



EcoStruxure Power connected products
Catalogue 2018



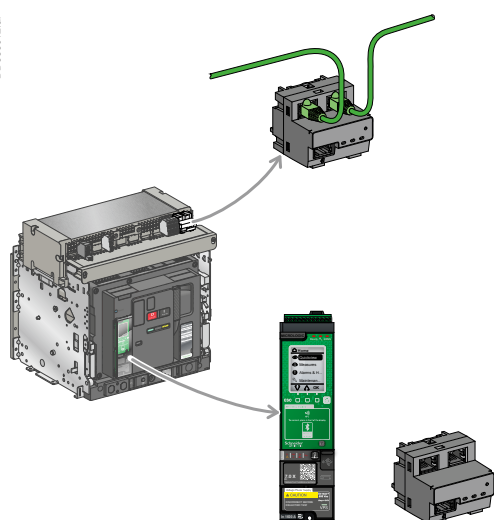
Focus on



Connected circuit breaker

with EIFE Ethernet add-on module for new drawout Masterpact MTZ

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Ethernet connection with EIFE Ethernet 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 Ethernet, with extended possibilities (refer to Masterpact MTZ catalogue).



Connected metering and space saving

with PowerTag + Acti9 Smartlink SIB or Acti9 Smartlink SI D Ethernet wireless system

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Acti9 Smartlink SI B
Ethernet wireless



Acti9
Smartlink SI D



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Compact NSX
+ PowerTag



Acti9 circuit breaker
+ PowerTag

<Sans lien d'intersecion>



PowerTags power meters measure electrical values across the load circuit.

They can be plugged directly into any Compact NSX, Acti9 circuit breakers and Multi9 or Acti9 switches.

Data from multiple meters is centralized in a Acti9 Smartlink SI B or Smartlink SI D Ethernet gateway, wirelessly and sent to a supervision system through Ethernet.

- PowerTag for Acti9 & Multi 9 rating:
current up to 63 A with Class 1 current transformer accuracy – Power - Class 1 energy metering.
- PowerTag for Compact NSX rating:
Voltage, current, power, energy, frequency, power factor
4 to 250 A / 10 to 630 A – Class 1 accuracy.

Focus on

Simple and real-time operation with connected gateways and servers



Acti9 Smartlink SI B Ethernet



IFE switchboard server

Gateways (Acti9 Smartlink SI B Ethernet) and switchboard server (IFE) provide valuable information through a common media: Ethernet.

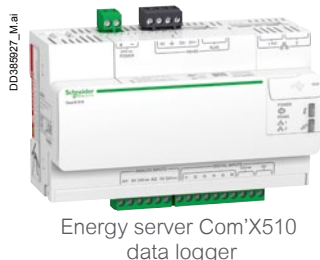
Locally and from the distance, any authorized operator gets a clear vision of the building or process.

Vital values (temperature, pressure, electrical, etc.)

and operational status are displayed on his Smart Panel interface.

Necessary actions can be taken immediately.

Optimized energy and operation monitoring with 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 an important part of an entry level energy management system, used to collect and store building data.

- Aggregation of WAGES (Water, Air, Gas, Electricity, and Stream).
- Environmental parameters (Temperature, Humidity, CO₂).

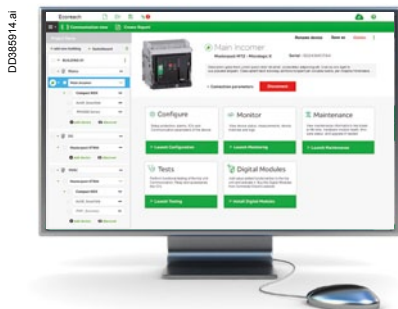
Com'X 510 provides access to reports such as on-board device and circuit summary pages, as well as on-board data logging.

Data can be securely accessed in real time or transmitted as a report to an Internet database server.

IFE 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.

Focus on

Quicker, easier Smart Panel projects with Ecoreach software

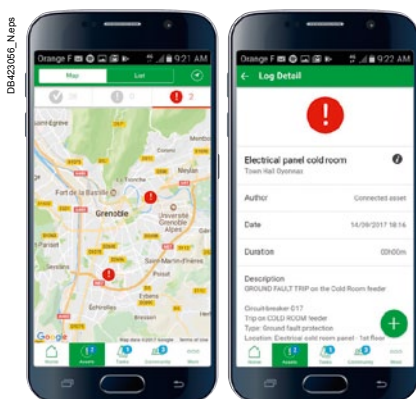


Ecoreach software for PC is an invaluable tool during commissioning, testing and maintenance phases of the project life cycle.

Thanks to its connected devices automatic discovery, communication tests and other functions, a lot of time can be saved and errors minimized.

Ecoreach generates reports and creates a repository of projects in the Cloud.

Improved maintenance team efficiency with EcoStruxure™ Facility Expert



EcoStruxure™ Facility Expert helps facility managers and maintenance teams keep key assets up and running and improve maintenance efficiency.

Whether EcoStruxure™ Facility Expert is used on a smartphone, tablet, online or offline, it will greatly simplify operation & maintenance:

- automated notifications in case of an issue, see where the problem is and quickly implement corrective actions
- immediate access to all data needed to maintain assets efficiently (operations history, maintenance plan, technical documentation), from anywhere
- information sharing with the maintenance team in real time for more efficient, traceable troubleshooting.

EcoStruxure™ Facility Expert gathers data, generates maintenance reports, stores and sends them to the right person.

Energy performance follow-up and improvement with EcoStruxure™ Facility Expert



EcoStruxure™ Facility Expert helps business owners and site managers reduce their energy costs.

On a web portal, it gives insights into energy data and provides you the visibility you need to reduce energy consumption.

Facility managers get a clear vision on real-time energy consumption for all managed sites from any location.

Advanced management functions are provided: energy allocation per zone and usage, performance comparison with relevant indicators, overrun power demand tracking. With EcoStruxure™ Facility Expert, organizations can easily comply with ISO 5001 and buildings meet quality certification such as LEED, Nabers...

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Act

Connect

Measure

Protect

EcostruXure™ Power
brings building energy
under control



EcoStruxure™ delivers Innovation at Every Level:

From connected products to edge control, and apps, analytics and services on six domains of expertise – Power, IT, Building, Machine, Plant, and Grid – EcoStruxure™ delivers enhanced value around safety, reliability, operational efficiency, sustainability, and connectivity to our customers.

EcoStruxure Facility Expert and Facility Advisor are two key contributors to the EcoStruxure Power platform. An edge control solution, Facility Expert is a suite of cloud-based software that offers operation monitoring and information sharing, contributing to business continuity while reducing energy and maintenance costs.

Deliver even more with EcoStruxure Facility Advisor – a powerful service combining advanced building analytics and expert advice from Schneider Electric professionals. Identify higher potential savings, make informed decisions, and provide data-based recommendations for your customers. Reach unparalleled building performance and operational efficiency as a Schneider Electric partner.

Unleash the full potential of your electrical panels and energy management system by connecting latest hardware with innovative software and services – like Facility Expert and Facility Advisor – helping you to optimize operations, save energy, and improve efficiency where it counts.

EcoStruxure™ Power empowers you for the future

EcoStruxure™ Power gives you a complete solution approach to:

- Deliver more reliable and efficient power
- Protect your assets, processes, and people
- Provide tailored, future-ready solutions for the new digital economy
- Enable new services in energy and operation management
- Create new business opportunities for your company

EcoStruxure™ has been deployed in 480,000+ sites, with the support of 20,000+ system integrators and developers, connecting over 1.6 million assets under management through 40+ digital services.

As a partner of Schneider Electric, **grow your business** by adding valuable new services while increasing customer satisfaction and retention.



Ethernet-READY SMART PANELS

Ethernet-ready Smart Panels enable electrical distribution control and expertise. 'Protect' - 'Measure' - 'Connect' are the 3 pillars of their technology.

Smart Panels digitized by

Enerlin'X



Act

Connect

Give a voice to the panel

Ethernet network data transmission is now part of the intrinsic design of protection and metering devices.

Measure

Keeping a close eye on energy flows

The switchboard plays a key role in capturing building related data, by gathering the protection and metering component's data.

Protect

Electrical protection is at the core of Smart Panels

High-performance technology is present in every breaker and every residual current device.



PE115755_M1pad

>> FUTURE TIME SAVINGS, PEACE-OF-MIND

Access to Smart Panel status and values are important for taking advantage of monitoring and management services, locally or remotely.

Act in small/medium buildings

with FDM128, Com'X 510, PowerView, EcoStruxure™ Facility Expert

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Electrical device monitoring and control with FDM128, locally



Optimizing energy-efficiency

- Visualize, record energy consumption and WAGES
- Comply with regulations

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Com'X 510 web pages direct display, or Cloud based pages from other devices with PowerView.



Improving continuity of service

- Get instant notifications
- Manage with assets-maintenance platform
- Get and analyze data for quick crisis-recovery

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Distance management with EcoStruxure™ Facility Expert on Smartphone, tablet, PC



Increasing maintenance efficiency

- Operate preventive maintenance tools
- Follow maintenance & planning
- Provide business owner instant access to maintenance reports

>> DAY-TO-DAY ENERGY MANAGEMENT

For simply dealing with building user's needs and energy constraints.
EcoStruxure™ Building Management provides electrical management, monitoring
and energy accounting.

Act in large non-critical buildings

with EcoStruxure™ Energy Expert



Managing equipment & key assets

- Check operating status, faults on custom one-line diagrams



Monitoring electrical network

- Observe voltage disturbances, harmonics on graphics
- Read power factor



Accounting energy

- Record power meter data on dashboards
- Allocate energy consumption with costs
- Follow conservation goals

>> POWER AVAILABILITY & QUALITY, ENERGY PERFORMANCE

Energy decisions are often crucial in large critical buildings.
EcoStruxure™ Power Monitoring Expert (software for PC) collects Smart Panels values to provide expert analysis.

Act in large critical buildings with EcoStruxure™ Power Monitoring Expert^[1]

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Analysing Power Events

- Helps speed up downtime crisis recovery
- Helps determine incident root cause, events sequence
- Helps troubleshoot power quality issues

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Monitoring Power quality

- Be alerted of equipment affected by power quality issue
- Compare power quality against industry standards
- Collect facts for future discussion with utility

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Analysing Energy Performance

- Evaluate building energy saving performance
- Identify underperforming loads
- Analyze Energy Conservation Measures (ECMs) according to an ISO50001 program



[1] EcoStruxure™ Power Monitoring Expert, <http://pmedemo.biz/web/>
ID: demo & Password: demo

MEASUREMENT AND PROTECTION DEVICES PORTFOLIO

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.



Energy meters

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 meters + Acti9 Smartlink SI B or SI D Ethernet Wireless solution brings new advantages:

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

Power supply and protection monitoring, class 1 embedded metering



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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. Masterpact MTZ Mobile App makes information from main breaker visible on a smartphone.



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Acti9 circuit breakers, residual current devices, surge arresters

Each Acti9 protection device also contributes to electrical supply reliability. Easy-to-fit auxiliaries transmit real-time status to the communication system and additional RCA modules enable digitally controlled resetting after a trip.

Circuit and load controls



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Acti9 contactors and impulse relays, remote controlled Compact and Masterpact

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

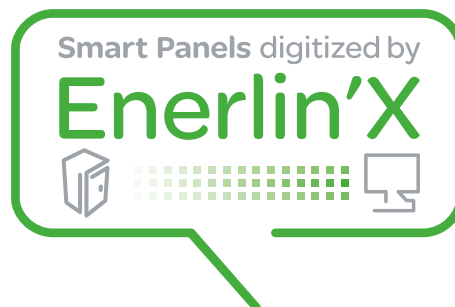
Ethernet-READY SMART PANELS

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Simply plug
the switchboard
to the Ethernet LAN

Ethernet is the most widespread communication protocol in professional buildings, providing fast data transmission. Today, switchboards can be connected via Ethernet like any other device through an RJ45 socket.



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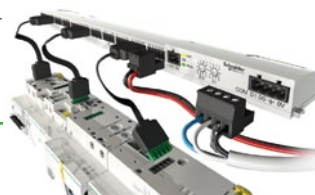
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Com'X 210 energy data logger

- Collects WAGES data from various devices throughout the building
- Delivers batches of data ready to be processed by EcoStruxure™ Facility Expert or any online service

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Acti9 Smartlink

Digital interfaces for Acti9, Compact NSX, or third-party devices

- Acti9 Smartlink SI B:
RF with PowerTag meters + Modbus master + Ethernet
- Acti9 Smartlink SI D:
RF with PowerTag meters + Ethernet Modbus TCP/IP
- Automatic e-mail sent upon events (configurable), status and alarms
- Embedded web pages for energy monitoring & control master

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

- grouping of similar functions in the smart components (e.g. Acti9 Smartlink)
- easy cabling, fast connection-disconnection
- space-savings in the enclosure.



Com'X 510 energy server

- Collects WAGES ⁽¹⁾ data from device sensors throughout the building
- Provides detailed and global views of energy consumption allowing to detect the most important savings opportunities accessible via a 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 serial or Ethernet
- Automatic e-mail sent upon configured events



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

SMART PANEL ARCHITECTURES



Tested, validated, documented architecture

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 Smart Panels 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



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

Assemble



Principles of digitized switchboard assembly. How to optimize space, electromagnetic compatibility and take advantage of Prisma system conveniences

Configure



Full description of component parameters. How to configure and test Smart Panel functionalities

SMART PANEL CONFIGURATION TOOLS

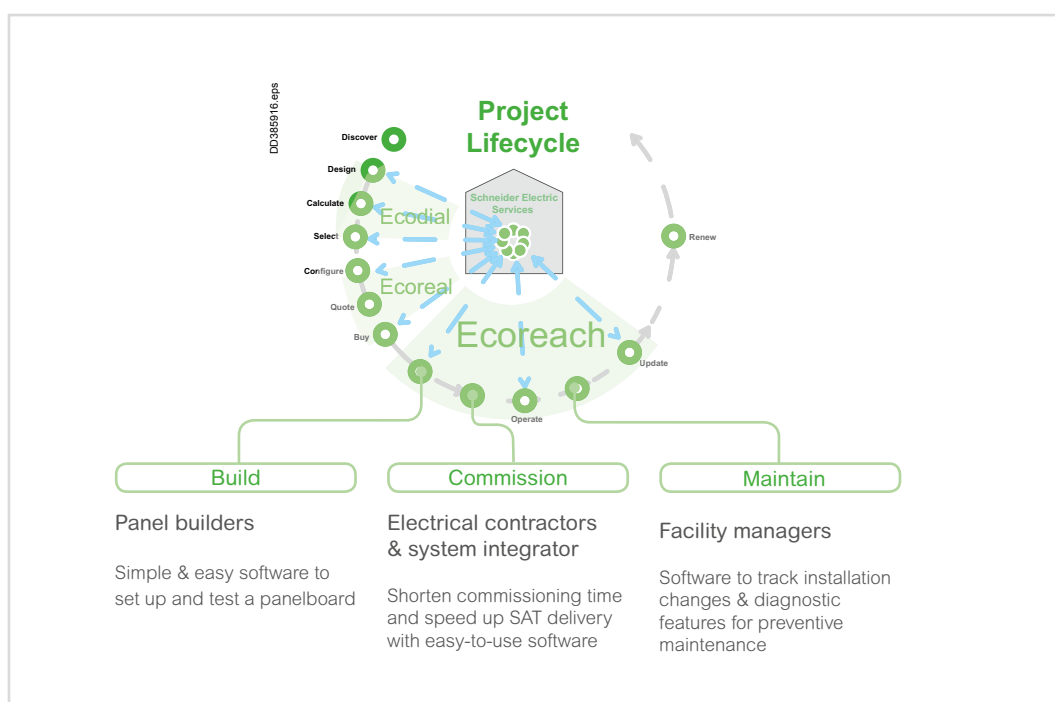


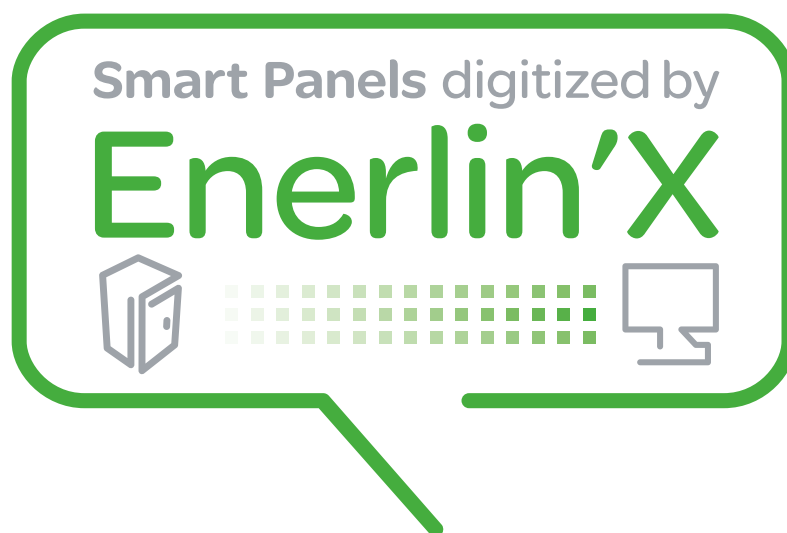
Ecoreach software: customer engineering tool

**As a part of the 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.





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

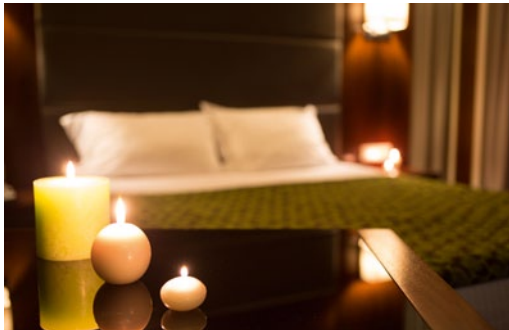
Our customer's challenge

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

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

Financial director





Increased comfort and security of guests

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

Comfort and security dashboards are widespread

Every staff member has continuous access to a real-time comfort and security dashboard showing:

- deep freezer temperature
- heating and air conditioning system key values
- 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

