



ABB Data Center Solutions
Where continuity really matters

DATA CENTER SOLUTION DAY 2023 | JAKARTA | 19 OCTOBER 2023

Redefined energy sub-distribution for data center

Smart - Power Distribution Unit / Remote Power Panel

Jiwa Ginanjar Hadi, Product Marketing Manager, Electrification Smart Buildings, Indonesia

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Your Data Center Partner

Integrating renewables, power, automation and services

HVAC components

- High efficiency motors
- Variable speed drives
- ABB Ability™ electrical Distribution Control System (DCS)

MV power distribution

- Protection relays
- Distribution transformers
- Active voltage conditioning

Renewable integration

Power Quality

- Harmonics active filters
- Power factor correction
- Active voltage conditioner

Back-up power

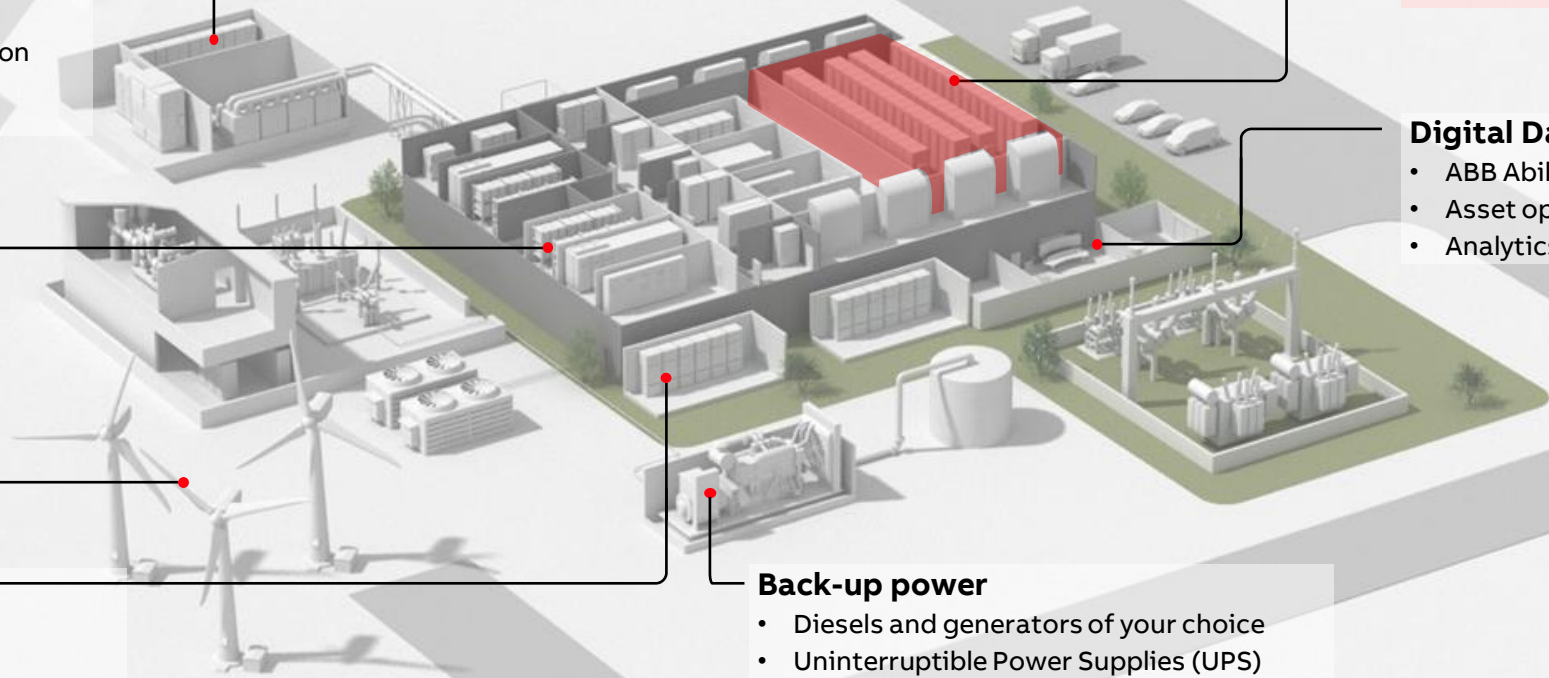
- Diesels and generators of your choice
- Uninterruptible Power Supplies (UPS)
- Battery Energy Storage Systems (BESS)

