BELDEN
SENDING ALL THE RIGHT SIGNALS

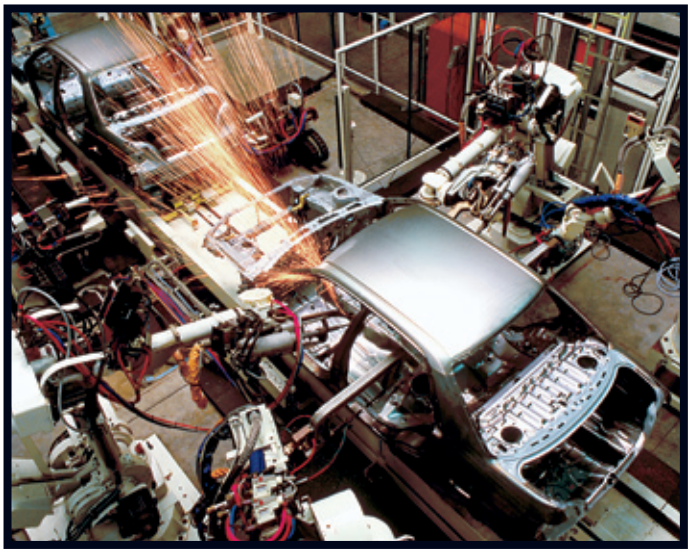
Solutions for the automotive industry

Seamless automation places a new set of demands on your connectivity systems. Belden is the ideal partner for your sophisticated factory communication applications. With its broad product portfolio and extensive solutions expertise, Belden can deliver everything you need now and in the future.

A continuous stream of expertise

The critical factor in today's diverse, sophisticated production automation world is maximum system availability based on efficient, seamless solutions from a single source. Belden offers unparalleled flexibility, individuality and future expandability to protect your investment.

Belden can deliver the best solution for any factory automation application. We supply cables, connectors, proven industrial Ethernet switches, routers and firewalls. Belden's high-quality Hirschmann™ and Lumberg Automation™ brand products are backed by our comprehensive service and support portfolio.



Flexibility and dependability on white-body, paint shop, engine production and final assembly lines, which keep on running without costly downtime, are critical factors in today's automotive industry. Users need high-level automation systems with integrated industrial robotics solutions which have the versatility and flexibility to cope with contracting product cycles.

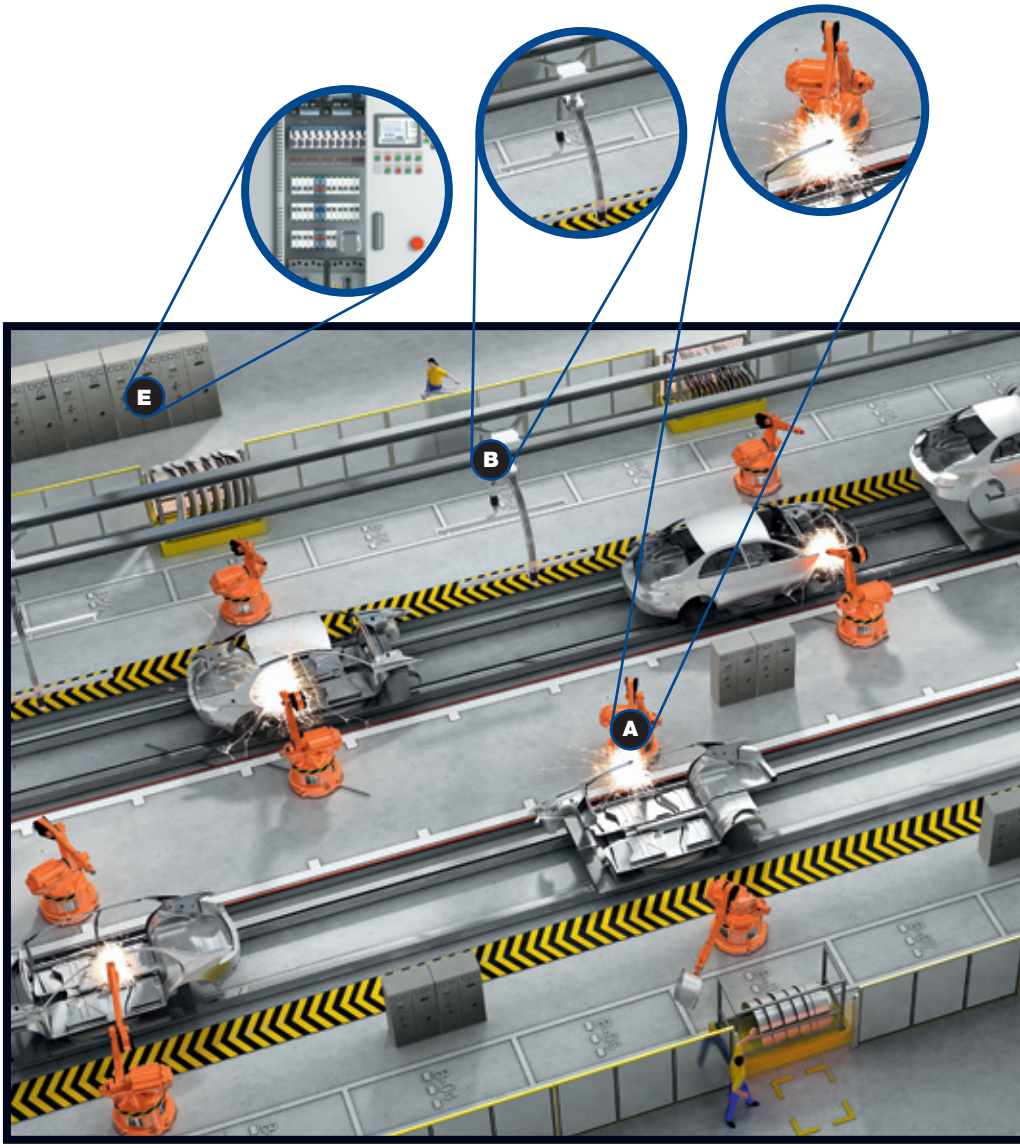
Belden is the right partner to help you deploy high-reliability solutions in your automotive applications. Our portfolio of network design, professional consulting, qualified training and support services continue to give you the assistance you need well after the installation phase is over. Contact us to discuss your individual needs.