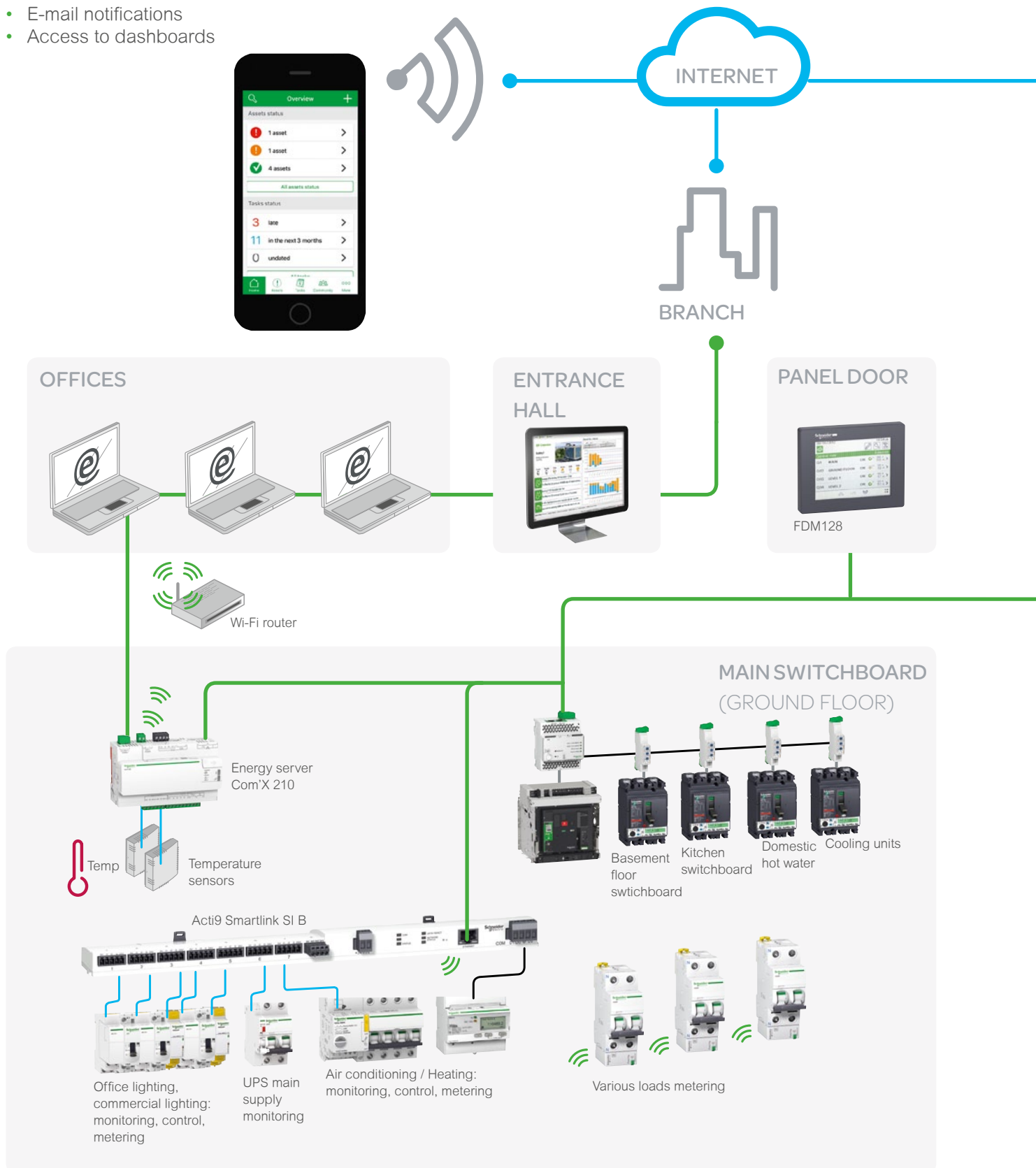
Screens inform guests of environment-friendly behaviors and display recent resource saving achieved thanks to their support and awareness.

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

Hotel director

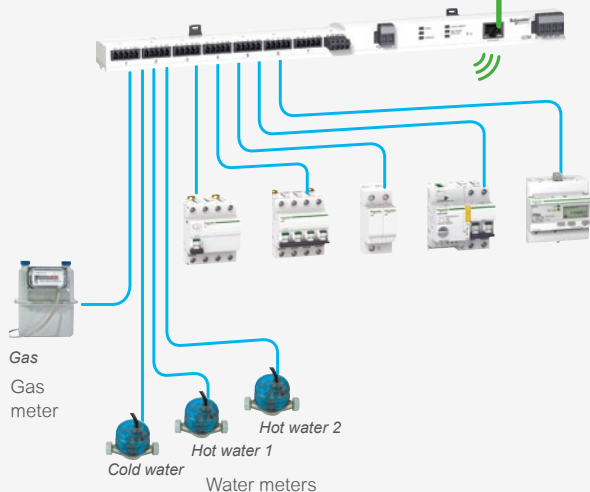
The solution architecture

- E-mail notifications
- Access to dashboards





KITCHEN & LAUNDRY



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

Corporate energy officer

GUEST FLOOR

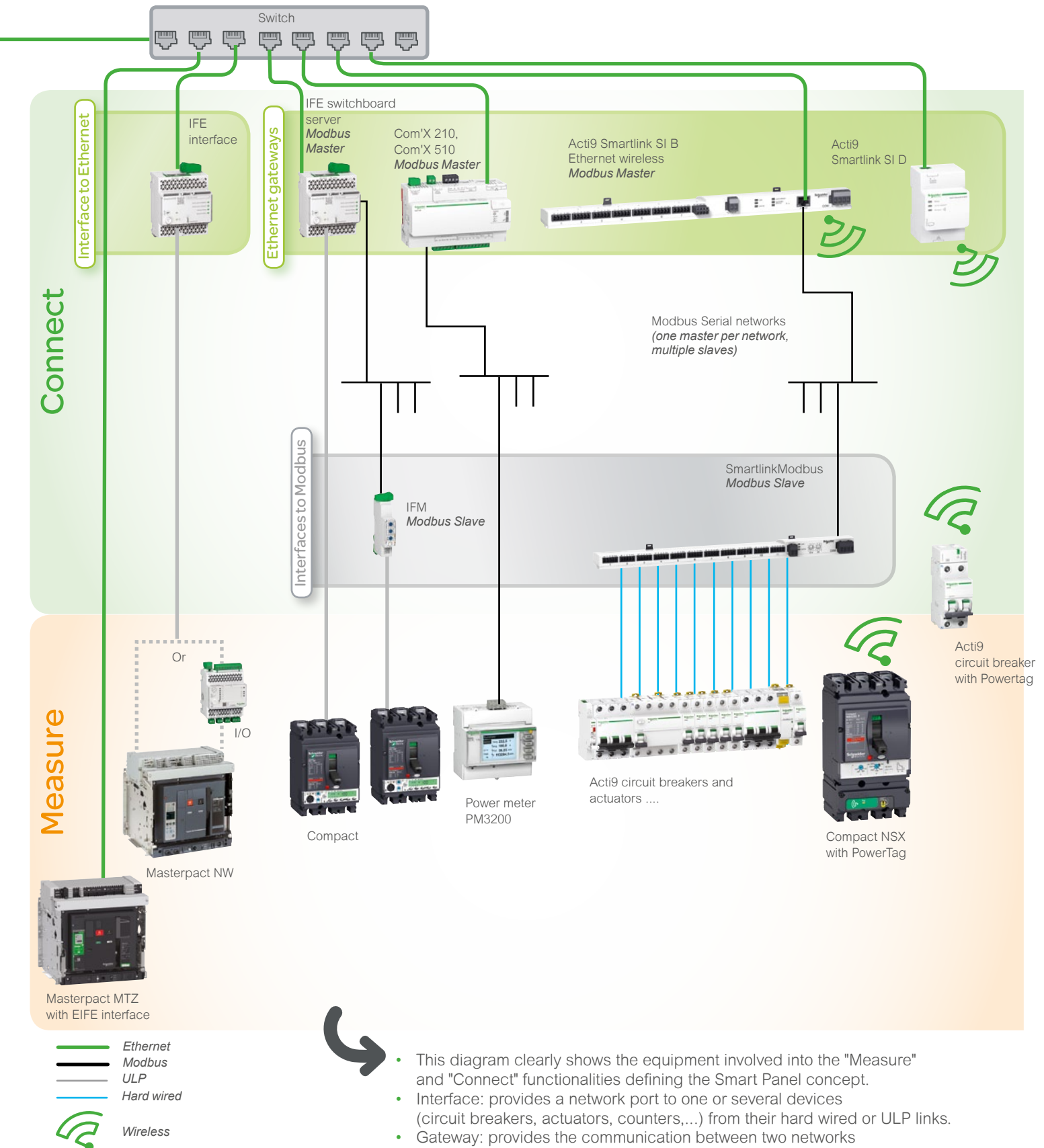


- Ethernet
- Modbus
- ULP
- Hard wired
- ⋈ Wireless



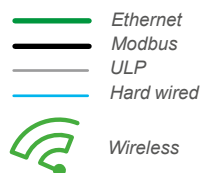
Smart Panel design

Communication architecture: global overview



- 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: provides the communication between two networks with different protocols (Ethernet and Modbus).

Communication architecture: examples

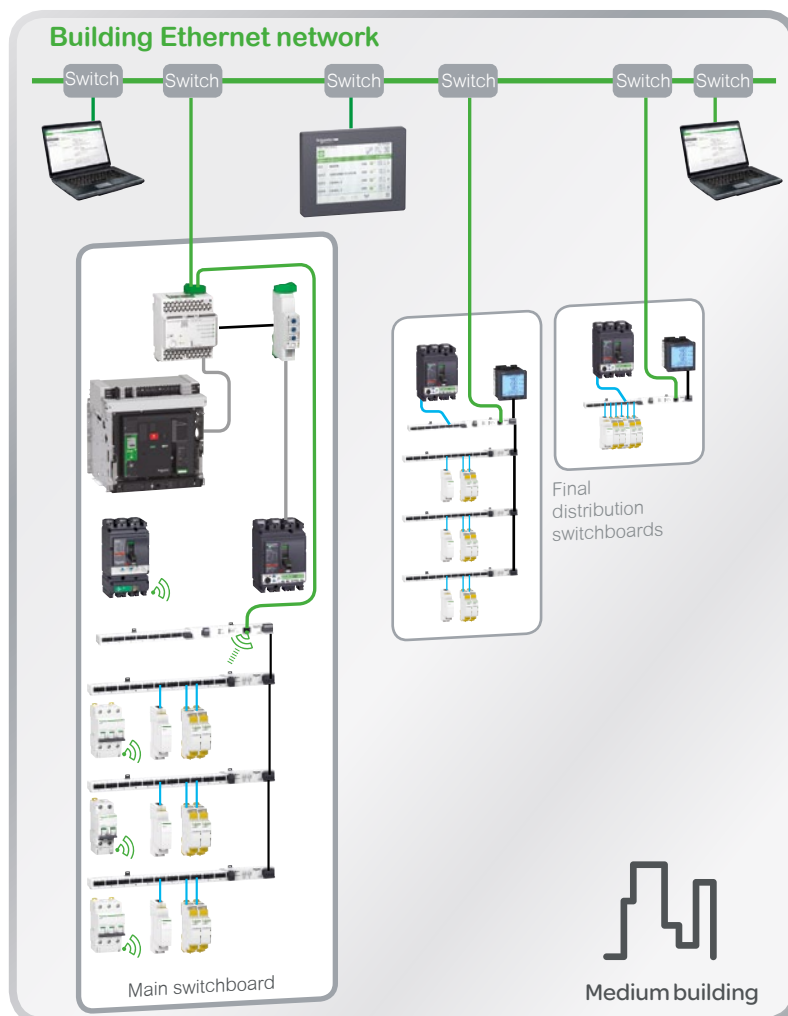


Unique switchboard:

Smartlink SI D acts as a wireless data concentrator: collects all PowerTag values and alerts, such as power loss on circuit breakers. The Com'X 210 acts as a 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 Acti9 Smartlink provides the monitoring and control of circuit breakers and actuators, the Acti9 Smartlink SI B Ethernet Wireless collects the PowerTags values on single - phase circuit breakers.

The main breaker 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 Acti9 Smartlink Modbus slaves are collected by the master, an Acti9 Smartlink Ethernet.

The IFE interface concentrates the data from:

- the Acti9 Smartlinks through an Ethernet liaison
- the IFM's through DIN rail connectors (see page 54)
- the main incomer through its ULP link.

Display

As the choice was made for a local monitoring and control, an LCD touch panel FDM128 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 Acti9 Smartlink Ethernet are displayed on it.

Final distribution switchboards

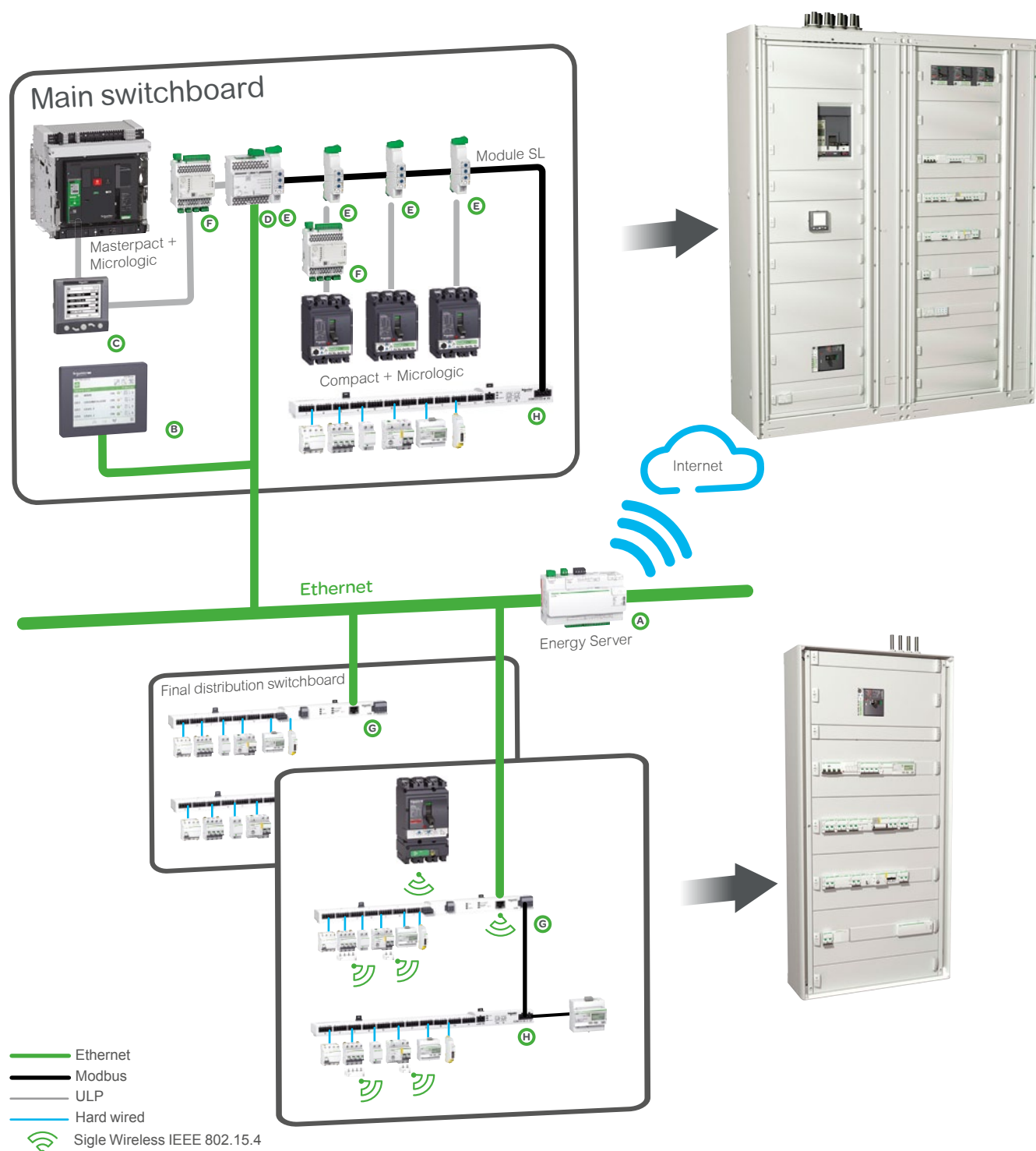
An Acti9 Smartlink SI B Ethernet provides the connection of each switchboard to the local Ethernet network. The same principle as in the main switchboards applies for the status and values monitoring.

Communication architecture: products and functions









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 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).



Communication architecture: products and functions

Communication & display components							
	Name	Function	Port (to device)	(to server)	Inputs	Outputs	Cial. Ref.
(A) 	Com'X 210	Energy data logger + Ethernet Gateway	Ethernet Modbus Master, wireless to meters	Ethernet cable + WiFi	64 devices: 6 binary 2 analog 32 Modbus devices + other Ethernet devices (Modbus TCP)	-	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	-	LV434002
	IFE interface	Ethernet interface for circuit breakers	ULP	Ethernet	1 circuit breaker	-	LV434001
	EIFE embedded interface	Ethernet interface for Masterpact MTZ drawout circuit breaker	ULP	Ethernet	1 circuit breaker	-	LV851001
(E) 	IFM	Modbus interface for circuit breaker	ULP	Modbus Slave	1 circuit breaker	-	LV434000
(F) 	I/O	Input/Output application module for circuit breaker	ULP	ULP	6 binary 1 analog (PT100 sensor)	3	LV434063
(G) 	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
(H) 	Acti 9 Smartlink Modbus slave	Modbus interface with Input/Output functions	-	Modbus Slave	22 binary	11	A9XMSB11

Ethernet Gateway or Interface: routes an internal traffic (ULP or other protocols) to the Internet, the outgoing messages are coded with Modbus TCP/IP protocol.

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

Locate sources of useful information in the switchboard

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

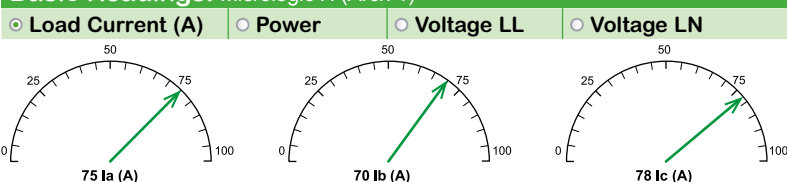
Auxiliary contacts indicate breaker status.
 Embedded sensors provide electrical values.
 Status contacts and sensors are monitored by the embedded Micrologic control unit.

