

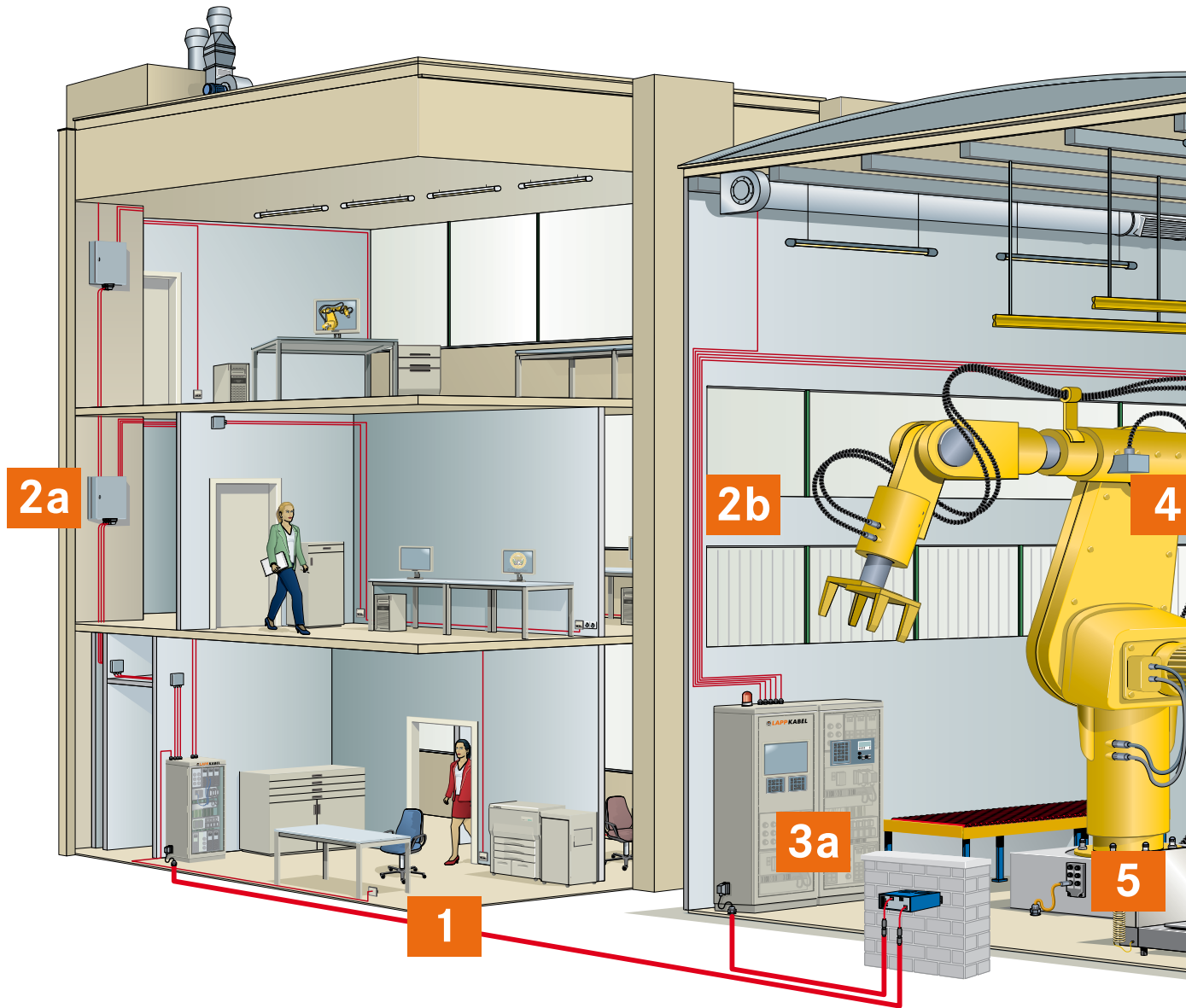
Automation & Network

The bigger picture

One partner for all applications

Welcome to the World of Automation & Network.

