULP links, as well.
The data from the Acti 9 Smartlink Modbus slaves are collected by the master, an Acti 9 Smartlink Ethernet.
The IFE interface concentrates the data from:

- the Acti 9 Smartlink's through a Ethernet liaison
- the IFM's through DIN rail connectors (see page 48)
- the main incomer through its ULP link.

Display
As the choice was made for a local monitoring and control, an LCD touch panel IFM128 or PC with standard browser is connected to the building Ethernet network, shared by all the switchboards. The web pages generated by the local IFE switchboard server and Acti 9 Smartlink Ethernet are displayed on it.

Final distribution switchboards
An Acti 9 Smartlink Ethernet ensures the connection of each switchboard to the local Ethernet network.
The same principle as in the main switchboards applies for the status and values monitoring.


Smart Panels digitized by
Enerlin'X

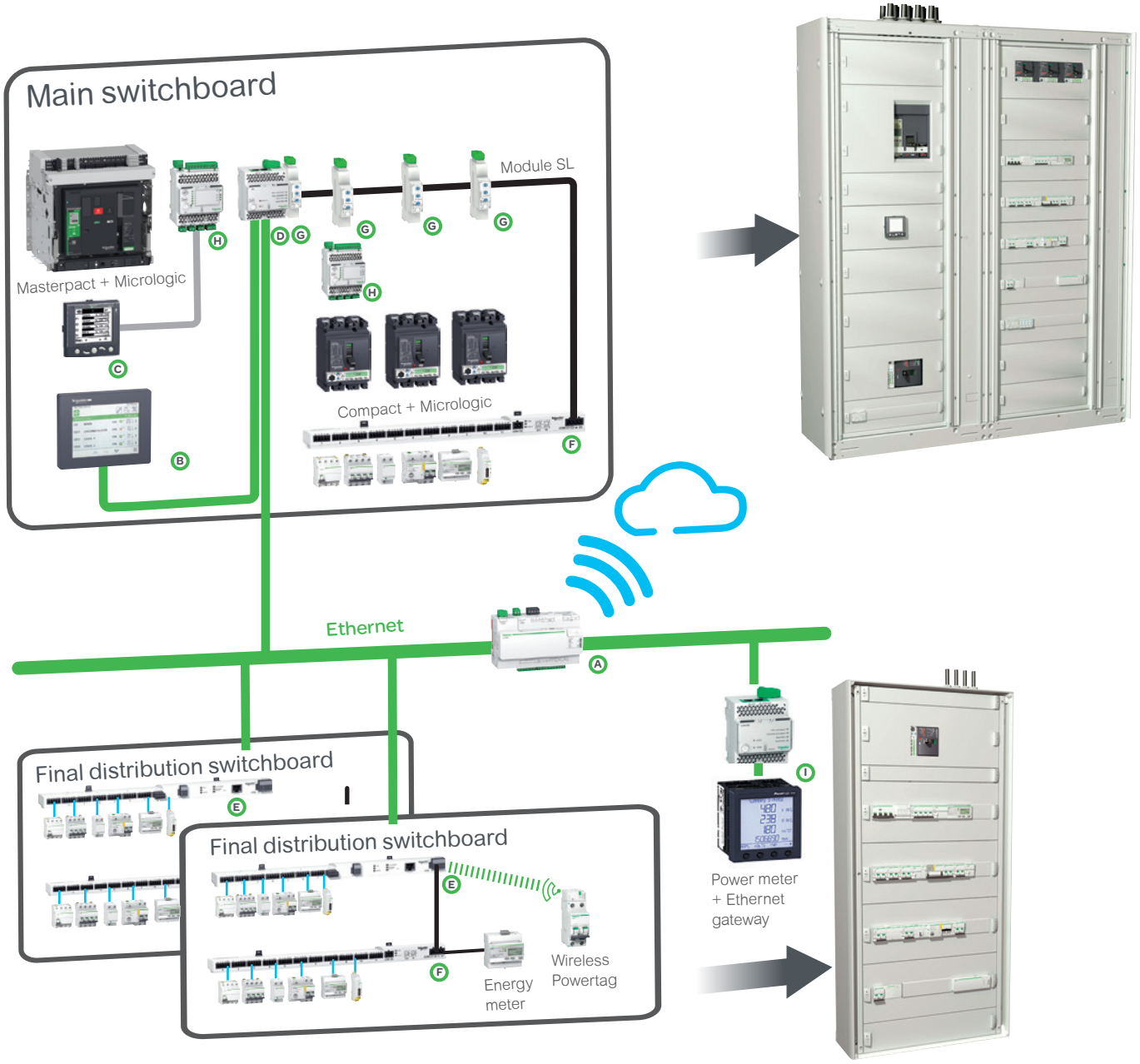
Enerlin'X components

Enerlin'X digital system
Overview

Enerlin'X communication system provides access to status, electrical values and devices control using Ethernet and Modbus SL communication protocols.

Ethernet has become the universal link between switchboards, computers and communication devices inside the building. The large amount of information which can be transferred makes the connection of Enerlin'X digital system to hosted web services of Schneider Electric a reality. More advantages are offered to integrators thanks to configuration web pages available remotely or on the local Ethernet network.

Modbus SL is the most widely used communication protocol in industrial networks. It operates in master-slave mode. The devices (slaves) communicate one after the other with a gateway (master).

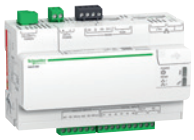


Ethernet
Modbus
ULP
Hard wired

ULP is a fast communication link dedicated to circuit breaker monitoring and control.

Enerlin'X digital system
Overview

Enerlin'X digital devices and displays

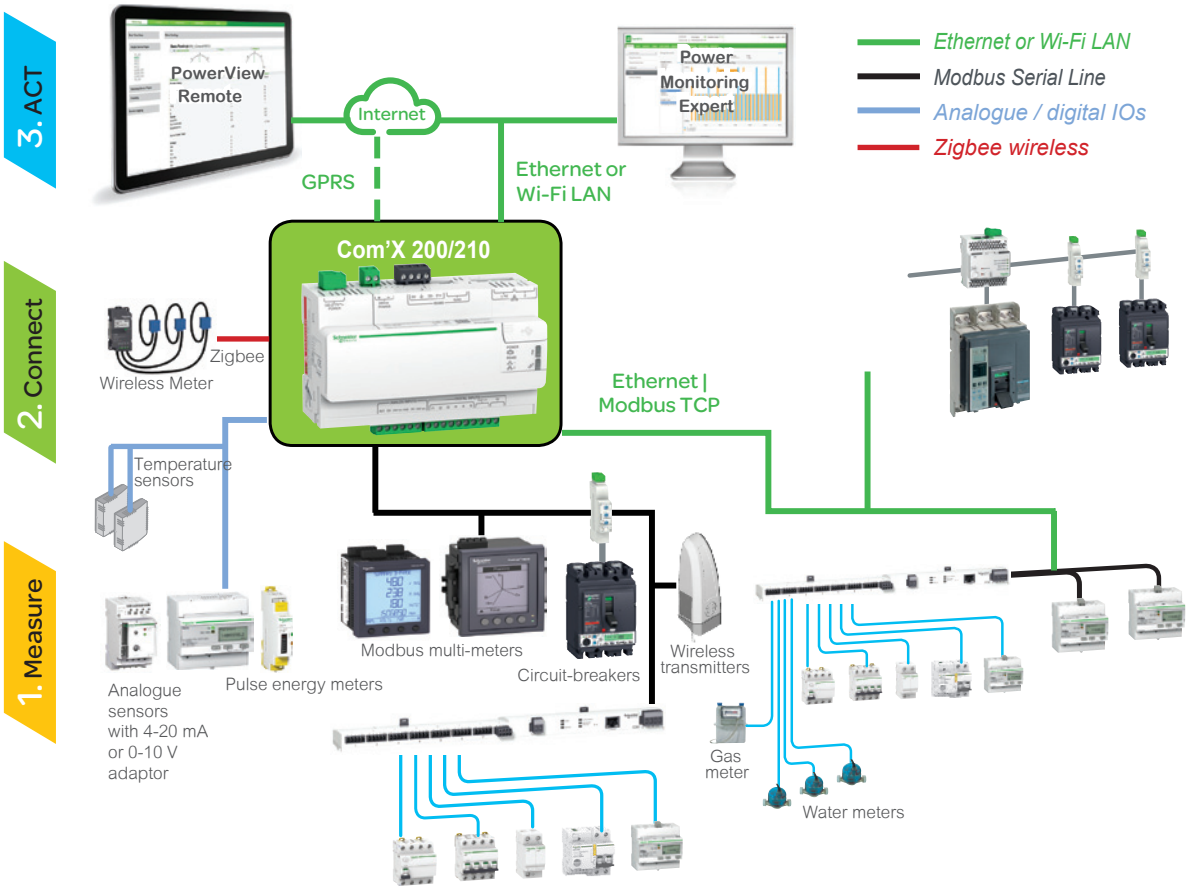
		Name	Function	Port (to device)	Port (to server)	Inputs	Outputs	Cial. Ref.
A		Com'X 200 230 V AC + 24 V DC + PoE	Energy data logger + Ethernet Gateway	Ethernet Modbus Master, Zigbee (to wireless meters)	Ethernet (cable or WiFi)	64 devices: 6 binary 2 analog 32 Modbus devices + other Ethernet devices (Modbus TCP)	-	**EBX200**
		Com'X 210 24 V DC + PoE	Ethernet Gateway					**EBX210**
		Com'X 510 24 V DC + PoE	Energy server + Ethernet Gateway				-	**EBX510**
B		FDM128	Ethernet LCD colour touch screen	-	Ethernet		-	**LV434128**
C		FDM121	LCD display for circuit breaker	ULP	-	1 circuit breaker	-	**TRV00121**
D		IFE Switchboard server	Switchboard server	Modbus Master & ULP	Ethernet	20 circuit breakers	-	**LV434011**
		IFE interface	Ethernet interface for circuit breakers	ULP	Ethernet	1 circuit breaker	-	**LV434010**
		eIFE imbedded interface	Ethernet interface for Masterpact MTZ drawout circuit breaker	ULP	Ethernet	1 circuit breaker	-	**LV851001**
E		Acti 9 Smartlink SI B Ethernet wireless	Ethernet server for I/O and Modbus slave devices	Modbus Master & Wireless to PowerTag	Ethernet	14 binary 2 analog	7	**A9XMZA08**
F		Acti 9 Smartlink Modbus slave	Modbus interface with Input/Output functions	-	Modbus Slave	22 binary	11	**A9XMSB11**
G		IFM	Modbus interface for circuit breaker	ULP	Modbus Slave	1 circuit breaker	-	**TRV00210**
H		I/O	Input/Output application module for circuit breaker	ULP	ULP	6 binary 1 analog (PT100 sensor)	3	**LV434063**
I		Link150 Ethernet gateway	Ethernet gateway for Modbus slave device	Modbus Master	Ethernet	32 directly or 247 indirectly coded devices	-	**EGX150**

Ethernet Gateway or Interface: routes an infernal traffic (ULP or other protocole) to the Internet, the outgoing messages are coded with Modbus TCPIP protocol.

Server (Switchboard, Energy): routes the infernal traffic to the Internet. Other complementary functions such as data logging and storage. Provides devices status and energy trends on internal web pages...

Com'X 200/210
Energy data loggers

Main functions

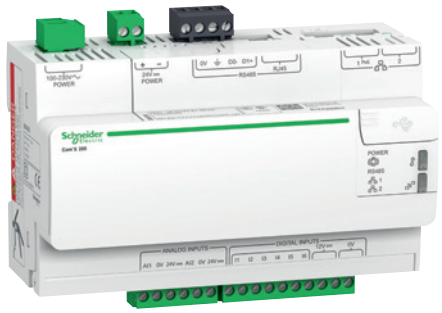


Data collector
Collects and stores energy data from up to 64 field devices, connected to either:
- ethernet TCP/IP field network
- modbus Serial line network (up to 32 devices)
- embedded digital and analogue inputs.

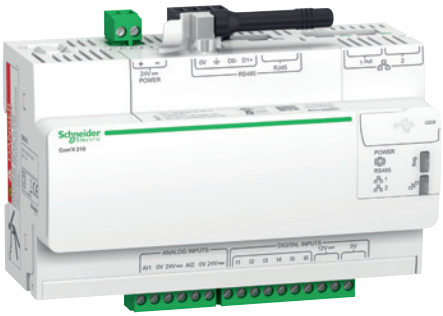
"Field devices" consist of :
- powerLogic meters for power and energy monitoring
- masterpact, Powerpact, or Compact circuit-breakers for protection and monitoring
- acti 9 protection devices, meters, remote controlled switches, etc
- water, Air, Gas, Electricity, and Steam consumption meters, from specialized manufacturers, delivering pulses as per standard (see table at end of this document)
- environmental sensors such as temperatures, humidity, and CO2 levels in a building, providing analogue information.

Data logging and storage capabilities include:
- data logging period: configurable from every minute to once a week
- data storage duration: up to 2 years, depending on quanitity of collected data.

Com'X 200/210
Functions and characteristics



Energy Server Com'X 200 data logger



Energy Server Com'X 210 data logger

Data publisher
Batches of collected data periodically transmitted to an Internet server, as:
- XML files, for processing by StruxureWare™ web services, such as Facility Insights
- CSV files for viewing in Excel or transformed for upload into programs such as StruxureWare™ Power Monitoring Expert or any compatible software
- support for Weather Sentry™.

Data publishing function supports 4 transfer protocols over Ethernet or Wi-Fi:
- HTTP
- HTTPS
- FTP
- SMTP.

Additional functions

Gateway
If selected by the user, the Com'X 200/210 can also make all data from connected devices available in real-time:
- in Modbus TCP/IP format over Ethernet or Wi-Fi
- for requests by an energy management software
- gateway to Zigbee device data by external Modbus TCP/IP clients.

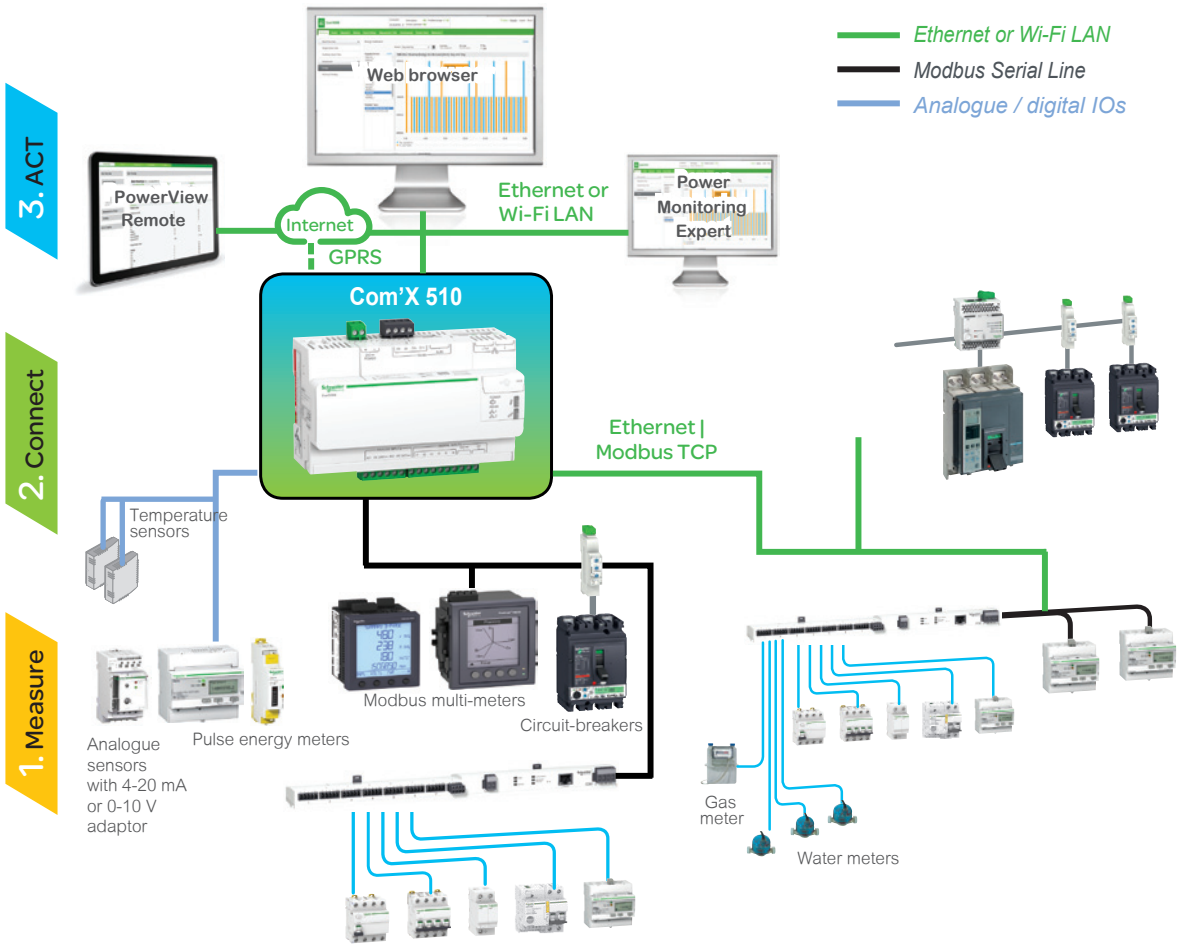
Modbus packets can be sent from managing software to field devices through Modbus serial line or Modbus TCP/IP over Ethernet.