Web pages generated by 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)



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	---
Trip indication contact (SDE) operation	78

Breaker operation Counters

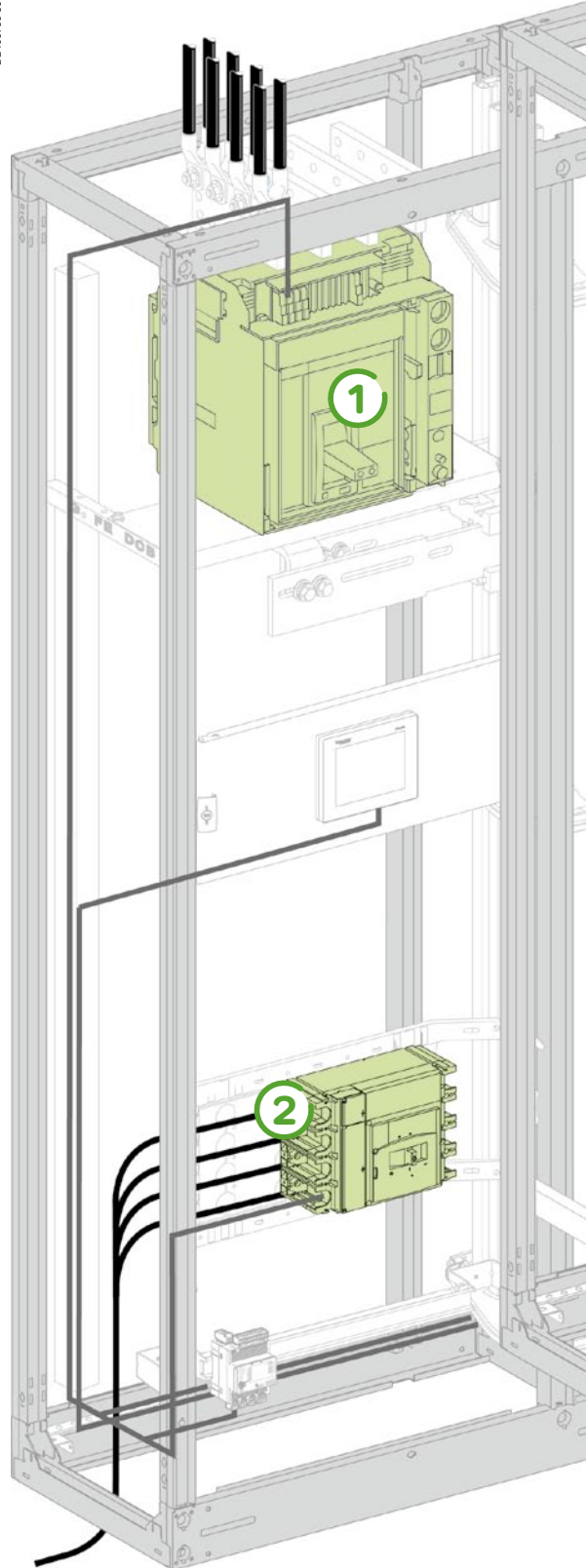
Counters	Value
Contact wear indicator	--- %

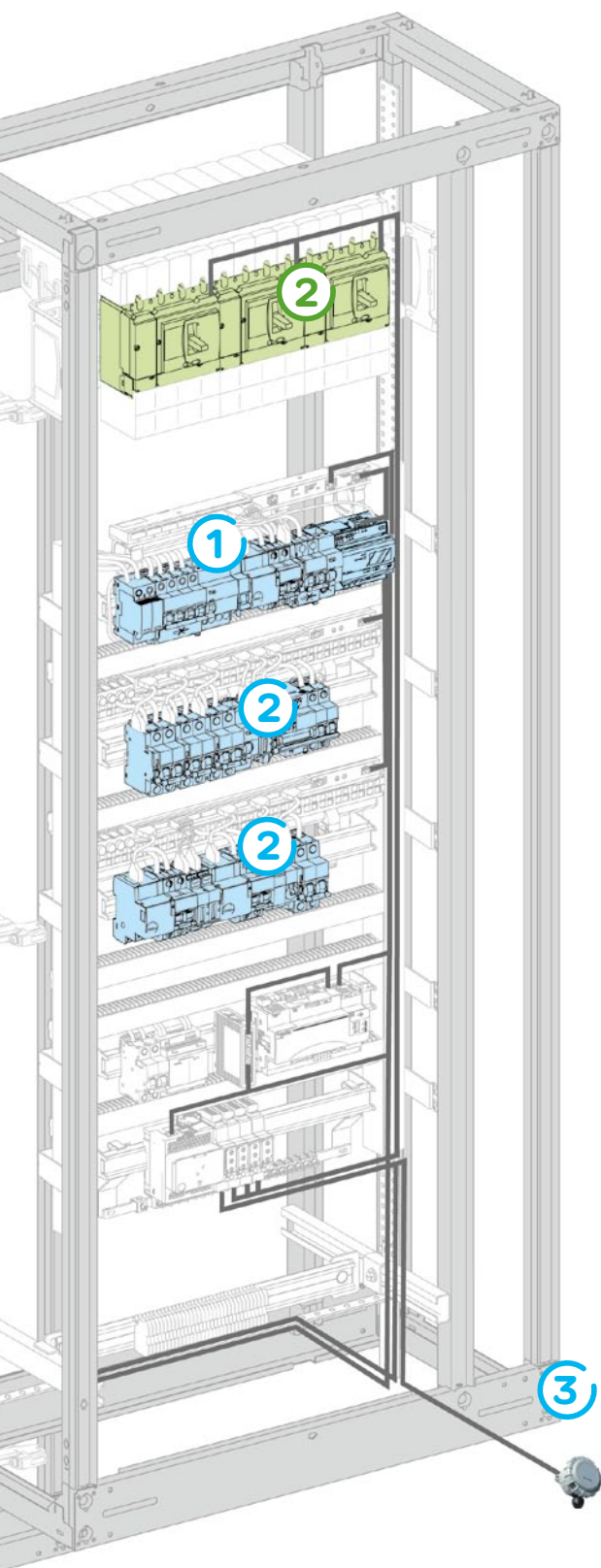
Cradle Counters

Counters	Value
Cradle connected	62
Cradle disconnected	20
Cradle test	7

(1) Except Powerpact M

DB400736-46-eps





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

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

Web pages (partial) generated by Acti9 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 Acti9 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 Acti9 Smartlink Ethernet

Monitoring analog sensors

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

Get circuit breaker status and electrical values

Masterpact, Compact NS, Powerpact P, R



Masterpact MTZ with Micrologic trip unit

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.



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

Masterpact NT/NW, Compact NS, Powerpact P, R with Micrologic trip unit

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
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				
Instantaneous 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

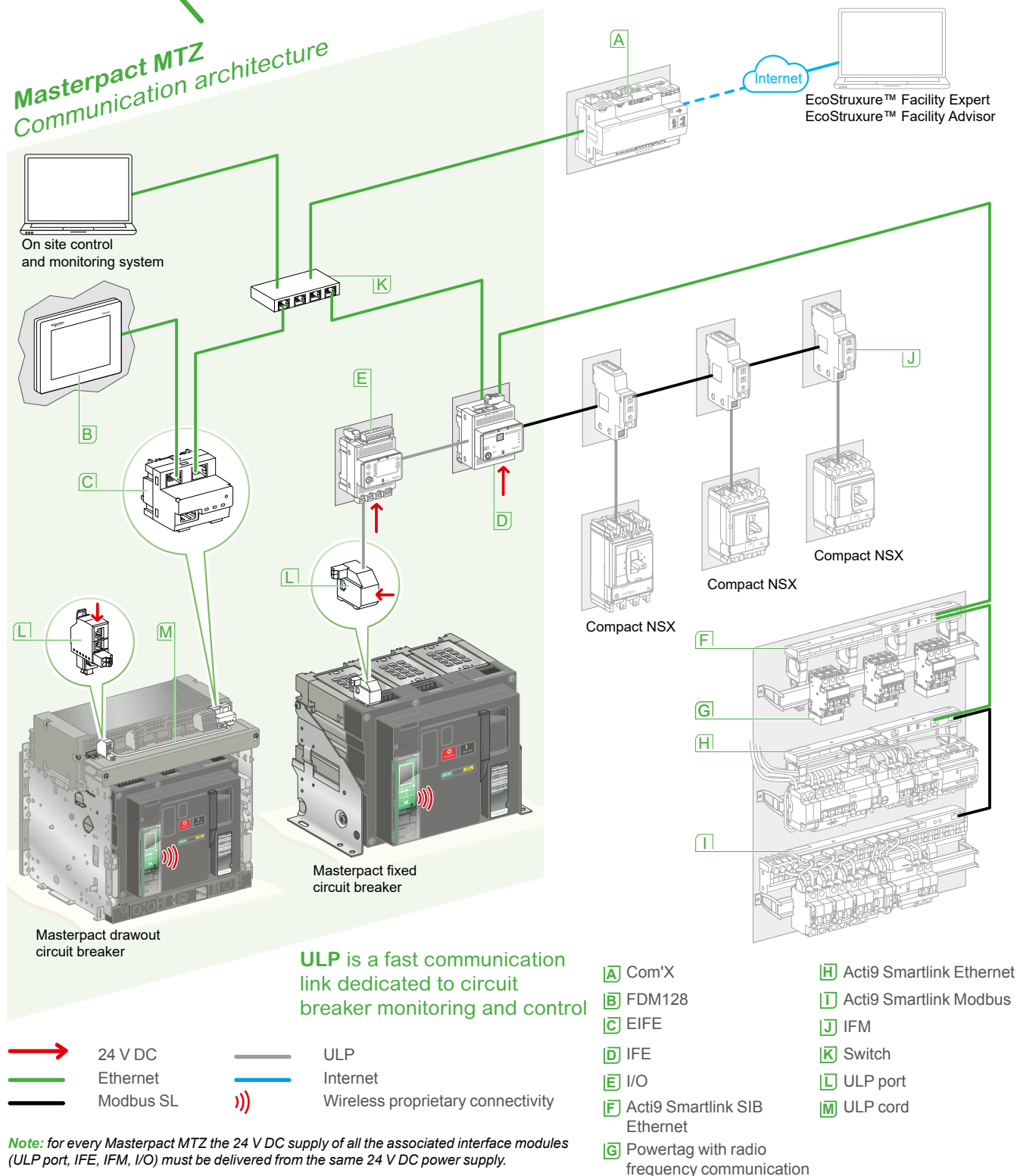
Masterpact, Compact NS, Powerpact P, R circuit breakers can be equipped with a Micrologic trip unit. This adjustable unit is mainly designed for tripping the circuit breaker in case of necessity and monitoring the downstream circuit. Alarms may be programmed for remote indications. Electrical measurements, 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.

Get circuit breaker status and electrical values



Architecture overview

Example of digitized switchboard architecture



Get circuit breaker status and electrical values

Compact NSX, Powerpact H, J, L

Compact NSX, PowerPact H,J, L with Micrologic trip unit



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

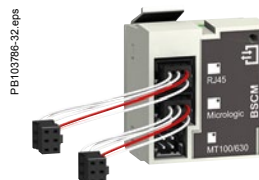
Available functions	Micrologic type	
Status indications		
ON/OFF (O/F)	A	E
Trip SDE	A	E
Connected / disconnected / test position CE/CD/CT (I/O module only)	A	E
Controls		
Open	A	E
Close	A	E
Measurements		
Instantaneous measurement information	A	E
Averaged measurement information		E
Maximeter / minimeter	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.

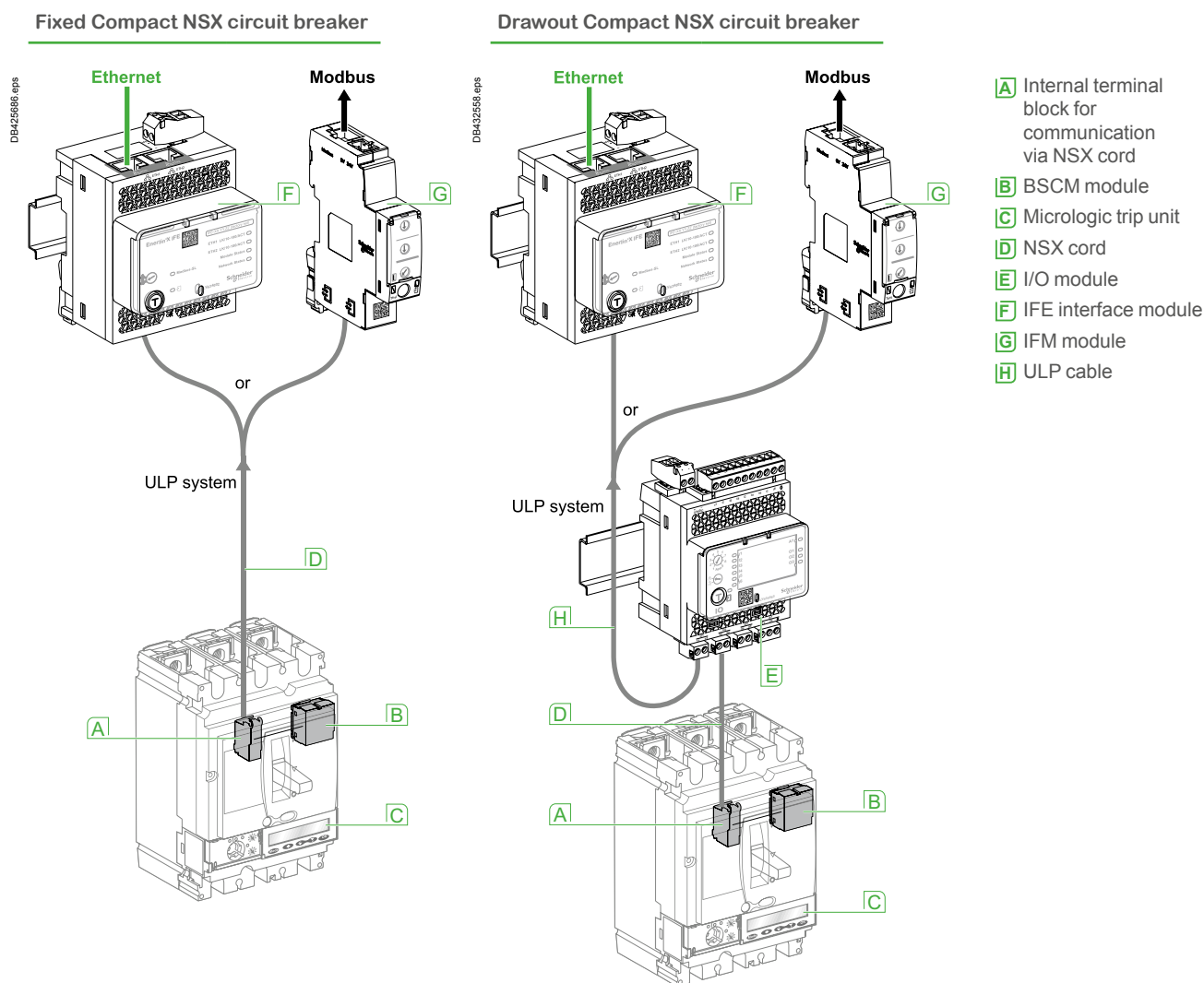


BSCM module

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

Get circuit breaker status and electrical values

Architecture overview



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 an 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 own 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).

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...).

Get circuit breaker status, electrical values and control loads

Acti9 Smartlink system



Available functions	Acti9 Smartlink type		
	SI B Ethernet wireless	SI D	Modbus Slave
Applications			
Breaker status monitoring	●	-	●
Load alarming	●	●	-
Basic energy metering (E)	●	●	●
Extended load monitoring (E,U,I,PPF)	●	●	-
Load control	●	-	●
Scheduling (App)	●	-	-
User interfaces			
Embedded web pages (web server)	●	●	-
Web (via Cloud)	-	●	-
BMS, controller (via Ethernet or Modbus TCP/IP)	●	●	●
Device connectivity (nb of devices)	> 7		> 7
Pulse output meters	●	-	●
Modbus RS485 meters	●	-	-
Wireless energy sensors (PowerTags)	●	●	-
Analog sensors	●	-	-
Binary aux. contacts	●	-	●
Relays (coil control)	●	-	●

Monitored auxiliaries and devices



iOF+SD24



OF+SD24



iEM2000T



iEM3110



PowerTag
connected to
circuit breaker



PowerTag NSX
connected to
circuit breaker

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

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

Controlled, monitored auxiliaries and devices



iATL 24

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



iACT 24

Contacteur auxiliary
24 V or 230 V contactor
control and monitoring



RCA iC60

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

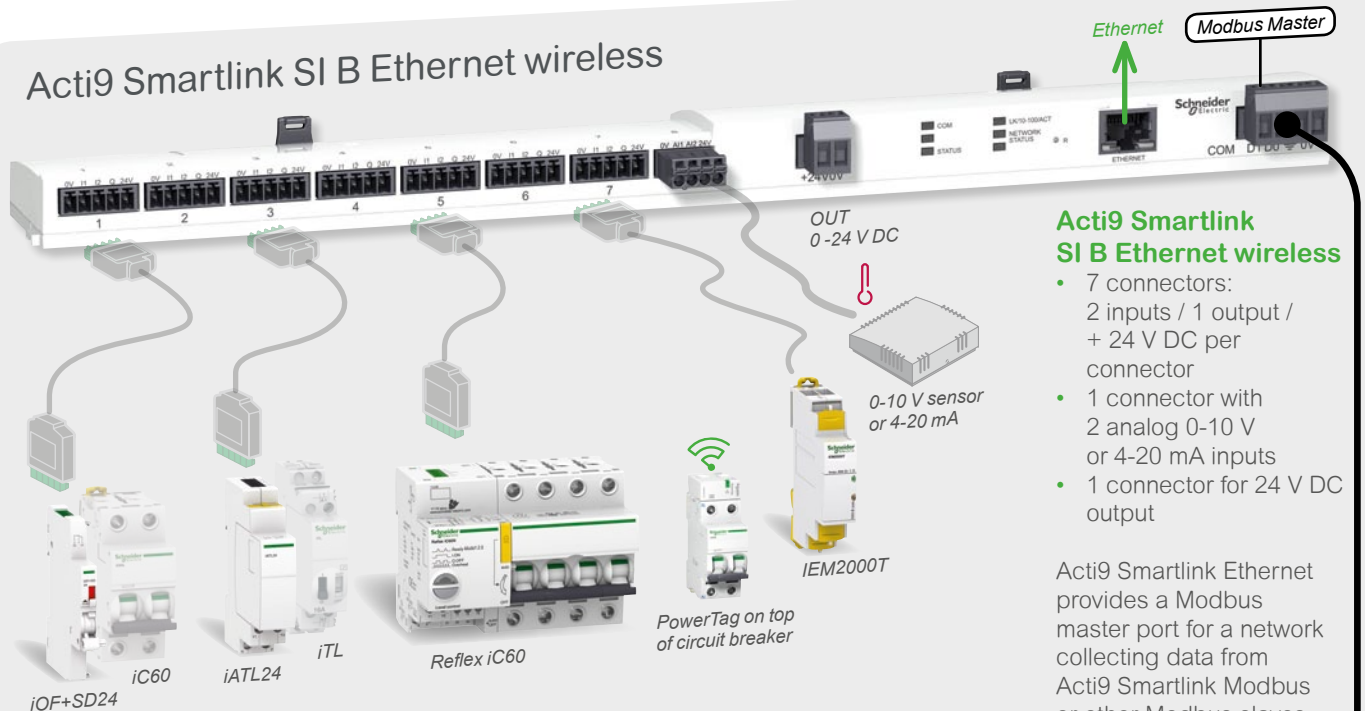


ReflexTM iC60

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

Architecture overview

Acti9 Smartlink SI B Ethernet wireless



Acti9 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

Acti9 Smartlink Ethernet provides a Modbus master port for a network collecting data from Acti9 Smartlink Modbus or other Modbus slaves (counters, power meters...). Wireless communication with PowerTag sensors. It also provides an Ethernet gateway facility.