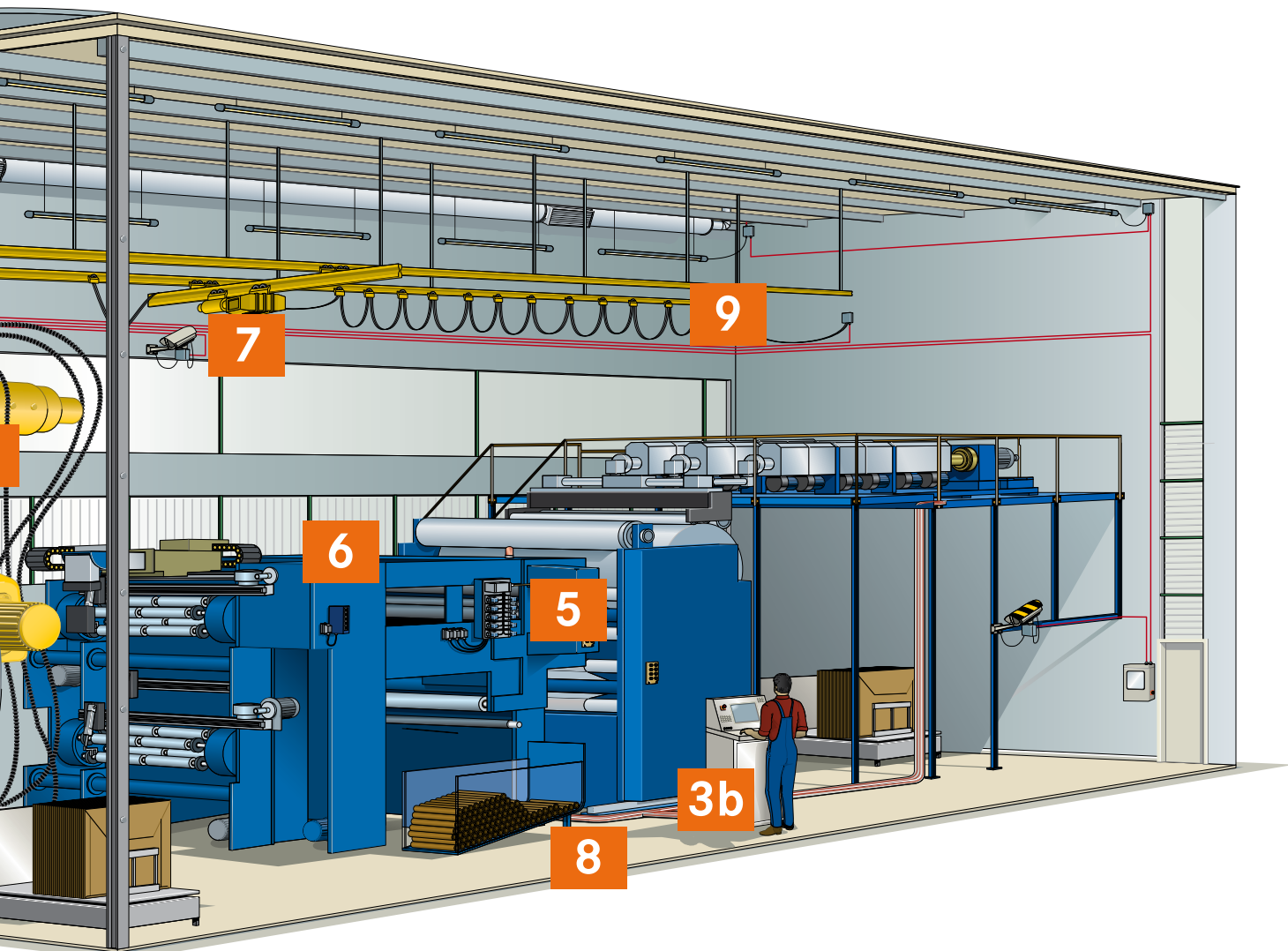
Solutions by Lapp: found in places you wouldn't think to look for them.



All additional information is available for you in your Automation & Network guide.

Are you already familiar with our **Automation & Network** poster?

