

Intelligent Distribution for Critical Loads in Passenger Station



With over 70 years' experience and global presence in more than 100 countries, ABB helps to keep the world moving with new, innovative and sustainable solutions targeted on creating a low-carbon rail industry able to operate with maximum efficiency, reliability and safety.

What is intelligent distribution?

Intelligent distribution means leveraging on new digital technologies to transform traditional electrical installations into smart connected architecture for 24/7 comprehensive monitoring, insights and analysis. The aim is to improve energy consumption and asset performance targeted on sustainability, energy efficiency, cost savings and continuous operation.

Why you need intelligent distribution

Reliability is a major concern in the rail industry. Last year, reliability issues increased by 64% causing delays amounting to 8612 hours in the UK alone. And as the demand is growing for rail as a sustainable form of transportation, ABB intelligent distribution applications offer solutions able to ensure safe, smooth rail operation, maximize energy efficiency, reduce carbon footprint, minimize running costs and downtime while ensuring 24/7 continuous service.

Main benefits

Energy Efficiency

Maximizes energy efficiency up to 30%, reduces carbon footprint and complies with LEED & ISO 50001 certification requirements.



Reliability

Maximizes reliability and avoids downtime thanks to 24/7 real time monitoring, smart analytics, predictive maintenance and instantaneous alerts.



Flexibility

Modular, scalable solutions that can be applied to both greenfield and brownfield installations.



Integrable

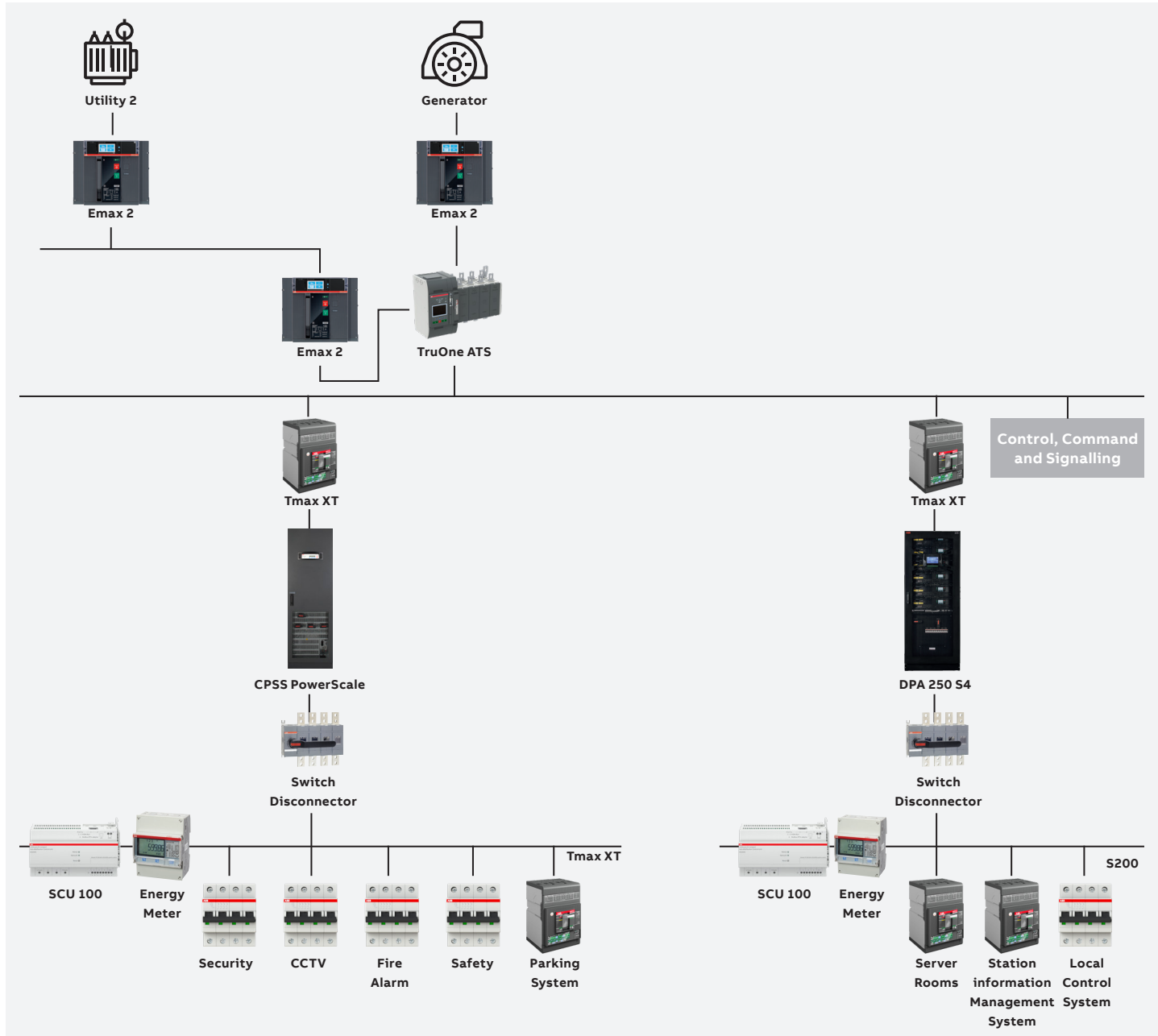
Ready for complex integration, also when several systems are involved; BMS, SCADA or facility management with 3rd party integration.



