

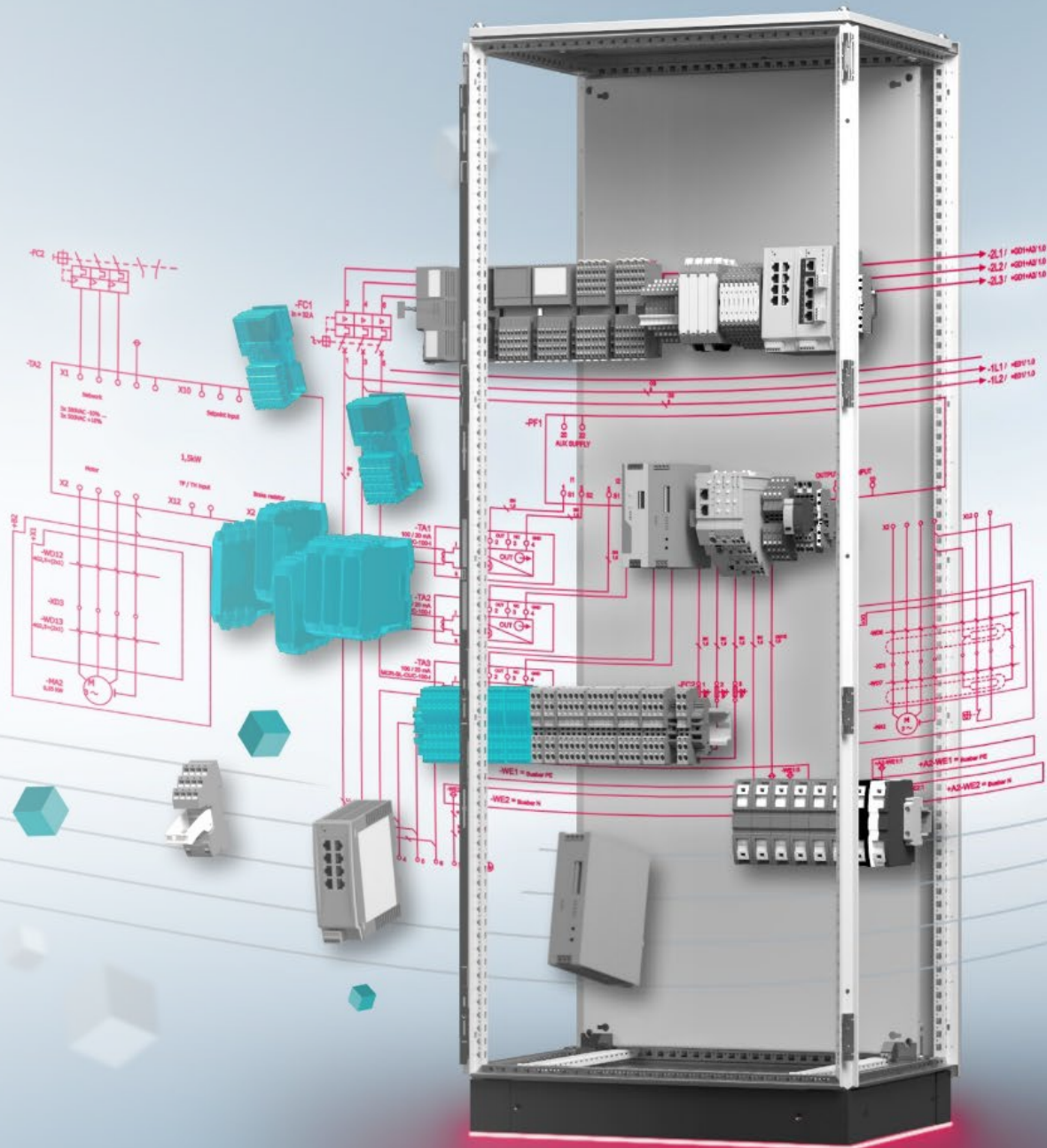


Smart Engineering
and Production

SEAP

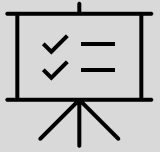
Smart Engineering
and Production

Otočec, junij 2026



Smart Engineering and Production

- 1 **UVOD: Kratka predstavitev dogodka**
- 2 SEAP: uvod v koncept Smart Engineering and Production
- 3 EPLAN: digitalna osnova sodobnega inženiringa
- 4 RITTAL: infrastruktura za učinkovito in povezano industrijsko okolje
- 5 ALKATRON: integracija rešitev v prakso uporabnika
- 6 ODMOR: kratek predah ob kavi



UVOD: Kratka predstavitev dogodka

Dnevni program

- 9.00 – 10.00 Uvod v SEAP: pogled v Smart Engineering & Production
- 10.00 – 10.15 ☕ Kratek predah za polnjenje baterij ob kavi
- 10.15 – 11.45 SEAP rešitve v praksi – interaktivno kroženje med tematskimi postajami:
- 10.15 – 10.45 Praktični prikaz na 1. postaji
 - 10.45 – 11.15 Praktični prikaz na 2. postaji
 - 11.15 – 11.45 Praktični prikaz na 3. postaji
- 11.45 – 12.15 ☕ Okrepčilo, izmenjava vtisov in priprava na naslednjo fazo
- 12.15 – 13.15 Okrogla miza: izzivi, izkušnje in priložnosti v praksi
- 13.15 – 13.45 Čas za sprostitev in novo dozo energije
- 13.45 – ... Zaključne misli in nagrade





Sprehod skozi SEAP rešitve

interaktivno kroženje po barvnih tematskih postajah



EPLAN

Delavnica na temo **digitalnega dvojčka**

Način izvedbe: predstavitev in praktični prikaz

Predstavnika: Gašper Ambrož, Marko Repič



ALKATRON

Delavnica na temo **CLIPX okolja**

Način izvedbe: praktični prikaz

Predstavnik: Luka Čeh



RITTAL

Delavnica na temo **konfiguriranja z RiPanel**

Način izvedbe: praktični prikaz

Predstavnik: Filip Kepec

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SEAP: uvod v koncept Smart Engineering and Production

Predavanje poteka v živo iz Nemčije

Dr. Andreas Schreiber

Vice President

Head of Business Unit Industrial Cabinet Solutions

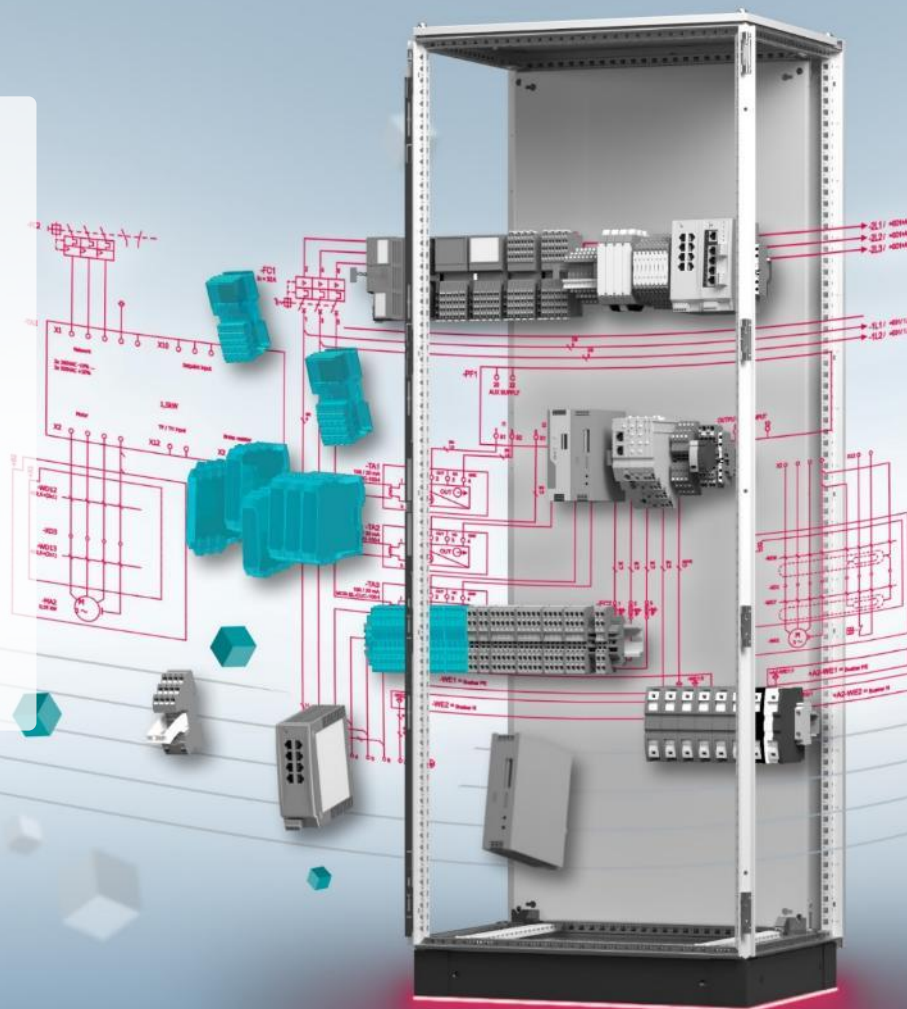


Predavanje se začne zdaj

PRIDRUŽITEV

Smart Engineering and Production

Efficiency in panel building
Eplan - Rittal - Phoenix Contact





Why did we start SEAP?

More than 10 years ago, we started our cooperation based on a shared observation:

- Panel building is becoming more complex and increasingly digital
- Efficiency requires seamless integration across all process steps
- This can only be achieved together – through strong partnerships

Challenges faced in panel building



Challenges



- Cost pressure
- Shortage of skilled workers
- Digitalization of processes

Goals



- Reduce costs
- Increase productivity
- Shorten lead times

Let's rise to the challenges together!



- How to successfully network digitally end to end
- How to optimize your process steps holistically
- How to meet customer demands for short delivery times with consistent quality and customized production starting from a batch size of one

Six good reasons for Smart Engineering and Production



Expertise and experience

We are pooling the expertise of three leading solution providers in panel building.



Data consistency

We provide standardized data and interfaces for your processes.



Holistic solutions

We supply a networked and optimally coordinated portfolio.



Individual consultation

We analyze your individual situation and identify optimization potential for you.



Acting with the future in mind

We work together to develop new solutions, tailored to market requirements, and based on joint committee work.



We are one!

Together with you, we are moving towards the panel building of the future.

Potential for greater efficiency exists in all process steps



1.
Creation of item data



2.
Provision of data



3.
Basic engineering



4.
Detail engineering



5.
Control cabinet layout
and process planning



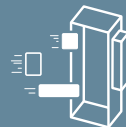
6.
Procurement of
materials and
purchasing



7.
Digital manufacturing
integration



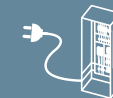
8.
Manufacturing



9.
Mounting



10.
Testing



11.
Startup



12.
Operation/service

1.
Creation of item
data

2.
Provision of
data

3.
Basic
engineering

4.
Detail
engineering

5.
Control cabinet
layout and
process planning

6.
Procurement of
materials and
purchasing

7.
Digital
manufacturing
integration

8.
Manufacturing

9.
Mounting

10.
Testing

11.
Startup

12.
Operation/
service

Data as the fuel of digital processes

- **Article data** are a basic prerequisite for digital end-to-end processes. Optimally prepared data play a major role here. They are the cornerstones of successful and efficient processes from engineering to production.
- The **Eplan Data Portal** offers comprehensive and approved data for all articles needed and reduces engineering efforts significantly.

1.
Creation of item
data

2.
Provision of
data

3.
Basic
engineering

4.
Detail
engineering

5.
Control cabinet
layout and
process planning

6.
Procurement of
materials and
purchasing

7.
Digital
manufacturing
integration

8.
Manufacturing

9.
Mounting

10.
Testing

11.
Startup

12.
Operation/
service

Engineering

- **Digital integration** and **data consistency** along the value chain are crucial for greater productivity in panel building.
- **Digital prototyping** with the **digital twin** enables automated planning along the whole value chain, which saves time and money and reduces errors.
- **Intelligent and data-driven planning supported by AI** optimizes processes and interfaces through the value chain in panel building.

1.
Creation of item
data

2.
Provision of
data

3.
Basic
engineering

4.
Detail
engineering

5.
Control cabinet
layout and
process planning

6.
Procurement of
materials and
purchasing

7.
Digital
manufacturing
integration

8.
Manufacturing

9.
Mounting

10.
Testing

11.
Startup

12.
Operation/
service

Production

- **Increased productivity** is achieved by worker assistance systems, semi and fully automated machines as well as innovative automation solutions.
- **Data-driven manufacturing** without media disruptions enables more efficient and flexible production processes.
- **Automated and digitally supported processes** simplify complex tasks and counteract the shortage of skilled workers.

References

Examples of our solutions in use



References

Examples of our solutions in use

What do all examples have in common?

Consistent data



Connected processes



Increasing automation



Efficiency increase!

① Alexander Bürkle



Benefits

Gain more efficiency in your panel building through digital and integrated solutions.

Up to **40%**
less design costs

Efficiency increase
planning: **50%**

Up to **70%**
time saved while gathering
information

Efficiency increase
operation: **20%**

Project duration reduced by
up to **20%**

Control cabinet wiring:
50%
less effort based on 3D
engineering and the digital twin

Join us on our journey into the future!

Smart

From planning to operation:
We offer intelligent, innovative and networked solutions throughout the entire value chain.

Engineering

From standardized article data to the complete digital twin:
We offer solutions for end-to-end and efficient engineering.

And

From machine builders over panel builders to external service providers:
We offer all those involved a collaborative access to the digital data to accelerate their processes.

Production

From hand tools to fully automated systems:
We offer the right solution for every step of your production.



Thank you for your time!

Please visit our website for further details:

SmartEngineeringAndProduction.com



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Welcome to

EPLAN

PROCESS CONSULTING

ENGINEERING SOFTWARE

IMPLEMENTATION

GLOBAL SUPPORT

Maritime

Energy

Building Technology

Panel and Switchgear Building

Automotive

Industrial Automation

Food and Beverage

Machine Building

Process Industry

At home in
your industry

Setting Standards **since 1984**

Family owned as a company of
Friedhelm Loh Group

50

Countries served

1,600

Colleagues

73,100

Customers

525,000

Active users



Eplan in **Slovenia**

Setting Standards since 2004

4

Countries served

4

Colleagues

~500

Customers

1.500

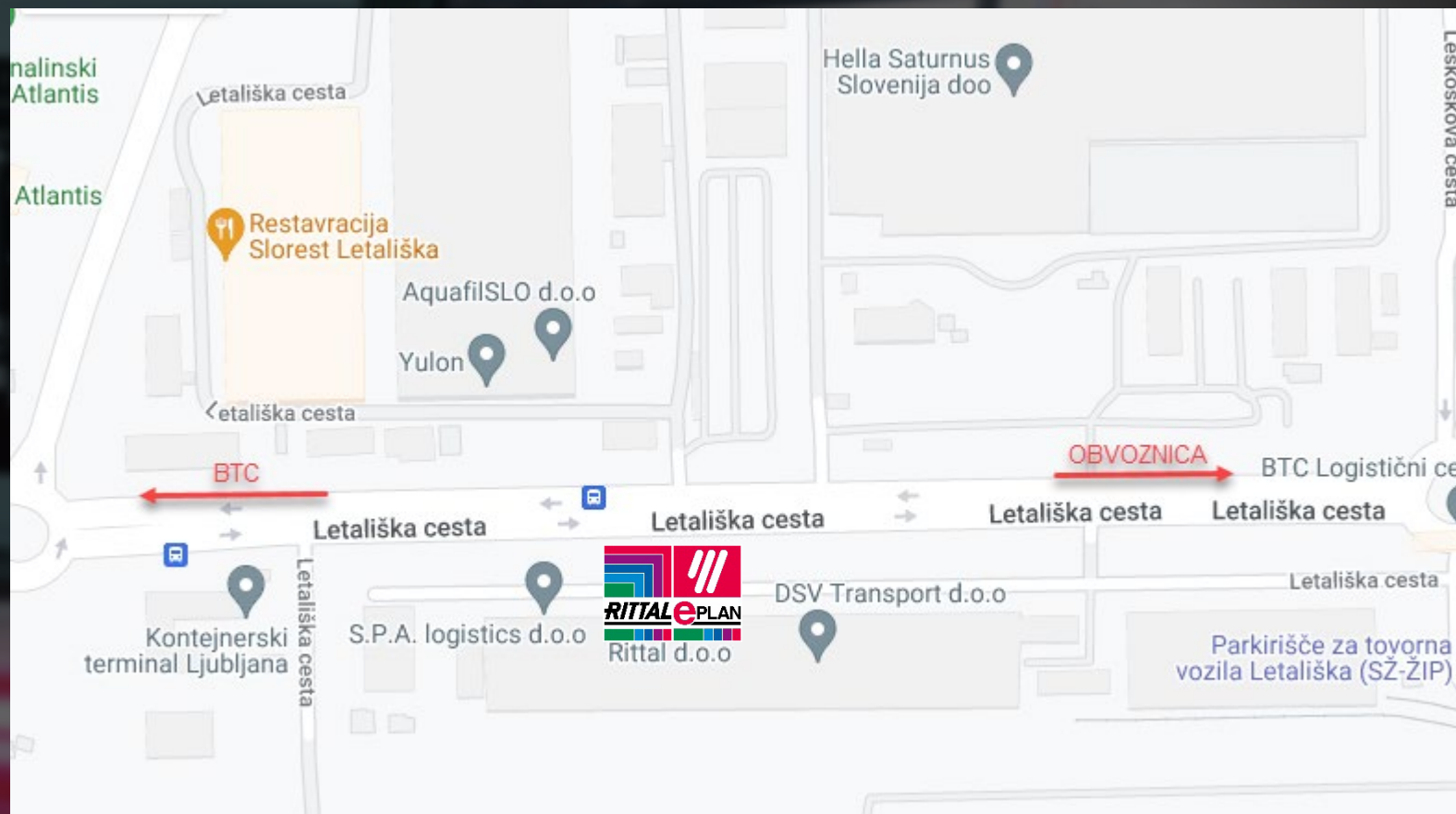
Active users



Eplan in **Slovenia**

Setting Standards since 2004

- Actively present on Slovenian market since 2004
- From 2024 to 2022 partnership with a distributor
- From 2022 to present represented directly via EPLAN GmbH AT
- Shared office with Rittal d.o.o. (Letališka cesta 16, Ljubljana)



Eplan in Slovenia

The Team

Representatives:

- Gašper Ambrož
 - (sales & consulting)
- Marko Repič
 - (sales)
- David Nemec
 - (technical support & training)
- Lara Gorjup
 - (sales & marketing assistant)



Eplan in **Slovenia** & beyond

Countries in region:

- Slovenia (Local office)
- North Macedonia
- Albania
- Kosovo

Services:

- Sales
- Training
- Consulting
- Technical support



Eplan Partner Network

Integrated. Across partner solutions.



