ABB

InSite energy management system
Taking scalability, flexibility & energy efficiency to the next level

Smart energy and load management to improve energy efficiency in both sub and final distribution

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- **From large buildings to residences with advanced load management capabilities**
- **Increased possibilities in terms of field device connectivity**
- **Easy integration into third-party software systems**
- **Save up to 20% on energy bill**

InSite energy management system
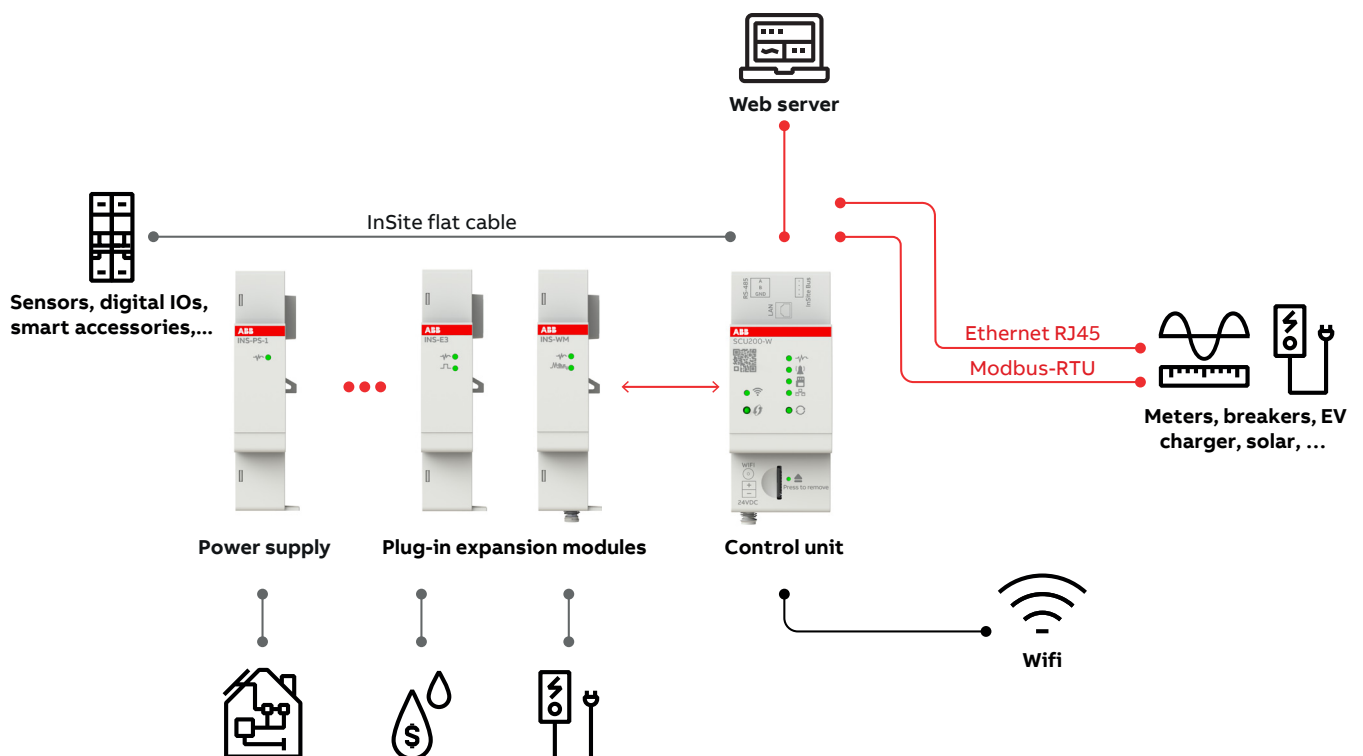## The evolution of the system

The InSite system takes smart energy and load management to the next level, providing a complete solution to optimize energy usage in both sub and final distribution. Through the compact control unit SCU200, data is gathered from the field devices, and then can be accessed via the InSite web server, the ABB Ability™ Energy & Asset Manager or any third-party application.

The new plug-in expansion modules allow the system to be adapted even better to the respective application needs.

Depending on measurement and optimization goals, Wireless M-Bus and Energy Meter modules can be used and plugged to the control unit without tools.
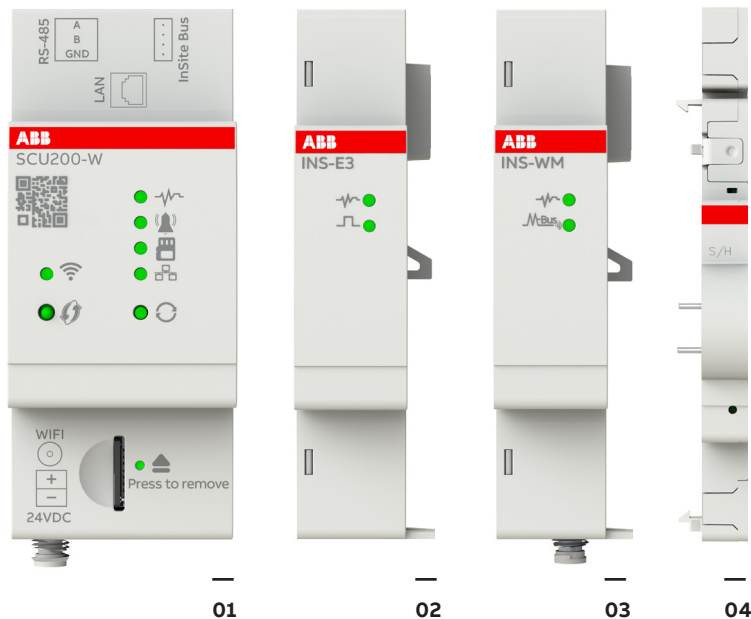
With more automation logics available, load prioritization is optimized, enabling the most efficient use of energy in any residential, commercial or industrial space. And thanks to the openness to third-party integration, loads such as heat pumps, Eletrical Vehicles chargers or energy storage units can also be easily connected to the system, further increasing the potential for energy savings.

