



Low Voltage Product, Product Management Team, September 24-26, 2014 – Dalmine, Italy

ABB OEM Days 2014

Low voltage products

Low Voltage Products Business Units



Low Voltage Systems	Breakers & Switches	Enclosures & DIN-Rail Products	Control Products	Wiring Accessories	Protection, Connection & Wire Management
<ul style="list-style-type: none"> ▪ MNS Conventional Switchgear ▪ MNS Intelligent Switchgear ▪ MNS Integrated Switchgear 	<ul style="list-style-type: none"> ▪ Circuit Breakers ▪ Switches ▪ Fusegear and Cable Distribution Cabinets 	<ul style="list-style-type: none"> ▪ Modular DIN-Rail Products ▪ Intelligent Building Control KNX ▪ Enclosures and Cable Systems 	<ul style="list-style-type: none"> ▪ Control and Protection ▪ Electronic Products and Relays ▪ Connection 	<ul style="list-style-type: none"> ▪ Wiring Accessories ▪ Industrial Plugs and Sockets ▪ Door Entry Systems 	<ul style="list-style-type: none"> ▪ Wire and cable management ▪ Cable protection systems ▪ Critical process protection ▪ People protection

Low Voltage Products

Channels and markets served





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SACE Emax 2 Product presentation

Low Voltage Products

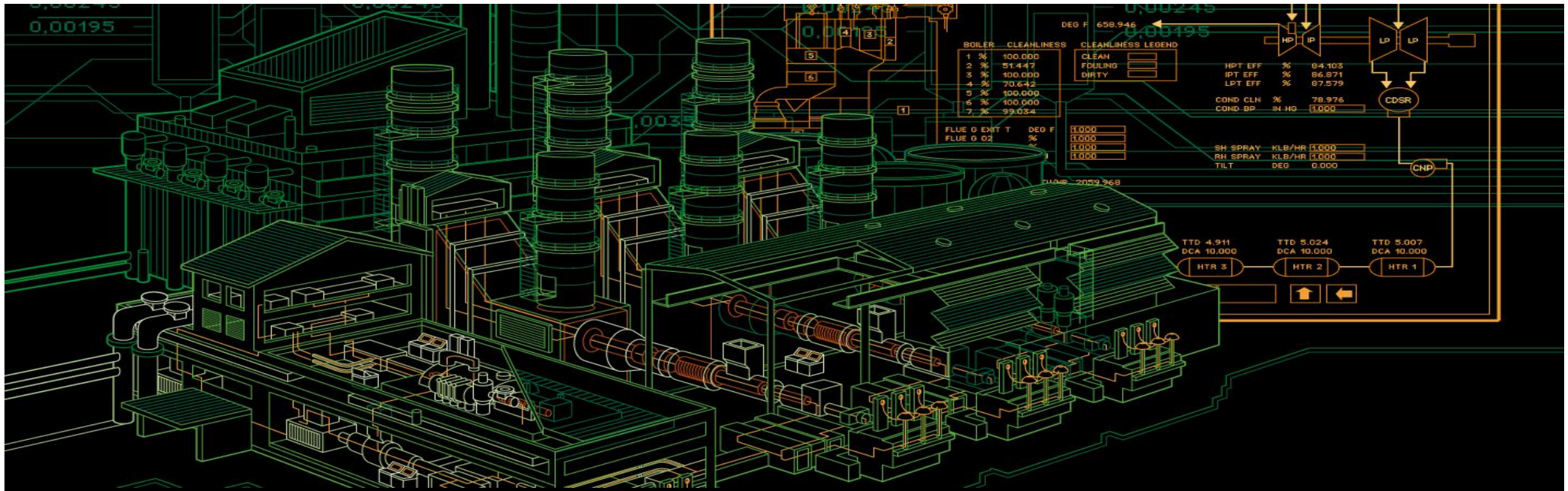
SACE Emax 2

SACE Emax 2 improves the efficiency of electrical plants, creating the new standard of:

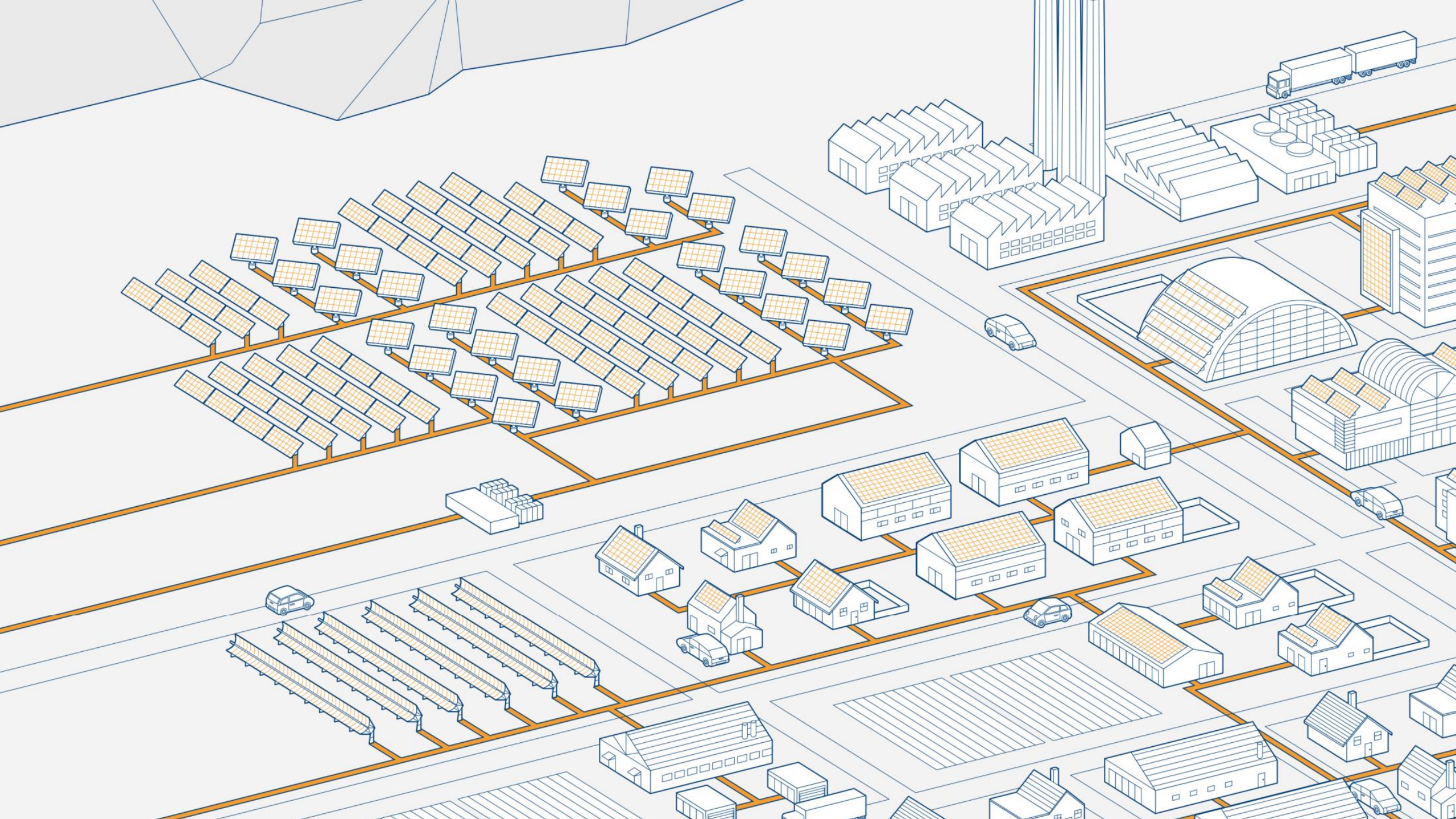
- **Control:** optimization of power flow
- **Connectivity:** integration into systems
- **Performance:** satisfaction of requirements in the right size
- **Ease of use:** creation of efficiency and simplicity



SACE Emax 2 is the evolution of the Circuit-Breaker into the **Power Manager**.



SACE Emax 2 Control



SACE Emax 2 Control



SACE Emax 2 Control



High accuracy of measurements directly available on the wide display permits the elimination of external devices:

- Current 1%
- Voltage 0,5%
- Power and Energy 2%

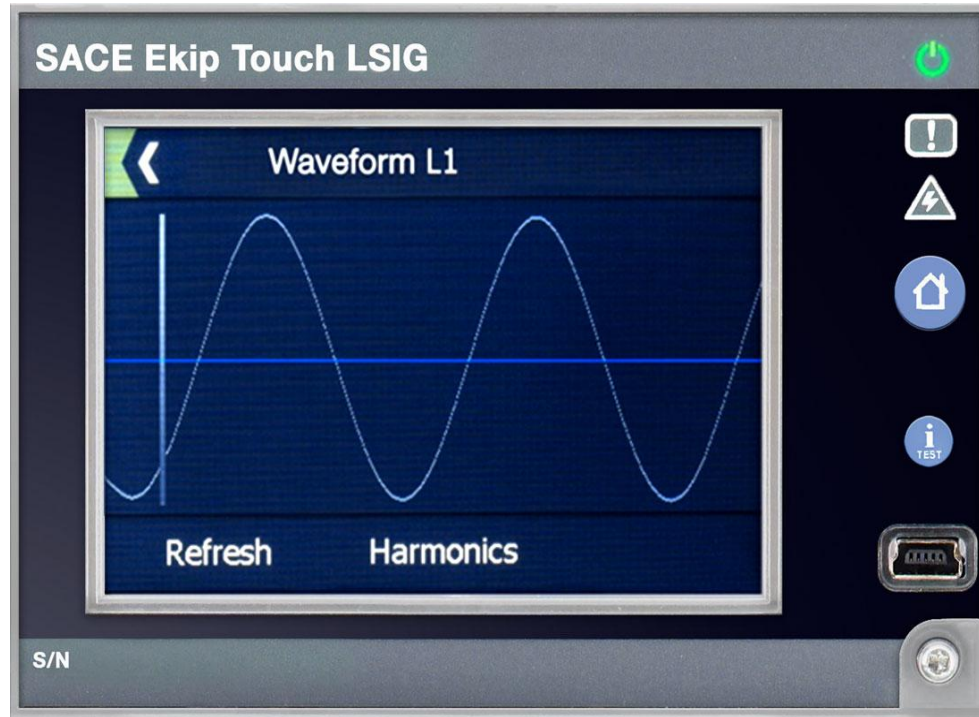
SACE Emax 2 Control



Built-in trend analysis: record I, V, P last 24 intervals

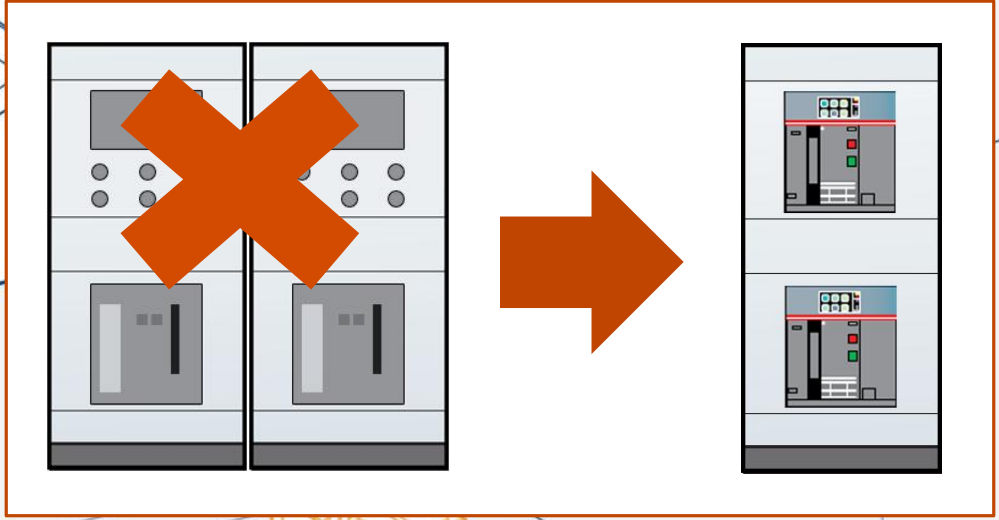
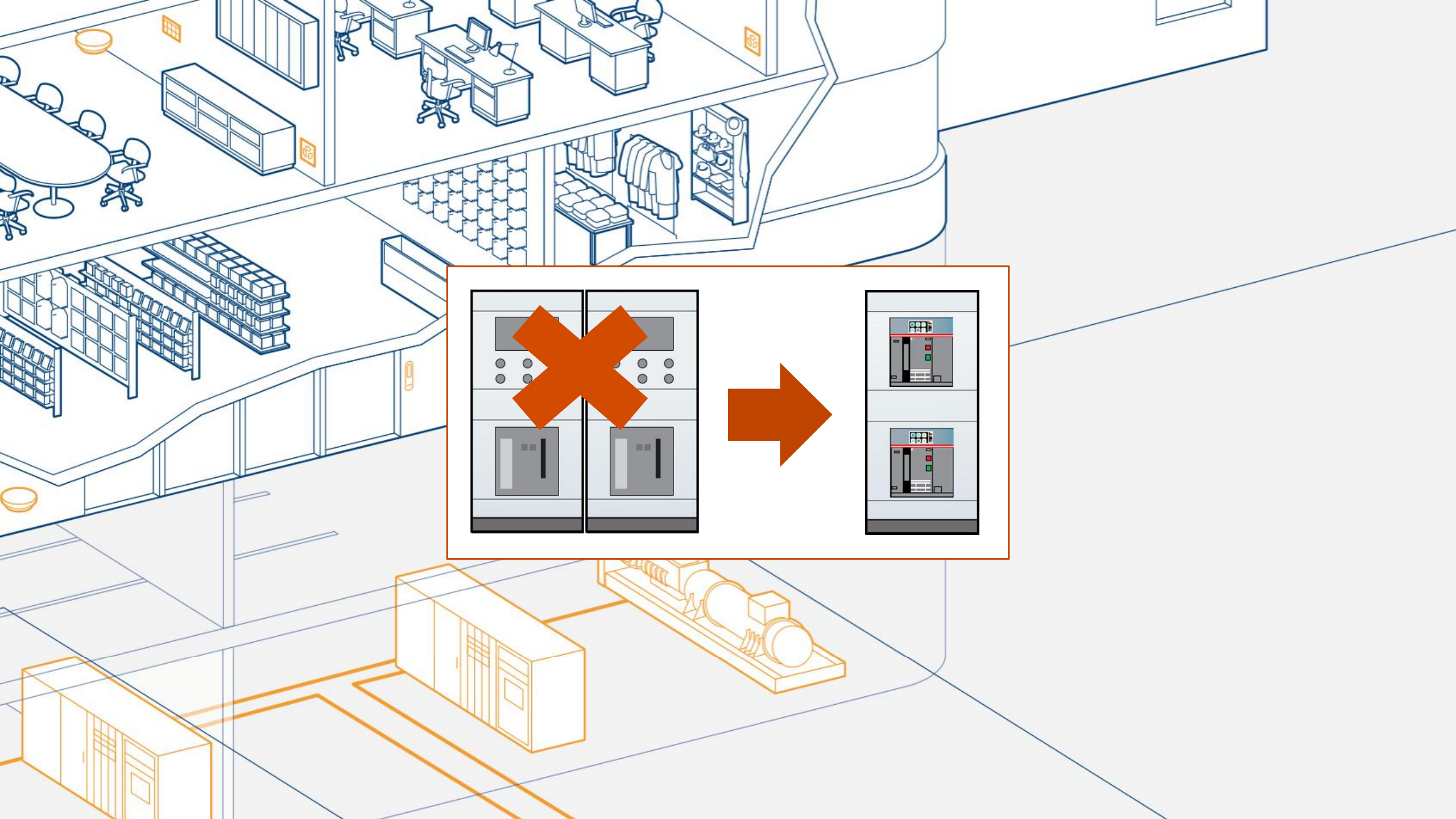
The new trip units Ekip have a wide color touch display where it is possible to clearly see the measurements.

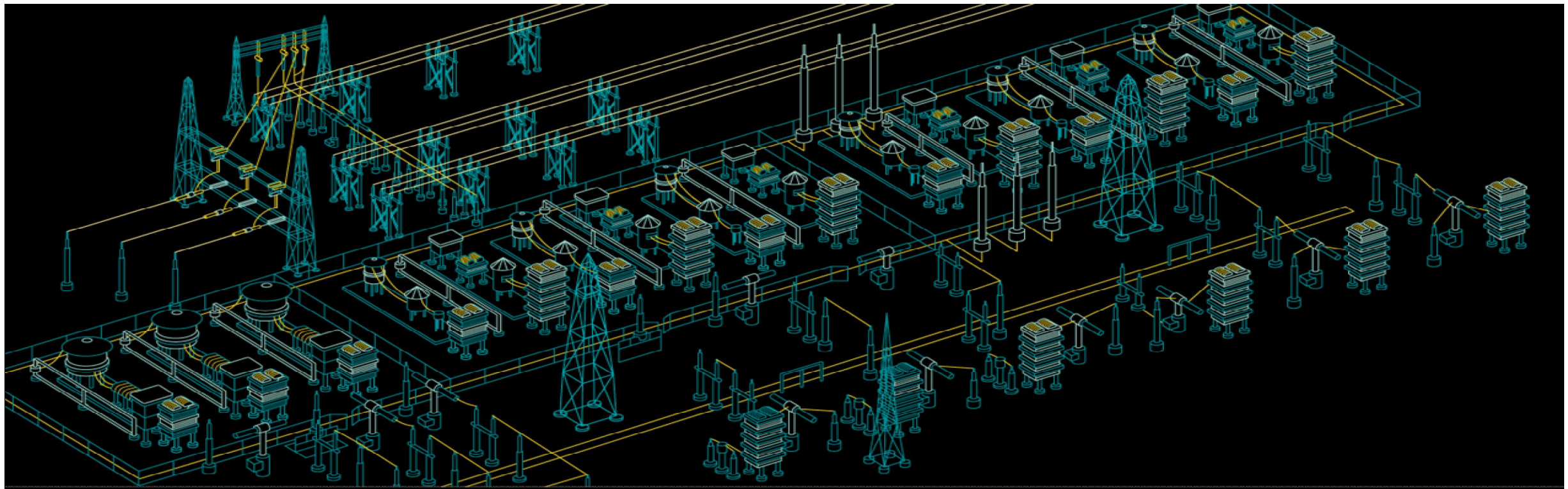
SACE Emax 2 Control



Network analyzer is effective solution, ready to use, allow continuous monitoring, without installing additional instruments:

- Short Voltage interruptions and spikes
- Slow voltage sags and swells
- Voltage and Current Harmonic up to 50Th
- Voltage unbalance