Eplan Education

Empowering the next generation of engineers

> 2,000

Institutions worldwide
teach Eplan

120,000

Active students learning
with Eplan

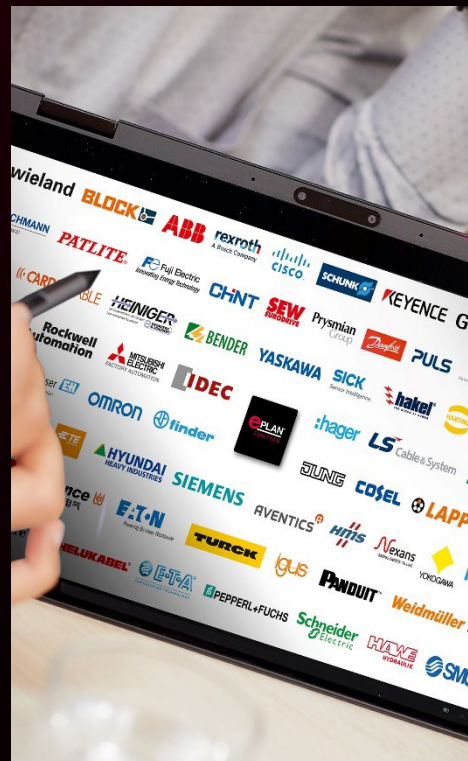
30,000

New students
every year

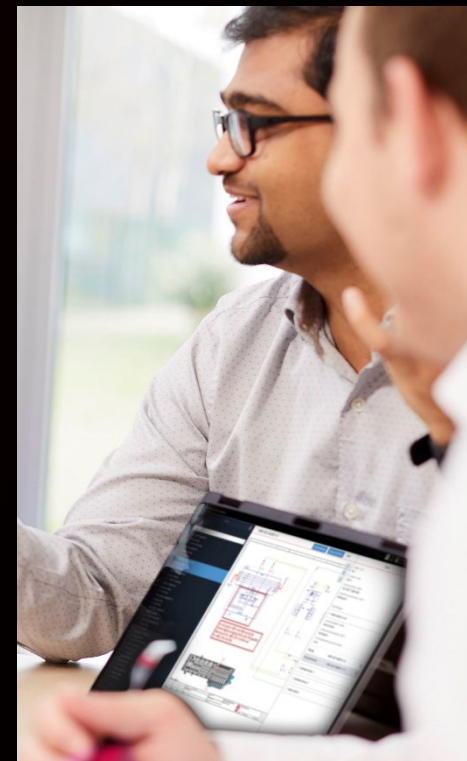
More than **just software**



Software



Data



Services

Eplan Platform

The Benchmark



Eplan Electric P8

More than **ECAD**

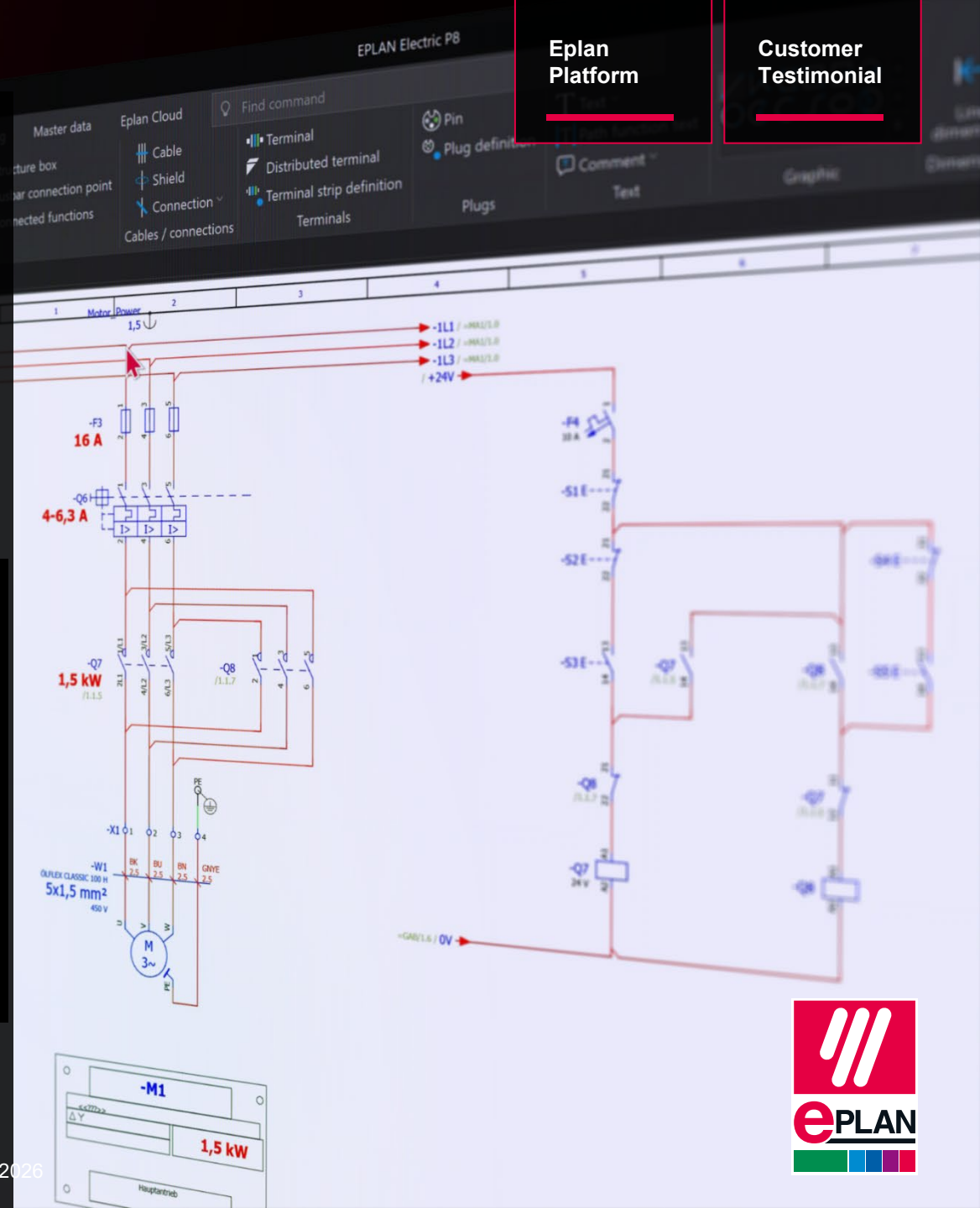
- Your no. 1 software for electrical engineering and schematic design
- Create schematics and documentation in less time with intelligent automation.
- Pre-built templates and standards tailored to your industry.

Eplan Electric P8
Premium

Eplan Electric P8
Pro

Eplan Electric P8
Advanced

Eplan Electric P8
Basic



Eplan
Platform

Customer
Testimonial



Eplan Pro Panel



Advancing to 3D layout

- Design a digital twin of your control cabinet or switchgear
- Integrated Process from Engineering to Production
- Embedded Rittal hardware and automation



Eplan
Platform

Customer
Testimonial

Eplan Preplanning

Technical Planning goes **digital**

- Create plant structures, P&IDs and control diagrams
- Collect and manage basic information early in the engineering process
- Continuous data flow between basic and detailed engineering



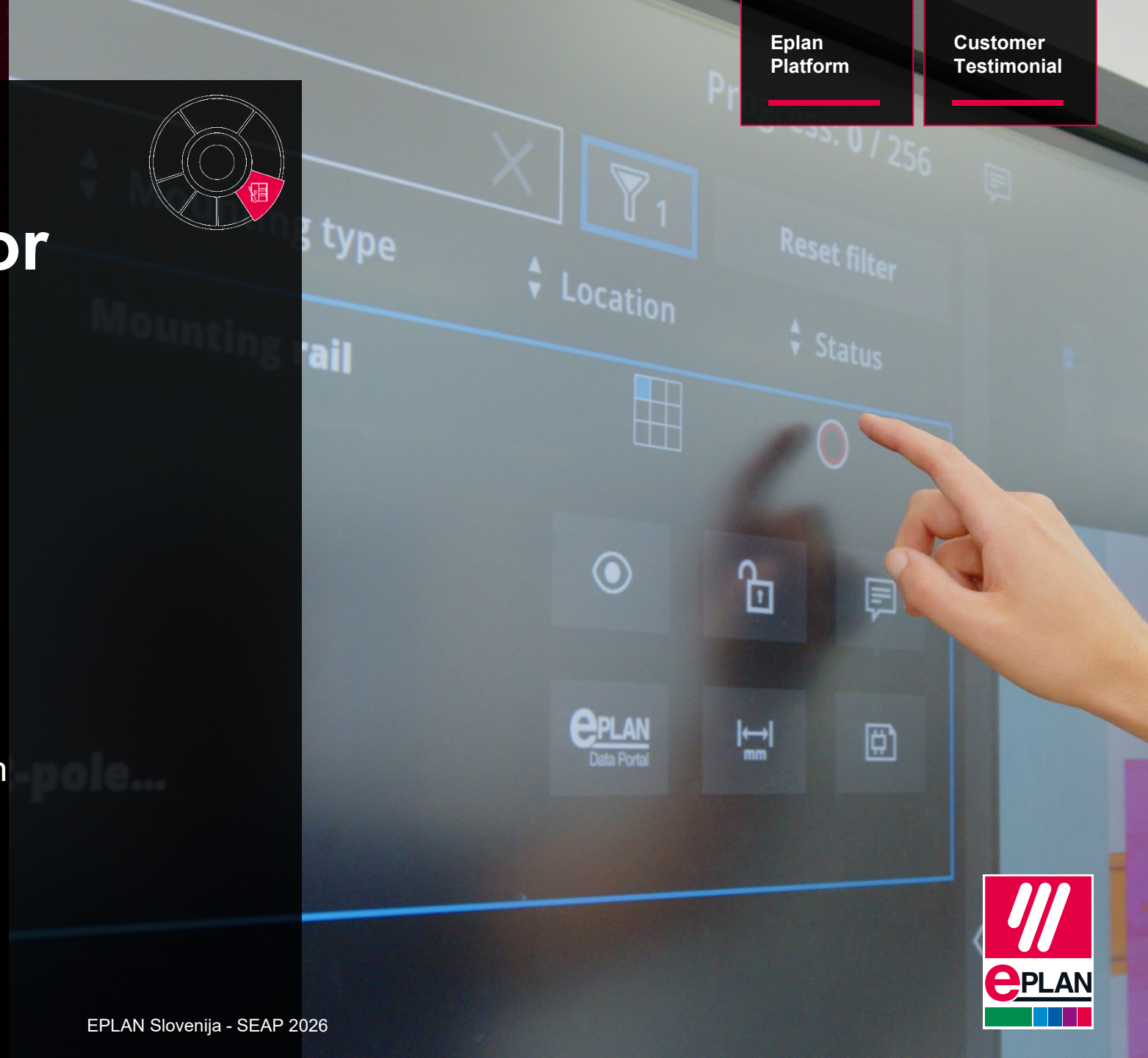
Eplan
Platform

Customer
Testimonial

Eplan Smart Production

Digital assistant for panel **production**

- Support your team in panel production and bridge skill gaps
- Guided step by step process for mounting and wiring
- Software based collaboration between engineering and production

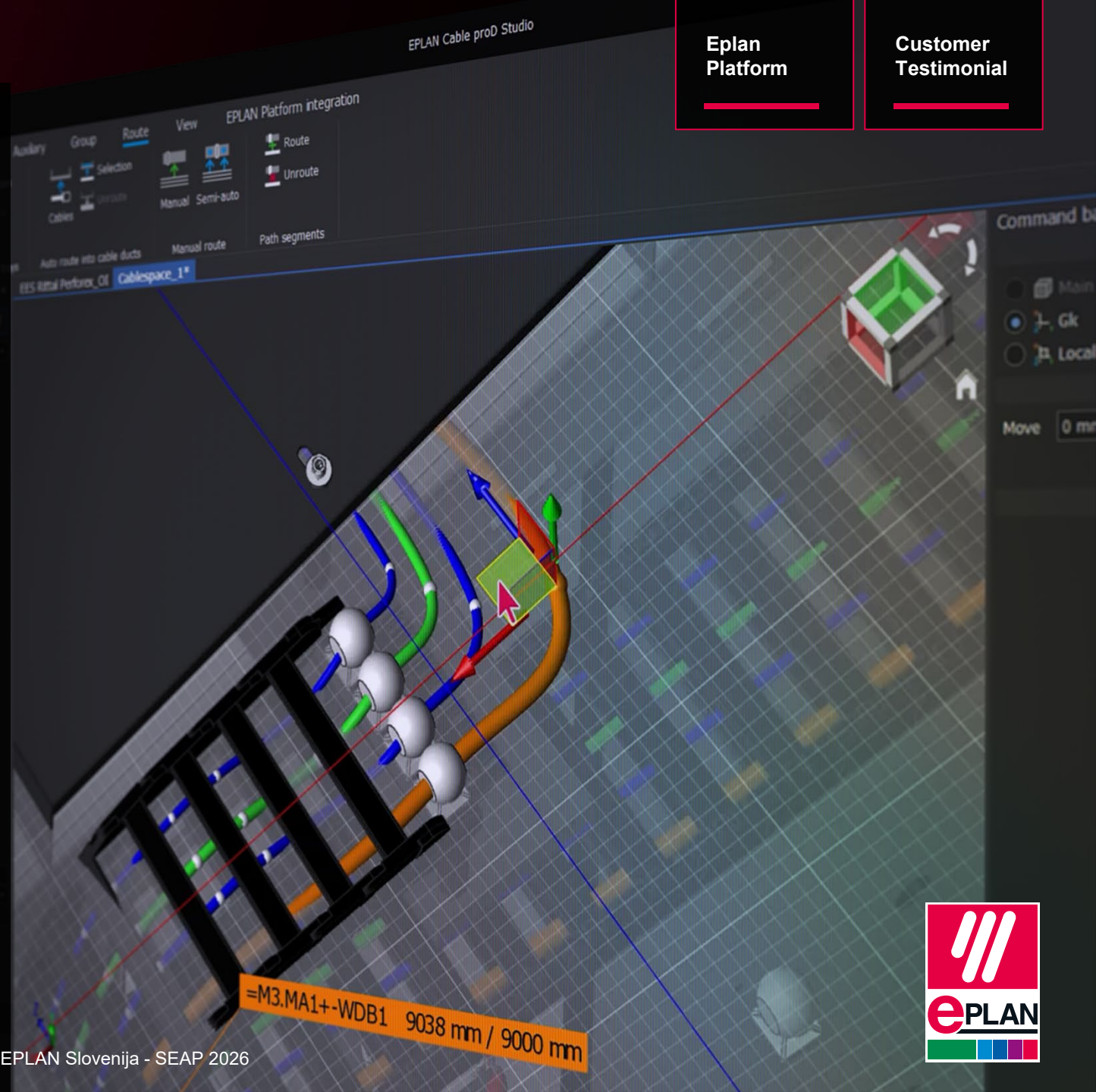


Eplan Cable ProD



Plug and play machine cabling

- Easy routing of cables in a 3D environment
- Integrates with all known MCAD systems
- Less cable waste with prefabricated cables