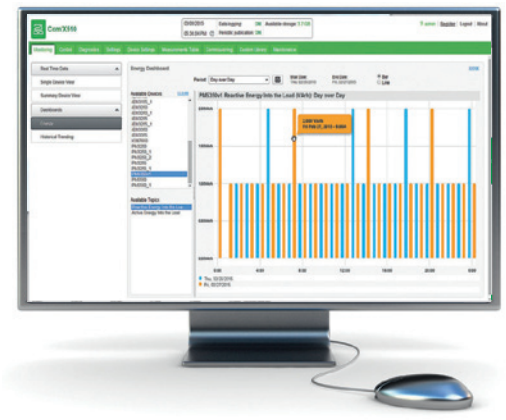
Com'X 200/210 Commercial reference numbers	
Com'X 200 data logger 24 V DC or 230 V AC power supplied	**EBX200**
Com'X 210 data logger 24 V DC power supplied UL rated	**EBX210**
Com'X Wi-Fi USB interface	**EBXA-USB-WiFi**
Com'X GPRS interface SIM card	**EBXA-GPRS-SIM**
Com'X GPRS interface	**EBXA-GPRS**
Com'X External GPRS antenna	**EBXA-ANT-5M**
Com'X Zigbee USB interface	**EBXA-USB-Zigbee**

Please see your Schneider Electric representative for complete ordering information.

Com'X 510
Energy server

Main functions





Energy dashboard comparing accumulated over time energy values (partial screen)

Data collector
Collects and stores energy data from up to 64 field devices, connected to either:
- ethernet TCP/IP field network
- modbus Serial line network (up to 32 devices)
- embedded digital and analogue inputs.

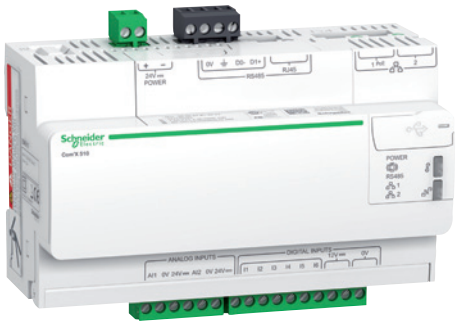
"Field devices" consist of :
- PowerLogic meters for power and energy monitoring
- Masterpact, Powerpact, or Compact circuit-breakers for protection and monitoring
- Acti 9 protection devices, meters, remote controlled switches, etc
- water, Air, Gas, Electricity, and Steam consumption meters, from specialized manufacturers, delivering pulses as per standard (see table at end of this document)
- environmental sensors such as temperatures, humidity, and CO2 levels in a building, providing analogue information.

Data logging and storage capabilities include:
- data logging period: configurable from every minute to once a week
- data storage duration: up to 2 years, depending on quanitity of collected data
- able to set time and send reset instructions to field devices.

Embedded energy management software
The Com'X provides the end-user with immediate visibility into energy consumption throughout the site. As soon as the Com'X is connected to the Local Area Network (LAN), several web pages are accessible via any standard web browser, (without plug-in or additional components).

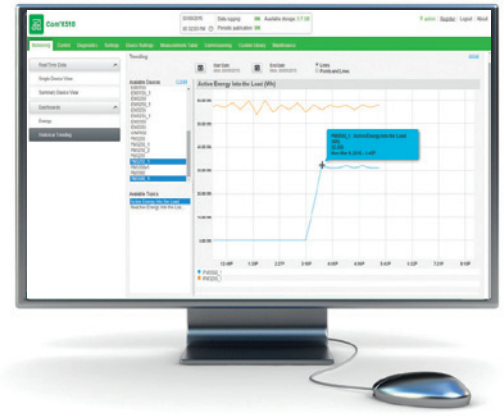
These web pages display real-time data as it is collected, in easy to understand tabular and summary formats. In addition, users can get simple analysis of historical data in bar graph or trending formats.

Com'X 510
Energy server



Energy Server Com'X 510 data logger

Raw data and measurements from one field device (partial screen)



Historical trending comparing multiple devices or multiple topics (partial screen)

Additional functions

Data publisher

Batches of collected data can also be periodically transmitted to an Internet server, as:

- XML files, for processing by StruxureWare™ web services, such as Facility Insights
- CSV files for viewing in Excel or transformed or uploading to programs such as StruxureWare™ Power Monitoring Expert or any compatible software.

Data publishing function supports 4 transfer protocols over Ethernet or Wi-Fi:

- HTTP
- HTTPS
- FTP
- SMTP.

Gateway

If selected by the user, the Com'X510 can make data from connected devices available in real time:

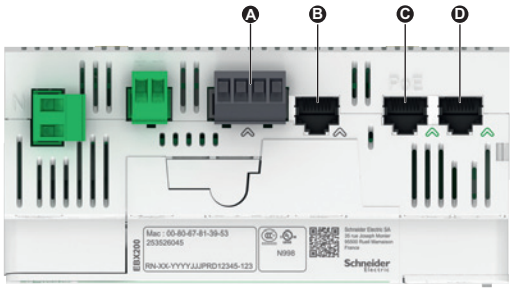
- in Modbus TCP/IP format over Ethernet or Wi-Fi
- for requests by energy management software
- gateway to Zigbee device data by external Modbus TCP/IP clients.

Modbus packets can be sent from managing software to field devices through Modbus serial line or Modbus TCP/IP over Ethernet.

Com'X 510 Commercial reference numbers	
Com'X 510 energy server 24 V DC power supplied UL rated	**EBX510**
Com'X Wi-Fi USB interface	**EBXA-USB-WiFi**
Com'X GPRS interface SIM card	**EBXA-GPRS-SIM**
Com'X GPRS interface	**EBXA-GPRS**
Com'X External GPRS antenna	**EBXA-ANT-5M**
Com'X Zigbee USB interface	**EBXA-USB-Zigbee**

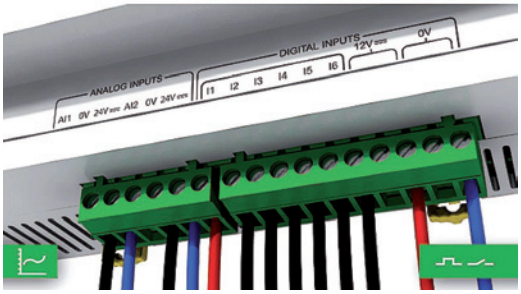
Please see your Schneider Electric representative for complete ordering information.

Com'X 200/210/510
Connectivity



Connection points

- **A** *Terminal block*
- **B** *RJ45 cable*
- **C** *Ethernet port #1*
- **D** *Ethernet port #2*



Power supply to analogue and digital inputs

Wi-Fi USB stick

GPRS modem

GPRS antenna

Connectivity

Modbus SL /RS485 connections to field devices
- By cable with RJ45 connector.

2 Ethernet ports
- used to either separate upstream connection from field devices network or to daisy chain Ethernet devices
- RJ45 10/100 Base connectors
- static IP address.

Ethernet port #1
- Connection to Local Area Network (LAN)
- PoE Class 3 (802.3af) can act as main/backup power supply for the Com'X
- DHCP client.

Ethernet port #2
- connection to field devices
- DHCP cleint or server.

Power supply to analogue and digital outputs
Outputs to supply sensors and inputs when Com'X is supplied through 24 V DC input on top:
- 12 V DC– 60 mA for digital inputs
- 24 V DC for analogue inputs.

Compliant with electrical switchboard environment (temperature, electromagnetic compatibilty).

2 inputs for analogue sensors
- PT100 or PT1000 temperature probes.
- Various sensors (humidity, CO2, etc.) with 0-10 V output.
- Various sensors with 4-20 mA output.

6 inputs for dry contact sensors or pulse counters
- Max 25 pulses per second (min duration 20 ms).
- IEC 62053-31 Class A.

Wi-Fi USB stick
- As an alternative to publication over Ethernet, connects Com'X to the site Wi-Fi router for regular data transmission.
- Can also be used for Com'X 510 configuration through one-to-one connection with laptop or tablet.
- Simply plugs into USB port 2 under front cover.

GPRS modem
- For connection to the data processing server through cellular or user's APN network.
- Also connect to Schneider Electric's Digital Service Platform.
- Especially suitable for sites with no internet access.
- Simply plugs into dedicated port under the front cover.

GPRS antenna
- Improves GPRS signal strength in case of poor transmission conditions.
- Recommended for Com'X located inside metallic electrical panels.

Zigbee dongle (not shown)
For connection to wireless digital enabled field devices such as PowerLogic EM4300 meters. Plugs into USB ports.

PowerLogic WT4200 wireless transmitters, connected to Modbus RS485, enables collecting data also from water, air, gas or steam meters.

Com'X 200/210/510
Setup and configuration

Device settings page (partial), as displayed after auto-discovery, enabling user to assign circuit identifications and select data for logging and publication.

Installation
- DIN rail fitting (Front face IP40, terminals IP20)
- weight 450 g
- dimensions (HxWxD) 91 x 144 x 65.8 mm.

Setup and configuration

Connection to LAN

As soon as they are connected to the LAN, it can be detected and assigned an IP address by DHCP. Your operating system's DPWS feature allows your computer to automatically recognize the device as Com'X. Embedded web pages are then immediately accessible by clicking each Com'X device icon or by typing the assigned IP address into your web browser.

Field device auto-discovery

The user-activated device discovery function automatically identifies all field devices connected to Modbus SL, Ethernet port or Zigbee dongle.
- Schneider Electric devices display with the product image.
- Other devices appear as "unknown," allowing the user to manually assign a device type.
- User can assign their own device types.
- Users can complete additional device identification fields, such as circuit ID or building zone.

Data selection for logging and publication

Web page configuration tabs allow you to configure, in just a few clicks, which connected field devices collect and publish data.

Advanced diagnostics and troubleshooting features
- Modbus serial and TCP/IP device statistics.
- Ethernet network statistics.
- Communications check wizard.
- Direct reading of register values from local and remote devices.

Additional features and benefits
- Cybersecurity - works well with your cyber security architecture.
- 2 Ethernet ports to separate upstream cloud connection, or to daisy chain with other Ethernet devices, from field device network.
- Data storage in case of communications failure.
- Local backup of configuration parameters - back up your system to a USB storage device and have it available for system restore or to duplicate the configuration on another box.

When associated with Schneider Electric Services:
- remotely managed (configuration backup, troubleshooting, parameter setting)
- GPRS SIM contract management (with EBXA-GPRS-SIM).

*Note: For safe and correct installation of all products please consult the appropriate Schneider Electric **Installation Guide.***

Com'X 200/210/510
Specifications

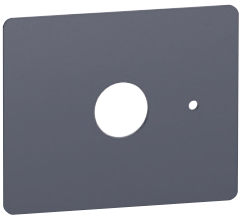
Com'X 200/210/510 Environment	
Operating temperature	-25 to +60 °C (-13 to 140 °F) Com'X 200
	-25 to +70 °C (-13 to 158 °F) Com'X 210/510
Storage temperature	-40 to +85 °C (-40 to +185 °F)
GPRS dongle Operating temperature	-20 to +60 °C (-4 to +140 °F)
GPRS dongle Storage temperature	-40 to +85 °C (-40 to +185 °F)
Wif-Fi dongle Operating temperature	0 to +50 °C (32 to +122 °F)
Wi-Fi dongle Storage temperature	-20 to +80 °C (-4 to +176 °F)
Humidity	5 to 95% relative humidity (without condensation) at + 55 ºC
Pollution	Class III
Safety standards / regulation	
International (CB scheme)	IEC 60950
USA	UL 508
USA	UL 60950 (Com'X 210 and Com'X 510 only)
Canada	cUL 60950 (Com'X 210 and Com'X 510 only)
Canada	cULus 508
Europe	EN 60950
Quality Brands	
	CE, UL

Power Supply		Com'X 200	Com'X 210	Com'X 510
AC	100-230 V (+/- 15%)(50-60Hz)	■		
DC	24 V (+/- 10%)	■	■	■
Power over Ethernet	15.4 W DC	■	■	■
Max power	26 W max	■	■	■
Mechanical				
IP	Front face IP40, terminals IP20	■	■	■
Dimensions (HxWxD)	91 x 144 x 65.8 mm	■	■	■
Weight	450 g	■	■	■

FDM128
Ethernet switchboard display

Micrologic measurement capabilities come into full play with the FDM128 switchboard display. It connects to Ethernet communication via RJ45 port and displays Micrologic information. The result is a true integrated unit combining a circuit breaker and a Power Meter. Additional operating assistance functions can also be displayed.

FDM128 display.



Surface mount accessory.

FDM128

The FDM128 is an 'intelligent' Ethernet display. It collects the data from up to 8 devices via the Ethernet network:
- circuit breakers, as Masterpact, Compact, or Powerpact, individually via their Ethernet interfaces or gateways
- modular circuit breakers, actuators, counter and analog sensors when they are grouped an connected to an Acti 9 Smartlink interface
- FDM128 generates and displays a dedicated page for each one, with the monitored status, values, and the potential controls
- remote display of FDM128 web pages on tablet with smart application.

Masterpact, Compact, Powerpact* monitoring and control

The FDM128 is intended to display the data of a Micrologic A/E/P/H trip unit embedded into a Masterpact, Compact or Powerpact*. They consist of electrical measurements, trips and operating information. Protection setting cannot be modified from the FDM128.
Measurements may be easily accessed via a menu.
Trips are automatically displayed.
A pop-up window displays the time-stamped description of the trip.

Status indications

As long as the circuit breaker is equipped with a BCM ULP or BSCM communication module and the appropriate status contacts (with or without Micrologic), a minimum of information can be displayed:
- O/F: ON/OFF
- SDE: Fault-trip indication (overload, short-circuit, ground fault)
- PF: ready to close
- CH: charged (spring loaded)
- CE, CD, CT cradle management with I/O application module
- physical localization of communicating ULP modules by led blinking.

Remote control

When the circuit breaker is equipped with a BCM ULP or BSCM communication module (including their kit for connection to XF and MX1 communication voltage releases), the FDM128 display can also be used to control (open/close) the circuit breaker. Two operating mode are available:
- local mode: open/close commands are enabled from FDM128 while disable from communication network
- remote mode: open/close commands are disabled from FDM128 while, enabled from communication network.

Acti 9 Smartlink monitoring and control

The FDM128 can display all status, counting and analog values collected in hard wired devices by an Acti 9 Smartlink interface, it can also provide potential controls.
Wired devices:
- circuit breakers
- energy counters
- analog sensors
- relays, impulse relays.

Monitoring

O/F auxiliary contacts: ON/OFF status. SD auxiliary contacts: fault-trip indication (overload, short-circuit, ground fault). Counters: values. Analog sensors: (temperature value, humidity…).
Automatic recovering of Acti 9 Smartlink I/O configurations, allowing contextual I/O status display.

Remote control

Circuit breakers with tripping auxiliary. Relays, impulse relays. Acti 9 Reflex remote control circuit breakers.

Main characteristics

- 115.2 x 86.4 mm with 5.7" QVGA display 320 x 240 pixels.
- Color TFT LCD, LED backlight.
- Wide viewing angle: vertical ±80°, horizontal ±70°.
- High resolution: excellent reading of graphic symbols.
- Operating temperature range -10°C to +55°C.
- CE / UL / CSA marking (pending).
- 24 V DC power supply, with tolerances 24 V (limit 20.4 - 28.8 V DC).
- Consumption y 6.8 W.

FDM128
Ethernet switchboard display

Mounting
The FDM128 is easily installed in a switchboard.
- Standard door hole Ø 22 mm.