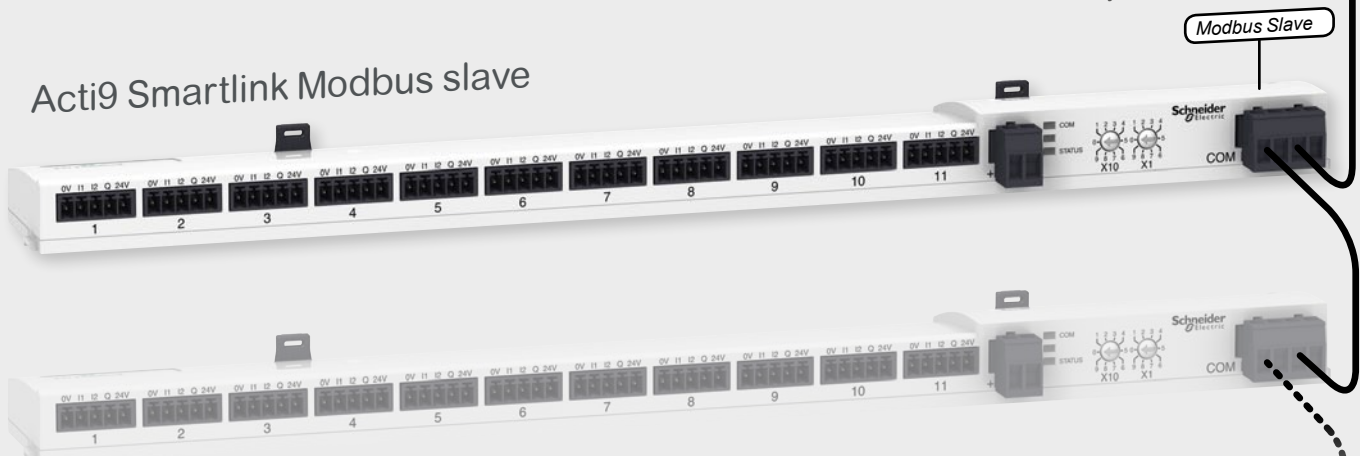
Acti9 circuit breakers, pulse relays

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

Acti9 remote controlled circuit breakers, actuators, counters

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

Acti9 Smartlink Modbus slave



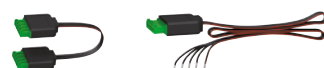
Smartlink Modbus slave

- 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 Acti9 components.

Smartlink cables

A standard connection design with the corresponding cables have been developed for fast cabling.



Smartlink SI D metering data concentrator

PowerTag sensors monitor circuit electrical values. They are simply plugged in top or bottom circuit breaker terminals. Values are sent wireless to Si D.

Ethernet Modbus TCP/IP



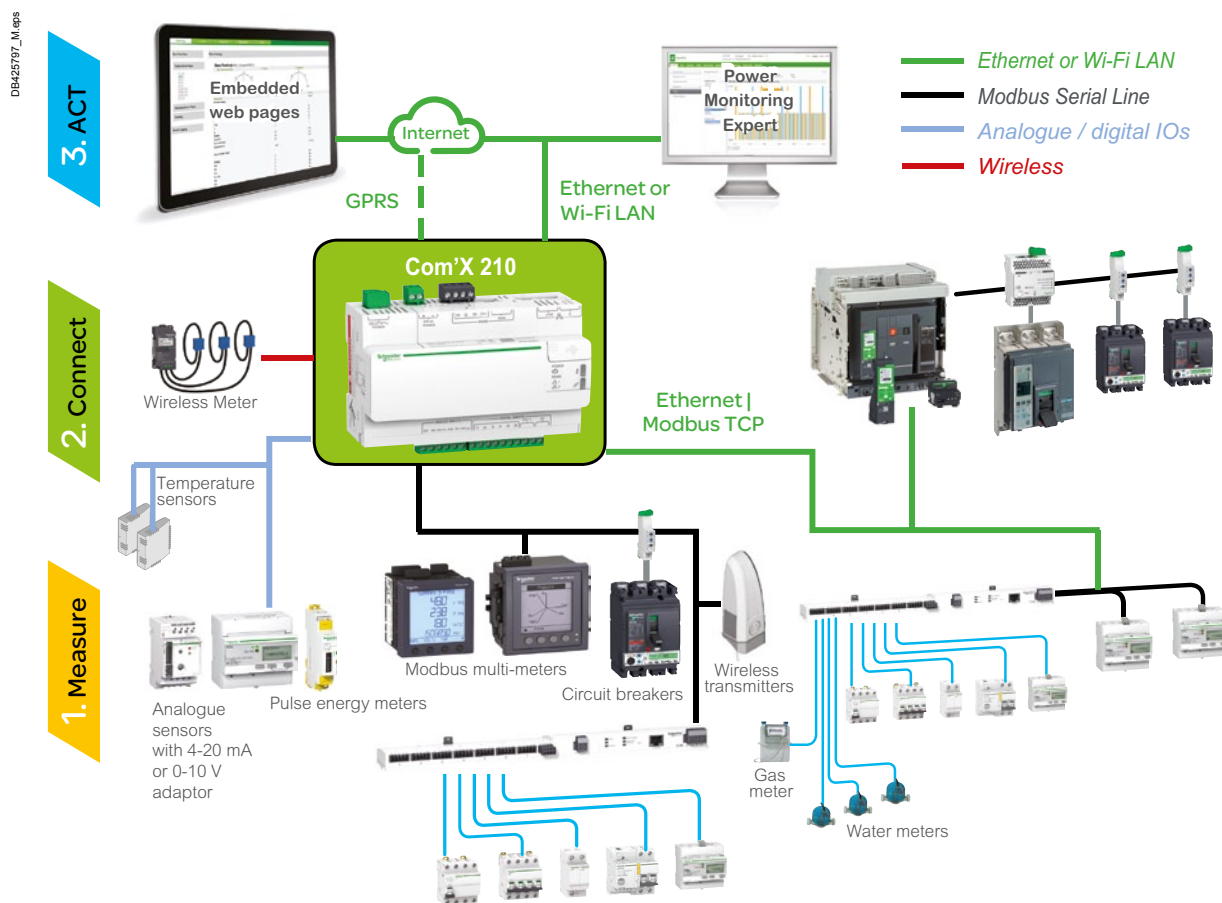
Smart Panels digitized by

Enerlin'X



Com'X energy data logger / server

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:

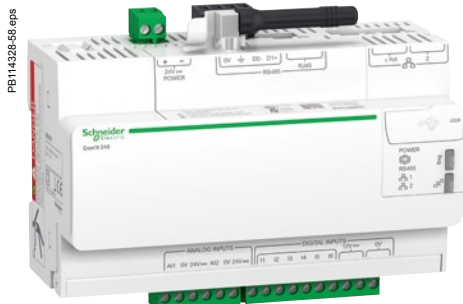
- PowerLogic meters for power and energy monitoring
- Masterpact, Powerpact, or Compact circuit breakers for protection and monitoring
- Acti9 protection devices, meters, remote controlled switches, etc
- water, Air, Gas, Electricity, and Steam consumption meters, from specialized manufacturers, delivering 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 quantity of collected data.

Com'X 210

Functions and characteristics



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 EcoStruxure™ web services, such as Facility Expert
- 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 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 wireless device data by external Modbus TCP/IP clients.

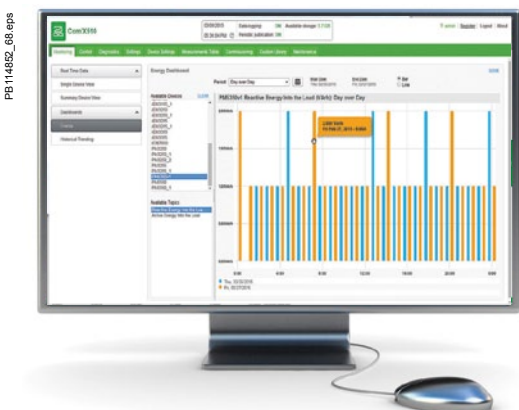
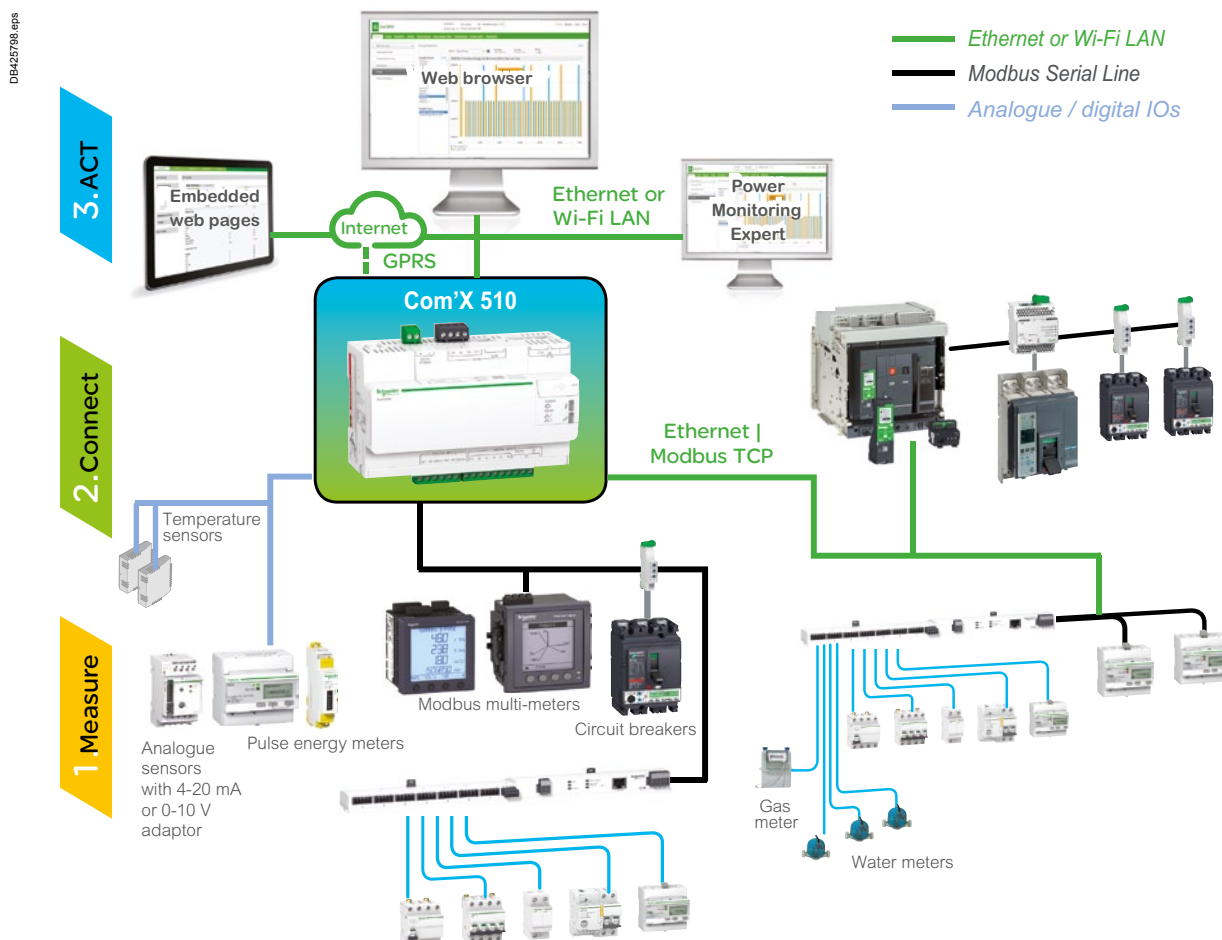
Modbus packets can be sent from managing software to field devices through Modbus serial line or Modbus TCP/IP over Ethernet.

Com'X 210 Commercial reference numbers

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 Wireless USB interface	(*)

** Please see your Schneider Electric representative for complete ordering information.*

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
- Acti9 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 quantity of collected data
- able to set time and send reset instructions to field devices.

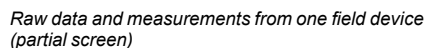
Embedded energy management software

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).

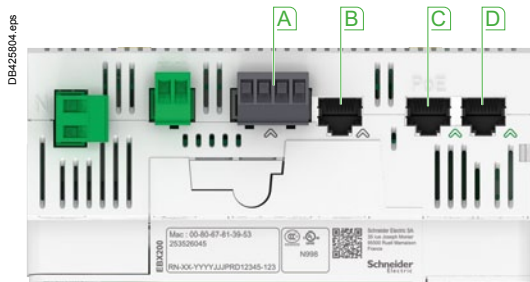
These web pages display real-time data as it is collected, in easy to understand tabular and summary formats. In addition, users can get simple analysis of historical data in bar graph or trending formats.



PB114854-67.ods



41



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

Connectivity

Modbus Serial /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 client 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 compatibility).

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.

Wireless 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.



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 (H x W x D) 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 Serial, Ethernet port or wireless 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

- Cyber security - integrates 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 loss of communication.
- 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 correct installation of all products please consult the appropriate Schneider Electric **Installation Guide**.

Com'X 210/510

Specifications

Com'X 210/510 environment

Operating temperature	-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 °C
Pollution	Class III

Safety standards / regulation

International (CB scheme)	IEC 60950
USA	UL 508 UL 60950 (Com'X 210 and Com'X 510 only)
Canada	cUL 60950 (Com'X 210 and Com'X 510 only) cULus 508
Europe	EN 60950

Quality brands

CE, UL

Power supply		Com'X 210	Com'X 510
DC	24 V (±10%)	■	■
Power over Ethernet	15.4 W DC	■	■
Max power	26 W max	■	■
Mechanical			
IP	Front face IP40, terminals IP20	■	■
Dimensions (H x W x D)	91 x 144 x 65.8 mm	■	■
Weight	450 g	■	■

Enerlin'X display & communication components

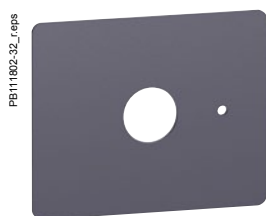
FDM128

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 Ethernet network.

The FDM128 switchboard display unit can be connected to a Micrologic COM option (BCM ULP via IFE). It uses the sensors and processing capacity of the Micrologic control unit. It is easy to use and requires no special software or settings.

The FDM128 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 trips

The FDM128 is intended to display Micrologic A/E measurements, trips and operating information. It cannot be used to modify the protection settings.

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

When the circuit breaker is equipped with the Breaker Status Command Module (BSCM) and NSX cord, the FDM128 display can also be used to view circuit breaker status conditions:

- O/F: ON/OFF
- SDE: Fault-trip indication (overload, short-circuit, ground fault)
- CE, CD cradle management with I/O application module.

Remote control

When the circuit breaker is equipped with the BSCM, NSX cord and Communicating Motor Mechanism (MTc), the FDM128 display can also be used to control (open/close) the circuit breaker.

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 $\pm 80^\circ$, horizontal $\pm 70^\circ$.
- 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 ≤ 6.8 W.

Mounting

The FDM128 is easily installed in a switchboard.

- Standard door hole $\varnothing 22$ mm.

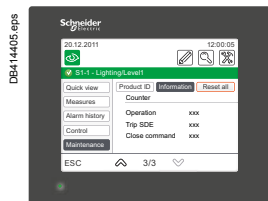
The FDM128 degree of protection is IP65 in front and IP54.

Connection

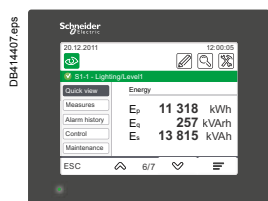
The FDM128 is equipped with:

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

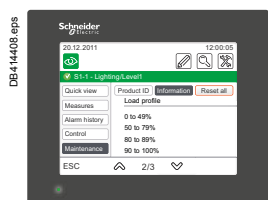
The Micrologic connects to the internal communication terminal block on the Masterpact via the breaker ULP cord and Ethernet connection through IFE.



Product identification.



Metering: meter.



Services.

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

Main menu



Quick view



Alarms



Metering



Maintenance



Control

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.).

FDM121

Switchboard display

For Masterpact, Compact, Powerpact 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

An FDM121 switchboard display unit can be connected to a ULP IMU using a prefabricated 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 FDM121 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:

- cradle 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 $\pm 60^\circ$, horizontal $\pm 30^\circ$.
 - 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 display.



Surface mount accessory.

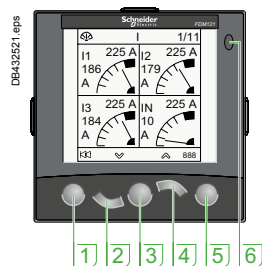


Connection with FDM121 display unit.

FDM121

Switchboard display

For Masterpact, Compact, Powerpact circuit breakers



- 1 escape
- 2 down
- 3 ok
- 4 up
- 5 context
- 6 alarm LED

■ Two RJ45 jacks.

The Micrologic connects to the internal communication terminal block on the Compact NSX via the NSX 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

Main menu

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



Quick view



Alarms



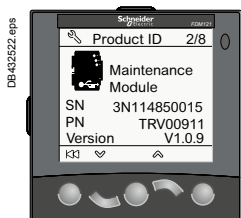
Metering



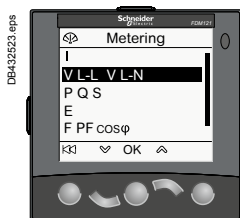
Services



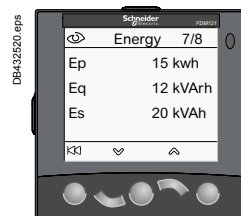
Control



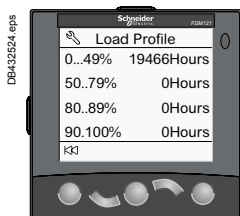
Product identification.



Metering: sub-menu.



Metering: meter.



Services.

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).