The integrated InSite web server has evolved to now include a cost calculation feature, a step-by-step installation wizard and advanced options for setting automated actions to control loads in residential, commercial and industrial buildings, enabling energy savings of up to 20%.

Web server

InSite flat cable

Sensors, digital IOs, smart accessories,...

Ethernet RJ45

Modbus-RTU

Meters, breakers, EV charger, solar, …

Power supply **Plug-in expansion modules** **Control unit**

Wifi

InSite energy management system
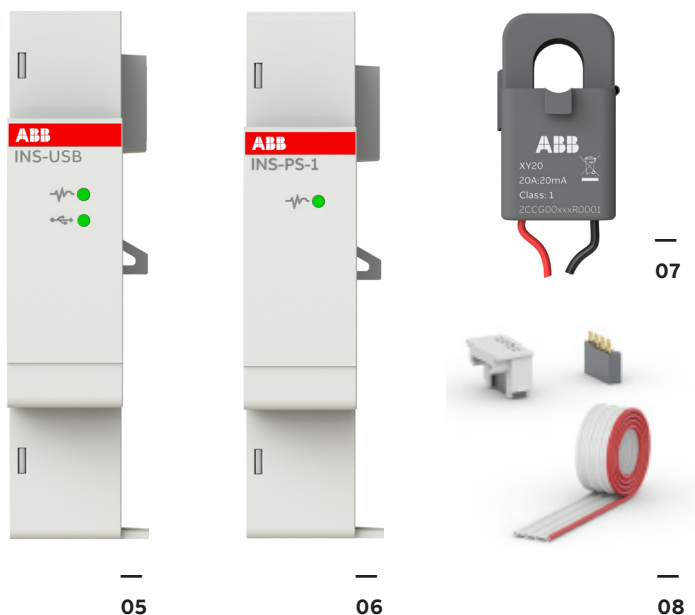## Range overview

01
Control Unit SCU200 / SCU200-W
The core of the system
with integrated web server

02
Energy Meter module
for 1-phase and 3-phase measurement

03
Wireless M-Bus plug-in expansion module
for the integration of
Wireless M-Bus devices

04
Smart Auxiliary and Signal device
for protection device smart monitoring

05
USB module*
for the connection of smart meters
with P1 port

06
Power Supply module
AC to DC converter

07
Split-core Current Transformers
Connectable to Energy Meter module,
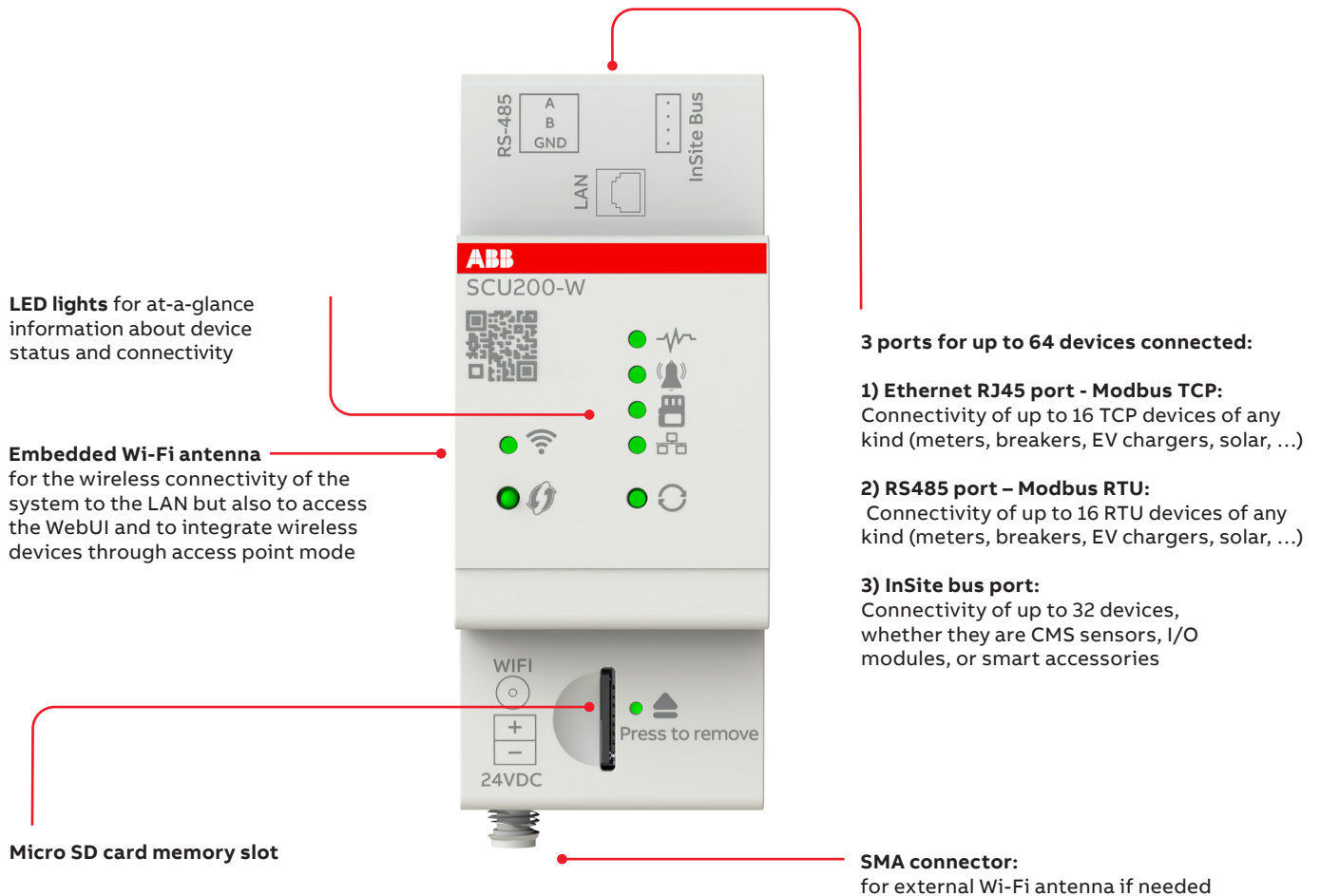for up to 20A, 50A and 80A, Class 1