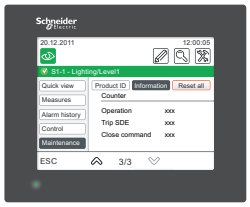
The FDM128 degree of protection is IP65 in front and IP54.

Connection
The FDM128 is equipped with:
- a 24 V DC terminal block: power supply range of 24 V DC (limit 20.4 - 28.8 V DC). T he FDM128 display unit has a 2-point screw connector on the rear panel of the module for this purpose
- one RJ45 Ethernet jacks.

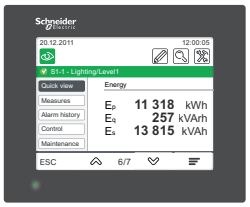
The Micrologic connects to the internal communication terminal block on the Masterpact via the breaker ULP cord and Ethernet connection through IFE interface.

Navigation
Touch screen is used for intuitive and fast navigation.
The user can select the display language (Chinese, English, French, German, Italian, Portuguese, Spanish, etc.).

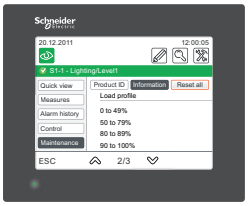
Screens



Product identification.



Metering: meter.



Services.

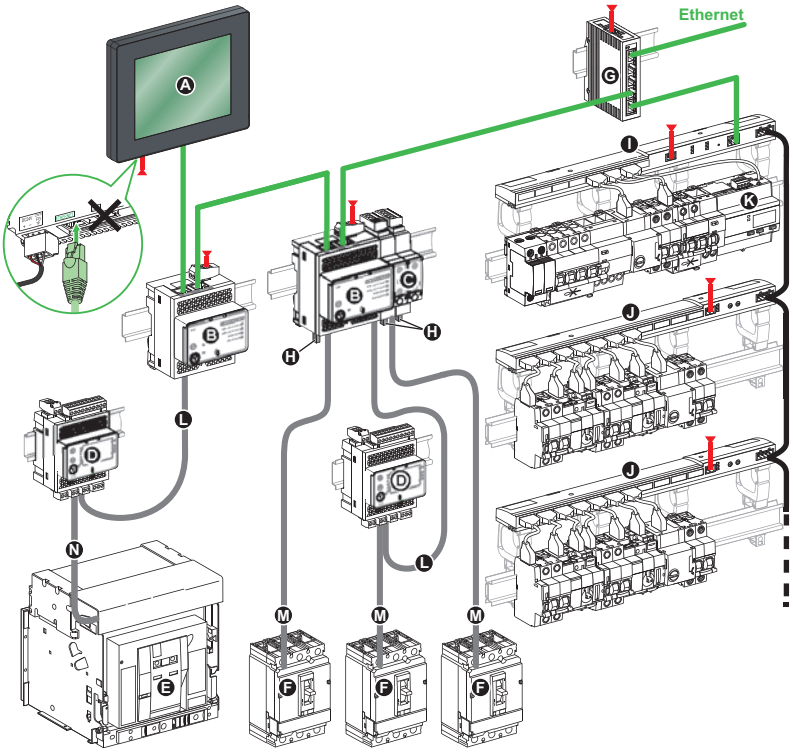
Main menu				
Quick view	Metering	Control	Alarms	Maintenance

When not in use, the screen is automatically shifted to low back-lighting.

Fast access to essential information
- "Quick view" provides access to five screens that display a summary of essential operating information (I, U, f, P, E, THD, circuit breaker On / Off).

Access to detailed information
- "Metering" can be used to display the measurement data (I, U-V, f, P, Q, S, E, THD, PF) with the corresponding min/max values.
- Alarms displays the trip history.
- Services provides access to the operation counters, energy and maximeter reset function, maintenance indicators, identification of modules connected to the internal bus and FDM128 internal settings (language, contrast, etc.).

Communication components and FDM128 connections



- **A** *FDM128 display for 8 LV devices.*
- **B** *IFE Ethernet interface for LV circuit breaker and gateway.*
- **C** *IFM Modbus-SL interface for LV circuit breaker.*
- **D** *IO input/output interface module for LV circuit breaker.*
- **E** *Masterpact NT/NW circuit breaker.*
- **F** *Compact NSX, PowerPact H-, J-, or L-frame circuit breaker.*
- **G** *Switch ConneXium.*
- **H** *ULP line termination.*
- **I** *Acti 9 Smartlink Ethernet.*
- **J** *Acti 9 Smartlink Modbus.*
- **K** *iEM• Acti 9 Smartlink energy meter.*
- **L** *ULP cord.*
- **M** *NSX cord.*
- **N** *Breaker ULP cord.*

Ethernet.
Modbus-SL.
24 V DC.

FDM121
Switchboard display
For Masterpact , Compact, Powerpact (1) circuit breakers

Micrologic measurement capabilities come into full play with the FDM121 switchboard display. It connects to COM option (BCM ULP) via a breaker ULP cord and displays Micrologic information. The result is a true integrated unit combining a circuit breaker and a Power Meter. Additional operating assistance functions can also be displayed.

FDM121 display.

Surface mount accessory.

Connection with FDM121 display unit.

(1) FDM121 is compatible with Masterpact ACB, Compact NSX, circuit breaker equipped with ULP communication device. For Masterpact MTZ, use FDM128 or 1to1 apps for smartphone as a local display.

FDM121 switchboard display

An FDM121 switchboard display unit can be connected to a circuit breaker via an ULP cord to display all measurements, alarms, histories and event tables, maintenance indicators, management of installed devices on a screen. The result is a veritable 96 x 96 mm Power Meter. The FMD121 display unit requires a 24 V DC power supply.
The FDM121 is a switchboard display unit that can be integrated in the Compact NSX100 to 630 A, Powerpact H/J/L/P/R, compact NS or Masterpact systems. It uses the sensors and processing capacity of the Micrologic trip unit. It is easy to use and requires no special software or settings. It is immediately operational when connected to the Compact NSX by a simple cord. Also, it provides monitoring and control with the use of the I/O application module, the motor mechanism module, or the Breaker Status module. The FDM121 is a large display, but requires very little depth. The anti-glare graphic screen is backlit for very easy reading even under poor ambient lighting and at sharp angles.

Display of Micrologic measurements and alarms

The FDM121 is intended to display Micrologic 5 / 6 measurements, alarms and operating information. It cannot be used to modify the protection settings. Measurements may be easily accessed via a menu. All user-defined alarms are automatically displayed.
The display mode depends on the priority level selected during alarm set-up:
- high priority: a pop-up window displays the time-stamped description of the alarm and the orange LED flashes
- medium priority: the orange "Alarm" LED goes steady on
- low priority: no display on the screen.

All faults resulting in a trip automatically produce a high-priority alarm, without any special settings required. In all cases, the alarm history is updated. Micrologic saves the information in its non-volatile memory in the event of an FDM121 power failure.

Status indications and remote control

When the circuit breaker is equipped with the Breaker Status Module, the FDM121 display can also be used to view circuit breaker status conditions:
- O/F: ON/OFF
- SD: trip indication
- SDE: Fault-trip indication (overload, short-circuit, ground fault)

When the circuit breaker system is equipped with the I/O application module, the FDM121 can monitor and control:
- craddle management
- circuit breaker operation
- light and load control
- custom application.

When the circuit breaker system is equipped with the motor mechanism module, the FDM121 offers remote closing and opening control.

Main characteristics

- 96 x 96 x 30 mm screen requiring 10 mm behind the door (or 20 mm when the 24 V power supply connector is used).
- White backlighting.
- Wide viewing angle: vertical ±60°, horizontal ±30°.
- High resolution: excellent reading of graphic symbols.
- Alarm LED: flashing orange for alarm pick-up, steady orange after operator reset if alarm condition persists.
- Operating temperature range -10°C to +55°C.
- CE / UL / CSA marking (pending).
- 24 V DC power supply, with tolerances 24 V -20 % (19.2 V) to 24 V +10 % (26.4 V).

When the FDM121 is connected to the communication network, the 24 V DC can be supplied by the communication system wiring system.
- Consumption 40 mA.

Mounting

The FDM121 is easily installed in a switchboard.
- Standard door cut-out 92 x 92 mm.
- Attached using clips.

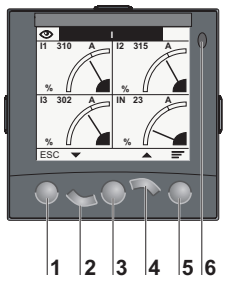
To avoid a cut-out in the door, an accessory is available for surface mounting by drilling only two 22 mm diameter holes.
The FDM121 degree of protection is IP54 in front. IP54 is maintained after switchboard mounting by using the supplied gasket during installation.

Connection

The FDM121 is equipped with:
- a 24 V DC terminal block:
  - ◻ plug-in type with 2 wire inputs per point for easy daisy-chaining
  - ◻ power supply range of 24 V DC -20 % (19.2 V) to 24 V DC +10 % (26.4 V).

A 24 V DC type auxiliary power supply must be connected to a single point on the ULP system. The FDM121 display unit has a 2-point screw connector on the rear panel of the module for this purpose. The ULP module to which the auxiliary power supply is connected distributes the supply via the ULP cable to all the ULP modules connected to the system and therefore also to Micrologic.

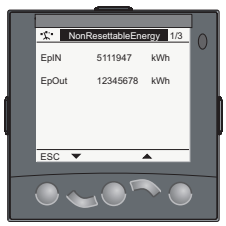
FDM121
Switchboard display
For Masterpact , Compact, Powerpact circuit breakers



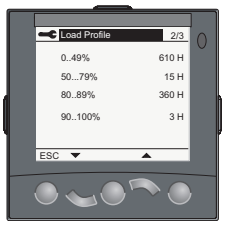
1 *Escape*
2 *Down*
3 *OK*
4 *Up*
5 *Context*
6 *Alarm LED*

Product identification.

Metering: sub-menu.



Metering: meter.



Services.

■ Two RJ45 jacks.
The Micrologic connects to the internal communication terminal block on the Masterpact via the breaker ULP cord. Connection to one of the RJ45 connectors on the FDM121 automatically establishes communication between the Micrologic and the FDM121 and supplies power to the Micrologic measurement functions.
When the second connector is not used, it must be fitted with a line terminator.

Navigation
Five buttons are used for intuitive and fast navigation.
The "Context" button may be used to select the type of display (digital, bargraph, analogue). The user can select the display language (Chinese, English, French, German, Italian, Portuguese, Spanish, etc.).

Screens
When powered up, the FDM121 screen automatically displays the ON/OFF status ofthe device.

Main menu

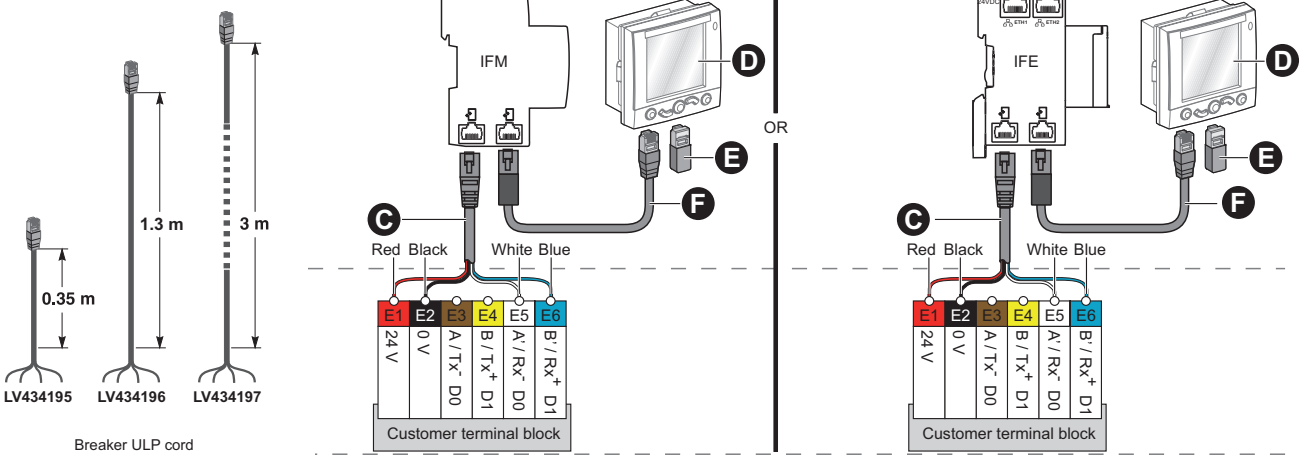
Quick view	Metering	Control	Alarms	Maintenance

When not in use, the screen is not backlit. Backlighting can be activated by pressing one of the buttons. It goes off after 3 minutes.

Fast access to essential information
■ "Quick view" provides access to five screens that display a summary of essential operating information (I, U, f, P, E, THD, circuit breaker On / Off).

Access to detailed information
■ "Metering" can be used to display the measurement data (I, U-V, f, P, Q, S, E, THD, PF) with the corresponding min/max values.
■ Alarms displays active alarms and the alarm history.
■ Services provides access to the operation counters, energy and maximeter reset
■ function, maintenance indicators, identification of modules connected to the internal bus and FDM121 internal settings (language, contrast, etc.).

Communication components and FDM121 connections



Breaker ULP cord

Connections
■ *Masterpact is connected to the ULP devices (FDM121 display, IFM, IFE interface or I/O) unit via the breaker ULP cord.*
□ *cord available in three lengths: 0.35 m, 1.3 m and 3 m.*
□ *lengths up to 10 m possible using extensions.*

Ⓐ *Modbus network.*
Ⓑ *Ethernet network.*
Ⓒ *Breaker ULP cord.*
Ⓓ *FDM121 display.*
Ⓔ *ULP termination.*
Ⓕ *ULP cable.*

IFE Interface
IFE switchboard server

IFE interface, ref.: LV434010

IFE switchboard server, ref.: LV434011

Description

The IFE interface and IFE switchboard server enable LV circuit breakers as Masterpact NT/NW, Compact NSX or Powerpact* to be connected to an Ethernet network.

IFE interface: ref. LV434010

Provides an Ethernet access to a single LV circuit breaker.

Function

Interface - one circuit breaker is connected to the IFE interface via its ULP port (1).

IFE switchboard server: ref. LV434011

Provides an Ethernet access up to 20 LV circuit breakers.

Functions

- Interface - one circuit breaker is connected to the IFE interface via its ULP port (1).
- Server: several circuit breakers on a Modbus network are connected via the IFE switchboard server master Modbus port.
- Collects and provides web pages from multiple IP devices (other IFE LV434011, Smartlink Ethernet, PM5000 Ethernet…).

IFE interface, IFE switchboard server features

- Dual 10/100 Mbps Ethernet port for simple daisy chain connection.
- Device profile web service for discovery of the IFE interface, IFE switchboard server on the LAN.
- ULP compliant for localization of the IFE interface in the switchboard.
- Ethernet interface for Compact, Masterpact and Powerpact* circuit breakers.
- Gateway for Modbus-SL connected devices (IFE switchboard server only).
- Embedded set-up web pages.
- Embedded monitoring web pages.
- Embedded control web pages.
- Built-in e-mail alarm notification.
- Automatic recovering of Smartlink I/O configurations, allowing contextual I/O status display on web pages (IFE switchboard server only).

Mounting

The IFE interface, IFE switchboard server are DIN rail mounting devices.
A stacking accessory enables the user to connect several IFMs (ULP to Modbus interfaces) to an IFE switchboard server without additional wiring.

24 V DC power supply

The IFE interface, IFE switchboard server must always be supplied with 24 V DC.
The IFMs stacked to an IFE switchboard server are supplied by the IFE switchboard server, thus it is not necessary to supply them separately. It is recommended to use an UL listed and recognized limited voltage/limited current or a class 2 power supply with a 24 V DC, 3 A maximum.

IFE interface, IFE switchboard server firmware update

The firmware can be updated using:

- FTP
- customer engineering tool
- ecoreach software.

Required circuit breaker communication modules

The connection to IFE interface or IFE switchboard server requires a communication module embedded into the circuit breaker:

- Compact NS, Powerpact P, Powerpact R: BCM ULP communication module
- Compact NSX: NSX cord and/or BSCM module
- Masterpact NT/NW or Compact NS, Powerpact P, Powerpact R (Fixed electrically operated): BCM ULP communication module
- drawout Masterpact NT/NW or a withdrawable Compact NS, Powerpact P, Powerpact R: BCM ULP and its respective I/O (Input/Output) application module.

All connection configurations for Masterpact NT/NW, Compact NS, Powerpact P, Powerpact R require the breaker ULP cord. The insulated NSX cord is mandatory for system voltages greater than 480 V AC. When the second ULP RJ45 connector is not used, it must be closed with an ULP terminator (TRV00880).