LV power distribution

- LV switchgear
- Remote Power Panels
- Busway Distribution Solutions
- ABB Ability™ electrical Distribution Control System (DCS)

Digital Datacenter Operations (DDO)

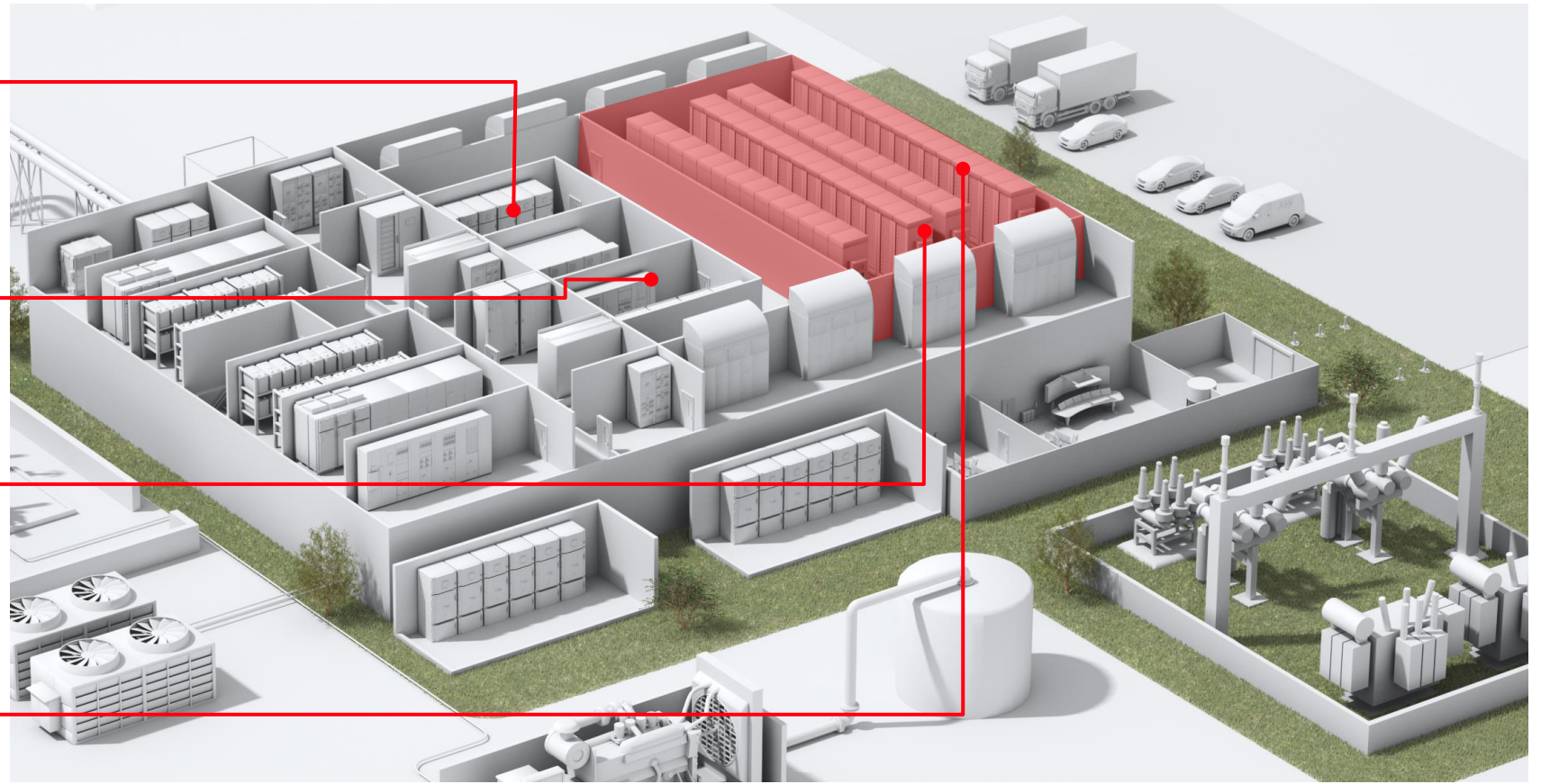
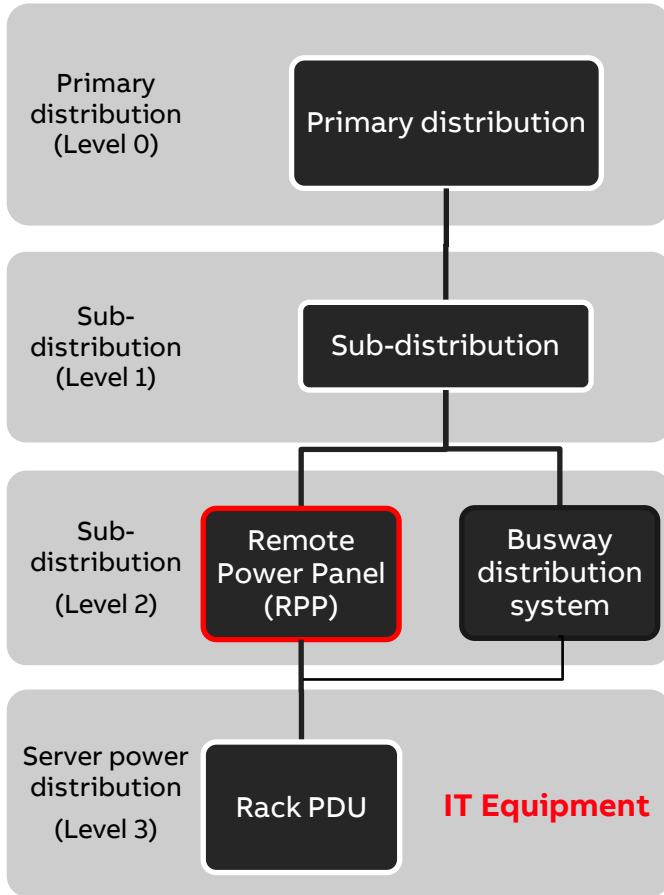
- ABB Ability™ data center automation
- Asset optimization
- Analytics engine