Eplan
Platform

Customer
Testimonial



Eplan Harness ProD

Intuitive wire harness design

- 3D design of wire harnesses with routing & nail board views
- Shorter time to market with a digital twin
- Integrates with all known MCAD systems



Eplan
Platform

Customer
Testimonial



Eplan Engineering Configuration

Automated engineering

- Map your product portfolio into a modular configurator
- Automatic generation of all engineering documentation
- Streamlined end to end order fulfilment process



Eplan
Platform

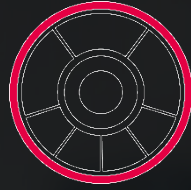
Customer
Testimonial



Eplan Collaboration Apps

Real-Time cloud collaboration

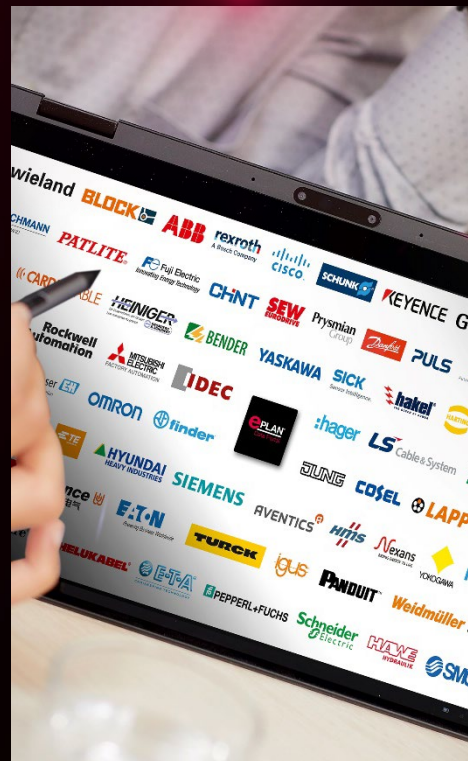
- Securely store, share and view Eplan projects
- Manage device data, share with colleagues and partners
- Freedom across systems, disciplines and geographic boundaries



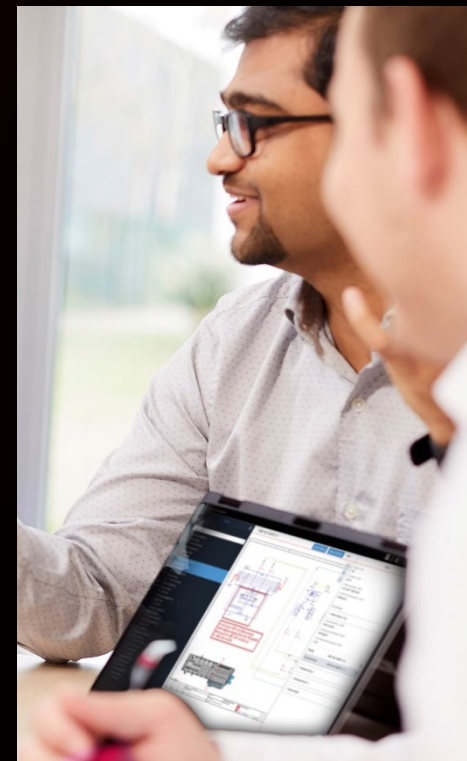
More than **just software**



Software



Data

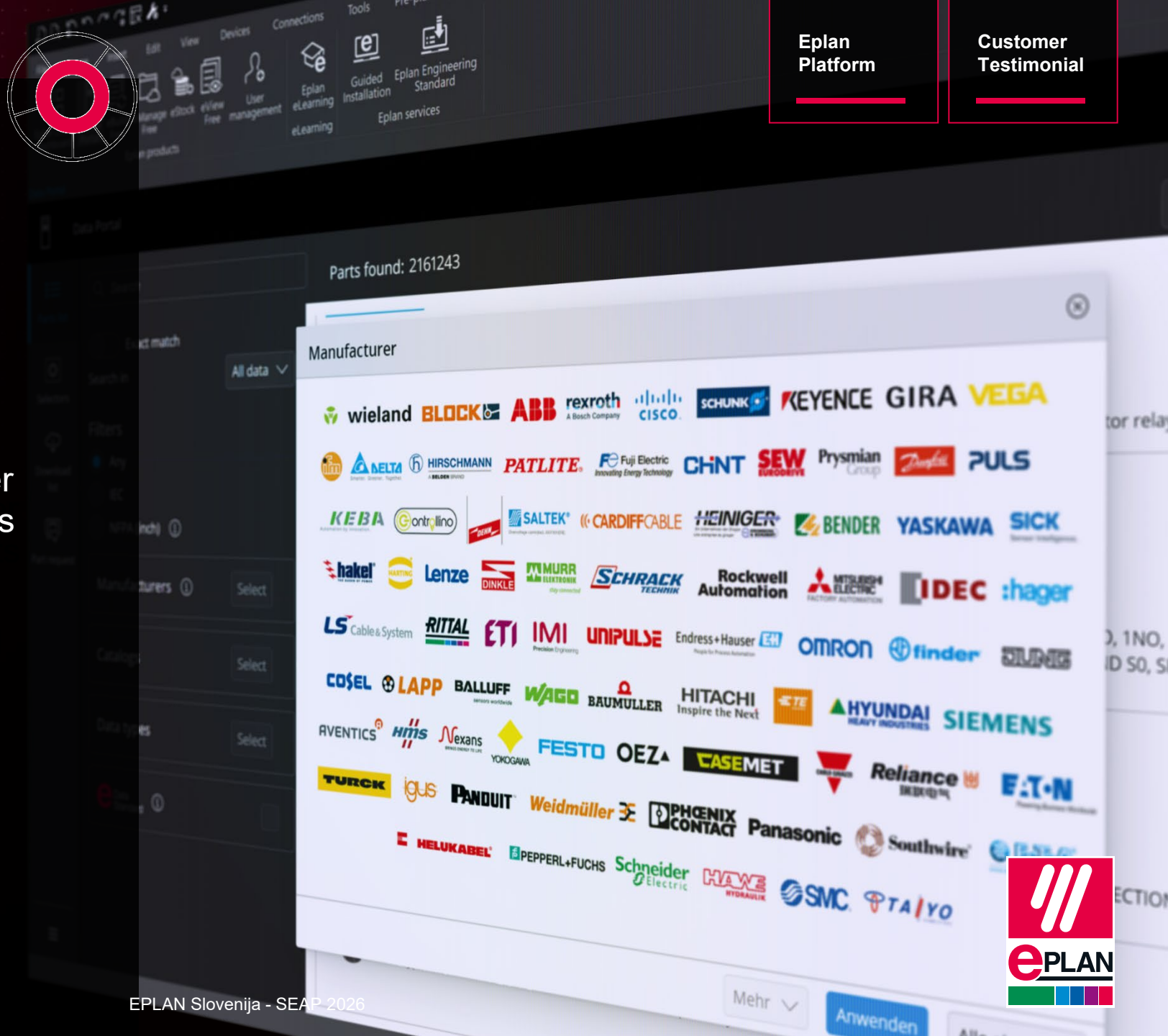


Services

Eplan Data Portal

More than **500** manufacturers

- More than 2,1 million static components, resulting in well over 4 million configurable components
- Setting the standard for electrical and automation components
- Continuously growing



Eplan
Platform

Customer
Testimonial

Industry Packages

Ready-to-use engineering templates



Machine Building



**Panel and
Switchgear Building**



**Industrial
Automation**



Automotive



**Building
Technology**



Energy



**Food &
Beverage**



Maritime



**Process
Industry**

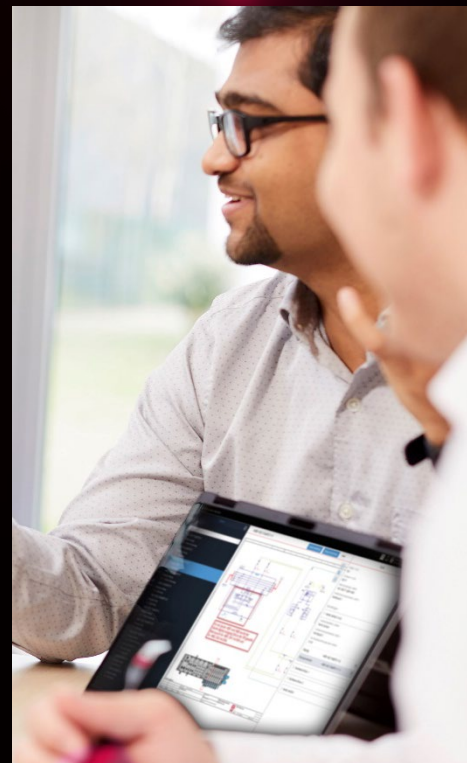
More than just software



Software



Data



Services

It is a **smooth start**

Digital Onboarding



Learn Eplan – at your own pace

Basic Onboarding



Guided implementation with Eplan experts

Extended Onboarding



Blending training and consulting

Project Onboarding



Roadmap for seamless implementation

Engineering Excellence, Empowered



Digital Services

- Cloud Services
- Learnings
- Guided Installations and more



Eplan Global Support

- Helpdesk with direct access to our experts
- Eplan Solution Center



Eplan Training Academy

- Online and On-Site Training Certified Institution
- 13.000 attendees per year
- Eplan Certified Engineer



Eplan Consulting

- Enablement
- Integrations
- Improve Engineering Methodology
- Software Development

The future is **AI-driven**

Eplan Copilot

Eplan verified AI
knowledge

Legacy Data Importer

Transform CAD based
electrical schematics into
an Eplan format

AI Agents for Engineering

Task execution for Eplan
and partners

Automated 3D Panel design

AI based creation of 3D
models

AI Quality Check

Advice and corrections for
your designs

Automated Generation of Project Data

Creation of Eplan schematics
and related documentation

Welcome to

EPLAN

PROCESS CONSULTING

ENGINEERING SOFTWARE

IMPLEMENTATION

GLOBAL SUPPORT

Smart Engineering and Production

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Rittal – The System.

Faster – better – everywhere.

DOBRODOŠLI V RITTAL

INDUSTRIJSKA OHIŠJA

ELEKTRIČNI RAZVODI

KLIMATIZACIJA

IT REŠITVE

PROGRAMI IN SERVIS

Predstavitev skupine Friedhelm Loh Group

Team RED



RITTAL

Svetovno vodilni proizvajalec industrijskih omar, rešitev za distribucijo električne energije, klimatizacijo in IT infrastrukturo.



EPLAN

ponuja programsko opremo in storitve za elektrotehnične, avtomatizacijske in mehatronske razvojne procese.



STAHL

je eden največjih neodvisnih centrov za obdelavo jekla.



LKH

imajo odlične rešitve za obdelavo in proizvodnjo plastičnih izdelkov.



CIDEON

Podjetje se ukvarja z digitalizacijo in optimizacijo inženirskih procesov.



12.600
zaposlenih



13
proizvodnih lokacij
po vsem svetu



393.000
licenc za programsko
opremo na trgu



3,1 milijarde
evrov
promet (2024)



15.000
ohišij na dan



2.000
patentov



95
Svetovnih podružnic



84.100
uporabnikov
programske opreme

INDUSTRIJSKA OHIŠJA

ELEKTRIČNI RAZVODI

KLIMATIZACIJA

IT REŠITVE

PROGRAMI IN SERVIS



Predstavitev podjetja Rittal

1961 – Rudolf Loh Elektrogerätebau

“Stikalna ohišja, na voljo takoj iz zaloge,”

1969 – **Rittal** (mesto **Rittershausen**, občina Dietzhölztal)

Rittal je na voljo po vsem svetu

9.600 zaposlenih

65 hčerinskih podjetij

10 proizvodnih obratov na treh celinah

15.000 stikalnih ohišij **dnevno**

240.000 hladilnih enot letno

35 + 13 Modifikacijskih centrov po svetu

Hitreje – bolje – kjerkoli.



1961
ustanovljeno



9.600
zaposlenih



65
Hčerinskih podjetij



10
proizvodnih obratov



15.000
ohišij na dan

INDUSTRIJSKA OHIŠJA

ELEKTRIČNI RAZVODI

KLIMATIZACIJA

IT REŠITVE

PROGRAMI IN SERVIS



Doma v 90 %
vseh panog

Pomorska industrija

Letalstvo

Železnica

Energetika

Proces

Hrana in pijača

Logistika

Avtomobilska
industrija

Infrastruktura/telekomunikacije

Strojništvo

Elektroenergetika in avtomatizacija

Prodajni program

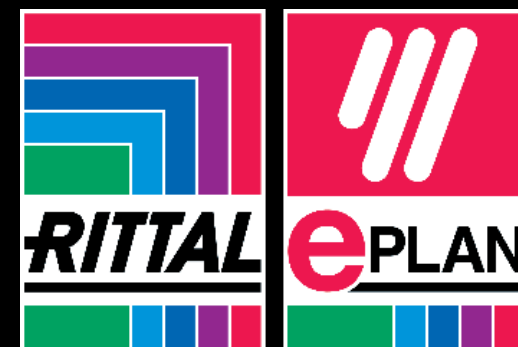
Rittal

1	Inženiring
2	Ohišja
3	Električni razvodi
4	Klimatizacija
5	Sistemi za avtomatizacijo
6	IT infrastruktura
7	Sistemiški dodatki
8	Programska oprema in storitve



Močna zaveznika: Rittal in EPLAN

Celovita digitalizacija z usposobljenimi
in izkušenimi partnerji



Prihranite čas in stroške ter se izognite napakam

Od inženiringa do nabave in od proizvodnje do obratovanja ohišja

1. Razvoj

BOLJ PRODUKTIVNO z digitalizacijo in izdelavo prototipov

2. Nabava

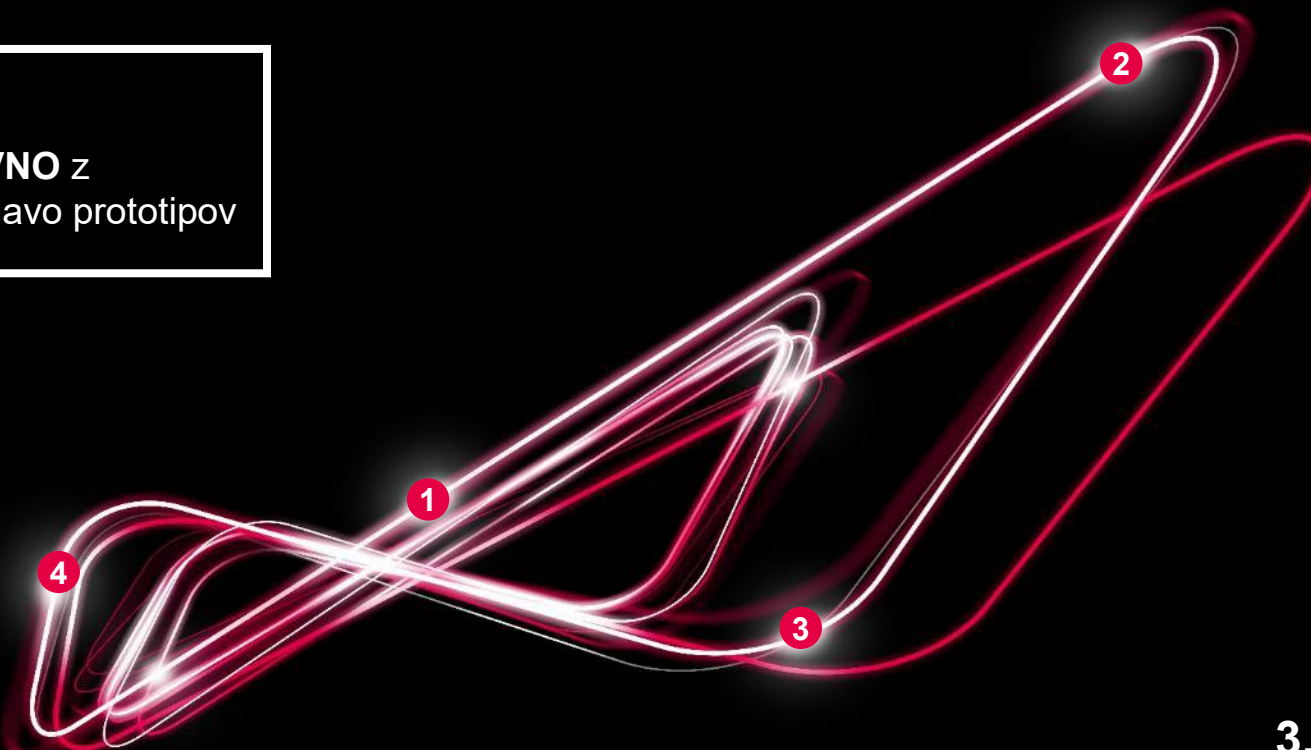
HITREJE z uporabo konfiguratorja in spletne trgovine

4. Obratovanje

BOLJ ZANESLJIVO s pametno, globalno storitvijo

3. Proizvodnja

BOLJE z industrijo 4.0 in avtomatiziranimi proizvodnimi procesi



Prodajni program

Rittal

1	Inženiring
2	Ohišja
3	Električni razvodi
4	Klimatizacija
5	Sistemi za avtomatizacijo
6	IT infrastruktura
7	Sistemiški dodatki
8	Programska oprema in storitve

Rittal prodajni program – mala in kompaktna ohišja

Mala ohišja v široki paleti variant: polikarbonatna ohišja PK, aluminijasta ohišja GA, mala ohišja KX, jeklena pločevina v različicah z ali brez uvedne plošče, e-boxi. Stenska ohišja ustrezajo najvišjim standardom za zaščito električnih komponent v aplikacijah z majhnimi krmilniki. Kategorija zaščite do IP66.