SACE Emax 2 Performance

SACE Emax 2 Performance



E 1.2
1600 A



E 2.2
2500 A



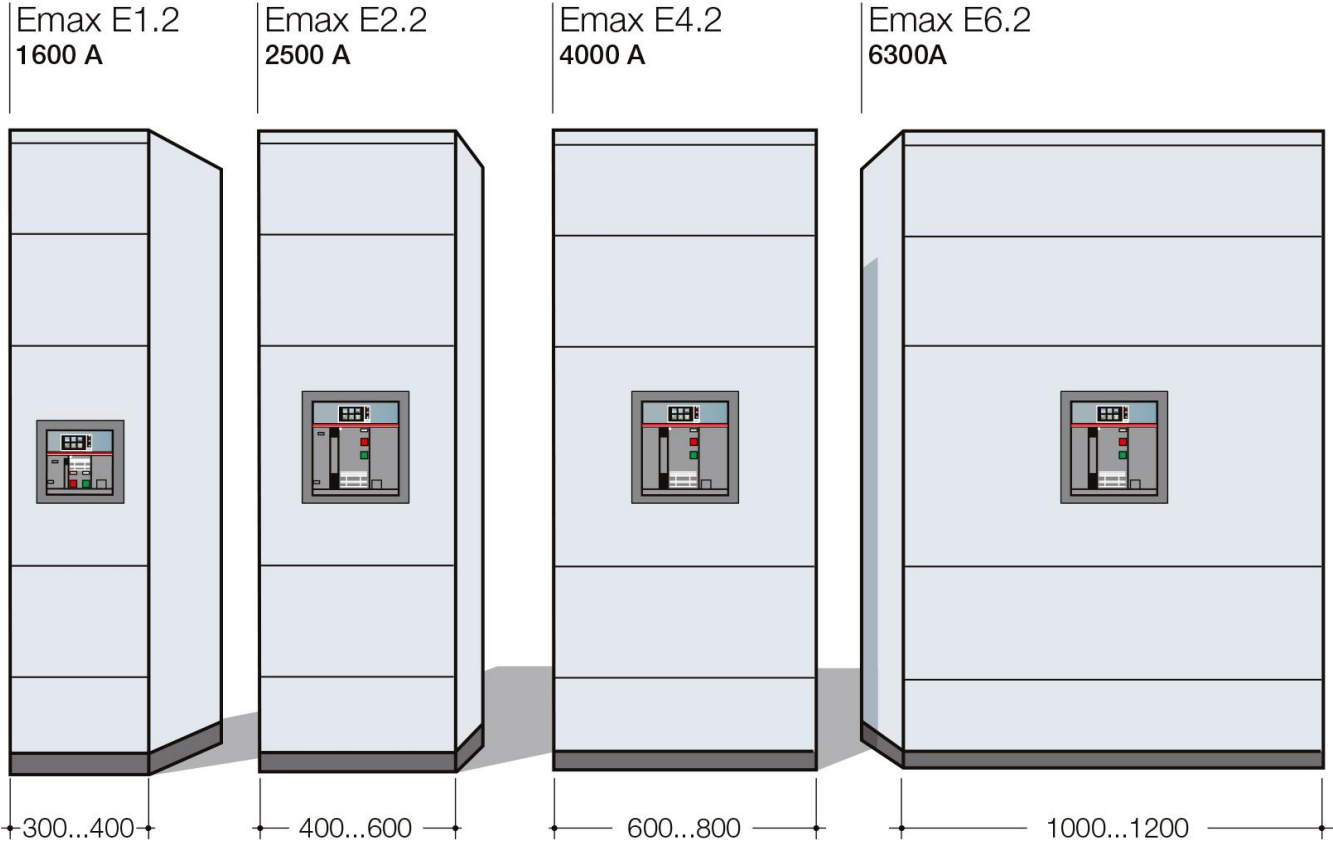
E 4.2
4000 A



E 6.2
6300 A

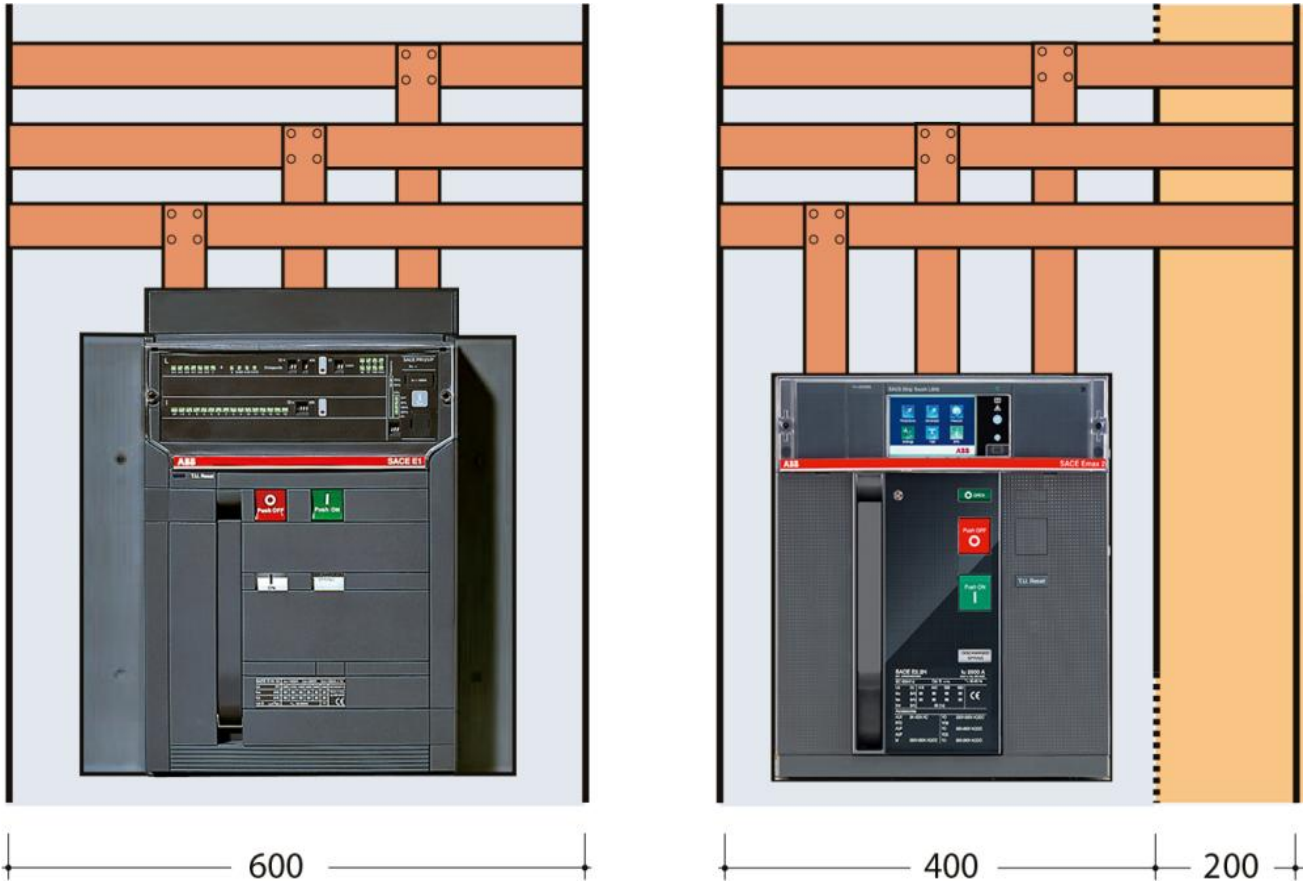
SACE Emax 2 Performance

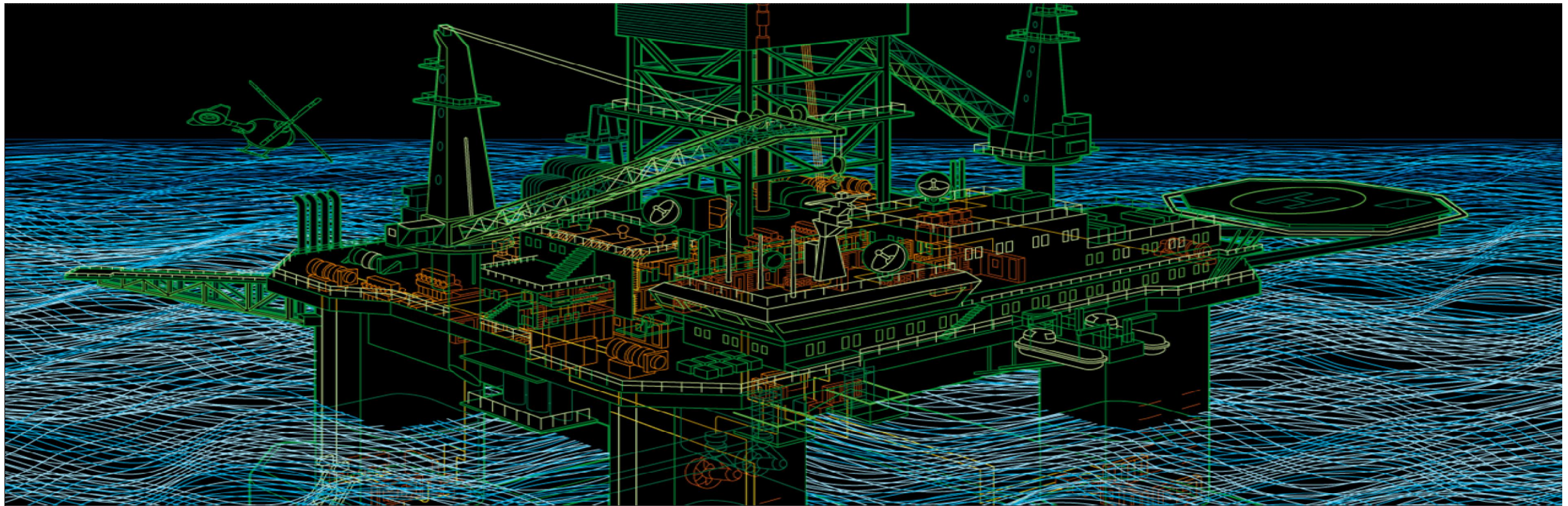
Footprint reduction: -25%



SACE Emax 2 Performance

Copper reduction: -25%





SACE Emax 2 Connectivity

SACE Emax 2 Connettivity

Ekip Com Modbus RS-485



SACE Emax 2 Connettivity

Ekip Com Modbus TCP



SACE Emax 2 Connettivity

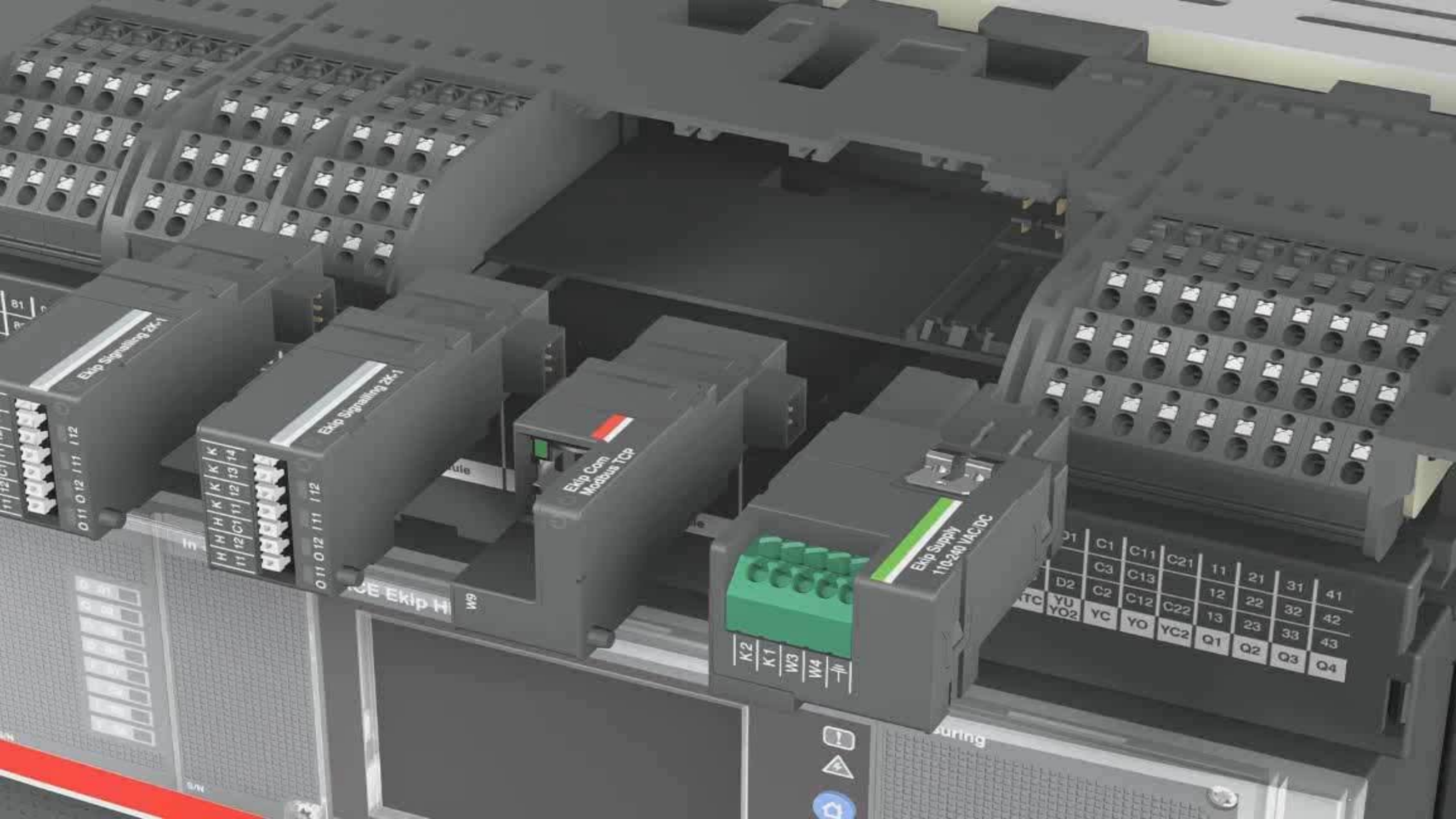
Ekip Com Profibus



SACE Emax 2 Connettivity

Ekip Com IEC 61850





Ekip Signalling 2K-1

O11 O12 I11 I12

Ekip Signalling 2K-1

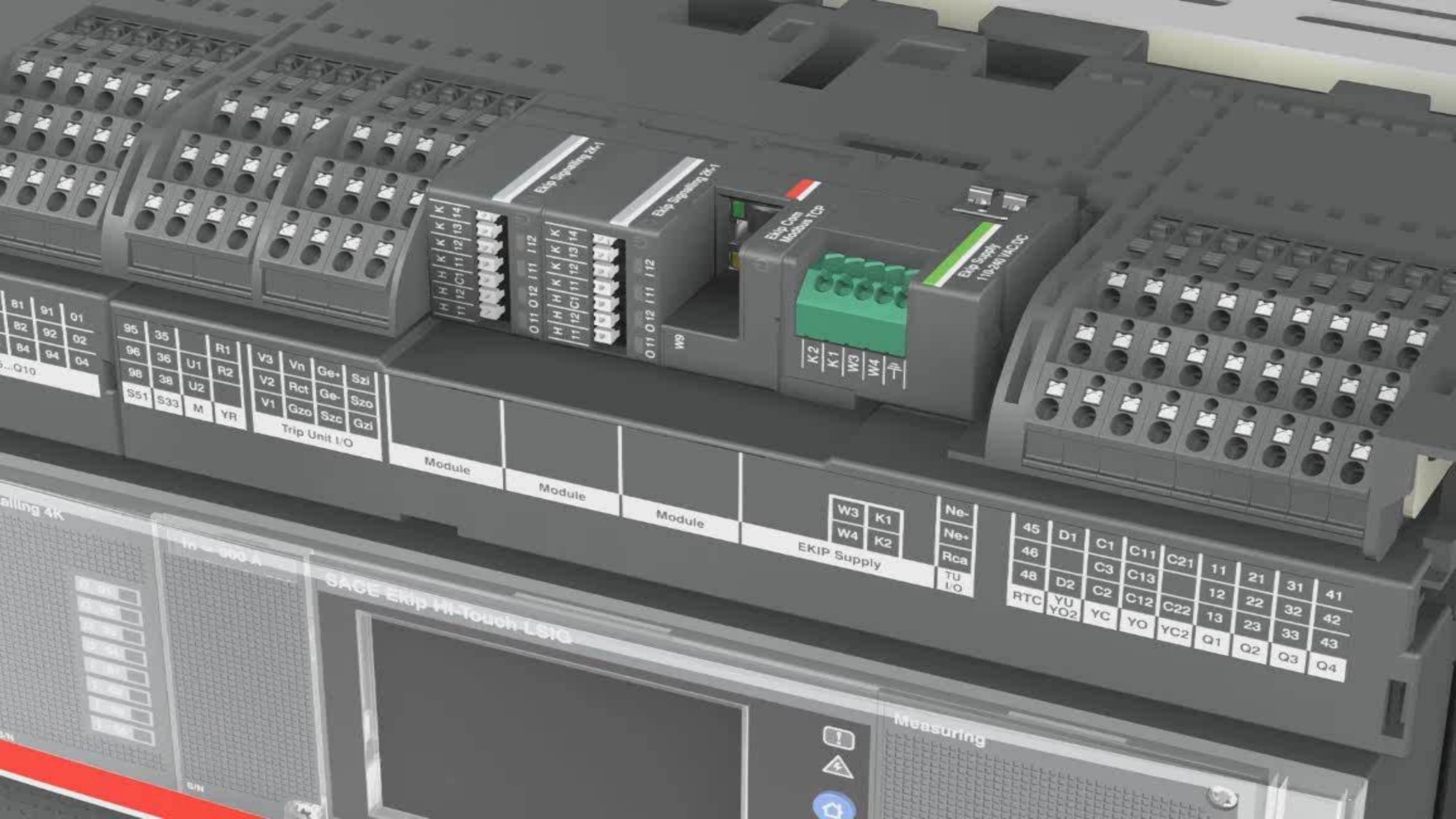
H H H K K K K
I1 I2 C1 I1 I2 I3 I4

Ekip Com
Modbus TCP

Ekip Supply
110-240 VAC DC

K2
K1
W3
W4
⏏

D1	C1	C11	C21	11	21	31	41
D2	C2	C12		12	22	32	42
TC	YU	YC	YO	YC2	Q1	Q2	Q3
YO2						Q4	



81	91	01
82	92	02
84	94	04

95	35		R1	V3	Vn	Ge+	Szi	
96	36	U1	R2	V2	Rct	Ge-	Szo	
98	38	U2		V1	Gzo	Szc	Gzi	
S51	S33	M	YR	Trip Unit I/O				

H	H	H	K	K	K	K	K
11	12	C1	11	12	13	14	

O11	O12	I11	I12			
H	H	K	K	K	K	
11	12	C1	11	12	13	14

K2	K1	W3	W4	⏏
----	----	----	----	---

45	D1	C1	C11	C21	11	21	31	41
46		C3	C13		12	22	32	42