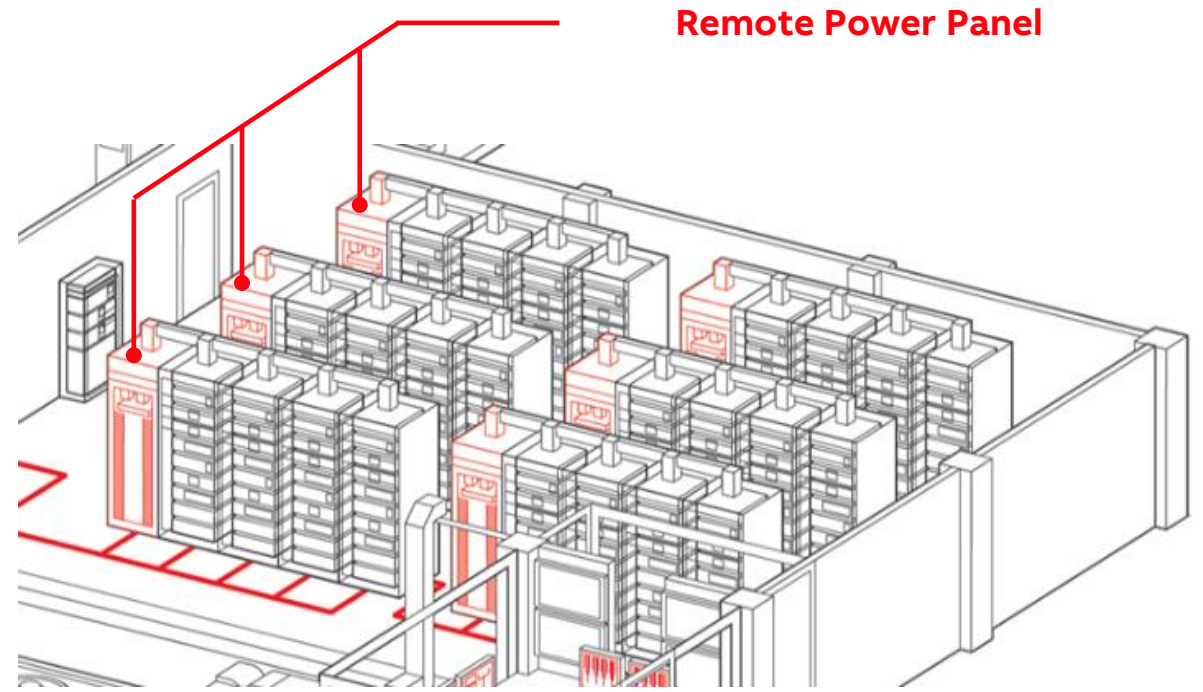
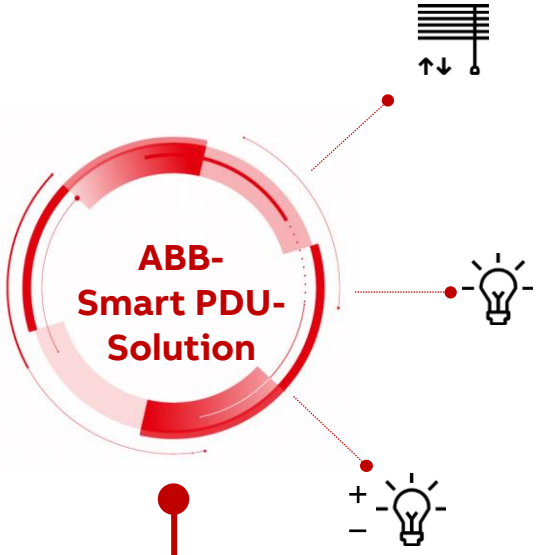
Complete portfolio of products, solutions and services for the data center industry

