



WHEN TECHNOLOGY CONNECTS, SO DOES HUMANITY.

TE CONNECTIVITY
2022 COMPANY OVERVIEW

EVERY CONNECTION COUNTS





\$2.5B

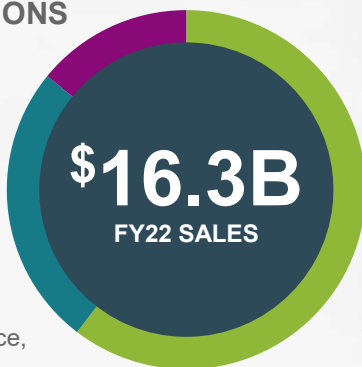
COMMUNICATIONS

Appliances, Data & Devices

\$4.5B

INDUSTRIAL

Industrial, Aerospace, Defense & Marine, Medical, Energy



\$9.2B

TRANSPORTATION

Automotive, Industrial & Commercial Transportation, Sensors, Application Tooling

**CONNECT
LIKE THE WORLD
DEPENDS ON IT.
BECAUSE IT DOES.**

236B

PRODUCTS MANUFACTURED ANNUALLY

Sales figures have been rounded for presentation purposes





TE INDUSTRIAL

**WE MAKE
MAKING THINGS
EASIER.**





WHO **WE** ARE: A GLOBAL LEADER IN CONNECTIVITY.

A SOLUTIONS SUPPLIER OF COMPONENTS THAT CONNECT, SENSE, AND PROTECT.

MANUFACTURING
INDUSTRIAL MACHINERY
AUTOMATION & CONTROL

UNLEASHING THE POWER OF INNOVATION THROUGH CO-CREATION AND DRIVEN ENGINEERING SOLUTIONS

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MAKE

WE MAKE MAKING THINGS EASIER.

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THESE THINGS **MAKE** US DIFFERENT.

INDUSTRY-LEADING PORTFOLIO

UNMATCHED RANGE OF CONNECTIVITY

- INTERCONNECTS
- ETHERNET
- FIELD INSTALLATION
- SENSING
- ERGONOMICS
- MINIATURIZATION
- FLEXIBILITY
- RUGGEDIZED

 *TE'S PORTFOLIO ENABLES CONNECTIONS
IN THE HARSHTEST ENVIRONMENTS*

75+ YEARS LEADING GLOBAL BRANDS

AMPDEUTSCH | ENTRELEC | ERNI | Intercontec | Potter & Brumfield | Raychem | Schrack



MAKE

WE MAKE MAKING THINGS EASIER.

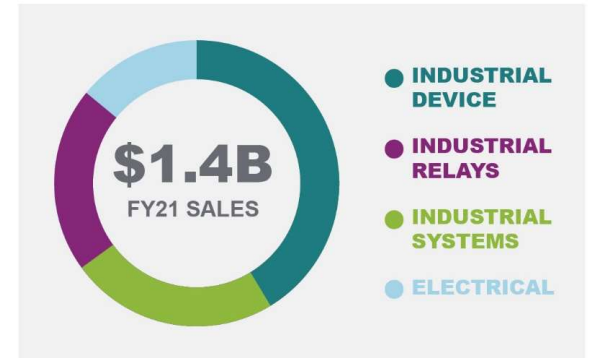
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THESE THINGS **MAKE** US DIFFERENT.

DEEP APPLICATION, INDUSTRY,
AND INTEGRATION EXPERTISE

- Co-creator approach, where we work with you to drive an Extraordinary Customer Experience
- Broad portfolio and presence across the globe
- Digitally enabled engineering solutions



IN A **\$12B GLOBAL MARKET** SERVING MORE THAN **100,000 CUSTOMERS**



MAKING THINGS

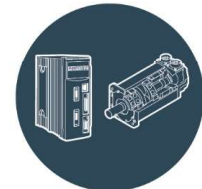
WE MAKE MAKING THINGS EASIER.

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HERE IS WHY COMPANIES MAKING THINGS COME TO US.

WE HAVE ALIGNED OUR BUSINESS TO PRIORITIZE EIGHT MARKETS.



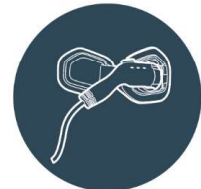
MOTION & DRIVES



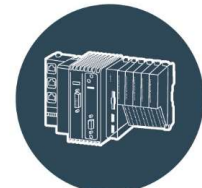
INDUSTRIAL ROBOTICS



WAREHOUSE AUTOMATION



BESS & EVI
BATTERY AND ENERGY STORAGE SYSTEMS & EV INTERFACE



AUTOMATION CONTROLS



OUTDOOR LED LIGHTING



SEMICONDUCTOR MACHINERY



AUTOMATION SENSORS

ADDITIONAL APPLICATIONS SERVED:
Building Automation | Safety & Security | HVAC | Rail | Renewable Energy | Control Cabinets
Data Centers | Transportation | Food & Beverage | Material Handling & Packaging



MAKING THINGS

WE MAKE MAKING THINGS EASIER.

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HERE IS WHY COMPANIES MAKING THINGS COME TO US.

WE HAVE EXPANDED OUR PRODUCT PORTFOLIO TO BRING THE BEST SOLUTIONS TO THESE MARKETS.

TE OFFERS THE BROADEST RANGE OF CONNECTIVITY & SENSOR TECHNOLOGIES

- CONNECTORS
- RELAYS
- TERMINAL BLOCKS
- PASSIVES
- FILTERS
- TERMINALS & SPLICES
- SENSORS
- IDENTIFICATION & LABELING
- CABLE ASSEMBLIES
- CUSTOM SOLUTIONS



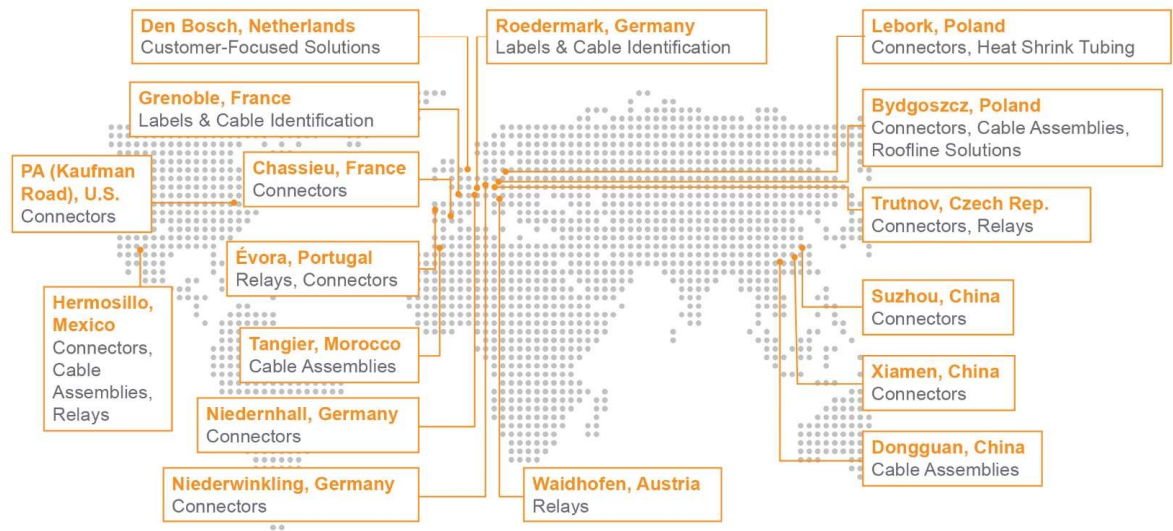


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HERE IS HOW WE MAKE IT **EASIER.**

INDUSTRIAL MANUFACTURING SITES ACROSS THE GLOBE



 **THE INDUSTRY'S LARGEST DISTRIBUTION NETWORK**



INDUSTRIAL ELECTRICAL

Global Product Management Team

EVERY CONNECTION COUNTS

INDUSTRIAL

DEVICE

SYSTEM

RELAY

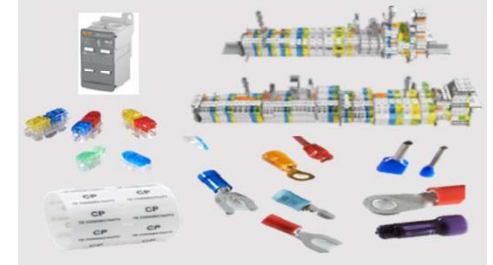
ELECTRICAL

BOARD CONNECTIVITY &
PRECISION POWER

MOTION CONTROL &
COMMUNICATION

RELAYS

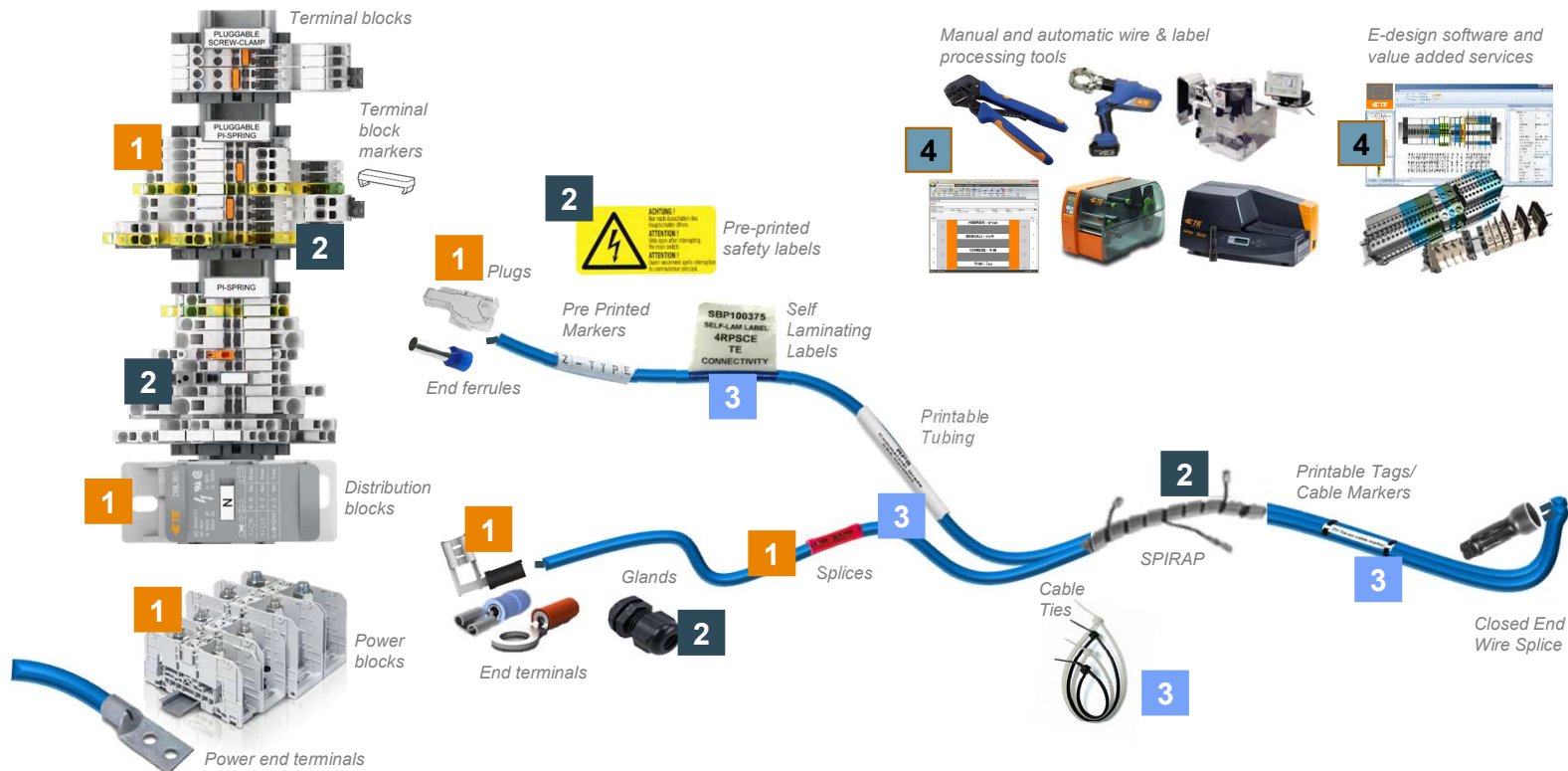
TERMINAL BLOCKS
TERMINALS & SPLICES
IDENTIFICATION



INDUSTRIAL ELECTRICAL

„Follow the wire inside the panel“

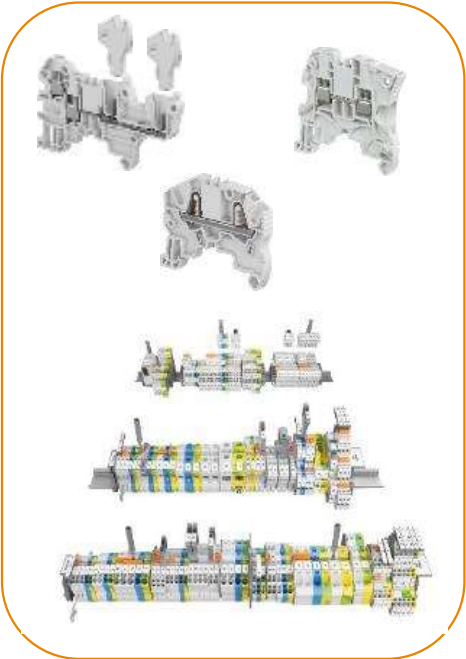
- 1** **Power & signal distribution**
Power and automation terminal blocks, distribution blocks, end terminals and splices
- 2** **Protection & insulation**
Security labels, protection wraps, cable glands, ground and fuse terminal blocks
- 3** **Identification & layout**
Circuit identification labels, cable markers, terminal block markers, panel labels, cable ties
- 4** **Workspace & design tools**
Hand and automated tools, terminals on roll, value added services, e-design softwares



INDUSTRIAL ELECTRICAL

DIN Rail Solutions – Standard offering

SNK Series



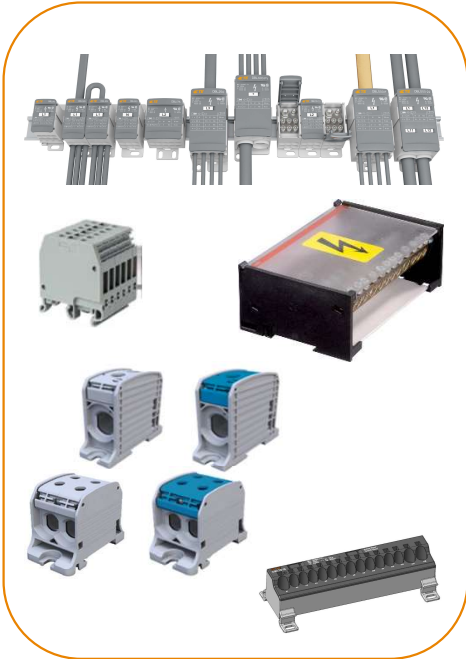
SNA Series



Power Terminal blocks



Distribution blocks



INDUSTRIAL ELECTRICAL

DIN Rail Solutions – Dedicated offering

Essailec test blocks



Interfast / Empty moduls



Dedicated Solutions

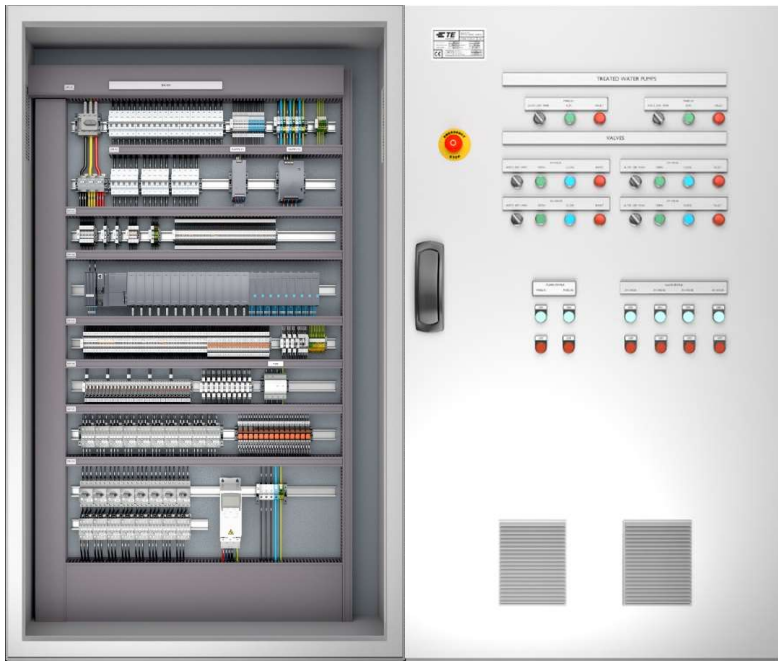


VAS Services



INDUSTRIAL ELECTRICAL


Identification Solutions



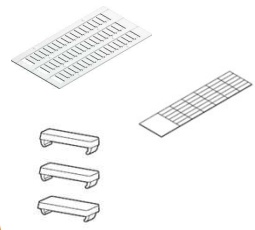
Markers and labels

Terminal blocks

Pre-printed / custom



Blank markers



Wiring



Electrical cabinet



Marking systems

HTP 600 printer



AMS plotters



INDUSTRIAL ELECTRICAL Identification Solutions

Printable tubing and tags		Labels		Marking systems	
<p>Printable Tubing</p> <p>7 materials 2 formats Major certifications</p>	<p>Printable Tags Cable Markers</p> <p>5 materials 3 formats Major certifications</p>	<p>Printable Labels</p> <p>High performance Industrial Asset & Self Laminating</p>	<p>Custom Labels</p> <p>Digitally printed multi-colored labels</p> <p>Pre-Printed Labels</p>	<p>Pre-Printed Markers</p> <p>Pre-termination Post-termination</p>	<p>Hardware Accessories Ribbon</p> <p>Software</p>

INDUSTRIAL ELECTRICAL

Wire terminations and cable management



INDUSTRIAL ELECTRICAL

Wire terminations and cable management

Installation connectors



Wiring ducts



Cable glands



M8/M12/RJ45 Connectors



ENTRELEC Electrical: Herramientas Promoción

TE.COM

Dedicated webpages
ENTRELEC – IDENT – T&S



High quality data
Catalogs, Videos, 3D drawings, Data sheets, Cross Ref tool, and Compatible parts & accessories

Sample program
on hundred's high runners

Get Free Samples

Data content extractor

Obtain in one click all our tech datas, images and document links

Sales Documents

Full line catalogs



ENTRELEC : SNK DBL ESSAILEC
Dedicated solutions Railway
Identification & Labelling

Brochures – Selection



ALL Ranges

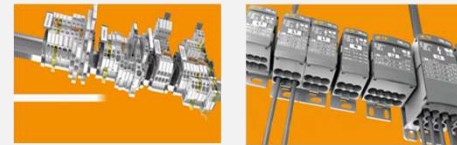
Guides-



Terminal & Splices - Crimping –
Identification & Labelling

Videos & Training

Promotional - Explanatory



Viral



Challenge SNK
6 videos

Panel building
optimization
(9 videos)

Tips for panel
builders
4 videos

Tutorials – YouTube



How-to videos on Easy Rail Designer software
& HTP600 printer & software & Wintotal software

TELC

eLearning - Micro learnings



Videos

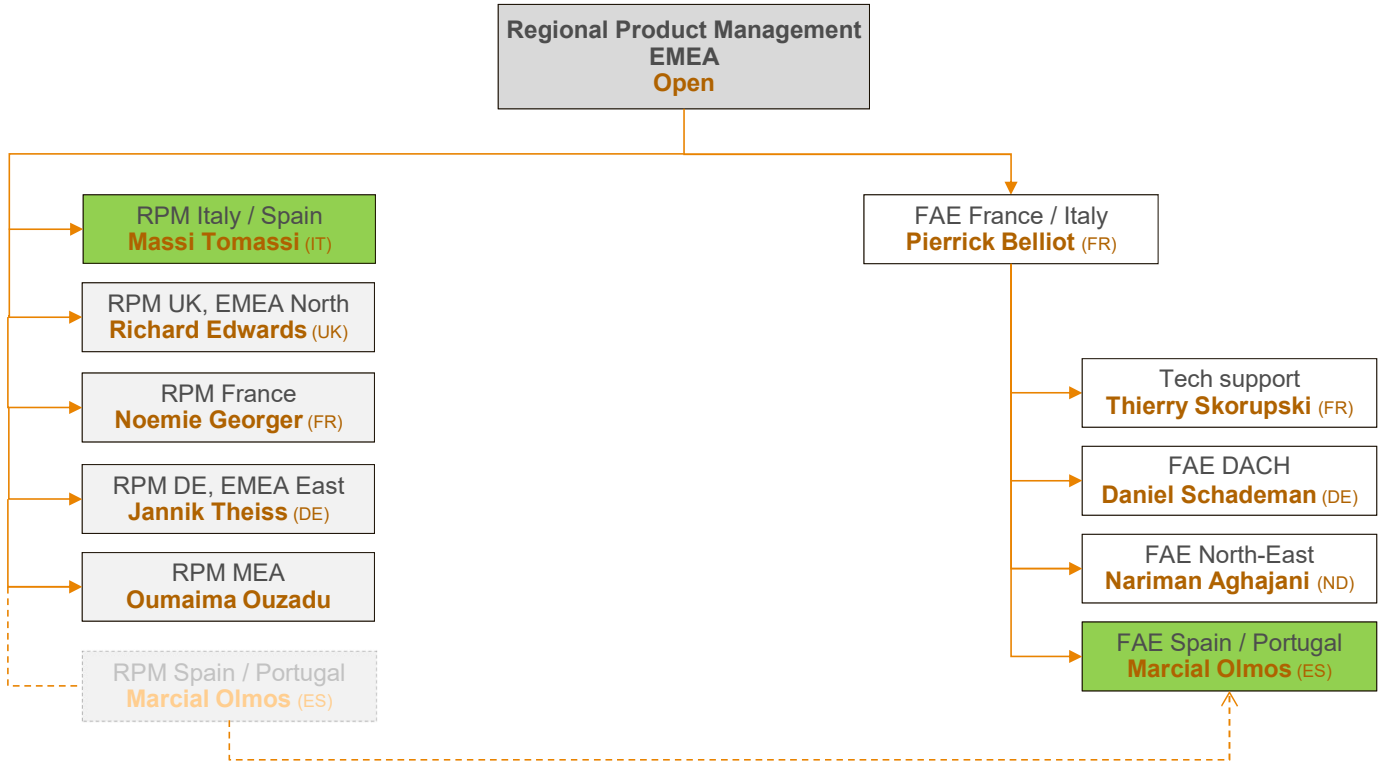
Webinars





INDUSTRIAL ELECTRICAL

RPM/FAE EMEA team



Bornas de conexión Panorama

Marcial Olmos – FAE IND Electrical

EVERY CONNECTION COUNTS



INDUSTRIAL ELECTRICAL

DIN Rail Solutions – Gama standard

SNK Series



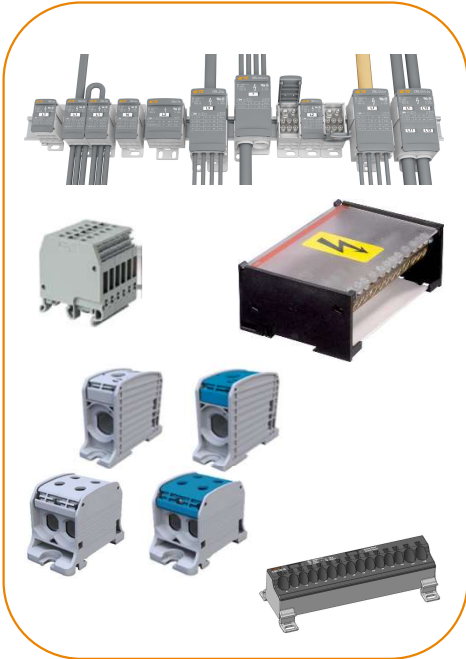
SNA Series



Bornas de potencia



Bloques de distribución



INDUSTRIAL ELECTRICAL

DIN Rail Solutions – Codificación de producto



- *SNK Series*

TE PN: **1SNK505010R0000**



- *SNA Series* y bornas específicas para aplicaciones (**Legado ENTRELEC**: Bloques comprobación Essailec, bornas ferroviarias)

TE PN : **1SNA115116R0700** ←

TE PN : **1SNA125116R...** (borna neutro, color azul)

TE PN : **1SNA165116R...** (borna de tierra, color verde/amarillo)

TE PN : **1SNA166737R2000** (*Essailec* 166...167...168)



- Nuevos productos *DiN Rail Solutions*

TE PN: **1SNA510024R0000** (*RGW ring lug terminal blocks*)

TE PN: **1SNL308010R0000** (*DBL Power distribution blocks*)



- *VAS Services* / Soluciones personalizadas tales como regletas ferroviarias, barretas de conexión, etiquetado personalizado, etc...