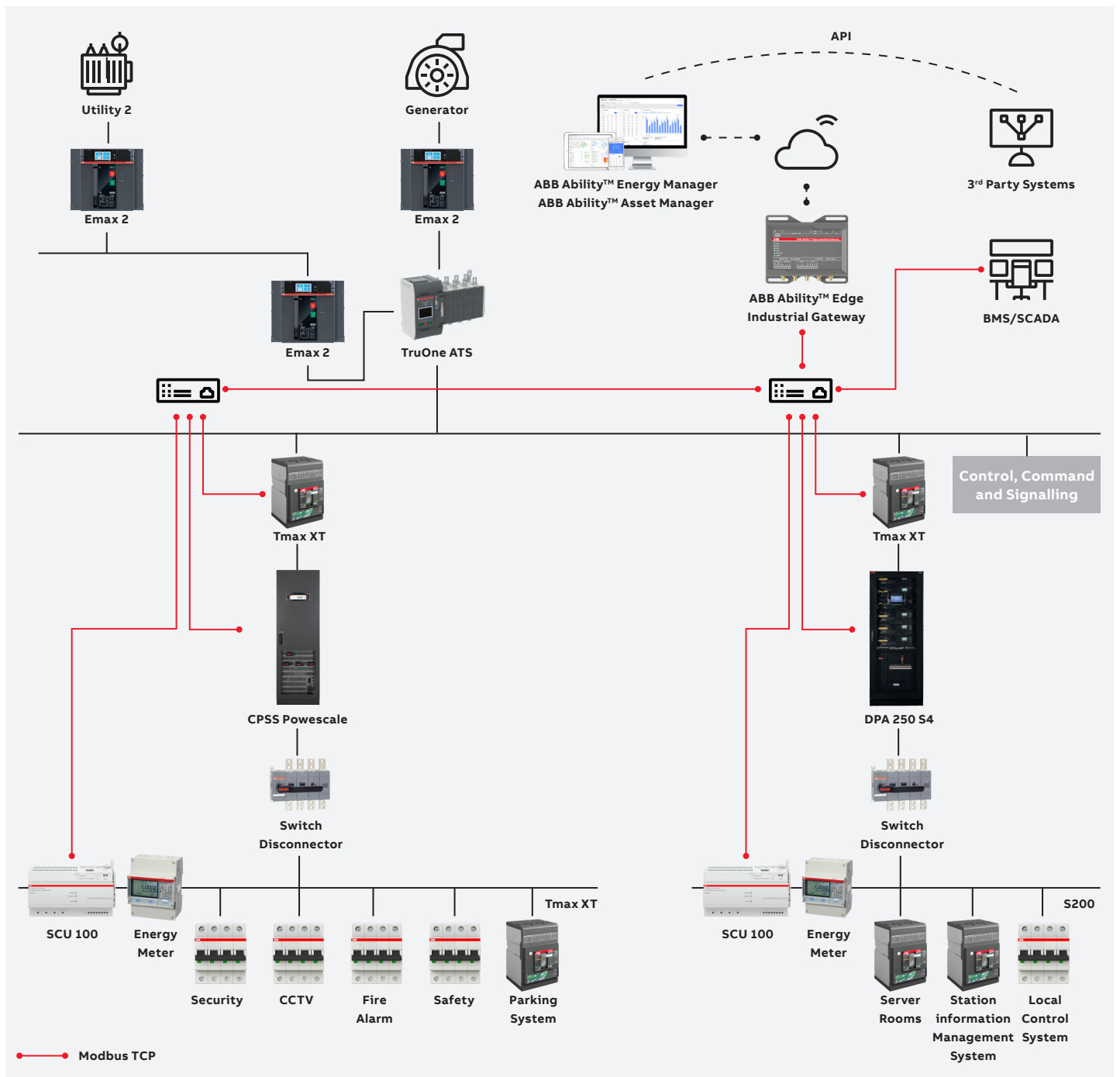
Critical Loads

There are many critical loads in every passenger station. They typically require uninterrupted power of a suitable quality and cannot tolerate even the briefest lapse in power flow. These loads must also cope with abnormal electrical supply conditions if they are to support people safety, system reliability and security as well as the station information management system, emergency lighting, fire alarm system, CCTV, etc. Complete monitoring of such critical loads is crucial to ensuring reliability and continuity of operation. Compliant with standard EN50171, the PowerScale UPS can provide emergency power for emergency lighting, the fire alarm and security systems, while DPA 250 S4 UPS