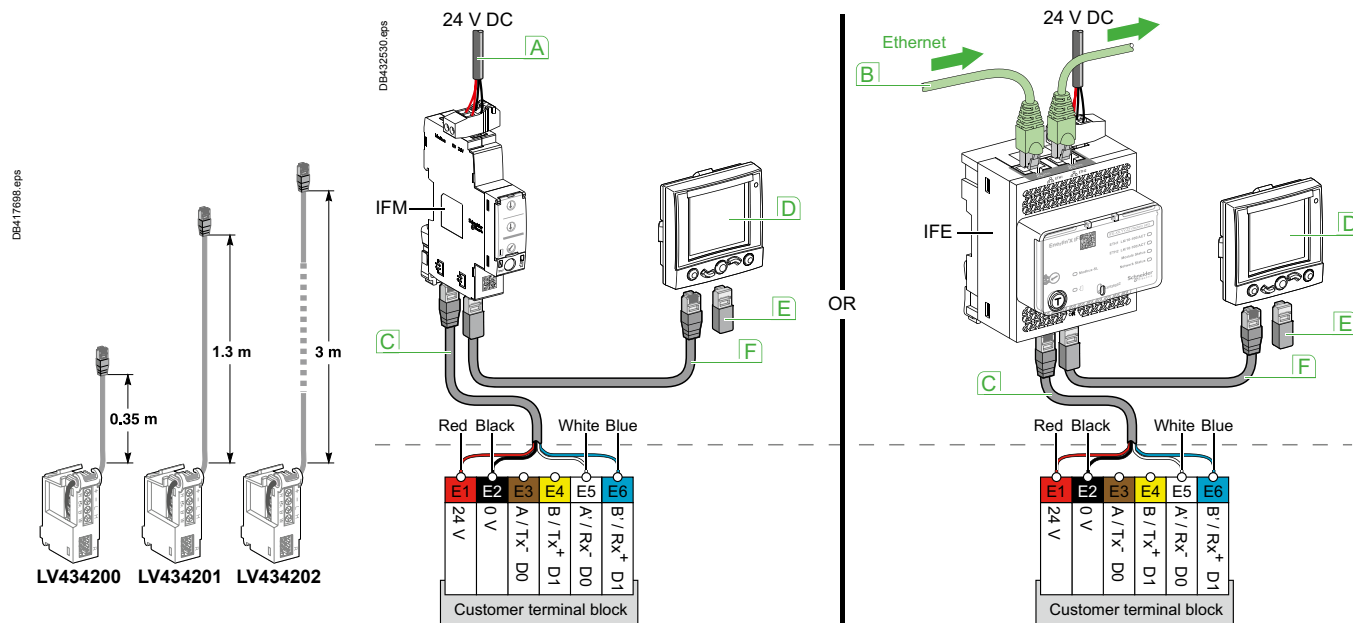
Access to detailed information

■ "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



Connections

■ Compact NSX is connected to the ULP devices (FDM121 display, IFM, IFE or I/O) unit via the NSX cord.

□ cord available in three lengths: 0.35 m, 1.3 m and 3 m.

□ ULP lengths up to 10 m possible using extensions.

- A Modbus network
- B Ethernet network
- C NSX cord

- D FDM121 display
- E ULP termination
- F ULP cable

IFE Interface IFE switchboard server

PB115632.eps



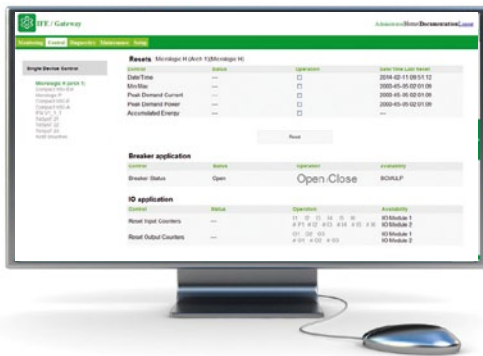
IFE interface, ref.: LV434001

PB115636.eps



IFE switchboard server, ref.: LV434002

DB406743-07.eps



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. LV434001

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.

IFE switchboard server: ref. LV434002

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.
- 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 LV434002, 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

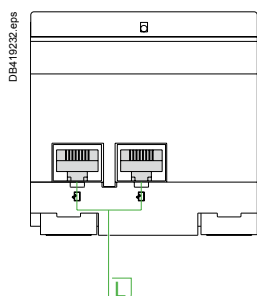
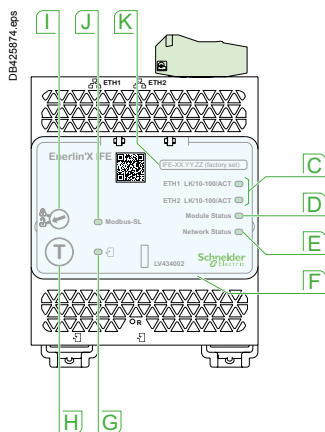
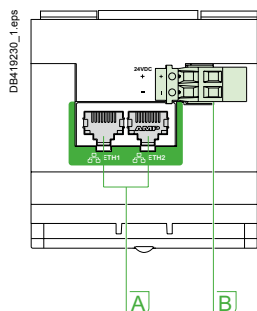
The firmware can be updated using:

- 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).



- A** Ethernet 1 and Ethernet 2 communication port.
- B** 24 Vdc 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 unintended event
flashing green: standby
flashing red: minor unintended event
flashing green/red: self-test.
- E** Network status LED:
steady off: no 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 (LV434002 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	cULus, 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 Screw type terminal blocks

Connections

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 digital access to all the data provided 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 is a strong 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

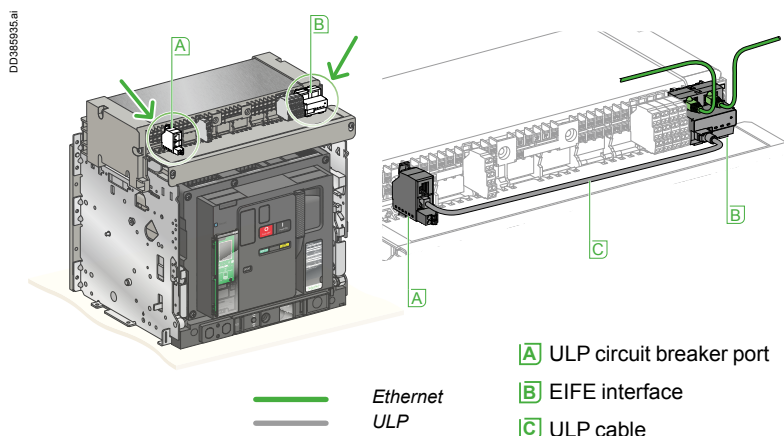
The EIFE power supply is provided by the ULP port through the dedicated ULP cable.

EIFE interface firmware update

The firmware can be updated using Ecoreach software.

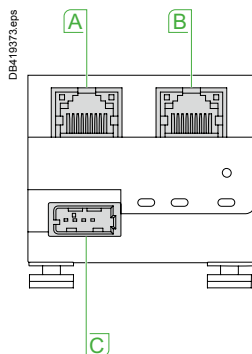
Required circuit breaker communication accessory

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

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: -40 to +85 °C Operation: -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	As the EIFE is mounted on the circuit breaker it complies with its mechanical characteristics
Resistance to sinusoidal vibrations	

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:

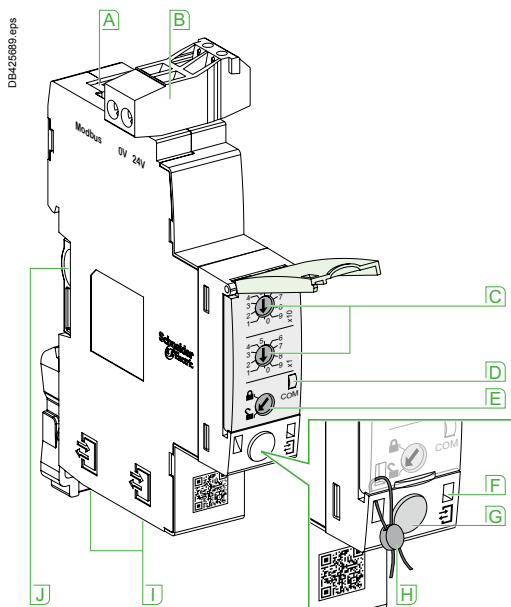
- maintenance log
- circuit breaker health status
- maintenance counters.

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.



IFM Modbus communication interface.
Ref.: LV434000.



- | | |
|-----------------------------------|--|
| A Modbus Serial RJ45 port. | F ULP activity LED. |
| B 0-24 V DC power supply. | G Test button. |
| C Modbus address switches. | H Mechanical lock and locking seal. |
| D Modbus traffic LED. | I ULP RJ45 connectors. |
| E Modbus locking pad. | J Stacking accessory connection. |

Function

A IFM - Modbus communication interface - is required for connection of a Masterpact 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.

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 can 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 VDC 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 VDC input supply (0V, +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).

IFM Modbus interface

Catalogue numbers

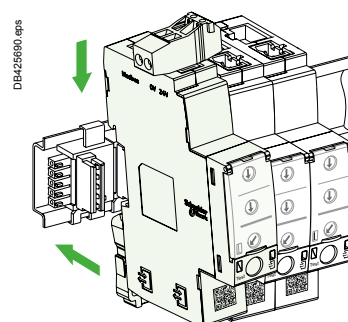
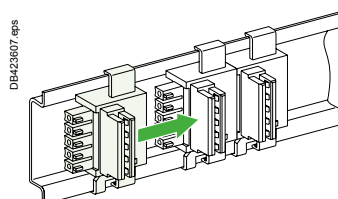
IFM Modbus communication interface		
Type	Set of	Cat. no.
IFM -Modbus communication interface module	-	LV434000
Stacking accessories if more than 1 IFM	10	TRV00217
ULP line terminator	-	TRV00880
2-wire RS 485 isolated repeater module (Modbus network outside the switchboard)	-	TRV00211

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

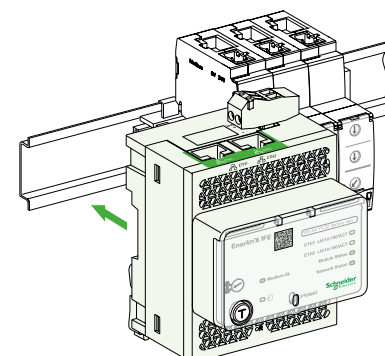
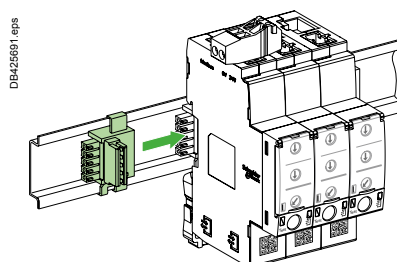
Stacking IFM



Stacking accessories

Up to 12 stacked IFM

Stacking an IFE interface + gateway with IFMs





I/O application module description

Description

The I/O input/output application module for LV breaker is one of the components of ULP architecture. Built in functionalities and applications enhance control and monitoring needs.

ULP system architecture including I/O modules can be built without any restrictions using a wide range of circuit breakers:

- Masterpact MTZ1/MTZ2/MTZ3,
- Compact NS1600b-3200,
- Compact NS630b-1600,
- Compact NSX100-630 A.

The I/O application module is compliant with the ULP system specifications. Two I/O application modules can be connected in the same ULP architecture.

I/O input/output interface for LV breaker resources

The I/O application module resources are the following:

- 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 applications improve the IMU approach (Intelligent Modular Unit) in a simple way.

A 9-position rotary switch on the front of the I/O module allows to select the pre-defined applications. Each position is assigned to a pre-defined application except position 9 which allows the user to define a specific application by means of the customer engineering tool. The switch is set in factory to the pre-defined application 1.

For each application the input/output assignment and the wiring diagram are pre-defined. No additional setting with the customer engineering tool is required. The I/O and other resources not assigned to the pre-defined applications are free for user specific applications.

User applications

The user applications with the corresponding resources are defined by means of Ecoreach engineering tool. They use the resources not assigned to the predefined applications. User applications may be required for:

- Protection improvement,
- Circuit breaker control,
- Motor control,
- Energy management,
- Monitoring.

24 Vdc power supply

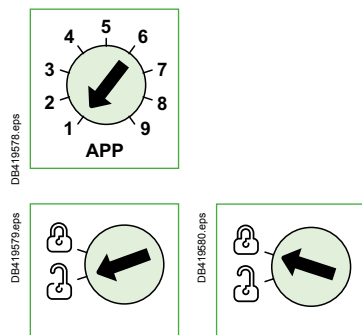
The I/O module can be supplied with a 24 Vdc AD power supply or with any other 24 Vdc power supply having the same characteristics.

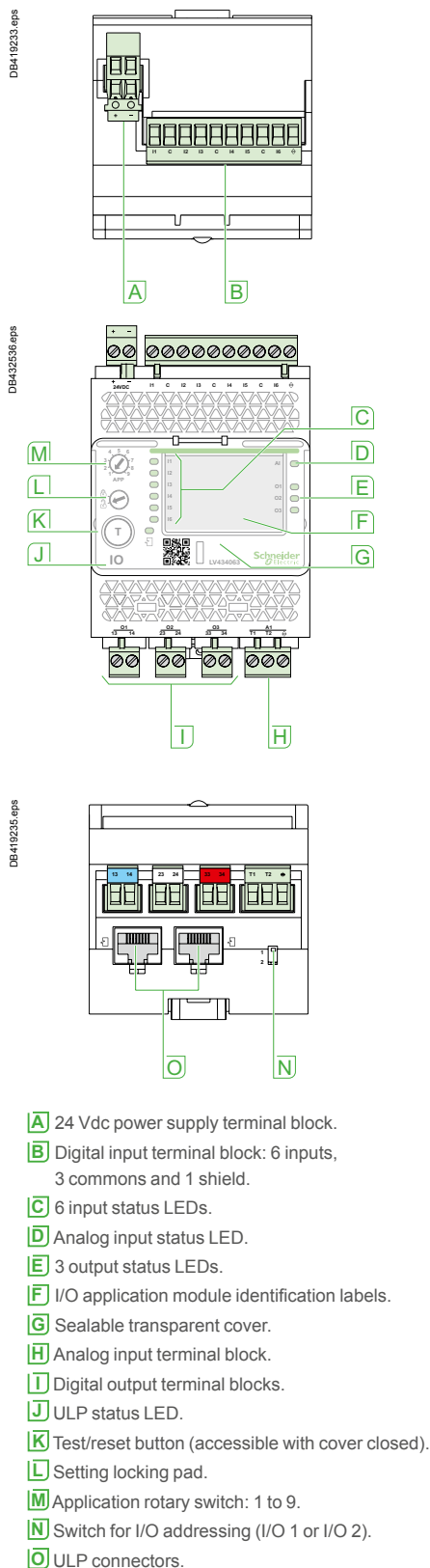
Mounting

The I/O is a DIN rail mounting device.

Setting locking pad

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





General characteristics

Environmental characteristics

Conforming to standards	UL 508, UL 60950, IEC 60950, IEC 60947-6-2
Certification	cULus, 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
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

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 Vac
Rated carry current	5 A
Maximum switching voltage	380 Vac, 125 Vdc
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

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

Smart Panels digitized by

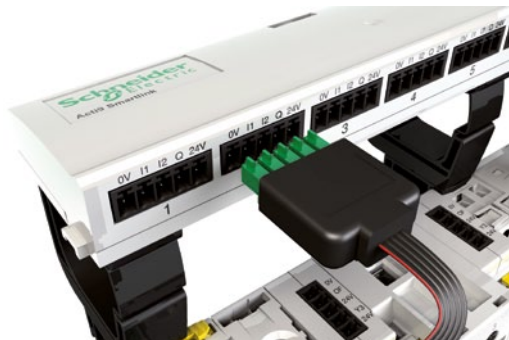
Enerlin'X



Acti9 gateways



P8107797-47



DE404502



IEC/EN 61131-2

The Acti9 Smartlink SI B is an open system that remotely measures, balances, monitors and controls final distribution.

It is designed to fit into tertiary building projects and integrates in a Building Management System or an Energy Management System.

It consists of:

- a Modbus Slave version (Acti9 Smartlink Modbus)
 - a Modbus Master version (Acti9 Smartlink SI B) 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.

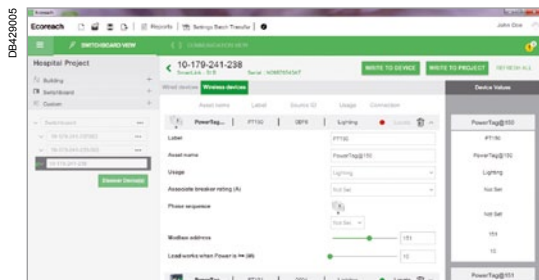
The system supports

- Alarm monitoring on current, voltage, power factor, tripping, power, consumption thresholds and their transmission by email.
- Monitoring and control via web pages of loads, energy and power by zone and by usage.
- Single access point for a full analysis of the status of switchboard power distribution (measurements, protection status, temperature, consumption, alarms, control and monitoring).

Functions

Transmission of data collected by Acti9 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.



Functions (cont.)

Transmission of additional data collected by Acti9 Smartlink SI B

- Power meters (Modbus slaves).
- Analog sensors:
 - ☐ CO₂ sensor,
 - ☐ light sensor,
 - ☐ humidity sensor,
 - ☐ temperature sensor,
 - ☐ any 0..10 V or 4..20 mA compatible sensor.
- PowerTag wireless-communication energy sensors (Compact NSX, Acti9 iC60, iC40, DT60, DT40 ranges):
 - ☐ total and partial energy,
 - ☐ active power, phase-to-phase voltage, phase-to-neutral,
 - ☐ currents I1, I2, I3,
 - ☐ power factor,
 - ☐ voltage loss and overload information.
- Load monitoring:
 - ☐ alarm sent by the sensor in the event of a voltage loss,
 - ☐ pre-alarms on predefined thresholds (50 %, 80 %) or customized thresholds (thresholds on currents, power, voltages and cumulative energies),
 - ☐ load running time counter.
- Alarm management on current/voltage/load level thresholds by e-mail.
- Display of alarms and pre-alarms on Acti9 Smartlink SI B embedded web pages.
- Easy integration into any upper system using Com'X 210, Com'X 510 and other Schneider Electric software and third-party Building Management Systems (BMS's) thanks to the Ecoreach report in pdf format. A report provides dynamically all the Modbus registers and associated meanings for an easy integration into the system.
- Remote metering capability using the Acti9 Smartlink SI B monitoring page.