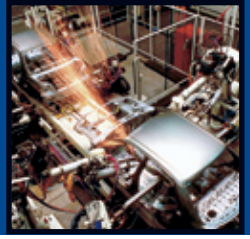
Clockwork precision in body-in-white production

Chassis and body-in-white production is now 95 % automated, with industrial robots playing the dominant role. Belden, Hirschmann™ and Lumberg Automation™ deliver top-class solutions for your production line applications ranging from control cabinet batteries and distribution panels on the production line right up to the control room, and you get all of the benefits of one-stop shopping:

- enhanced system reliability
- easy-mount control cabinet switches
- field bus systems to bridge long distances
- retooling components
- seamless data communication

The reliable solutions from Belden ensure maximum availability in highly automated body production.





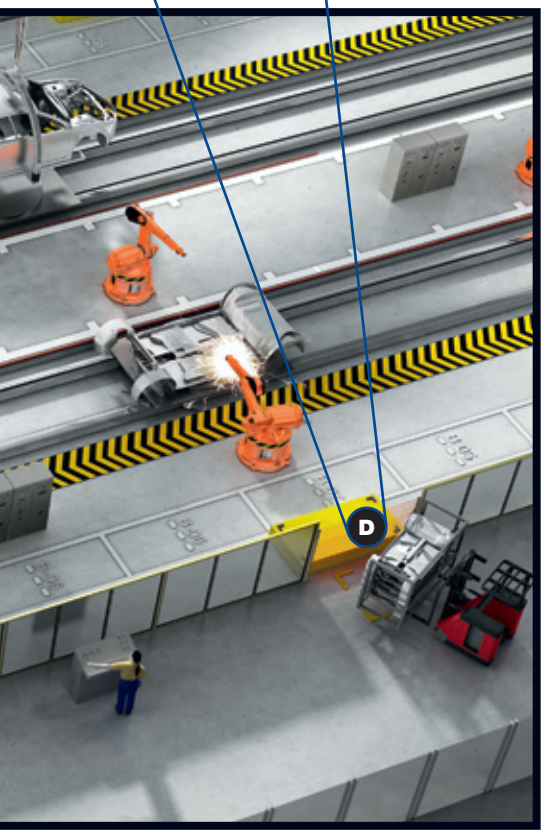
A Signal transmission

B D BAT family

- wireless access points and clients
- bridge functionality
- redundant WLAN links for reliable data transfer

OCTOPUS family

- first manageable ruggedized IP67 PoE switch
- extended management by SNMP
- redundancy via HIPER-Ring/MRP and Rapid Spanning Tree
- access control via IEEE 802.1X



Welding spark proof actuator/sensor connectors

- fully recyclable
- drag chain suitability
- IP67 protection class

Actuator/sensor distribution boxes

- 4, 6, 8, 10 and 10 port distribution box
- space saving design
- shock and vibration proof
- IP67 protection class