copies with the server rooms, station information management and local control system. Other components include high-reliability Tmax XT molded-case breakers and S200 miniature circuit-breakers while System pro M Compact® InSite gathers data for branch measurement. ABB Ability™ Energy Manager & ABB Ability™ Asset Manager can easily monitor all this and more, while the architecture can be integrated with BMS, SCADA or 3rd party systems via API. The single-line diagram, communication architecture and relative main components of typical critical loads are illustrated in the example below.



Note : It's recommended to have dedicated power supply for each critical load to ensure independent reliability.



Main Components



[DPA 250 S4 Modular UPS](#)



[PowerScale 33 Standalone UPS](#)



[Tmax XT Molded Case Circuit Breaker](#)



[System Pro M Compact® InSite](#)



[S200 Miniature Circuit Breaker](#)



[ABB Energy Meter](#)



[ABB Ability™ Edge Industrial Gateway](#)



[ABB Ability™ Energy Manager](#)



[ABB Ability™ Asset Manager](#)

Bill of materials

Considered Parameters	
Standard	IEC
Application Area	Critical Loads
Monitoring System	ABB Ability™ Energy Manager
Communication Protocol	Modbus TCP
Measuring Points	9 connected devices
Network switch	Ethernet 8 Ports Switch requires 110 - 240V AC power supply
IoT Gateway	ABB Ability™ Edge industrial gateway requires power supply with nominal input 12 or 24 V DC and maximum current 2 A (15 W maximum consumption)

Product	Part Number	Quantity	Description
Tmax XT MCCB 4P	1SDA100552R1	1	Upstream UPS (XT5N 400 breaker)
	1SDA100685R1	1	Ekip Touch Measuring LSIG In=400
	1SDA105189R1	1	Ekip Com Modbus TCP communication module
PowerScale 33 UPS	4NWP104285RCPSS 2	2	50KVA Cab C CPSS (Compliant to EN50171)
	4NWP102688R0001 2	2	CS141 Basic slot (communication card)
	04-1478	2	Parallel Kit
	04-1763	1	Parallel Cable (5m)
Tmax XT MCCB 4P 63 A	1SDA066816R1	1	Outgoing for parking system (XT1B 160 TMD)
S200 MCB 4P C 63 A	2CDS254001R0634	5	Outgoings for CCTV, Security, Safety, Fire Alarm and local control system
Tmax XT MCCB 4P 63 A	1SDA066816R1	3	Outgoings (Spare)
Tmax XT MCCB 4P 250 A	1SDA068178R1	1	Upstream UPS (XT4N 250 breaker)
	1SDA100329R1	1	Ekip Touch Measuring LSIG In=250
	1SDA105177R1	1	Ekip Com Modbus TCP communication module
DPA 250 S4 UPS	4NWP103846R0001 1	1	50 KW Module
	4NWP106924R0001 1	1	ABB ANC network card (Connects directly to ABB Ability™)
Tmax XT MCCB 4P 100 A	1SDA066818R1	1	Outgoing for server rooms (XT1B 160 TMD)
Tmax XT MCCB 4P 63 A	1SDA066816R1	2	Outgoings for station information management system local control systems (XT1B 160 TMD)
Tmax XT MCCB 4P 63 A	1SDA066816R1	2	Outgoings (Spare) (XT1B 160 TMD)
System pro M compact® InSite	2CCG000242R0001 2	2	SCU100 Sub-distribution Control Unit
	2CCG000243R0001 2	2	INS105 Flat Cable 5 m
	2CCG000244R0001 1	1	INS135 Connector set (35pcs)
	2CCG000245R0001 5	5	DM11 Digital Input Module
	2CCA880220R0001 20	20	CMS-120CA Current Sensor (80 A)
Energy Meter	2CMA105931R1000 2	2	ABB Energy Meter B23 312-500 (Silver)
ABB Ability™	1SDA116751R1	1	Edge Industrial Gateway (Cloud view)
	2CDG120082R0011 1	1	8 Ports Fast Ethernet Switch
	ABB Ability Marketplace™	1	Energy Manager (Watching Edition - 5 Devices - 1 Year)
		4	1 Extra Device For ABB Ability
		1	ABB Ability™ SmartTracker

Note : [ABB Ability Marketplace™](#) one-stop online portal for ABB Ability™ solutions subscriptions and services.

For Tmax XT MCCB with communication modules, it should be supplied by means of a galvanically isolated 24V DC auxiliary voltage with the following characteristics (tolerance ±10% , maximum wave ±5%, maximum surge current 10A for 5ms and maximum rated power 4W @24V).