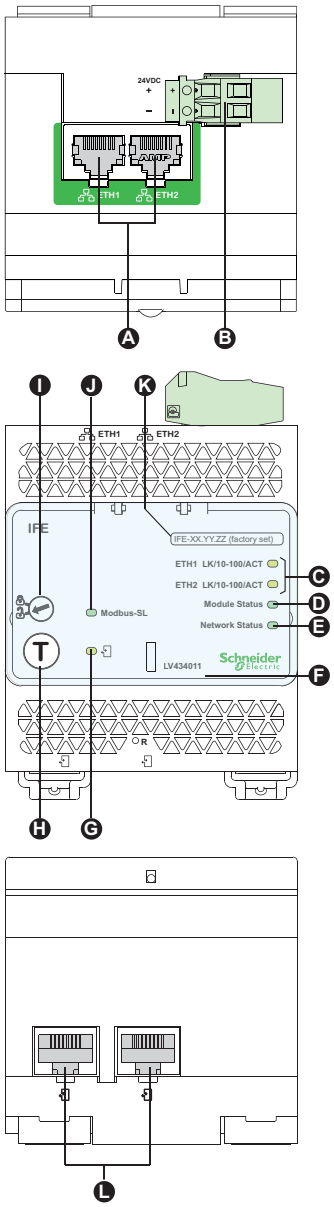
ULP total network length is temporarily limited to a maximum of 5 meters for the following devices combinations :

- Masterpact MTZ Fixed version and IFE Interface (LV434010 or LV434011)
- Masterpact MTZ Fixed version and IFE Interface (LV434010 or LV434011) and I/O module (LV434063)
- Masterpact MTZ Fixed version and IFE Interface (LV434010 or LV434011) and 2 x I/O modules (LV434063)

The limitation will be removed with a future release of IFE Interface module . Please contact your local Customer Care Centre for more information .

(1) Specific ULP network length restriction : up to 5 m when composed of Masterpact MTZ fixed version + IFE ref LV434010 or LV434011 (temporary restriction, consult your local Customer Care Center)

IFE Interface
IFE switchboard server



- **A** *Ethernet 1 and Ethernet 2 communication port.*
- **B** *24 V DC power supply terminal block.*
- **C** *Ethernet communication LEDs:*
  - *yellow: 10 Mb*
  - *green: 100 Mb.*
- **D** *Module status LED:*
  - *steady off: no power*
  - *steady green: device operational*
  - *steady red: major fault*
  - *flashing green: standby*
  - *flashing red: minor fault*
  - *flashing green/red: self-test.*
- **E** *Network status LED:*
  - *steady off: not power/no valid IP address*
  - *steady green: connected, valid IP address*
  - *steady orange: default IP address*
  - *steady red: duplicated IP address*
  - *flashing green/red: Self-test.*
- **F** *Sealable transparent cover.*
- **G** *ULP status LED.*
- **H** *Test button (accessible closed cover).*
- **I** *Locking pad.*
- **J** *Modbus traffic status LED (LV434011 only).*
- **K** *Device name label.*
- **L** *ULP ports.*

General characteristics

Environmental characteristics	
Conforming to standards	UL 508, UL 60950, IEC 60950, 60947-6-2
Certification	c UL us, GOST, FCC, CE
Ambient temperature	-20 to +70°C (-4 to +158 °F)
Relative humidity	5–85 %
Level of pollution	Level 3
Flame resistance	ULV0
Mechanical characteristics	
Shock resistance	1000 m/s^2
Resistance to sinusoidal vibrations	5 Hz < f < 8.4 Hz
Electrical characteristics	
Resistance to electromagnetic discharge	Conforming to IEC/EN 61000-4-3
Immunity to radiated fields	10 V/m
Immunity to surges	Conforming to IEC/EN 61000-4-5
Consumption	120 mA at 24 V input
Physical characteristics	
Dimensions	72 x 105 x 71 mm (2.83 x 4.13 x 2.79 in.)
Mounting	DIN rail
Weight	182.5 g (0.41 lb)
Degree of protection of the installed I/O application module	■ On the front panel (wall mounted enclosure): IP4x ■ Connectors: IP2x ■ Other parts: IP3x
Connections	Screw type terminal blocks
Technical characteristics - 24 V DC power supply	
Power supply type	Regulated switch type
Rated power	72 W
Input voltage	100–120 V AC for single phase 200–500 V AC phase-to-phase
PFC filter	With IEC 61000-3-2
Output voltage	24 V DC
Power supply out current	3 A

Note: *it is recommended to use an UL listed/UL listed recognized limited voltage/Limited current or a class 2 power supply with a 24 V DC, 3 A maximum.*

IFE interface, IFE switchboard server web page description

Monitoring web page	
Real time data	■
Device logging	■
Control web page	
Single device control	■
Diagnostics web page	
Statistics	■
Device information	■
IMU information	■
Read device registers	■
Communication check	■
Maintenance web page	
Maintenance log	■
Maintenance counters	■
Setup web page	
Device localization/name	■
Ethernet configuration (dual port)	■
IP configuration	■
Modbus TCP/IP filtering	■
Serial port	■
Date and time	■
E-mail server configuration	■
Alarms to be e-mailed	■
Device list	■
Device logging	■
Device log export	■
SNMP parameters	■
Documentation links	■
Preferences	■
Advanced services control	■
User accounts	■
Web page access	■

eIFE embedded Ethernet interface for drawout Masterpact MTZ

eIFE embedded Ethernet interface

eIFE embedded Ethernet interface description

Introduction

The eIFE embedded Ethernet interface module enables drawout Masterpact MTZ circuit breakers to be connected to an Ethernet network.
It provides a digital access to all the data delivered by the Masterpact control unit Micrologic X. In addition it monitors the three positions of the circuit breaker when inserted in its chassis:

- Circuit breaker racked IN,
- Circuit breaker racked OUT,
- Circuit breaker in test position.

eIFE becomes then the best solution for high uptime demanding switchboards.

eIFE interface: ref. LV851001

Provides an Ethernet access to a single drawout Masterpact MTZ circuit breaker.

Function

One circuit breaker is connected to the eIFE interface via its ULP port.

eIFE interface features

- Dual 10/100 Mbps Ethernet port for simple daisy chain connection.
- Device profile web service for discovery of the eIFE interface on the LAN.
- Ethernet interface for drawout Masterpact circuit breakers.
- Embedded set-up web pages.
- Embedded monitoring web pages.
- Embedded control web pages.
- Chassis status management (CE, CD, CT)
- Built-in e-mail alarm notification.

Mounting

The eIFE interface is mounted on the chassis of the Drawout circuit breaker.
There are two types of dedicated ULP cable, one for the MTZ1 and one for MTZ2/MTZ3.

24 Vdc power supply

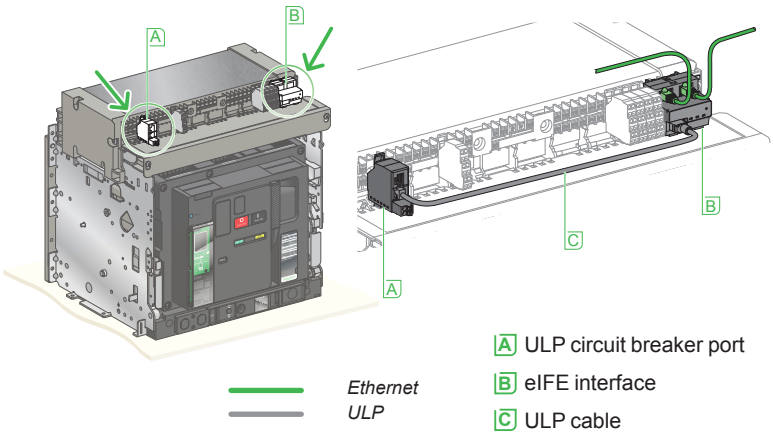
The eIFE power supply is provided by the ULP port through the dedicated ULP cable.

eIFE interface firmware update

The firmware can be updated using Ecoreach software.

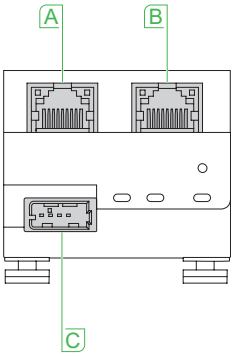
Required circuit breaker communication accessory

The connection to eIFE interface requires an ULP communication port on the chassis of the drawout Masterpact MTZ circuit breakers.



eIFE mounting and cabling

eIFE embedded Ethernet interface for drawout Masterpact MTZ



A Ethernet port 1
B Ethernet port 2
C ULP port

General characteristics		
Environmental characteristics Environmental characteristics		
Conforming to standards		IEC 60950, IEC 60947-6-2, UL 508, UL 60950, IACS E10
Certification		CE, c UL us, EAC, FCC markings
Ambient temperature	Storage Operation	-40 to +85 °C -25 to +70 °C
Relative humidity		5 - 85 %
Level of pollution		Level 3
Flame resistance		ULV0 conforming to IEC/EN 60068-2-30
Mechanical characteristics		
Shock resistance Resistance to sinusoidal vibrations		As the eIFE is mounted on the circuit breaker it complies with its mechanical characteristics
Electrical characteristics		
Consumption		250 mA at 24 Vdc at room temperature
Resistance to electrostatic discharge		Conforming to IEC/EN 61000-4-2 8 kV AD
Immunity to radiated fields		Conforming to IEC/EN 61000-4-3 10 V/m
Immunity to surges		Conforming to IEC/EN 61000-4-5 Class 2
Physical characteristics		
Dimensions		51 x 51 x 52.5 mm
Mounting		Breaker DIN rail of MTZ1 & MTZ2/MTZ3
Weight		75 grams eIFE alone
Degree of protection of the installed module		■ IP20 for connectors ■ IP30 for other areas
Connections		■ RJ45 for Ethernet ■ Industrial USB connector for ULP

eIFE web page description

Monitoring web page:
- real time data
- device logging.

Control web page:
- single device control.

Diagnostics web page:
- statistics
- device information
- IMU information
- read device registers
- communication check.

Maintenance web page:
- maintenance log
- circuit breaker heath status
- maintenance counters.

Setup web page:
- device localization/name
- ethernet configuration (dual port)
- IP configuration
- Modbus TCP/IP filtering
- date and time
- e-mail server configuration
- alarms to be e-mailed
- device logging
- device log export
- SNMP parameters
- preferences
- advanced services control
- user accounts
- web page access.

Link150
Ethernet gateway

The Link150 gateway provides fast, reliable Ethernet connectivity in the most demanding applications, from a single building to a multi-site enterprise.
This gateway supports meters, monitors, protective relays, trip units, motor controls and other devices that need to communicate data quickly and efficiently.
It is your simple, cost-effective serial line to full Ethernet connectivity.

Applications

- Energy management.
- Power distribution.
- Building automation.
- Factory automation.

Security

- Secure user interface including user's name and password for login.
- Advanced security features to allow users to specify which Modbus TCP/IP master devices may access attached serial slave devices.
  - Modbus TCP/IP filtering feature.
  - Allows user to specify the level of access for each master device as Read-only or Full access.
- Web pages provide easy configuration and setup.

Advantages

- Easy to install and setup.
- Easy to maintain.
- Compatible with Schneider Electric software offerings (StruxureWare Power Monitoring Expert, StruxureWare PowerSCADA Expert, etc.).
- Reliable Modbus to Ethernet protocol conversion.

Part numbers

Powerlogic Link150	
Link150	**EGX150**

Note: *Contact your Schneider Electric representative for complete ordering information.*

Link150
Ethernet gateway

Link150 front view

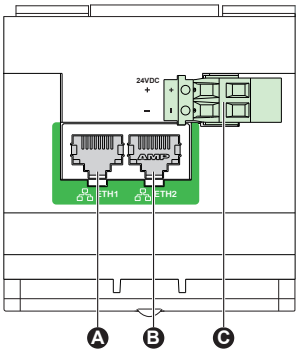
Characteristics

		Link150
Weight		175 g (6.17 oz) without packing
Dimensions (HxWxD)		72 x 105 x 71 mm (2.83 x 4.13 x 2.79 in)
Mounting		DIN rail
Power-over-Ethernet (PoE)		Class 3
Power supply		24 V DC (-20/+10%) or Power over Ethernet (PoE Class 3 IEEE 802.3 af) at 15 W
Consumption (typical)		24 V DC, 130 mA at 20 °C PoE 48 V DC, 65 mA at 20 °C
Ambient operating temperature		-25 to +70 °C (-13 to +158 °F)
Ambient storage temperature		-40 to +85 °C (-40 to +185 °F)
Humidity rating		5 to 95 % relative humidity (without condensation) at +55ºC
Pollution Degree		Level 2
IP Ratings		On the front panel (wall-mounted enclosure): IP4x Connectors: IP20 Other parts: IP30
Regulatory/standards compliance for electromagenetic interference		
Emissions (radiated and conducted)		
Immunity for industrial environments:		
	electrostatic discharge	EN 61000-6-2
	radiated RF	EN 61000-4-2
	electrical fast transients	EN 61000-4-3
	surge	EN 61000-4-4
	conducted RF	EN 61000-4-5
	power frequency	EN 61000-4-6
	magnetic field	EN 61000-4-8
Regulatory/standards compliance for safety		
Safety - IEC		IEC60950
Safety - UL (1)		UL 60950
		UL 61010-2-201
EMC		IEC6100-6-2
Australia		C-tick - RCM
Sustainability		Green Premium
Serial ports		
Number of ports		2 (1 available at a time)
Types of ports		RS232 or RS485 (2-wire or 4-wire), depending on settings
Protocol		Modbus, Serial
Baud rates		19200 bps (factory setting), 2400 bps, 4800 bps, 9600 bps, 38400 bps, 56000 bps (2), 57600 bps (2)
Maximum number of connected devices		32 (directly) 247 (indirectly)
Ethernet ports (used as a switch)		
Number of ports		2
Type of port		10/100 Base TX (802.3af) port
Protocol		HTTP, Modbus TCP/IP, FTP, SNMP (MIB II)

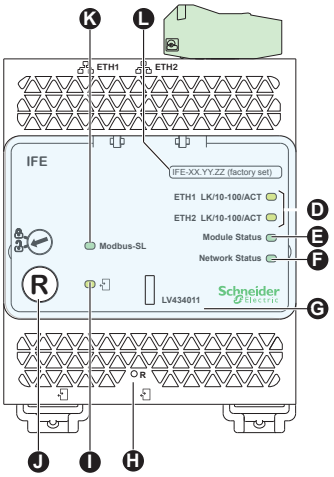
(1) Dual listed for US and Canada
(2) Only available when Physical Interface is set to RS232 and Transmission Mode is set to Modbus ASCII

Link150
Ethernet gateway

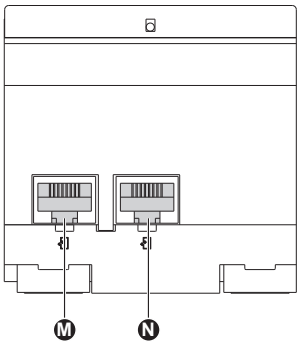
Parts



Ⓐ *Ethernet 1 communication port*
Ⓑ *Ethernet 2 (PoE) communication port*
Ⓒ *Midspan PoE injector*



Ⓓ *Ethernet communication LEDs*
Ⓔ *Module status LED*
Ⓕ *Network status LED*
Ⓖ *Sealable transparent cover*
Ⓗ *IP reset pin*
Ⓘ *RS485 traffic status LED*
Ⓙ *Device soft restart button (Accesible through closed cover)*
Ⓚ *RS232 traffic status LED*
Ⓛ *Device name label*

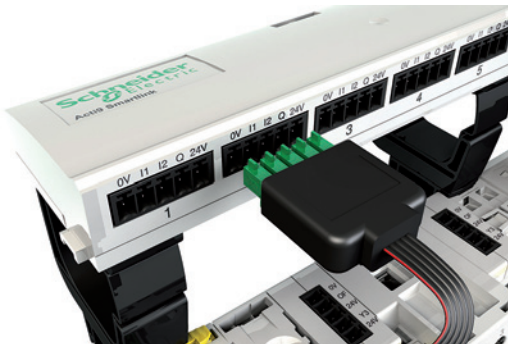


Ⓜ *RS232 port*
Ⓝ *RS485 port*

Acti 9 Smartlink

CE

Country approval pictograms



ComReady

IEC/EN 61131-2

The Acti 9 Smartlink is an open system that remotely measures, balances, monitors and controls final distribution. It consists of:
■ a Modbus Slave version (Acti 9 Smartlink Modbus Slave)
■ a Modbus Master version (Acti 9 Smartlink SI B Ethernet) with the following functions: radio hub, Modbus gateway and embedded web server: this provides web pages for configuring the system, and real-time monitoring of values (status of circuit breakers, energy meters, alarms and monitoring and control).
■ These modules transmit data to a PLC or monitoring system.