INDUSTRIJSKA OHIŠJA

ELEKTRIČNI RAZVODI

KLIMATIZACIJA

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Rittal prodajni program – sistemska ohišja

Sistemi ohišij VX25 ter sistemska ohišja SE imajo premišljeno zasnovan del okvirja. Notranja namestitve se lahko izvede na dveh montažnih nivojih, da se poveča izraba prostora znotraj ohišja. Sistem velikih ohišij VX25 se odlikuje tudi po popolnoma simetričnem delu okvirja in znatno zmanjšani zapletenosti s poenostavljeno, bolj dosledno tehnologijo povezovanja, ki ustreza vsem aplikacijam.



Rittal prodajni program – sistemska ohišja

Namenske izvedbe ohišij VX25;

- VX25 sistemska ohišja s steklenimi vrati
- VX25 sistemska ohišja za elektroniko
- VX25 sistemske ohišje IP66/NEMA 4
- VX25 sistemske modularne ohišje
- VX25 sistemske varovalčno stikalne ohišje
- VX25 sistemske razdelilne ohišje
- VX25 sistemske EMC ohišje



Rittal prodajni program – pulti in PC ohišja

Visokokakovostni konzolni sistemi, industrijska ohišja za računalnike in delovne postaje, zasnovane za zahtevna industrijska okolja. Njihovi modularni sistemi omogočajo prilagodljivost, enostavno integracijo dodatkov ter visoko stopnjo zaščite pred zunanjimi vplivi. Industrijske delovne postaje in računalniška ohišja zagotavljajo varno in učinkovito uporabo strojne opreme v različnih aplikacijah.



INDUSTRIJSKA OHIŠJA

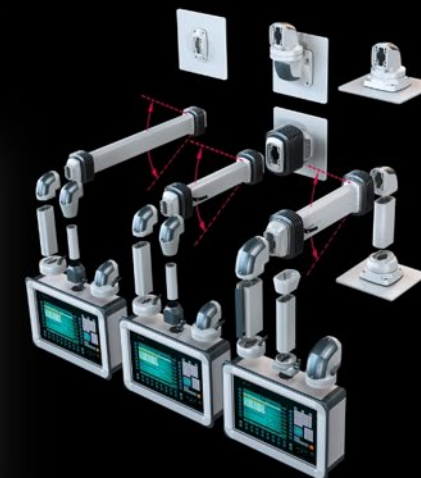
ELEKTRIČNI RAZVODI

KLIMATIZACIJA

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PROGRAMI IN SERVIS

Rittal prodajni program – nosilne roke in komandna ohišja



INDUSTRIJSKA OHIŠJA

ELEKTRIČNI RAZVODI

KLIMATIZACIJA

IT REŠITVE

PROGRAMI IN SERVIS

Rittal prodajni program – ohišja iz nerjavne pločevine

Ohišja iz nerjavne pločevine

Material: nerjavna pločevina 1.4301(AISI304) in 1.4404(AISI316L)

- Mala KX priključna ohišja brez prirobnicnih plošč
- Mala E-Box ohišja z vrati, KX Bus ohišja
- AX kompaktna ohišja
- VX 25 velika sistemska ohišja in izvedba IP 66/NEMA4X
- VX SE prostostoječa ohišja in izvedba IP 66/NEMA4X
- Pulti, PC ohišja, komandna ohišja

IP 66 po IEC 60529, NEMA 4

odobritve: UL, cUL



Rittal prodajni program – posebne izvedbe

Hygienic Design

Varnejši in čistejši z ohišji Hygienic Design, zasnovanimi posebej za uporabo v industriji hrane in pijač. Majhna in kompaktna ohišja, velika ohišja in dodatki iz nerjavečega jekla v različicah Hygienic Design.



Ex enclosures

Ohišja iz nerjavečega jekla in plastike, idealna za uporabo v kemični in petrokemični industriji ter za instalacije na morju.



Notranja montaža za potresno ogrožena območja

Dodatki za sistemska ohišja za uporabo v potresnih conah 1, 2, 3 in/ali 4 do Telcordia GR 63-CORE.



Ohišja za zunanjo uporabo

CS Toptec ohišja

8 variant, dvostensko ohišje, Aluminij AlMg3 / AISI 304

Novo - CS Toptec BAYABLE

13 variant, ohišja za povezovanje v sklope

MFC multifunkcijska ohišja

projektno po naročilu

CS Basic ohišja

enostenska ohišja, Aluminij AlMg3

Ohišje v ohišju AX

okvir AlMg3 za vgradnjo AX ohišja

AX Plastic

ohišja iz poliestra ojačanega s steklenimi vlakni



Nove dimenzije ohišij AX

Široka ohišja za aplikacije v strojogradnji ali logistiki. (Š x V x G)

1094.000 800 x 400 x 250mm
1095.000 800 x 400 x 300mm
1096.000 1000 x 600 x 300mm
1112.000 1200 x 400 x 300mm
1113.000 1200 x 600 x 300mm



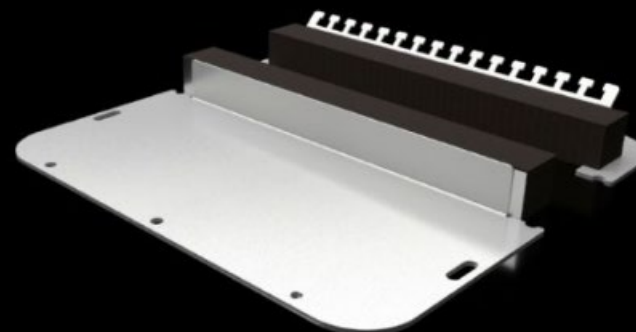
Novo - Zaščitna streha za VX in AX

Zanesljivo ščiti pred stoječo vlago in drugimi nečistočami



Novo - Uvod in pritrditev kablov za

Dvodelna tesnilna plošča s trakom iz penaste gume za uvod in pritrditev kablov za AX



IT infrastruktura – kompaktna ohišja

Novo - 3 delna stenska mrežna ohišja

Material: jeklena pločevina, 3 mm varnostno steklo

23 dimenzijskih različic; 3, 6, 9, 12, 15 in 21 HE višine

Dimenzije: od 600 x 212 x 373 mm do 600 x 1012 x 673 mm

Barva: RAL 7035, okvir vrat RAL 7015

Stopnja zaščite do IP 55 po IEC 60 529

Izvedba z montažno ploščo, s kabelsko letvijo, z režami za pasivno hlajenje

Odobritve: UL, cUL

Sistemiški dodatki: ventilator, ozemljitveni komplet, ventilatorji, urejevalnik kablov, stenska pritrdila, zapirala, slepe čelne plošče



Prodajni program

Rittal

1	Inženiring
2	Ohišja
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Zbiralčni sistemi

RiLine Compact do 160A



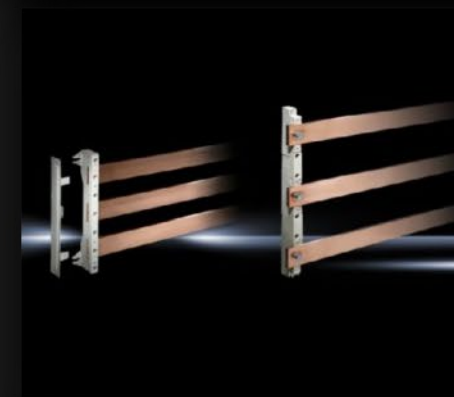
Mini-PLS do 250A



RiLine60 do 800A / 1600A



Ri4Power 185mm do 2100A



RiLineX

THE POWER PLATFORM



- 50% hitrejša sestava
- 30% hitrejše projektiranje
- IEC 61439 in UL 508A
- Zaščita IP 2XB (IP 4X)
- kratkostična zaščita do 65 kA
- Primerno za območja do 1000 V AC in 1500 V DC

Novo - Ri4Power v kombinaciji z novim sistemom RiLineX odpira povsem nove možnosti.

V odhodnem delu je mogoče kombinirati številne različne komponente – distributerje energije.

V ta namen so v tem delu ustvarjeni ločeni oddelki, ki so med seboj zaščiteni.



RiLineX

THE POWER PLATFORM

- 50% hitrejša sestava
- 30% hitrejša projektiranje
- IEC 61439 in UL 508A
- Zaščita IP 2XB (IP 4X)
- kratkostična zaščita do 52.5 kA
- Primerno za območja do 1000 V AC in 1500 V DC

Električni razvodi

VX25 Ri4Power

- Modularna ohišja
- Varovalčno-stikalna odklopna ohišja
- Ri4Power zbiralni sistem (185 mm)
- Zbiralni sistem (100/185/150 mm)
- Flat PLS zbiralni sistem
- Maxi PLS zbiralni sistem
- Sistemska zaščita zbiralk
- Pregradne forme 1-4

Novo - Ri4Power Kombifeld

- Testirani sistemi VX25, 2370A 50Hz, 400VAC

Novo - Ri4Power ISV distribucijsko ohišje

- Ohišja VX in AX
- Design certificate DIN EN 61 439-1/-2.

Novo - VX ESS – Energy Storage Systems

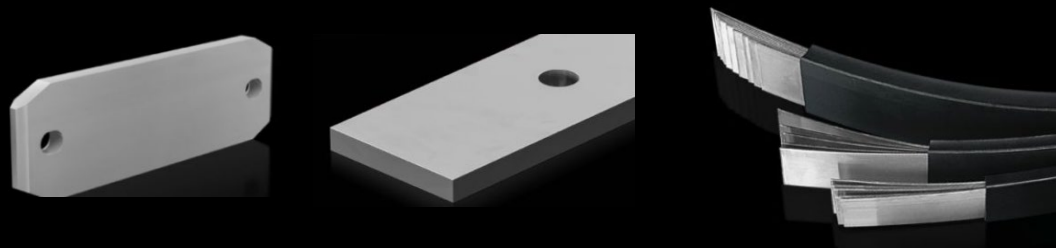
- VX ohišja z policami in drsniki za baterijske sklope



Električni razvodi

Novo - Pocinkane zbiralke

- Ploščate zbiralke, pocinkana
- Povezovalni konektor
- Ploščata zbiralk E-Cu, z utori, pocinkana
- PE/PEN zbirna lettev E-Cu, pocinkana
- Laminirana bakrena palica, pocinkana 20x10 (585 A)



Novo – Tračni sistem zbiralk

Možnost povezovanja z Ri4Power, prilagojeno za Schneider Electric in ABH Stromschienen, testirano do 6300 A



Prodajni program

Rittal

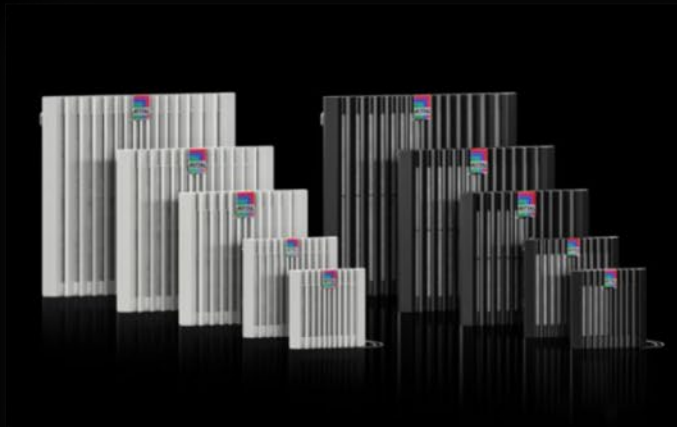
1	Inženiring
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Klimatizacija – Ambientalno ogrevanje in hlajenje

Grelci 10 - 800W



Ventilatorji 20-867 m³/h



Upravljanje Termostat, higrostat IoT



Termoelektrični grelec 80/80W



Strešni ventilatorji 500-965 m³/h



Toplotni izmenjevalci 17-90 W/K



Blue e+ ventilatorske enote s filtrom

Višja moč hlajenja ohišja

Rittal **Blue e+ ventilatorske enote s filtrom** vam pomagajo izpolniti cilje klimatizacije in hkrati znižujejo stroške porabe energije. **40% večji pretok zraka** novih ventilatorskih enot z **nagubanim filtrom** – ni primerljiv z nobeno drugo enoto z običajnimi filtri na trgu.



Samodejno čiščenje filtra se aktivira večkrat na dan: smer zračnega toka se za kratek čas obrne, kar omogoči, da se filter “izpiha”. S tem se odstranijo drobni prašni delci, ujeti v filtru. **To podaljša interval menjave filtra za 20%, servisni stroški pa so zato ustrezno nižji.**

Klimatizacija – Klimatske naprave

TopTherm stenska 300 - 2500W



Blue e+ stenska 300 – 5500W



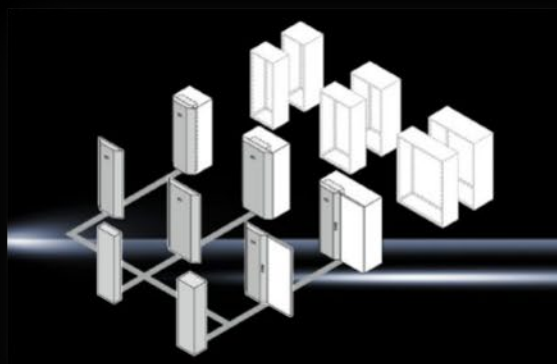
Strešne klime 500 - 4500W



Namenske klimatske naprave



Modularna 1500 - 2500 W



Sistemiški dodatki



Klimatizacija

Blue e+ za stensko in strešno montažo

- Hladilni učinek od 300-1000 in 1600 do 5800 W
- Prihranek do 75% zaradi uporabe inovativne hibridne zasnove
- Daljši servisni interval
- Priključna napetost 110-240V, 1~,50/60, 380-480V, 3~,50/60
- Ohišje v jekleni pločevini RAL 7035 ali v nerjavni pločevini IP55
- Hitrostno regulirani ventilatorji
- Delovno območje -20° C...+60° C
- Nastavljivo območje hlajenja +20° C...+50° C
- Hladilno sredstvo R-513A, **R-1234yf**
- Brezžična NFC povezljivost

Ø 75 %

Povprečni prihranek energije in zmanjšan ogljični odtis



R-1234yf 
– The smart choice
for **efficient, reliable,**
eco-conscious cooling.

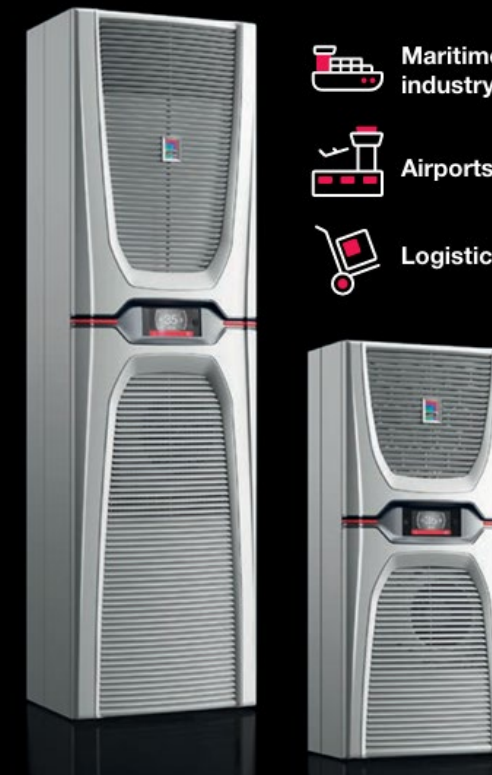


Novo - Blue e+ Dynamic

Ta serija hladilnih enot je bila zasnovana za uporabo v dinamičnih sistemih.