Energy Distribution for Data Center

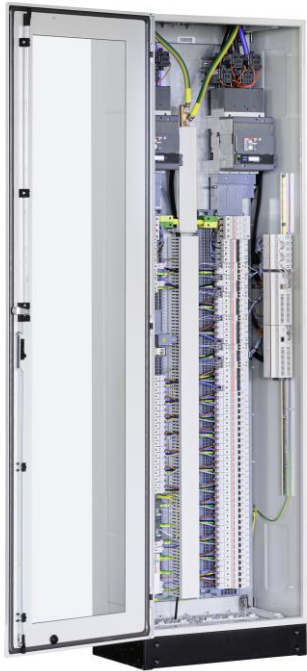
Power Distribution Levels



SMARTER PANEL



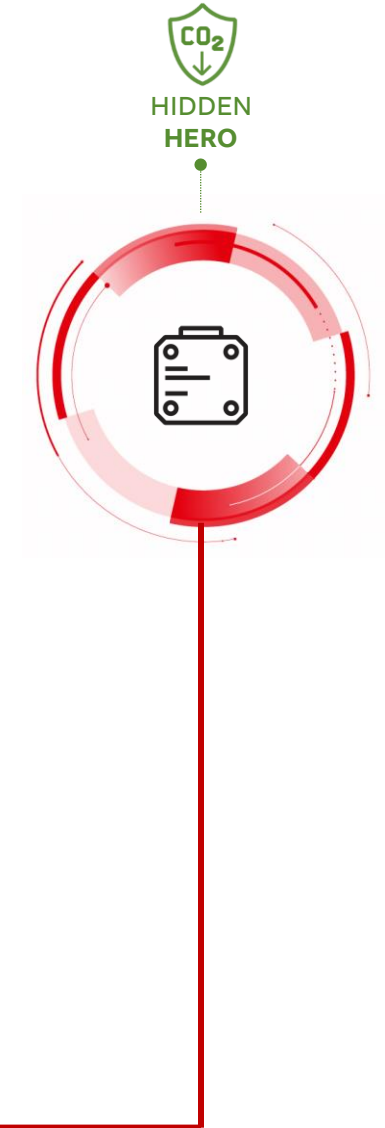
REMOTE POWER PANEL: SMART PANEL SOLUTION

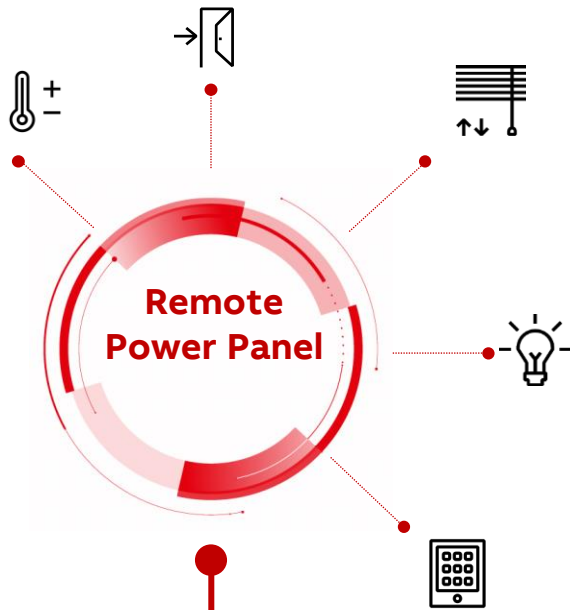


Energy Distribution for Data Center

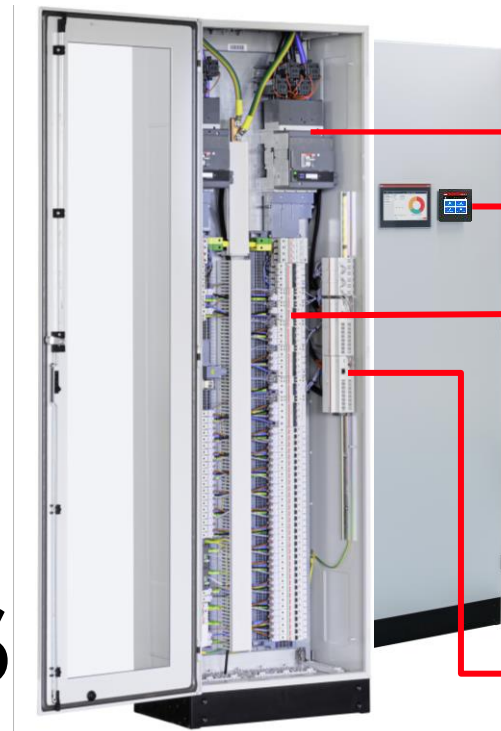
What is a Remote Power Panel?

- + Remote Power Panels are installed close to the server cabinets
- + RPPs are power distribution units (PDUs) with the purpose to distribute power to servers
- + RPPs generally supply rack PDUs that are used inside the server cabinets





MAIN COMPONENTS



- 1 Molded Case Circuit Breaker
- 2 SMISLINE Power Bar System
- 3 Network Analyzer
- 4 Circuit Monitoring System



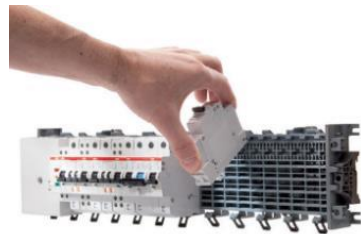
Molded Case Circuit Breaker

- High breaking capacity in compact dimensions
- Increased safety for your whole Data Center
- For more information add an intelligent module like the Ekip Display



SMISLINE TP System

- Add or change devices under voltage
- Touch proof operation without personal protective equipment



Network Analyzer

- Measures the efficiency and power consumption of your RPP
- All information about voltage and current on a quick sight
- Protocols like RS485 allow an integration in your Control-System



Circuit Monitoring System

- Retrofit into existing installations
- Commissioning with integrated webserver
- AC and DC measurement without additional space
- Scalable and flexible bus wiring



Energy Distribution for Data Center

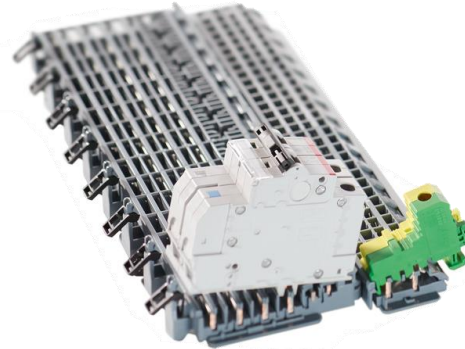
SMISLINE Touch Proof busbar system -Safer, faster and even more flexible