Actuator/sensor connectors

- good chemical and oil resistance
- vibration and shock resistance
- M8, M12, 7/8", M23

microFX

- IP67 Ethernet connector
- industrial M12 technology
- optical and electrical contacts

LioN-Link ProfiNet

- two lines per bushead
- up to 100 m extension per line
- up to 15 devices per line
- field bus independent I/O modules

Receptacle connectors

- standard connectors or individual solutions "straight out of a construction kit"
- multiple options for external chassis threads

C Control room

MACH4000

- Gigabit backbone routing switch
- up to 48 Gigabit Ethernet ports and three 10Gigabit Ethernet ports
- highly redundant

Network Management Software

- operator edition for network supervision
- engineering edition for device configuration
- OPC and ActiveX for SCADA integration

E Cabinet

OpenRail family

- Industrial Ethernet switches
- redundant power inputs
- available in customized versions
- available with conformal coating
- extended temperature range: –40°C up to +70°C

Fieldbus repeaters

- for the most common fieldbus protocols
- protocol specific fieldbus repeaters available
- predictive maintenance

MICE family

- modular switch system
- extensive range of hot-swappable media modules
- maximum flexibility by comprehensive selection of connectors
- Gigabit router option

EAGLE20

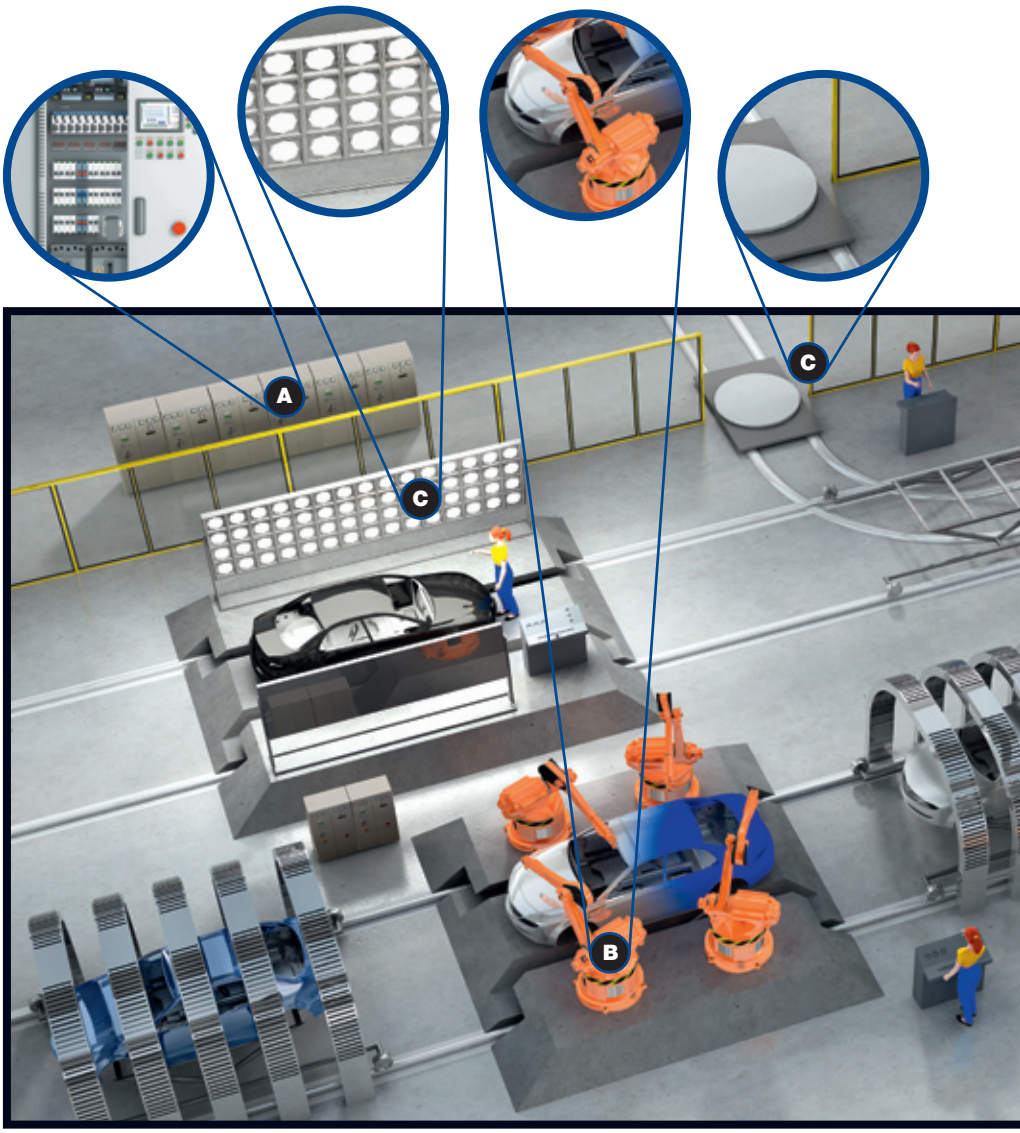
- high-speed VPN, firewall and routing solution
- transparent and routing mode
- various media connection options
- 9.6 V up to 60 VDC redundant inputs