TE PN: **1SNS320001Z1030** (*ABB Legacy*)

TE PN: **1SNS420685Z0000** (*New TE Codes*)



CONVERSION CÓDIGOS ANTIGUOS

ENTRELEC

M4/6

0115116.07

TE Connectivity

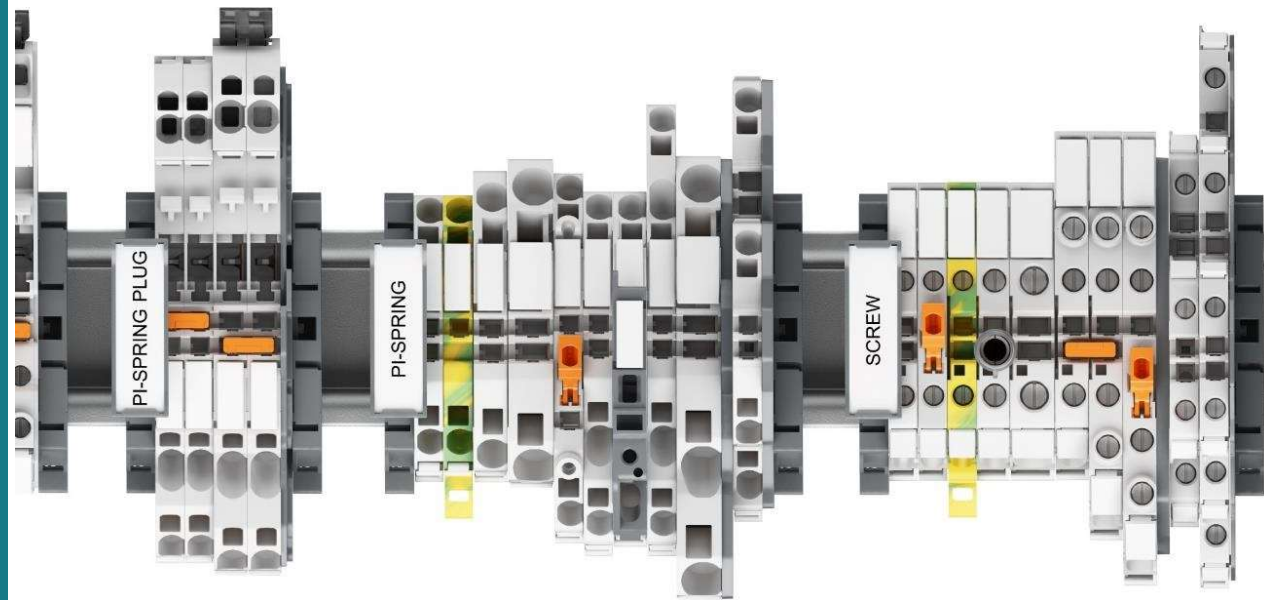
M4/6

1SNA115116R0700

SNK series

Global Product Management team

EVERY CONNECTION COUNTS



Portfolio screw clamp from 4 to 240 mm² – 10 to 500 Kcmil SNK series

2 Connections
Single deck
 Feed-through
 Ground
 Disconnect
 Fuse

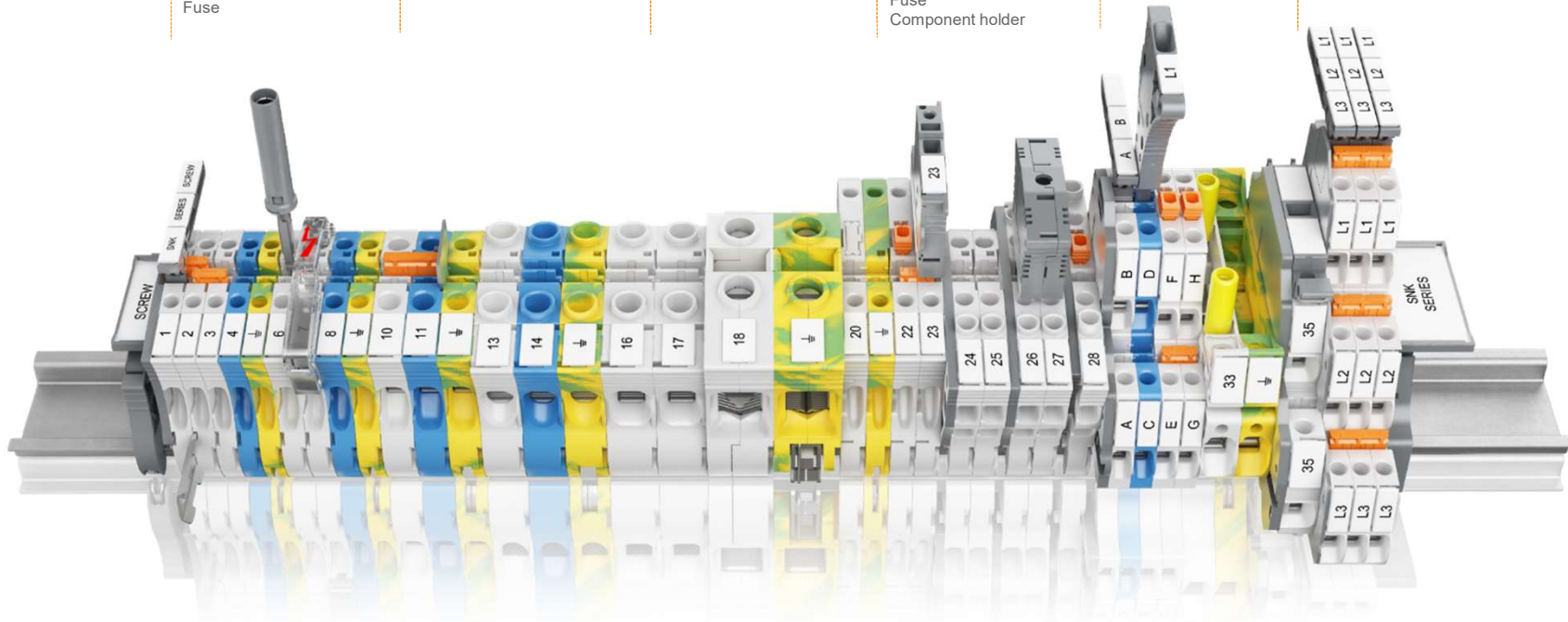
3 Connections
Single deck
 Feed-through
 Ground

4 Connections
Single deck
 Feed-through
 Ground
 Disconnect

2x2 Connections
Double deck
 Feed-through
 Ground
 Disconnect
 Fuse
 Component holder

2 Connections
Test & measurement
 Feed-through
 Ground
 Disconnect

3x2 Connections
Triple deck
 Feed-through



Portfolio PI-Spring from 2.5 to 16 mm² – 12 to 4 AWG SNK series



2 Connections

Single deck

- Feed-through
- Ground
- Disconnect
- Fuse
- Solar : 1500 VDC



3 Connections

Single deck

- Feed-through
- Ground
- Solar : 1500 VDC



4 Connections

Single deck

- Feed-through
- Ground
- Disconnect
- Component holder



2x2 Connections

Double deck

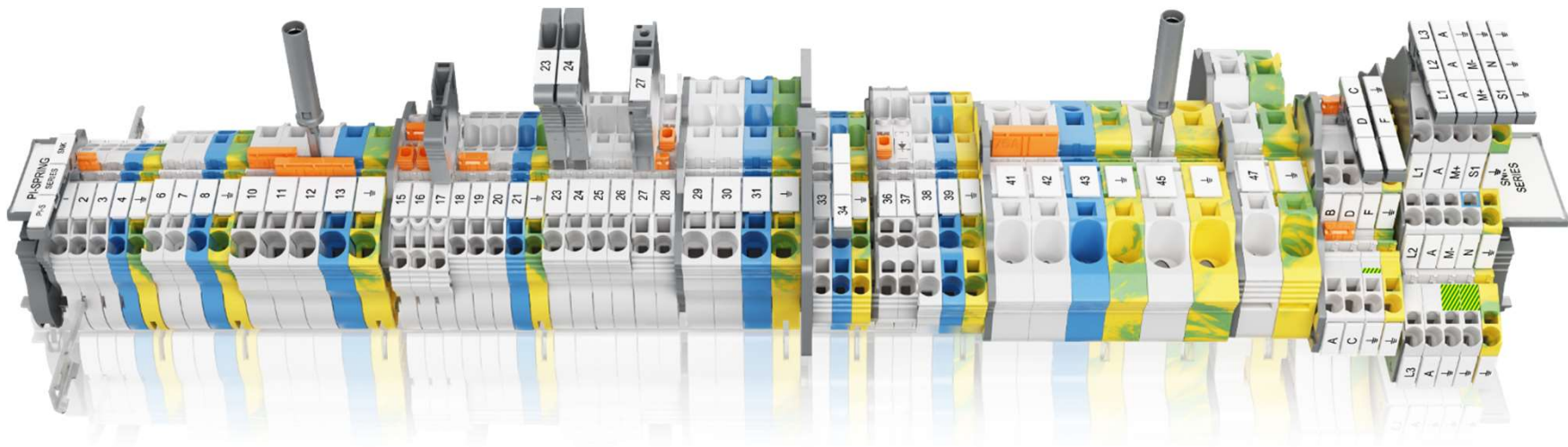
- Feed-through
- Ground
- Component holder



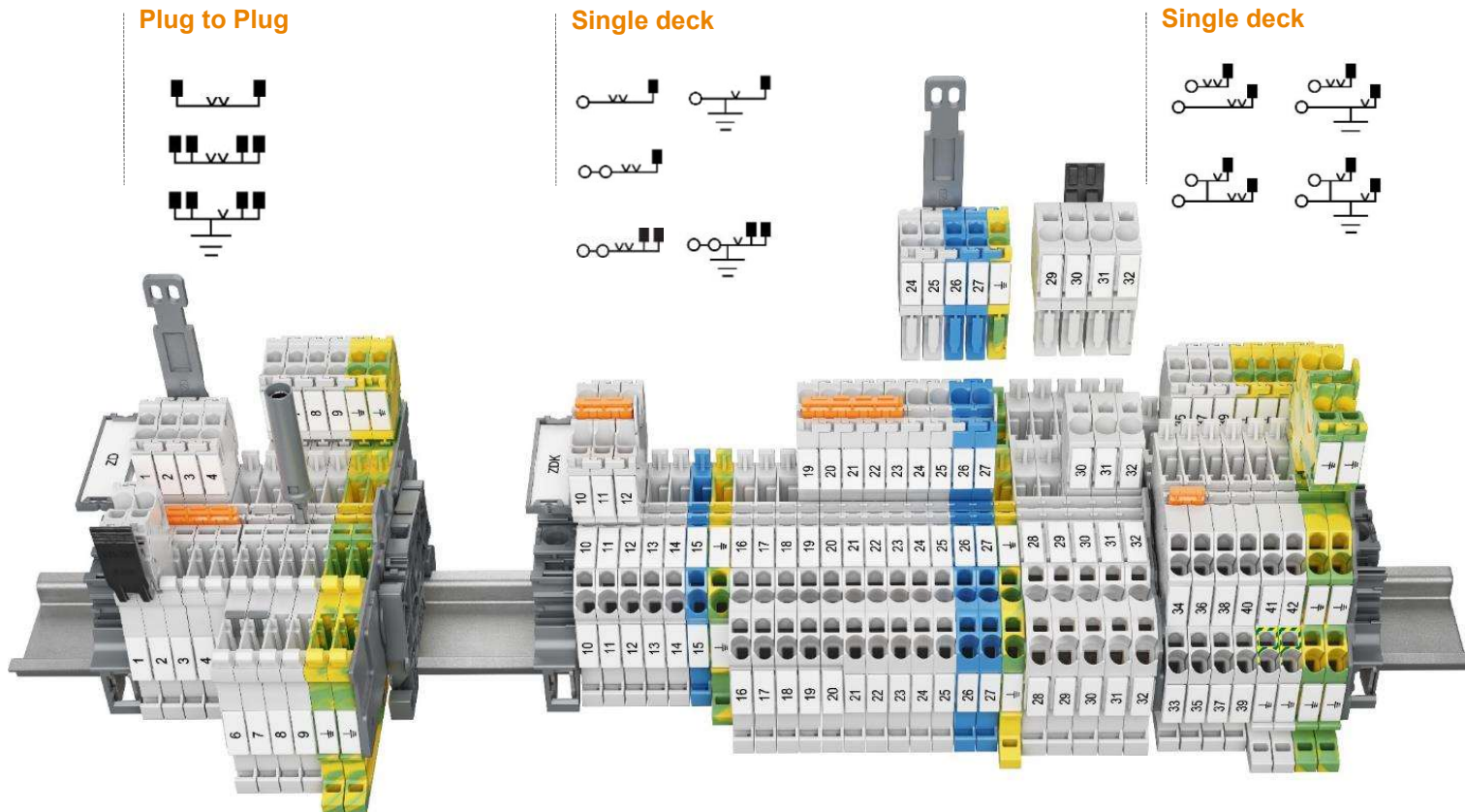
3x2 Connections

Triple deck

- Feed-through
- Ground

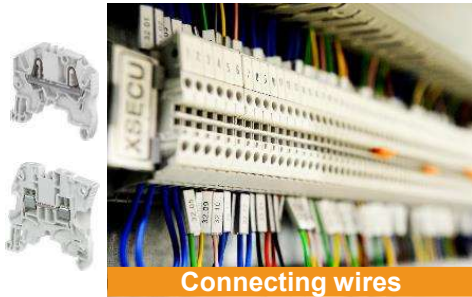
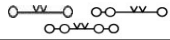


Portfolio Pluggable 2,5 to 4 mm² SNK series

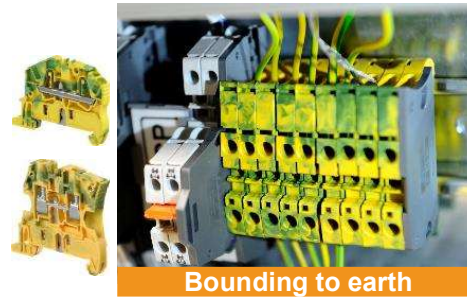


Functions portfolio

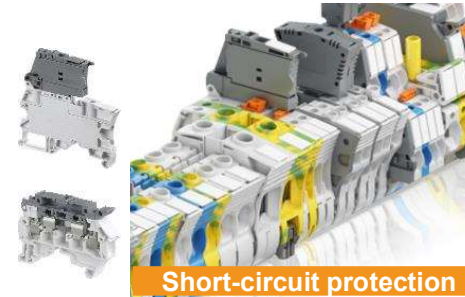
De paso



De tierra



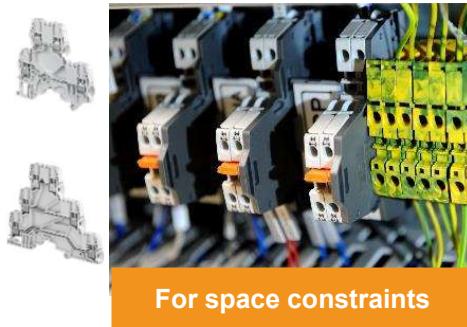
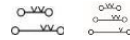
Portafusible



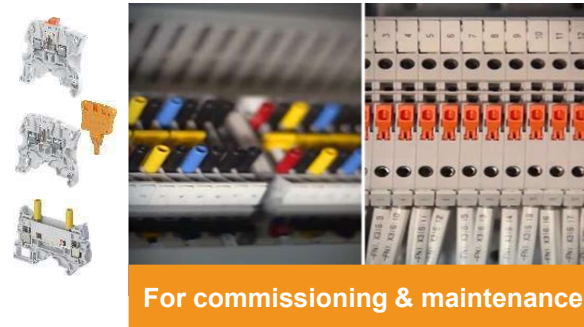
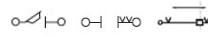
Portacomponentes



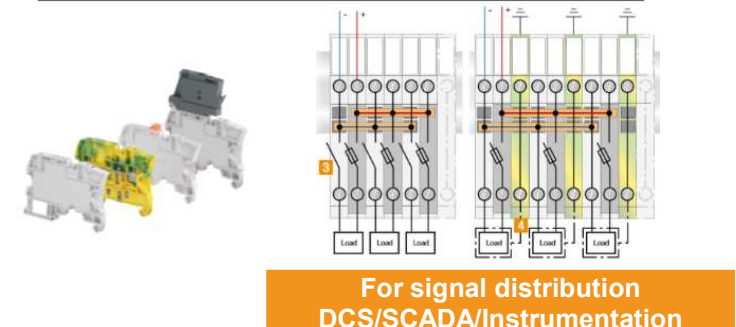
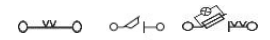
Doble/triple piso



Seccionables y medida



Sistema distribución



SNK Series typical applications



MAKE IT EASY... FOCUS SNK



Automation

Wire size $\leq 6\text{mm}^2$:
 Feed-through
 Disconnect
 Fuse
 Marshalling

Wire size $\leq 6\text{mm}^2$
 Feed-through
 Disconnect
 Fuse

Wire size $<4\text{mm}^2$
 Two plugs

Power

10mm^2 to 240mm^2
 - Feed-through
 - Test & measurement

10mm^2 to 16mm^2
 - Feed-through

2 plugs in switchgears
 low voltage
 compartments

Segments

Automation & control
 Marine
 Hazardous Loc. / COG
 Solar

Railway
 Marine
 Hazardous Loc. / COG
 Solar
 HVAC/machinery

Railway
 Marine
 HVAC/machinery

Channels

Distributors
 Panel builders
 Oem's
 System integrators
 End users & utilities

Distributors
 Panel builders
 Oem's
 System
 End users & utilities

Panel builders
 Oem's

Simply SNK.. It covers 80% of customer needs



How to read ?

SNK Product Names

ZS4 – XX- XX

Technologies

- S** Screw
- K** PI-Spring
- D** Pluggable

- rated Connecting capacity
- 4** (flexible wire) 4 mm²
 - 6** (flexible wire) 6 mm²
 - ...
 - 50** (flexible wire) 50 mm²
 - ...
 - 240** (flexible wire) 240 mm²

Functions

- BL** Blue (neutral)
- PE** Ground
- S** Disconnect
- ST** Disconnect + Test
- SF** Fuse
- D** ... Double deck D1 : 1 circuit, D2: 2 circuits
- T** : Triple deck T3 : 3 independent circuits ...

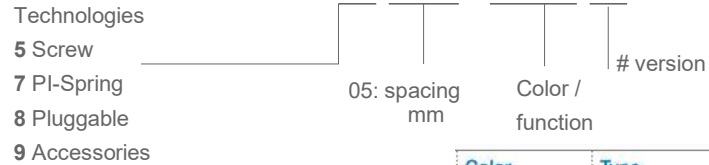
Variants

- R...** Variant 1,2 ...
- L-N-PE : 3 deck: line, neutral,Ground
- Etc ..

How to read ?

SNK Product Coding

Screw **ZS4** **1SNK505 010R0000**



PI-Spring **1SNK706010R0000**

Pluggable **1SNK805010R0000**

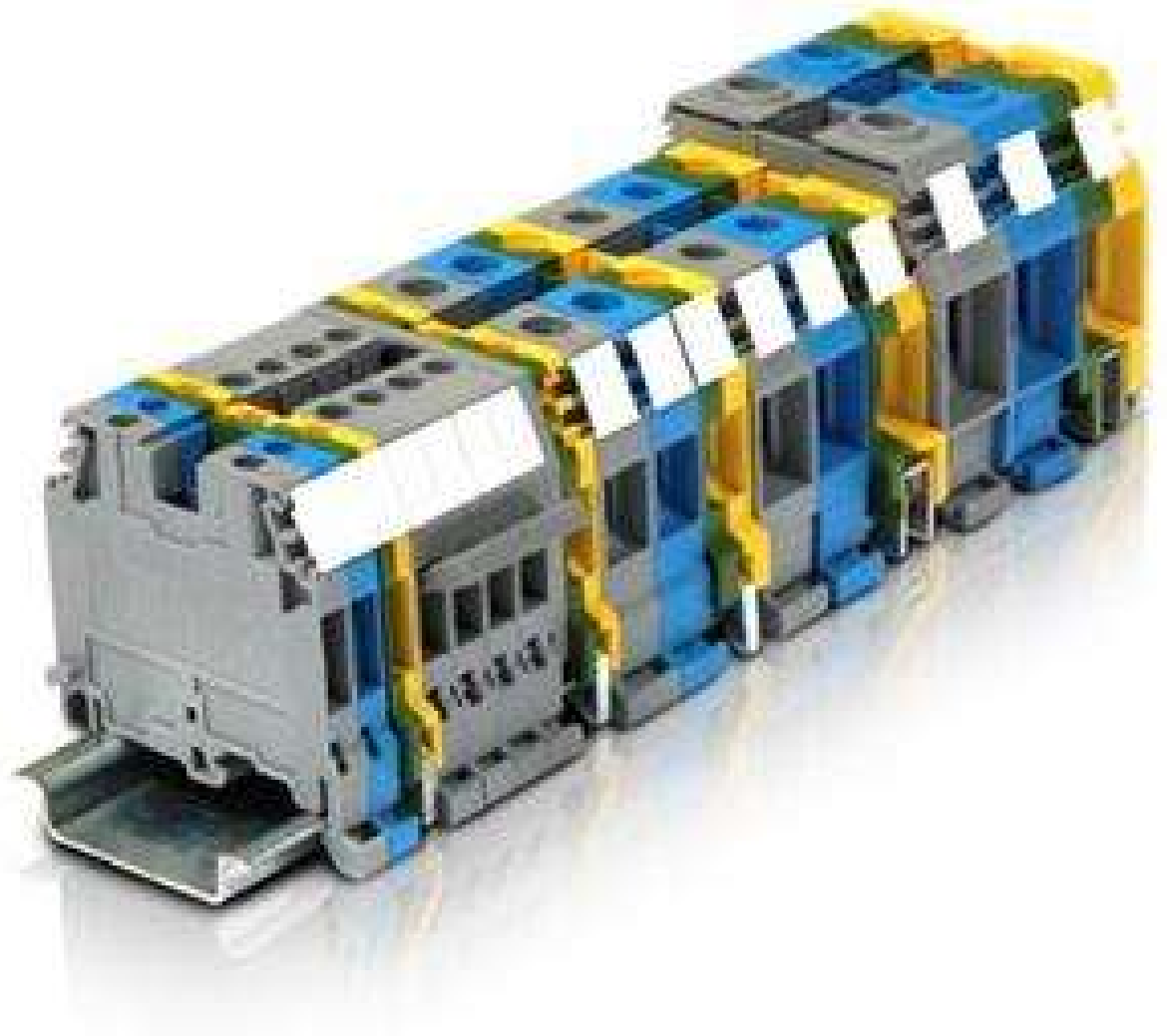
Accessory **1SNK900002R0000**

Color	Type	Order code
Grey	ZS4	1SNK505010R0000
Blue	ZS4-BL	1SNK505020R0000
Orange	ZS4-OR	1SNK505030R0000
Yellow	ZS4-YL	1SNK505060R0000
Green	ZS4-GN	1SNK505061R0000
Red	ZS4-RD	1SNK505062R0000
Purple	ZS4-PR	1SNK505063R0000
Brown	ZS4-BR	1SNK505064R0000
White	ZS4-WH	1SNK505065R0000
Black	ZS4-BK	1SNK505066R0000

SNA Series

Global Product Management team

EVERY CONNECTION COUNTS



SNA Series Terminal blocks

Range overview

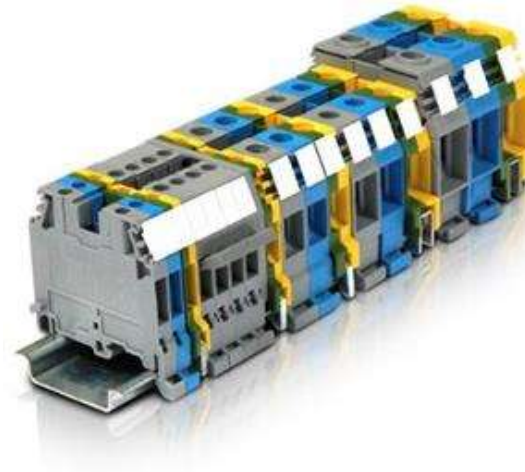
Product family

Screw clamp terminal block

From 0,22 to 95 mm²

DIN1 and DIN3 rails mounting

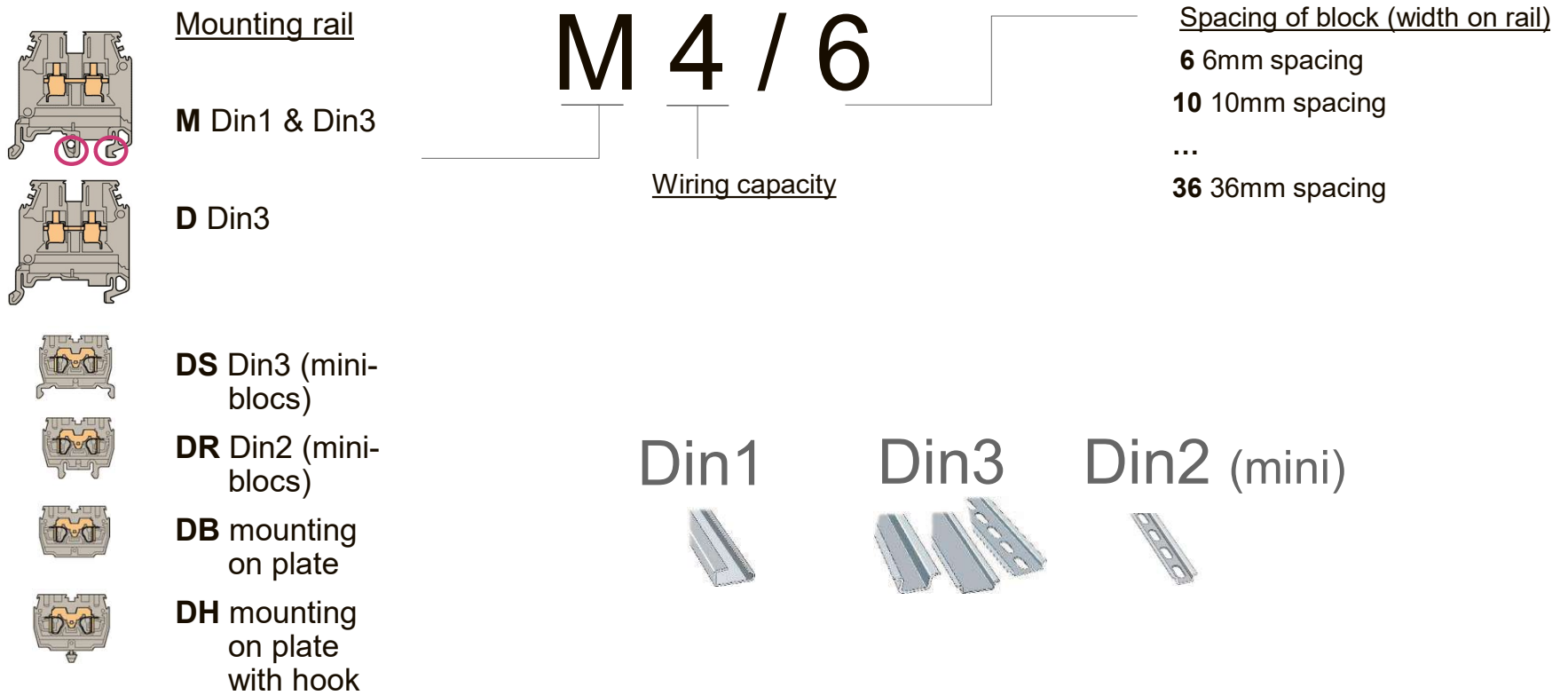
Large number of solutions



The historical scope for control & power industrial applications

How to read ?