Preizkušene so v skladu s standardom DNV-CG-0339, zato so še posebej primerne za uporabo na ladjah (npr. v ohišjih v strojnicah). Zaradi izjemno stabilne mehanske konstrukcije so te hladilne enote primerne za vse aplikacije, ki povzročajo visoke vibracijske obremenitve naprave, na primer v pristaniščih (žerjavi), logistiki (sistemi za skladiščenje in iz skladiščenje) in na letališčih (sistemi za ravnanje s prtljago).

R-1234yf 
– The smart choice
for **efficient, reliable,**
eco-conscious cooling.



Klimatizacija – Vodno hlajenje

Učinkovito tekočinsko hlajenje se lahko uporablja v vseh situacijah, kjer je potrebna visoka hladilna obremenitev, kot je procesno in strojno hlajenje ali pri odvajanju toplotne izgube iz ohišij prek toplotnih izmenjevalcev zrak/voda.



Zrak/voda 300 - 7000W



LCP hladilna enota 10kW



Chillerji 1kW – 48kW



Rittal 360° storitev

Zanesljiva – hitra – globalna

Podpora kadarkoli in kjerkoli? Rittal 360° Service je tu za vas!



Vse iz enega vira

- Celovita strokovna podpora – od namestitve do poprodajnih storitev
- Strokovno svetovanje o povečanju učinkovitosti in modernizaciji



Strokovno znanje proizvajalca

- Usposobljeni servisni tehniki za vaše industrijske in IT aplikacije
- Zelo visoka stopnja uspešnosti pri odpravljanju napak že ob prvem poskusu



Na lokaciji po vsem svetu

- Več kot 1000 servisnih strokovnjakov na 150 servisnih lokacijah po vsem svetu
- Mreža servisnih tehnikov pokriva nemoteno poslovanje v Sloveniji
- Servisiranje in servis nadomestnih delov po vsem svetu

Prodajni program

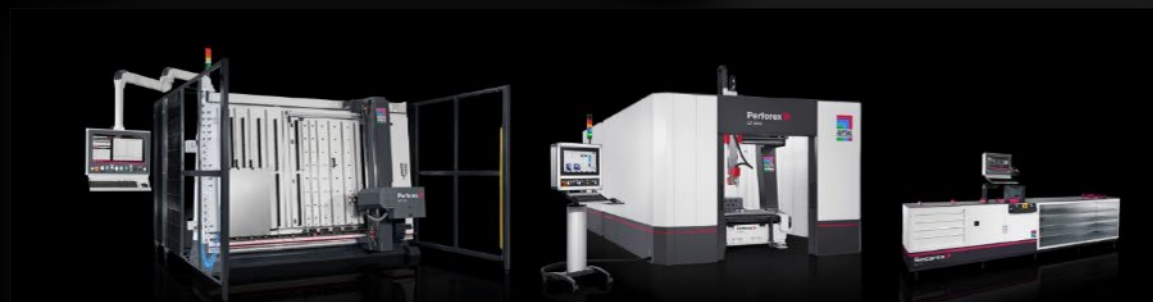
Rittal

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Orodja Rittal Automation Systems

Rittal RAS avtomaska in ročna orodja

- Za rezanje in krivljenje zbiralk
- Izdelovanje lukenj, izrezov, navojev
- Rezanje kabelskih kanalov in DIN letev
- Označevanje žic
- Stiskanje kabelskih tulcev na žice
- Odstranjevanje kabelske izolacije
- Ročno orodje za elektrotehniko
- Priprave za transport in montažo



Rittal Automation Systems – Obdelava bakra



Cutting Terminal CT M3

Hitro in natančno rezanje kanalov in montažnih letev

Punching Terminal PT S4

Gladka in zanesljiva obdelava bakra



EHRT
Rittal Automation Systems



Bending Terminal EB 20

Učinkovito električno krivljenje bakra

EB40 / EB40 E

Prodajni program

Rittal

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IT infrastruktura

Kompaktna ohišja



VerticalBox

Za mala omrežja, kot stenski, pod-pultni ali namizni razdelilnik



Optični delilnik

Mali optični delilnik z IP66 zaščito



FlatBox

Optimalen dostop in fleksibilnost.



3-delno ohišje EL

Dostopnost iz vseh smeri, veliko montažnih opcij, visoka zaščita



AX IT

IP66 z vsemi montažnimi opcijami AX ohišij

IT infrastruktura – Velika delilna ohišja in oprema

TX CableNet



VX IT kabelsko ohišje



Delilna stojala



IT Cooling



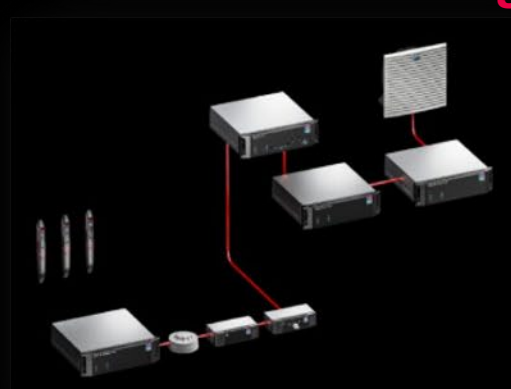
PDU letve



PSM letve



CMC III - IT Monitoring



IT Security



IT infrastruktura – Velika delilna ohišja



VX IT	VX IT	VX IT	VX IT	VX IT	VX IT	VX IT	VX IT	VX IT
Perforirana	Perforirana	Perforirana	Steklena	Steklena	Steklena	Steklena	Steklena	Steklena
Standard	<i>Dynamic</i>	Pred-	Standard	<i>Dynamic</i>	IP55	Pred-	Pred-	IP55
		konfigurirano			Standard	konfigurirano	konfigurirano	Prazno
							vrtljivi okvir	

IT infrastruktura – Rack ohišja

VX IT standardno ohišje z ventilacijskimi vrati

Material: jeklena pločevina, aluminij

Variante: 53XX.11X, 15 različne dimenzije

Dimenzije: od 800 x 1200 x 800 mm, do 800 x 2200 x 1200 mm

Barva: okvir in zadnja vrata RAL 7035, 19" nosilci RAL 9005

85% prepustnost zraka skozi vratno perforacijo

Enokrilna sprednja vrata, dvokrilna zadnja vrata

Nosilnost 15000 N, 12000 N po UL 2416, 10000 N na kolesih

Odobritve: UL, cUL

Več delna streha v dveh izvedbah

Sistemske dodatke: bočne stranice, modularno dno



IT infrastruktura – Rack ohišja

VX IT standardno ohišje s steklenimi vrati

Material: jeklena pločevina, aluminij, 3 mm varnostno steklo

Variante: 53XX.12X, 17 različnih dimenzij

Dimenzije: od 600 x 800 x 800 mm, do 800 x 2200 x 1000 mm

Barva: okvir in zadnja vrata RAL 7035, 19" nosilci RAL 9005

Steklena sprednja vrata, enokrilna ali dvokrilna zadnja vrata

Nosilnost 15000 N, 12000 N po UL 2416, 10000 N na kolesih

Odobritve: UL, cUL

Več delna streha v dveh izvedbah

Sistemiški dodatki: bočne stranice, modularno dno



Rittal prodajni program – IT infrastruktura

PDU napajalne razdelilne letve

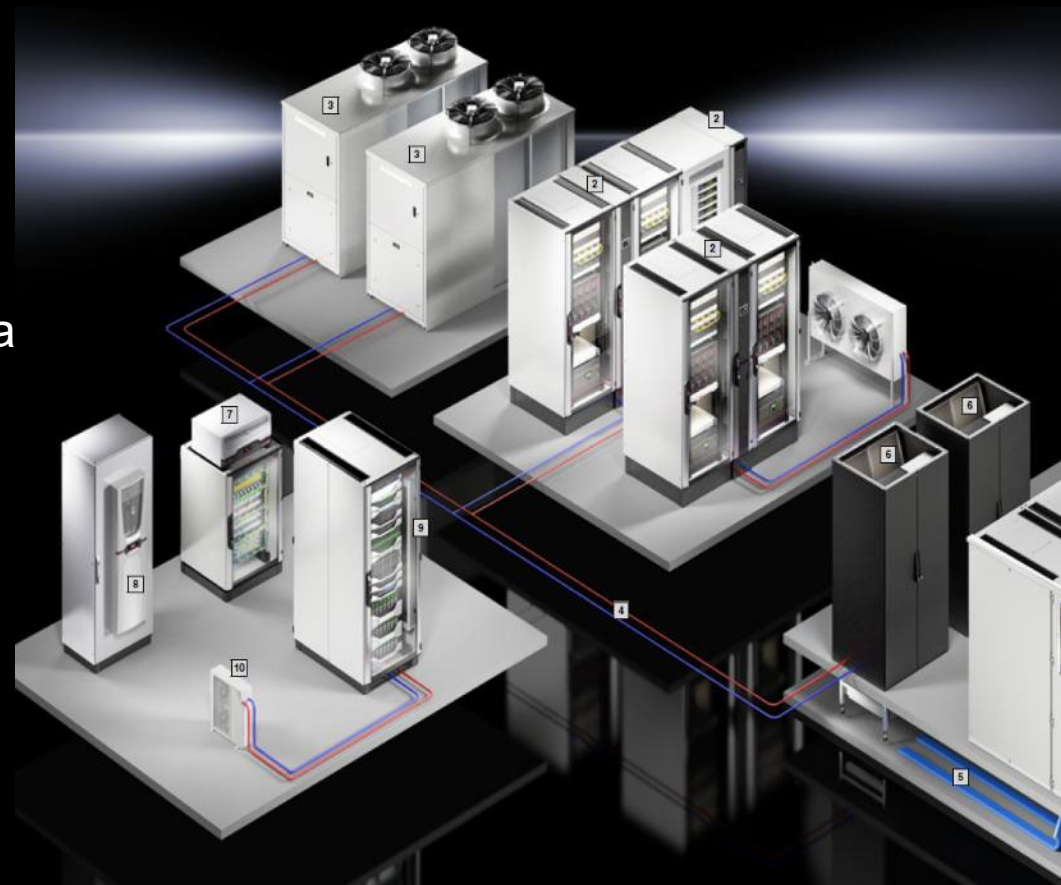
- Eno fazna in tri fazna izvedba
- 16 ali 32 A po fazi
- Izhodna moč od 3,7 do 22 kW
- Vhodna vtičnica IEC C20 ali CEE
- Izhodne vtičnice IEC C13 od 4 do 48
- Izhodne vtičnice IEC C19 od 1 do 12
- Osnovna izvedba
- Izvedba z meritvami po fazah, po izhodni vtičnici
- Izvedba z izklopom izhodnih vtičnic
- Dolžina PDU letve od 450 do 2095 mm
- UK izvedba
- Združljivo z VX IT ohišji



Rittal prodajni program – IT infrastruktura

IT hlajenje

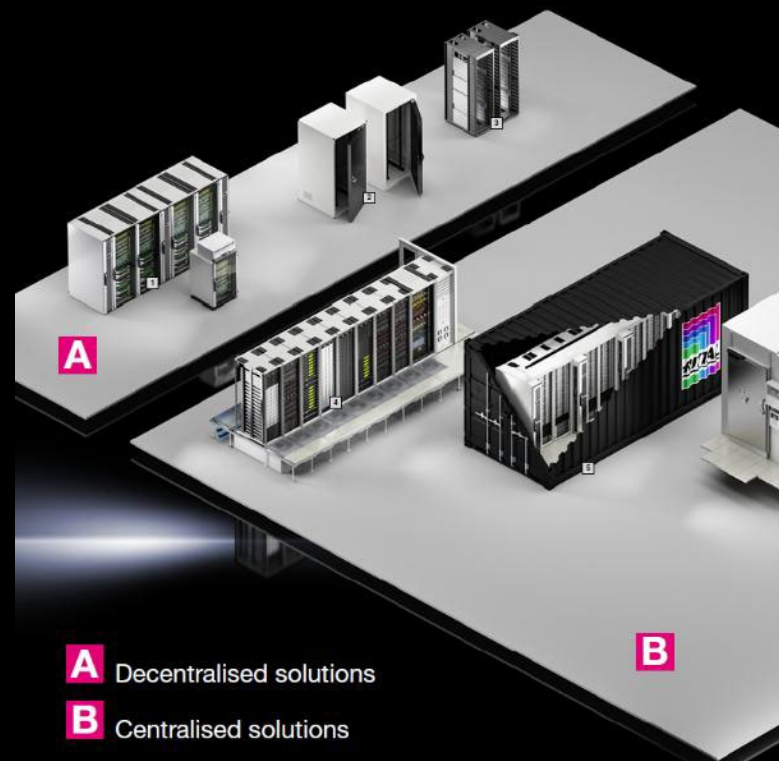
- IT klimatske naprave Blue e+ IT
- CW LCU klimatska naprava enojna
- CW LCP klimatska naprava RACK in INLINE izvedba
- Hladni koridor
- IT ventilatorske enote
- CRAC hladilni sistemi
- IT hladilne enote za hlajenje hladilne tekočine
- Hladilne naprave za velike podatkovne centre



Rittal prodajni program – IT infrastruktura

IT varnostne rešitve

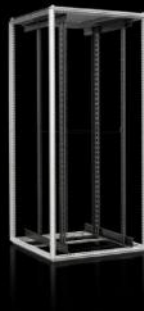
- Edge robni podatkovni centri
- MDC mikro podatkovni centri – varnostni sefi
- RiMatrix S
- Podatkovni center v kontejnerju
- Varnostne sobe
- OCP ohišja
- Kolokacijska ohišja
- Programska oprema za IT infrastrukturo



INDUSTRIJSKA OHIŠJA



ELEKTRIČNI RAZVODI



KLIMATIZACIJA



IT REŠITVE



PROGRAMI IN SERVIS

Prodajni program

Rittal

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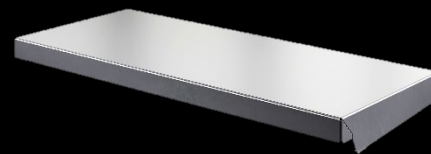
Sistemiški dodatki



180° tečaji



Signalni stebri



Zaščitna streha za AX



AX globinska letev



Ozemljitvene trakovi



Vratni zadrževalnik



LED sistemski svetilke



Notranja oprema

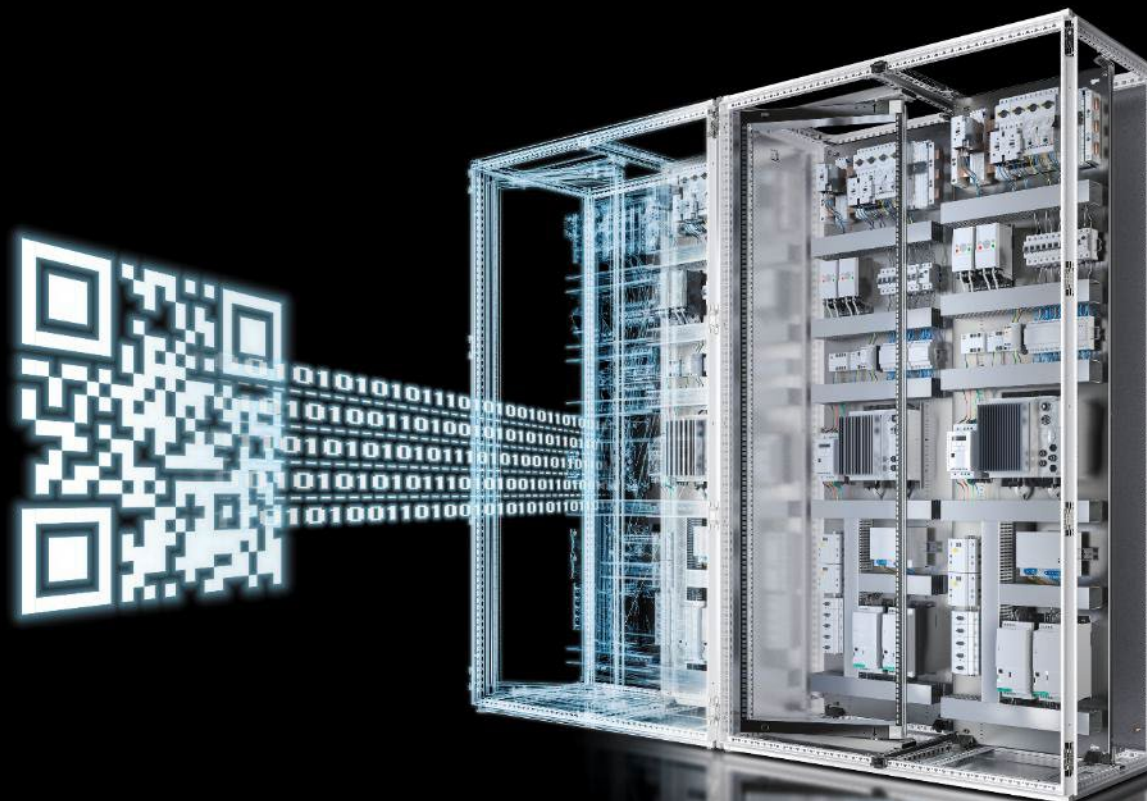
Različice vrat (Door variants)



Prodajni program

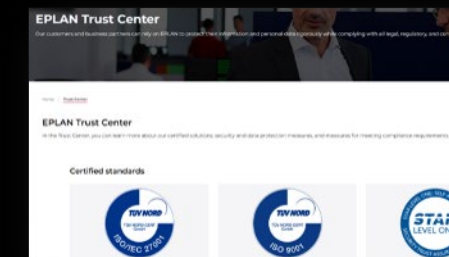
Rittal

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Rittal ePOCKET digitalni žep za projektno dokumentacijo

Digitalni dom avtomatizacijskih tehnologij



Uvod – Žep za projektno dokumentacijo

Rittal ePOCKET

Kaj je žep za projektno dokumentacijo

- Popolna dokumentacija stroja ali naprave
- Vsebuje dokumente kot so:
 - Vezalna shema
 - Navodila za uporabo
 - Vzdrževalna navodila itd.
- Dokumentacija mora biti ob zagonu predana upravljalcu (obvezna zakonska dokumentacija)
- Namesti se jo v eno od elektro omar stroja ali naprave za hiter dostop v primeru servisiranja



Enostavno konfiguriranje. Z RiPanel konfiguratorjem.