Safe



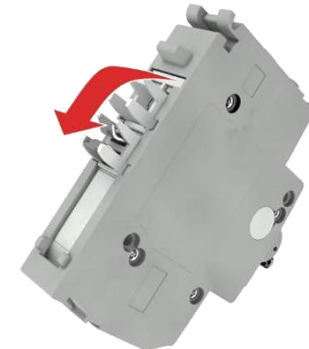
- load-free plugging in and unplugging possible live
- Touch proof operation without gloves or additional personal protective equipment

Fast and Flexible



- rapid replacement, easy expansion, mixed-pole layout possible
- Modular and upgradable system, possibility to equip or extend the busbar on-site
- No downtime

Economical



- saves time and space thanks to the plug-in technology
- Load balancing by easily changing the phase at the MCB
- Fast installation
- No specific electrical education needed to work with the system

Energy Distribution for Data Center

SMISLINE Power Bar – Designed to withstand

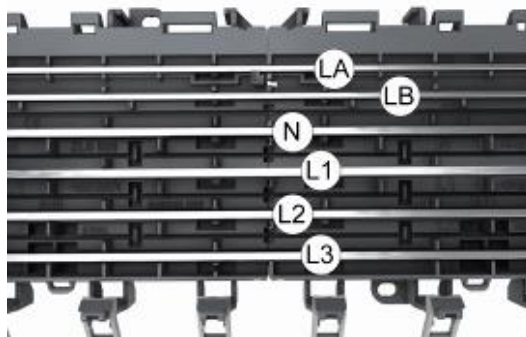
SMISLINE Touch Proof and Power Bar



125A



250A



Technical features

Overload and short-circuit protection EN61439-6

Conditional IEC:

- 100kA/ABB Tmax XT4 250 A 415V for 125A/250A system
- 25kA/ABB Tmax T/XT 250 A 690V for 125A/250A system

Unconditional IEC:

Rated peak withstand current (I_{pk}) Main circuit: 30 kA

Rated voltage U_n: IEC: 690V AC 1000V DC;

Max. rated current: 125A; 250A

Approvals (without additional socket):

EN61439-6 VDE, UL508A for 125A and 250A system

DNV/GL

CCC is for a busbar system not needed

The new SMISLINE Power Bar

Designed to withstand

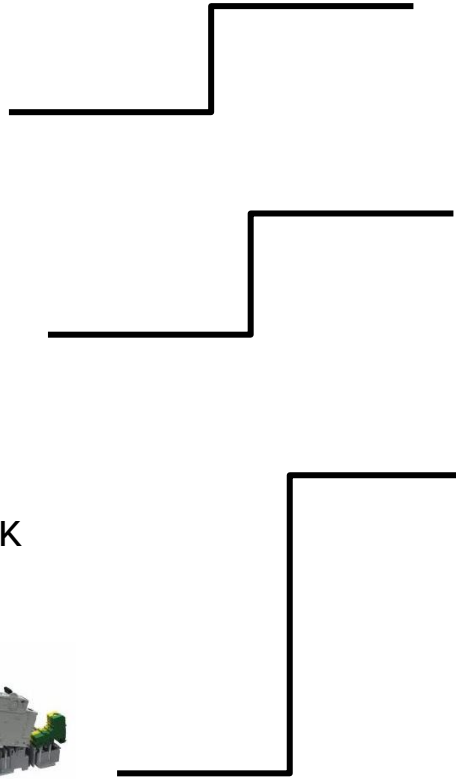
Direct Feed connection
to Molded Case Circuit
Breaker



Optional devices: Heat Sinks
They can reduce the average
temperature at the XT4 by 15K



Busbar combination of 3P-3P+N
From 125A – 250A configuration of
phases at your fingertips



Quick and Simple installation
Position, tip back, nap I, lock and
connect



Safely working without personal
protection under power load-free
plugging in and unplugging