Please contact us: automation@lappgroup.com



- | | |
|---|---------------------------------|
| 1 = Interbuilding network/campus network | 5 = S/A distribution |
| 2a = Floor network distribution | 6 = Drag chain |
| 2b = Intrabuilding network distribution | 7 = Surveillance network |
| 3a = Main network server | 8 = Intermachine cabling |
| 3b = Control station | 9 = Festoon application |
| 4 = Robotics | |

ÖLFLEX®

UNITRONIC®

ETHERLINE®

HITRONIC®

EPIC®

SKINTOP®

SILVYN®

FLEXIMARK®



LAPP GROUP

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Industrial Ethernet

A network of opportunities



Industrial Ethernet

Our production components for all Industrial Ethernet applications can be found under the ETHERLINE® brand.



ETHERLINE®
Data communication systems
for ETHERNET technology

Automation is an increasingly critical factor in industrial machine and equipment wiring. And Lapp is leading the way.

First of all, conventional field bus systems like PROFIBUS, Foundation Fieldbus and AS-Interface established themselves in industry - but now it's the turn of Ethernet. As a result, the demand for higher transmission rates combined with reliable real-time applications has become more pressing. The answer: Industrial Ethernet.

There was a growing demand for universal and reliable data transmission between harsh industrial environments and modern office communications. The Lapp Group provides this interface solution

with its ETHERLINE® product range. In addition to robust and hard-wearing cables for Industrial Ethernet applications, you will find the corresponding connection components. These include connecting cables with M12 circular connectors to meet the stringent safety requirements at field level. There are also RJ45 connectors for IT wiring and system components such as patch panels and top hat rail adapters.

Application fields

- **Mechanical and systems engineering**
- **Tool shop**
- **Automation technology**
- **Control engineering**

You can find further information in your Automation and Network Guide.

Or talk to us directly: automation@lappgroup.com

A little insight into a huge range

EPIC® Data – RJ45 Cat.6_A Connectors with dust protection cap - field configurable

- Complies with transmission category Cat.6_A in line with ISO/IEC 11801:2010
- Field configurable RJ45 connector and Industrial Ethernet module applications complying with IEC 60603-7-51 standard
- 360° shielding
- Piercing contacts for conductor cross-sections AWG27/7-22/7; AWG24/1-22/1
- Wire manager with 4 chambers with different colour codes complying with T568A or T568B standard



ETHERLINE® Cat.6 FD For high-speed data transmission even at high loads

- Developed for use in cable drag chains
- For data transmission of up to 1 Gbit/s
- UL certified



ETHERLINE® PN Reliable cable for PROFINET applications

- Specially developed cables complying with the PROFINET standard for all cable types
- Type A for fixed installation
- Type B for occasional flexing
- Type C for special applications such as cable drag chains



EPIC® Data M12 X Cat.6_A Connectors for field level

- Eight-pin M12 connector with X coding
- Qualified for Cat.6_A 10 Gbit/s data transmission
- Piercing termination technology
- Holds AWG24-AWG22 solid wire as well as flexible AWG26-AWG22 braided conductors
- Impressive lean design and two-part construction



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Fibre optic cables

Fast – Reliable – Fault free



Fibre optic cables

Our product components for optical transmission systems can be found under the HITRONIC® brand.



HITRONIC®
Optical transmission systems

HITRONIC® is a comprehensive range of different fibre optic cables. Lapp can supply you with cables with the following fibre types:

- PCF (Polymer Cladded Fibre) – Plastic coated glass fibre optic cable K200/230
- POF (Polymer Optical Fibre) – Plastic fibre optic cable P980/1000
- GOF (Glass Optical Fibre) – Glass fibre
 - Single mode fibre 9/125 µm OS2
 - Multi mode fibre 62.5/125 µm OM1 Multi mode fibre 50/125 µm OM2, OM3 and OM4 (on request)
- A-DQ(ZN)(SR)2Y – HITRONIC® HQW reinforced outdoor cable with corrugated steel sheath, central loose tube with up to 24 fibres
- J/A-DQ(ZN)BH – HITRONIC® HUN universal cable with central loose tube (max. 24 fibres) or stranded loose tubes (144 fibres)
- J-V(ZN)HH – HITRONIC® HRH breakout cable with up to 12 individual cable elements (also available with multi mode OM4 fibre)
- Tapping proof, fault and maintenance free
- Greater resistance to electromagnetic interference
- More independence in assembly and installation
- Cost and weight savings due to reduced wiring work
- Flexible options for customised solutions, e.g. special cable assemblies or pre-configured cable systems