The system supports
■ Alarm monitoring on current, voltage, power factor, tripping, power, consumption thresholds and their transmission by email.
■ Integration with facility Hero.com, which allows all the alarms from the facility to be received in a single notification centre on a smartphone application, as well as web facility maintenance management (CAMM).
■ Monitoring and control via web pages of loads, energy and power by zone and by consumption.
■ Single access point for a full analysis of the status of switchboard power distribution (measurements, protection status, temperature, consumption, alarms, control and monitoring).
■ Real-time transmission via the Modbus protocol (Ethernet or RS485) of all the information and commands.

Functions

Transmission of data collected by Acti 9 switchgear assemblies
■ Circuit breakers, residual current circuit breakers and residual current devices:
□ open/closed state, tripped state,
□ number of opening/closing cycles,
□ number of tripping actions.
■ Contactors, impulse relays, Reflex iC60:
□ opening and closing control,
□ open/closed state,
□ number of opening/closing cycles,
□ total period of operation of the load (device closed).
■ Remote controlled circuit breaker/Reflex iC60:
□ opening control ,
□ closing control ,
□ contactor open/closed state,
□ circuit breaker open/closed state,
□ number of opening/closing cycles,
□ total period of operation of the load.
■ Pulse meters (energy, water, gas, etc.):
□ number of pulses recorded,
□ pulse value setting (default: 10 Wh),
□ total consumption recorded,
□ possibility of resetting energy meters.
■ Digital inputs/outputs.

Acti 9 Smartlink

Functions (cont.)

Transmission of additional data collected by Acti 9 Smartlink SI B Ethernet

■ Modbus slave power meters: Acti 9 Smartlink SI B Ethernet acts as a Modbus gateway.
■ Analog sensors:
□ CO2 sensor,
□ light sensor,
□ humidity sensor,
□ temperature sensor,
□ any 0..10 V or 4..20 mA compatible sensor.
■ PowerTag wireless power meters:
□ total and partial energy,
□ active power, phase-to-phase voltage, phase-to-neutral,
□ currents I1, I2, I3,
□ power factor,
□ voltage loss and overload information.

All the data are stored in memory: number of cycles, consumption, period of operation, even in the event of a power failure.

Acti 9 Smartlink can also exchange data with any device having 24 VDC digital inputs/outputs (e.g. low-level contacts 29452 for position of the Compact NSX). No configuration of the products connected to the Ti24 channels is required.

At power up, Acti 9 Smartlink Modbus Slave adapts automatically to the communication parameters of the Modbus master (PLC, supervisor, etc.).

Installation

■ Assembly in switchboards:
□ width 24 modules per row,
□ minimum spacing between rails 150 mm.
■ Mounting on:
□ DIN rail with mounting kit A9XMFA04,
□ Linergy FM 80 A, with bolts provided,
□ Linergy FM 200 A, with mounting kit A9XM2B04,
□ back of enclosure with mounting kit A9XMBP02.

Test

■ The communication and cabling test on the connected devices can be performed using the Acti 9 Smart Test software.

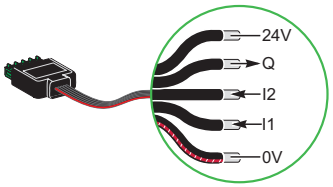
Test software: Acti 9 Smart Test

■ Electrical continuity test (cabling of connected devices)
■ Communication Testing of wired, wireless devices, analog and Modbus devices..
■ Editing of a complete test report (Excel, pdf) with the Modbus communication registers for easy integration into a supervision system
■ Windows XP, Windows 7, Windows 8 and Windows 10 compatible
■ Downloadable from: schneider-electric.com

Acti 9 Smartlink (cont.)

Acti 9 Smartlink SI B Ethernet

Acti 9 Smartlink Modbus Slave

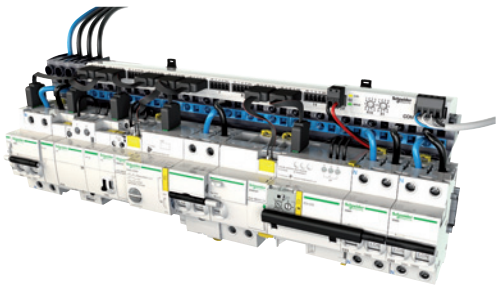


A9XCAU06

Catalogue numbers

Acti 9 Smartlink			
Type		**Set of**	
Acti 9 Smartlink SI B Ethernet		1	**A9XMZA08**
Supplied with	4-pin connector for analog inputs	1	
	Modbus connector	1	
	24 V DC power supply connector	1	
	Bolts for mounting on Linergy FM 80	2	
Acti 9 Smartlink Modbus Slave		1	**A9XMSB11**
Supplied with	Modbus connector	1	
	24 V DC power supply connector	1	
	Bolts for mounting on Linergy FM 80	2	
Accessories			
USB/Modbus connecting cables for Acti 9 Smartlink test		1	**A9XCATM1**
Prefabricated cables			
With 2 connectors	100 mm	6	**A9XCAS06**
	160 mm	6	**A9XCAM06**
	450 mm	6	**A9XCAH06**
	870 mm	6	**A9XCAL06**
	870 mm	6	**A9XCAU06**
	4000 mm	1	**A9XCAC01**
Connectors	5-pin connectors (Ti24)	12	**A9XC2412**
			
Mounting kit	DIN rail (4 feet, 4 earthing straps, 4 adapters)	1	**A9XMFA04**
	Linergy FM 200 A (4 adapters)	1	**A9XM2B04**
	Back of enclosure (2 brackets)	1	**A9XMBP02**
Spare parts	Bolts for Linergy FM 80 A (2 bolts)	1	**A9XMLA02**

Connectable devices

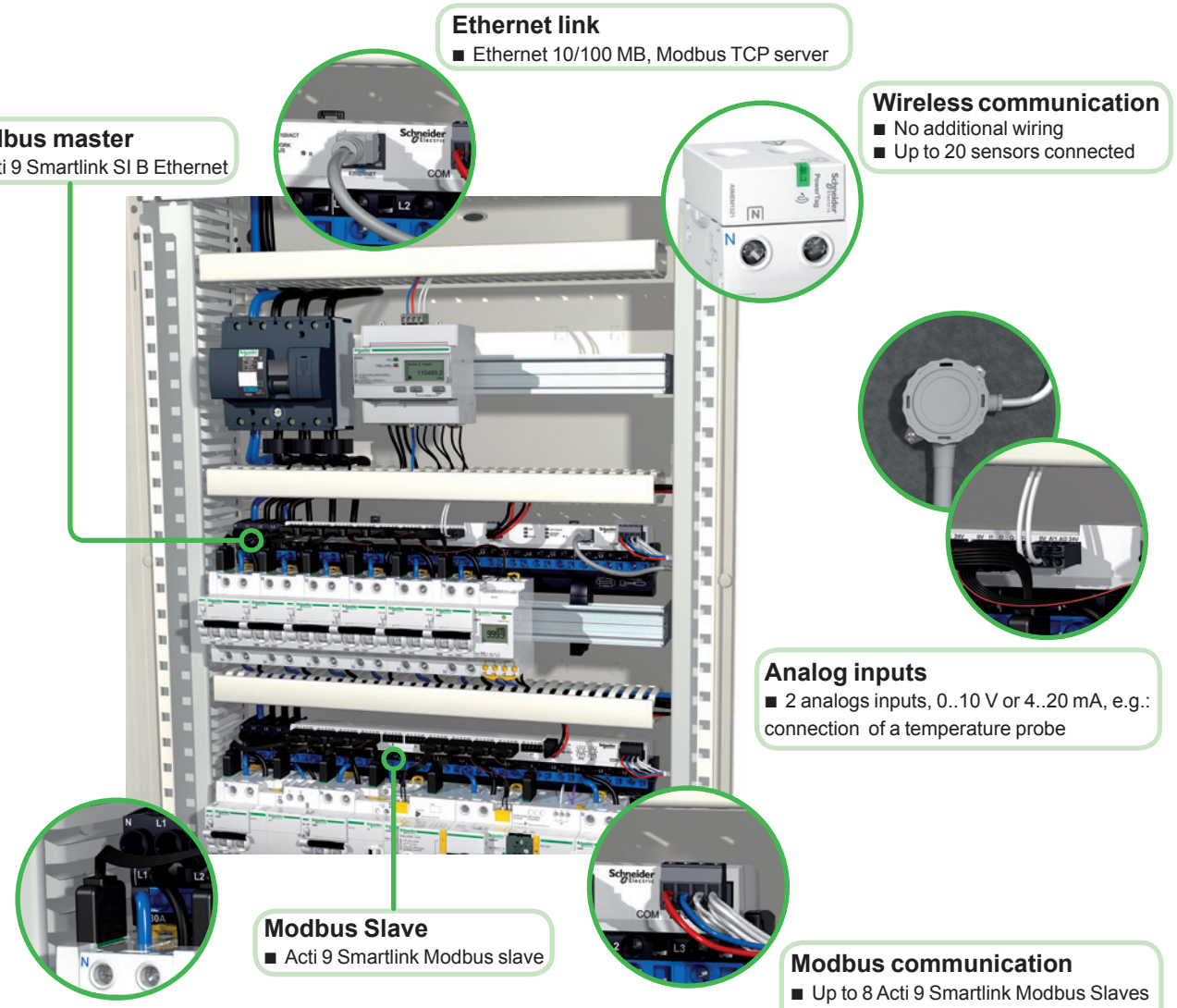


With Ti24 interface		
Type	**Reference**	**Description**
iACT24	A9C15924	Low-level control and indication auxiliary for iCT contactors
iATL24	A9C15424	Low-level control and indication auxiliary for iTL impulse relays
iOF+SD24	A9A26897	Low-level indication auxiliary for iC60, iID, ARA, RCA, iSW-NA
OF+SD24	A9N26899	Low-level indication auxiliary for C60, C120, DPN, RCCB/ID, C60H-DC
RCA iC60	See module CA904011	Remote control with Ti24 interface
Reflex iC60	See module CA904012	Reflex iC60 with Ti24 interface

Without Ti24 interface
Power meters with pulse output, e.g. IEM2000T
Impulse meters complying with the IEC 62053-21 standard
24 V DC indicator lamps, Harmony range type XVL
All loads not exceeding 100 mA, 24 V DC
Timers, thermostats, time switches, load shedding devices
All 24 V DC auxiliary contacts, IEC 61131-2 type 1
With Modbus connector systems
Power meters: iEM3150, iEM3250, iEM3350, iEM3155, iEM3255, iEM3355, all Modbus slave RS485 equipment
With wireless connector systems
PowerTag wireless energy sensors. See module CA907029
With analog outputs
Any 0...10 V and 4...20 mA compatible sensor (temperature, humidity, luminosity, etc.)

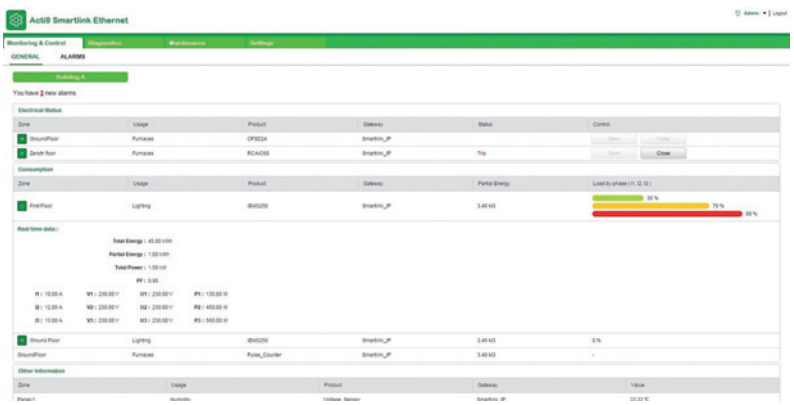
Acti 9 Smartlink (cont.)

Example of an installation



Ethernet network connection

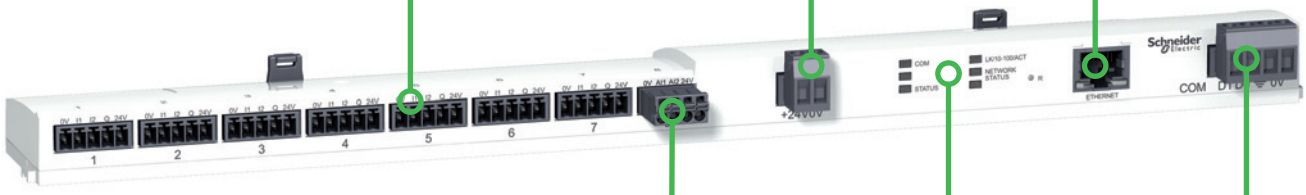
Acti 9 Smartlink SI B has an embedded Web server used to display data showing the state of circuit breakers, energy meters, power data and current alarms. Manual control is also via the Web page.



■ The web server sets the parameters of the connection to the network servers (SNTP, SMTP), as well as the parameters of user emails and of the connection to the Facility Hero.com service.

Acti 9 Smartlink (cont.)

Acti 9 Smartlink SI B Ethernet (A9XMZA08)



Ti24 connector
7 input/output channels
Protected at input against voltage reversals
Protected at output by current limiting
- Pin 1: 0 V
- Pin 2: I1 Input 1
- Pin 3: I2 Input 2
- Pin 4: Q Output
- Pin 5: +24 V DC

24 V DC power supply connector
Protected against voltage reversals
- Pin1: 0 V
- Pin2:+24 V DC

Ethernet connector
100 Base T - RJ45

Analog connector
2 configurable input points, either 0-10 V or 4-20 mA
- Pin 1: 0 V
- Pin 2: AI1 Input 1
- Pin 3: AI2 Input 2
- Pin 4: +24 V DC

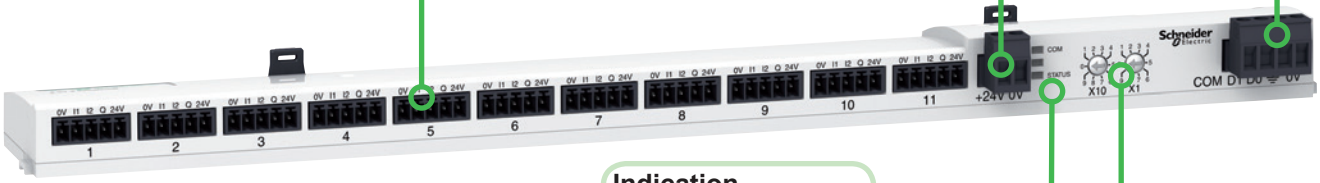
Indication
- Indication of operation of the communication system and the state of the Acti 9 Smartlink Ethernet

20 wireless energy sensors
Radio-frequency communication
- ISM band 2.4 GHz (2.4 GHz to 2.4835 GHz)
- Channels 11 to 16 as per IEEE 802.15.4

Note: *Acti9 Smartlink SI B Ethernet et sans fil and the PowerTags must be installed in the same switchboard*

Serial port connector
Modbus (Master) RS485
- Pin 1: D1 Modbus
- Pin 2: D0 Modbus
- Pin 3: shielding
- Pin 4: common/0 V

Acti 9 Smartlink Modbus Slave (A9XMSB11)



Ti24 connector
11 input/output channels
Protected at input against voltage reversals
Protected at output by current limiting
- Pin 1: 0 V
- Pin 2: I1 Input 1
- Pin 3: I2 Input 2
- Pin 4: Q Output
- Pin 5: +24 V DC

24 V DC power supply connector
Protected against voltage reversals
- Pin1: 0 V
- Pin2:+24 V DC

Serial port connector
Modbus (Master) RS485
- Pin 1: D1 Modbus
- Pin 2: D0 Modbus
- Pin 3: shielding
- Pin 4: common/0 V

Indication
- indication of operation of the communication system and the state of the Acti 9 Smartlink Modbus Slave

Thumbwheels
- Definition of the address in the Modbus network

Acti 9 Smartlink (cont.)