08
InSite flat cable (INS)
for an easy and fast connection of CMS
sensors, I/O modules and smart accessories

* Availability: Q4 2023

InSite energy management system
Control Unit

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01 Control Unit
   SCU200 / SCU200-W

LED lights for at-a-glance information about device status and connectivity

Embedded Wi-Fi antenna for the wireless connectivity of the system to the LAN but also to access the WebUI and to integrate wireless devices through access point mode

Micro SD card memory slot

3 ports for up to 64 devices connected:

1) Ethernet RJ45 port - Modbus TCP:
Connectivity of up to 16 TCP devices of any kind (meters, breakers, EV chargers, solar, …)

2) RS485 port – Modbus RTU:
 Connectivity of up to 16 RTU devices of any kind (meters, breakers, EV chargers, solar, …)

3) InSite bus port:
Connectivity of up to 32 devices, whether they are CMS sensors, I/O modules, or smart accessories

SMA connector:
for external Wi-Fi antenna if needed
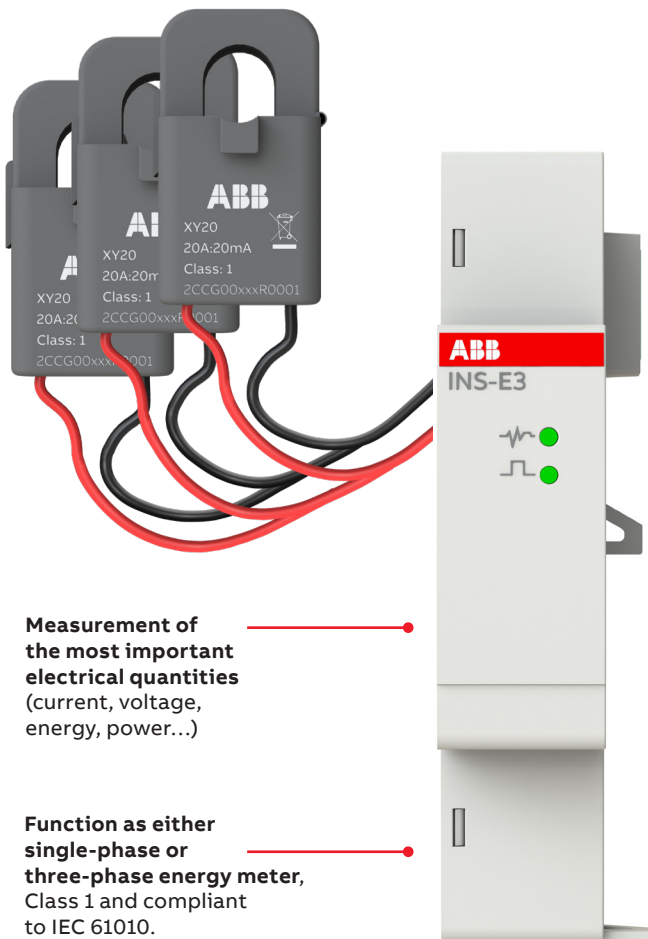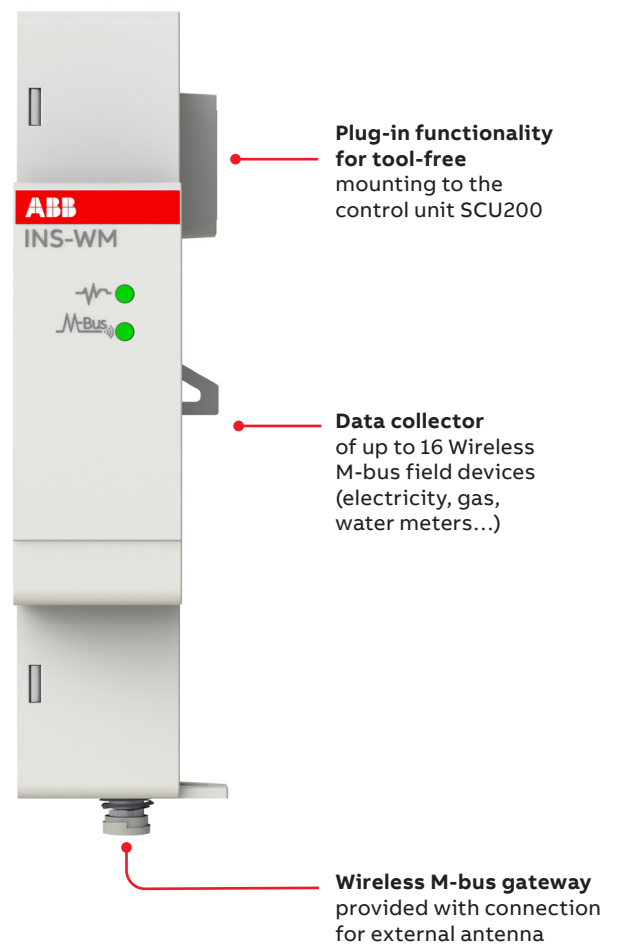
InSite energy management system
Plug-in expansion modules