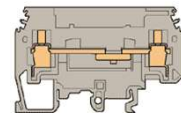
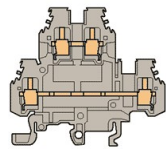
Historical product names



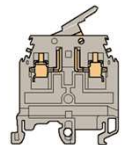
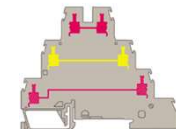
How to read ?

Historical product names

M 4 / 6 ...



- . **N** : Neutral (blue), other colours are not mentioned : same name
- . **P** : Ground (= PE for SNK)
- . **Dx** : Two levels blocks
- . **Tx** : Three levels blocks
- . **Sx** : Switch blocks
 - . **SB** Plug type . **SNB** Knife type
 - . **ST** Test & Meas . **SF** Switch fuse



Power distribution blocks

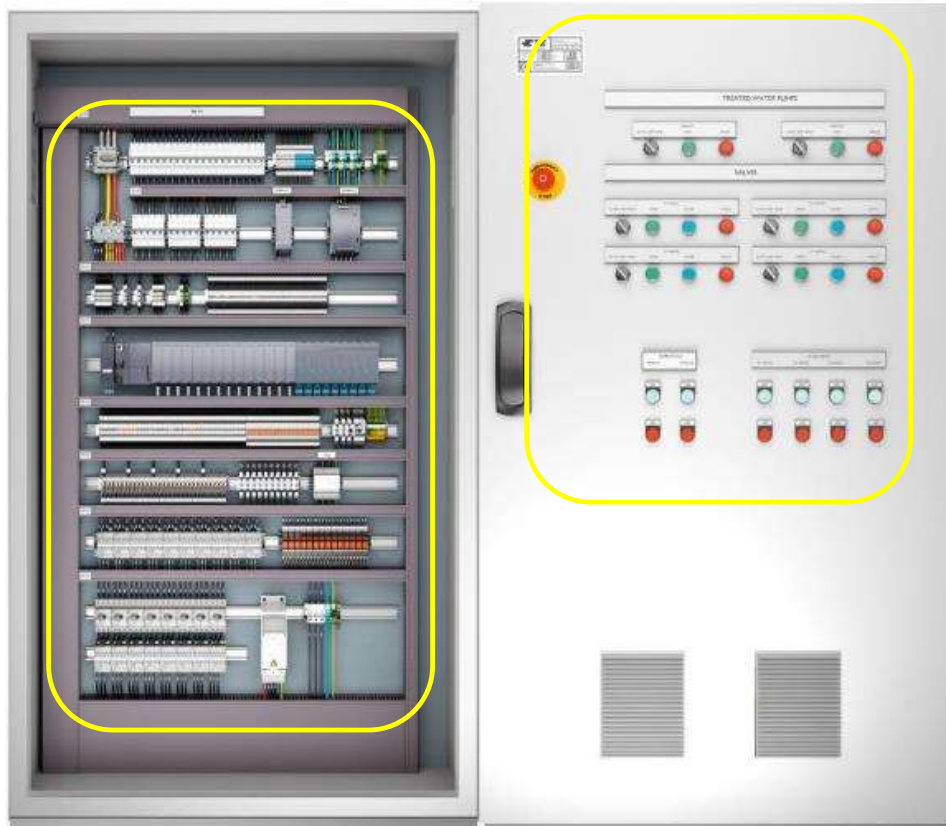
Global Product Management team

EVERY CONNECTION COUNTS



Where do we find power terminal blocks ?

... inside the control cabinet



Motor starting & control

PLC control panels

Instrumentation & Marshalling Cabinets

Switchgears cabinets

Solar cabinets and EV Charging, BESS

Distribution cabinets

Power blocks

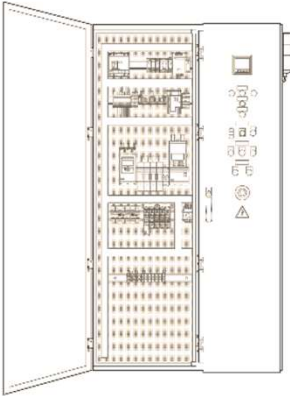
WHAT ? (Application) :
for **power connection** in general (<1000 VAC <1500VDC)

Power terminal blocks can be found in many cabinets which are dedicated to :

- Energy distribution
- Control & protection
- For starting motors

Energy distribution

Equipment supply & control



Control panels
Switchgears
Solar combiner boxes
Railway panels

HVAC
Drives
MCC's

Power family



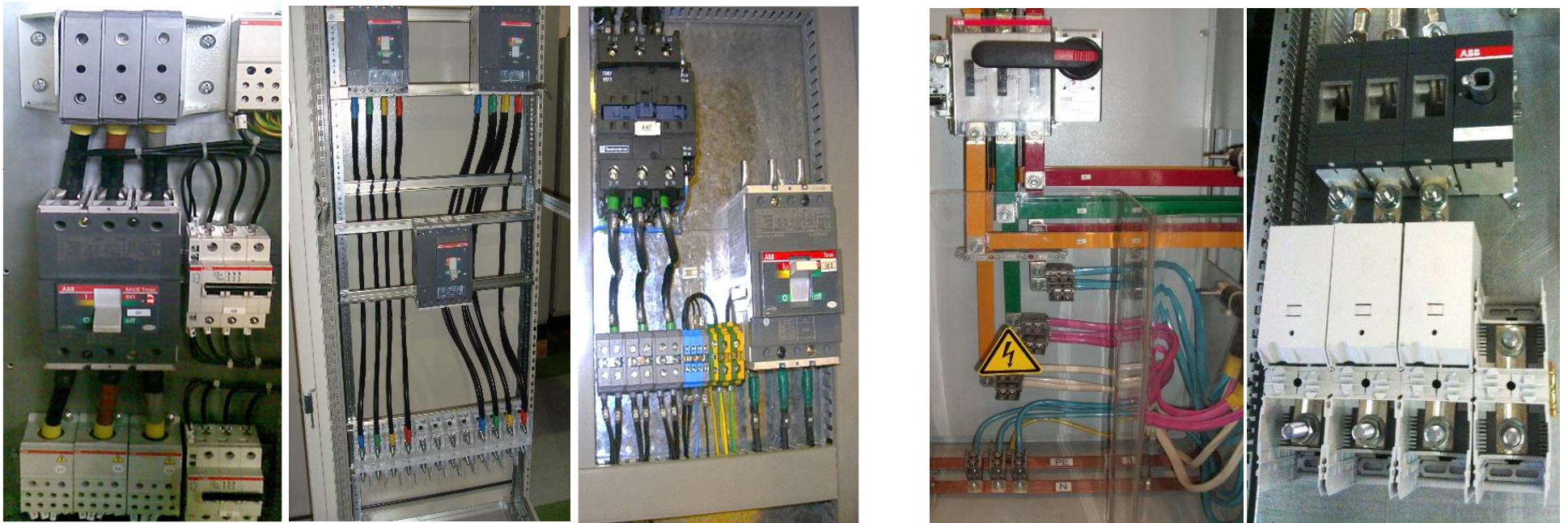
Screw-clamp

Power Distribution Blocks

Stud Power Terminal Blocks

Power blocks

WHERE ? (Application) :



Look for breakers ...

and switches !

Power terminal blocks

Power



Compact (legacy)



RGW ring lug



Railway power



35 to 300 mm ² (1 AWG to 1000 Kcmil)	25 to 120 mm ² (4 AWG to 500 Kcmil)	2,5 to 25 mm ² (26 to 4 AWG)	4 to 185 mm ²
Stud/stud & Hybrid stud/screw	Stud/stud & Hybrid stud/screw	Captive and ready to tighten nuts Self-locking wings to prevent sudden opening	Specific anti-vibration equipments (nut, washers)
Panel or Din Rail mount	Din rail mount	Din rail mount	Din rail & railway rail
Industrial power applications Qualified for railway applications upon vibration and schock	Limitations in wire size	Industrial control applications Qualified for railway applications upon vibration and schock North/south America focus	Railway



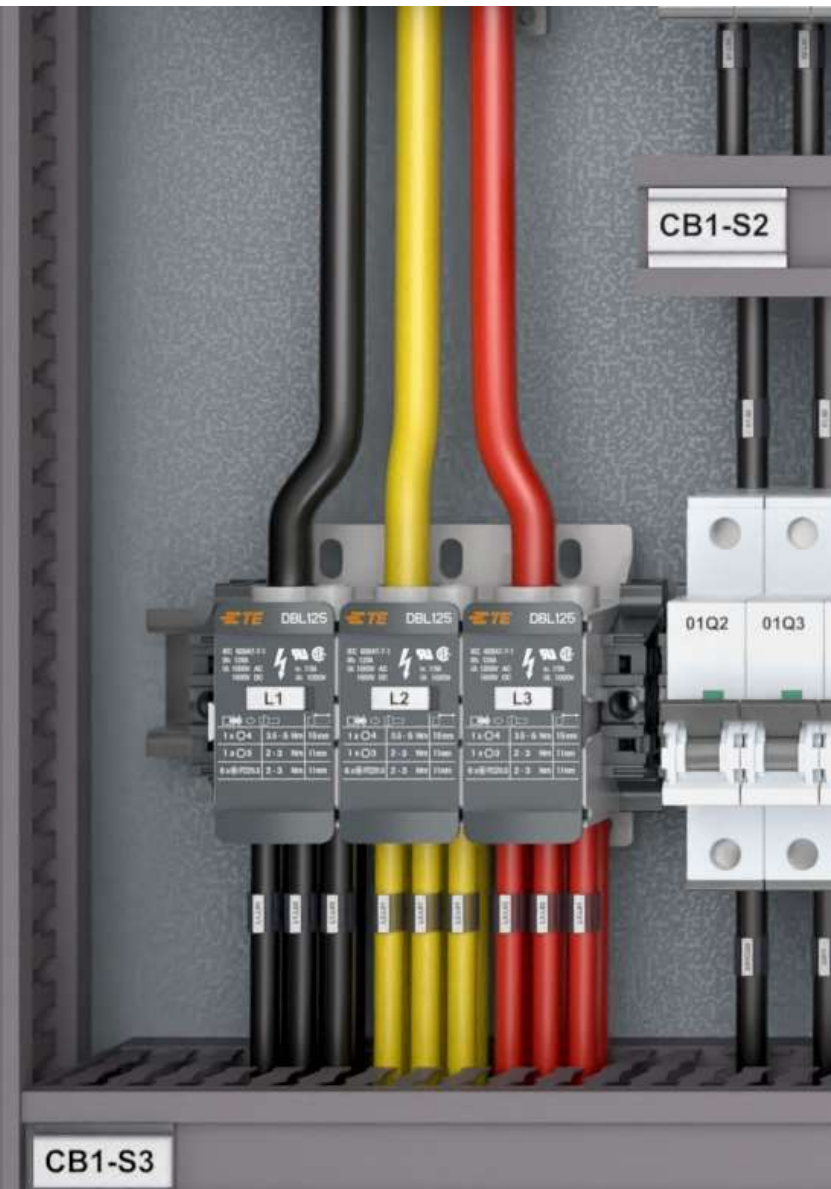
Stud technology for wires equipped with tubular **lugs or ring lugs**

Perfect match with SOLISTRAND & AMPOWER

DBL Distribution blocks

Global Product Management team

EVERY CONNECTION COUNTS





DBL Distribution blocks

Inputs from 16...185mm², 4...400 Kcmil ; Outputs from 2.5...16mm², 14...6 AWG
Single pole or multipole from **80 up to 550A**, 3 poles 125A and 175A
1000VAC IEC/UL, 1500VDC IEC

DBL80
7 connections

DBL125
8 connections

DBL160
8 connections

DBL175
12 connections

DBL250
12 connections

DBL400 & PV
2 In
12 connections

DBL125-3 and DBL175-C-3
Three poles
24 connections

DBL250-F and DBL500-F
Flat entry
6 and 11 outputs

DBL500-22
2X2 connections









INDUSTRIAL ELECTRICAL Identification Solutions

Printable tubing and tags		Labels		Marking systems	
<p>Printable Tubing</p> <p>7 materials 2 formats Major certifications</p>	<p>Printable Tags Cable Markers</p> <p>5 materials 3 formats Major certifications</p>	<p>Printable Labels</p> <p>High performance Industrial Asset & Self Laminating</p>	<p>Custom Labels</p> <p>Digitally printed multi-colored labels</p> <p>Pre-Printed Labels</p>	<p>Pre-Printed Markers</p> <p>Pre-termination Post-termination</p>	<p>Hardware Accessories Ribbon</p> <p>Software</p>



What printer to propose ?

Printer name	Print technology	Print definition	Wifi	Application	Consumable's coverage	Software
 T2212	Thermal transfer	300 dpi	Option	General purpose Low volume / Low end	Ident core range <i>(see exceptions*)</i> No TB ident (2023)	WinTotal (sold)
 T3212	Thermal transfer	300 dpi	Standard	High volume production General purpose	Ident 100% No TB ident	
 T3224	Thermal transfer	600 dpi	Standard	High volume / High end Labels definition +++	Ident 100% No TB ident	
 T6112DS	Thermal transfer	300 dpi	No	2 side printing Rail / Aerospace	Tubing (sleeves) only	
 HTP600	Thermal transfer	300 dpi	No	TB Identification (high volume) Panel identification	TB identification (RC...TT / MC...) HTP labels & markers <i>(see HTP600 brochure)</i> No Ident products	HTS 600 (free)
 AMS 600/300	Ink pens	N/A	No	TB Identification (low volume / all competitors coverage) Low end solution	TB identification (RC / MC...PA) AMS labels & markers <i>(see brochure)</i> No Ident products	AMS 5.2 (free)

* Out of scope for T2212 : CM-SCE-TP / CM-NMX / HL / HLX / HTCM-SCE-TP / HC / NCM-SCE-TP / NHT-SCE



Printable heat shrink tubing – Ladder format (sleeves)

Product	Grade	Size Range	Shrink Ratio	Temperature Ratings	Color Options	Application	Pricing	Datasheet
RPS	Commercial	3.2mm to 38.1mm	3:1	-30°C to +105°C	White, Yellow	Electrical cabinet wires	*	TTDS-019
TMS-SCE	Military	2.4mm to 57.2mm	3:1 – TMS-SCE 2:1 – TMS-SCE2X	-55°C to +135°C	White, Yellow, Select	Military & aerospace	**	TTDS-023
ZHD-SCE	Halogen free Low Fire Hazard Diesel resistant	2.4mm to 38.1mm	2:1	-55°C to +125°C	White, Yellow, Select	Railway (Passenger cars & Motor vehicles)	****	TTDS-263
HX-SCE	Halogen free Low Fire Hazard	2.4mm to 38.1mm	2:1	-55°C to +105°C	White, Yellow, Select	Railway (Passenger cars & Electrical locomotive & underground)	*****	TTDS-108
D-SCE	Chemical Resistant	2.4mm to 50mm	3:1 (size 38mm is 2:1)	-75°C to +135°C	White, Yellow, Select	Railway (Motor vehicles) Truck industry Aerospace (Airbus)	***	TTDS-017
HT-SCE	High Temperature Low outgassing	2.4mm to 38.1mm	2:1 (Size 3/32 is 3:1)	-55°C to +225°C	White, Black, Select	Military & Aerospace High temperature requirement Space & semi-conductor industry	*****	TTDS-020
UV-SCE	UV Resistant	2.4mm to 38.1mm	2:1	-55°C to +200°C	White, Yellow	Industrial & outdoor exposure	*****	TTDS-255



Ladder format recommended for high volume & multiple projects organization

HIGH RUNNERS



Printable heat shrink tubing – Continuous format

Product	Grade	Size Range	Shrink Ratio	Temperature Ratings	Color Options	Application	Pricing	Datasheet
RPS-CT	Commercial	50 m	3:1	-30°C to +105°C	White, Yellow, Black	Industrial	*	TTDS-269
TMS-CT	Military	50 m	3:1 – TMS-SCE 2:1 – TMS-SCE2X	-55°C to +135°C	White, Yellow, Black	Industrial Aerospace & Defense	**	TTDS-268
ZHD –CT	Halogen free Low Fire Hazard Diesel resistant	50 m	2:1	-55°C to +125°C	White, Yellow	Railway	****	TTDS-273
HX-CT	Halogen free Low Fire Hazard	40 m / 50 m	2:1	-40°C to +105°C	White, Yellow, Black	Railway (passengers)	*****	TTDS-270
D-CT	Chemical Resistant Diesel Resistant	50 m	3:1 (size 38mm is 2:1)	-75°C to +135°C	White, Yellow	Rail & Aerospace	***	TTDS-267
HT-CT	High Temperature Low outgassing	50 m	2:1 (size 3/32 is 3:1)	-55°C to +225°C	White, Yellow, Black	Very harsh environment Aerospace / Space Semi-conductor industry	*****	TTDS-271



Continuous format recommended for length adaptation & stocks optimization
Can be used as protection or insulation covering of uninsulated terminals connections (T&S)

HIGH RUNNERS



Printable tags – Tie-on mounting

Product	Grade	Temperature Ratings	Color Options	Packaging	Key Industry	Application	Pricing	Datasheet
HLX-NEL	Halogen free + Low fire hazard	-40°C to +105°C	White, Yellow	200	Industrial Electrical cabinet Railway (Passenger cars) Military Aerospace	General purpose Cost effective packing Higher printing productivity	*	TTDS-134
HLX			White Yellow	1000		General purpose Rail (passenger vehicle) Paper base : allow side notes	****	TTDS-013
HL	High Flame Resistance Military	-55°C to +135°C	White	1000	Industrial Railway (Motor vehicles)	Fire resistance requirement Paper base : allow side notes	***	TTDS-037
CM-SCE-TP	Military MIL-STD-202	-55°C to +135°C	White, Yellow	250	Aerospace & Defense Railway	Military	**	TTDS-113
HTCM-SCE-TP	High Temperature Outgassing resistance	-55°C to +225°C	White, Yellow	250	Aerospace & Defense Semi-conductor Clean room compliance	High temperature environment Confined environment (electrical arc risk) High end range	*****	TTDS-022



All TE tag products are Low Fire Hazard = slow the spread of fire.
Halogen free = no toxic fumes
Not all our competitors offer both LFH & HF , on their Halogen free products.

HIGH RUNNERS



Wrap Around **Self-laminated** Labels


Product	Material	Mini up to Max Cable diam.	Colour	Temperature Range	Format	Print Technology	UL Approval	Applications	Pricing	Datasheet
SBP	PVC (Vinyl)	2.0 ... 48 mm 0.08 ... 1.891 in	White + Transparent (other colours on request)	-40°C to +110°C	Roll	Thermal Transfer	UL PGIS2-MH6187 1 (on clear colors)	General purpose Harness makers	*	TTDS-211
SP	PET (Polyester)	2.7 ... 36 mm 0.107 ... 1.416 in	White + Transparent	-40°C to +150°C	Roll		No	Mechanical or Heat resistance	**	TTDS-220
PVF	PVF (Tedlar®)	2.7 ... 48 mm 0.107 ... 1.891 in	White + Transparent	-40°C to +107°C	Roll		No	UV resistant (outdoor) High mechanical resistance	***	TTDS-111
BKM / TKM	PVC (Vinyl)	BKM : 3.2 ... 65.3 mm TKM : 4 ... 65.3 mm	White + Transparent	-30°C to 120°C	Sheet (BKM) Booklet (TKM)	Hand Writable normal pen/ballpen or any other kind of permanent marker	No	General purpose On the spot labelling with self-laminating feature	*	TTDS-056
CSL	PET (Polyester)	1.9 ... 36.5 mm 0.075 ... 1.437 in	White + Transparent	-30°C to 120°C	Sheet (European A4)	Ink Jet or Laser	No	Mechanical or Heat resistance	*	TTDS



All on Acrylic adhesive – All Die cut (several dimensions)

HIGH RUNNERS

Flag Labels

Product	Material	Colours	Temperature Range	Format	Print Technology	UL Approval	Applications	Key feature	Pricing	Data sheet
TTVF	PVF (PolyVinylFluoride)	White or Yellow (others on demand)	-40°C to +130°C	Die Cut or Continuous in roll format	Thermal Transfer	UL94 VTM-1	Military Aerospace (Boeing)	Self-extinguishing Solvent and UV resistance Continuous format allow customization	****	TTDS-005
PVF “_”	PVF (PolyVinylFluoride)	White	-40°C to +130°C	Die Cut in Roll format		UL94 VTM-1	Industrial	UV resistant (outdoor) High mechanical resistance	***	TTDS-138
NC	Nylon Cloth	White	-40°C to +145°C	Die Cut in Roll format		No	Industrial Warm environment (PCB Identification)	High temperature Very small cables Rounded surfaces	**	TTDS-051
NPVF	PVF (PolyVinylFluoride)		-40°C to +130°C	Continuous in roll format 30.48 m (100 in)	Non printable	UL94 VTM-1	Military Aerospace Cable harnesses	Color coding Bundling/fixing applications	***	TTDS-004



! White Vinyl (WV) labels

can be proposed for Flag application too especially for cables exposed to repeated bending.

HIGH RUNNERS



Industrial Labels – Roll Format (Die cut)

Product	Material	Colour	Temperature Range	Print Technology	UL Approval	Application	Key feature	Pricing	Datasheet
PL	PET (Polyester)	White Metalized	-40 to 80°C Withstand 100°C (212°F) for 1 000 hours	Thermal Transfer	UL969 PGJ12/PGJ18 (CSA) MH17292	Electrical applications: cabinets, data racks, control panels, switchgear and general equipment labelling	Adhesive foam Thicker for irregular surface adhesion Strong vertical adherence	***	TTDS-245
WP / MP		White (WP) Metalized (MP)	-40°C to +150°C		UL969 PGJ12/PGJ18 (CSA) MH17292	General purpose labelling Industrial rating plates	Basic surface labelling High quality & thin label	**	TTDS-074 (MP) TTDS-073 (WP)
HW / HM		White (HW) Metalized (HM)			UL969 PGJ12/PGJ18 (CSA) MH17292 UL94 VTM-2	General purpose labelling	Adapted to textured surfaces High tack adhesion	***	TTDS-076 (HW) TTDS-075 (HM)
HMM		Matte Metalized	-40°C to +135°C		UL696 PGJ12 MH17292	General purpose labelling Barcoding	Matte color ideal for barcoding	***	TTDS-118
WPCR		White			No	Harsh environment Military	Chemical resistant top coat	****	TTDS
CP		Clear	-40°C to +150°C		No	General purpose labelling Medical or regular cleaning product exposure	Resistance to chemicals, solvents, abrasion, heat and moisture Coat protection for PET label Excellent adhesion to metal, painted metal, galvanized steel and plastic	***	TTDS-083
WV		PVC (Vinyl)	White		-40°C to +110°C	UL969 PGJ12/PGJ18 (CSA) MH17292 UL PGIS2- MH61871 (Cable)	Cable identification Panel builders	High tack adhesion on Round, irregular or flexible surfaces (repeated bending)	*
HPK	PP (Polypropylene)	White	-40°C to +150°C	No	Electrical cabinet	Thick label semi-rigid can be clipped on a label holder	**	TTDS-008	



Industrial Labels – Sheet Format

Product	Material	Colour	Temperature Range	Format	Print Technology	UL Approval	Application	Key feature	Pricing	Datasheet
LE LM LEB	PET (Polyester)	White (LE) Metalized (LM) Yellow (LEB)	-40°C to +150°C	Die Cut in Sheet format	Ink Jet or Laser office printers	UL PGJ12 MH17292	Barcode Outdoor Low volume customers	Resistance to fluids & water High aging resistance	**	TTDS-069
TEK EB EK	PVC (Vinyl)	Yellow	-30°C to +80°C	Die Cut in Booklet format (TEK) Sheet format (EB)	Hand Writable	None	Maintenance identification Electrical distribution	Pen writable	*	TTDS-180

**TE doesn't offer Inkjet or Laser printers. Those labels are to be print with 3d party machines.
Labels templates are included in WinTotal software**



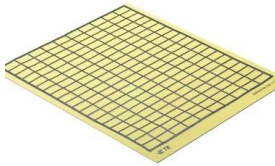
LE



LM



LEB



TEK / EB

HIGH RUNNERS



PCB Identification

Product	Material	Thickness	Colour	Service Temperature	Print technology	Application	UL Approval	Static Dissipative	Datasheet
T1K	Polyimide	Substrate 1 mil thick Thickness including adhesive: 63 µm	Gloss white coating on amber material	90 sec: 300°C 5 min: 260°C 100 hours: 150°C	Thermal transfer	Manual	UL 969 PGJ12 MH17292	No	TTDS-034
T2K		Substrate 2 mil thick Thickness including adhesive: 118 µm	Gloss white coating on amber material			Automatic	UL 969 PGJ12 MH17292	No	TTDS-035
TSK		Substrate 2 mil thick Thickness including adhesive: 118 µm	High opacity gloss white coating on amber material			No	Yes According to EIA 541 & EIA 625	TTDS-085	

All T*K products are withstanding soldering process
All Die cut in Roll format

Nylon Cloth (NC) labels

can also be proposed for PCB identification.