48	D2	C2	C12		13	23	33	43
RTC	YU	YC	YO	YC2	Q1	Q2	Q3	Q4
YO2								

alling 4K

TH 2000 A

SACE Ekip Hi-Touch LSIG

W3	K1	Ne-
W4	K2	Ne+
		Rca
		TU I/O

Ekip Supply

Measuring







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System pro *E* power

New main distribution boards up to 6300A

System pro *E* power



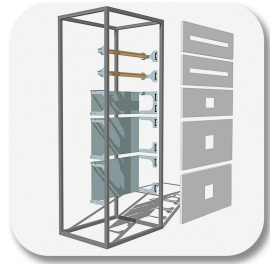
- ABB presents **System pro *E* power**, the new main distribution boards up to 6300A
- A complete solution for the main distribution of electric energy for infrastructures and industry & building complexes.

System pro *E* power

Key components



- **Structure**
 - Flexibility



- **Internal Kit**
 - Velocity

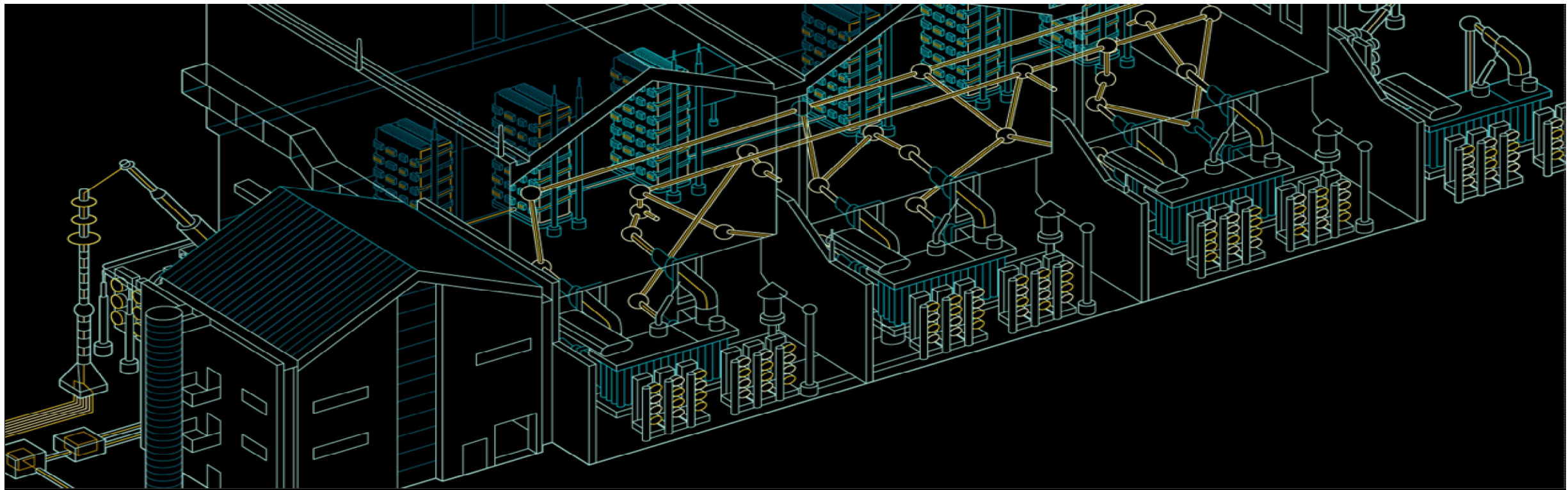


- **Distribution System**
 - Simplicity

System pro *E* power

Technical features

- Rated Current up to 6300A
- IP IP30, IP31, IP40, IP41, IP65
- U_e (Rated service voltage) up to 1000V AC/ 1500V DC
- I_{cW} (Rated short-time current) up to 120kA
- Standard of reference IEC 61439-1-2
- Vibration test IEC 60068-2-57
- Seismic test IEE Std 693
- Arc-resistant standard IEC 61641



System pro *E* power Flexibility is Power

System pro *E* power - Flexibility Structure



Structure

- Constitutive elements:

Uprights and Crosspieces

Plinth and flanges

Top/bottom

Door and Panels

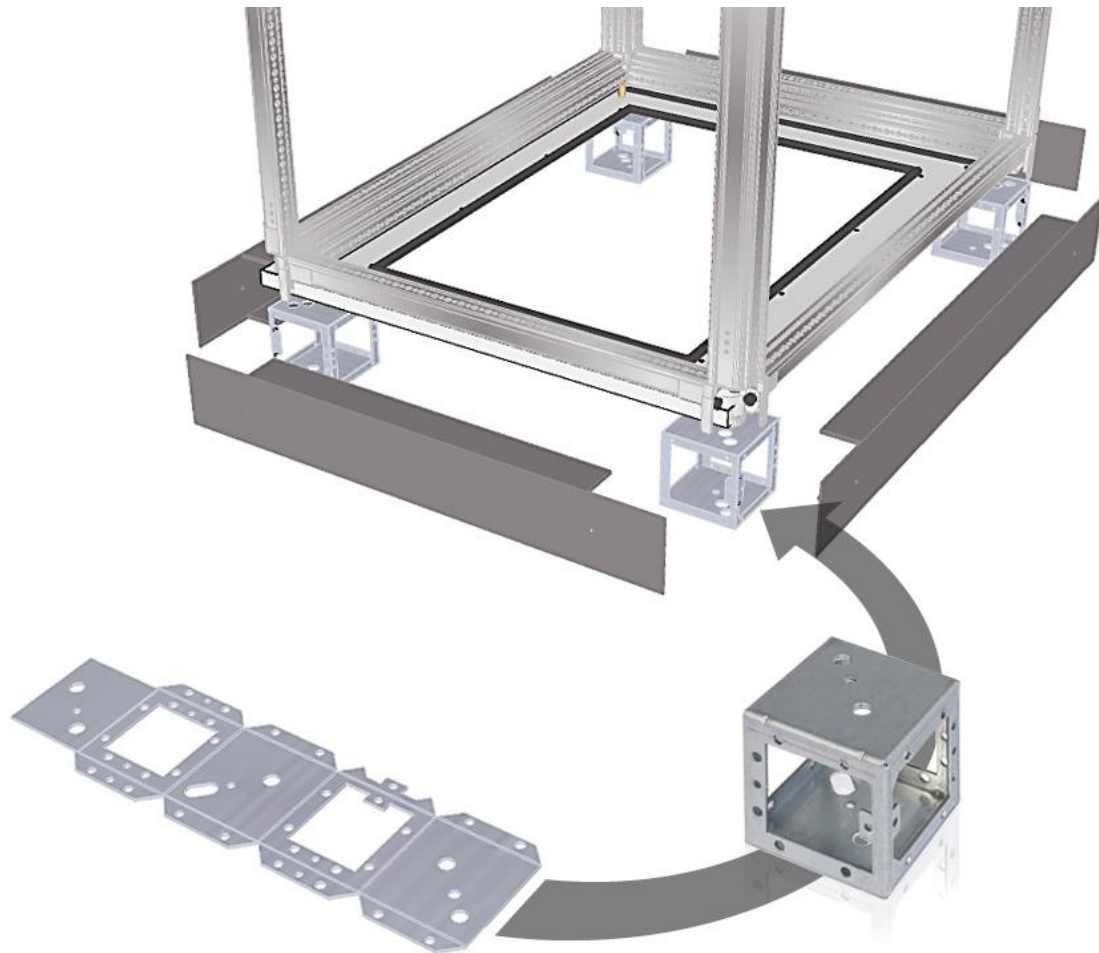
System pro *E* power - Flexibility Structure



Uprights and Crosspieces

- New supply philosophy
- 13 product codes for assembling up to 120 different configurations
- No possibility of error in assembling due to perfect symmetry
 - New 13 folded profile with two different available surfaces
- New three way joint coupling

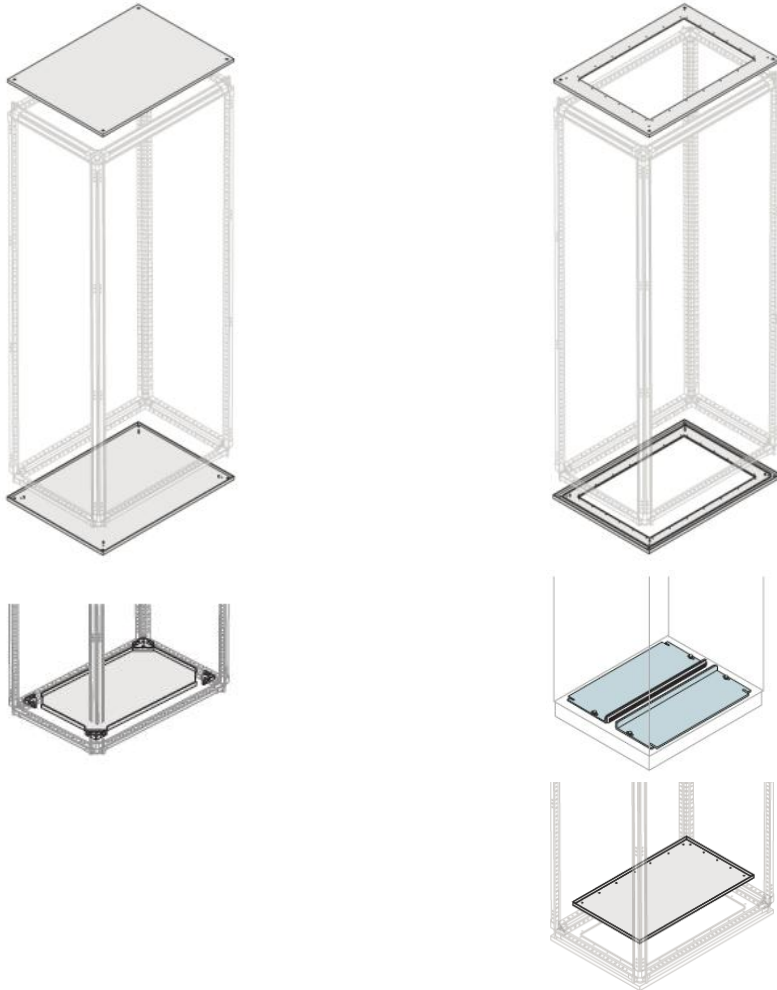
System pro *E* power - Flexibility Structure



Plinth and Flanges

- Innovative geometry provides high mechanical strength
- Assembling from the inside/outside of the structure
- Anti-rotation system
- Possibility of stand-alone structure without plinth
- Front/rear and side flanges H=100mm

System pro *E* power - Flexibility Structure



Top/Bottom

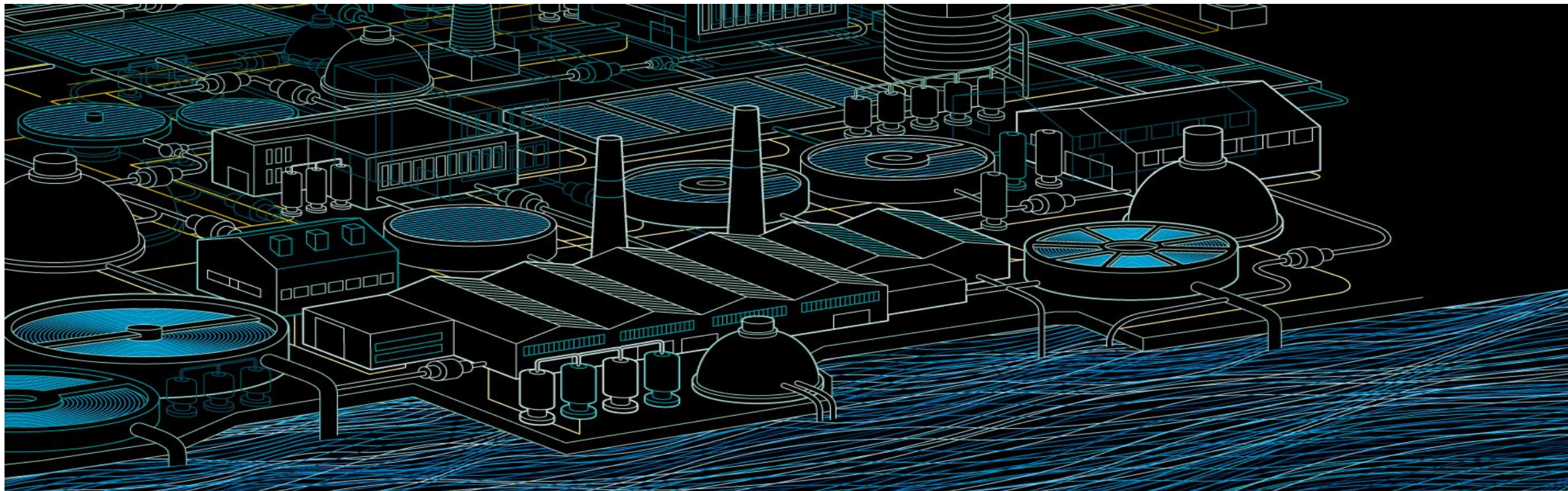
- Different combinations for ingoing/outgoing
- New solutions for incoming cables

System pro *E* power - Flexibility Structure



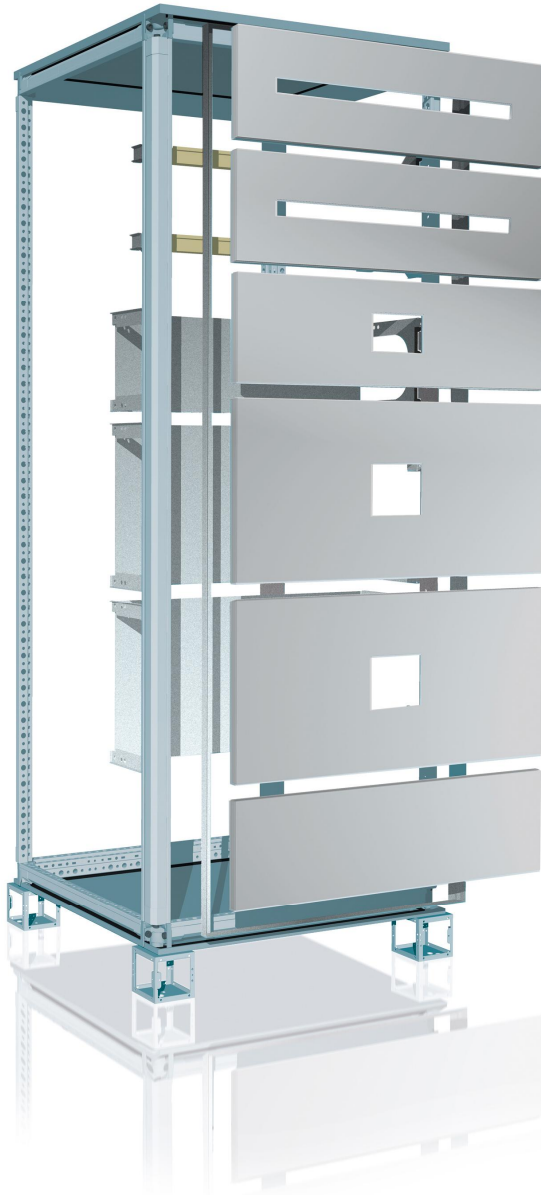
Door and Panels

- New asymmetrical design
- Glass door and blind door version available
- 135° door opening (also possible up to 180°)
- RAL7035 panels can be fixed using TORX screws
- New ergonomic handle, which allows the possibility to assemble different locking inserts