There is also our brand new standard range of glass fibre cable types, including:

- A-DQ(ZN)B2Y – HITRONIC® HQN outdoor cable with central loose tube with up to 24 fibres
- A-DQ(ZN)B2Y – HITRONIC® HVN outdoor cable with stranded loose tubes with up to 144 (28) fibres

Product benefits

With increasingly large data volumes, data cables must have continuously improved transmission properties.

Where conventional copper conductors reach their limits, that's where HITRONIC® from Lapp comes into play. With high quality fibre optic cables for transmission of your data at lightning speed – and a range of other benefits besides:

HITRONIC® products are the ideal addition to the Lapp product range. You can depend totally on Lapp's expertise as a system provider. As a partner for cables, connectors and cable glands – but also for sustainable wiring and automation solutions.

You can find further information in your Automation and Network Guide.

Or talk to us directly: automation@lappgroup.com

A little insight into a huge range

HITRONIC® TORSION

- Standard cable for use in environments with torsion movement
- Splittable and lightweight universal breakout cable for use with movement
- Halogen-free and flame-retardant individual and outer sheath
- UV resistant



HITRONIC® FIRE

- Specially developed to meet the increasing demand for fire prevention cables for installation and use in explosive environments
- Complies with the IEC 60332-3, IEC 60331-25 and IEC 61034-1/2 standards
- Suitable for use in harsh environments such as metalworking plants, oil and gas platforms and tunnel construction



HITRONIC® HDM

- Reelable cable
- For mobile and moving use outdoors and in buildings (universally compatible)
- Meets US military standards (MIL-C-85045)



HITRONIC® HRM-FD

- Splittable cable
- For moving applications
- Suitable for use in drag chains



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PROFIBUS

Professional flexibility

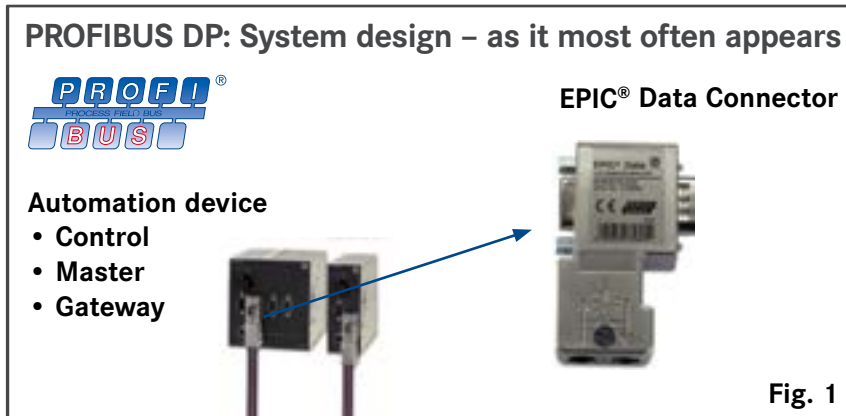


PROFIBUS data connectors

Our PROFIBUS data connector product components can be found under the UNITRONIC® brand (EPIC® Data connectors).



UNITRONIC®
Data communication systems



Every field bus cable needs a connector. That is why Lapp supplies a comprehensive range - currently 33 EPIC® Data PROFIBUS data connectors.

This range provides the basis for universal PROFIBUS wiring. From a simple bus connector, to ATEX approved versions, through to an active repeater.

Best example - Figure 1:
Here you can see a characteristic PROFIBUS DP setup. The 9-pin SUB-D EPIC® Data connector is

used for the connection to an automation unit (controller, gateway or repeater). Depending on the application, versions with 35°, 90° or 180° cable outlet and connection configurations are used.