Energy Distribution for Data Center

Product range composition – network analyzer for entry to mid level measurement

M1M 15



M1M 15 is a multi-function meter with LED display:

- Voltage, Current, Frequency
- Complete power and energy (active, reactive, apparent)

Product name	Comm. Protocol	I/O	Accuracy
M1M 15	-	-	Class 1
M1M 15 Modbus	Modbus RTU	-	Class 1

M1M 20



M1M 20 is a basic power meter with LCD display:

- Voltage, Current, Frequency
- Complete power and energy + 4 quadrants
- Total Harmonic Distortion (THD)

Product name	Comm. Protocol	I/O	Accuracy
M1M 20	-	-	Class 1
M1M 20 Modbus	Modbus RTU	-	Class 1
M1M 20 Ethernet	Modbus TCP/IP	-	Class 1
M1M 20 I/O	Modbus RTU	2DI, 2DO	Class 0,5S

M1M 30



M1M 30 is a power meter with LCD display:

- Voltage, Current, Frequency
- Complete power and energy + 4 quadrants
- Total Harmonic Distortion (THD), unbalances and single harmonics (up to 40)
- Avg/max/min values and Real Time Clock

Product name	Comm. Protocol	I/O	Accuracy
M1M 30 Modbus	Modbus RTU	2DO	Class 1
M1M 30 Ethernet	Modbus TCP/IP	2DO	Class 1
M1M 30 I/O	Modbus RTU	2DI, 2DO	Class 0,5S

Energy Distribution for Data Center

Range composition – network analyzer for intermediate level measurement

M4M 20



M4M 20 is an accurate network analyzer for **basic** power monitoring and power quality analysis:

- **Complete electrical parameters** measurement (including avg/max/min, bi-directional metering)
- **Basic power quality** (THD, calculated neutral current)
- **Basic energy management** (max. demand, I/O)

M4M 30



M4M 30 is an accurate network analyzer for more **complete** power quality analysis and energy management:

- **Complete electrical parameters** measurement (including avg/max/min, bi-directional metering)
- **Power quality** (THD, individual harmonics, unbalances, measured neutral current, power quality events, waveforms and phasors visualization)
- **Energy management** (max. demand, I/O, tariffs)
- **Log functionalities** (1-year flash memory for load profiles, max/min demand, energy trends)

Network Analyzer



		M1M 10	M1M 12	M1M 15	M1M 20	M1M 30	M4M 20	M4M 30
Accuracy Class	Active Power, Energy	-	1%	1% (IEC 61557-12)	1 (IEC 61557-12) Option: 0,5S	1 (IEC 61557-12) Option: 0,5S	0,5 (IEC 61557-12) 0,5S (IEC 62053-22)	0,5 (IEC 61557-12) 0,5S (IEC 62053-22)
Measurement	Direct voltage up to 690V	-	-	-	-	-	■	■
	Current via CT (.../1A or .../5A)	■	■	■	■	■	■	■
	Current via Rogowski coils	-	-	-	-	-	■	■
Real-time	Voltage, Current, Frequency	■	■	■	■	■	■	■
	Power, Power Factor	-	Active	■	■	■	■	■
Energy	Active, Reactive, Apparent	-	Active	■	■	■	■	■
	Import/Export	-	-	-	■	■	■	■
	Tariffs	-	-	-	-	-	-	6
Power Quality	THD (I, VLN, VLL)	-	-	-	■	■	■	■
	Harmonics/Unbalances	-/-	-/-	-/-	-/-	40th / ■	-/-	40th / ■
	Neutral current	-	-	-	Calculated	Calculated	Calculated	Measured
	Phasors, Waveforms	-	-	-	-	-	-	■
Data recording	Single alarms/Complex alarms	-/-	-/-	-/-	15 / -	15 / -	25 / -	25 / 4
	Warnings, alarms, errors	-	-	-	■	■	■	■
	Min/Max/Demand values	-	-	-	-	Basic	Basic	Advanced
	Flash memory	-	-	-	-	1MB	-	32MB
	Real Time Clock (RTC)	-	-	-	-	■	-	■
HMI	Display	LED	LED	LED	LCD	LCD	Graphic color	Graphic touchscreen
	Graph visualization	-	-	-	-	-	Basic	Advanced
Connectivity	Modbus RTU	-	■	■	■	■	■	■
	Modbus TCP/IP	-	-	-	■	■	■	■ (2x RJ45)
	BACnet/IP	-	-	-	-	-	■	■
	Profibus DP-V0	-	-	-	-	-	■	■
	Bluetooth Low Energy	-	-	-	-	-	■	■
	Integration in InSite	-	-	■	■	■	■	■
	Integration in Ability EDCS	-	-	-	-	-	■	■
	Standard I/O	-	-	-	-	2DO	2DO	4I/O
	Additional I/O (I/O version)	-	-	-	2DO + 2DI	2DO + 2DI	2DO + 2I/O + 2AO	6I/O + 2AO