APPLICATION FINDER

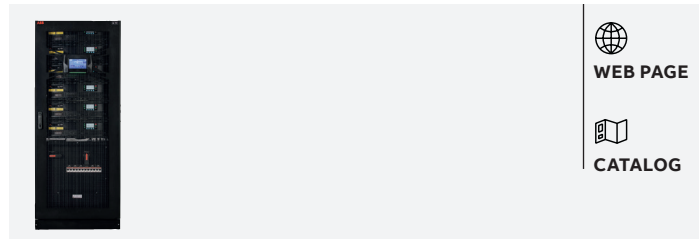
We've made it simpler for you to set up your project!

Click here to find the reference architecture that best fits your needs and download the Bill of Materials.

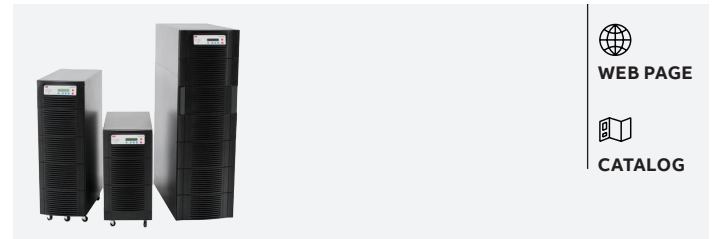


Product offering

DPA 250 S4:



PowerScale:



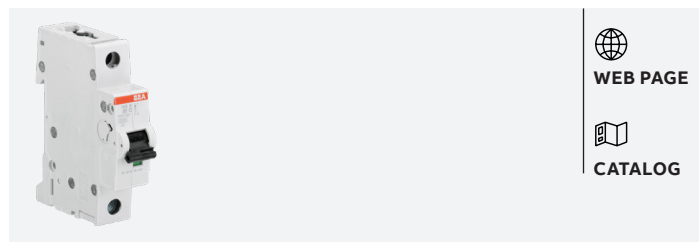
Tmax XT:



System Pro M Compact® InSite:



S200 MCB:



Energy Meter:

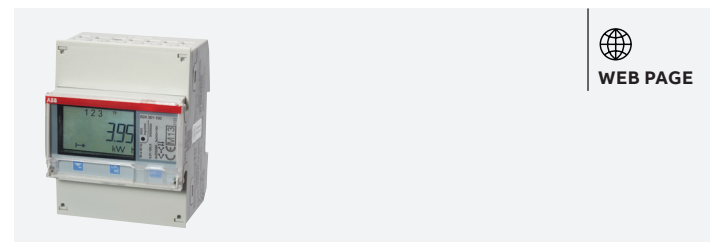


ABB Ability™ Edge Industrial Gateway:

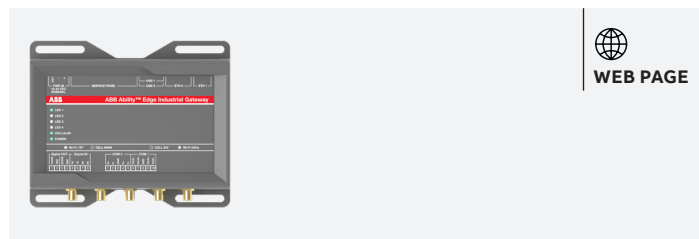


ABB Ability™ Energy Manager:

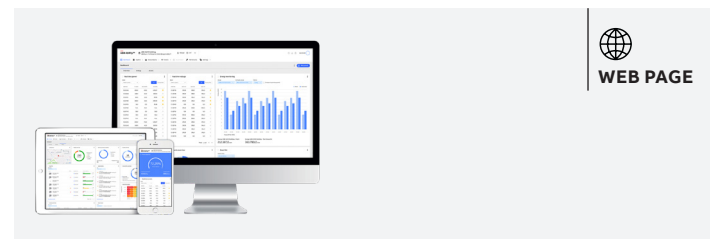
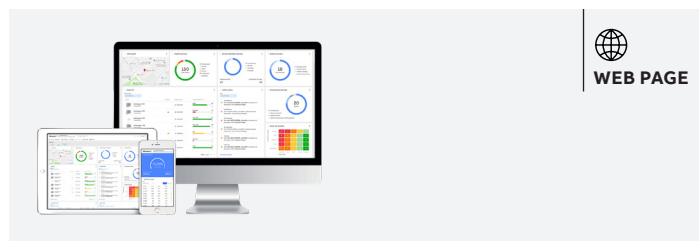


ABB Ability™ Asset Manager:



To discover more

APPLICATION FINDER



Find the reference architecture tailored to your needs and speed up your project thanks to our new Application Finder Tool!



CONTACT US



Do you have a similar project and are you searching for the right Application configuration? Contact us and talk to our experts!



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