Funkcionalni obseg RiPanel konfiguratorja



1. Izbira systemskega ohišja

Prostostoječa ohišja, povezljiva ohišja, različice ohišij

2. Izbira sistemskih dodatkov

Preverjanje izbire, izbira dodatne opreme brez napak z neposredno postavitvijo v 3D izris

3. Dodajanje izrezov

Možne so standardne geometrije, v naprej določeni izrezi in uvoz izrezov po meri uporabnika izrisanih v CAD okolju

4. Generiranje tehničnih podatkov in zahtevka za naročilo

Velik prihranek časa zaradi neposrednega posredovanja CAD podatkov z možnostjo neposredne priprave povpraševanja ali naročila

Enostavno konfiguriranje. Z RiPanel konfiguratorjem.

Vaše prednosti



Vaše prednosti pri uporabi RiPanel konfiguratorja

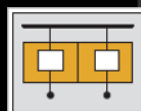
- **Prihranite čas** zaradi preproste konfiguracije in postopka naročanja
- **Nič več napak** pri izbiri sistemskih dodatkov ali možnosti obdelave
- **Lažje načrtovanje** zahvaljujoč takojšnjemu seznamu izdelkov in prikazu cen
- **Hitrejši proizvodnji procesi** preko integriranih vmesnikov za programsko opremo Eplan in Rittal

Spletni konfiguratorji

Rittal Ri4Power

Spletna programska oprema za načrtovanje nizko napetostnih stikalnih blokov

- ISV sistem
- RiLine 60mm sistemi (1600A)
- Ri4Power 185mm sistem (2100A)
- Sistemi do 6300A
- Modularnost
- Design verification IEC 61 439
- Arc-tested IEC 61 641
- Interna separacija po različnih formah

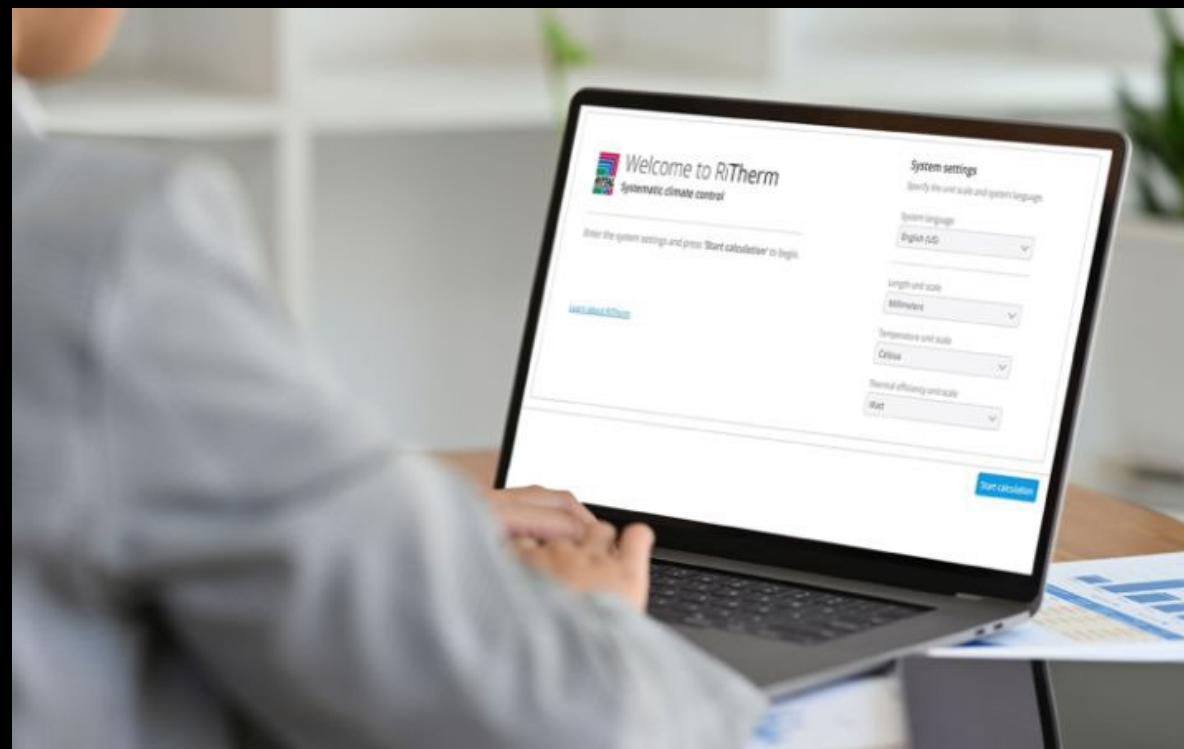


Spletni konfiguratorji

RiTherm

Najboljše orodje za načrtovanje klimatizacije ohišij

RiTherm je brezplačna programska oprema za zanesljivo in energetsko učinkovito načrtovanje klimatizacije ohišij glede na potrebe, ki je opremljena s standardno dokumentacijo in s certifikatom o ogljičnem odtisu.





Hvala.

Smart Engineering and Production

- 1 UVOD: Kratka predstavitev dogodka
- 2 SEAP: uvod v koncept Smart Engineering and Production
- 3 EPLAN: digitalna osnova sodobnega inženiringa
- 4 RITTAL: infrastruktura za učinkovito in povezano industrijsko okolje
- 5 ALKATRON: integracija rešitev v prakso uporabnika**
- 6 ODMOR: kratek predah ob kavi



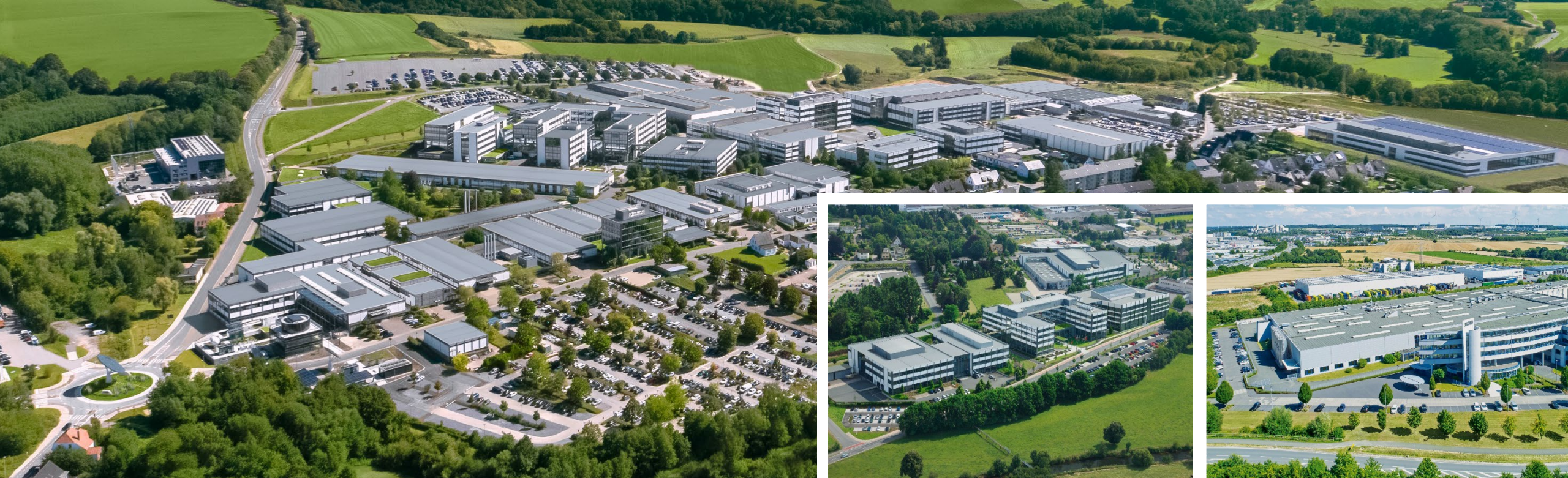
Welcome

**...to the world of
Phoenix Contact**



Company profile

Company headquarters



Headquarters
Blomberg | Germany



Innovation Center Automation
Bad Pyrmont | Germany



Innovation Center Power Reliability
Paderborn | Germany

Company profile

International Competence Centers



Group Center of Competence
Harrisburg | USA



Group Center of Competence
Nanjing | China



Group Center of Competence
New Delhi | India

Company profile

How it all began

1923

Success through listening, improving and thinking ahead

Making optimal use of energy - this has been Phoenix Contact's mission since 1923.

Klaus Eisert, shareholder of Phoenix Contact



*Since the beginning:
Identification of*

new business areas

1957

Own fabrication

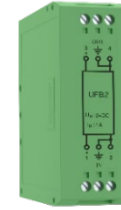
Establishing our own production, deep value creation is our basic understanding



1977

Interface

The "terminal block at the right time" - our answer to the requirements of the time.



1983

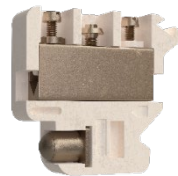
TRABTECH

More and more electronic devices are being used. They must be protected against overvoltage.

1928

Terminal block

The first terminal block in a ceramic housing with a solid clamping part at the time.



1972

COMBICON

The leap over to the print connection terminal block was a great success. The requirement was to be able to replace electronics at any time.



since 1981

Subsidiaries

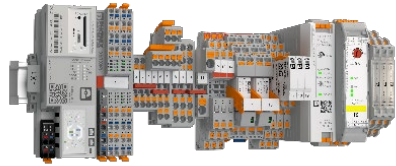
First own subsidiaries in the USA, Sweden and Switzerland.

Unternehmensprofil

How it all began



*Since the beginning:
Continuous
development of new
expertise*



2017

COMPLETE line

A complete product range- from the terminal block to the digital twin.

2019

Phoenix Contact is breaking down the boundaries of classic automation for the first time: with an open ecosystem that combines IT and OT, bundles third-party software solutions via an app store and, thanks to a strong community of experts, creates new scope for scalable, networked production and infrastructure systems.

PLCnext Technology



2013

E-Mobility

A completely new discipline: charging connectors for e-mobility.



1987

INTERBUS

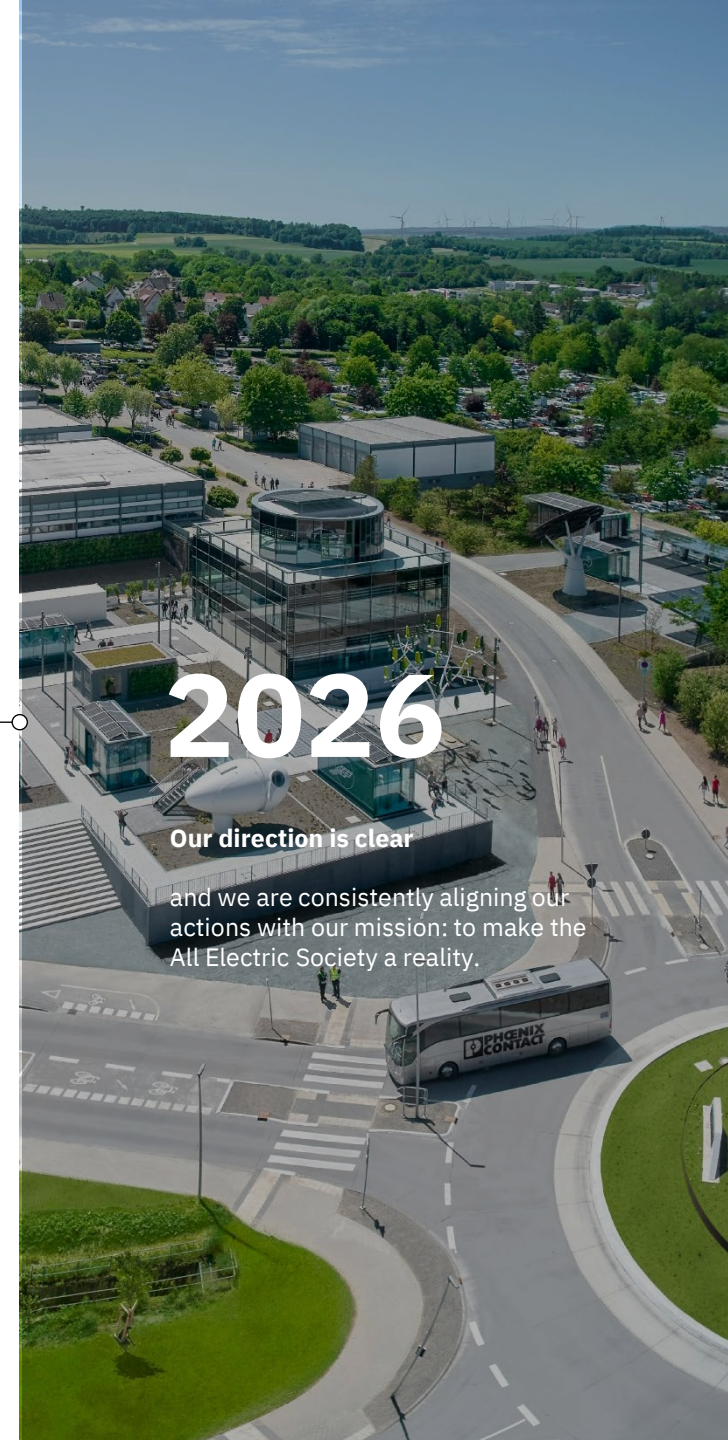
With INTERBUS, data was distributed serially instead of in parallel, which was a big gamble at the time.



2026

Our direction is clear

and we are consistently aligning our actions with our mission: to make the All Electric Society a reality.