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02 Energy meter with split-core current transformers

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03 Wireless M-bus

Measurement of the most important electrical quantities (current, voltage, energy, power…)

Function as either single-phase or three-phase energy meter, Class 1 and compliant to IEC 61010.

Plug-in functionality for tool-free mounting to the control unit SCU200

Data collector of up to 16 Wireless M-bus field devices (electricity, gas, water meters…)

Wireless M-bus gateway provided with connection for external antenna

InSite energy management system
Plug-in expansion modules

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04 **Power supply module**

Plug-in functionality
for tool-free mounting to
the control unit SCU200

**Up to 5 modules can be
connected to the control unit**
(SCU200);depending on the type
of modules connected, proper
power supply should be selected

Conversion from 240 Va.c. to
24Vd.c., up to 15W output to power
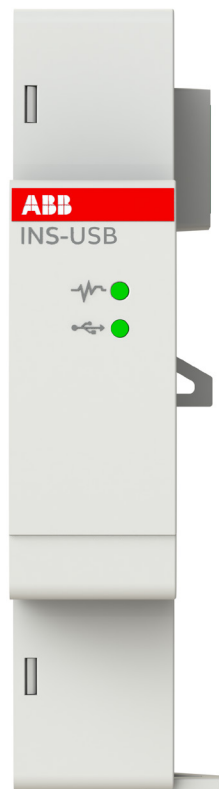the complete InSite system