System pro *E* power Velocity is Power

System pro *E* power - Velocity Internal Kit



- Kit for air circuit-breakers Emax 2
- Kit for moulded-case circuit-breakers Tmax XT and Tmax T
- Kit for modular apparatus System Pro *M* and moulded-case circuit-breakers Tmax XT series XT1-XT3
- Kit for OT disconnectors
- Kit for completion
- Functional frame and panels
- Kit for internal segregation

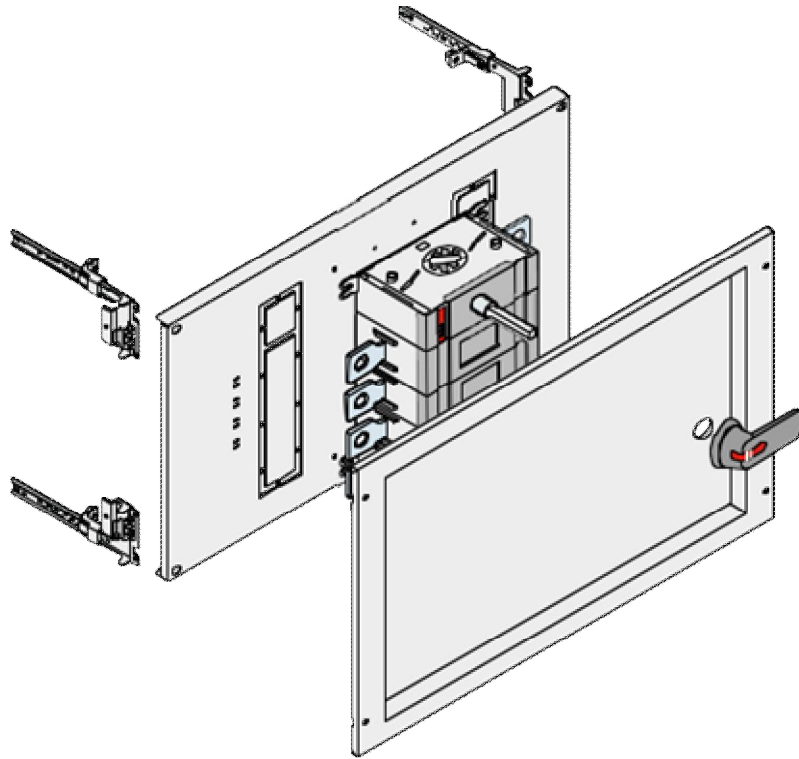








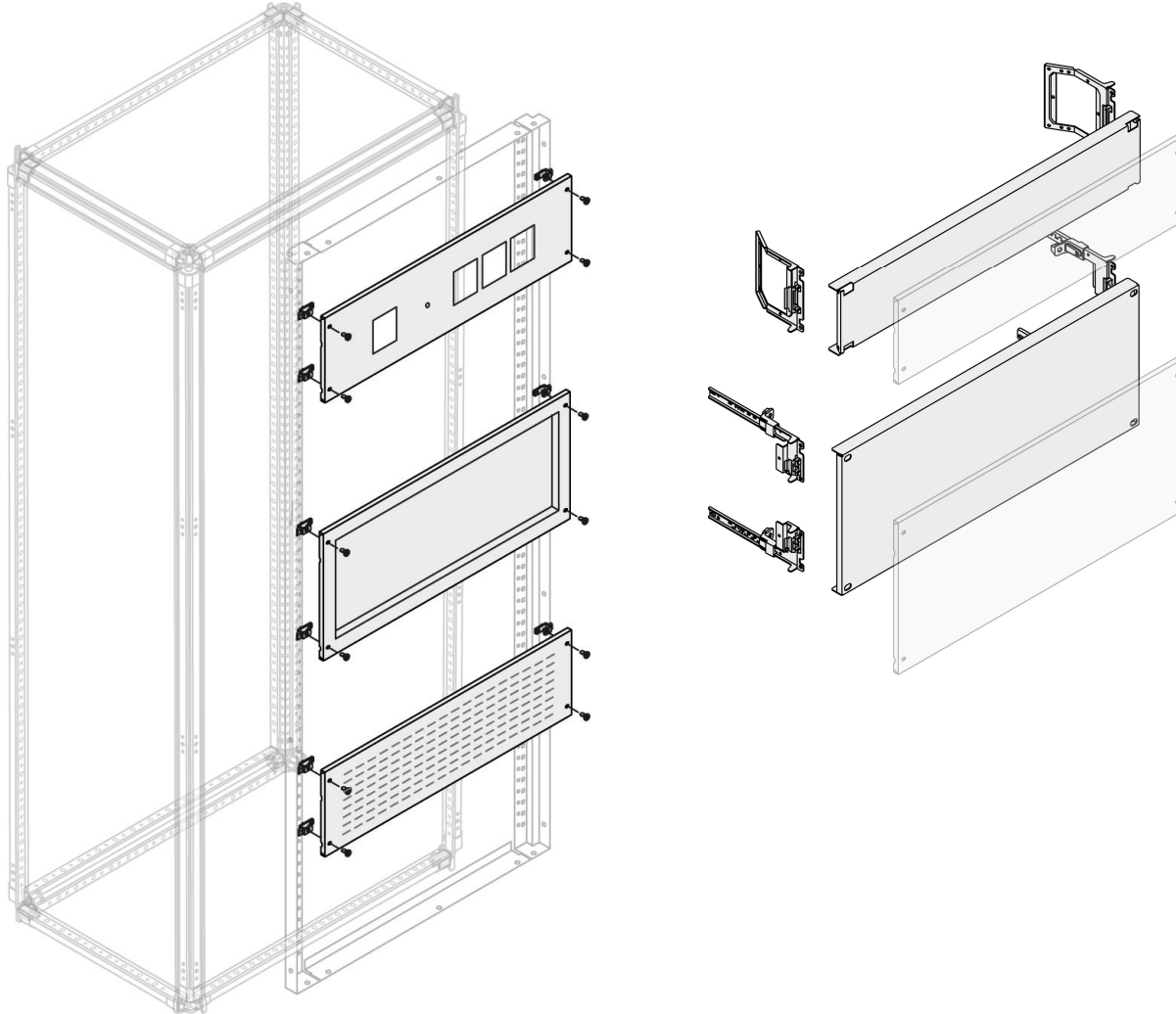
System pro *E* power - Velocity Internal kit



Kit for OT disconnectors

- Spring fastening “click in” system, quick and new
- For OT up to 1600A
- Vertical and horizontal versions
- Up to segregation **Form 2b** with front terminals and terminal covers

System pro *E* power - Velocity Internal kit

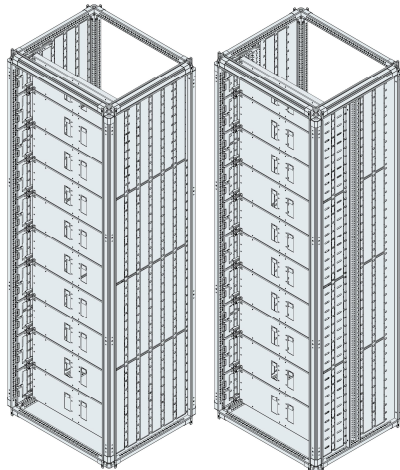
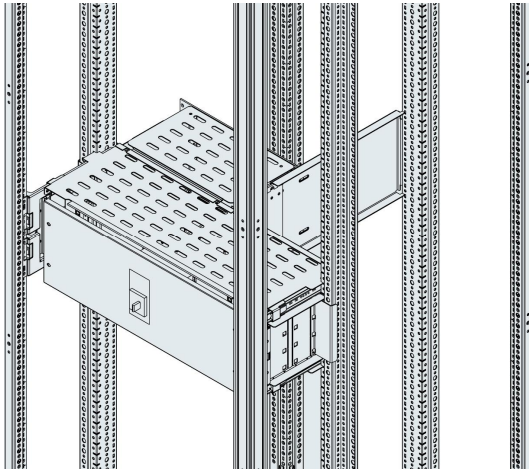


Kit for completion

- For the assembling of apparatus into the enclosure
- Blind flat panels starting from H=50mm up to 600mm
- Blind mounting plates starting from H=50mm up to 600mm
- Recessed panels, ventilated panels and panels for square measuring instruments



System pro *E* power - Velocity Internal Kit



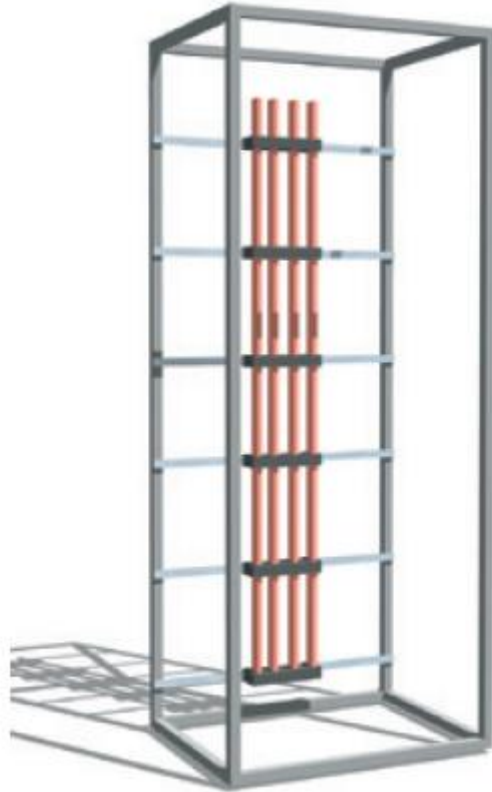
Internal segregation kit

- Same starting kit for segregation Form 1; adding different accessories in sequence it is possible to reach:
 - segregation Form 4b (rear access)
 - Form 2b (frontal access)