Company profile

Markets



Energy



Factory



Process



Infrastructure

Company profile

Core Businesses



Product Groups



Automation
Software



Building
Automation



Edge
Computing



HMIs
and IPCs



Industrial
Communication



PLCnext Technology



PLCs (controllers)
and I/Os

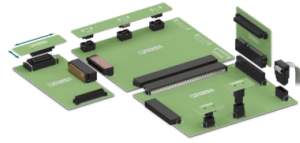


Smart
Services

Product Groups

2

Connect



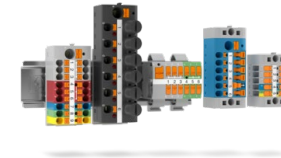
Board-to-board
connectors



Cables
and Lines



Connectors



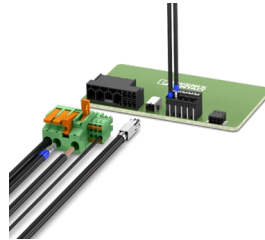
Distribution Blocks
and Device Terminal
Blocks



Distributors, Adapters
and Conductor
Connectors



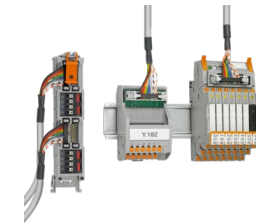
Electronics
Housings



PCB terminal blocks
and PCB connectors



Plug-in
Test System



System Cabling for
Controllers



Terminal
Blocks

Product Groups

3

Mark,
Assemble
and Install



Automatic
Tools



Control Cabinet
Accessories



Crimp Connectors
and Ferrules



Hand
Tools



Industrial Lighting
and Signal Lights



Junction Boxes
And Empty Enclosures



Marking
Material



Printers



Software for Control
Cabinet Building



Workstation
Solutions

Product Groups

4

Supply,
Charge
and Protect



Charging Technology
for E-mobility



DC/DC Converters
and DC/AC Inverters



Device Circuit
Breakers



EMC
Filters



Power
Supplies



Protective Relays for
Mains Protection



Redundancy
Modules



Surge
Protection



Uninterruptible Power
Supplies (UPS)

Product Groups

5

Switch,
Measure
and
Monitor



Contactors
and Power Relays



Energy
Monitoring



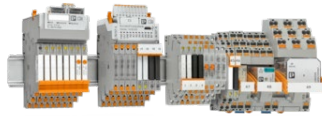
I/O Signal
Marshalling



Motor Starters
and Electronic
Switching Devices



Process Indicators
and Field Devices



Relays
and Solid-State Relays



Safety Relay Modules
and Sensors



Signal Conditioners
and Measuring
Transducers

**SUPPLY, CHARGE,
AND PROTECT**

Power supplies with IP67 degree of protection

NEW

Reliable supply and device protection

Main features

- Input voltage: 1 AC / DC
- Output voltage:
23.5 V DC ... 28.5 V DC / 20 A
- Versions with 4 integrated device protection channels (1 A ... 10 A)
- HMI user interface
- Stat. boost 125%, dyn. boost 200% (5 s)
- Versions with DC OK and IO-Link interface (SIO mode)
- NEC Class 2
- Degree of protection: IP65/67



TRIO67/1ACL/24DC/20/4C/IOL/M12

Your advantages

- ✓ Quick and easy installation with M12 IPD connectors or IPD connectors designed for assembly
- ✓ Reduced cabling effort and space savings with daisy chain, devices are easily added or removed
- ✓ Intuitive HMI parameterization and diagnostics
- ✓ Increased system availability due to prioritized shutdown and reliable short-circuit and capacity detection
- ✓ Safe starting of heavy loads



Gain info

Push-in connection for high powers

Main features

- Input 1 AC: 85 V AC ... 264 V AC
Output DC: 24 V DC or 48 V DC
- Dynamic boost of up to 140% for 5 s
- Can be connected in series and in parallel
- As an option, can be used with CAN communication, remote control
- EMC Class B
- Auxiliary power supply: 5 V / 2 A
- Flexible panel mounting
- Intelligent fan control



TRIO-PM/1AC/48DC/1500W/PT

Your advantages

- ✓ Easy handling with Push-in connection technology
- ✓ High power density and high efficiency with a compact design
- ✓ Simple power increase through parallel connection and integrated O-ring diode as well as increase in output voltage through series connection
- ✓ Reliable supply with increased EMC requirements
- ✓ Comprehensive monitoring via LED signaling and CAN bus interface



Gain info

Push-in Technology[®]

Designed by Phoenix Contact

Power supplies for panel mounting

High power in compact housing

NEW

Main features

- Input 1 AC: 85 V AC ... 264 V AC Output DC: 24 V DC
- Dynamic boost of up to 140% for 5 s
- Can be connected in series and in parallel
- As an option, can be used with CAN communication, remote control
- Intelligent fan control
- 2 auxiliary voltage supplies: 5 V / 2 A
- Flexible panel mounting



TRIO-PM/1AC/24DC/2500W

Your advantages

- ✓ High power density and high efficiency with a compact design
- ✓ Robust and reliable due to dynamic boost with a powerful output characteristic curve
- ✓ Comprehensive monitoring via LED signaling and CAN bus interface
- ✓ Easy power increase with parallel connection with integrated O-ring diode
- ✓ Increased output voltage with series connection



Gain info

Power supply for 19" rack mounting

HIGHLIGHT

Flexible due to bidirectional conversion

Main features

- Bidirectional power module
- AC input / output:
156 V 3AC ... 530 V 3AC DC-
- Input / output: 50 V ... 1,000 V
- Scalable up to a maximum of 1.5 MW
- Certified in accordance with global grid feed-in standards
- CANopen interface
- User interface with display
- Modular system in the 19" standard



TRIO-HP/3AC/1KDC/30KW/BI

Your advantages

- ✓ Taking energy from the grid and feeding energy into the grid with the bidirectional functionality and certification in accordance with global feed-in standards
- ✓ Island grid function and robust design enable use in mobile applications
- ✓ Easy system integration via CANopen communication interface
- ✓ Condition monitoring and stand-alone operation via display
- ✓ Flexible mounting due to front connection

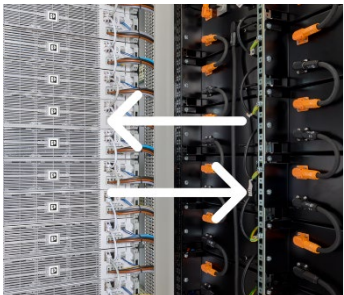


Gain info

Push-in Technology[®]

Designed by Phoenix Contact

Your added value in the application



Bidirectional functionality



Island grid function enables use in mobile applications



Condition monitoring and stand-alone operation via display

HIGHLIGHT



High availability in the event of power failures

NEW

UPS with integrated power supply

Main features

- Battery status (SOH) can be read via LED
- Battery start via button on the front
- Intelligent charging behavior with external temperature sensor
- Optional communication via RS-485 or USB-C
- Dynamic boost: 150% overload capacity from power supply
- Dynamic battery boost: up to 400% from the battery



TRI03-UPS/1AC/24DC/5/485-USB

Your advantages

- ✓ Direct diagnostics with multicolor LEDs and signal contacts for a clear status display
- ✓ Easy handling ensured by tool-free wiring with Push-in
- ✓ Robust and reliable due to dynamic boost and intelligent battery charging behavior
- ✓ Space-saving by combining a power supply and UPS in one housing
- ✓ Optional smart parameterization and monitoring via interface connection



Push-in Technology
Designed by Phoenix Contact

UPS with power supply and capacity

NEW

Maintenance-free solution preventing mains failures

Main features

- Dynamic boost: up to 150% for 5 s
Capacity boost: up to 350% from the energy storage unit for 350 ms
- Fast charging up to 5 A
- Can be set to up to 28 V DC
- Interfaces: USB-C / RS-485
- Comprehensive signaling with multicolor LEDs and digital outputs
- Wide temperature range: -40°C ... +60°C



TRIO3-CAP/1AC/24DC/5/3KJ/USB-485

Your advantages

- ✓ Reliable maintenance-free use and long service life of up to 20 years
- ✓ Maximum system availability and cost optimization with a 3-in-1 solution
- ✓ Time-saving installation with Push-in connection and easy handling with clear setting options
- ✓ Boost function bridges peak loads and allows an optimum power reserve
- ✓ Simple configuration and direct diagnostics



Gain info

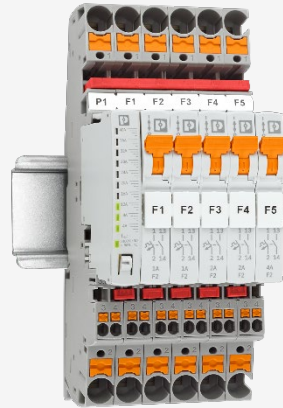
Push-in Technology

Designed by Phoenix Contact

Reliable protection, easy handling

Main features

- Reliable startup of loads with high startup currents
- Electrical isolation in the event of an error
- Reliable with a resilient design
- Large selection of rated current versions in increments from 0.5 to 16 A
- Protective plug with M1 or F2 characteristic curve
- Operating voltage: 10 V DC ... 56 V DC, 24 V AC ... 277 V AC



TCB TM1 6 A F2 NO P

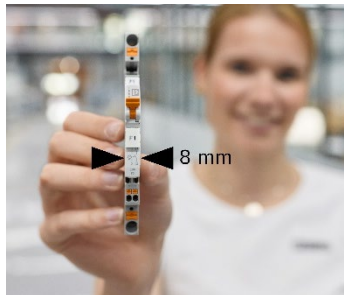
Your advantages

- ✓ More space in the control cabinet: protection and signaling in an overall width of just 8 mm
- ✓ Simple application setup with the capability of bridging to the CLIPLINE complete terminal block range
- ✓ Transparency regarding utilization and status with practical current monitoring and remote signaling
- ✓ Easy handling from commissioning right through to maintenance due to clear functionality and switching state at all times

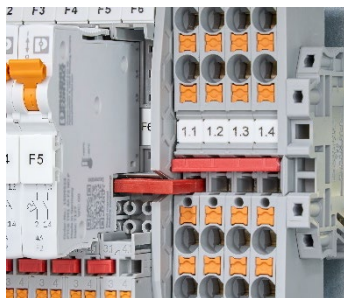


Gain info

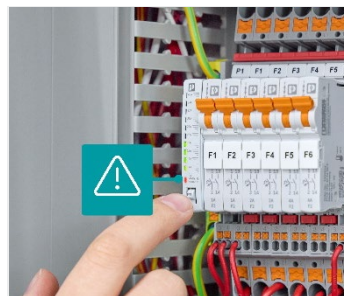
Your added value in the application



65% space savings
compared to conventional
MCBs



Compatible with the
CLIPLINE complete terminal
block range



Status that can be viewed
at any time and alignable
current monitoring



HIGHLIGHT

**PHOENIX
CONTACT**

Top performance in surge protection

HIGHLIGHT

Powerful, safe, and compact

Main features

- Discharge capacity I_{imp} and I_{total} 100 kA
- Wear-free spark gap technology
- Short-circuit current rating ISCCR 100 kA
- Multi-pulse capability
- Each path is individually pluggable
- Miswiring and touch protection
- Use without backup fuses up to 315 A
- Can be used at altitudes up to 5,000 m



FLT-SPP-T1-275/25-3+1-UT-R

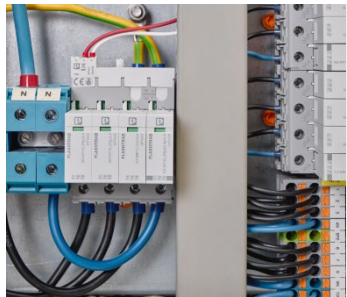
Your advantages

- ✓ Top performance for reliable system protection with triggered multi-carbon spark gap technology
- ✓ Superior protective effect even for sensitive systems due to the fast response behavior and low residual voltage
- ✓ Easy and safe installation with forward-thinking features such as miswiring and touch protection
- ✓ Versatile use due to the space-saving overall width of 17.5 mm per position



Gain info

Your added value in the application



FLT-SPP combined lightning current and surge arrester for maximum system availability



Safe installation with miswiring and touch protection



Typical areas of application for FLASHTRAB SPP

HIGHLIGHT



Current monitoring made easy

HIGHLIGHT

Clear, slim, and cleverly integrated

Main features

- Currents up to 20 A can be measured
- Visual display of utilization in 1 A increments
- Visual indication when the threshold value is exceeded
- Early warning via remote signaling
- Remote signaling of the flowing current in 0.1 A increments
- Adjustment on the device via rotary switch
- Can be bridged to PT and XT terminal blocks



CMU-DC-20A-S/UDM

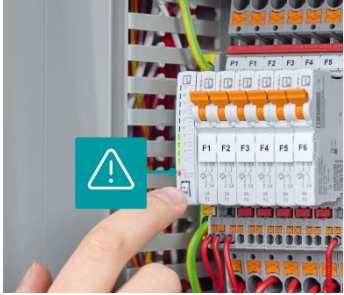
Your advantages

- ✓ Quickly identify utilization with the visual display and remote signaling
- ✓ Ready to use in no time due to simple operation and adjustment directly on the device
- ✓ More space in the control cabinet due to the narrow overall width of just 8 mm
- ✓ Can be bridged to the CLIPLINE complete terminal block range, always ensuring fast integration

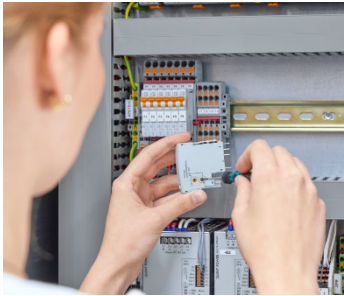


Gain info

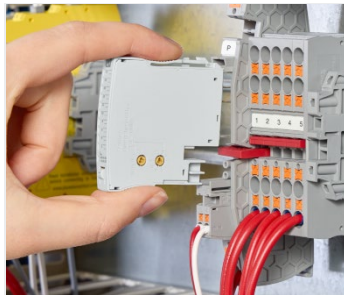
Your added value in the application



System load at a glance
on the device at all times



Easy adjustment of the
threshold value via rotary
switch



Quickly integrated into
applications with
CLIPLINE complete

HIGHLIGHT



SWITCH, MEASURE, AND MONITOR

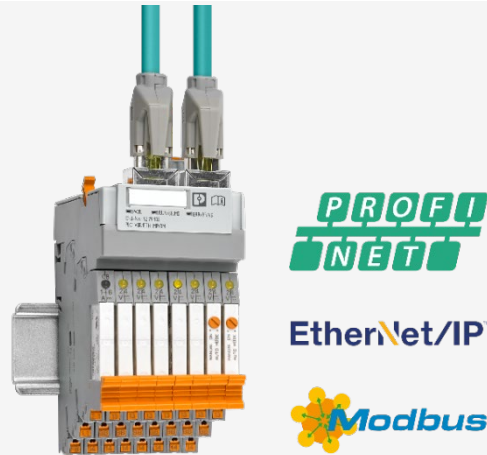
Network-capable remote relay system

HIGHLIGHT

Multi-protocol connection to the controller

Main features

- Multi-protocol connection: PROFINET, EtherNet/IP™, Modbus/TCP
- Simple integration into the control system software via device description files
- Compatible with PLC-INTERFACE relay and analog modules
- Temperature range: -40°C ... +60°C
- Maximum number of channels: up to 56 channels



PLC-V8R/ETH-MP/BM

Your advantages

- ✓ Flexible channel configuration (DI, DO, AI, AO) and compact design for simple applications with small to medium numbers of channels in the decentral control box
- ✓ Multi-protocol connection with an innovative network module with high-performance chipset (PROFINET Class C and S2 redundancy)
- ✓ Intuitive and fast integration into the control level due to compatibility with established control software



Gain info

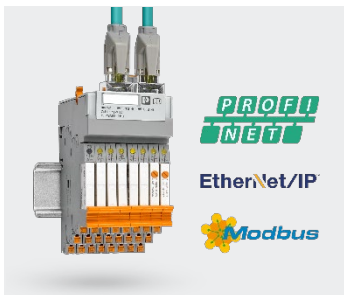
Your added value in the application



Flexible channel configuration in the decentral control box



Multi-protocol connection to the network module



Compatibility with established controller software



HIGHLIGHT

PHOENIX CONTACT

Variable speed starters up to 7.5 kW

HIGHLIGHT

Intuitive operation with STO function

Main features

- Control of three-phase asynchronous motors up to 7.5 kW
- Analog input
- Configurable ramps and up to 4 adjustable speeds
- SIL 3 and PLe-capable
- Brake resistor connection from 4.0 kW
- With integrated EMC filter as an option
- Suitable function blocks in the PLCnext library



CSS 4.0-3/3-EMC

Your advantages

- ✓ Quick installation and startup with easy wiring and intuitive operating concept
- ✓ Flexibility with the new performance class of up to 7.5 kW
- ✓ Safe shutdown with the integrated Safe Torque Off (STO) function
- ✓ Efficient operation with parameterizable ramps and up to four adjustable speeds
- ✓ Variable speed setting option with the analog input



Gain info

Your added value in the application



Fast commissioning and intuitive operating concept



Three-phase asynchronous motor performance class up to 7.5 kW



Integrated Safe Torque Off (STO) function

HIGHLIGHT



**PHOENIX
CONTACT**

All safety functions in one device

Main features

- Configuration via rotary coding switch on the device or via clipx ENGINEER Device Parameterization software
- Coverage of common safety functions, such as emergency stop, light grid
- Monitoring of up to two safety circuits
- Overall width: 22.5 cm
- Push-in connection technology



PSR-UNI-S-1X2NO-1DO-24DC-SC

Your advantages

- ✓ Universal use by covering all common safety functions
- ✓ Flexible adaptation to individual requirements
- ✓ Space-saving and efficient monitoring of up to four safety functions in a single device
- ✓ Fast startup with easy configuration
- ✓ Can be used in applications up to the highest safety level, SIL 3/PL e