InSite energy management system
USB module and Smart signaling auxiliary contact

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05 USB module*

**100mA USB port
for the connection** of P1 smart meters
(energy, gas, water)

**Plug-in functionality
for tool-free** mounting to the
control unit SCU200

**500mA USB port future
additional integrations** requiring USB connection

—

06 Smart signaling auxiliary contact

**InSite bus port for
a fast connection** to SCU200 through
CMS flat cable

**Pushbutton for
an immediate
assignment** in the
SCU200 web server

Embedded sensors for measurement of
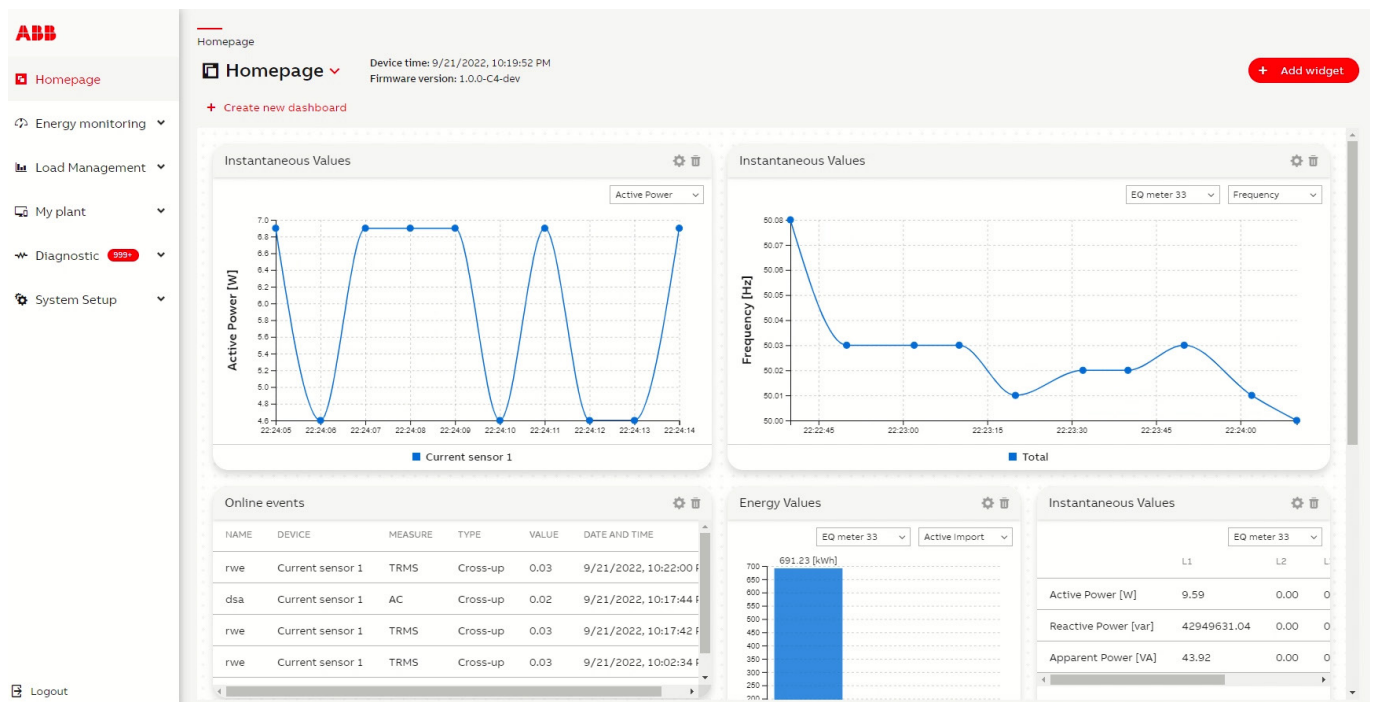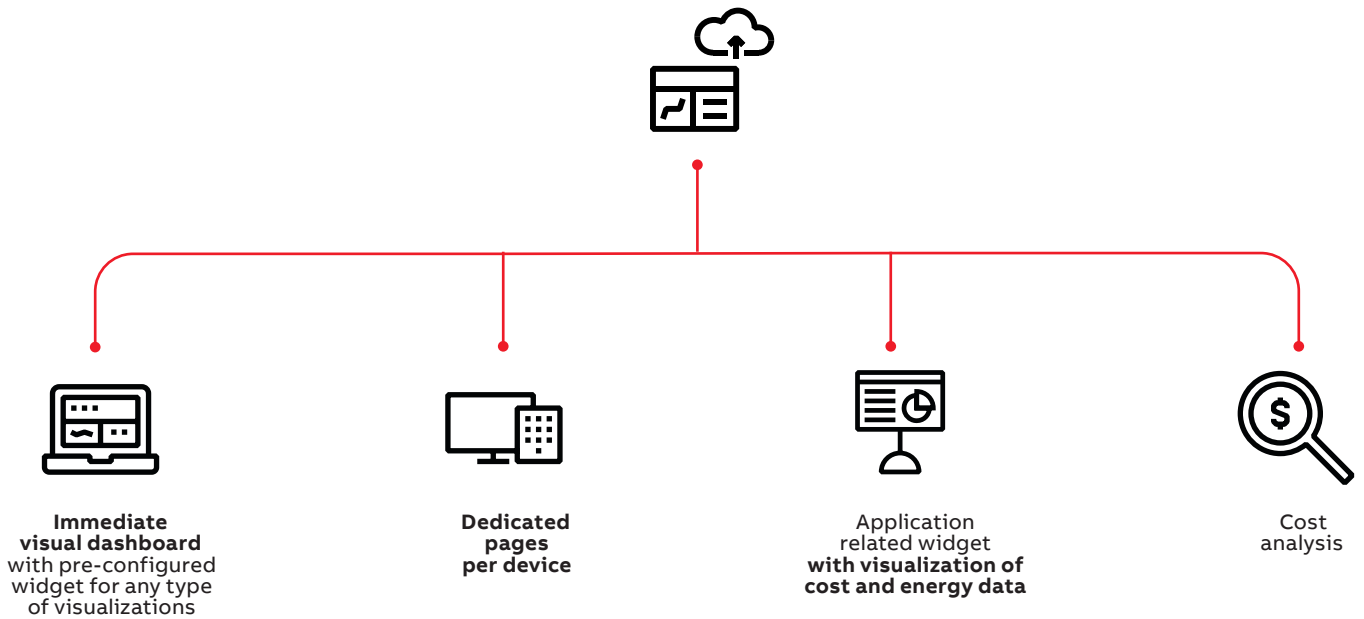internal temperature
of MCBs