ABB System pro M compact® InSite



ABB Ability
EAM



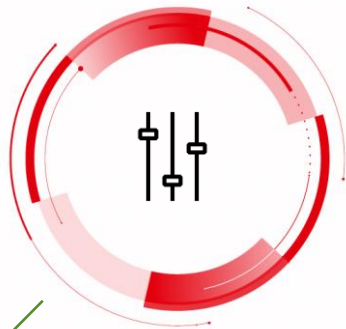
Rest API – Connection
to 3rd party cloud



Embedded
local webserver

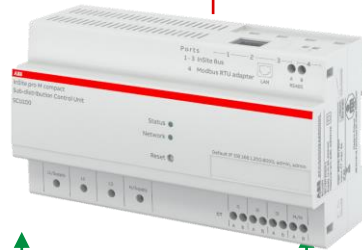
Integration in
any BMS/Scada

Integration to any target platform in the market



Sub-distribution
control unit
SCU100

Modbus TCP & RTU



InSite-Bus



I/O Modules

Digital I/O (2 wires each device)



Modbus-RTU

InSite-Bus

Energy & power quality



Energy meters Power meters

Branch monitoring



Current sensors

Protection & other devices



Main breakers

Signal and
auxiliary

Motor operating
devices

Shunt trips

Other accessories,
Contactors, relays

Pulse
counters

Others

Control Unit

SCU 100

- All-in-one approach
- Mainly for installations with high number of branches to be monitored
- Better for integration with local 3rd party monitoring systems

SCU 200

- Modular approach
- Mainly for installations with wide range of different devices to be integrated
- Better for integration into cloud platforms

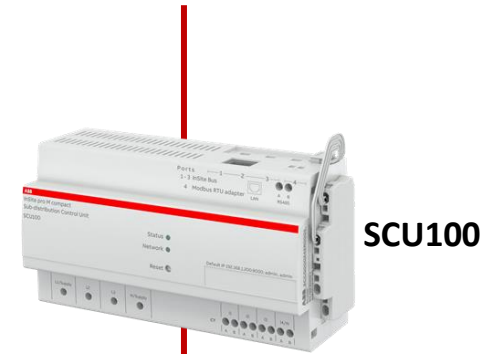


ABB Circuit Monitoring System



CMS bus interface

Each bus interface allows up to 32 sensors connected to the Control Unit:

- CMS-700: up to 96 sensors (3 x 32)
- CMS-600: up to 64 sensors (2x 32)

Connection technology

Connecting the sensors to the control unit is extremely easy and requires no special tools. All sensors are connected to the Control Unit by means of a flexible flat cable. Fully customizable positioning of sensors where measurement is required

Control Units

The Control Unit evaluates the measurement data picked up by the sensors and makes it available via the built-in interfaces



Sensors

CMS sensors can be placed anywhere in the system, without any limitation. Easy initializing is guaranteed by the unique ID assigned to each sensors via Control Unit in just a few simple steps. All measurement functions are available right after commissioning.



Serial interfaces

Depending on the unit, numerous interfaces and protocols are available to ensure smooth network implementation: RS485 (Modbus RTU), LAN (TCP/IP and Modbus TCP), SNMP v1/v2 and encrypted v3. Thanks to the built-in web server, an internet browser or a free Android or iOS app can be used to visualize the values measured. What's more, the measured values can also be exported to CSV files.

ABB