- Manual application.
- Adapted to irregular surfaces.
- Post soldering application only (not withstanding soldering process)
 Mostly used for cables on PCB

HIGH RUNNERS

Void- Tamper Evident

Product	Material	Colour	Temperature Range	Format	Print Technology	UL Approval	Application	Key feature	Pricing	Datasheet
MV	PET (Polyester)	Metalized (Matte Silver)	-40°C to +150°C	Die Cut in Sheet format	Thermal Transfer	UL PGJ18 MH17292	Rating plates Serial number labels Protection against removal.	Leaves “VOID” footprint when label is removed	**	TTDS-084
TN	Polyethylene	White	-40°C to +80°C			UL 969 PGDQ2 MH17292	Outdoor Low volume customers	Destructible label upon removal after 72h	**	TTDS



MV “Void” Labels



TN “Destructible” Labels

PRE-PRINTED MARKERS

Product	When Used	Format	Temperature Ratings	Color Options	Application	Key feature	Pricing	Datasheet
Z-TYPE	Pre-termination	Slide-on	-45°C to +70°C	White, Yellow Others	Cable identification for short spelling Electrical cabinet On site operation	Expanding profile to expand the range of wire sizes it can be used on	*	TTDS-026
STD (SO-markers)	Post-termination	Clip-on	-40°C to +106°C	White, Yellow Others	Telecommunication Electrical cabinet	Zero Halogen, UV Resistant EWS codes available (size 3)	**	TTDS-094
K-TYPE (CTO- marker)	Post-termination with cable ties	Tie-on	-45°C to +70°C	White, Yellow Others	Telecommunication Electrical cabinet	Can be used on any wire bundle size – depending upon size of cable ties EWS codes available	**	TTDS-025



HIGH RUNNERS

HTP600 Impresora de transferencia térmica

La impresora "All-in 1"

EVERY CONNECTION COUNTS

HTP600 PRINTER



Sistemas de identificación y etiquetado

Soluciones TE para identificación de bornas

HTP600

- Uso versátil
- Etiquetas y cartas de etiquetas rígidas
- Transferencia térmica



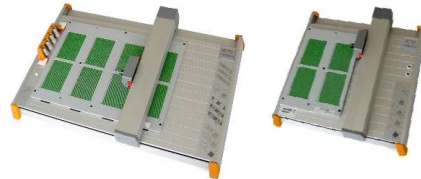
HTP600 con alimentador

- Producción en serie de cartas de etiquetas rígidas para bornas y cables
- Transferencia térmica



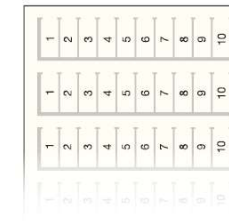
AMS 600 / AMS 300

- Solución económica
- Impresión de cartas originales de los fabricantes
- Plóter de tinta



Cartas pre impresas

- Listas para usar
- Más de 1.500 versiones estándar
- Disponible servicio de personalización



Sistemas de identificación y etiquetado

Selección de producto



Modelo	Recomendación TE	Perfil cliente	Propiedades impresión			Material etiquetas
			Tecnología	Modo	Velocidad	
HTP600 con alimentador	Fabricación en serie	OEM's Fabricación de montajes en serie	Transferencia térmica	AUTO hasta 64 cartas	20 s / carta	Polycarbonato
HTP600	Versatilidad	Cuadristas	Transferencia térmica	Manual	20 s / carta	Polycarbonato
AMS600	Gran versatilidad y/o necesidades específicas	Cualquier cliente industrial	Plóter	Manual	60 s / carta	Poliamida
AMS300	Solución económica	Clientes industriales y de servicio	Plóter	Manual	60 s / carta	Poliamida

Sistemas de identificación y etiquetado

HTP600 Impresora de termotransferencia

Uso básico

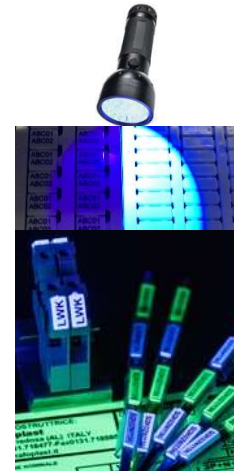
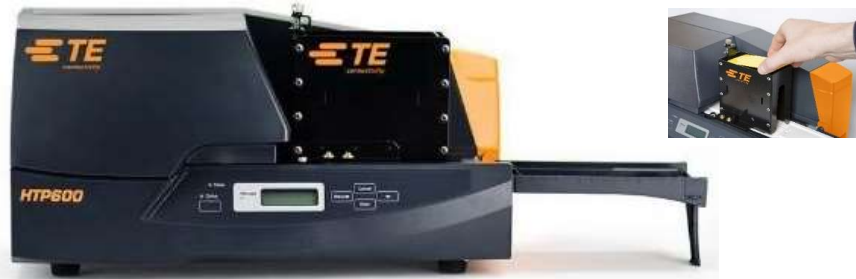
Alimentación manual carta por carta



- Sin licencia
- Impresión por termotransferencia
- Velocidad: 20 seg. por carta, 8500 etiquetas/h
- Software mejorado (motor de búsqueda, interfaz de Windows)
- Cartas con aditivo sensible a los rayos UV

Uso intensivo

Alimentador automático para 64 cartas



Impresora y etiquetas HTP600 Prestaciones



Impresora All-In-1

- **Identifica todos los componentes** de tu cuadro eléctrico (cables, bornas, componentes y equipamiento)
- **Multi-soporte** (cartas de etiquetas rígidas, etiquetado)
- Identifica las **bornas** de los principales **fabricantes**
- **Flexibilidad:** Alimentación **Automática o Manual**, cintas de tinta y consumibles de varios colores.



Tranquilidad

- **Ahorra tiempo** gracias a nuestra **impresora libre de mantenimiento**, con cambio rápido de cintas de tinta , tecnología de impresión por termotransferencia sin tiempo de secado de la tinta
- **Licencia y línea de soporte gratuitas**
- Gestiona tus recursos e imprime hasta **8500 etiquetas/hora** usando el modo de alimentación automática
- Elimina errores de datos **importándolos directamente del proyecto** (SEE Electrical, Pro Panel, Excel).



Innovación Patentada "beyond the dark"

- **Facilita las labores de mantenimiento** utilizando nuestras innovadoras etiquetas:
La tecnología UV patentada permite fácilmente la identificación de circuitos en entornos oscuros o en caso de cortes de suministro eléctrico.

Impresora All-In-1

Identifica todo los componentes de tu cuadro eléctrico

Exterior



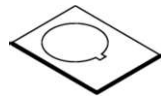
Identification del cuadro
etiquetas adhesivas o sujeción por tornillo



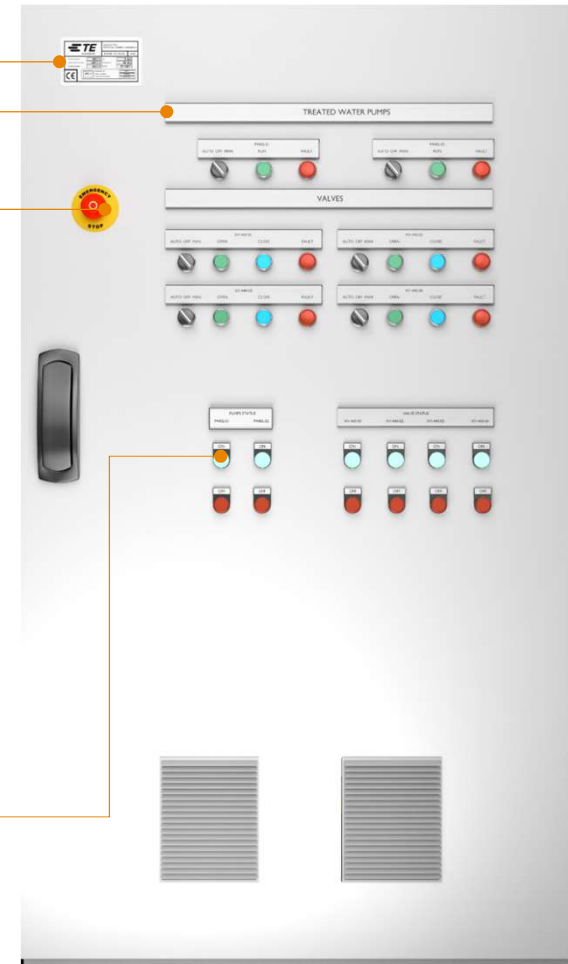
Etiquetado de aparatos
y soportes de etiquetado



Etiquetas parada emergencia



Identificación componentes mando y señalización



Impresora All-In-1

Identifica todo los componentes de tu cuadro eléctrico

Interior

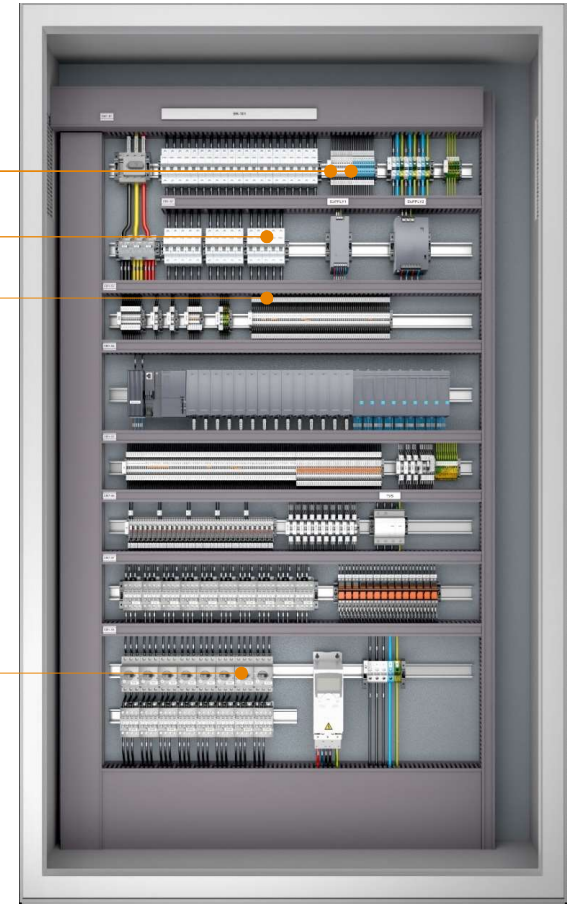
Etiquetado **bornas de conexión** ●

Etiquetado **accessorios bornas** ●

Identificación **cableado** ●

Identificación **aparatos modulares** ●

Identificación **equipamiento y componentes** ●





ENTRELEC
Electrical Solutions

Impresora All-In-1

Flexibilidad y multi-suporte

Modo alimentación manual
- para series medias/pequeñas de cartas rígidas y etiquetado



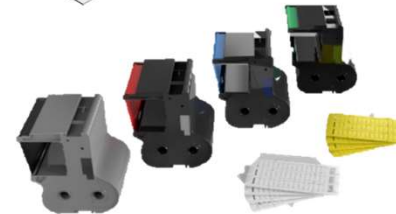
Modo automático :
- Para series medias/largas de cartas rígidas



Multi-suporte (cartas rígidas, etiquetado)



Varios colores de cintas de tinta y consumibles.

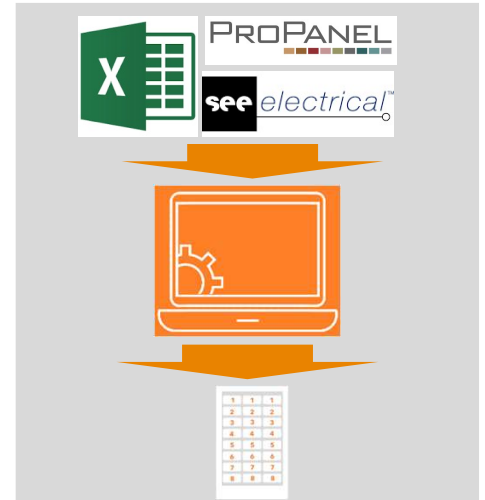
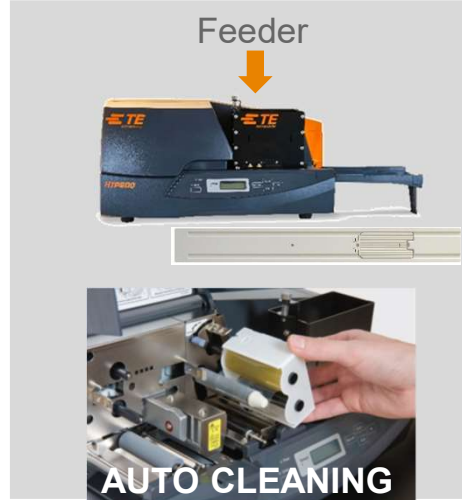
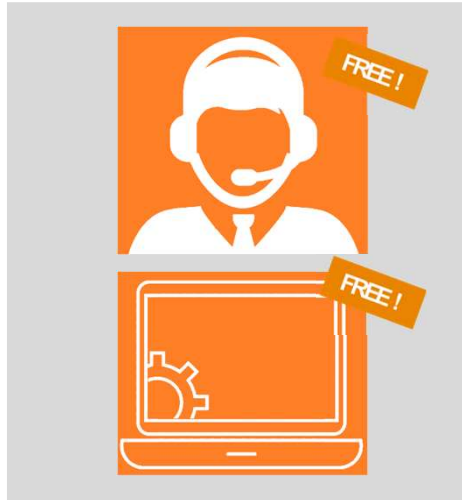
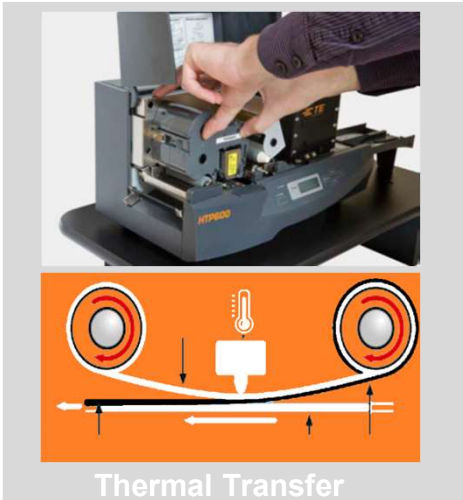




Peace of mind

ENTRELEC

Electrical Solutions



SAVE

TT=No Drying time

Maintenance Printer

FREE

LICENSE

HOTLINE

AUTOMATIC

SPEED & CLEANING

8500 Markers/h

2x FASTER (/Manual)

CAD

↓

IMPORT

Innovación patentada "beyond the dark"

Facilita las labores de mantenimiento



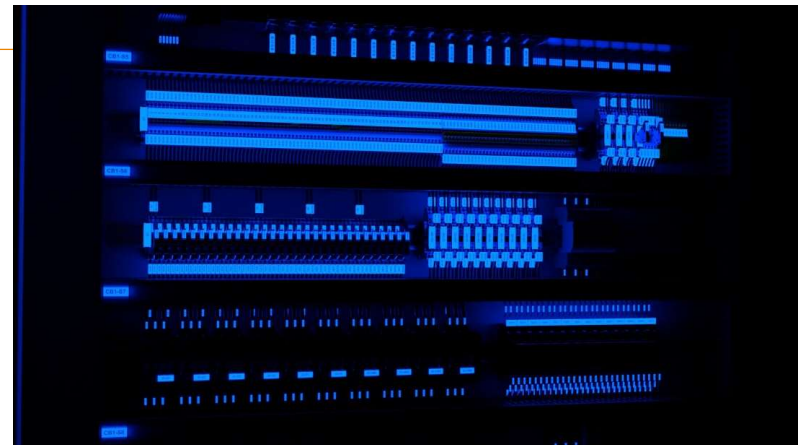
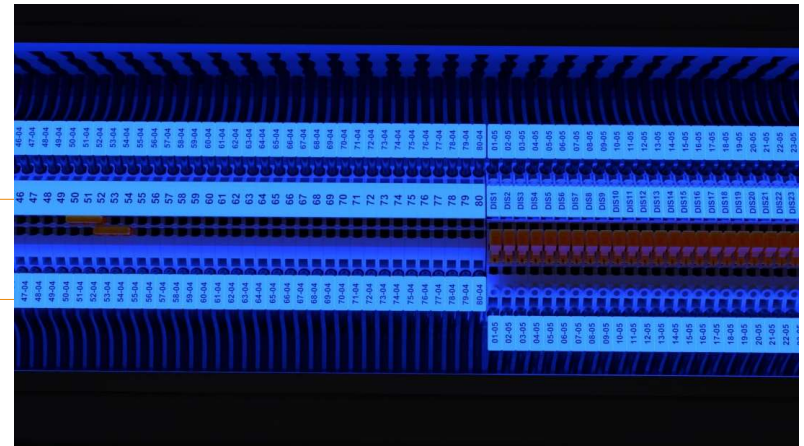
Etiquetas bornas de conexión



Identificación cables y soporte etiquetas



Identificación componentes





IND. ELECTRICAL – Product update

Global Product Management Team


EVERY CONNECTION COUNTS

Product update for Identification

Launched products


Product

- **Part #:** **Continuous tube**
- **Target Application:** OEMs, SWG manufacturers, Harness makers
- **Value Prop:**
 - Identification labels for wire and cable harnesses in harsh environments
 - Optimal reel length to maximize bulk printing and storage space
 - Reduce installation time with a more open profile
 - Printable Continuous tube can be used as well as insulation and protection



Product

- **Part #:** **Pre-printed label kits**
- **Target Application:** Distributor partners and panel builders
- **Value Prop:**
 - Labels assortment for all applications: 3phases , DC power supply
 - Ready to use product - no configuration / print system required
 - High resistance to aggressive fluids
 - Operating temperature : -40°C to +110°C



To be launched soon

Product

- **Part #:** **SNK reel marker solution**
- **Target Application:** Distributor partners and panel builders
- **Value Prop:**
 - Faster marking allowing speed of installation
 - Easier for inventory



Product update for DIN Rail Solutions

Launched products

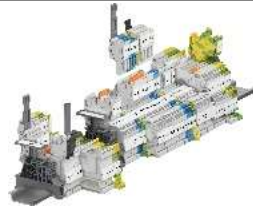
Product

- **Part #:** **DBL Extension**
- **Target Application:** Distributor partners, panel builders and OEM's
- **Value Prop:**
 - Compact product
 - Complete and optimized range



Product

- **Part #:** **SNK Pluggable Extension**
- **Target Application:** Distributor partners and OEM's
- **Value Prop:**
 - Compact product
 - Complete and optimized range



Product

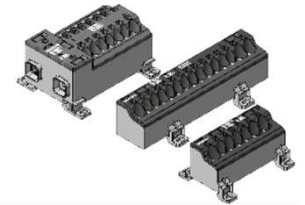
- **Part #:** **Compact Power block**
- **Target Application:** Distributor partners, panel builders and OEM's
- **Value Prop:**
 - Compact product
 - Versatile
 - Quality & reliability



To be launched soon or customized

Product

- **Part #:** **DBLK**
- **Target Application:** Distributor partners and panel builders
- **Value Prop:**
 - New connection technology
 - Faster connection allowing speed of installation



Product

- **Part #:** **Greenbox**
- **Target Application:** Custom connectivity for SWG manufacturers (ABB)
- **Value Prop:**
 - Custom solution for ABB
 - Compact solution
 - Quality & reliability



Product

- **Part #:** **Digital Essailec for SE**
- **Target Application:** Testing for SWG manufacturers
- **Value Prop:**
 - Customized for SE
 - Ability to test current and voltage
 - RJ45 connection

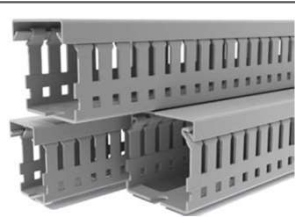


Product update for wire and cable management

Launched products

Product

- **Part #:** **Wiring duct**
- **Target Application:** Distributor partners and panel builders
- **Value Prop:**
 - First ever Entrelec cable duct
 - Quality & reliability



To be launched soon

Product

- **Part #:** **Cable Glands**
- **Target Application:** Distributor partners and panel builders
- **Value Prop:**
 - First ever Entrelec cable glands
 - Large offer for all applications



Printable continuous tubing

Global Product Management team

EVERY CONNECTION COUNTS





Printable heat shrink tubing – Continuous format

Product	Grade	Reel Length	Shrink Ratio	Temperature Ratings	Color Options	Application	MOQ	Datasheet
RPS-CT	Commercial	50 Meters	3:1	-30°C to +105°C	White, Yellow, Black, Green, Blue, Red	Industrial	100 M	TTDS-269
TMS-CT	Military	50 Meters	3:1 – TMS-SCE 2:1 – TMS-SCE2X	-55°C to +135°C	White, Yellow, Black, Blue, Green, Red, Pink, Orange	Industrial Aerospace & Defense	100 M	TTDS-268
ZHD –CT	Halogen free Low Fire Hazard Diesel resistant	50 Meters	2:1	-55°C to +125°C	White, Yellow	Railway	100 M	TTDS-273
HX-CT *	Halogen free Low Fire Hazard	40 m / 50 Meters	2:1	-40°C to +105°C	White, Yellow, Black, Green, Blue, Red	Railway & Industrial	100/120 M	TTDS-270
D-CT	Chemical Resistant Diesel Resistant	50 Meters	3:1 (size 38mm is 2:1)	-75°C to +135°C	White, Yellow	Rail & Aerospace	100 M	TTDS-267
HT-CT	High Temperature Low outgassing	50 Meters	2:1 (size 3/32 is 3:1)	-55°C to +225°C	White, Yellow, Black, Green, Blue, Red, Pink, Orange	Very harsh environment Aerospace / Space Semi-conductor industry	100 M	TTDS-271



Continuous format recommended for length adaptation & stocks optimization
Can be used as protection or insulation covering of uninsulated terminals connections
***HX-CT is recommended for Automatic Harness assembly machine**



Good to remind



Color table

COLOUR CODING SYSTEM		
Colour Legend	Name	Colour
0	Black (BK)	
1	Brown (BN)	
2	Red (RD)	
3	Orange (OG)	
4	Yellow (YE)	
5	Green (GN)	
6	Blue (BU)	
7	Violet (VT)	
8	Grey (GY)	
9	White (WE)	
2L	Pink (PK)	
8A	Silver (SR)	
X	Clear (CL)	

- [New Printable Continuous tube Brochure available from TE.COM](#)

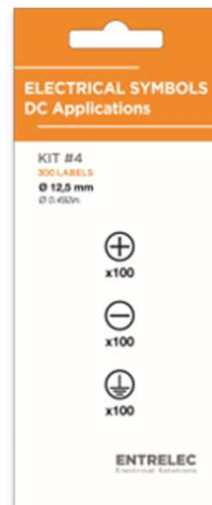
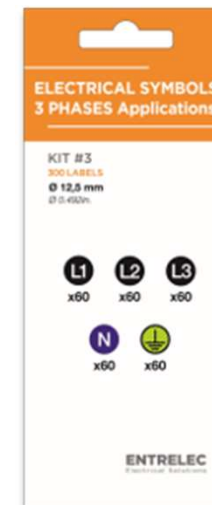
Dimensions table

Imperial Measurement (Inches)	Imperial Measurement (Inches)	Metric Measurement (mm)
3/32	0.093"	2.4mm
1/8	0.125"	3.2mm
3/16	0.175"	4.8mm
1/4	0.250"	6.4mm
3/8	0.375"	9.5mm
1/2	0.500"	12.7mm
3/4	0.750"	19.1mm
1	1.000"	25.4mm
1 1/2	1.500"	38.1mm
2	2.000"	50.8mm

Pre-printed labels kits

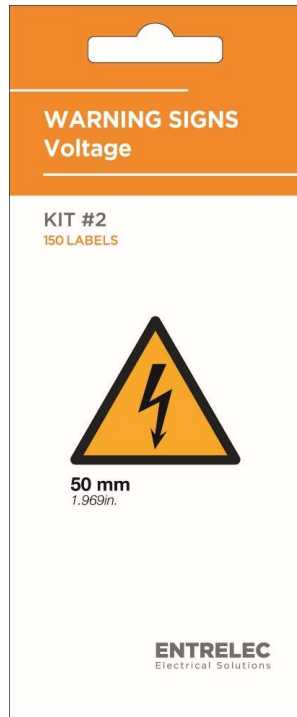
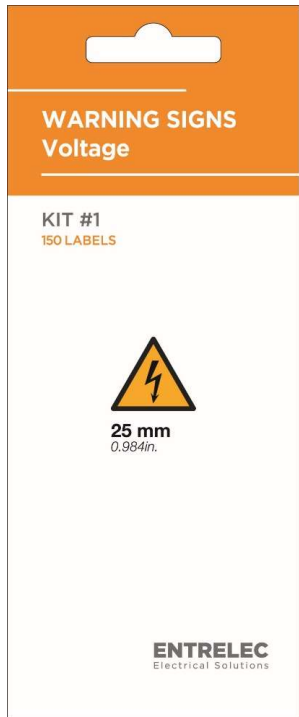
Global Product Management team

EVERY CONNECTION COUNTS



Pre-printed label kits

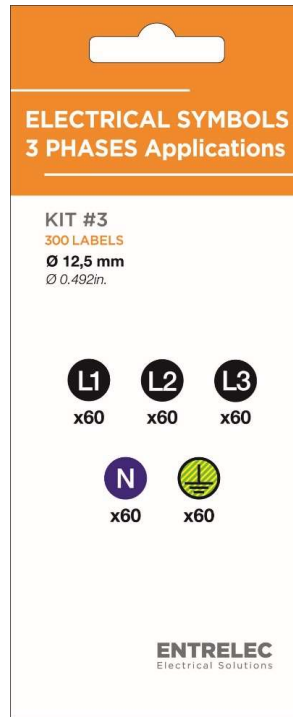
Warning Symbol



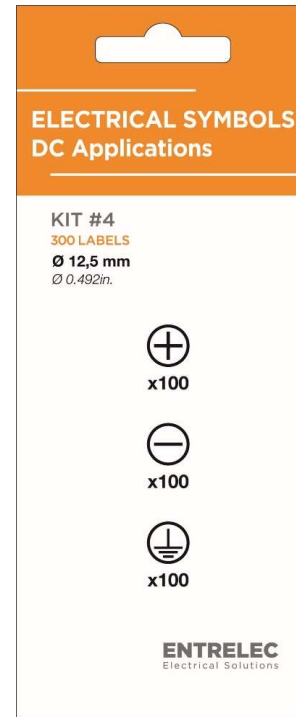
1SET530001R0000
LB-KIT-WARNING-25-150

1SET530002R0000
LB-KIT-WARNING-50-150

Electrical symbol



1SET530003R0000
LB-KIT-ELEC-3PHASES-12-300



1SET530004R0000
LB-KIT-ELEC-DC-12-300

Back side info



EAN code on each kit for better stock tracking



Product scope

Part Number	Part Description	Label Symbols	Label symbols assortment description	Label dimensions		Packing	
				mm	in	No. of labels per Kit	No. of labels per packing / MOQ (10 Kits per bag)
1SET530001R0000	LB-KIT-WARNING-25-150		150 x voltage warning	25 mm	0.984 in	150	1500
1SET530002R0000	LB-KIT-WARNING-50-150		150 x voltage warning	50 mm	1.969 in	150	1500
1SET530003R0000	LB-KIT-ELEC-3PHASES-12-300		60 x L1 / L2 / L3 / N / Ground	Ø 12.5 mm	Ø0.492 in	300	3000
1SET530004R0000	LB-KIT-ELEC-DC-12-300		100 x "+" / "-" / "ground"	Ø 12.5 mm	Ø0.492 in	300	3000



Kit Dimensions :
86 x 210mm

DBLK Distribution Blocks

Global Product Management team

EVERY CONNECTION COUNTS



The Range

3 UNIPOLAR PRODUCTS

76 AMPS

- Full PI-spring
- Mixed wires 10 mm² & 16 mm²
- 7 & 15 connections

125 AMPS

- Screw power input /PI-spring outputs
- 35 mm² input to 10 mm² & 16 mm² outputs
- 16 connections





DBLK – Value propositions



3 mounting options adapted to many panel configurations

Horizontal & vertical Din rail mounting



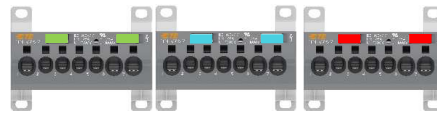
Panel mount with screws



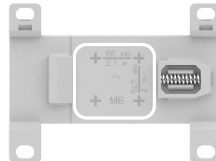
Clear identification
Double marking area
Flat « SNK » marking surface



Ready to use marking kit (L1, L2, L3, N, PE, +, -, red, blue, green) delivered with each block.