Common technical characteristics

Power supply		
Nominal		24 V DC ± 20 %
Maximum input current		1.5 A
Maximum inrush current		3 A
Meter		
Capacity		2^{32} pulses per input
Input characteristics		
Number of channels	Acti 9 Smartlink Modbus Slave (AX9MSB11)	11 of 2-input channels
	Acti 9 Smartlink SI B Ethernet (A9XMZA08)	7 of 2-input channels
Type of input		Current collector Type 1 IEC 61131-2
Maximum cable length		500 m
Rated voltage		24 V DC
Voltage limits		24 V DC ± 20 %
Rated current		2.5 mA
Maximum current		5 mA
Filtering time	In state 1	2 ms
	In state 0	2 ms
Isolation		No isolation between channels
Negative sequence voltage protection		Yes
Output characteristics		
Number of output channels	Acti 9 Smartlink Modbus Slave (AX9MSB11)	11
	Acti 9 Smartlink SI B Ethernet (A9XMZA08)	7
Type of output		24 V DC 0.1 A current source
Maximum cable length		500 m
Rated voltage	Voltage	24 V DC
	Maximum current	100 mA
Filtering time	In state 1	2 ms
	In state 0	2 ms
Voltage drop (voltage in state 1)		1 V max
Maximum inrush current		500 mA
Leakage current		0.1 mA
Overvoltage protection		33 V DC
Environmental characteristics		
Temperature	Operating	-25°C... + 60°C (if vertical mounting, limited to 50°C)
	Storage	-40°C…+ 80°C
Tropicalization		Treatment 2 (relative humidity of 93% at 40°C)
Resistance to voltage dips		10 ms, class 3 as per IEC 61000-4-29
Degree of protection		IP20
Pollution degree		3
Altitude	Operating	0 … 2000 m
Vibration resistance	As per IEC 60068.2.6	1 g / ± 3.5 mm - 5 Hz to 300 Hz - 10 cycles
Shock resistance	As per IEC 60068.2.2 7	15 g / 11 ms
Immunity to electrostatic discharge	As per IEC 61000-4-2	Air: 8 kV Contact: 4 kV
Immunity to radiated magnetic fields	As per IEC 61000-4-3	10 V/m - 80 MHz to 3 GHz
Immunity to fast transients	As per IEC 61000-4-4	1 kV for inputs/outputs and Modbus communication. 2 kV for 24 DC power supply - 5 kHz - 100 kHz
Immunity to conducted magnetic fields	As per IEC 61000-4-6	10 V from 150 kHz to 80 MHz
Immunity to magnetic fields at mains frequency	As per IEC 61000-4-8	30 A/m
Resistance to corrosive atmospheres	As per IEC 60721-3-3	Level 3C2 on H2S / SO2/ NO2 / Cl2
Fire resistance	For live parts	At 960°C 30 s / 30 s as per IEC 60 695-2-10 and IEC 60 695-2-11
	For other parts	At 650°C 30 s / 30 s as per IEC 60 695-2-10 and IEC 60 695-2-11
Salt spray test	As per IEC 60068.2.52	Severity 2
Environment		In compliance with the RoHS directive
Prefabricated cables characteristics		
Dielectric resistance		1 kV / 5 min
Minimum draw-out resistance		20 N
Electromagnetic compatibility		
References standards	Immunity	EN 55024
	Emissions	EN55022
	Electromagnetic compatibility and Radio spectrum Matters (ERM)	EN 300328 EN 300489-1 EN 301489-17

Acti 9 Smartlink (cont.)

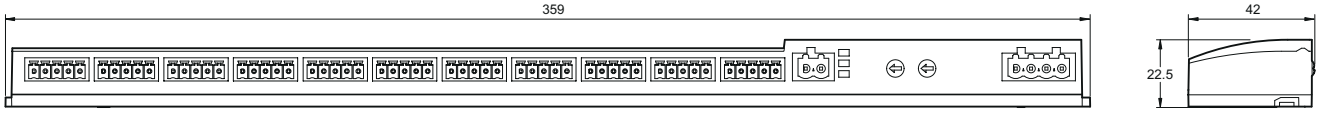
Acti 9 Smartlink Modbus Slave (A9XMSB11) technical characteristics

Characteristics of the Modbus link		
Link		Modbus, RTU, RS485 serial connection
Transmission	Transfer rate	9600 baud ... 19200 baud, self-adaptable
	Medium	Shielded cable, double twisted pair
Protocol		Master/Slave
Type of device		Slave
Modbus addressing range		1 to 99
Maximum length of the bus		1000 m
Type of bus connector		4-pin connector

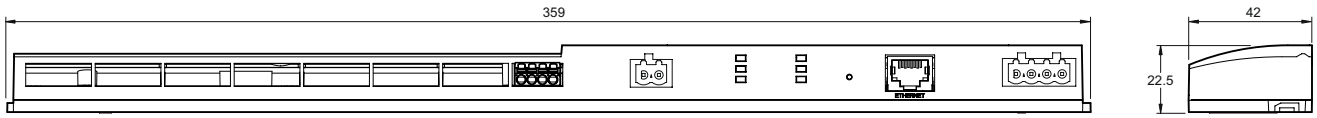
Acti 9 Smartlink SI B Ethernet (A9XMZA08) technical characteristics

Characteristics of the Ethernet link		
Link		10/100 MB
Protocol		Modbus TCP server
		http (Web pages)
Address mode		Static and dynamic (supplied, by default, in dynamic mode)
Gateway characteristics		
Protocol		Modbus TCP/IP -> Modbus SL
Number of Modbus slaves		8
Modbus addressing range		1 to 247
Characteristics of the Modbus Master link		
Link		Modbus, RTU, RS485 serial connection
Transmission	Transfer rate	9600 baud ... 19200 baud, self-adaptable
	Medium	Shielded cable, double twisted pair
Maximum length of the bus		1000 m
Type of bus connector		4-pin connector
Characteristics of analog inputs		
Number		2
Type		Independent settings for each input, either 0-10 V or 4-20 mA
Measuring accuracy		1/100 full scale
Resolution		12 bits
Acquisition time		500 ms
Isolation		No isolation between channels
Power supply		0-24 V DC
Cable type		Shielded cable, twisted pair
Maximum cable length		30 m
Protection		Short-circuit protection
Characteristics of the wireless link of the Acti 9 Smartlink SI B Ethernet (A9XMZA08)		
Compatible devices		PowerTag energy sensors
Maximum number of sensors		20
Radio-frequency communication		2.4 GHz to 2.4835 GHz at 0 dBm

Dimensions (mm)



Acti 9 Smartlink Modbus Slave (A9XMSB11)



Acti 9 Smartlink SI B Ethernet (A9XMZA08)

Weight (g)

Acti 9 Smartlink	
Type	
Acti 9 Smartlink Modbus Slave (A9XMSB11)	195
Acti 9 Smartlink SI B Ethernet (A9XMZA08)	180

PowerTag

A9MEM1520

A9MEM1521

A9MEM1540

A9MEM1522

A9MEM1541

A9MEM1542

PowerTags are electrical quantity measuring modules for 1P, 1P+N, 2P, 3P and 3P+N networks.
They are mounted directly on equipment of the Acti 9 or Multi 9 range at intervals of 18 mm up to 63 A.

Functions

Combined with Acti 9 Smartlink SI B Ethernet by radio-frequency communication, PowerTag sensors measure the following quantities in accordance with the IEC 61557-12 standard.

- Cumulative active energy, total and partial (kWh).
- Rms values:
  - phase-to-earth and phase-to-phase voltages (V)
  - currents per phase (A)
  - total active power and active power per phase (W)
  - power factor.

Installed upstream or downstream of a protective device, they measure quantities useful for diagnosis of the associated circuit.

Load monitoring

- Alarm sent by the sensor in the event of a voltage loss. Overload information at the time of the voltage loss.
- Pre-alarms on predefined thresholds (50 %, 80 %) or customized threshold (thresholds on currents, power, voltages and cumulative energies).

Configuration

- Recognition of the device in the Acti 9 Smart Test configuration software: the product flashes in the switchboard during configuration for easy recognition.
- Addition of context-related information to Acti 9 Smart Test (name of the load, energy use, single-line circuit label) or to a special set point.
- Partial power meters can be reset or set to a special set point via the software.

Integration in Acti 9 Smartlink systems

- Use of a wireless concentrator to report data:
  - Acti 9 Smartlink SI B Ethernet for a complete measuring and monitoring and control solution.
- Native display, in Smartlink's embedded web pages, of the quantities measured by the PowerTag sensors.
- Alarm management on current/voltage/load level thresholds by e-mail.
- Display of alarms and pre-alarms on Smartlink embedded web pages.
- Easy integration into system with Com'X200, Com'X 510 and other Schneider Electric software programs and third-party Building Management Systems (BMS's) thanks to the Acti 9 Smart Test report in Excel format. This report dynamically provides all the Modbus registers, and the bits and meanings associated with those registers for easy integration into the software.
- Remote reading possible using the Smartlink monitoring page.

Test software: Acti 9 Smart Test

- Electrical continuity test (cabling of connected devices).
- Communication testing on wireless, analog and pulse Modbus devices.
- Editing of a complete test report (Excel, pdf) with the Modbus communication registers for easy integration into a supervision system.
- Project archiving for re-use.
- Windows XP, Windows 7, Windows 8 and Windows 10 compatible.
- Downloadable from: schneider-electric.com.

Catalogue numbers

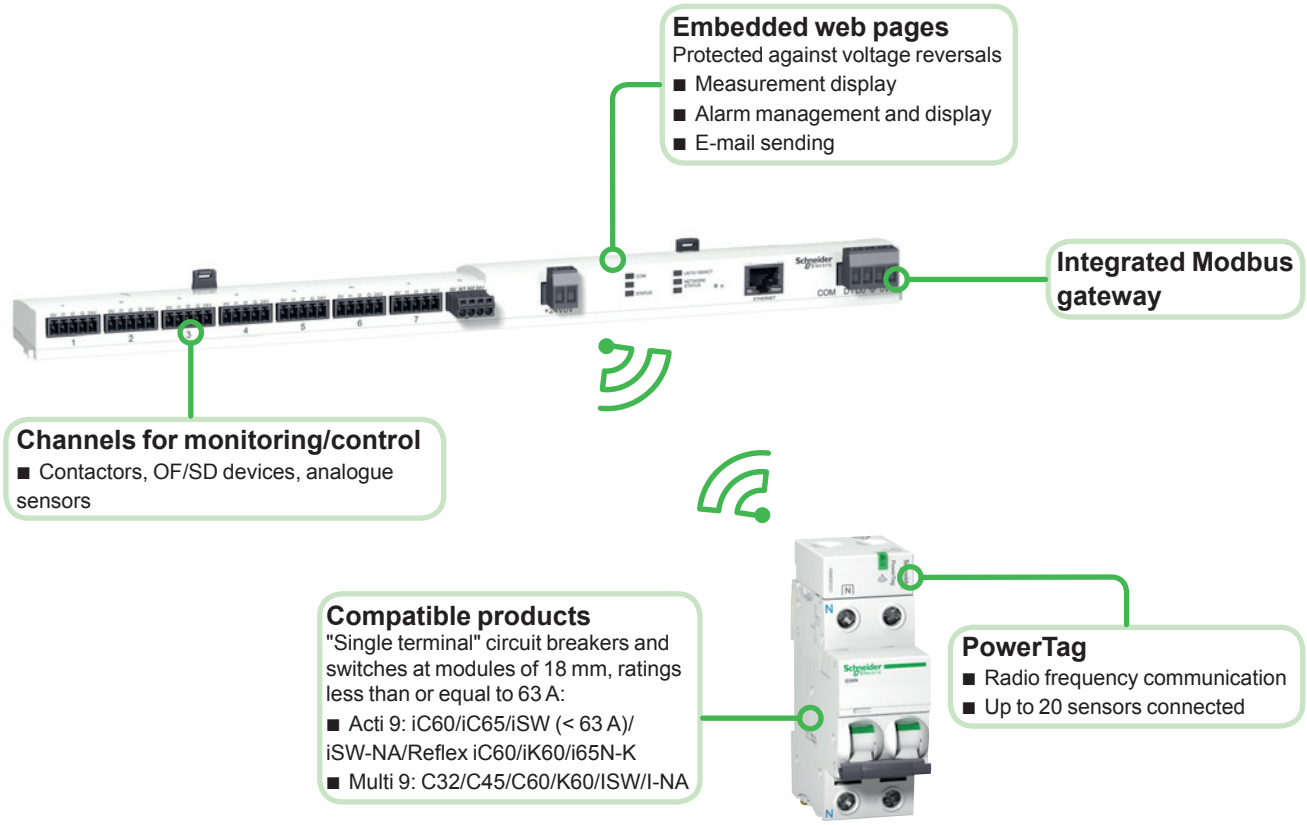
PowerTag

Type	Type of mounting	Cat no.
1P	Top of bottom	**A9MEM1520**
1P + N	Top	**A9MEM1521**
	Bottom	**A9MEM1522**
3P	Top of bottom	**A9MEM1540**
3P + N	Top	**A9MEM1541**
	Bottom	**A9MEM1542**

PowerTag

Measurement and monitoring and control

Acti 9 Smartlink SI B

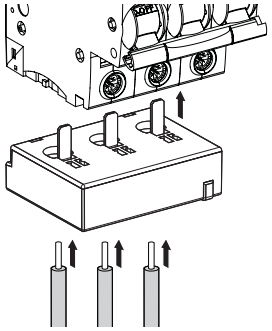


PowerTag

Technical characteristics

Main Characteristics			
Rated voltage	Un	Phase-to-neutral	230 V AC
		Phase-to-phase	400 V AC
Measuring input supply voltage			Un ± 20 %
Frequency			50/60 Hz
Maximum operating current	Imax		63 A
Current peak factor			2.2 at Imax
Maximum consumption			⩽ 2 VA
Starting current	Ist		50 mA
Base-load current	Ib		10 A
Additional characteristics			
Operating temperature			-25 to +60 °C
Storage temperature			-40 to +85 °C
Overvoltage category			III
Measuring category		As per IEC 61010-2-30	III
Pollution degree			3
Altitude			⩽ 2000 m
Degree of protection		Device only	IP20
		Device in modular enclosure	IP40 Insulation class II
		IK	05
Tropicalization			Treatment 2 (relative humidity of 93 % at 40°C)
Radio-frequency communication			
ISM band 2.4 GHz			2.4 to 2.4835 GHz
Channels		As per IEEE 802.15.4	11 to 26
Isotropic Radiated Power		Equivalent (EIRP)	0 dBm
Maximum transmission time			< 5 ms
Channel occupancy		For 1 device	Sending of messages every 5 seconds
Characteristics of measuring functions			
Function		**Performance category as per IEC 61557-132**	
Active power	P	1	10 W to 63 kW
Active energy	Ea	1	Total and partial 0 to 99999999.9 kWh
Current	I	1	2 A to 76 A
Voltage	U	0.5	Un ± 20 %
Power factor, cos phi	PFA	1	0 to 1

Connection

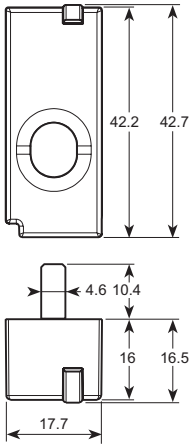


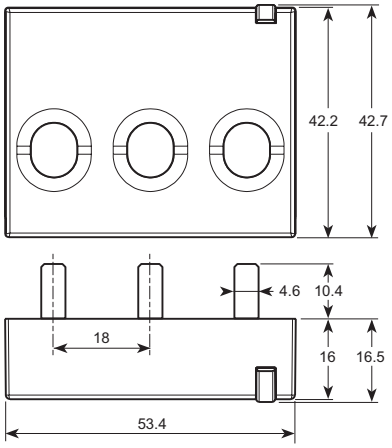
Stripping length	Copper cables					
	Rigid		Flexible		Flexible with ferrule	
						
18 mm (1)	1.5 to 16 mm²	2 x 1.5 to 2.5 mm²	1.5 to 16 mm²	2 x 1.5 to 2.5 mm²	-	-
18 mm	-	-	-	-	1.5 to 16 mm²	2 x 1.5 to 2.5 mm²

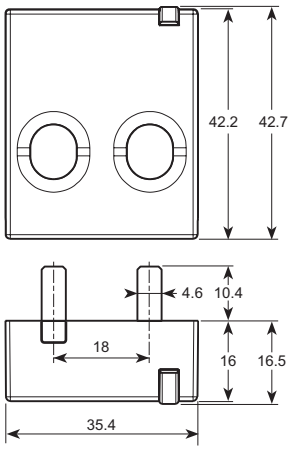
■ Mounting with 18 mm ferrule recommended.