Design compatible with both pin and
fork busbars

* Availability: Q4 2023

InSite web server
Highlights

Once the system is installed, it can be connected to the integrated InSite web server with automatic device recognition. It provides remote access to data transmitted of the field devices, as well as a step-by-step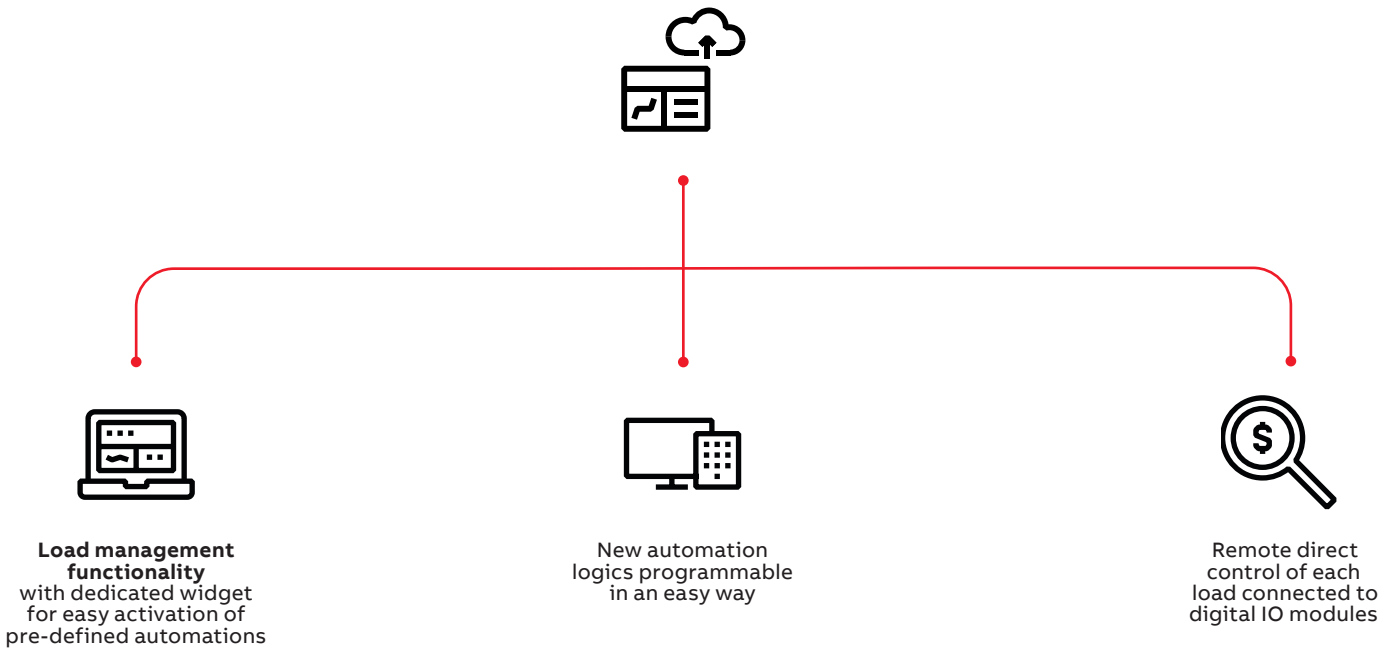 installation wizard, a cost calculation feature, and automated actions to optimize the prioritization of loads for the most efficient use of energy.

Immediate visual dashboard with pre-configured widget for any type of visualizations

Dedicated pages per device

Application related widget **with visualization of cost and energy data**

Cost analysis

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InSite web server dashboard

InSite web server
Highlights

Load management functionality
with dedicated widget for easy activation of pre-defined automations

New automation logics programmable in an easy way

Remote direct control of each load connected to digital IO modules

MODBUS ID ▲	PORT	PORT NAME	DEVICE TYPE	ACCESSORY TYPE	STATUS	ACTION
1	1	I/O Module 1 Port 1	-	-	Close	⬤
1	2	I/O Module 1 Port 2	-	-	Close	⬤
3	1	I/O Module 3 Port 1	-	-	Open	○
3	2	I/O Module 3 Port 2	-	-	Open	○
3	3	I/O Module 3 Port 3	-	-	Open	○
3	4	I/O Module 3 Port 4	-	-	Open	○

Sidebar menu:
ABB — Homepage — Energy monitoring — Load Management — Dashboard — Control — Automations — My plant — Diagnostic 315 — System Setup — Logout

Load Management — Control

—
InSite web server - load management functionality

InSite energy management system
Technical features

SCU200 / SCU200-W	Technical feature	Unit	Description
	Supply voltage	[V]	24VDC +/- 10%
	Current	[A]	Max 0.7
	Connection		InSite modular bus
	Power consumption	[W]	2.5 … 15 (depending on the CPU load, interfaces and InSite bus load)
	Refresh time		1sec / 30 sec (depending on type of data)
	Data storage and export		Integrated data storage (expandable through microSD card, support up to 32GB)
			Automatic CSV data export
	Communication protocols		Modbus TCP/IP
			Rest API
			DHCP
			HTTPS
			NTP
	Communication ports	[Mbit/s]	Ethernet, 10/100
			RS485 (120Ω termination default)
			WiFi 2.4 GHz IEEE 802.11 b/g/n*
			InSite bus
	External antenna port*		Female SMA / 50Ω / 2.4 GHz
	Data rate of Modbus RTU		RS485 2- wire, 2400…115200
	External Antenna (not included)*		Male SMA / 50 Ohm / 2.4 GHz max 4.7 dBi
	Power supply 24VDC connection		
	Conductor cross section solid /flexible	[mm²]	0.2 … 1
	AWG	[AWG]	28-17
	Strip length	[mm]	10
	RS485 port connection		
	Conductor cross section solid /flexible	[mm]	0.14 … 1.5
	AWG solid conductor	[AWG]	28-16
	AWG flexible conductor	[AWG]	26-14
	Strip length	[mm]	8 … 9
	Connected devices		Up to 32 CMS sensors/digital channels/smart accessories
			Up to 16 Modbus TCP/IP and 16 Modbus RTU devices
	Mounting method		35mm DIN rail (DIN 5022)
	Degree of protection		IP20
	Dimensions	[mm]	35.8x87x64.9 (2M)
	Weight	[g]	105
	Operating temperature	[°C]	-25… +55
	Storage temperature	[°C]	-40… +85
	Operating altitude	[m]	0… 2000
	Standards		IEC61010-1
			IEC 61326-1