Installation instruction on back



Easy wiring

Increased wiring visibility due to in-line connection and front access



Hands-free wiring, with or without screwdriver
Screwdriver is locked during wiring process



Flexibility
Compatible BAM4



Built-in voltage test point (Dia.2mm)



DBLK – Value propositions



INCREASED PRODUCTIVITY

Reduced wiring, inventories, hardware and assembly costs

Push-in connection save up to 50% installation time compared to screw technology.



Reduce assembly time by up to 90 % compared to conventional systems.

Our modular and touch proof concept significantly reduces the needs for bus bars, isolators, fasteners, protection screens...



DBLK

Isolated
Modular
Push-in



Conventional distribution bar

Non Isolated
Many part to be assembled
Bolt time consuming connection

Time saving



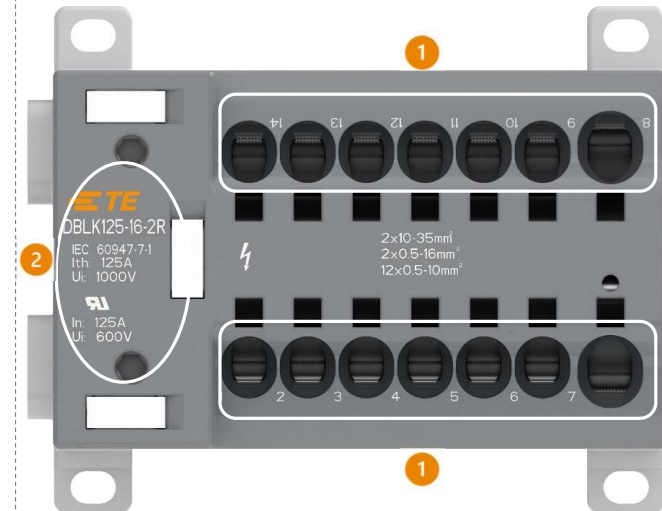
Allow flexible cables wiring without ferrules with screwdriver



Easy and quick insertion for Rigid and solid wires in push-in mode

Fast & flexible wiring

PI-spring technology, prenumbered connections (1), technical data on product cover (2)



DBLK – Value propositions



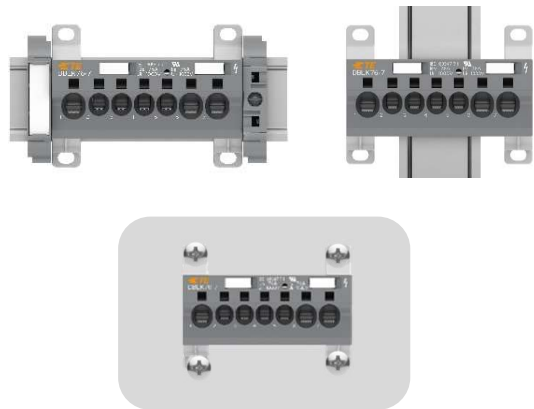
FOR ALL YOUR NEEDS

Reduced inventory

Short range : only 3 blocks
No accessory



All mountings provided in 1 part : Din rail vertical or horizontal, Panel mounting

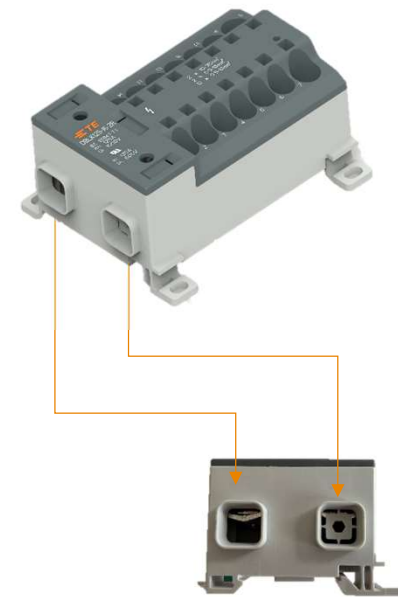


World-class certifications

full standard package : IEC / UL / EAC

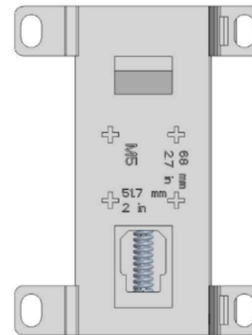
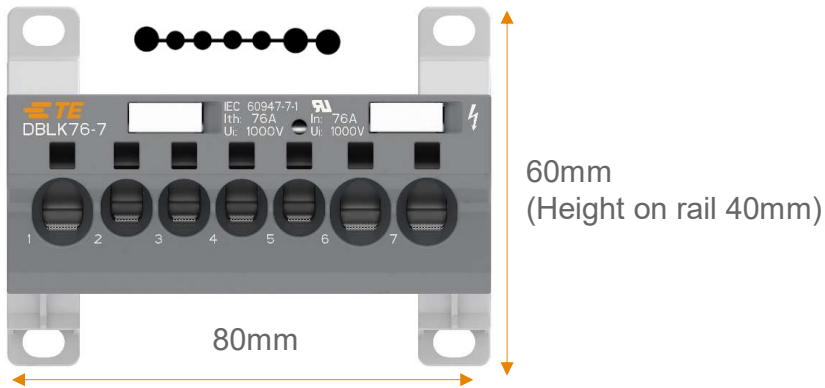


Safety Full IP20



DBLK 125 :Protection with removable cover in cable entry when not wired

DBLK76-7 & DBLK76-15

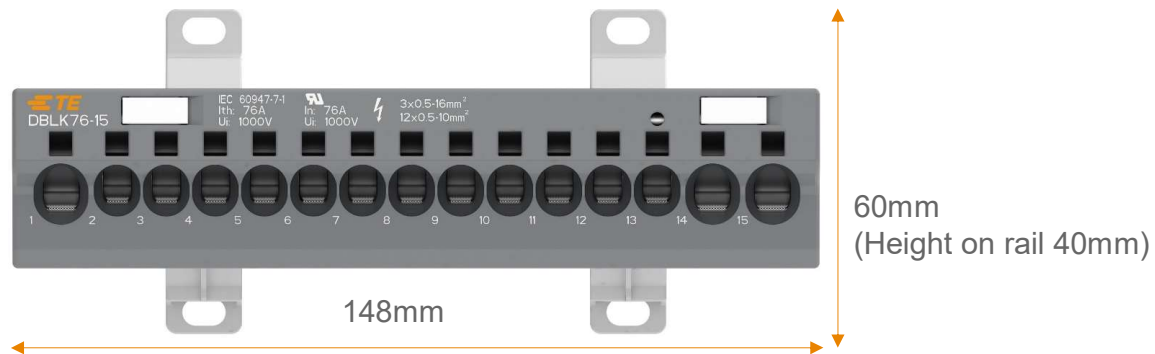


Performances :

76 A / 1000V IEC (1500V DC)
85A / 1000V UL

Connections :

3 x 16² (with ferrules)
4 x 10² (with ferrules)



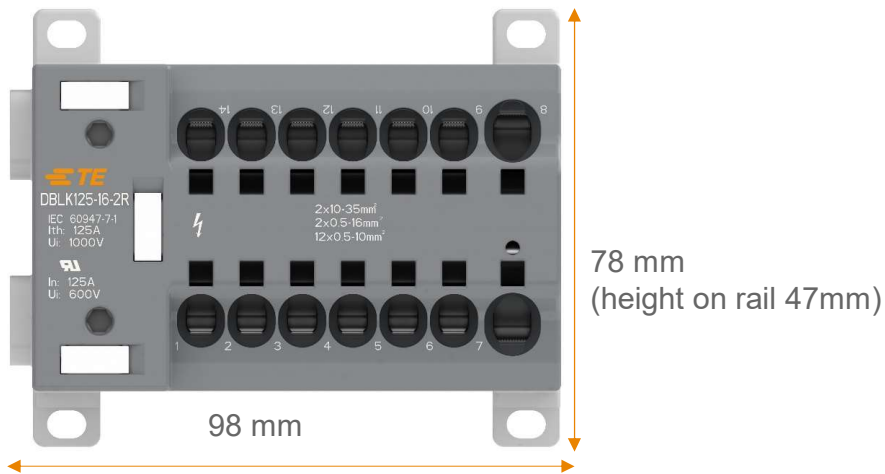
Capacity :

76 A / 1000V IEC

Connections :

3 x 16² (with ferrules)
12 x 10² (with ferrules)

DBLK125-16



Performance:

125 A / 1000V IEC
 130A / 600V UL

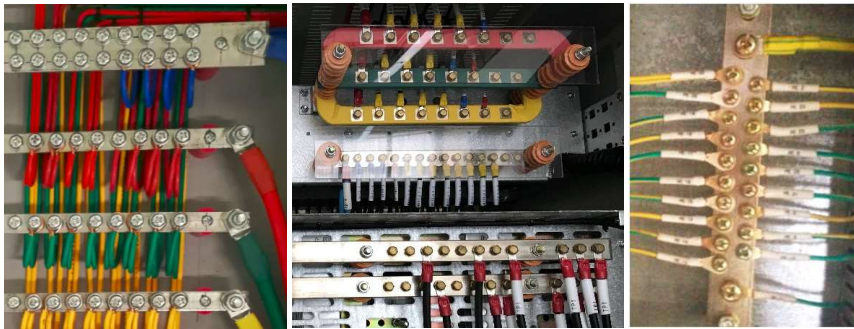
Connections :

2 x 35² - screw (side entry)
 2 x 16² (with ferrules) – PI-spring
 12 x 10² (with ferrules) – PI-spring

2lines outputs with same polarity

DBLK Project – Targeted segments

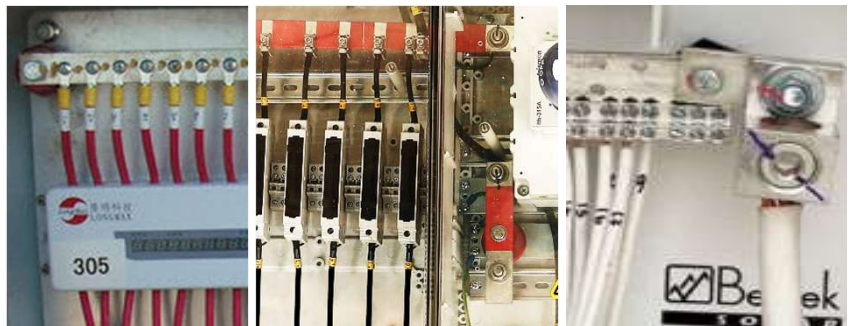
AUTOMATION



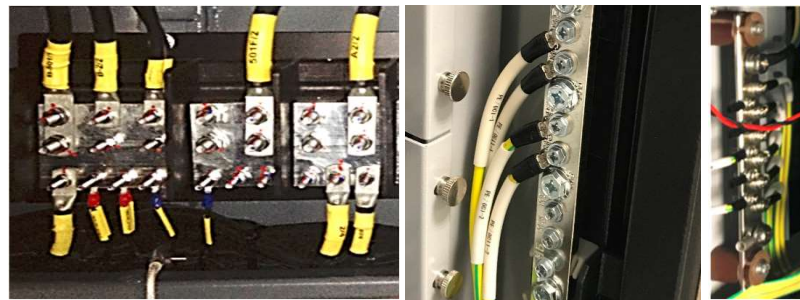
PANELS / MACHINERY / HVAC



RENEWABLES (Solar, Wind)



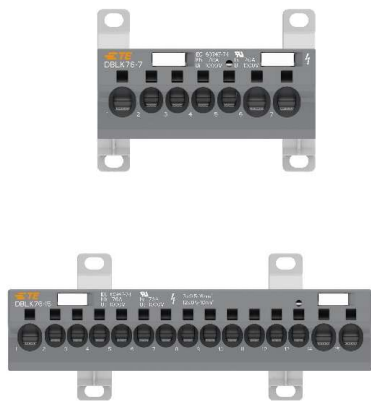
UTILITIES / MV SWITCHGEARS



DBLK – Application – Competition – 1 Pole / 1 line

DBLK SOLUTION

APPLICATION



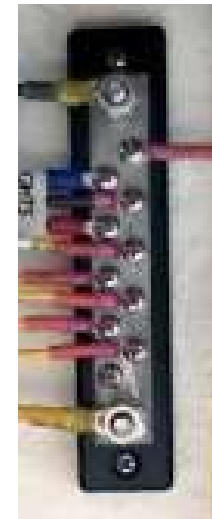
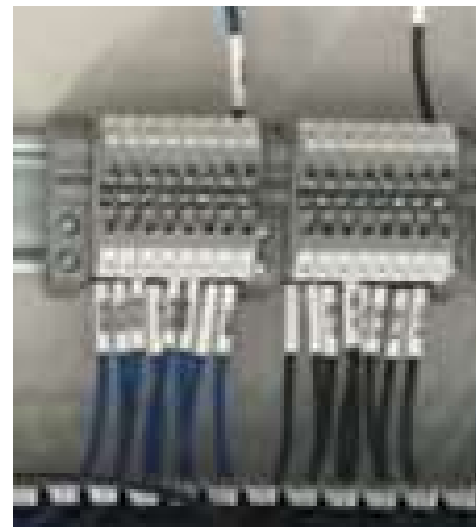
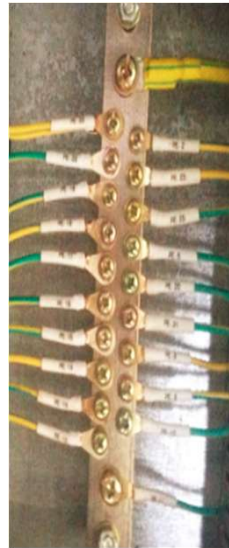
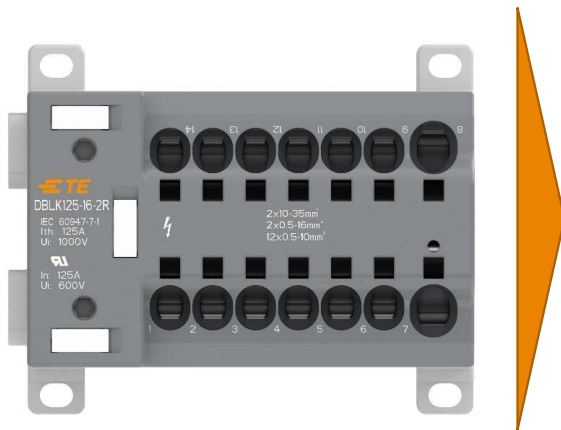
Push-In outputs
76 Amps

1 phase power distribution
Industry. HVAC. Machinery. Solar

DBLK – Application – Competition – 1 Pole / 2 lines

DBK SOLUTION

APPLICATION



Screw input / Push-In outputs
125 Amps

1 phase power distribution
Industry. HVAC. Machinery. Solar

Compact Power Blocks

Global Product Management team

EVERY CONNECTION COUNTS

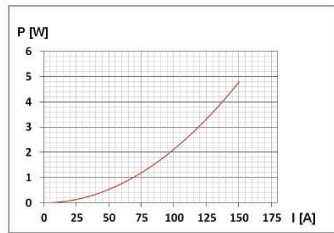


Scope proposal

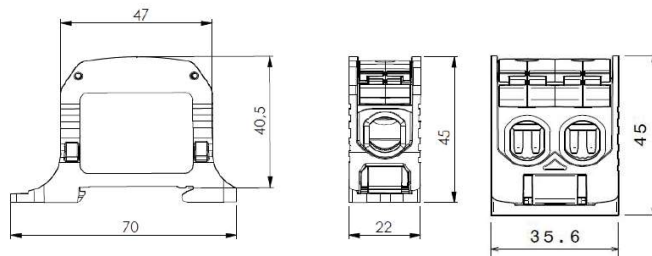
	50 ²	95 ²	185 ²	300 ²
2 POLES				
GREY	X	X	X	X
BLUE	X	X	X	X
GREEN	X	X		
4 POLES				
GREY	X	X		
BLUE	X	X		
GREEN	X	X		
IP20 COVER	X	X	X	X



Power loss RKA 50 1/2

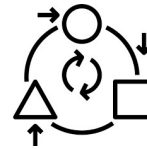


Dimensions:

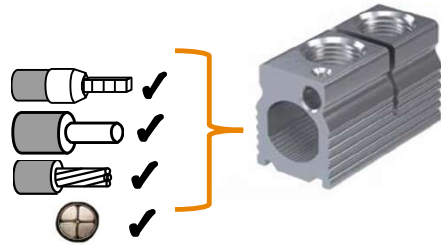


Value Propositions & Features

Highly Versatile



Large scope of conductors accepted



Feature : The aluminum body combined with specific coating allow the use of aluminum & copper conductors whether round or sector-shaped, solid, stranded or flexible with ferrule

Benefits:

- Large scale of applications : industrial, solar, buildings
- Reduced cost of installations thanks to use of aluminum conductors

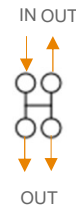
Modularity



Feature : Available in 2 connection for power connection as well as 4 connections for power distribution purposes.

Benefits:

- 2 connections is a compact alternative to stud or standard power terminal blocks
- 4 connections allows compact power distribution of up to 3 outputs



Easy monitoring or supply



Feature : Blocks from 95 to 300 mm² have an extra built-in measurement tapping connection to provide main supply monitoring or to provide supply to a control equipment

Benefits:

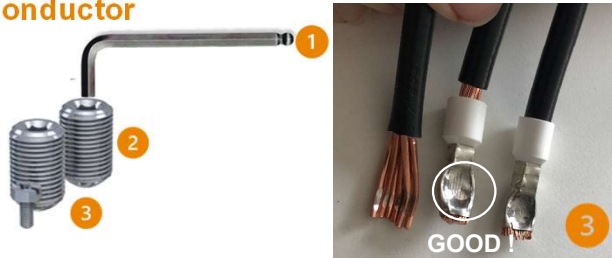
- Allow to connect a **monitoring relay** that provide protection against phase loss, phase reversal, and phase unbalance due to blown fuses, broken wires or worn contacts.
- Monitoring relays monitor simultaneous voltage drops/increases and help to prevent damaged machinery and the injury of personnel. for network protection
- The extra connection also allow to connect a small control equipment 4 connections allows compact power distribution of up to 3 outputs

Value Propositions & Features

Secured and compact connection



Protection of connection process, conductor



Feature :

- 1 Hexagon drive with hex-wrenge for transmission of high torque moments.
- 2 The fine pitch thread allows transmission of high torque moments.
- 3 The turned screw ends prevent damage to the relatively soft aluminum conductor material on installation.

Benefits:

Connection reliability :

- High torque resistance
- Protection against dammages on screw
- Protection of wire strands
- Good retention of wire

Protection of the operator



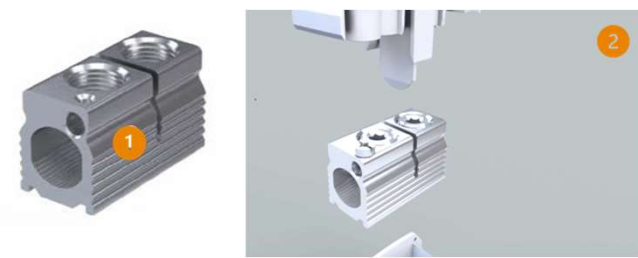
Feature :

- 1 Reinforced Finger safe and dust protection by side cover when block is not wired.
- 2 Dust and touch-proof cover. Can be cut to match cable dimension

Benefits:

- Protection of operator when cable is not connected
- Flexibility to adapt the protection whatever the conductor size

Reduced oxidation risks



Feature :

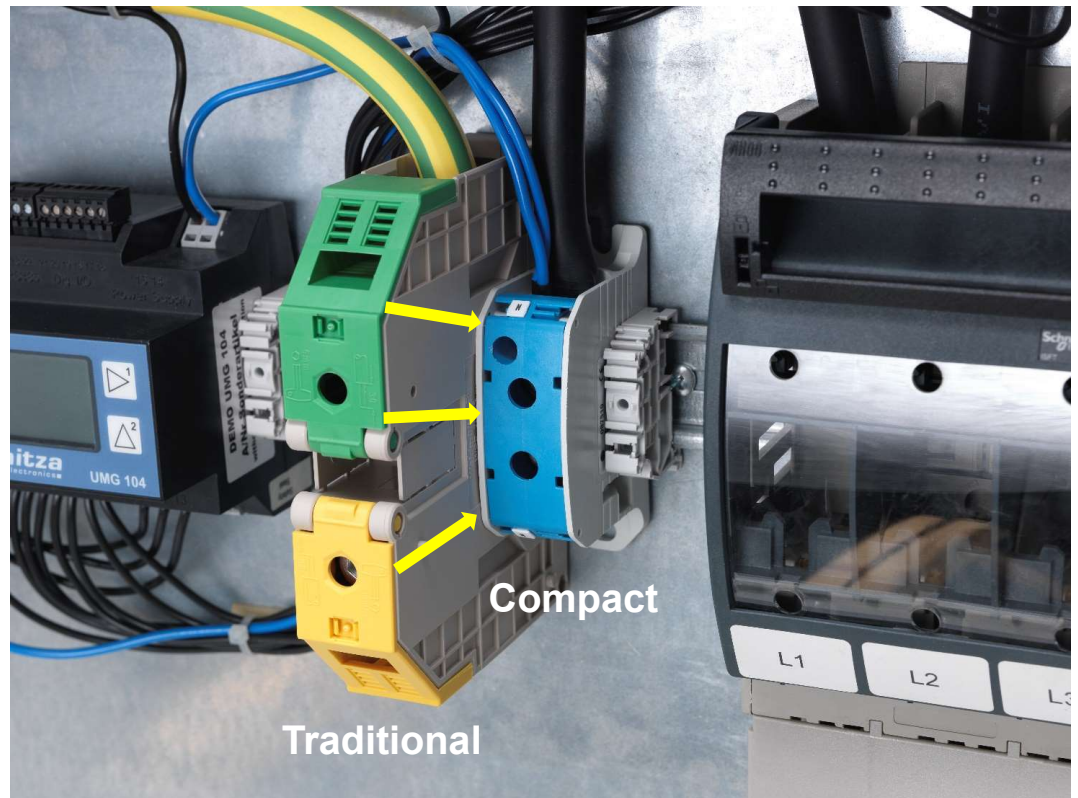
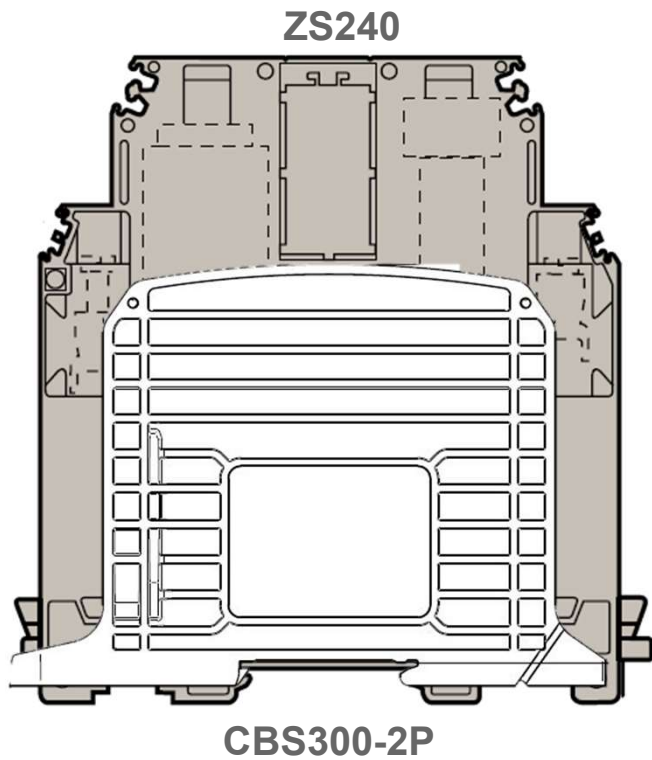
- 1 Specific coating reduces oxidation risks with aluminum or copper conductors.
- 2 All terminal blocks have push-through protection throughout to keep conductors from touching in the middle, and possibly oxidizing.