Managing complexity in the paint shop

Highly-flexible networking solutions are needed to manage the sequence of operations which are performed in the paint shop, including pre-treatment, paint application, drying, inspection and removal when the cycle is complete. Belden, Hirschmann™ and Lumberg Automation™ deliver top-class solutions for paint shop automation systems:

- simple integration of additional applications
- user-friendly Plug and Play design
- compatibility with systems from all automation suppliers
- high product availability for excellent investment protection
- simple device swapping
- easy installation and maintenance

Belden also delivers highly flexible network and wiring solutions in the paint shop.



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FiberExpress Systems

- FiberExpress Manager easy patch cords routing and management in a minimum space
- FiberExpress Bar: a compact, modular and resilient linking panel
- Optimax connectors for fast, secure and reliable field installable fiber termination

Industrial Ethernet Connectivity

- superior performance and excellent reliability in the industrial environment
- withstands harsh industrial environments and conditions
- quick installation
- increased flexibility with stranded conductors

B Robot

OCTOPUS family

- first manageable ruggedized IP67 PoE switch
- extended management by SNMP
- redundancy via HIPER-Ring/MRP and Rapid Spanning Tree
- access control via IEEE 802.1X

Valve connectors

- reduced height resulting in lower space requirements
- standard version with molded, captive seal
- up to +80°C and IP65/IP67 protection class

Actuator/sensor connectors

- free of silicon and lacquer damage substances
- IP67 protection class

microFX

- IP67 Ethernet connector
- industrial M12 technology
- optical and electrical contacts

C Inspection and sensor

Receptacle connectors

- standard connectors or individual solutions "straight out of a construction kit"
- multiple options for external chassis threads

Power connector

- Molded, field attachable
- Vibration safe
- Maximum voltage of 400V for power supplies with a good price/performance ratio
- Maximum current of 16A in accordance with the derating curve
- Integrated strain relief in connectors with cable connection

D Control room

MACH100

- modular fanless Industrial Ethernet rack mount switch
- hot-swappable modules
- optional redundant power supply

MACH1000

- rack-mount ruggedized switch
- maximum uptime in extreme environmental conditions
- extended temperature range: –40°C up to +85°C