Gain info

Your added value in the application



Configuration directly on the device via rotary coding switches



Software-based configuration via USB-C connection



Confirmation of the configuration settings directly on the device

HIGHLIGHT



AUTOMATE

The new generation of WLAN modules

Main features

- Wi-Fi 6/6E (2.4 / 5 / 6 GHz, depending on version and country)
- Gross data rate up to 2,400 Mbps
- Fast roaming in cellular applications
- Controllable via REST API
- Maximum security with WPA2 / WPA3
- Ethernet with 10/100/1,000 Mbps



FL WLAN 2330

Your advantages

- ✓ Wi-Fi 6 (IEEE 802.11AX) for better resource utilization, stability, and network capacity
- ✓ Wi-Fi 6E with new, free channels in the 6 GHz band
- ✓ Quick change of WLAN cells through software optimization of the roaming function
- ✓ WLAN clients support all three bands: 2.4 GHz, 5 GHz, and new 6 GHz
- ✓ Very high level of security with WPA 3 and security by design (IEC 62443-4-1)



Gain info

Your added value in the application



New WLAN modules with Wi-Fi 6/6E



Easy panel and profile mounting



Fast data transmission with flexible power supply



HIGHLIGHT

Universal cellular connection for worldwide use

Main features

- Integrated antennas
- Global cellular modules
- Cybersecurity: IEC 62443-4-2
- Variety of performance classes: 4G CAT1, 4G CAT4, 5G
- Outdoor housing: IP66 / IP67 / IP68 and IK10
- Mast, panel, and control cabinet mounting
- Dual SIM and provider fallback
- GNSS: positioning and time synchronization



CELLULINK 4401-4G GL M25

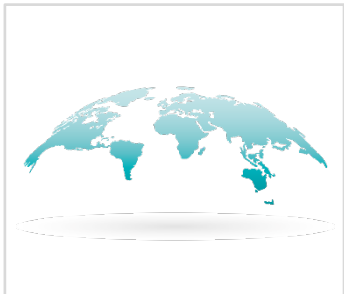
Your advantages

- ✓ Cost and space savings through the integration of the antennas into the housing
- ✓ Time savings through faster installation with PoE and the elimination of antenna mounting
- ✓ High level of cybersecurity with certification in accordance with IEC 62443-4-1 and IEC 62443-4-2
- ✓ Worldwide use in 4G and 5G networks
- ✓ Configuration and firmware updates with web-based management, REST API, and device and update management



Gain info

Your added value in the application



Worldwide coverage



Integrated antennas



Secure: certified in accordance with IEC 62433-4-2

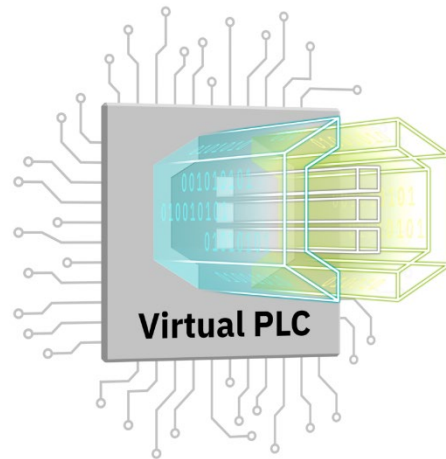
HIGHLIGHT



Efficient and flexible control solutions

Main features

- System architecture based on the open PLCnext Technology ecosystem
- Programming in accordance with IEC 61131-3 and high-level languages such as C++, C#, and Matlab
- PROFINET controller and/or device
- Configuration using web-based management
- Virtual PLCnext Control in OCI container



VPLCNEXT CONTROL 1000

Your advantages

- ✓ Software-based control system with open PLCnext Technology architecture
- ✓ Easy scaling and adaptation to new requirements without physical retrofitting
- ✓ Direct connection to IT systems, cloud services, and IIoT platforms for data-driven applications
- ✓ Minimizes investment costs as no special hardware is required
- ✓ Maximum cybersecurity with container-based technology

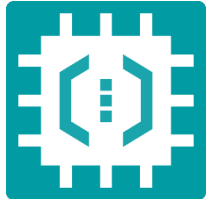


Gain info

PLCnext Technology 

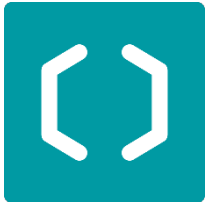
Designed by Phoenix Contact

Your added value in the application



Virtual PLC

Hardware-independent
controller for easy scaling



Open architecture based on
PLCnext Technology



Direct connection to IT
systems, the cloud, and
IIoT platforms

HIGHLIGHT



Controller for critical infrastructures

Main features

- Extended temperature range:
-40°C ... +70°C
- EMC requirements in accordance with
IEC 61850 Class H
- Extended device monitoring with
integrated watchdog and live relay
contact
- 3 independent Ethernet interfaces
- IEC 60870-5-101 and IEC 60870-5-
104 remote control protocols
integrated



AXC 2000 EA

Your advantages

- ✓ High-availability PLCnext Control for power generation and
distribution
- ✓ Developed for extreme environmental conditions in
accordance with IEC 61850-3
- ✓ Compact and modular I/O system for easy extension
- ✓ Cybersecurity in accordance with IEC 62351-3 and
IEC 62443 (SL2)
- ✓ Easy function extension with apps from the PLCnext Store



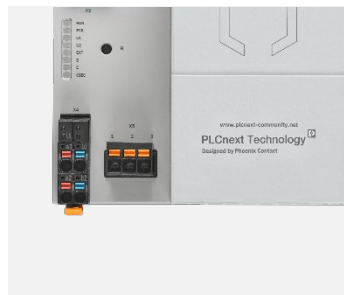
Gain info

PLCnext Technology 
Designed by Phoenix Contact

Your added value in the application



High reliability through the design in accordance with IEC 61850-3



Monitoring via integrated watchdog and live relay contact



Open, modular, and scalable with PLCnext Technology

HIGHLIGHT



**PHOENIX
CONTACT**

CONNECT

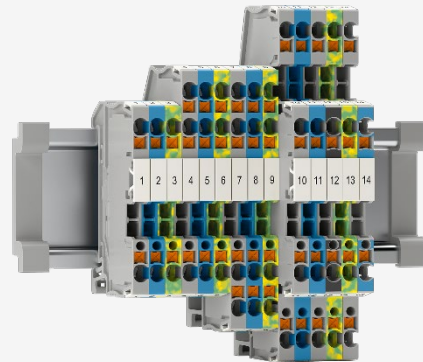
Terminal blocks with Push-X technology

HIGHLIGHT

For conductor cross sections from 0.34 mm²

Main features

- Push-X technology
- Nominal cross-section: 1.5 mm²
- Conductor cross-section: 0.34 mm² ... 2.5 mm²
- 22 AWG ... 14 AWG
- Nominal current: 17.5 A
- Nominal voltage: 500 V



XT 1.5

Your advantages

- ✓ Feather-light plugging and superior handling comfort with a factory-pretensioned contact spring
- ✓ Wiring of all conductor types, whether rigid or flexible with and without ferrules
- ✓ Clear identification of the conductor connection (visual and acoustic)
- ✓ Easy release of the conductors and pretensioning of the contact spring using the orange actuating push button
- ✓ Optimized for manual and automated wiring

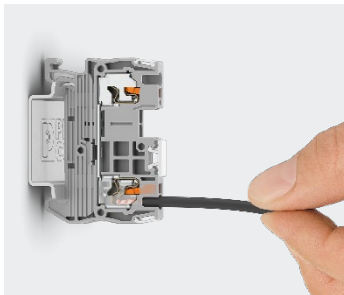


Gain info

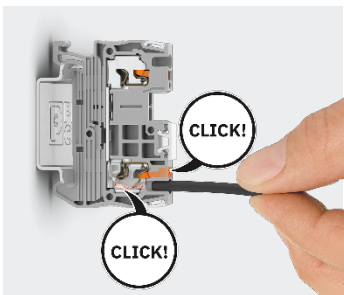
Push-X Technology[®]

Designed by Phoenix Contact

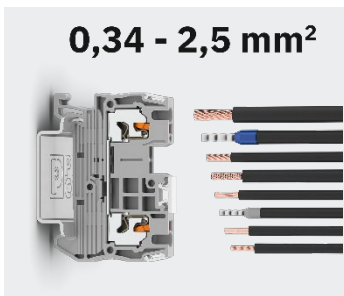
Your added value in the application



One-handed wiring with the pre-tensioned contact chamber



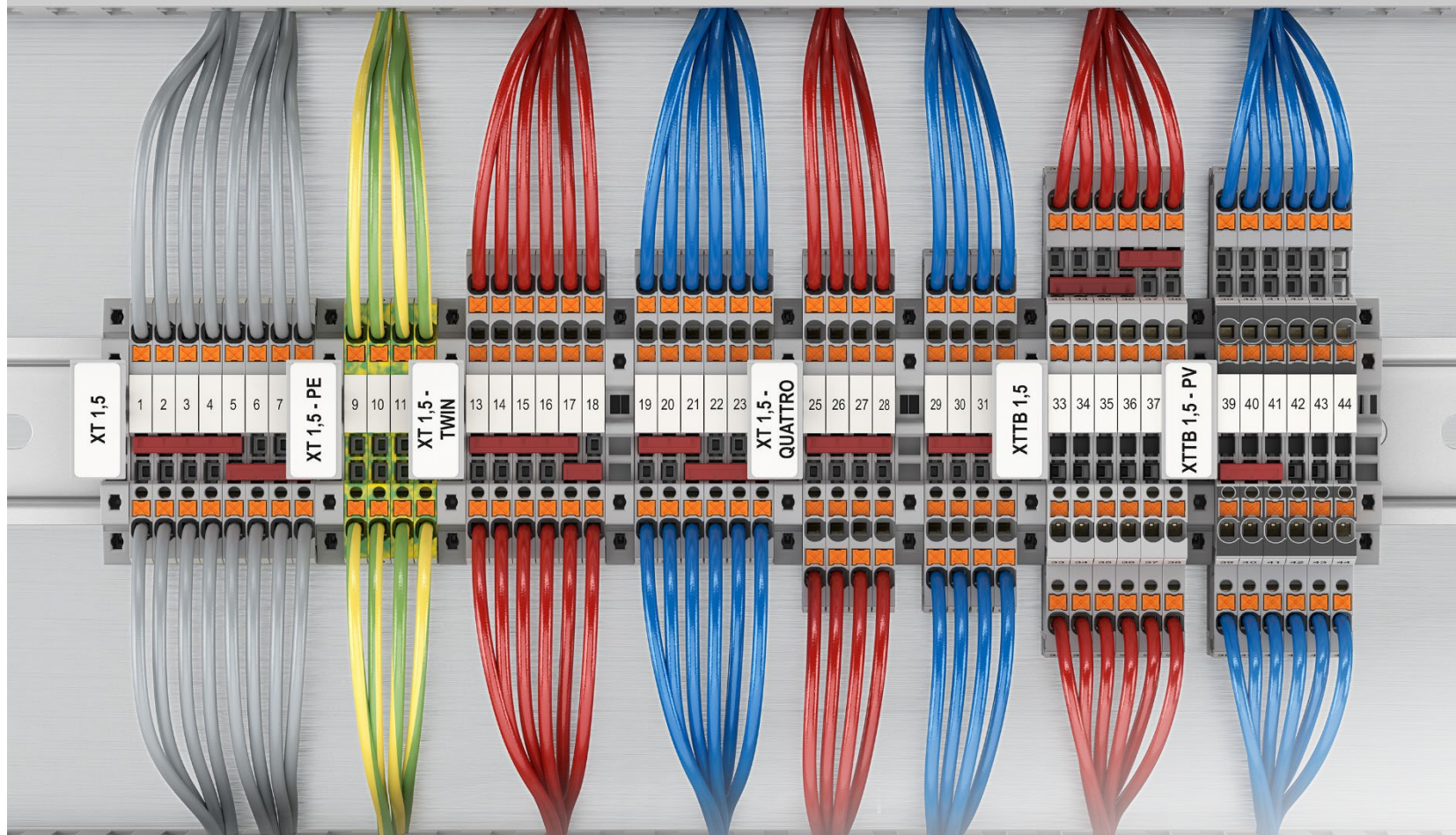
Clear identification of the conductor connection



0,34 - 2,5 mm²

Wiring of all conductor types between 0.34 mm² and 2.5 mm²

HIGHLIGHT



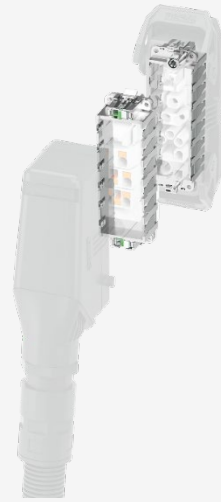
Click-in module carrier frames heavy-duty connectors

HIGHLIGHT

Easy, tool-free installation

Main features

- Connection technology frame: Click-in latching
- PE connection technology: Push-in connection
- Number of modules: up to 6
- Mating cycles: 500
- Temperature range: -40°C ... +125°C



HC-M-B24-MFH-H-CI

Your advantages

- ✓ Save time and money: reliable, tool-free Click-in latching
- ✓ Fast conductor connection: conductor connection with Push-in Technology – even with PE contact and when installed
- ✓ Convenient module latching: easy installation with clear snap-in mechanism
- ✓ Individual and space-saving: combination of different modules
- ✓ High-performance power modules: reliably transmit currents of up to 300 A



Gain info

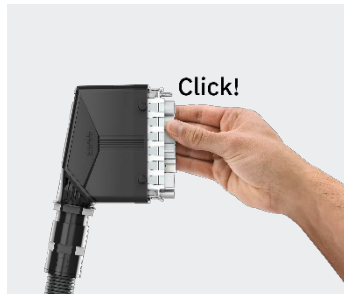


Play video



Order sample

Your added value in the application



Tool-free mounting with
Click-in latching



Fast conductor connection
with Push-in – even with PE
contact



Individual combination of
different modules

HIGHLIGHT



**MARK, ASSEMBLE,
AND INSTALL**

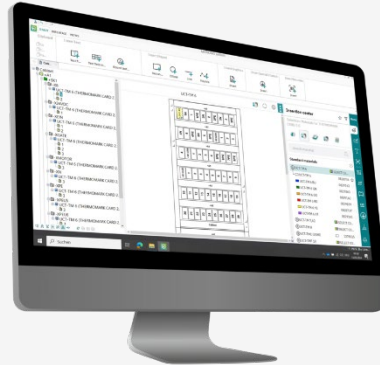
High-performance marking software

NEW

Efficient creation of marking solutions

Main features

- One software program for all marking systems from Phoenix Contact
- Direct interfaces to common ECAD systems
- Comprehensive data import manager
- Efficient wire marking with the Wire Marking Application Center
- Template Designer with comprehensive design options



MARKING system software

Your advantages

- ✓ Efficient creation of marking projects with a clear user interface and extensive design options
- ✓ High-performance interfaces for the efficient import of data from ECAD systems and common data exchange formats
- ✓ Optimum management of the entire marking process with structured projects in accordance with IEC 81346
- ✓ Central control and management of all marking systems



Gain info



Efficient UV inkjet printers

NEW

Efficient marking of card material

Main features

- Monochrome UV inkjet card printer
- Thermal inkjet printing technology with UV curing
- Identification of UC and UCT cards, UM strips, and metal markers
- Automatic material feed
- Interfaces: USB, Ethernet, Wi-Fi



BLUEMARK E.CARD

Your advantages

- ✓ Time savings of up to 40% with automated material processing
- ✓ Application-optimized identification with the modular ink concept
- ✓ Optimal print results with the innovative combination of UV LED ink and thermal inkjet technology
- ✓ Easy operation with intuitive user guidance and efficient software solutions
- ✓ Low maintenance costs by simply replacing the entire ink system with the ink cartridge



Gain info

Buttons, switches, and indicator lights

NEW

Operating and signaling made easy

Main features

- Modular system kit
- Configurator
- Various colors and LED versions
- Buttons: Push buttons, mushroom push buttons, and emergency switching off buttons
- Various button panels and function types
- Switches: rotary switches and key switches
- Various switch positions and functions
- Indicator lights



PHT22-FR-WH/PT10

Your advantages

- ✓ Highly convenient operation due to tool-free Push-in connection technology and touch-proof design
- ✓ Wide voltage input enables direct connection to 24 V ... 240 V AC/DC nominal voltage
- ✓ Tool-free mounting and installation
- ✓ Long service life due to the robust design
- ✓ Anti-induced voltage, prevents the LEDs from flickering



Gain info

Smart Engineering and Production

- 1 UVOD: Kratka predstavitev dogodka
- 2 SEAP: uvod v koncept Smart Engineering and Production
- 3 EPLAN: digitalna osnova sodobnega inženiringa
- 4 RITTAL: infrastruktura za učinkovito in povezano industrijsko okolje
- 5 ALKATRON: integracija rešitev v prakso uporabnika
- 6 ODMOR: kratek predah ob kavi**