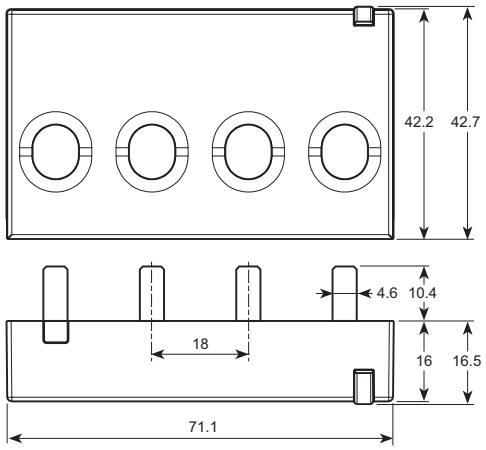
(1) Without a ferrule, mounting is performed by complying with the stripping lengths indicated on the associated products.

Dimensions (mm)









Weight (g)

PowerTag	
Type	
1P	16.4
1P + N	17.5
3P	28
3P + N	35

IFM
Modbus interface

IFM Modbus communication interface.
Ref.: TRV00210.

Function

A IFM - Modbus communication interface - is required for connection of a Masterpact NW, NT or Compact to a Modbus network as long as this circuit breaker is provided with a ULP (Universal Logic Plug) port. The port is available on respectively a BCM ULP or BSCM embedded module.

Note: *The IFM is defined as an IMU (Intelligent Modular Unit) in the ULP connection System documentation.*

Once connected, the circuit breaker is considered as a slave by the Modbus master. Its electrical values, alarm status, open/close signals car be monitored or controlled by a Programmable Logic Controller or any other system.

Characteristics

ULP port

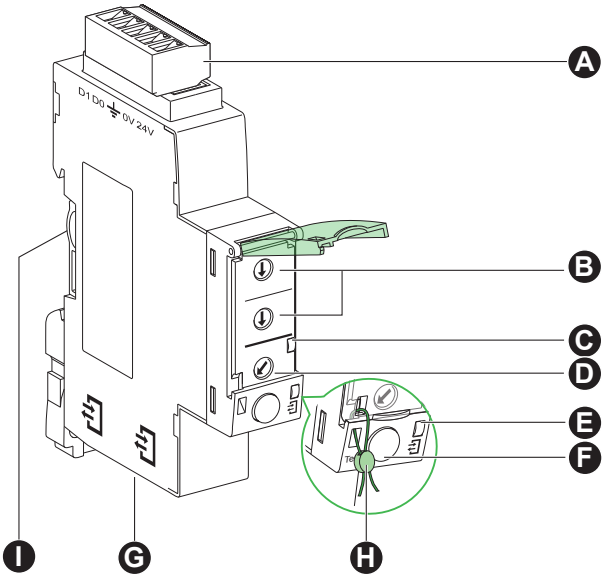
2 RJ45 sockets, internal parallel wiring.
- Connection of a single circuit breaker (eventually via its I/O application module).
- A ULP line terminator or an FDM121 display unit must be connected to the second RJ45 ULP socket.

The RJ45 sockets deliver a 24 V DC supply fed from the Modbus socket.
Built-in test function, for checking the correct connection to the circuit breaker and FDM121 display unit.

Modbus slave port

- Top socket for screw-clamp connector, providing terminals for:
  - 24 V DC input supply (0 V, +24 V)
  - Modbus line (D1, D2, Gnd).
- Lateral socket, for Din-rail stackable connector.

Both top and lateral sockets are internally parallel wired.
- Multiple IFM can be stacked, thus sharing a common power supply and Modbus line without individual wiring.
- On the front face:
  - Modbus address setting (1 to 99): 2 coded rotary switches
  - Modbus locking pad: enables or disable the circuit breaker remote control and modification of IFM parameters.
- Self adjusting communication format (Baud rate, parity).



- A *Modbus screw clamp connector*
- B *Modbus address switches.*
- C *Modbus traffic LED*
- D *Modbus locking pad*
- E *ULP activity LED*
- F *Test button*
- G *Mechanical lock*
- H *ULP RJ45 connectors*
- I *Stacking accessory connection*

IFM
Modbus interface

Catalogue numbers

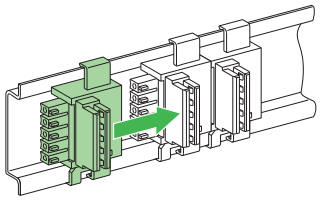
IFM Modbus communication interface		
Type	**Set of**	**Cat. no.**
IFM -Modbus communication interface module	-	**TRV00210**
Stacking accessories if more than 1 IFM	10	**TRV00217**
ULP line terminator	-	**TRV00880**
2-wire RS 485 isolated repeater module (Modbus network outside the switchboard)	-	**TRV00211**

Technical characteristics

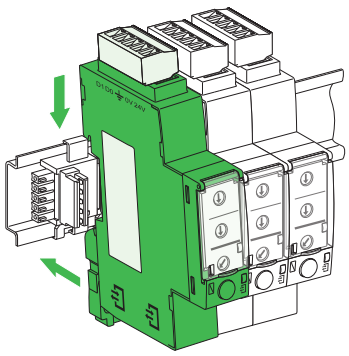
IFM Modbus communication interface		
Dimensions		18 x 72 x 96 mm
Maximum number of stacked IFM		12
Degree of protection of the installed module	Part projecting beyond the escutcheon	IP4x
	Other module parts	IP3x
	Connectors	IP2x
Operating temperature		-25...+70°C
Power supply voltage		24 V DC -20 %/+10 % (19.2...26.4 V DC)
Consumption	Typical	21 mA/24 V DC at 20°C
	Maximum	30 mA/19.2 V DC at 60°C
Certification		
CE		IEC/EN 60947-1
UL		UL 508 - Industrial Control Equipment
CSA		No. 142-M1987 - Process Control Equipment ■ CAN/CSA C22.2 No. 0-M91 - General requirements - Canadian Electrical Code Part ■ CAN/CSA C22.2 No. 14-05 - Industrial Control Equipment

Simplified IFM installation

Staking IFM

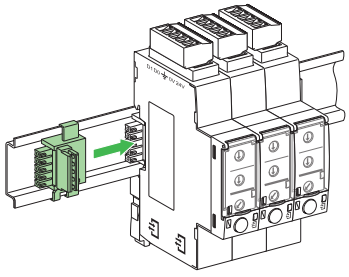


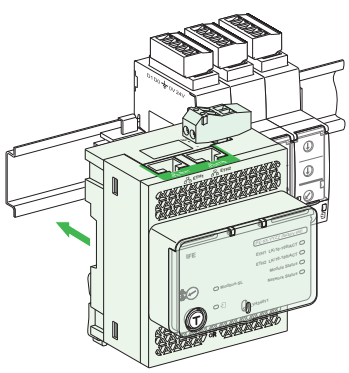
Stacking accessories



Up to 12 stacked IFM

Stacking an IFE switchboard server with IFMs





I/O application module

I/O (Input/Output) application module.
Ref.: LV434063.

Description

The I/O (Input/Output) application module for LV breaker is part of an ULP system with built-in functionalities and applications to enhance the application needs.
The ULP system architecture can be built without any restrictions using the wide range of circuit breakers.
The I/O application module is compliant with the ULP system specifications.
Two I/O application module can be connected in the same ULP network.

The ranges of LV circuit breakers enhanced by the I/O application module are:
- Masterpact NW
- Masterpact NT
- Compact NS1600b-3200
- Compact NS630b-1600
- Compact NSX100-630 A.

I/O (Input/Output) application module for LV breaker resources

The I/O application module module resources are:
- 6 digital inputs that are self powered for either NO and NC dry contact or pulse counter
- 3 digital outputs that are bistable relay (5 A maximum)
- 1 analog input for Pt100 temperature sensor.

Pre-defined applications

Pre-defined application adds new functions to the IMU in a simple way:
- selection by the application rotary switch on the I/O application module, defining the application with pre-defined input/output assignment and wiring diagram
- no additional setting with the customer engineering tool required.

The resources not assigned to the pre-defined application are free for additional user-defined applications:
- cradle management
- breaker operation
- cradle management and Energy Reduction Maintenance Setting (ERMS)
- light and load control
- custom.

User-defined applications

User-defined applications are processed by the I/O application module in addition to the pre-defined application selected.
The user-defined applications are available depending on:
- the pre-defined application selected
- the I/O application module resources (inputs and outputs) not used by the application.

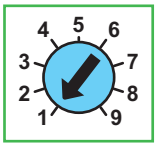
The resources required by user-defined applications are assigned using the customer engineering tool:
- protection
- control
- energy management
- monitoring.

Mounting

The I/O application module is a DIN rail mounting device.

Application rotary switch

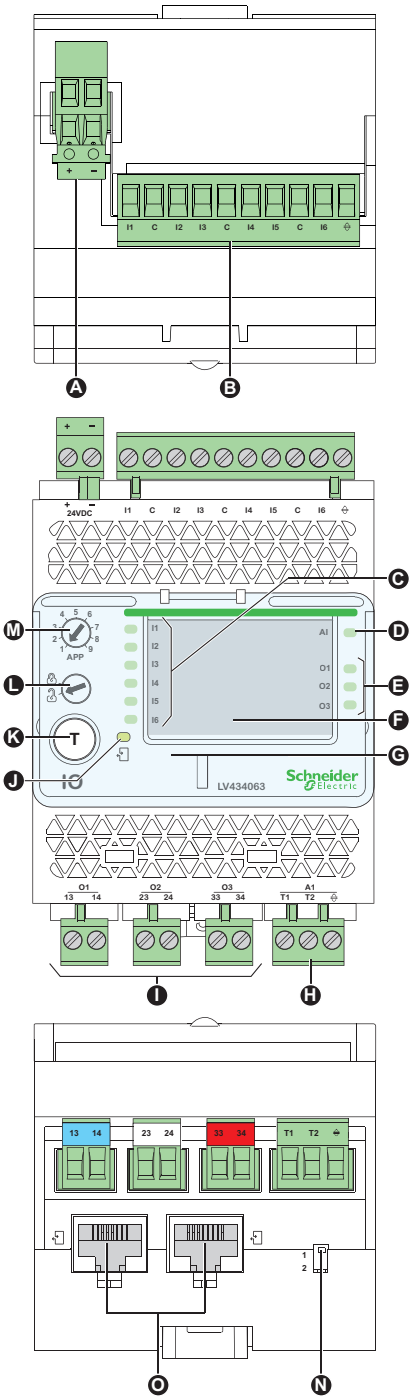
The application rotary switch enables the selection of the pre-defined application.
It has 9 positions and each position is assigned to a pre-defined application.
The factory set position of the switch is pre-defined application 1.



Setting locking pad

The setting locking pad on the front panel of the I/O application module enables the setting of the I/O application module by the customer engineering tool.

I/O application module



A *24 V DC power supply terminal block.*
B *Digital input terminal block: 6 inputs, 3 commons and 1 shield.*
C *6 input status LEDs.*
D *Analog input status LED.*
E *3 output status LEDs.*
F *I/O application module identification labels.*
G *Sealable transparent cover.*
H *Analog input terminal block.*
I *Digital output terminal blocks.*
J *ULP status LED.*
K *Test/reset button (accessible with cover closed).*
L *Setting locking pad.*
M *Application rotary switch: 1 to 9.*
N *Switch for I/O addressing (I/O 1 or I/O 2).*
O *ULP connectors.*

General characteristics

Environmental characteristics		
Conforming to standards	UL 508, UL 60950, IED 60950, 60947-6-2	
Certification	c UL us, GOST, FCC, CE	
Ambient temperature	-20 to +70 °C (-4 to +158 °F)	
Relative humidity	5–85 %	
Level of pollution	Level 3	
Flame resistance	ULV0	
Mechanical characteristics		
Shock resistance	1000 m/s^2	
Resistance to sinusoidal vibrations	5 Hz < f < 8.4 Hz	
Electrical characteristics		
Resistance to electromagnetic discharge	Conforming to IEC/EN 61000-4-3	
Immunity to radiated fields	10 V/m	
Immunity to surges	Conforming to IEC/EN 61000-4-5	
Consumption	165 mA	
Physical characteristics		
Dimensions	71.7 x 116 x 70.6 mm (2.83 x 4.56 x 2.78 in.)	
Mounting	DIN rail	
Weight	229.5 g (0.51 lb)	
Degree of protection of the installed I/O application module	■ On the front panel (wall mounted enclosure): IP4x ■ I/O parts: IP3x ■ Connectors: IP2x	
Connections	Screw type terminal blocks	
Technical characteristics - 24 V DC power supply		
Power supply type	Regulated switch type	
Rated power	72 W	
Input voltage	100–120 V AC for single phase 200–500 V AC phase-to-phase	
PFC filter	With IEC 61000-3-2	
Output voltage	24 V DC	
Power supply out current	3 A	
***Note:** it is recommended to use an UL listed/UL listed recognized limited voltage/Limited current or a class 2 power supply with a 24 V DC, 3 A maximum.*		
Digital inputs		
Digital input type	Self powered digital input with current limitations as per IEC 61131-2 type 2 standards (7 mA)	
Input limit values at state 1 (close)	19.8–25.2 V DC, 6.1–8.8 mA	
Input limit values at state 0 (open)	0–19.8 V DC, 0 mA	
Maximum cable length	10 m (33 ft)	
***Note:** for a length greater than 10 m (33 ft) and up to 300 m (1,000 ft), it is mandatory to use a shielded twisted cable. The shield cable is connected to the I/O functional ground of the I/O application module.*		
Digital outputs		
Digital output type	Bistable relay	
Rated load	5 A at 250 V AC	
Rated carry current	5 A	
Maximum switching voltage	380 V AC, 125 V DC	
Maximum switch current	5 A	
Maximum switching power	1250 VA, 150 W	
Minimum permissible load	10 mA at 5 V DC	
Contact resistance	30 mΩ	
Maximum operating frequency	■ 18000 operations/hr (Mechanical) ■ 1800 operations/hr (Electrical)	
Digital output relay protection by an external fuse	External fuse of 5 A or less	
Maximum cable length	10 m (33 ft)	
Analog inputs		
The I/O application module analog input can be connected to a Pt100 temperature sensor		
Range	-30 to 200 °C	-22 to 392 °F
Accuracy	■ ±2 °C from -30 to 20 °C ■ ±1 °C from 20 to 140 °C ■ ±2 °C from 140 to 200 °C	■ ±3.6 °F from - 22 to 68 °F ■ ±1.8 °F from 68 to 284 °F ■ ±3.6 °F from 284 to 392 °F
Refresh interval	5 s	5 s


Resource Advisor
Overviews
Home » Overviews » Dashboard
Research
Plan
Manage
Report
Site Explorer
840276 SarasotaPlant Florida
2250 Whitfield Avenue East
Sarasota, FL 34243-9703
Site Detail
Contracts
Invoices
Documents
Cost & Usage
Budget Report
Projects
Site Energy Spend YTD:
Electric Power $364,006
Natural Gas $125,789
YTD Cost
$489,795
YTD Budget Variance
$71,006
Site Search
Search:
Cheltenham, GBR
Natural Gas
mmbtu
Cost & Usage
Emissions
Invoice Participation
Resource Advisor has received 85% of the current invoices for September through August.
In order to accurately report metrics and savings, Resource Advisor requires a high percentage of participation.
85%
Emissions Variance

Design and monitoring software Maintenance mobile application

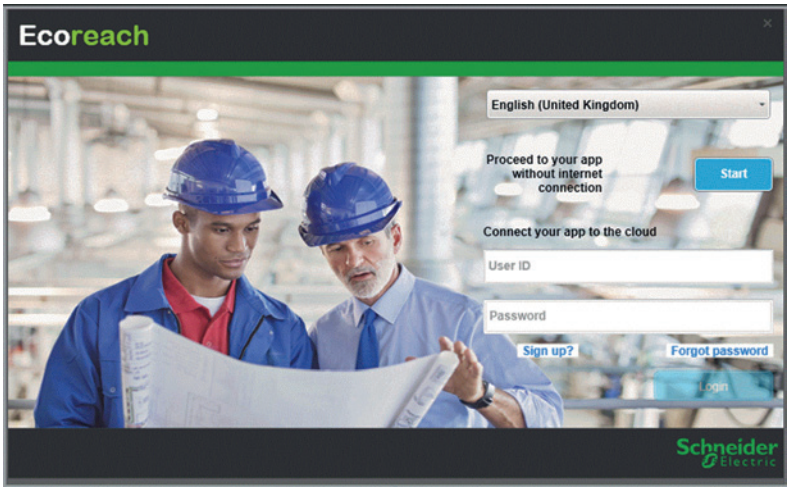
Digitized electrical distribution management software

Ecoreach is dedicated to electrical asset management. It brings great support during build, commission and maintenance phases of Smart Panels projects.