System pro *E* power Simplicity is Power

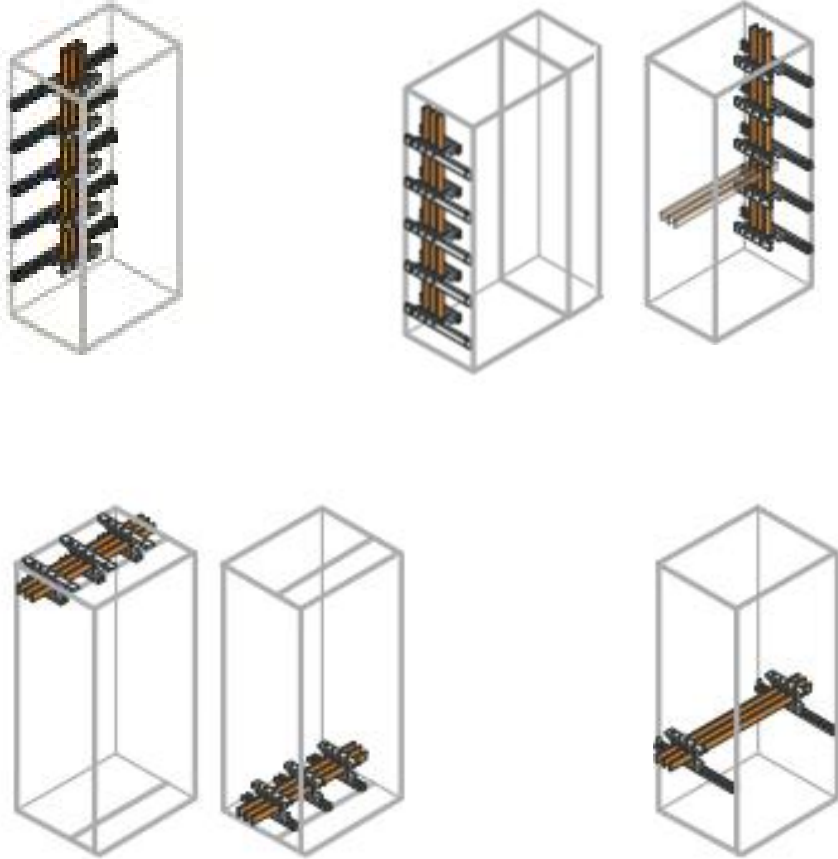
System pro *E* power - Simplicity Distribution System



Distribution System

- Busbars up to 6300A
- $I_{cw} = 120\text{kA}$
- Length=1750mm
- Copper busbars or Cuponal busbars
- Flat and shaped section busbar
- Linear or scaled busbar holders

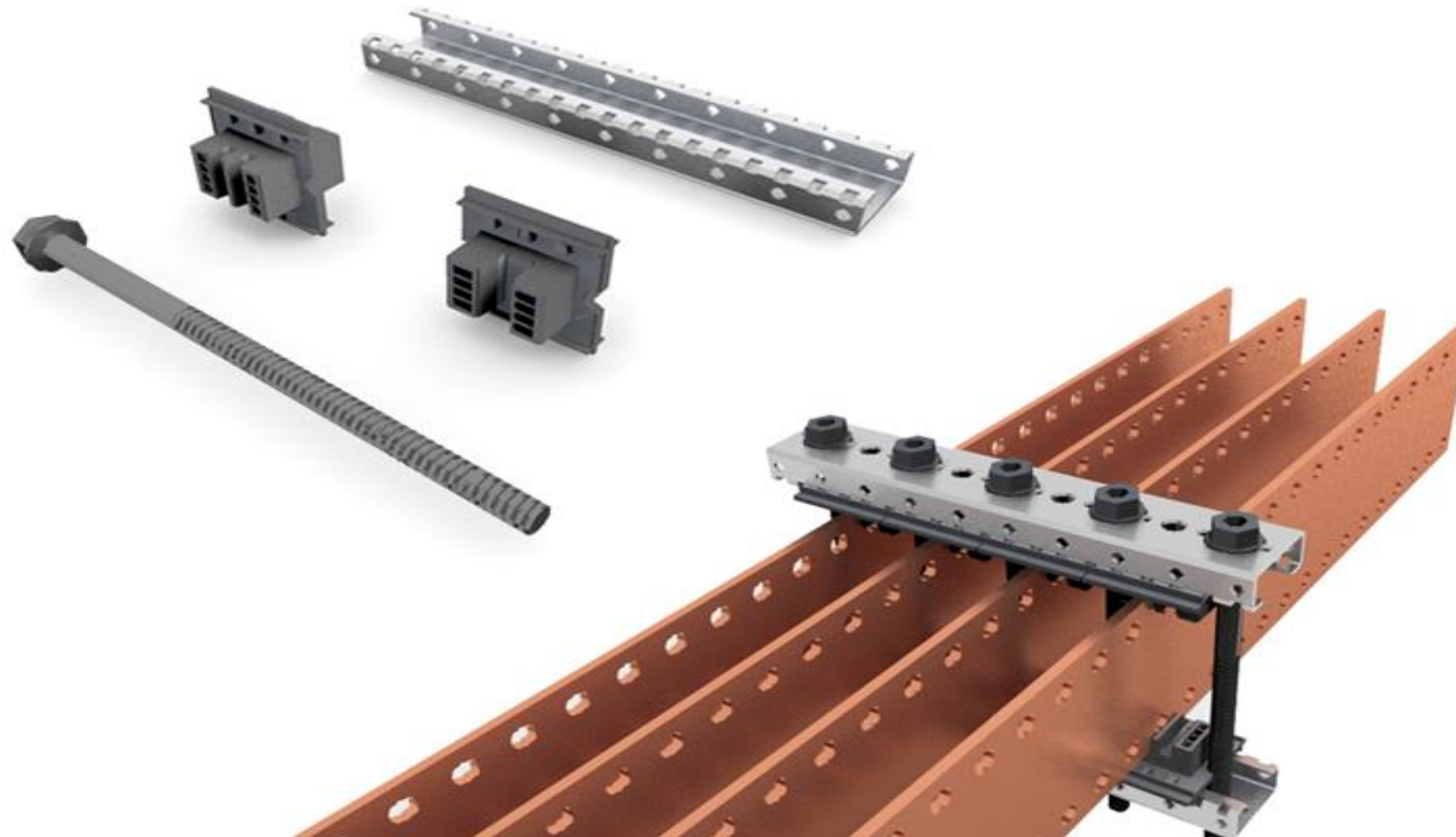
System pro *E* power - Simplicity Distribution System



Installation

- Vertical Installation: back and side
- Horizontal installation: busbar at top, at bottom and at each height

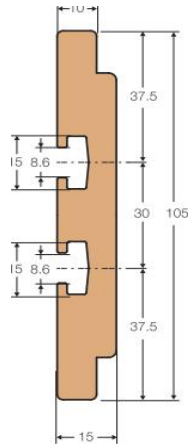
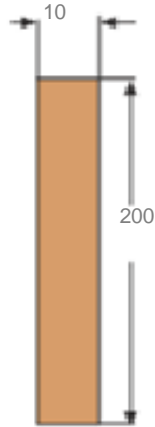
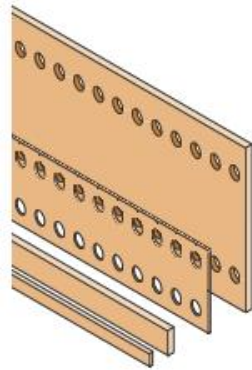
System pro *E* power - Simplicity Distribution System



System pro *E* power - Simplicity Distribution System



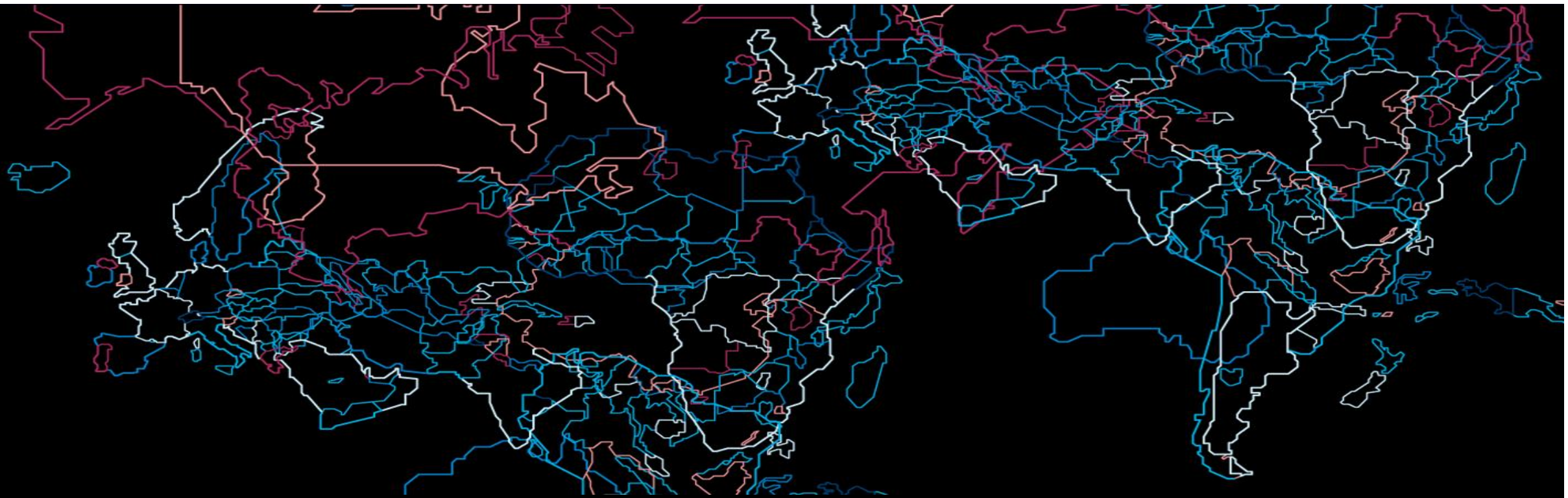
System pro E Power - Simplicity Distribution System



Flat or Shaped section Busbars

- Flat copper busbar from 250A up to 6300A
- Shaped section copper Busbars from 400A up to 2500A
- Cuponal flat busbars up to 3200A

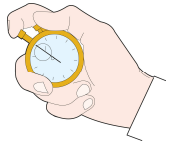
	Copper	Cuponal
Flat	6300 A	3200 A
Shaped	2500 A	X