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

Acti9 Smartlink can also exchange data with any device having 24 V DC 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, Acti9 Smartlink Modbus 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**,
 - Installation in Pragma and Kaedra enclosures with mounting kit **A9XMVA01**.

Test

- The communication and cabling test on the connected devices can be performed using the Ecoreach software.

Test software: Ecoreach

- To test wired and wireless communication of analog and Modbus devices



- To edit a complete test report (pdf) with the Modbus communication registers for easy integration into a supervision system

- Windows XP, Windows 7, Windows 8 and Windows 10 compatible

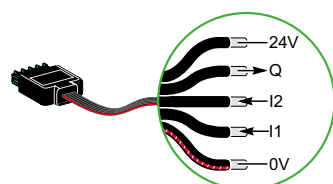
- Downloadable from:
ecoreach.schneider-electric.com



Acti9 Smartlink SI B



Acti9 Smartlink Modbus



A9XCAU06

Catalogue numbers

Acti9 Smartlink

Type	Set of	
Acti9 Smartlink SI B	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
Acti9 Smartlink Modbus	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 Acti9 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
With 1 connector	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
	Linerity FM 200 A (4 adapters)	1 A9XM2B04
	Back of enclosure (2 brackets)	1 A9XMBP02
	Vertical for Kaedra enclosures	1 A9XMVA01
	Vertical or horizontal for Pragma enclosures	
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 A9A26898	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
Pulse 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
--

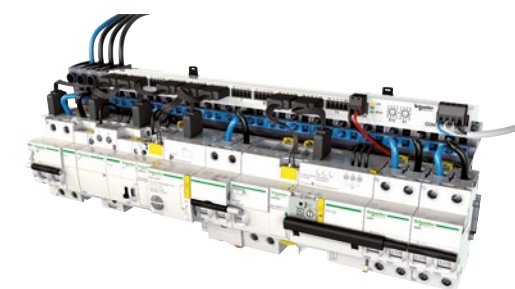
With wireless-communication systems

PowerTag energy sensors *. See catalog module CA907029E

With analog outputs

Any 0...10 V and 4...20 mA compatible sensor (temperature, humidity, luminosity, etc.)
--

(*) for additional information and a list of Schneider Electric compatible devices, refer to the selection guide CA908058E.





Example of an installation

Modbus master

- Acti9 Smartlink SI B

Ethernet link

- Ethernet 10/100 MB, Modbus TCP server

Wireless communication

- No additional wiring
- Up to 20 sensors connected

Analog inputs

- 2 analog inputs, 0..10 V or 4..20 mA, e.g.: connection of a temperature probe

Modbus slave

- Acti9 Smartlink Modbus

Modbus communication

- Up to 8 Acti9 Smartlink Modbus or other Modbus slaves connected

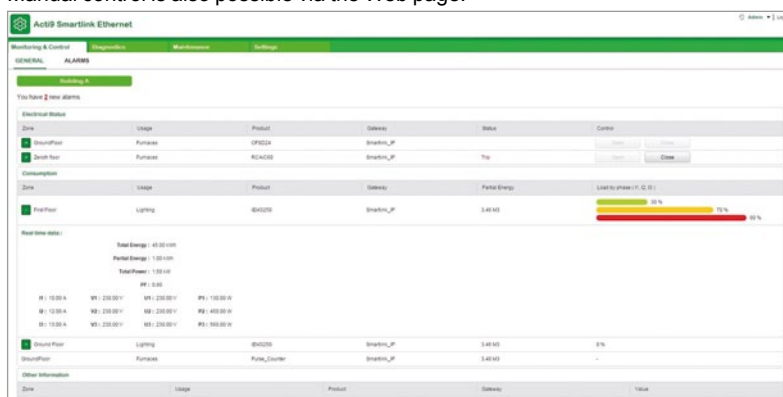
Prefabricated cables

- Simplified and faster cabling

Ethernet network connection

Acti9 Smartlink SI B has an embedded Web server used to display data showing the state of circuit breakers, energy meters, power data, phase unbalance and current alarms.

Manual control is also possible 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



Acti9 Smartlink SI B (A9XMZA08)

Ti24 connector**7 input/output channels**

Input protected against voltage reversals

Output protected 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

Input protected against voltage reversals

- Pin1: 0 V
- Pin2: +24 V DC

Ethernet connector

100 Base T - RJ45

Indication

■ Indication of operation of the communication system and the state of the Acti9 Smartlink SI B

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

Serial port connector

Modbus (Master) RS485

- Pin 1: D1 Modbus
- Pin 2: D0 Modbus
- Pin 3: shielding
- Pin 4: common/0 V

20 PowerTag 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 and the PowerTag must be installed in the same switchboard



Acti9 Smartlink Modbus (A9XMSB11)

Ti24 connector**11 input/output channels**

Input protected against voltage reversals

Output protected 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

Input 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 Acti9 Smartlink Modbus

Thumbwheels

■ Definition of the address in the Modbus network





Common technical characteristics

Power supply		
Nominal		24 V DC \pm 20 %
Maximum input current		1.5 A
Maximum inrush current		3 A
Meter		
Capacity		2 ³² pulses per input
Input characteristics		
Number of channels	Acti9 Smartlink Modbus (A9XMSB11)	11 2-input channels
	Acti9 Smartlink SI B (A9XMZA08)	7 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 \pm 20 %
Rated current		2.5 mA
Maximum current		5 mA
Filtering time	A l'état 1	2 ms
	A l'état 0	2 ms
Isolation		No isolation between channels
Negative sequence voltage protection		Yes
Output characteristics		
Number of output channels	Acti9 Smartlink Modbus (A9XMSB11)	11
	Acti9 Smartlink SI B (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 / \pm 3.5 mm - 5 Hz to 300 Hz - 10 cycles
Shock resistance	As per IEC 60068.2.27	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 V 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 H ₂ S / SO ₂ / NO ₂ / Cl ₂
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 cable characteristics		
Dielectric strength		1 kV / 5 min
Minimum draw-out resistance		20 N
Electromagnetic compatibility		
Reference standards	Immunity	EN 55024
	Emissions	EN 55022
	Electromagnetic compatibility and Radio spectrum Matters (ERM)	EN 300328
		EN 301489-1 EN 301489-17



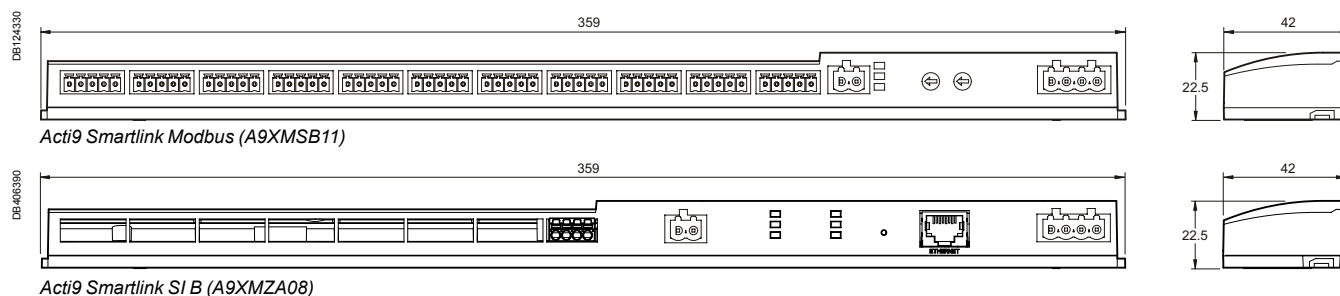
Acti9 Smartlink Modbus (A9XMSB11) technical characteristics

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

Acti9 Smartlink SI B (A9XMZA08) technical characteristics

Characteristics of the Ethernet link		
Link		Ethernet 10/100 MB
Protocol		Modbus TCP server
		http (web pages)
Addressing 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 bauds ... 19200 bauds
	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-communication link		
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)

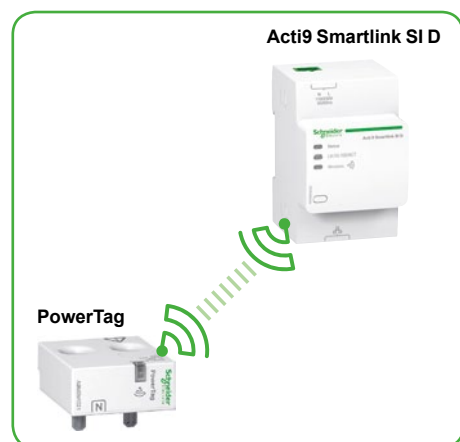


Weight (g)

Acti9 Smartlink	
Type	
Acti9 Smartlink Modbus (A9XMSB11)	195
Acti9 Smartlink SI B (A9XMZA08)	180



A9XMWA20



IEC 61000-6-1: 2005 and IEC 61000-6-3: 2005

Ethernet connection gateway (Modbus TCP/IP) for wireless energy sensors (PowerTag) with data display web pages.

The associated PowerTags allow alarms to be managed via email for terminal loads, and energy, power, current and voltage to be measured accurately in real time. The entire system can easily be installed in existing switchboards using Multi9/Acti9 type circuit breakers.

Data transmitted:

- total and partial energy,
- active power, phase-to-phase and phase-to-neutral voltage,
- currents I1, I2, I3,
- power factor (cos phi),
- voltage loss and overload information.

Functions

Acti9 Smartlink SI D permits:

- concentration of PowerTag (covered ranges Acti9 iC40/iC60 and Compact) wireless energy sensor data,
- Ethernet connection via the RJ45 port,
- load monitoring:
 - alarm sent by the sensor in the event of a voltage loss,
 - pre-alarms on predefined thresholds (50 %, 80 %) or customized thresholds (thresholds on currents, power, voltages and cumulative energies),
 - load running time counter,
- alarm management on current/voltage/load level thresholds by e-mail,
- display of alarms and pre-alarms on Acti9 Smartlink embedded web pages,
- easy integration into system with Com'X 210, Com'X 510 and other Schneider Electric software and third-party Building Management Systems (BMS) thanks to Ecoreach report in pdf format. This report provides dynamically all the Modbus registers and associated meanings for an easy integration into the system,
- remote metering capability using the Acti9 Smartlink SI D monitoring page.

Installation

- On DIN rail (width 54 mm).
- 230 V AC power supply.

Testing and start-up

- Pairing of PowerTag wireless energy sensors must be performed via the Ecoreach software, freely available by downloading.
- The software makes it possible, in particular, to attribute to each circuit a name, a use and the current rating (useful for alarms).

Catalogue numbers



Acti9 Smartlink SI D

Type		Width in 9-mm modules
Ethernet connection gateway (Modbus TCP/IP)	A9XMWA20	6

Test software: Ecoreach

- To configure and test PowerTag energysensor communication
- To edit a complete test report (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:
ecoreach.schneider-electric.com





Technical characteristics

Main characteristics

Supply voltage	Us	110/230 V AC \pm 20 %, 2 A
Frequency		50/60 Hz
Power consumption		5 VA
Communication interface		Ethernet 10/100 BASE-T, Cable length \leq 100 m Cat.6 STP
Wireless communication		Up to 20 PowerTag sensors
Integrated connection type		DHCP client (Ethernet port)
Local indication	Product state	Green, orange and red LED
	Ethernet state (LAN ST)	Green, orange and red LED
Overvoltage category		III
Radio-frequency communication	ISM band 2.4 GHz	2.4 GHz to 2.4835 GHz
Degree of protection (IEC 60529)	Device only	IP20
	Device in modular enclosure	IP40 Insulation class II
Fire resistance		650°C, 30 s
Environment		In compliance with the RoHS directive REACH Regulations

Additional characteristics

Operating temperature		-25°C to +55°C
Storage temperature		-40°C to +85°C
Pollution degree		2
Tropicalization (IEC 60068-2)		Treatment 2 (relative humidity of 93 % at 40°C)
Operating altitude		0 to 2000 m
Electromagnetic compatibility	Reference standards	
	Immunity	EN 55024
	Emissions	EN 55022
	Electromagnetic compatibility and Radio spectrum Matters (ERM)	EN 300328 EN 301489-1 EN 301489-17

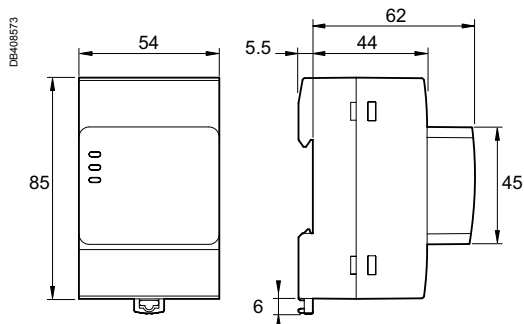
Weight (g)

Acti9 Smartlink SI D

Type

Acti9 Smartlink SI D	133
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Dimensions (mm)



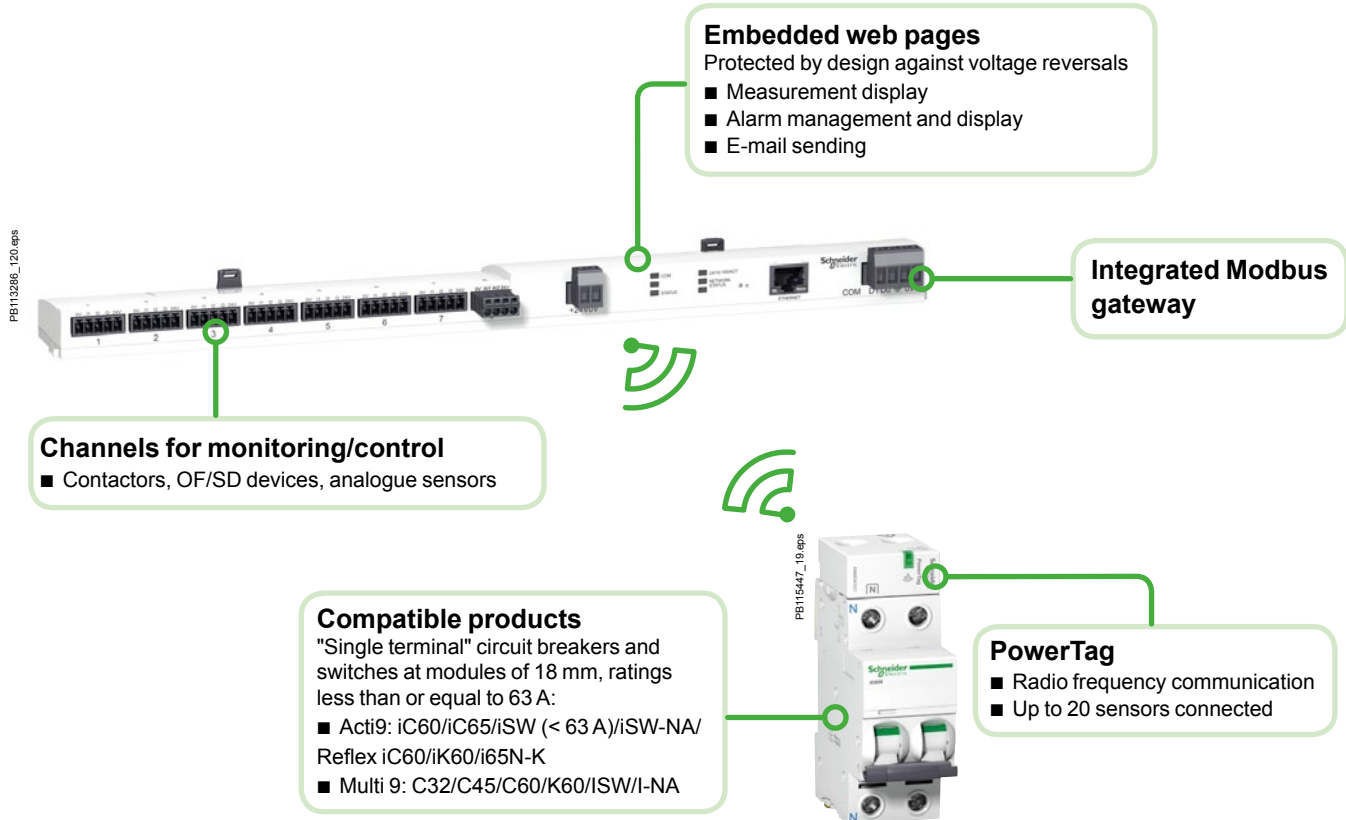
Acti9 Smartlink SI D

PowerTag wireless sensors



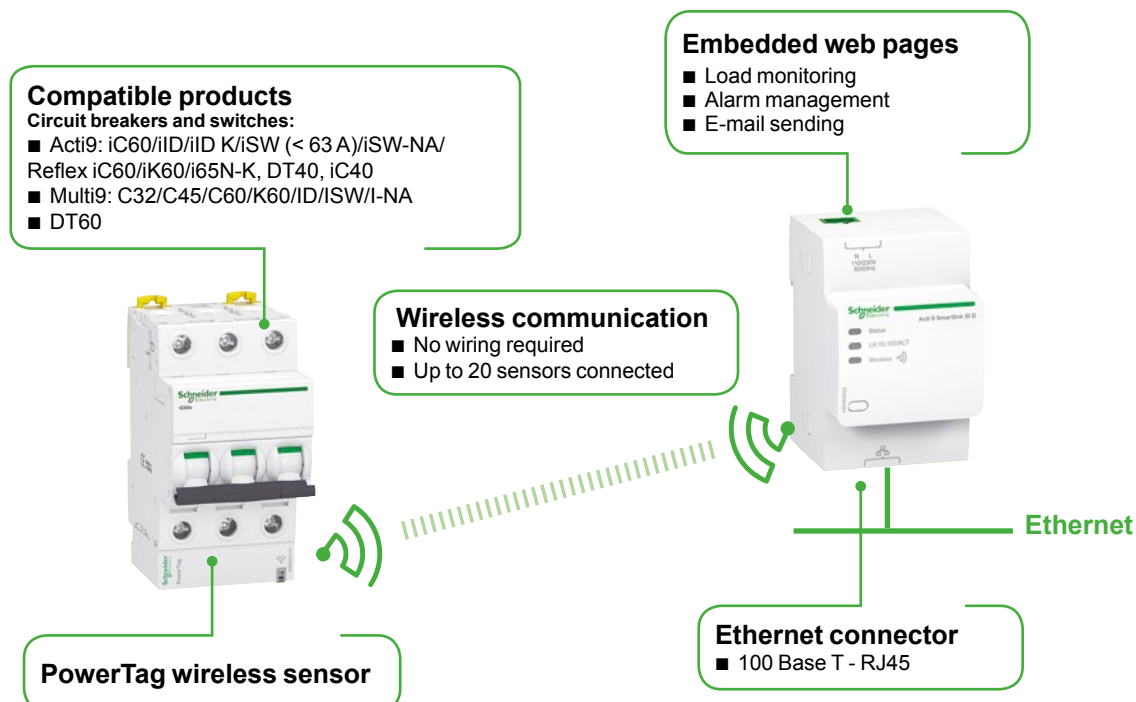
PowerTag for Acti9

Communication with Smartlink SI B



PowerTag for Acti9

Communication with Smartlink SI D





IEC 61557-12 PMD/DD/K55/1

PowerTag is a wireless-communication energy sensor

PowerTag energy sensor is designed specifically for Energy Management, Load Monitoring and Power Availability applications.