* to be added because only SCU200-W

INS-USB*	Technical feature	Unit	Description
	Supply voltage	[VDC]	Supplied by the InSite modular bus
	Connection		InSite modular bus
	Power consumption	[W]	0.4 (standby)
	Communication protocol		USB 1.1 (max speed 12Mbps)
	Power capabilities		100mA @5V (USB P1 port) 500mA @5V (bottom USB port)
	Mounting method		35mm DIN rail (DIN 5022)
	Degree of protection		IP20
	Dimensions	[mm]	17.5x87x65 (1WM)
	Weight	[g]	46
	Operating temperature	[°C]	-25... +60
	Storage temperature	[°C]	-40... +85
	Operating altitude	[m]	0... 2000
	Standards		IEC61010-1
			IEC 61326-1

* Availability: Q4 2023

InSite energy management system
Technical features

INS-E3	Technical feature	Unit	Description
	Supply voltage	[VDC]	Supplied by the InSite modular bus
	Connection		InSite modular bus
	Power consumption	[W]	0,7
	Network type		three phase + N
	Voltage input connection		screwless terminal block
	Voltage specified measurement range (full accuracy)	[VAC]	80-240 (L1,2,3-N)
	Voltage limit range of operation	[VAC]	0 - 277
	Frequency	[Hz]	50 / 60
	Current transformer supported secondary side	[mA]	nom.: 0 - 40 max.: 48
	Current specified measurement range (full accuracy)	[mA]	1 - 40
	Accuracy (@25C, device only)	Voltage	0,5%
		Current	0,5%
		Active power	1%
		Apparent power	1%
		Reactive power	1%
		Power factor	1%
		Active Energy	1%
		Apparent Energy?	1%
		Reactive Energy?	1%
	Conductor cross -section		
	Solid /fine -stranded conductor	[mm²]	0.14…1.5
	AWG solid conductor	[AWG]	28-16
	AWG fine -stranded conductor	[AWG]	26-14
	Fine-stranded conductor with insulated ferrule	[mm²]	0.25 … 0.75
	Fine-stranded conductor with uninsulated ferrule	[mm²]	0.25 … 1.5
	Strip length	[mm]	8…9
	Mounting method		35mm DIN rail (DIN 5022)
	Degree of protection		IP20
	Dimensions	[mm]	17.5x87.0x64.9 (1WM)
	Weight	[g]	~52
	Operating temperature	[°C]	-25...+60
	Storage temperature	[°C]	-40...+85
	Operating altitude	[m]	0...2000
	Standards		IEC61010-1
			IEC 61326-1

INS-WM

Technical feature	Unit	Description
Supply voltage	[VDC]	Supplied by the InSite modular bus
Connection		InSite modular bus
Power consumption	[W]	0,5
Communication protocol		Wireless M-Bus
RF mode		C1 and T1
Frequency band	[MHz]	868.95
Max RF output power		RF mode – receiver only
Max RF input power	[dBm]	10
External antenna (not included)		male SMA / 50 Ohm / 868.95MHz
Mounting method		35mm DIN rail (DIN 5022)
Degree of protection		IP20
Dimensions	[mm]	17.5x87x64,9 (1M)
Weight	[g]	48,54
Operating temperature	[°C]	-25... +60
Storage temperature	[°C]	-40... +85
Operating altitude	[m]	0… 2000
Standards		IEC61010-1
		IEC 61326-1

INS-PS-1

Technical feature	Unit	Description
Supply voltage	[V]	100...240 VAC +/-10% 110...350 VDC (tolerance included)
Connection		
Solid conductor	[mm2]	0.14 ... 1.5 (28 ... 16 AWG)
AWG solid conductor	[AWG]	28-16
Fine-stranded conductor	[mm2]	0.14 ... 1.5 (26 ... 14 AWG)
Fine-stranded conductor; with insulated ferrule	[mm2]	0.25 ... 0.75
Fine-stranded conductor; with uninsulated ferrule	[mm2]	0.25 ... 1.5
Strip length	[mm]	8 ... 9 mm (0.31 ... 0.35 in)
Connection type		screwless
Power output	[W]	10W nominal / 15W boost
Max input Current	[mA]	180
Frequency		50/60Hz ± 5%
Power input (L1-N)		18W max
Conductor cross-section		1.5mm2 max
Mounting method		35mm DIN rail (DIN 5022)
Degree of protection		IP20
Dimensions	[mm]	17.5x87.0x64.9 (1WM)
Impact test		IK06
Weight	[g]	77
Operating temperature	[°C]	- 25... + 60
Storage temperature	[°C]	- 40... + 85
Operating altitude	[m]	0… 2000
Standards		IEC 61010-1
		IEC 61326-1
Declarations		CE, UKCA