Office or onsite: setting preparation of multiple digitized panels of a single installation (circuit breakers and Enerlin'X communication interfaces…).

Onsite: simultaneous dialogue with panels via LAN for commissioning and testing. Automatic report generation.

Projects database: saved in a secure cloud account.



Panel design and build

- Offline design of electrical distribution architectures: electrical and communication devices description with their ratings and settings.
- Save as a new project: architecture and all related documents (of any file types).
- Projects library management: save, load project.
- Reuse of existing project: modify, save as a new project.

Devices commissioning

- Automatic discovery of devices in a digitized switchboard.
- Settings download, upload.
- Communication tests.
- Automatic communication report generation.

Circuit breakers commissioning

- Trip units settings download.
- Online checks, tests.
- Automatic report generation.

Ecoreach

Operation and Maintenance

- Devices monitoring and control.
- Measurement parameter logs.
- Log reports.
- Download of current devices settings, compare with previous settings saved in Ecoreach.
- Firmware upgrade and compatibility matrix.

Compatibility

Devices

Configuration of below devices through the range of Enerlin'X interfaces devices.

- Circuit breakers: Masterpact NT/NW, Compact NSX ranges.
- Circuit breakers and control components: Acti 9 range.

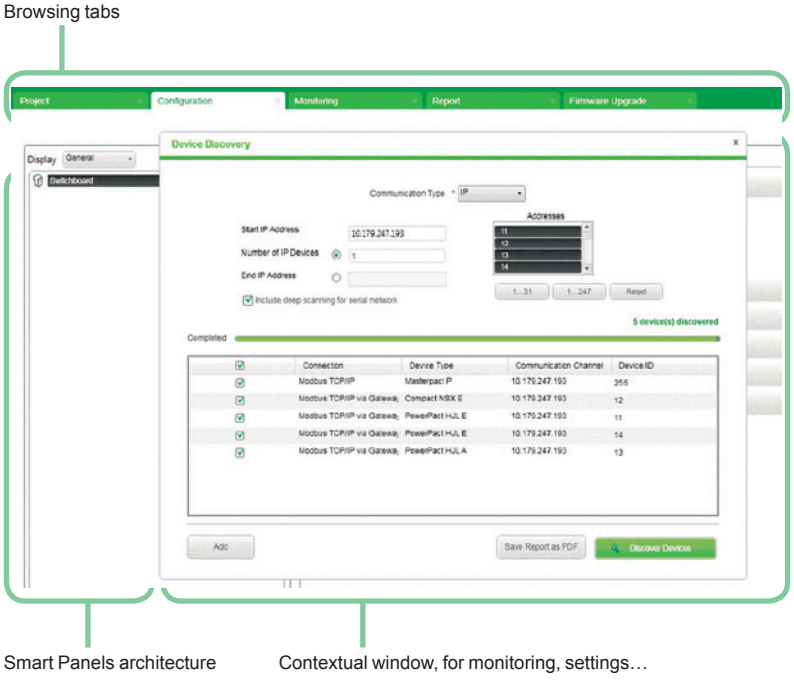
Ecoreach software for PC

- Compatible with Windows XP pro, Windows Seven.

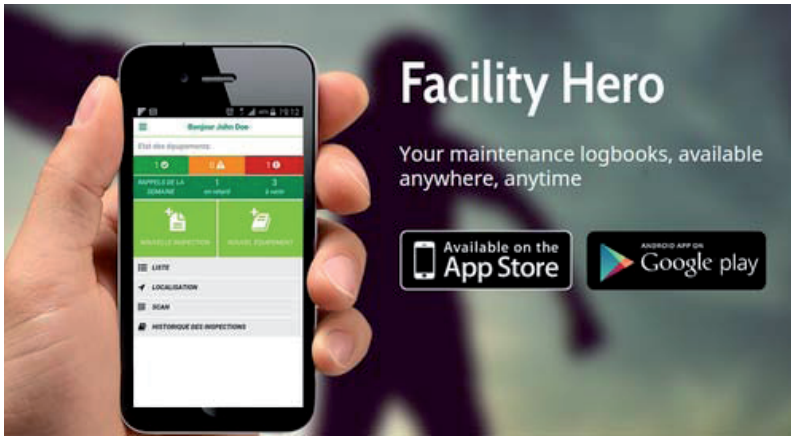
Catalogue numbers

Project design, commission, operation & maintenance software	
Ecoreach electrical asset management software	CR_ECOREACH_TS

Example of Ecoreach win



Facility Hero



What's the Facility Hero?

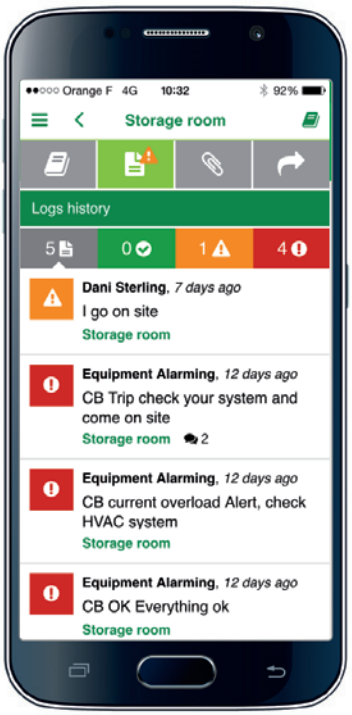
Facility Hero is an efficiency tool for maintenance technician communities.
Facility Hero is a smart maintenance log book that can be accessed from any smartphone, tablet, or computer. Because of its 100% cloud based technology, Facility Hero works just as well with 3G, WiFi, or off line.

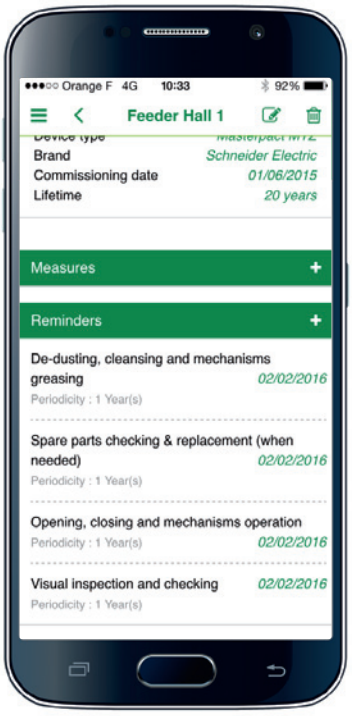
This collaborative, connected system keeps maintenance technicians in the field in constant contact with their maintenance community: manager, customer, contractors and peers for fast and effective interventions.

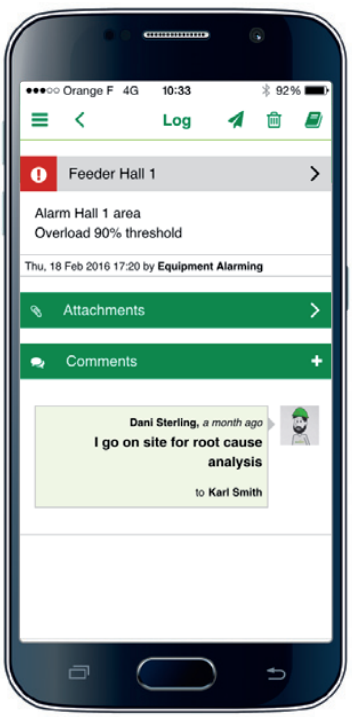
Facility Hero uses full multimedia power of smartphones. A job report can be done on site without even typing a word!

Simple and clear display

Examples of alarms, maintenance program, commented log pages







Facility Hero

For Technicians

Make your intervention reports in a minute

With Facility Hero, you can dictate text, take pictures and videos, and add voice memos effortlessly. Facility Hero records your report directly in the appropriate maintenance log and fills in the log data: who, time, date, operating status, etc.

Everything you need on site

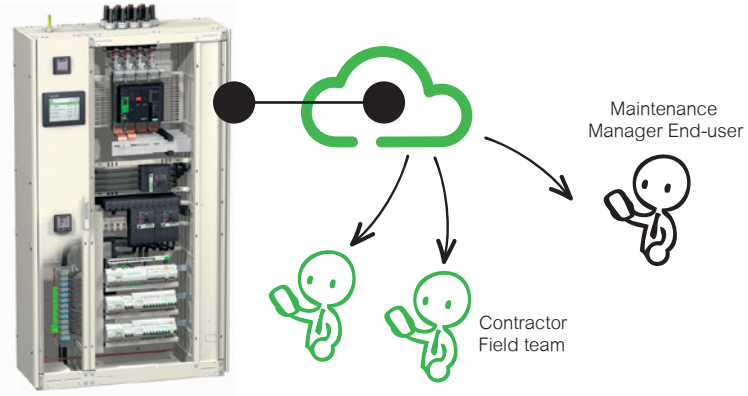
A QR code on the facility is used for direct access to the appropriate maintenance log.
The maintenance log is in your pocket. It contains the facility datasheet, failure history, servicing technicians, essential instruction manuals, etc.

Nothing left out! Nothing lost!

Define periodic and specific operations, as well as readings to be taken during each visit. They will be listed for you when you open the log.
All information entered is replicated in a secured area available any time, any place.

Contact yout coworkers directly

To get some help or to fix a failure, email notifications will be sent to inform peers. The exchanges will be recorded into the maintenance log in order to track the incident history.



And for their manager

Build your knowledge base as you go along

Decide who can access which log: your teams, your customers, a subcontractor, etc. Each member of the community contributes by adding information they consider useful: instruction manual, photo, video, etc. The log gets bigger and better as time goes on and becomes your business memory.

Know the operating status of installed facilities at all times

With Facility Hero, you can view, the status of all facilities at a glance through indicators or simply on a map.

Organize jobs according to the last emergencies

You will be immediately notified of any problem reported by your teams onsite. You may even choose to receive alerts about the most critical problems for your customers.

Add advice to your value proposition

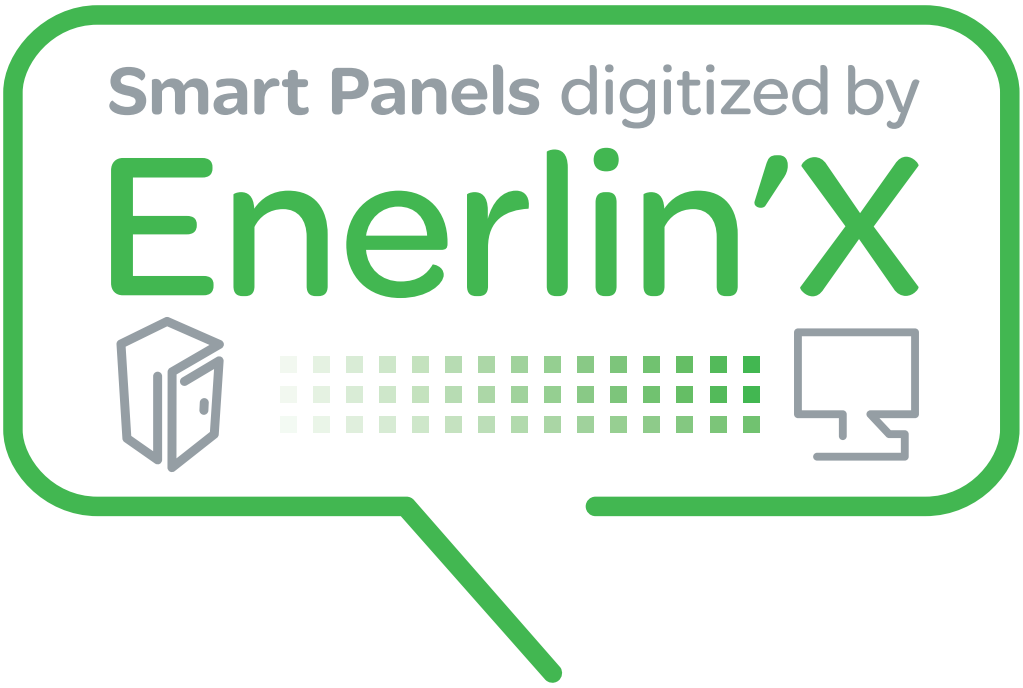
Your team demonstrates professionnalism: with access to historical data, you can make simple failure analyses and differentiate yourself by giving advice on predictive maintenance.

To download the free version of Facility Hero:

> On Apple store:

> On GooglePlay:

Access to a demo of Facility Hero:


Smart Panels digitized by
Enerlin'X

Index of commercial references

Meters and auxiliaries overview for 'Measure' functions

Energy meters

Type	Pulse output			Modbus	Wireless
					
Series	iEM2000T, iEM2010	iME1zr	iEM3110, iEM3210	iEM315x, iEM325x, iEM335x	PowerTag

Multifunction meters

Type	Pulse output	Multichannel counting Ethernet	Modbus				Alarm Ethernet
							
Series	PM200P	EM4800	ION6200	PM3000	PM5350	PM800	ION7300

Circuit breakers with built-in power meter

Series		
		
Compact NSX + Micrologic E	Masterpact + Micrologic E, H, P	Masterpact MTZ + Micrologic X

Acti 9 auxiliaries for connection to Smartlink

Type	Circuit breaker monitoring		Actuator monitoring and remote control		
					
Series	iOF+SD24	OF+SD24	iATL 24	iACT 24	RCA iC60

Compatible counters, power meters (old ranges)

Pulse counters

ME1Zr, ME3zr, ME4zr, PM9p, PM200p, EN40 P

Power meters – Modbus exchange protocol

PM9c, PM500 series, PM700 series, PM1200, EM6400 series

Other devices

Analog sensors

RTD (Pt100, Pt1000)
4...20 mA sensor
0...10 V sensor

Series Modbus / TCP/IP Modbus gateways

EGX100 - EGX300

Index of commercial references

Product	Description	Lot of	Commercial ref.
Interfaces + gateways			
Com'X 200 Ethernet data logger			**EBX200**
Com'X 210 Ethernet Energy data logger			**EBX210**
Com'X 510 Ethernet Energy server			**EBX510**
IFE switchboard server			**LV434011**
Acti 9 Smartlink Ethernet			**A9XMZA08**
Interfaces			
Acti 9 Smartlink Modbus			**A9XMSB11**
IFM			**TRV00210**
IFE interface			**LV434010**
eIFE interface			**LV851001**
I/O module			
I/O			**LV434063**
Displays			
FDM128 Ethernet switchboard display			**LV434128**
FDM121 switchboard display			**TRV00121**
Accessories for Com'X200, 210, 510			
	GPRS Modem		**EBXA-GPRS**
	Aerial for GPRS modem		**EBXA-ANT-5M**
	Wi-Fi USB modem		**EBXA-USB-WIFI**
	Com'X GPRS interface SIM card		**EBXA-GPRS-SIM**
	Com'X GPRS interface		**EBXA-GPRS**
	Com'X Zigbee USB interface		**EBXA-USB-zigbee**
Accessories for Acti 9 Smartlink			
USB cable link / Modbus	for Acti 9 Smartlink test	1	**A9XCATM1**
Prefabricated cables 2 connectors	Length: 100 mm	6	**A9XCAS06**
	Length: 160 mm	6	**A9XCAM06**
	Length: 450 mm	6	**A9XCAH06**
	Length: 870 mm	6	**A9XCAL06**
Prefabricated cables 1 connector	Long: 870 mm	6	**A9XCAU06**
Connectors	5-pin connectors (Ti24)	12	**A9XC2412**
Mounting kit	DIN rail (4 feet, 4 straps, 4 adapters)	1	**A9XMFA04**
	Linergy FM 200 A (4 adapters)	1	**A9XM2B04**
Spare parts	Lock for Linergy FM 80 A (2 clips)	1	**A9XMLA02**
Connection adapters for Acti 9 components			
iACT24	Low-level control and indication auxiliary for iCT contactors		**A9C15924**
iATL24	Low-level control and indication auxiliary for iTL impulse relays		**A9C15424**
iOF+SD24	Low-level indication auxiliary for iC60, iID, ARA, RCA, iSWNA		**A9A26897**
OF+SD24	Low-level indication auxiliary for C60, C120, DPN, RCCB/ ID, C60H-DC		**A9N26899**

Life Is On | Schneider Electric

Schneider Electric Industries SAS

35, rue Joseph Monier
CS 30323
92506 Rueil Malmaison Cedex
France

RCS Nanterre 954 503 439
Capital social 896 313 776 €
www.schneider-electric.comApril

September 2016
LVCATENLX_EN