With its compact design and innovative concept, PowerTag fits directly on the protective device and as a result has no impact on DIN rail occupancy and switchboard size.

Voltage and current are therefore measured directly at the same point on the circuit to be monitored, providing accurate measurement and relevant information such as voltage loss.

PowerTag energy sensor incorporates every feature required to perform accurate real-time measurements (U, V, I, P and PF) and metering values (Ea). Used together with a concentrator to collect and process the data, it provides circuit monitoring and diagnosis down to load level.

- Wireless-communication technology simplifies switchboard wiring and commissioning operations: no wiring is required for the PowerTag to communicate with the concentrator.
- System scalability: PowerTag energy sensor can be quickly and easily installed in new or existing panels at any time.
- Different designs of the PowerTag energy sensor are available to ensure it fits the protective device on which it is mounted.
- PowerTag Acti9 63 A is compatible with the Acti9 and Multi9 ranges as per the selection guide CA908058E.

Functions

PowerTag energy sensor measures the following values in accordance with the IEC 61557-12 standard

- Active energy (class 1), total and partial (kWh) 1 quadrant.
- Real-time measurement values:
 - phase-to-neutral and phase-to-phase voltages (V),
 - current per phase (A),
 - active power, total and per phase (W),
 - power factor.
- Voltage loss alarms:
 - PowerTag energy sensor sends a "voltage loss" alarm and the current-per-phase value before being de-energized,
 - at "voltage loss", PowerTag adds an overload alarm if the current is higher than the rated current of the associated protective device.

Possible associated concentrators

For Commercial & Building applications



Acti9 SmartLink SI D (Monitoring)



A9XMTA20

Acti9 SmartLink SI B (Monitoring & Control)



A9XMTA08

For Small Business applications



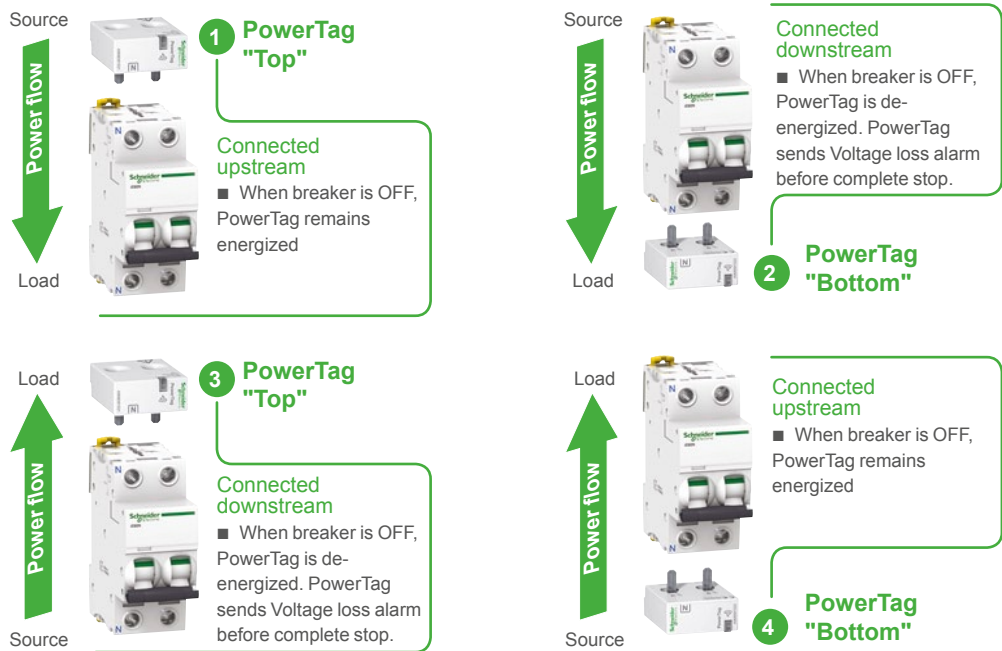
Acti9 SmartLink EL D (Monitoring)



A9XELC10



Mounting positions



Note: some PowerTag can be installed either on the TOP or on the BOTTOM of the protective devices. Check the possible mounting position as indicated in the "Catalogue numbers" chapter.

Connection		Features
Upstream	1	■ Energy management: consumption in kWh ■ Load monitoring: real-time measurements
	4	
Downstream Preferred installation to take full benefit of voltage loss in diagnosing the load	2	■ Energy management: consumption in kWh ■ Load monitoring: real-time measurements ■ Power availability: voltage loss
	3	



A9MEM1520



A9MEM1521



A9MEM1540



A9MEM1522



A9MEM1541



A9MEM1542



A9MEM1561



A9MEM1562



A9MEM1563



A9MEM1571



A9MEM1572



A9MEM1560



A9MEM1570

Catalogue numbers

PowerTag A9 M63

PowerTag for Acti9 and Multi9 **Monoconnect** offers: "Single-terminal" circuit breakers, RCDs and switches with **18 mm pitch between phase and neutral**, rating less than or equal to 63 A.



PowerTag A9 M63

Type	Mounting	Short description	Cat. no.
1P+wire	Top or bottom	PowerTag A9 M63 1PW	A9MEM1520
1P+N	Top	PowerTag A9 M63 1PN T	A9MEM1521
	Bottom	PowerTag A9 M63 1PN B	A9MEM1522
3P	Top or bottom	PowerTag A9 M63 3P	A9MEM1540
3P+N	Top	PowerTag A9 M63 3PN T	A9MEM1541
	Bottom	PowerTag A9 M63 3PN B	A9MEM1542

Designed to fit the following devices: iC60, Reflex iC60, DT60, iID.

For additional information and the list of Schneider Electric compatible devices, refer to the selection guide CA908058E.

PowerTag A9 P63

PowerTag for Acti9 and Multi9 **PhaseNeutral** offers: "Single-terminal" circuit breakers, RCDs and switches at **pitch of 9 mm between phase and neutral**, rating less than or equal to 63 A.



PowerTag A9 P63

Type	Mounting	Short description	Cat. no.
1P+N	Top	PowerTag A9 P63 1PN T	A9MEM1561
1P+N	Bottom	PowerTag A9 P63 1PN B	A9MEM1562
1P+N RCBO	Bottom	PowerTag A9 P63 1PN B for RCBO	A9MEM1563
3P+N	Top	PowerTag A9 P63 3PN T	A9MEM1571
3P+N	Bottom	PowerTag A9 P63 3PN B	A9MEM1572

Designed to fit the following devices: DT40, iDPN, C40, i DPN Vigi.

For additional information and the list of Schneider Electric compatible devices, refer to the selection guide CA908058E.

PowerTag A9 F63

PowerTag **Flex** for other devices and specific installations, rating less than or equal to 63 A.



PowerTag A9 F63

Type	Mounting	Short description	Cat. no.
1P+N	Top or bottom	PowerTag A9 F63 1PN	A9MEM1560
3P+N	Top or bottom	PowerTag A9 F63 3PN	A9MEM1570

Designed to fit the following devices: Vigi iDT40, Vigi iC40, Vigi iC60, iC60 double terminal, iID double terminal.

For additional information and the list of Schneider Electric compatible devices, refer to the selection guide CA908058E.



Technical characteristics

Main characteristics

Rated voltage	Un	Phase-to-neutral	230 V AC \pm 20 %
		Phase-to-phase	400 V AC \pm 20 %
Frequency			50/60 Hz
Maximum current	I _{max}		63 A
Base current	I _b		10 A
Saturation current			130 A
Maximum consumption		1P+N	\leq 1 VA
		3P/3P+N	\leq 2 VA
Starting current	I _{st}		40 mA

Additional characteristics

Operating temperature			-25°C to +60°C
Storage temperature			-40°C to +85°C
Overvoltage category		As per IEC 61010-1	Cat. III
Measuring category		As per IEC 61010-2-30	Cat. III
Pollution degree			3
Altitude			\leq 2000 m
Degree of protection		Device only	IP20
		IK	05

Radio-frequency communication

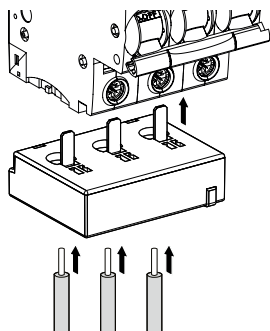
ISM band 2.4 GHz			2.4 GHz to 2.4835 GHz
Channels		As per IEEE 802.15.4	11 to 26
Isotropic Radiated Power		Equivalent (EIRP)	0 dBm
Maximum transmission time			< 5ms
Channel occupancy		Messages sent every	5 seconds minimum

Characteristics of measuring functions

Function			Performance category as per IEC 61557-12
Active power	P	1	9 W to 63 kW
Active energy	E _a	1	Total and partial 0 to 99999999.9 kWh
Current	I	1	2 A to 63 A
Voltage	U	0.5	Un \pm 20 %
Power factor	PFA	1	0 to 1



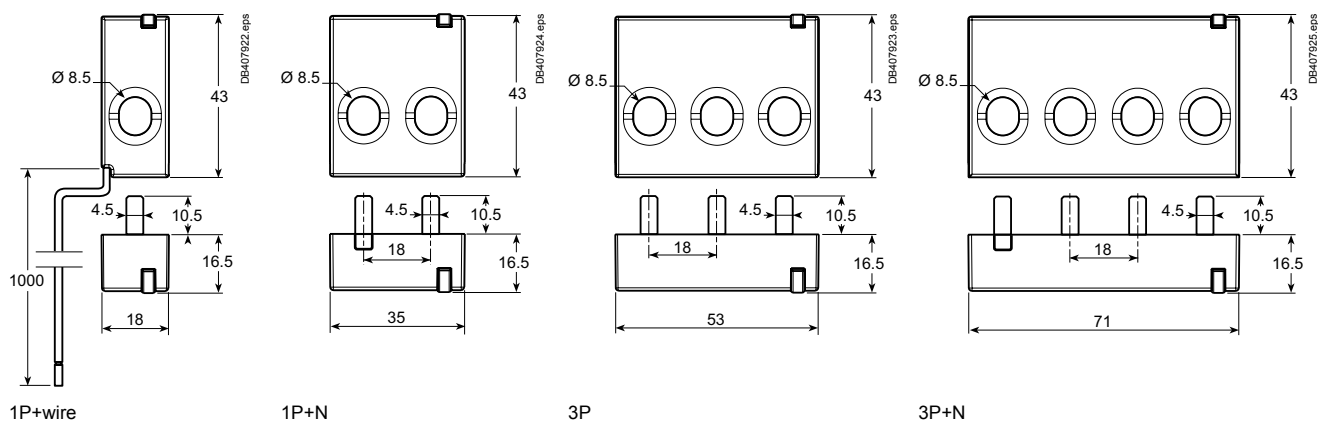
Connection of PowerTag A9 M63



Stripping length	Copper cables					
	Rigid		Flexible		Flexible with ferrule	
18 mm	1.5 to 16 mm ² AWG: 16...6	2 x 1.5 to 2.5 mm ² AWG: 16...14	1.5 to 16 mm ² AWG: 16...6	2 x 1.5 to 2.5 mm ² AWG: 16...14	-	-
18 mm	-	-	-	-	1.5 to 16 mm ² AWG: 16...6	2 x 1.5 to 2.5 mm ² AWG: 16...14

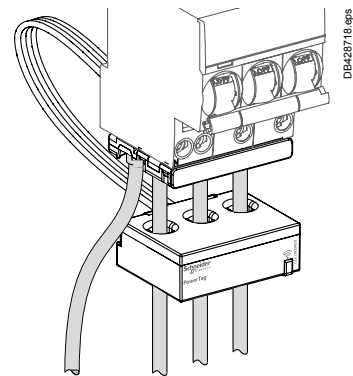
■ Mounting with 18 mm ferrule recommended.

Dimensions (mm)



Weight (g)

PowerTag A9 M63	
Type	
1P+wire	16.4
1P+N	17.5
3P	28
3P+N	35

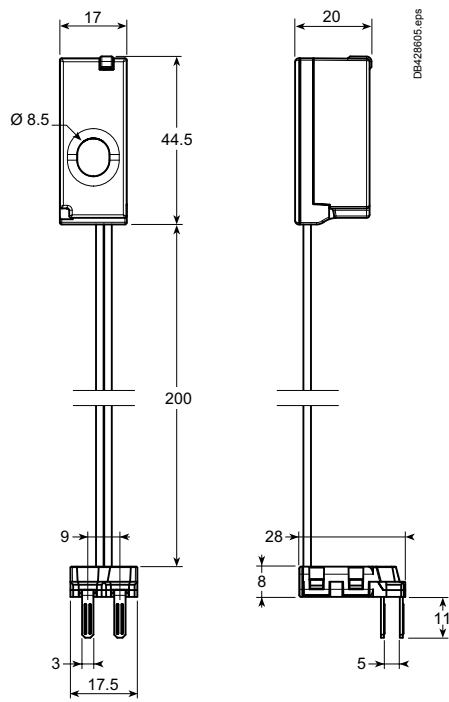


Connection of PowerTag A9 P63

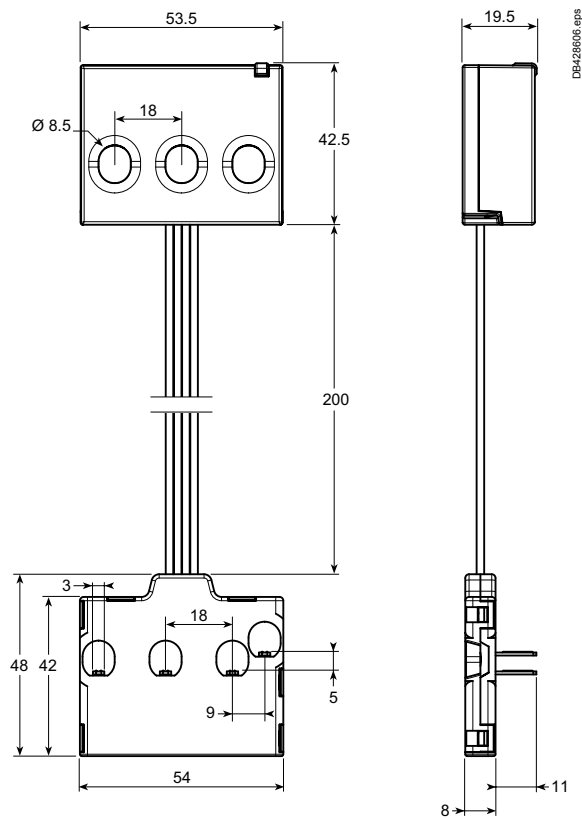
Copper cables					
Rigid		Flexible		Flexible with ferrule	
1.5 to 16 mm ² AWG: 16...6	2 x 1.5 to 2.5 mm ² AWG: 16...14	1.5 to 16 mm ² AWG: 16...6	2 x 1.5 to 2.5 mm ² AWG: 16...14	-	-
-	-	-	-	1.5 to 16 mm ² AWG: 16...6	2 x 1.5 to 2.5 mm ² AWG: 16...14

■ Stripping length: respect the stripping length stated on the device the PowerTag is associated with.

Dimensions (mm)



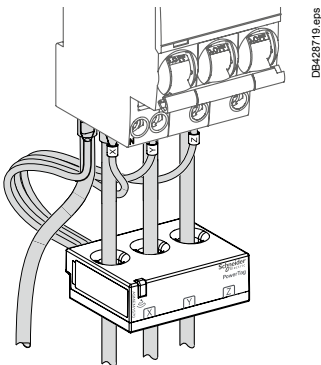
1P+N



3P+N

Weight (g)

PowerTag A9 P63	
Type	
1P+N	42
3P+N	71

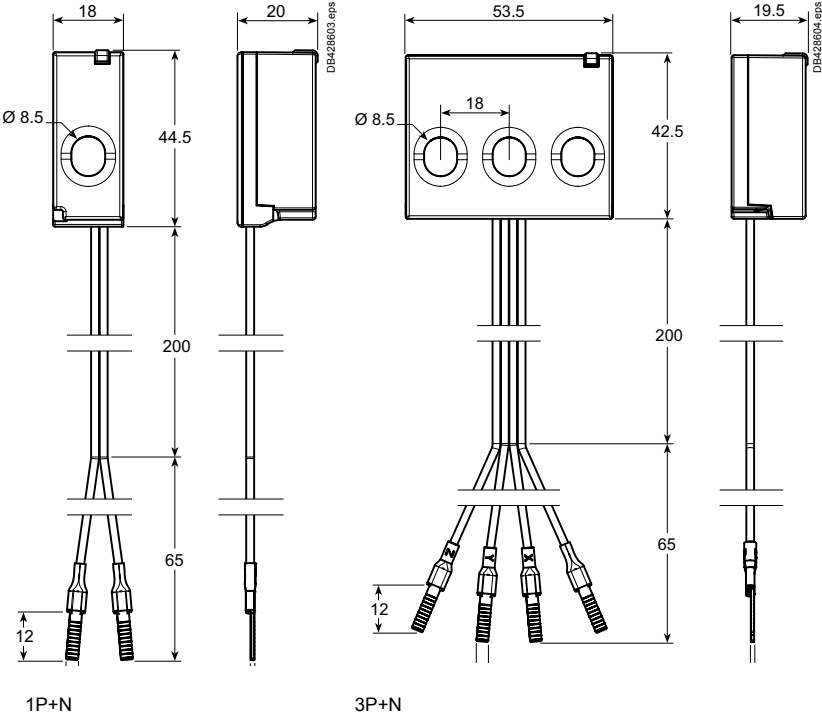


Connection of PowerTag A9 F63

Copper cables					
Rigid		Flexible		Flexible with ferrule	
1.5 to 16 mm ² AWG: 16...6	2 x 1.5 to 2.5 mm ² AWG: 16...14	1.5 to 16 mm ² AWG: 16...6	2 x 1.5 to 2.5 mm ² AWG: 16...14	-	-
-	-	-	-	1.5 to 16 mm ² AWG: 16...6	2 x 1.5 to 2.5 mm ² AWG: 16...14

■ Stripping length: respect the stripping length stated on the device the PowerTag is associated with.