Benefits:

- Can be used in harsh environment
- Possible mix of cables : aluminum IN , Copper Out

Value Propositions & Features

Compact block



Value Propositions & Features

Proved quality



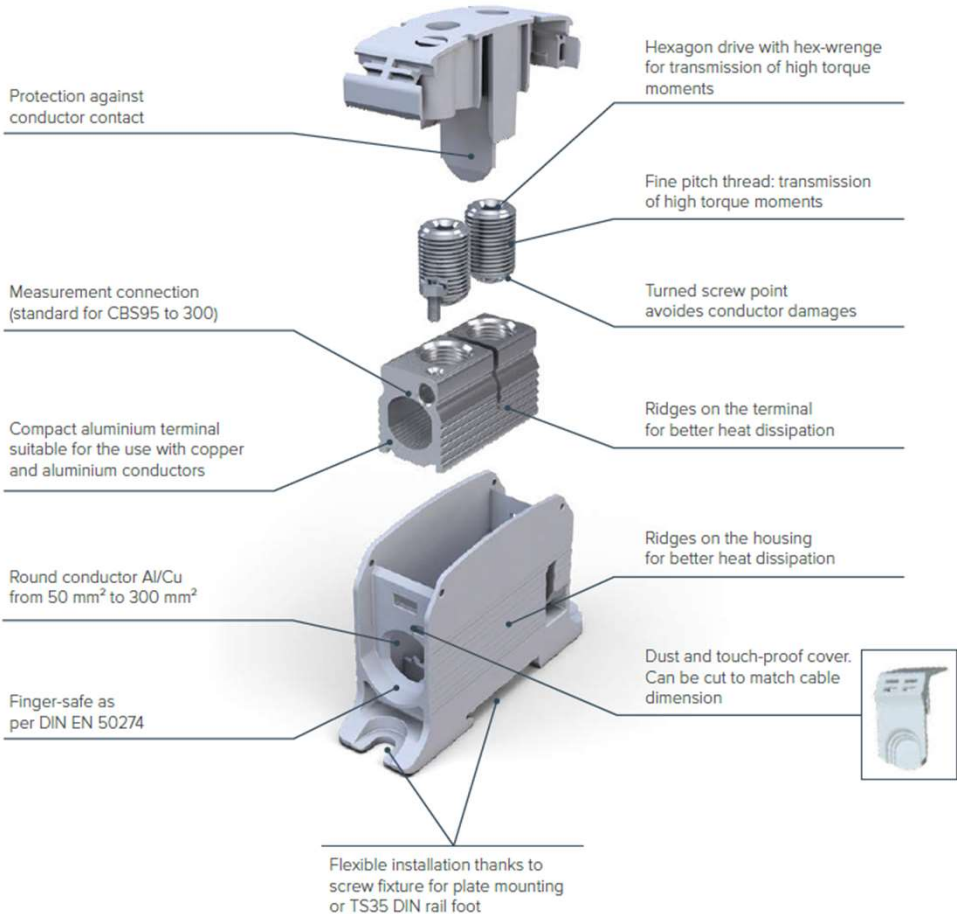
- Rigid and robust product body
- Very good level of gripping on the Din rail:
 - Block easy to clip
 - Once clipped , block don't slide on rail
 - Block easy to remove

Feature :

- Very good stability on rail with suggested torque
- Low drift firm body & cover keeps good alignment even under high torque and cable weight.
- No damage on the cable
- Rigid and consistent cover



Product Features



Approvals

- > IEC 60947-7-1
- > IEC 61238-1 (Class A)
- > UL-1059
- > UL 486E



CONFORMITY



Value Propositions & Features

Easy to install and use



Compact and firm grip



Feature :

- 1 The compact body combines easy snap-on to the rail with high and firm grip after being installed.
- 2 Low drift firm body & cover keeps good alignment even under high torque and cable weight.

Benefits:

- Smooth connection process
- No deformation under cable weight
- Quality perception

Light weight body



Feature :

- The aluminum body offers a lightweight product easier to stock & install.

Benefits:

- Easier to handle
- Lower shipment costs

Two Mounting option



Feature :

- All blocks can be mounted on :
 - 1 mounting plates
 - 2 TS 35 rails according to IEC 60715 / DIN EN 50022.

Benefits:

- Flexibility : Fit users' habits

Easy identification



Feature :

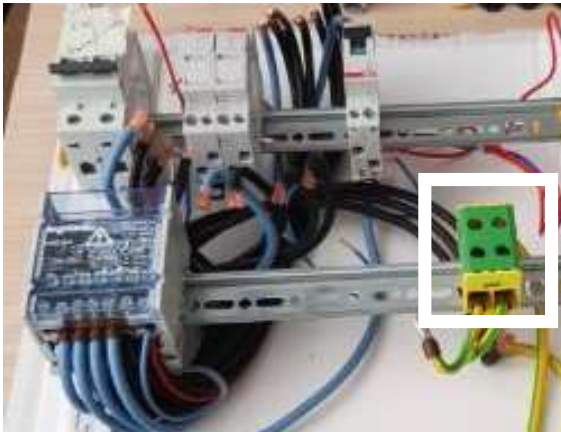
- The large area on top cover of the block allows easy identification with standard or custom labels.
- Use our self-adhesive rigid or soft label for flexibility of use

Benefits:

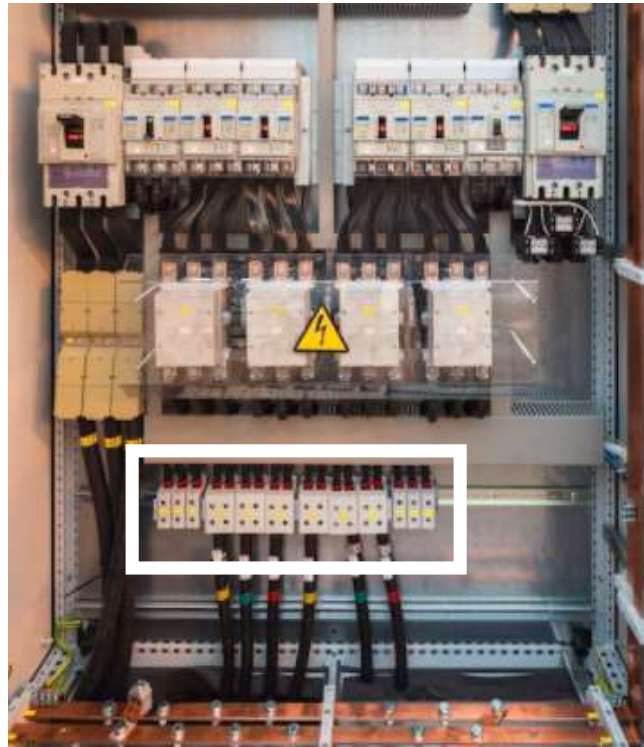
- Use versatile TE printers to customize the marking on blocks
- High visibility

Applications

- Building control panel



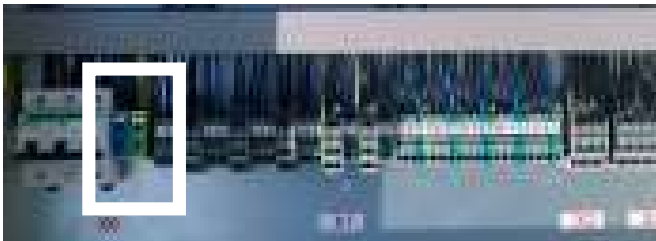
- Main power control cabinet



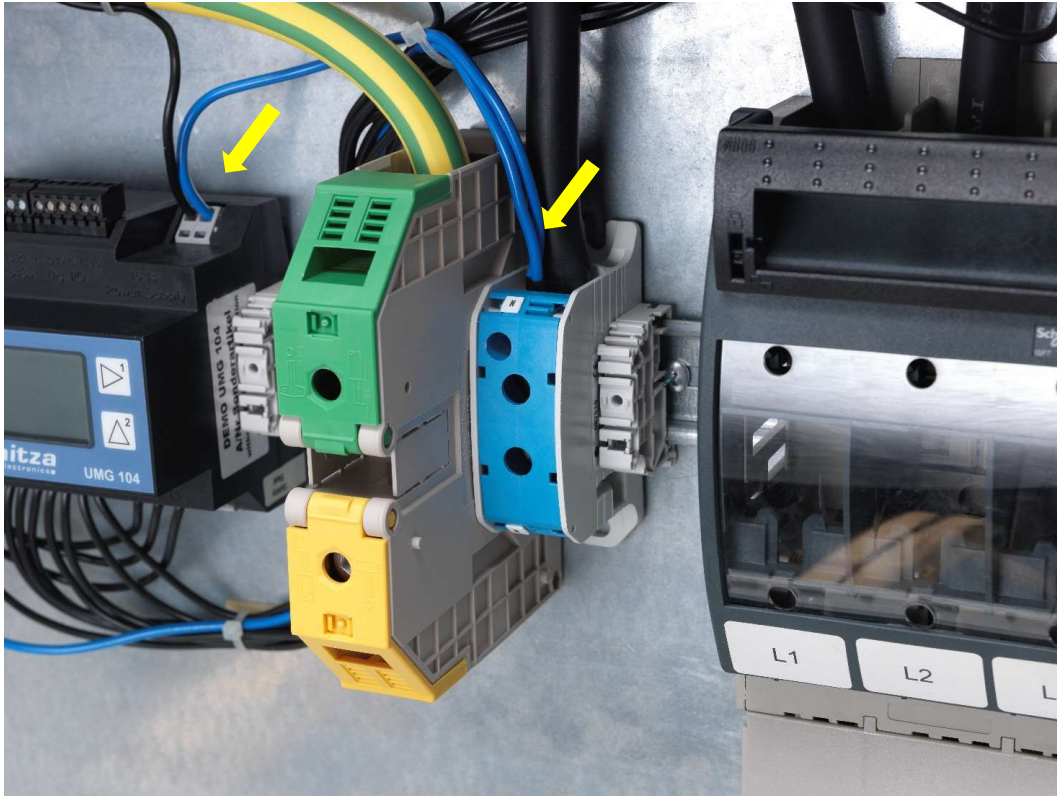
- Machinery switchboard where compactness matters



- HVAC Control panel



Applications

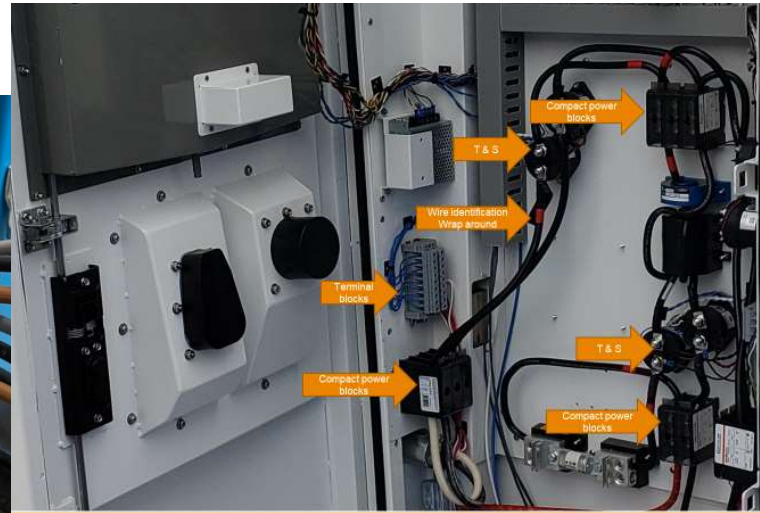
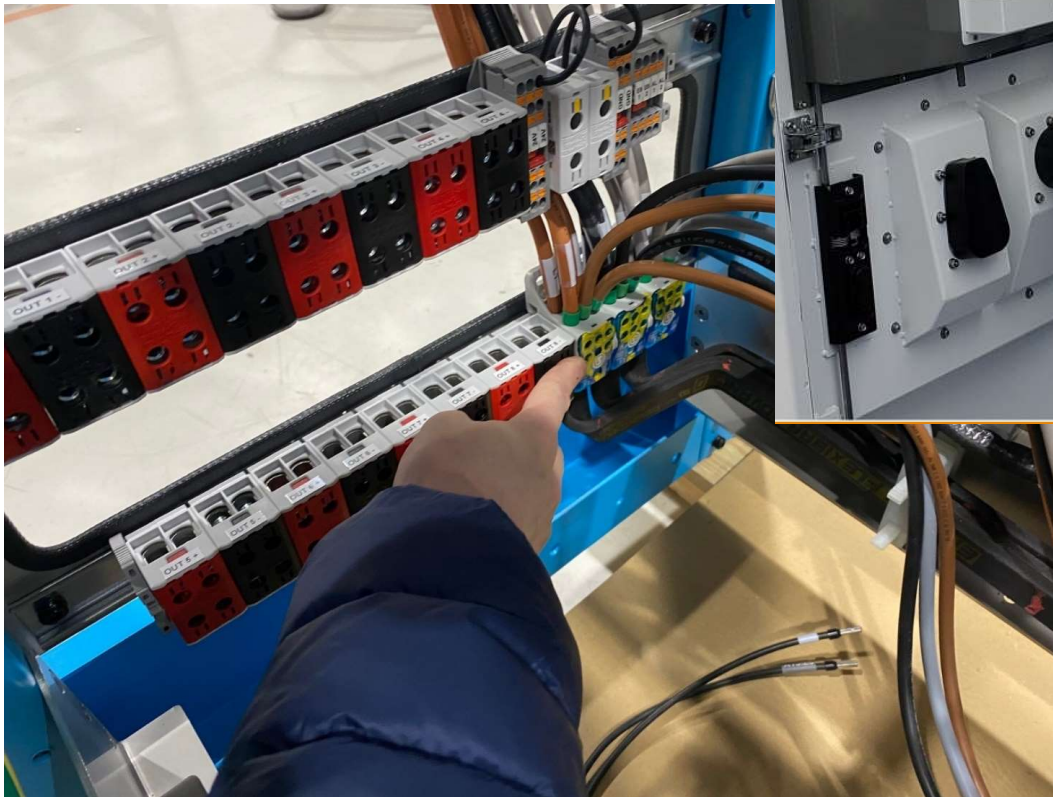


Use of extra connection to supply power to a control equipment



3 Phase + N + Ground power output on drive

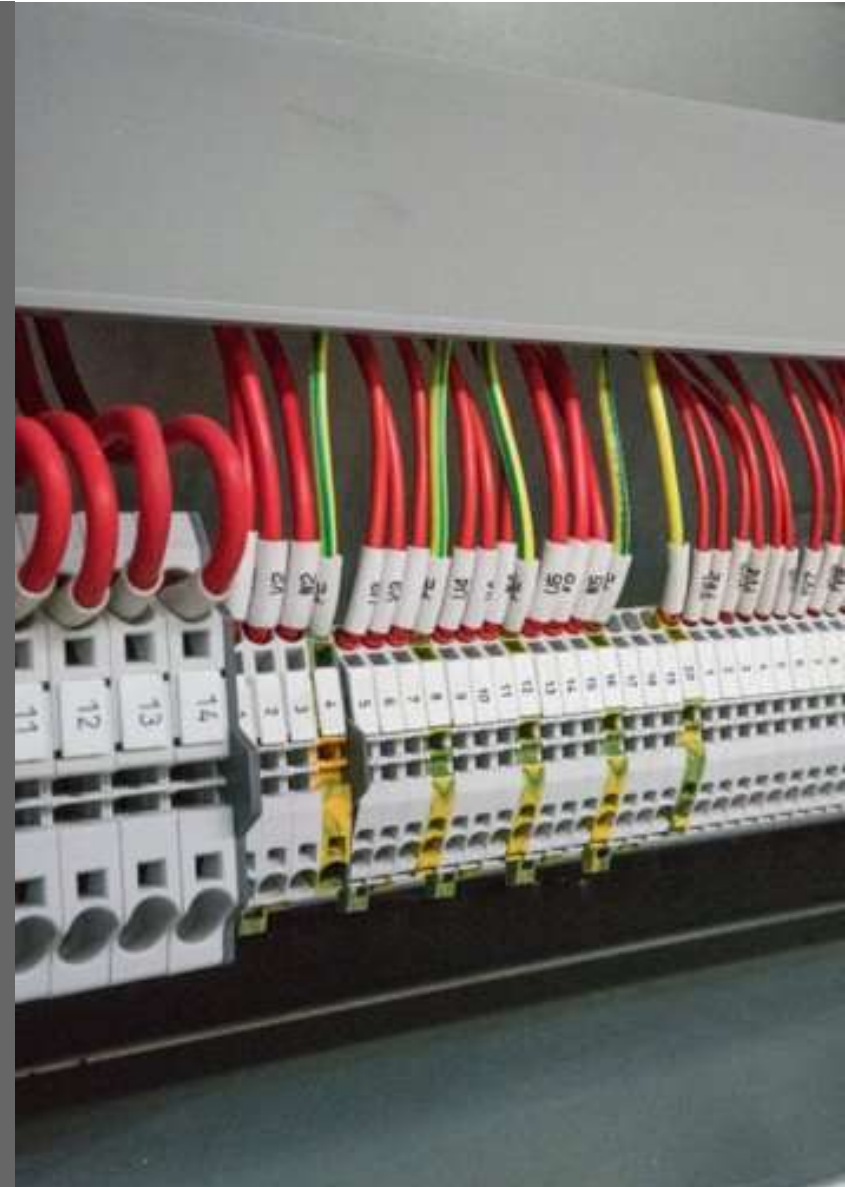
EV Charging Finlande



Wiring ducts

Global Product Management team

EVERY CONNECTION COUNTS



Wiring Duct Range Overview



PVC

From 25 mm to 120mm wide



LSHF (Low Smoke Halogen Free)

From 25 mm to 80mm wide



Speed up your projects

Save time while breaking off ribs without using any tools

Additional hole on the side, allows the use of cable ties to group your cables in an efficient manner

Speeds up your maintenance work with our cover design that simplifies cover removal

Quickly mount wire retainers on the bottom rail of the duct without screw and slide them along the rail



Secured Installation

Special rib pattern design allows more proper wire placement and cable grouping

Lower scoreline provides easy splitting of wiring duct's base and wall with no sharp edges

Upper scoreline provides easy breaking off the ribs

Smooth, burr-free edges protect installers from injury and wires from damage.



For all your needs

Low Smoke Halogen Free Wiring Ducts Family complying with EN45545-2 (R22-R23,HL3) for railway

Flame-retardant, self-extinguishing according to UL94-V0

Wiring duct covers hold securely even in a vertical position and under vibration

Temperature range from -25 °C up to +90 °C

Wire Duct – LSHF

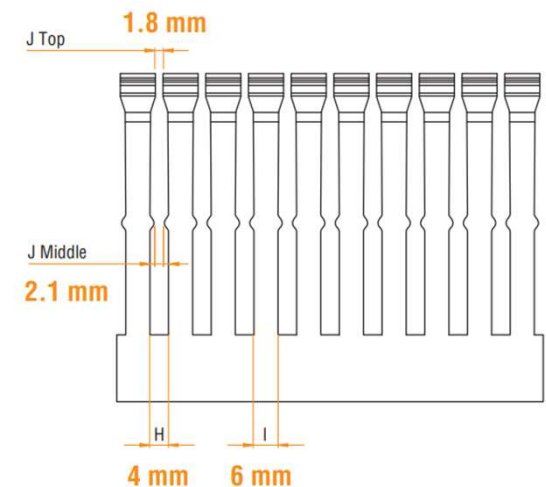
Technical Features & Benefits

BENEFITS

- Flame-retardant, self-extinguishing according to UL94-V0
- Low smoke containing no bromide/chlorine/fluoride
- Smooth, burr-free edges protect installers from injury and wires from damage
- Upper scoreline is available for easy breaking off the ribs
- Lower scoreline at base of sidewall allow cutting out and removing sections of sidewall with no sharp edges
- Environmentally safe and 20% lighter than PVC

FEATURES

- Operating Temperature: -25°C to 90°C
- Standard Length: 2 meters
- Material: PC/ABS
- Color: RAL 7035 Grey
- Complies with RoHS regulations
- Complies with EN 50085-2-3 standards
- Complies with EN 45545-2 European Fire Testing for Railway Components





Wire Duct - PVC

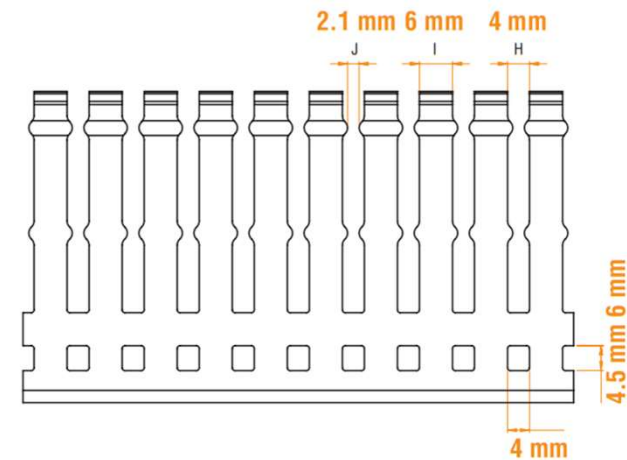
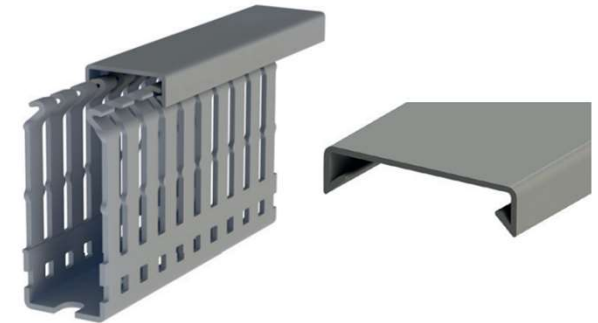
Technical Features & Benefits

BENEFITS

- Can be used with cable tie thanks to additional holes on the sides
- Special rib pattern allows the end-user to make cable grouping easier
- Easily mount wire retainers and cable holders on the bottom rail of the duct without screw and slide them along the rail
- Covers are designed to ease cover removal when ducts are fully wired. They hold securely even in a vertical position and under vibration
- Flame-retardant, self-extinguishing according to UL94-V0
- Upper scoreline is available for easy breaking off the ribs
- Lower scoreline at base of sidewall allow cutting out and removing sections of sidewall with no sharp edges

FEATURES

- Operating Temperature: -5°C to 60°C
- Standard Length: 2 meters
- Color: RAL 7030 Grey
- Complies with RoHS regulations
- Complies with IEC 60695-2-1 and EN 50085-2-3 standards

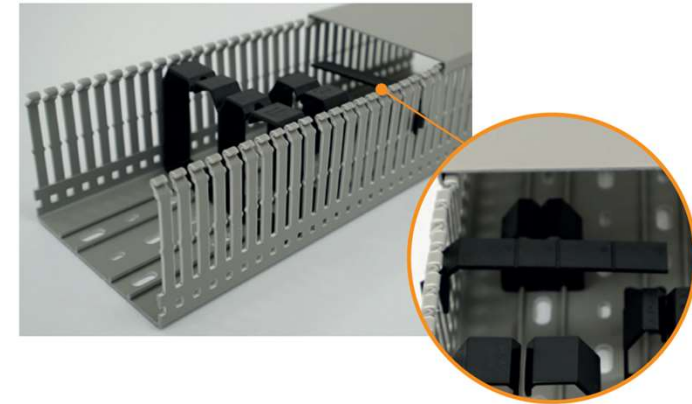


Wire Duct – Accessories

Technical Features

FEATURES

- Wire retainer help wire management. They can easily be mounted on the bottom rail of the duct without screw and slide them along the rail
- Cable clamp associated with wire ties help in maintaining firmly the cables. As wire retainer, they can easily be mounted on the bottom rail of the duct without screw and slide them along the rail
- Cable holder are clipped onto the ribs to maintain large bundles of wires
- Wiring Ducts Tools are designed to optimize preparation work and mounting inside the panel



Wire retainer



Cable clamp



Cable holder



Setting tool for rivets

Body-bound rivet



Hand held wiring duct cutter

Cable glands

Global Product Management team

EVERY CONNECTION COUNTS



Cable Glands : Definition

- **Cable glands** are offered in 4 primary materials: **plastic, brass, aluminum** and **stainless steel**
- Each material is targeted to specific applications



Cable Glands and Application

Plastic Cable Glands (Polyamide) : Standard Industrial applications



Metal Cable Glands (brass, aluminum, stainless steel) : Standard & Harsh Industrial applications



Product scope

Standard Cable Glands

With Thread



Without Locknut
1SNG601....



With Locknut
1SNG626....

Polyamide



without Locknut
1SNG602....



With Locknut
1SNG625....

Brass

Snap-in



1SNG622....
Polyamide



1SNG623....
Brass

Specialized Cable Glands

RJ45



1SNG618...
Polyamide



1SNG619....
Brass

EMC



EMC2
1SNG613....



EMC4
1SNG614....



Railway
1SNG606....

Brass

Hygienic



With Thread
1SNG615...



EMC, with Thread
1SNG617...



Conduit fittings
1SNG616...

Stainless steel 303

Product scope

Plugs & Plates

Ventilation Plugs		Drain Plugs		Round Plugs		Cable Entry Plates	
							
1SNG605...	1SNG624...	1SNG611...	1SNG612...	1SNG620...	1SNG621...	For connectorised and non-connectorised cables	For non-connectorised cables
Polyamide	Metal	Polyamide	Metal	Polyamide	Brass	1SNG604..	1SNG603...
						Reinforced fiber	

Accessories

Locknuts		Washer Gaskets		Dome Plugs
				
Flanged				
1SNG607...	1SNG608...	1SNG609...		1SNG610...
Polyamide	Brass	CR	MBR	Polyamide

IND ELECTRICAL – FOCUS ON AFG

Subvertical Electrical

EVERY CONNECTION COUNTS





INDUSTRIAL - Global application focus

Driven by co-creation | Creating something brilliant with you.