InSite energy management system
Technical features

INS-S/H	Technical feature	Unit	Description
	Supply voltage	[VDC]	Supplied by the InSite modular bus
	Connection		InSite modular bus
	Power loss	[W]	0,1
	Mounting Position:		Right
	Pluggable accessories		S2CHR (x2)
			S2C-S/HR (x2)
	Suitable for Product Class:		Miniature Circuit Breaker Residual Current Device Arc Fault Detection Devices
	Suitable For:		MCBs S200 series, S300P
			RCDs F200, DS201
			AFDDs S-ARC1 , DS-ARC1
			Switch disconnectors SD200
	Mounting method		35mm DIN rail (DIN 5022)
	Degree of protection		IP20
	Dimensions	[mm]	8.8x103x74
	Weight	[g]	30
	Operating temperature	[°C]	-25... +60
	Storage temperature	[°C]	-40... +85
	Operating altitude	[m]	0... 2000
	Standards		IEC61010-1
			IEC 61326-1
			IEC 60068
			IEC / EN 62019 for Main functionality
			IEC 60947-5-1 for Main functionality
			IEC61009 for RCDs compatibility
			EN 60898-1 for MCBs compatibility

CTS-1-20/50/80	Technical feature	Unit	Description
	Input Current	[A]	See Table below (Current Input/Output Table)
	Max Input Current	[A]	120
	Frequency range	[Hz]	50…1000
	Turns ratio	[-]	See Table below (Current Input/Output Table)
	Output Current	[mA]	See Table below (Current Input/Output Table)
	Accuracy	[-]	Class 1 (EN 61869-2)
	Working voltage/Phase voltage	[V]	<= 720
	Dielectric strength		3.5kV / 1min, 5mA, 50Hz
	Dimensions CT	[mm]	22.8x25.8x40
	Maximum diameter of primary wire	[mm]	10
	Cross section lead wire (seconday)	[mm^2]	0,3
	Length of lead wire (secondary)	[mm]	500
	Material of core		Ferrite
	Weight	[g]	45
	Operating temperature	[°C]	-25… +60
	Storage temperature	[°C]	-30… +90
	Operating altitude	[m]	0… 2000
	Standards		EN 61869-2
	Standards		IEC61010-1

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Current Input/Output Table:

Device	Input Current	Unit	Turns Ratio	Unit	Multiplicator	Output Current	Unit
CTS-1-20	20	[A]	1:1000	[-]	1000	20,00	[mA]
CTS-1-50	50	[A]	1:3000	[-]	3000	16,67	[mA]
CTS-1-80	80	[A]	1:3000	[-]	3000	26,67	[mA]

InSite energy management system
Ordering data

Description	GTIN 7612271 EAN	Ordering details		Weight of 1 unit (kg)	Packaging unit (pce.)
		Brief description	Product no.		
Control Unit	516284	SCU200	2CCG001158R0001	0.101	1
Control Unit with wireless interface	516277	SCU200-W	2CCG001157R0001	0.105	1
Digital Input and Output Modules					
Digital Input Module	508135	DM11	2CCG000245R0001	0.075	1
Digital Output Module	508142	DM00	2CCG000246R0001	0.085	1
Digital Input and Output Module	508159	DM10	2CCG000247R0001	0.080	1
Metering, Expansion and Communication Modules					
Split-core Current Transformer - 20A	516437	CTS-1-20	2CCG001154R0001	0.045	1
Split-core Current Transformer - 50A	516444	CTS-1-50	2CCG001155R0001	0.045	1
Split-core Current Transformer - 80A	516451	CTS-1-80	2CCG001156R0001	0.045	1
Energy Meter Module - 40mA	516291	INS-E3	2CCG001159R0001	0.052	1
Power Supply Module - 15W	516406	INS-PS-1	2CCG001160R0001	0,077	1
Wireless M-bus Module	516413	INS-WM	2CCG001171R0001	0.048	1
USB Module*	518202	INS-USB	2CCG001351R0001	0,046	1
Smart Signal/Auxiliary Contact	516826	INS-S/H	2CCG001213R0001	0.028	1
Accessories					
Flat cable 2m	519803	INS102	2CCG001491R0001	0.017	1
Flat cable 5m	508111	INS105	2CCG000243R0001	0.046	1
Flat cable 10m	519810	INS110	2CCG001493R0001	0.090	1
Flat cable 30m	519827	INS130	2CCG001494R0001	0.270	1
Connector set (35pcs)	508128	INS135	2CCG000244R0001	0.024	35

* Availability: Q4 2023

ABB

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ABB Ltd.
ABB Electrification
Smart Buildings Division

https://solutions.abb/beyondconnected