Dimensions (mm)



Weight (g)

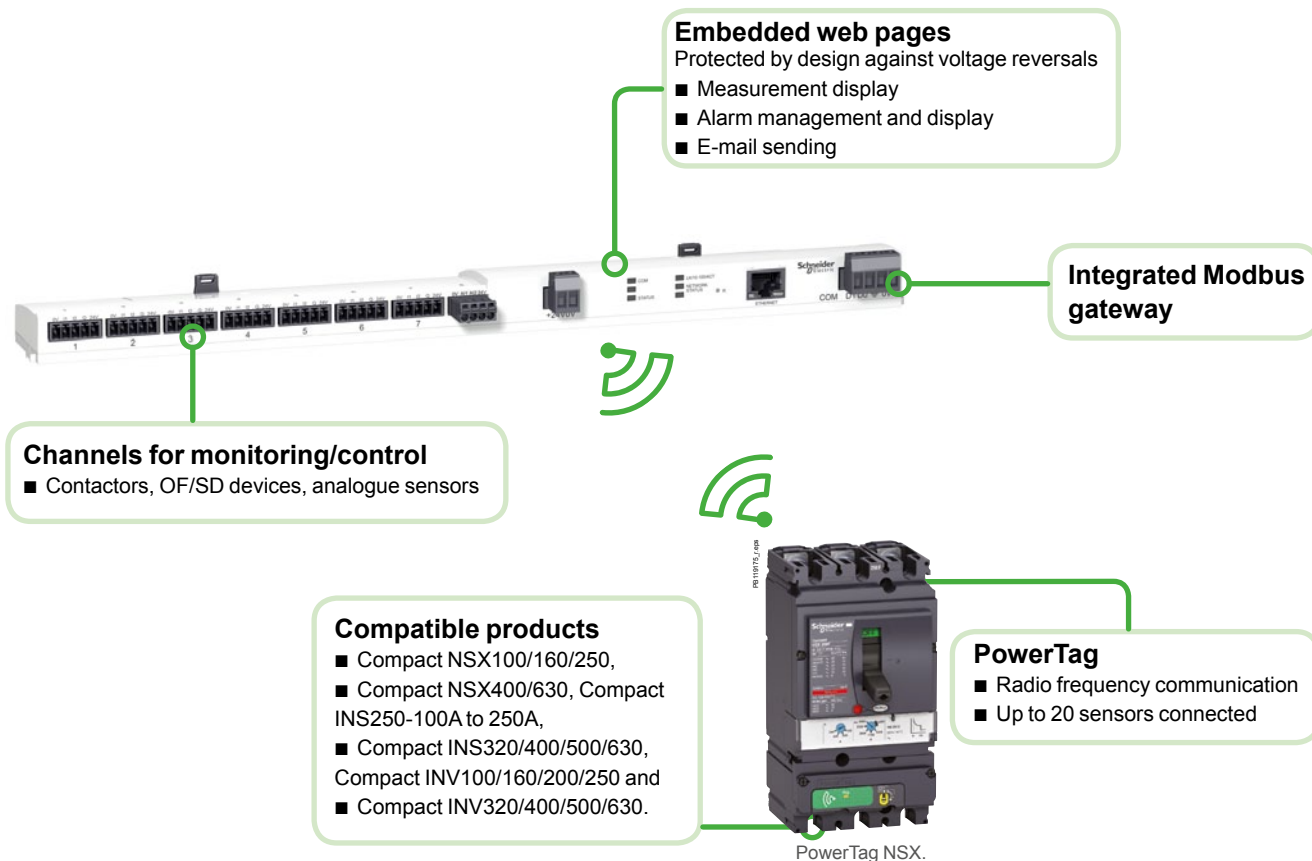
PowerTag A9 F63	
Type	
1P+N	46
3P+N	65



PowerTag for Compact NSX

Communication with Smartlink SI B

PB113286_120.qps



PowerTag for Compact NSX

Communication with Smartlink SI D

Compatible products

- Compact NSX100/160/250,
- Compact NSX400/630, Compact INS250-100A to 250A,
- Compact INS320/400/500/630, Compact INV100/160/200/250 and
- Compact INV320/400/500/630.

Acti9 Smartlink SI D

- Installation on DIN rail
- 230 V AC power supply

Wireless communication

- No wiring required
- Up to 20 sensors connected



Ethernet

Ethernet connector

- 100 Base T - RJ45

PowerTag wireless sensor



PowerTag NSX are new Compact NSX wireless modules for 3P and 3P+N electrical networks, mounted directly on the bottom side of the circuit breaker or the Vigi add-on. PowerTag NSX provide capability to measure energy, monitor voltage loss, and trigger alarms. They then deliver useful data for monitoring and diagnosis of the associated circuit breaker through Smartlink SI concentrators.

In combination with PowerTag for Acti9 or Multi9 circuit breakers, you can take advantage of a full wireless class 1 solution to monitor energy and to be aware in case of voltage loss or alarming at any level of a distribution panel, being able to take immediately the right actions in case of electrical issue. In addition to monitoring and alarming, PowerTag solution provides a complete knowledge of real time electrical values with a rich and accurate data transfer every 5 seconds.

Compared to traditional metering solutions, installation time is much shorter with no wiring, hence an error proof high density solution and a built-in class 1 accuracy.



PowerTag NSX.

Detailed Functions

Combined with Smartlink SI D (Ethernet) or Smartlink SI B (Ethernet) by radio-frequency communication, PowerTag NSX sensors measure the following values in accordance with the IEC 61557-12 standard:

- Voltages (V): phase-to-neutral (V1N, V2N, V3N) and phase-to-phase (U12, U23, U31)
- Currents (A): per phase (I1, I2, I3)
- Power:
 - Active power (W): total and per phase
 - Reactive power (VAR): total
 - Apparent power (VA): total
- Energy
 - Active energy (kWh): total and partial, delivered and received.
 - Active energy per phase (kWh): total.
 - Reactive energy (VARh): partial, delivered and received.
- Frequency
- Power factor

Moreover, pre-set or custom alarming on real time measurement (current, voltage or energy level, running time, voltage loss) provide useful data to monitor and maintain your installation.

Installation

The module is self-powered and is installed directly on the bottom side of the device terminals or Vigi add-on terminals. It communicates wirelessly to SmartLink (SIB or SID) which can concentrate data for up to 20 PowerTag in the same panel.

PowerTag NSX modules are compatible with Compact NSX100/160/250, Compact NSX400/630, Compact INS250-100A to 250A, Compact INS320/400/500/630, Compact INV100/160/200/250 and Compact INV320/400/500/630.

Integration in Smartlink

■ Smartlink concentrate wirelessly data from PowerTag and make them available over Ethernet:

- Acti 9 Smartlink SI D for a metering and monitoring solution (ref: A9XMWA20)
- Acti 9 Smartlink SI B for a metering, monitoring and control (through I/O) solution (ref: A9XMZA08).

■ Smartlink embedded web pages allow:

- to do commissioning
- to display measured values
- to display alarms and pre-alarms.
- Load monitoring:
 - alarm in the event of a voltage loss with the last RMS current value per phase,
 - pre-alarms on predefined thresholds (50 %, 80 %) or customized thresholds (on currents, power, voltages, running time and cumulative energies)
 - alarm management by e-mail.

■ Easy integration into system with Com'X 510 and other Schneider Electric software and third-party Building Management Systems (BMS's) thanks to the EcoReach test report in Excel format. This report provides dynamically all the Modbus registers, including bits and descriptions associated.

Configuration with EcoReach

- Discovery of the device: the product flashes in the switchboard during configuration for easy identification
- Addition of context-related information (name of the load, energy usage, single-line circuit label)
- Partial energy counter can be reset or preset to a special value via the software.



Smartlink SI D.



Smartlink SI B.



D34/00755.eps



Compact NSX

PB119179_L32.eps



PowerTag NSX 3P

PB119175_L.eps

Compact NSX +
PowerTag NSX

Technical characteristics

Main characteristics

Rated voltage	Un	Phase-to-neutral	230 VAC $\pm 20\%$
		Phase-to-phase	400 VAC $\pm 20\%$
Frequency			50/60 Hz
Operating current	In		250 A / 630 A
Maximum operating current			$1.2 \times I_n$
Saturation current			$2 \times I_n$
Maximum consumption			0.5 VA
Starting current	Ist		160 mA / 400 mA
Base current	Ib		40 A / 100 A

Additional characteristics

Operating temperature		-25 °C to +70 °C
Storage temperature		-50 °C to +85 °C
Overvoltage category	As per IEC 61010-1	Cat. IV
Measuring category	As per IEC 61010-2-30	Cat. III
Pollution degree		3
Altitude		2000 m without derating, up to 5000 m
Degree of protection device		IP20
		IK05

Radio-frequency communication

ISM band 2.4 GHz		2.4 GHz 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	messages sent every 5 seconds

Characteristics of measuring functions

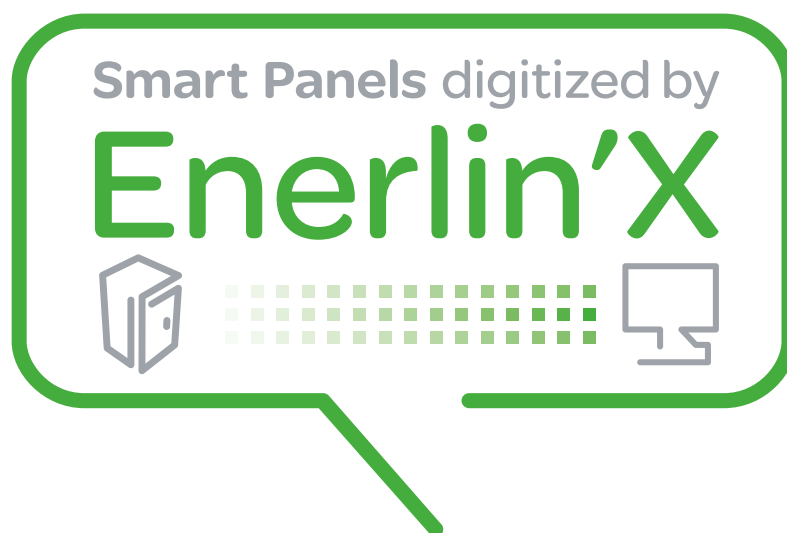
Function	Symbol	Performance as per IEC 61557-12		Measuring range (250 A / 630 A)
		Class	Measuring range (250 A / 630 A)	
Active power (per phase, total)	P	1	4 to 250 A / 10 to 630 A	88 W to 416 kW / 221 W to 1048 kW
Total reactive power	Q_v	2		88 VAR to 416 kVAR / 221 VAR to 1048 kVAR
Total apparent power	S_A	2		88 VA to 416 kVA / 221 VA to 1048 kVA
Active Energy (per phase, total, partial)	E_a	1		0 to 281.109 kWh
Total reactive Energy	E_{rv}	2		0 to 281.109 kVARh
Frequency	f	1	45 to 55 Hz	45 to 65 Hz
Phase current	I	1	8 to 250 A / 20 to 630 A	160 mA to 500 A / 400 mA to 1260 A
Voltages (Line to Line)	U	0.5	Un $\pm 20\%$	320 to 480 VAC
Power factor (arithmetic)	PF_A	1	From 0.5 inductive to 0.8 capacitive	-1 to 1

PowerTag NSX



Rating (A)	205
3P	LV434020
3P+N	LV434021





**Design and
monitoring software
Maintenance mobile
application**



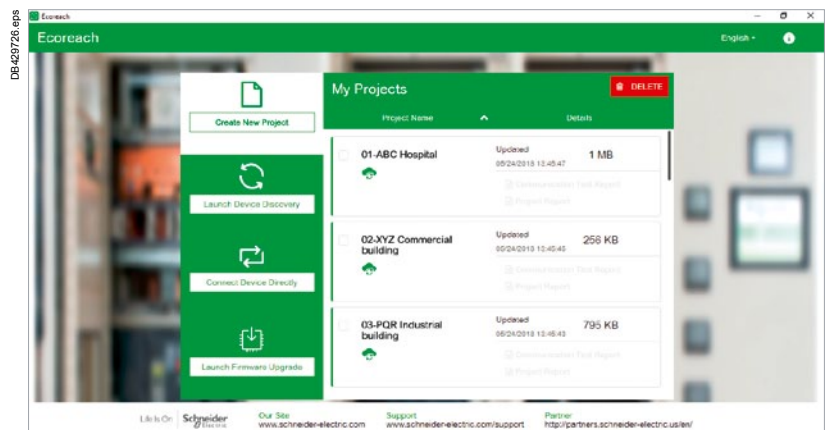
Digitized electrical distribution management software

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 protected 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.

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 window

DS423727 eps

IP ADDRESS	MODBUS ADDRESS	DEVICE NAME	MAC ADDRESS
10.179.90.80	Modbusmaster 1.047	mySmartLum 1676	00:00:43:00:16:76
10.179.90.52	Modbusmaster 1.047	S-052	00:00:43:00:40:52
10.179.90.28	Modbusmaster 1.047	IPS-420004	00:00:43:00:00:54
10.179.947.50	Modbusmaster 1.047	mySmartLum 8040	00:00:43:00:80:40
10.179.90.29	Modbusmaster 1.047	mySmartLum 1279	00:00:43:00:12:79
10.179.947.973	Modbusmaster 1.047	COM300LUM73	00:00:43:00:00:40
10.179.90.33	Modbusmaster 1.047	ComXIO_F8710	00:00:47:79:71:0A
10.179.90.48	Modbusmaster 1.047	ComXIO_F8E44	00:00:47:79:8E:44
10.179.90.54	Modbusmaster 1.047	ComXIO_F8E0E	00:00:47:79:8E:0E
10.179.947.933	Modbusmaster 1.047	ComXIO_F8E0A	00:00:47:79:8E:0A



Click or scan
QR code

Presentation video:
EcoStruxure™ Power
for Small and Medium buildings

EcoStruxure™ Facility Expert, a software for operation & maintenance

EcoStruxure™ Facility Expert helps Business owners and Site Managers to improve the performance of their buildings at lower operating costs, while ensuring at the same time the business continuity. It is a cloud based software available on PCs and mobile devices that provides valuable information on energy costs and on asset conditions along with tools to manage the maintenance activities.

EcoStruxure™ Facility Expert is fully adapted to multi-sites projects delivering performance views and reports to site manager while maintenance manager and field technicians get access to detailed dashboard, instant alerts and maintenance tasks.

Sites manager
Performance monitoring



Facility manager's team
Maintenance

DB428352



EcoStruxure™ Facility Expert leverages all communication capabilities of Smart Panels and EnerlinX components to retrieve energy and operational data on the cloud via Ethernet or cellular network.

Dashboard are pre-configured which enables a simple commissioning. Tested and proven architecture make devices and software simply work. This ensures no extra costs on construction phase.

Schneider Electric partners network

Schneider Electric local partners are trained and certified to sell, install and commission EcoStruxure™ Facility Expert. They can also operate the solution if the site manager wants to delegate this task.



Energy Performance monitoring features

Provide energy, cost, performance information for building energy efficiency.

A set of simple and relevant graphs and charts is available on a web portal.

- Main energy **consumptions tracking**
- Power demand overrun and low power factor tracking and **alerts**
- Consumption **per zones & usage**
- **Multi-site** comparison
- **Energy cost** allocation
- **Building performance:** benchmarking against local energy performance scale (regulatory compliance to ISO5001, LEED, NABERS).

Energy kiosk:

- Displayed on building public TV screens show the site green image to visitors and promote occupant ecofriendly behaviors.

Operation and Maintenance features

Provide maintenance alarms and information shared on maintenance team's mobile devices, to reduce mean time to repair with faster troubleshooting.

- Standard alarms on equipment unintended event
- Custom alerts on crossing thresholds status change
- Events tracking
- Maintenance & repair log records
- Asset information shared by all maintenance contributors.

Commercial references

EcoStruxure™ Facility Expert		Part number
Smart Power subscription 5 energy meters, 5 connected assets, 2 maintenance contributors	For 1 site	SVSFE1001
1 additional connected meter	Optional	SVSFEOPT001
1 additional connected asset	Optional	SVSFEOPT002
Energy cost dashboard	Optional	SVSFEOPT00A
Energy kiosk	Optional	SVSFEOPT007
1 additional maintenance contributor	Optional	SVSFEOPT003






Software and options can be purchased from our website:

<http://godigital.schneider-electric.com/smp/home/home.page>







Index of commercial references

Meters and auxiliaries overview for 'Measure' functions

Energy meters

Type	Pulse output			Modbus	Wireless
					
Series	iEM2000T, iEM2010			iEM215x, iEM315x, iEM325x, iEM335x	PowerTag






Multifunction meters

Output type	Pulse	Modbus TCP, Modbus RTU PowerLogic multifunction meters PM5xxx range, PM8xxx range				
						
Series	PM200P	ION6200	PM3000	PM5300	PM5560	PM8000

Circuit breakers with built-in power meter

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

Acti9 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

Link150, COM'X510

Product	Description	Lot of	Commercial ref.
Interfaces + gateways			
Com'X 210 Ethernet Energy data logger			EBX210
Com'X 510 Ethernet Energy server			EBX510
IFE switchboard server			LV434002
Acti9 Smartlink SI B Ethernet			A9XMZA08
Acti9 Smartlink SI D			A9XMWA20
Interfaces			
Acti9 Smartlink Modbus			A9XMSB11
IFM			LV434000
IFE interface			LV434001
EIFE interface			LV851001
I/O module			
I/O			LV434063
Displays			
FDM128 Ethernet switchboard display			LV434128
FDM121 switchboard display			TRV00121
Accessories for Com'X 210, 510			
	Wi-Fi USB modem		EBXA-USB-WIFI
	Com'X wireless USB interface		consult us
Accessories for Acti9 Smartlink			
USB cable link / Modbus	for Acti9 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
	Linery FM 200 A (4 adapters)	1	A9XM2B04
Spare parts	Lock for Linery FM 80 A (2 clips)	1	A9XMLA02
Connection adapters for Acti9 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
Accessories for IFM			
Stacking accessories			TRV00217
ULP line terminator			TRV00880
Modbus line terminator			VW3A8306RC
RJ45 T connector 0.3 m			VW3A8306TF03
RJ45 T connector 1 m			VW2A8306TF10
Modbus splitter box			LU9GC3
EcoStruxure™ Facility Expert			
Smart Power subscription	For 1 site		SVSFE1001
5 energy meters, 5 connected assets			
2 maintenance contributors			
1 additional connected meter	Optional		SVSFEOPT001
1 additional connected asset	Optional		SVSFEOPT002
Energy cost dashboard	Optional		SVSFEOPT00A
Energy kiosk	Optional		SVSFEOPT007
1 additional maintenance contributor	Optional		SVSFEOPT003

Life Is On



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