Application fields

- Plant and mechanical engineering
- Automation technology
- Control engineering

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A little insight into a huge range

EPIC® Data PROFIBUS

Connectors
(Optical Link Module)

- Easy bridging of long distances (with POF fibre: 65 m; with PCF fibre: 250 m)
- Cost savings due to fast installation (Plug & Play)
- Galvanic isolation at problematic potential differences
- Use in EMC-critical environments
- Use in hazardous areas
- Fully featured PROFIBUS repeater (D-Sub, 9-pin) with optical interface (HFBR, SMA or BFOC interface)
- Switchable bus termination integrated
- Diagnostic LEDs (bus termination and data reception)
- No external power supply required
- Operating temperature: 0°C ...60°C
- Metallised plastic housing, IP 20
- Compatible connectors (fibre optic cable) included
- Compatible optical cables can be found in the HITRONIC® product range



EPIC® Data PROFIBUS

Full metal connector

- Robust full metal design (D-Sub, 9-pin)
- Secure PROFIBUS network connection
- Excellent reliability and fault immunity in harsh environments
- Cost savings due to fast installation (Plug & Play)
- Use in EMC-critical environments
- Extended temperature range (-20°C+70°C)
- Switchable bus termination integrated
- 200 cycles
- Minimal transmission attenuation
- Integrated diagnostic interface (D-Sub, 9-pin socket) with non-detachable cap
- Designs with 35°, 90° or axial cable outlet
- Designs with M12 or spring terminal connection
- Compatible PROFIBUS cables and M12 assemblies from the UNITRONIC® product range



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Data communication systems

Bus cables for automation



Data communication systems

Our system solutions for industrial field bus wiring can be found under the UNITRONIC® brand.



UNITRONIC®
Data communication systems

Lapp provides universal field bus wiring from the control level right down to sensor/ actuator level.

For communication between controller, peripherals and visualisation in industrial machinery and equipment, field bus wiring is essential.

As a result, our cables for field bus systems need to offer something special from the outset:

- high transmission speeds
- excellent interference immunity
- high mechanical strength
- easy to assemble in the field
- resistance to media
- energy supply via bus

Our comprehensive range of UNITRONIC® bus cables provide the perfect basis for universal field bus wiring. The cables are available for all standard field bus systems. This means that you can always find the appropri-

ate solution for your individual requirements in modern mechanical and systems engineering.

- PROFIBUS DP/PA
- AS-Interface
- DeviceNET
- INTERBUS
- CAN/CANopen
- CC-Link
- FOUNDATION Fieldbus

Thanks to specially developed sheath materials, they are ideal for use under a huge range of ambient conditions. Whether you need them for a fixed installation or a drag chain – UNITRONIC® bus cables guarantee reliable operation of field bus systems.

Application fields

- **Plant and mechanical engineering**
- **Automation technology**
- **Control engineering**

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A little insight into a huge range

UNITRONIC® BUS PB

- Cables for PROFIBUS DP
- Rigid or occasional flexing installation
- Wide range of sheath materials: PVC, PUR, PE
- UL/CSA (CMG) approved versions
- Fast Connect versions



UNITRONIC® BUS PB FD P A

- Cables for PROFIBUS DP
- Highly flexible installation in drag chains
- Robust PUR sheath material
- UL/CSA (CMX) approved
- Flame-retardant and halogen-free



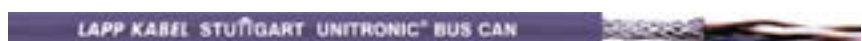
UNITRONIC® BUS ASI

- Cables for AS-Interface
- Profiled cable for contact using penetration technology
- Wide range of sheath materials: EPDM, PVC, TPE
- UL/CSA (CMG) approved versions
- Cables for data and power transmission



UNITRONIC® BUS CAN

- Cables for CAN and CANopen
- PVC sheath material
- UL/CSA (CMX) approved versions
- 2- or 4-wire
- Cable cross-sections from 0.22 – 0.75 mm² available



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