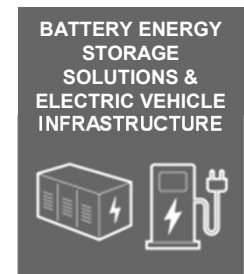
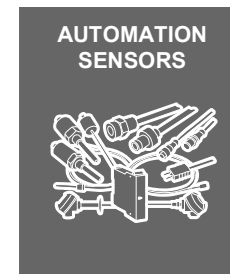
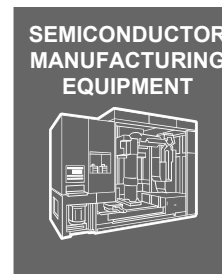
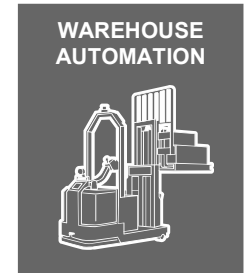
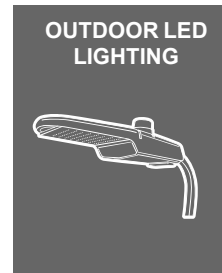
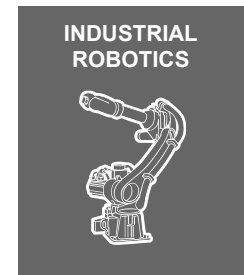
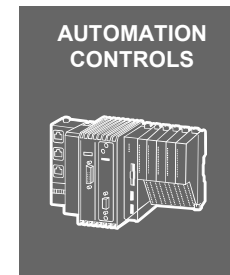
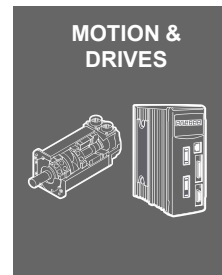
- Trained, skilled engineers understand your needs
- Passionate and highly engaged team
- Expert consultancy

Customer support | Extraordinary customer experience.

- We listen and act (customer pulse, net promoter score)
- Drive operational excellence through TE Operating Advantage (TEOA) program
- Strong, global footprint serving customers anywhere in the world

Helping you grow | Connecting around the world.

- Global company serving you locally
- Testing capabilities
- Digital advantage: TE.com



IEL FOCUS AFG's IN FY24

	<p>BATTERY ENERGY STORAGE SOLUTIONS & ELECTRIC VEHICLE INFRASTRUCTURE</p>		<p>MOTION & DRIVES</p>		<p>OUTDOOR LED LIGHTING</p>
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IEL Product Relevance

- ✓ Power Distribution Blocks
- ✓ Power Blocks
- ✓ Terminal Blocks
- ✓ Identification
- ✓ Cable Glands

- ✓ Identification
- ✓ Terminals & Splices
- ✓ Terminal Blocks
- ✓ Wiring duct
- ✓ Cable Glands
- ✓ Custom terminals

- ✓ Identification
- ✓ Terminals & Splices
- ✓ Cable Glands
- ✓ Power Distribution Blocks

IEL FOCUS AFG's IN FY24 – How to Support sales

EMEA FAE dedicated team to IEL

Role & Objectives

4 FAE
1 Technical support
(Identification Solutions)

Responsible for IEL pipeline & conversion
Align our strategy to the sales – target customers (direct or channel) with action plan
Support sales and distributors by visiting customers
Analyze customer needs / Generate new needs => **increase pipeline**
Facilitate communications between sales/GPM/Engineering and customers and manage projects
Propose best technical solutions => **increase conversion**

Marketing tools

Quarterly webinar
Presentation

Intend to give sales and marketing tools and trainings on the electrical products.
Show perfectly all recommended products for each AFG and applications
Can cover various subjects: such as NPI's, IEL product lines, AFG's applications and so on
New sharepoint created to give access to our presentations/documentations to every sales teams

[LINK TO FOLDER AFG](#)



Webinar: ✓
Presentation: **planned for mid-january**



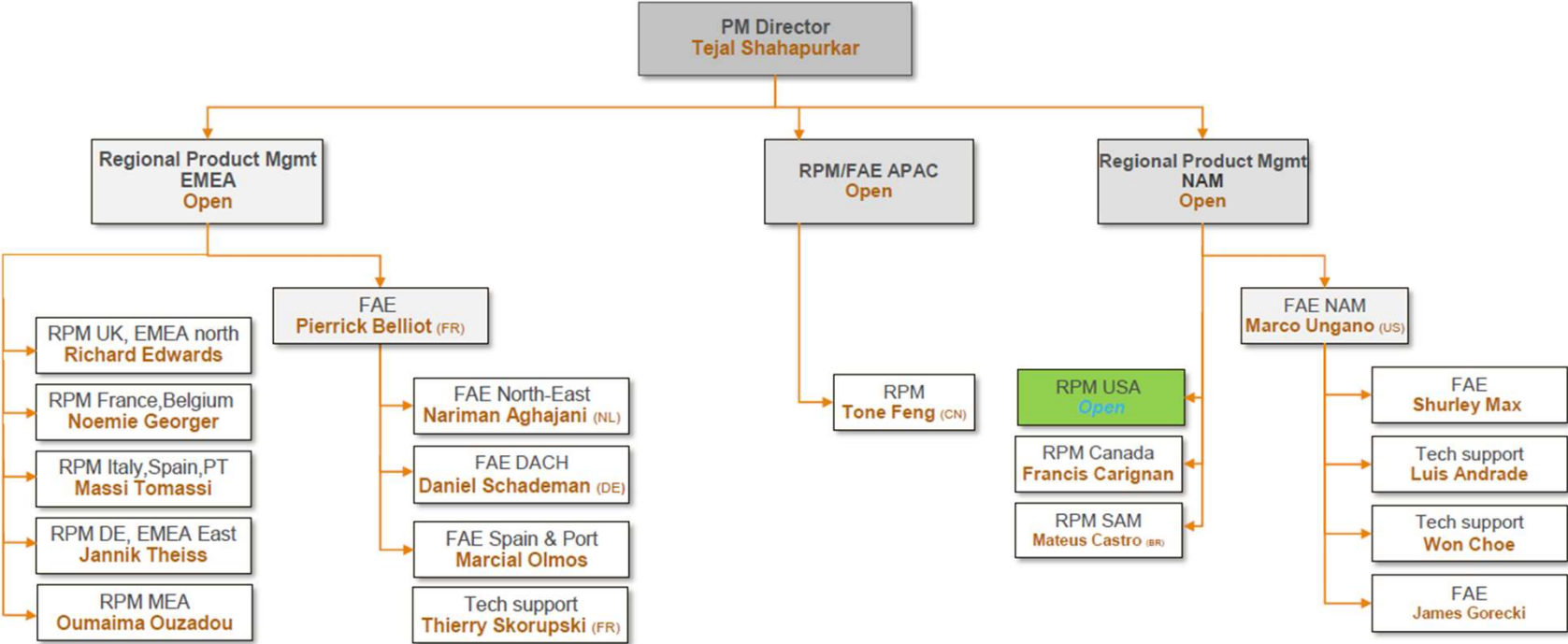
Webinar: ✓
Presentation: ✓



Webinar: **planned for Q2**
Presentation: ✓



SV ELECTRICAL ORGANIZATION – Product Management



IEL FOCUS AFG's IN FY24 – Channel

Step 1

Organize trainings with the most important branches

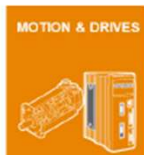
Work with your team to evaluate distributors needs / Interest according to our focus AFGs
 Fix a training plan for Q2
 WE need your support to introduce ourselves to the distributors

Step 2

Fix customers targets (mainly based on our 3 focus AFGs)

With you and distributors – fix a customer target lists:

- Participe to QBR
- Organize common visits (Teams) with you/distributor
- Support channel for IEL products
- Develop pipeline in cooperation with the channel team/distributors
- Propose technical solutions
- Organize VOC



BESS / EVI

Electrical products

EVERY CONNECTION COUNTS

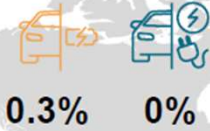


TE
connectivity

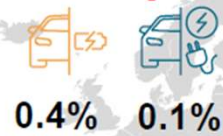
Electrical Vehicule Parc per Region

2020

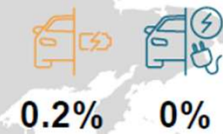
North America



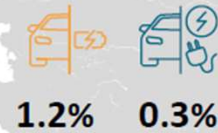
Europe



Japan/Korea



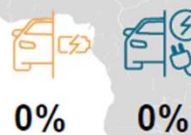
Mainland China



South America





MEA



South Asia



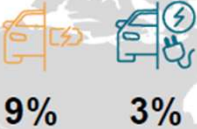
 : BEVs = battery electric vehicle
 : PHEVs = plug-in electric vehicles

Source : S&P Global Mobility - April 2022

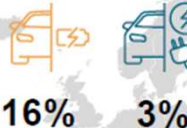
Electrical Vehicule Parc per Region

2030

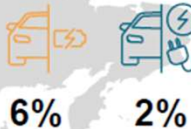
North America



Europe



Japan/Korea



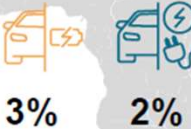
Mainland China



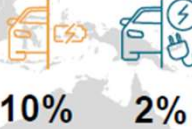
South America





MEA



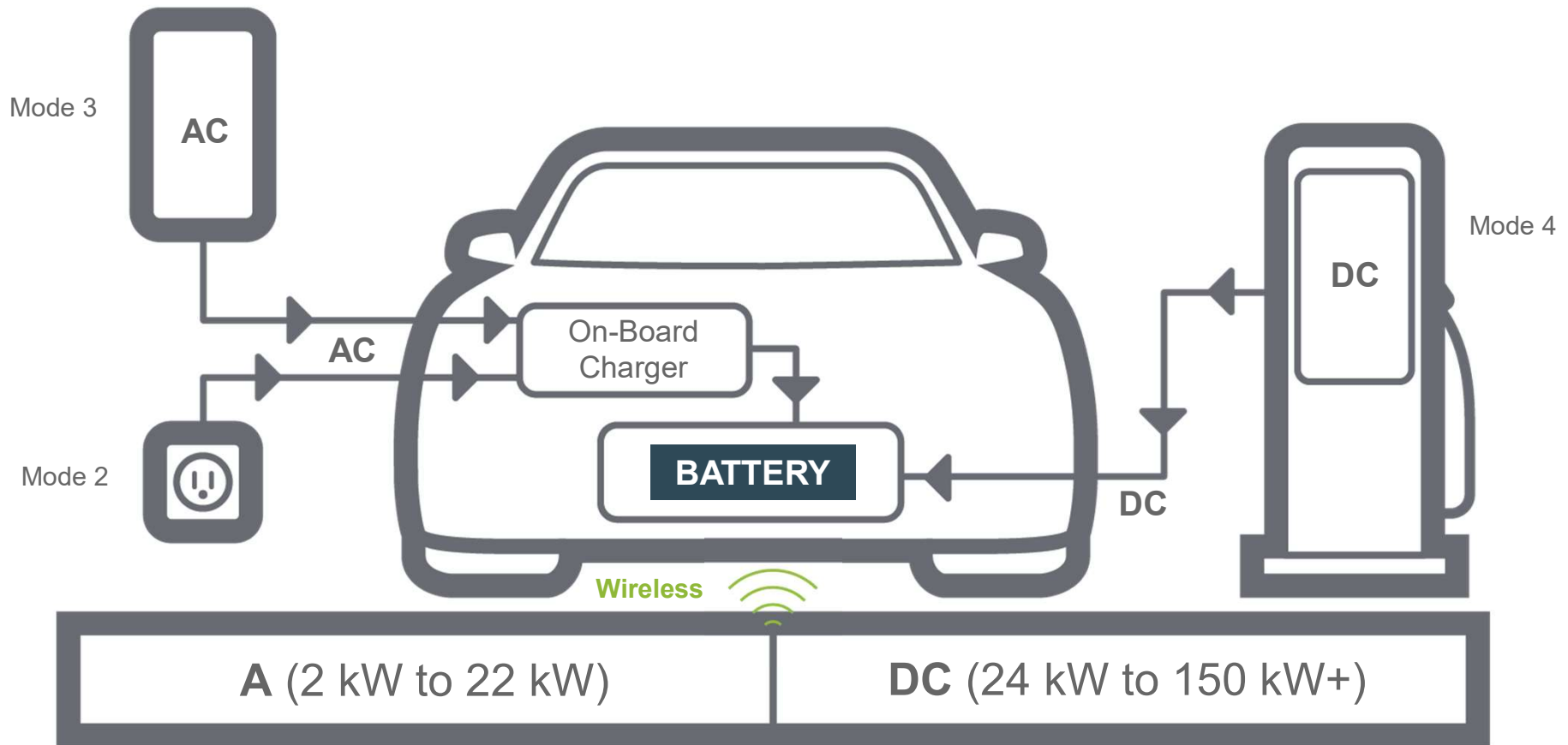
South Asia



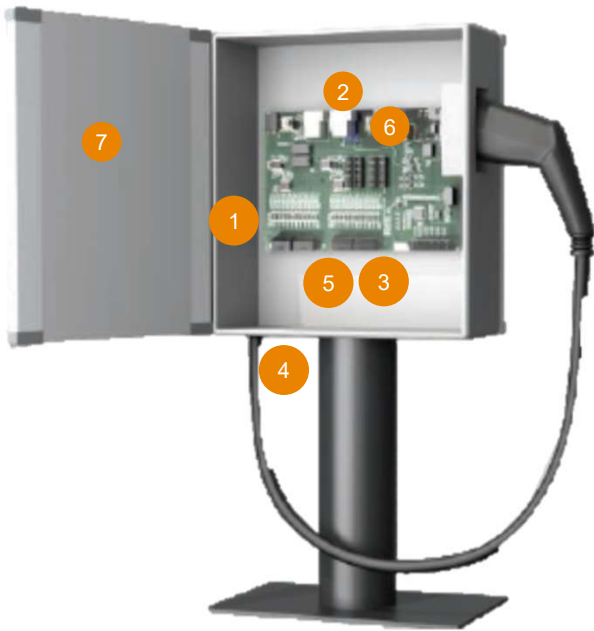
 : BEVs = battery electric vehicle
 : PHEVs = plug-in electric vehicles

Source : S&P Global Mobility - April 2022

EV CHARGING TODAY ... AND TOMORROW



AC Charging



DC Charging



- 1 Terminal blocks
- 2 DBL Power distribution blocks
- 3 Compact power blocks
- 4 Cable glands
- 5 Wiring duct
- 6 Terminals & Splices
- 7 Identification & Labeling

7 ELECTRICAL SOLUTIONS - TERMINAL BLOCKS (Slide 1 of 2)

Designed for power distribution in DC high-power public charge poles

Challenges

- Compact design
- Modular design to allow for easy installation and flexible use in applications
- Qualified for use in harsh or severe environments
- Meet global certifications and standards



TE Advantage

Products



ENTRELEC
Terminal Blocks



- Compact and easy to install
- Broad portfolio of terminal blocks with wide array of options, including screw, spring, IDC, stud, spring-loaded, quick-connect, and pluggable
- UL- and CSA-certified
- Specialized technologies such as Essalec basic/RJ45, DBL distribution blocks, and ES8-CG self-cleaning disconnect blocks



ENTRELEC
DBL Power Distribution Blocks



- Three configurations in one product: Single pole, multipole splitter, plus grouping for solar
- Connect round or flat conductors and save up to 50% space compared to copper bars
- Reduce assembly time by 80% thanks to no fastening or isolating components
- Suitable for most recent solar installations with 1500 VDC rating and up to 12 inputs
- Rating from 80 A to 500 A



ENTRELEC
Compact Power Blocks



- Current rating between 150-520 A
- Economical solution for power connections
- Compatible to AL/CU wire without grease light weight body
- Two mounting option, Panel and Din-rail mounting
- Easy identification
- IEC-, UL- and CSA-certified

7 ELECTRICAL SOLUTIONS - OTHERS (Slide 2 of 2)

Critical connectivity and reliability where you need it most – in terminal wires

Challenges

- Long-term experience in cable glands, wiring ducts, terminals and splices applications
- Special products dedicated to niche applications

Products



Cable Glands
[Cable Glands](#)

- High ingress protection up to IP69
- 3 material choices: polyamide, brass, and stainless
- 3 thread types: metric, PG, and NPT
- Vast range of accessories, including washers, locknuts and various plugs to provide drainage, ventilation, or sealing



Wiring Ducts
[Wiring Ducts & Accessories](#)

- Popular profile widths such as 24, 40, 60, 80 100 and 120 mm
- High-quality PVC & Halogen Free material
- Lower scoreline provides easy splitting of wiring duct's base and wall with no sharp edges
- Flame-retardant, self-extinguishing according to UL94-V0
- Temperature range from -25 °C up to +90 °C



Terminals & Splices
[SOLIDSTRAND, PIDG](#)

- Assembly design offers latching and polarization
- Coupling shrouds permit ganging of smaller receptacle and pin assemblies with guide ribs to form larger single or dual row latching connectors
- Available in three platings
- Swage option on posts provide retention in PC board
- High temperature option is SMT compatible to 265-degree wave



Identification & Labeling
[Identification Solutions](#)

- Contact design for high vibration tolerance helps reduce fretting corrosion
- Contact design allows for tin plating, which lowers cost
- Easy to apply with flat cable IDC termination
- UL approval on materials, the connector and the cable assemblies
- Also available as cable assemblies

TE Advantage



Electric Vehicle Infrastructure (EVI)

Application cases

EVERY CONNECTION COUNTS

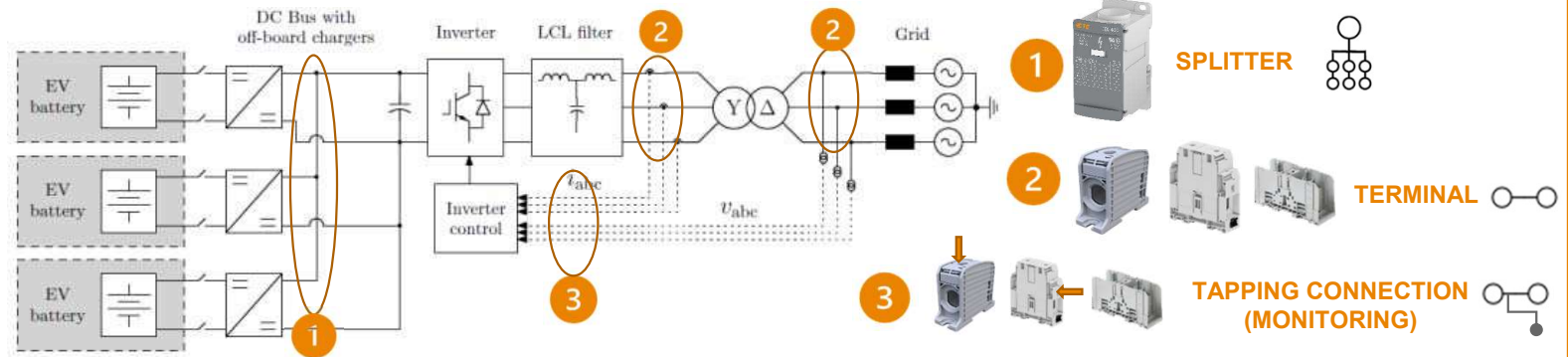
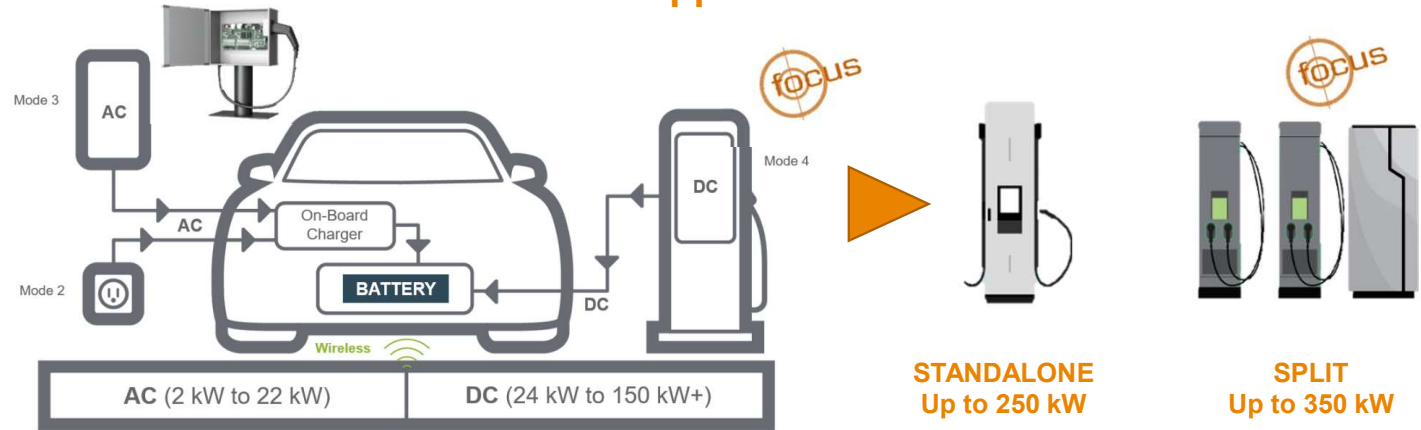


WHERE ? - Power Solutions for EV Charging

FACTS

- Best potential for Electrical products in **DC stations**
- Need for **grouping, Splitting**, and **Tapping** functions
- Need usually high voltages/current
- Request for International approvals and rugged design

The application



WHERE ? - Power Solutions for EV Charging DC Application - eTreego, Taiwan

Challenges

- Requirements to connect directly flat conductors
- Need to have 10 connections to gain space
- Long term reliability is necessary as products are spread out in various locations

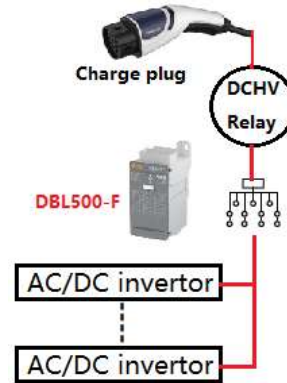
The application



DC Station
180 & 250 kw KW



- DBL 500 is used here as a concentrator grouping signal from various outputs
- 180 KW platform requires 4xDBL500-F
- 350KW platform requires 8xDBL500-F



TE Advantage

The product



DBL 500-F



- Compatibility with flexible or solid bars



- Faster, more compact solution for power distribution compared to the standard busbar
- **Plate** or rail mounting
- **Reversible & removable cover** allows adaptability in design (distribution or grouping)
- Input protective window for IP20 and flat bar guidance
- High power 500A /1500 VDC
- Delivered with 7 white pre-printed markers

WHERE ? - Solutions for EV Charging

DC Application - ABB Terra EV Fast Charger - Italy

The application

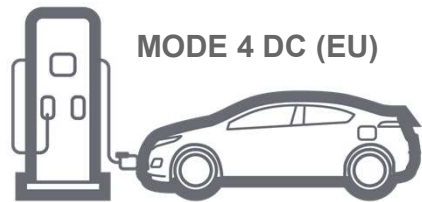
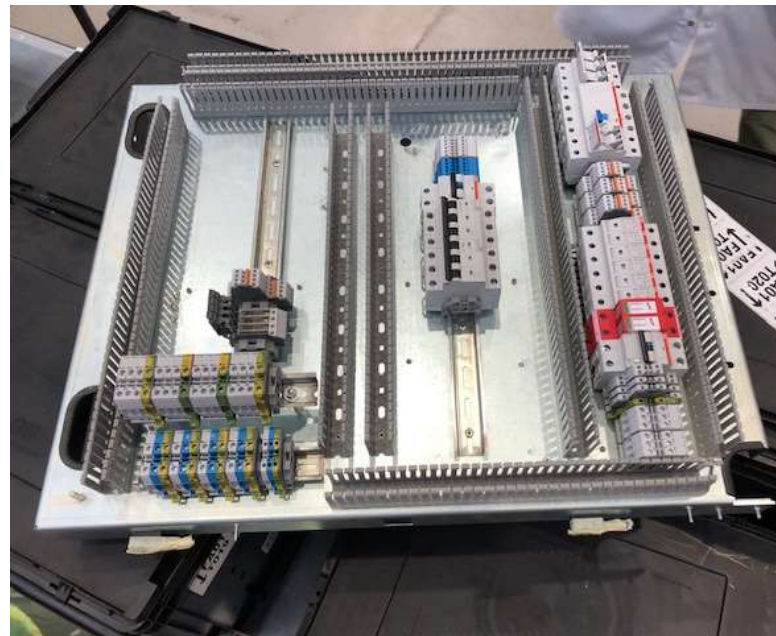


ABB Terra DC EV Fast Charger



The products



6.000 ABB Terra DC EV Fast Charger in FY22

- DBL 250
- SNK Screw + Accessories
- HM Labels
- Stud Blocks

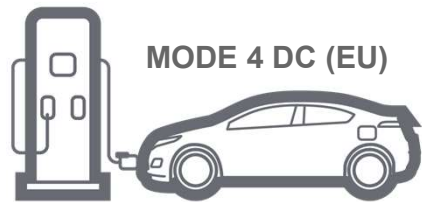
58.34 € of sales per EV Charger
350 k€ for FY22

Products	FY22 Order €
DBL250	160 k€
SNK Screw	120 k€
Accessories	50 k€
High Tack Metalized Polyester Labels	15 k€
Stud Block D185/55.FF	5 k€
ABB Terra DC EV Fast Total	350 k€

WHERE ? - Solutions for EV Charging

DC Application - **ABB Terra DC Wallbox - Italy**

The application



**ABB Terra DC Wallbox
Fast Charger**



The products



1.500 ABB Terra DC Wallbox produced in FY22

→ ZS50 product family : Grey / Blue / Red / Black and Ground

24.23 € of ZS50 per Wallbox
37 k€ for FY22

WHERE? - Power Solutions for EV Charging

DC Fast charging Application – Kempower Finland

Challenges

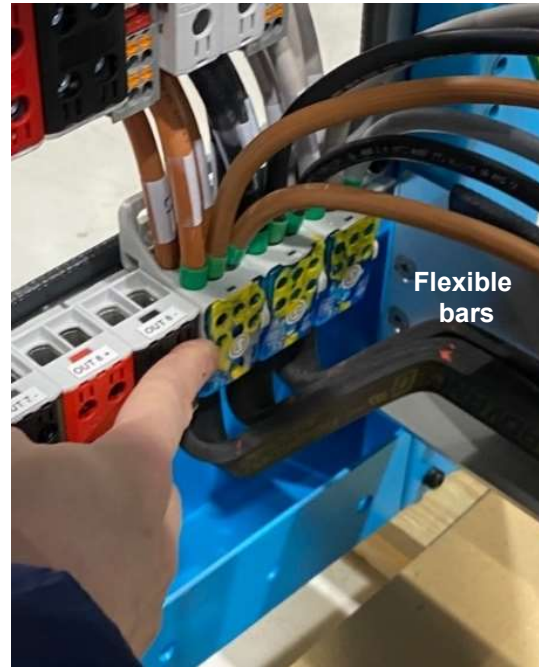
- Requirements to optimize power distribution into 5000 Power Units + 10000 satellite Units
- Requirements to connect directly flat conductors
- Flat entry arrive from bottom & need visibility on distribution block
- Long term reliability is necessary as products are spread out in various locations

The application

DC Station 50 to 400 KW



Custom made packaging
Pre-marked



TE Advantage

The product



DBL 500-F



- Compatibility with **flexible** 
- Faster, more compact solution for power distribution compared to the standard busbar
- Plate or **rail mounting**
- **Reversible & removable cover** allows adaptability in design : here arrival below
- High power 500A /1500 VDC
- Delivered with 7 white pre-printed markers
- Custom made packaging solution for ease of storage and efficient inventory management for customer

Power Solutions for EVI : HOW ?