System pro *E* power Advantages

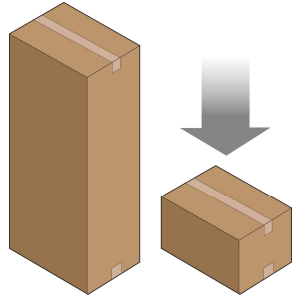
System pro *E* power

Advantages for the customer



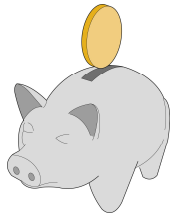
- **Time**

Reduction up to **15%** for assembling time



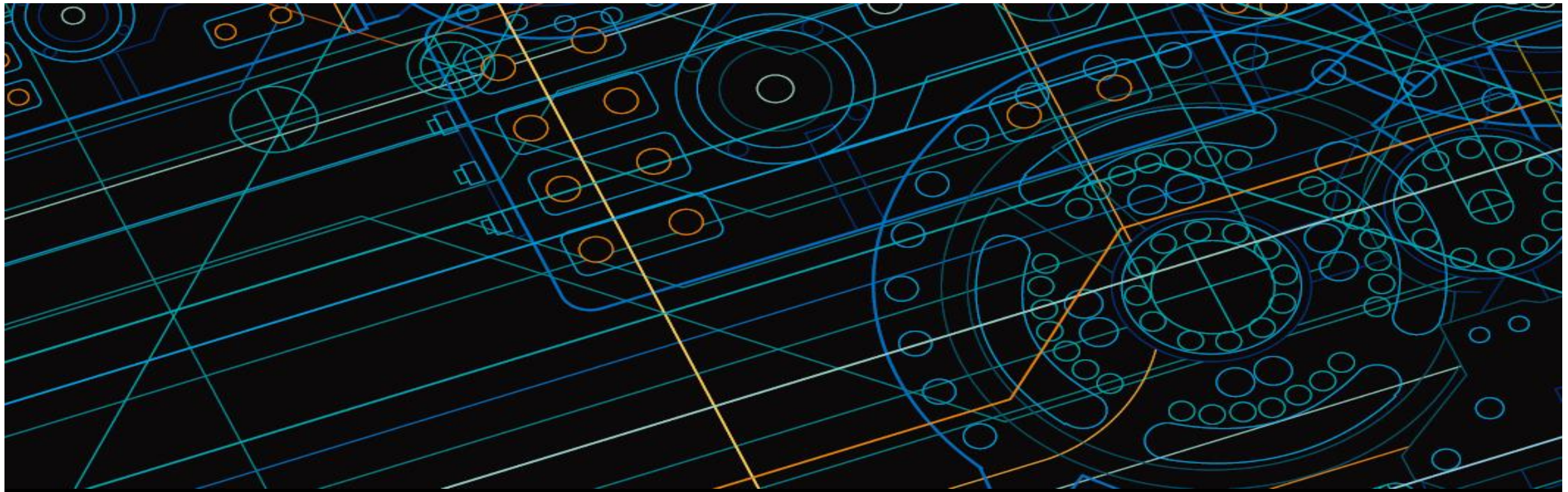
- **Space**

Reduction up to **10%** of the stock surface



- **Costs**

Reduction of costs in terms of transport and stock



OEMs Partner Concept

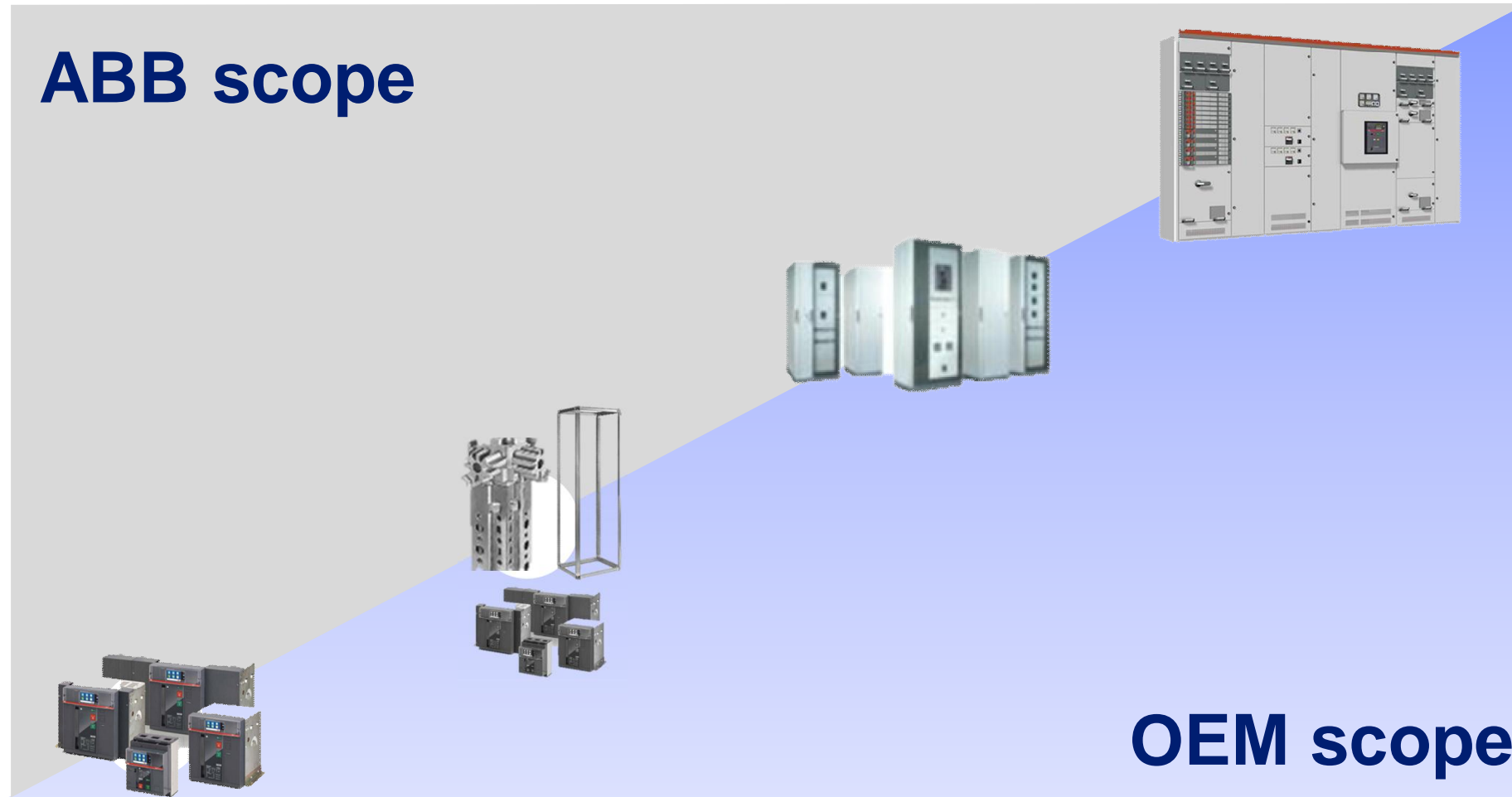
Power Products OEM channel

Flexible value chain



Low Voltage Products OEM channel

Flexible value chain



OEM Cooperation Program

OEM cooperation concept set-up



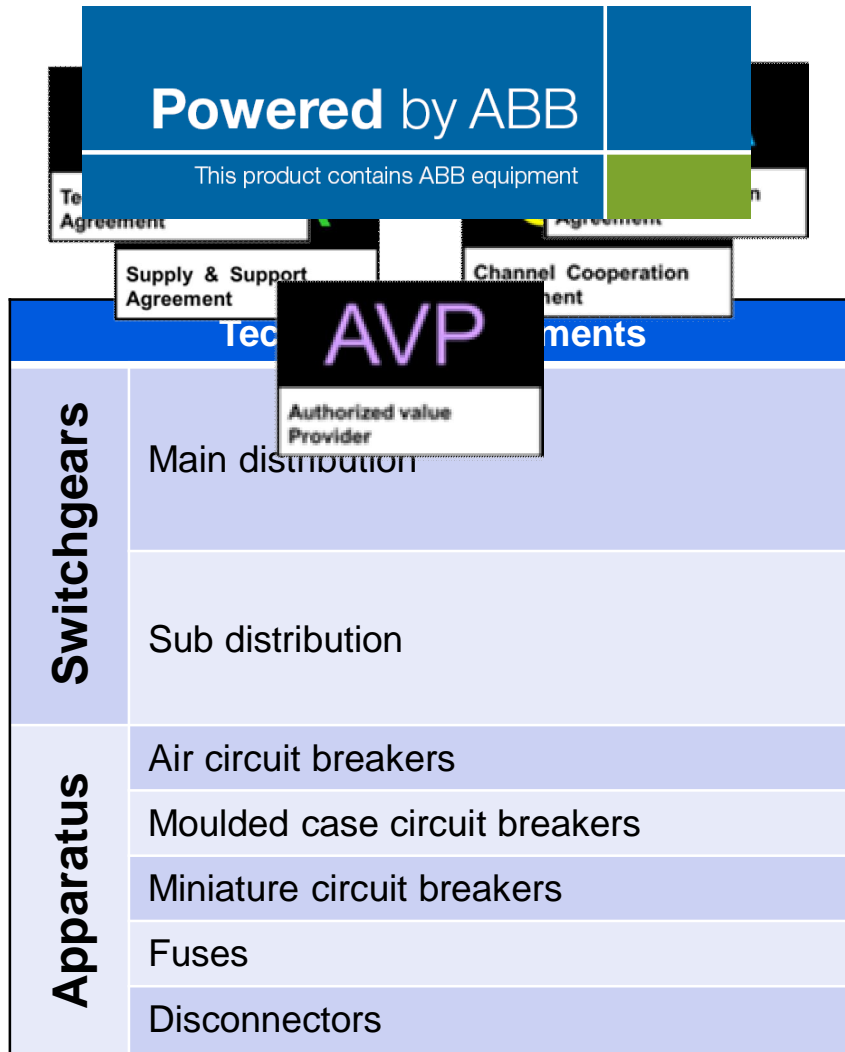
- 4 elements of a strategic partnership
- Cooperation based on a modular concept
- Results
 - Capture more business opportunities
 - Penetrate more markets

Three main types of agreements:

- Commercial
- Trademark
- Technology

OEM Cooperation Program

Solutions for every need



Three main types of agreements:

- Commercial
 - Trademark
 - Technology
-
- For every market segment
 - For any market
 - Standards
 - Homologation

Power and productivity
for a better world™