KEY QUESTIONS

- What is the type of Charging station is used?
 - AC: Lower IEL products sales potential
 - DC standalone: medium IEL products sales potential
 - DC Split: High IEL product sales potential
- Is there a space constraints particularly in satellites units ?
- Does the application require splitting or regrouping the power ?
- How many inputs (grouping) or output (splitting) are required ?
- What is the crosse section required? Voltage and Current?
- What is the nature of cables?
 - flat, round, flexible, stranded, copper, aluminum
- What type of mounting is needed ?
 - Panel/plate mounting/Din Rail
- Is customer using a color coding for circuit differentiation ?
- What type of identification is needed for the power blocks ?

TE's VALUE

What problem can be solved ?

- Limited spaces
- Need to connect various type of cables
- Need to split or regroup signals while keeping clear identification
- Need High power for large DC applications (1500VDC/500A)

Differentiated Selling Proposition

- DBL are reversible (grouping or Splitting)
- Rating adapted to DC charging : up to 1500 VDC/500A
- Compacty
- Flexibility : various mounting options/Variou type of cables
- Security: IP20 protection for users
- Compact power blocks provide extra connection for monitoring (useful on inverter supply)

You could also sell ...



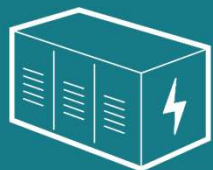
SNK Series
Control Terminal blocks



Panel & equipment
Labels



Cable Glands



Battery Energy Storage Systems (BESS)

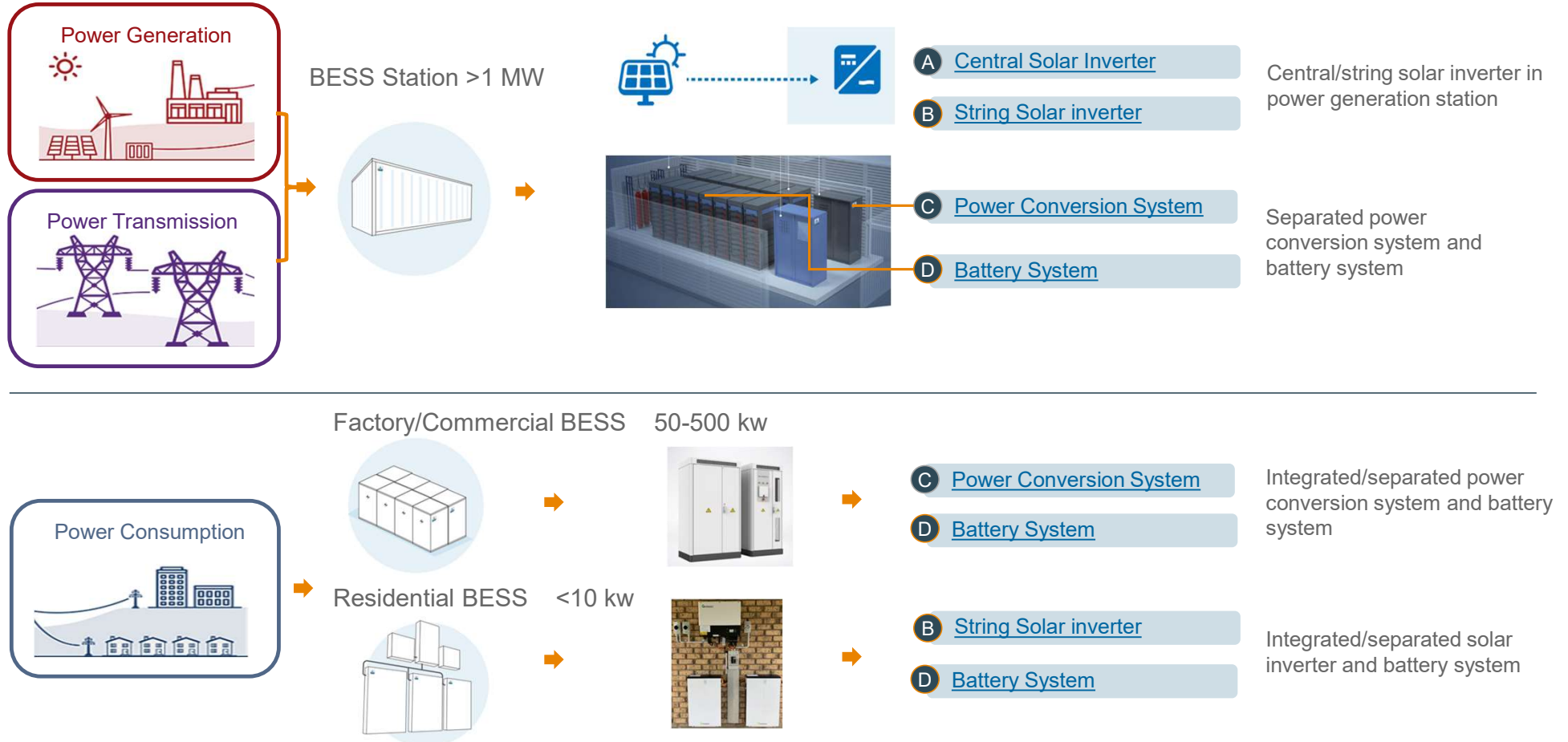
Electrical products & Application case

EVERY CONNECTION COUNTS





Key Subsystems of BESS



WHERE WE PLAY? – BESS Application- Energy Subsystems

The application



Solar Inverter



Power Conversion System (PCS)



Battery Management System

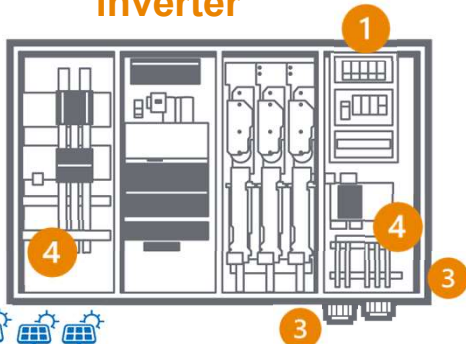


Battery System



WHERE ? – BESS Application- Solar Inverters

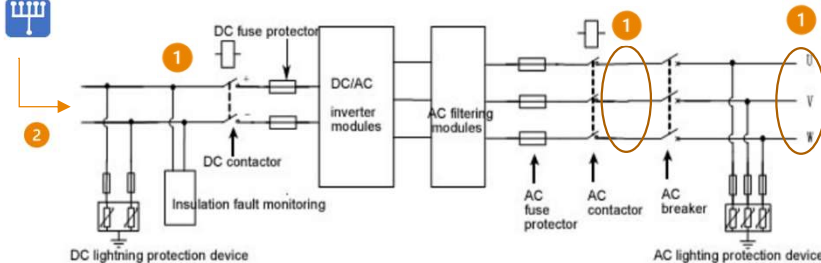
The Central Solar inverter



The String Solar inverter



Configuration of 500 kw Central Solar Inverter



Configuration of 125 kw String Solar Inverter



The Products



- ENTRELEC Terminal Blocks
 - For control compartment connection
 - Power connections on Input & Output of inverter
 - Compact and easy to install
- ENTRELEC Power Distribution Blocks
 - For signal grouping & Splitting in the inverter
 - 3 configurations in one product, up to 1500VDC,500A
- Cable Glands For cable entry protection of inverter
 - High ingress protection, 3 material choices,3 threads types
- Wiring Duct for cable management inside inverter panel
 - High quality PVC & Halogen free material
- Terminals & Splices : reliable cable ends with many wire sizes and specializations
- Identification and Labeling
 - Power and control cable identification even under harsh environments
 - Inverter Panel and equipment identification
 - Custom labels possible

Application example – Power connections on Inverter

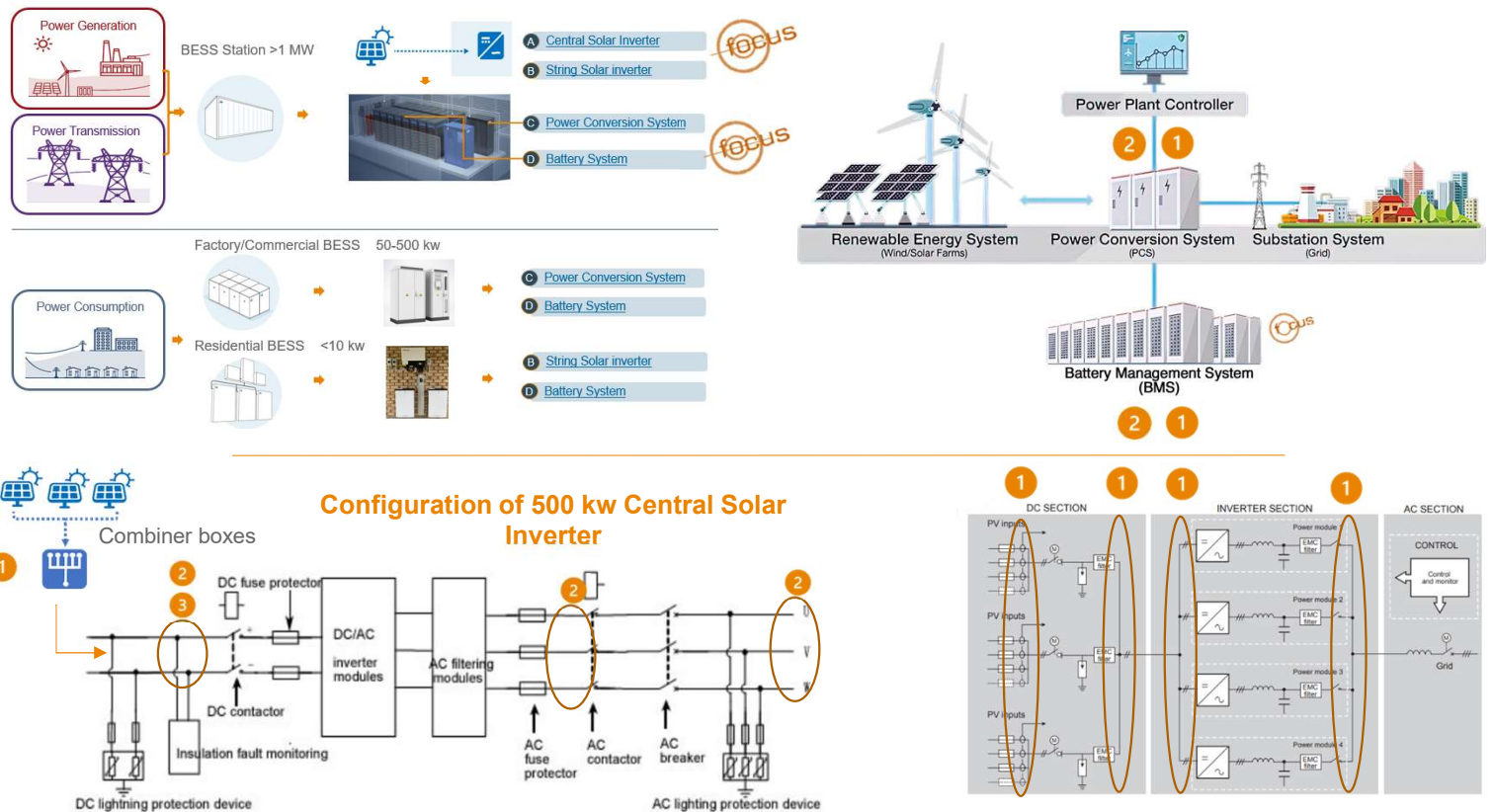
FACTS

- Electrical products offer connection solutions in PCS & BS
- Need for **grouping**, **Splitting**, and **Tapping** functions
- Need usually high voltages/current
- Request for International approvals and rugged design

FUNCTIONS

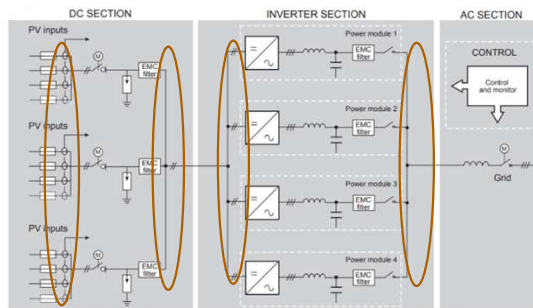
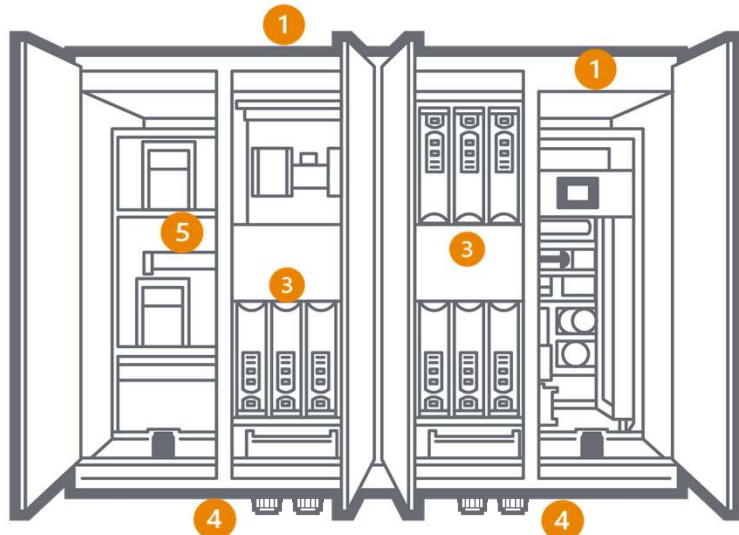
- GROUPING SPLITTER**
- CONNECTION**
- TAPPING CONNECTION (MONITORING)**

The application



WHERE ? – BESS Application- Power Conversion System (PCS)

The Power Conversion Unit



GROUPING
SPLITTING
NEEDS

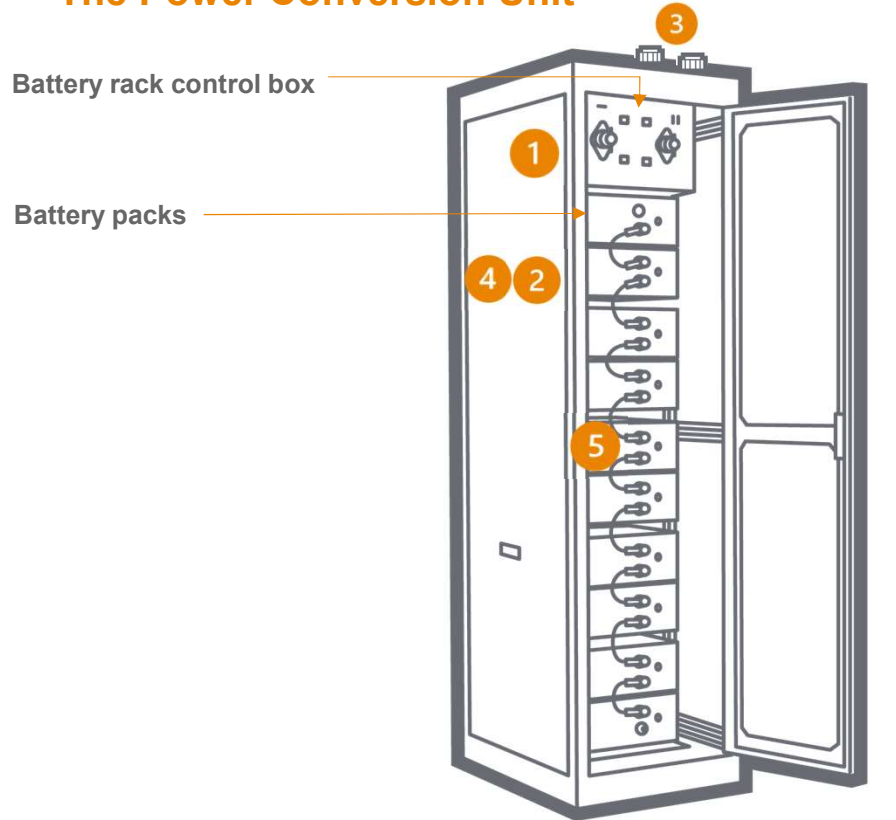
The Products



- ENTRELEC Terminal Blocks
 - For control compartment connection
 - Power connections on Input & Output of PCS inverter
 - Compact and easy to install
- ENTRELEC Power Distribution Blocks
 - For signal grouping & Splitting in the inverter
 - 3 configurations in one product, up to 1500VDC,500A
- ENTRELEC Compact power Blocks for power connections up to 520 A
- Cable Glands For cable entry protection of inverter
 - High ingress protection, 3 material choices,3 threads types
- Wiring Duct for cable management inside inverter panel
 - High quality PVC & Halogen free material
- Terminals & Splices : reliable cable ends with many wire sizes and specializations
- Identification and Labeling
 - Power and control cable identification even under harsh environments
 - Inverter Panel and equipment identification
 - Custom labels possible

WHERE ? – BESS Application- Battery Management Systems

The Power Conversion Unit



The Products

- 1 
 - ENTRELEC Terminal Blocks
 - For battery racks connection
 - Power connections on Input & Output of inverter
 - Compact and easy to install
- 2 
 - ENTRELEC Compact power Blocks for power connections up to 520 A in battery packs
- 3 
 - Cable Glands For cable entry protection of inverter
 - High ingress protection, 3 material choices, 3 threads types
- 4 
 - Terminals & Splices : reliable cable ends with many wire sizes and specializations
- 5 
 - Identification and Labeling
 - Power and control cable identification even under harsh environments
 - Inverter Panel and equipment identification
 - Custom labels possible

APPLICATION BESS & Electrical Power Solutions

Location - India

Challenges

- Battery Energy Storage System (BESS) designed for utility scale applications.
- Need to distribute signal
- Need for high service on lead time, technical performances
- Need a recognized manufacturer

Reservoir includes :

- 1 **Reservoir Storage Unit (RSU)** which contains a battery compartment
- 2 **Power Conversion Unit** (bi-directional inverter)
- 3 **HVAC compartment**
- 4 A **Reservoir Control** Unit or Battery Management System



TE proposal



- Good lead time
- Amperage adapted
- Voltage rating
- Adapted output configuration
- Tech support



Product

→ DBL 250 Distribution Block



WHY TE?

- Broad Electrical product portfolio to support a wide range of subsystems for BESS including battery systems, PCS, and solar inverters
- Leading technology to fulfill requirement for next generation BESS with higher system voltage (up to 1500 VDC) and power density
- Safer, more reliable power and signal connection (more than 80 years track record crimping, connecting, identifying)
- Customizable solutions
- Dedicated, engineer-to-engineer support

High strain relief special cable gland for DC charging station

New Product Development - VoC

EVERY CONNECTION COUNTS



EV Charging Station

END APPLICATION

A charging station is a power supply device that provides electrical power for recharging plug-in electric vehicles.

As the charge is transferred to the battery, the cables need to be permanently connected to the charger, have IP protection, and able to withstand the excess heat generated by the high-power output.



EV Charging Cables

FOR INFORMATION

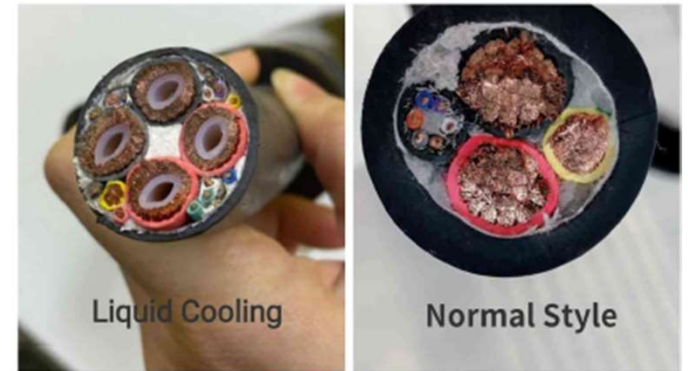


There are many types of EV cables in the market. The heat generated is greater for the cables with higher power output. As a solution, liquid is used to cool inside cables with higher power output, as they cannot withstand excess heat.

So in that market for high voltage electric car DC charging equipment 2 types EV Cable is available –

Without Liquid cooling (Normal style)

Liquid cooling (New technology cable)



EV DC Charging Station –Cable glands

EXISTING PRODUCT IN THE MARKET

Cable glands are an essential component of any DC charging station, as they provide a safe and secure way to connect and protect the cables that carry high-voltage electricity.

Specifically, cable glands in DC charging stations serve the following purposes:

- **Protection from the elements:** DC charging stations are often located outdoors, where they are exposed to the elements. Cable glands help to protect the cables from water, dust, and other harmful substances.
- **Strain relief:** Cable glands help to relieve stress on the cables, which can prevent them from becoming damaged.
- **EMC shielding:** Cable glands can be used to shield the cables from electromagnetic interference (EMI), which can disrupt the operation of the charging station.
- **Grounding:** Cable glands can be used to ground the cables, which helps to protect users from electric shock



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MARKET CONCERNS



The outer diameter of all these cables, with or without liquid coolant, changes as the temperature changes due to the heat generated.

As the standard cable gland clamping systems cannot tolerate these diameter changes, the **EV cables move out of the cable gland**. This is an inevitable condition for damage to the EV charging station.

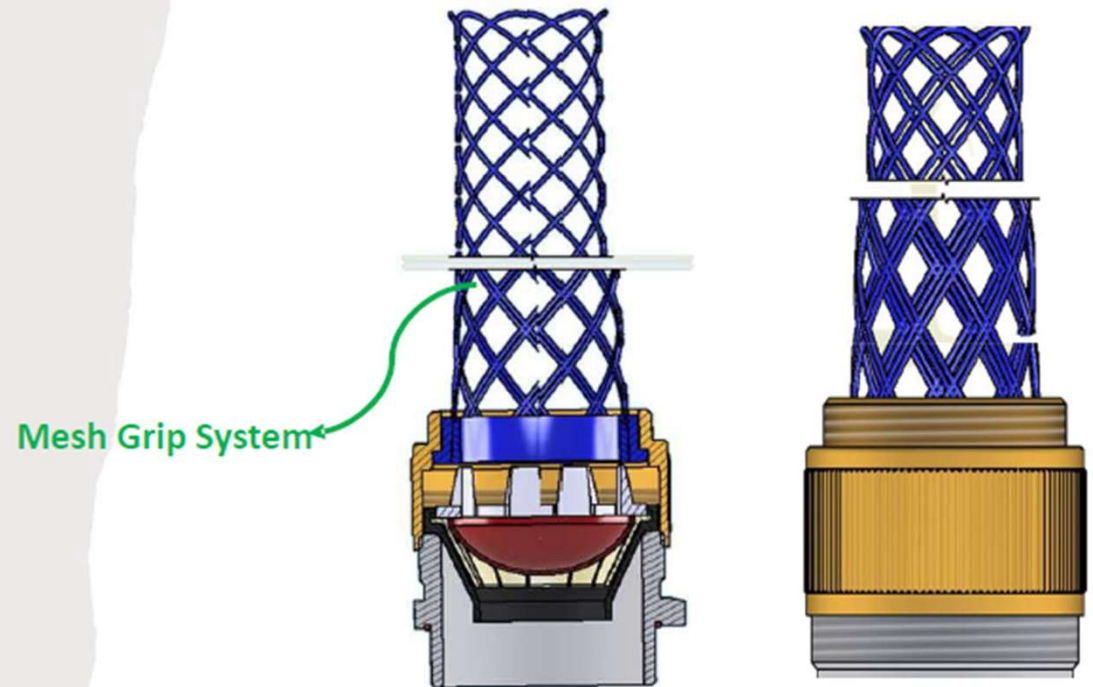


Cable glands with a compression seal cause the **physical deformation on the cable** which exhibits '**Cold Flow**' effect. Therefore, this leads to IP problems.

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NEW SOLUTION: HIGH STRAIN RELIEF CABLE GLAND

In order to prevent damage to the cable and ensure it remains in place and avoid “Cold Flow” effect, a **High Strain Relief Cable Gland** has been developed. This replaces the expensive cable loop system. It includes a **mesh grip system** that covers the cable outer sheath, **when force is applied to the cable, the mesh grip system becomes tighter** on the surface of the outer sheath, providing a strong pulling force. The cable gland design includes a **diaphragm seal and mesh grip system** that do not affect the shape change of the cable outer sheath, unlike compression seals. This helps prevent damage to the cable. Additionally, the mesh grip system ensures that the cable is not damaged by bending.



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NEW SOLUTION: HIGH STRAIN RELIEF CABLE GLAND

VALUE PROPOSITIONS



Differential solution with no additional investment



Solution with high strain relief



Reduce cold flow effect improves IP for long run



Saving / remove strain-relief connector at DC charging station



Reduce DC charging station after-market service cost

**CONNECT
LIKE THE WORLD
DEPENDS ON IT.
BECAUSE IT DOES.**

EVERY CONNECTION COUNTS