MACH4000

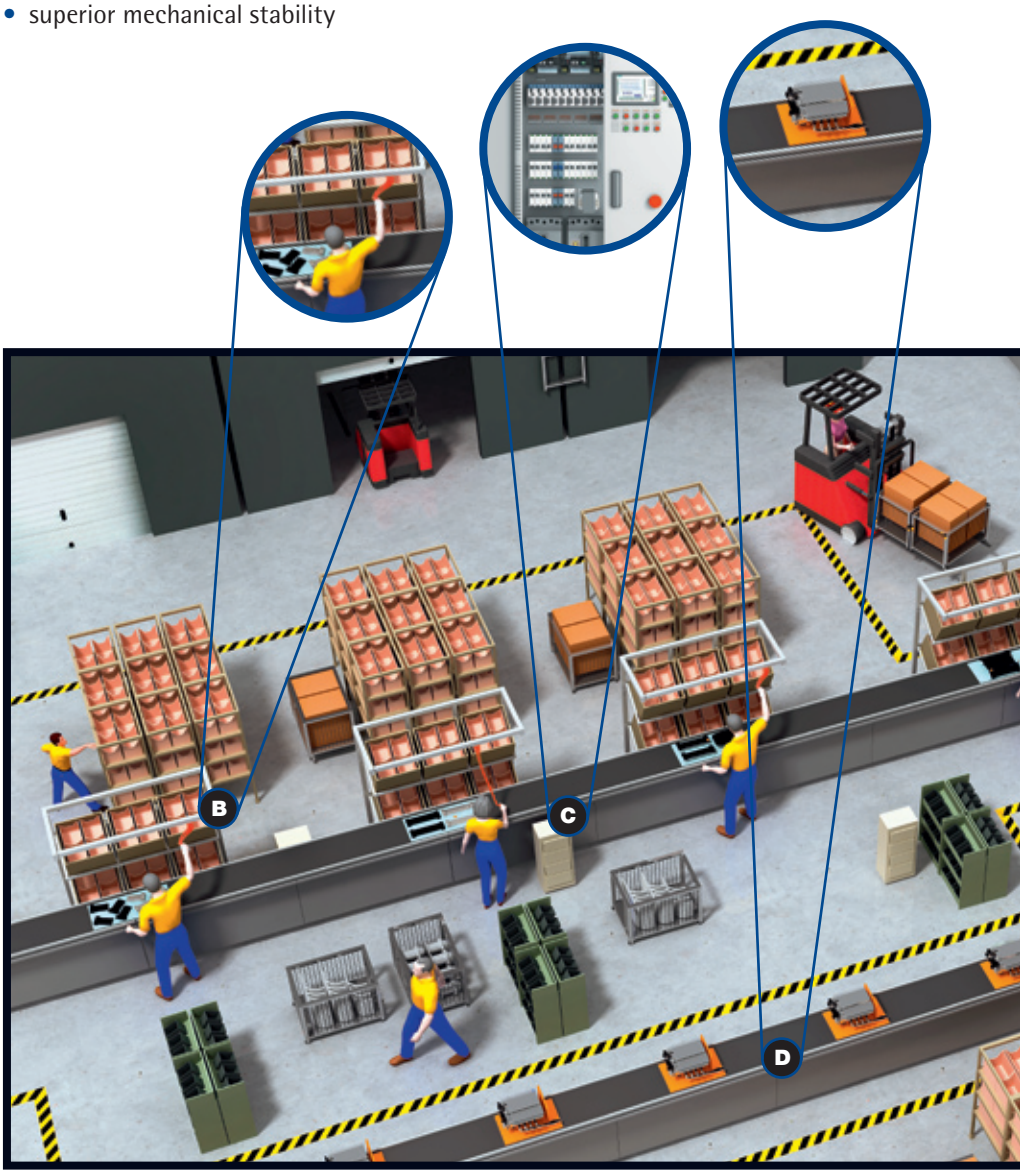
- Gigabit backbone routing switch
- up to 48 Gigabit Ethernet ports and three 10Gigabit Ethernet ports
- highly redundant

Non-stop reliability

Standardized products from Belden, Hirschmann™ and Lumberg Automation™ offer the advantages of global availability, conformance to standards such as CSA, UL and approval for use with coolants and lubricants, making them the ideal choice for engine and transmission production and powertrain assembly. We offer solutions for control cabinets, production, network monitoring and complete wiring systems:

- simple configuration, fast installation
- outstanding diagnostic feature set
- shock and vibration resistance
- retooling support (e.g. reusable)
- superior mechanical stability

In engine and gear production, the solutions from Belden impress with their worldwide availability and maximum reliability.



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B Workstation

BAT family

- wireless access points and clients
- bridge functionality
- redundant WLAN links for reliable data transfer

Actuator/sensor distribution boxes

- 4, 6, 8, 10 and 10 port distribution box
- space saving design
- shock and vibration proof
- IP67 protection class

Attachable connectors

- M12 male and female connectors
- 4-, 5- and 8-poles
- IP67 protection class

C Cabinet

MICE family

- modular switch family
- extensive range of hot-swappable media modules
- maximum flexibility by comprehensive selection of connectors

OpenRail family

- Industrial Ethernet switches
- redundant power inputs
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Fieldbus repeaters

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D Conveyor belt

OCTOPUS family

- first manageable ruggedized IP67 PoE switch
- extended management by SNMP
- redundancy via HIPER-Ring/MRP and Rapid Spanning Tree
- access control by IEEE 802.1X

Connectivity solutions

- actuator/sensor connecting and inter-connecting cables
- field attachable connectors
- M8, M12, M23, 7/8", A, B and C design
- IP65 – IP69k protection class

LioN-Link

- two lines per bushead (for Profibus, ProfiNet, DeviceNet and CANopen)
- up to 100 m extension per line
- up to 15 devices per line
- field bus independent I/O modules

LioN-Link Motion

- implementation of drive technology
- energy savings
- reduced amount of cabling
- high level of diagnostics

e2c 67

- modular field bus station, IP67
- bus-neutral, compact and up to 128 signals in a very small space
- safety though the backplane concept
- bushead for Profibus, Interbus, DeviceNet and Ethernet TCP/IP

E Machine tool

Connectivity solutions

- actuator/sensor connecting and interconnecting cables, M8 male and female connector
- receptacle connectors, M8 for front mounting
- IP67 protection class

LioN-M/LioN-S

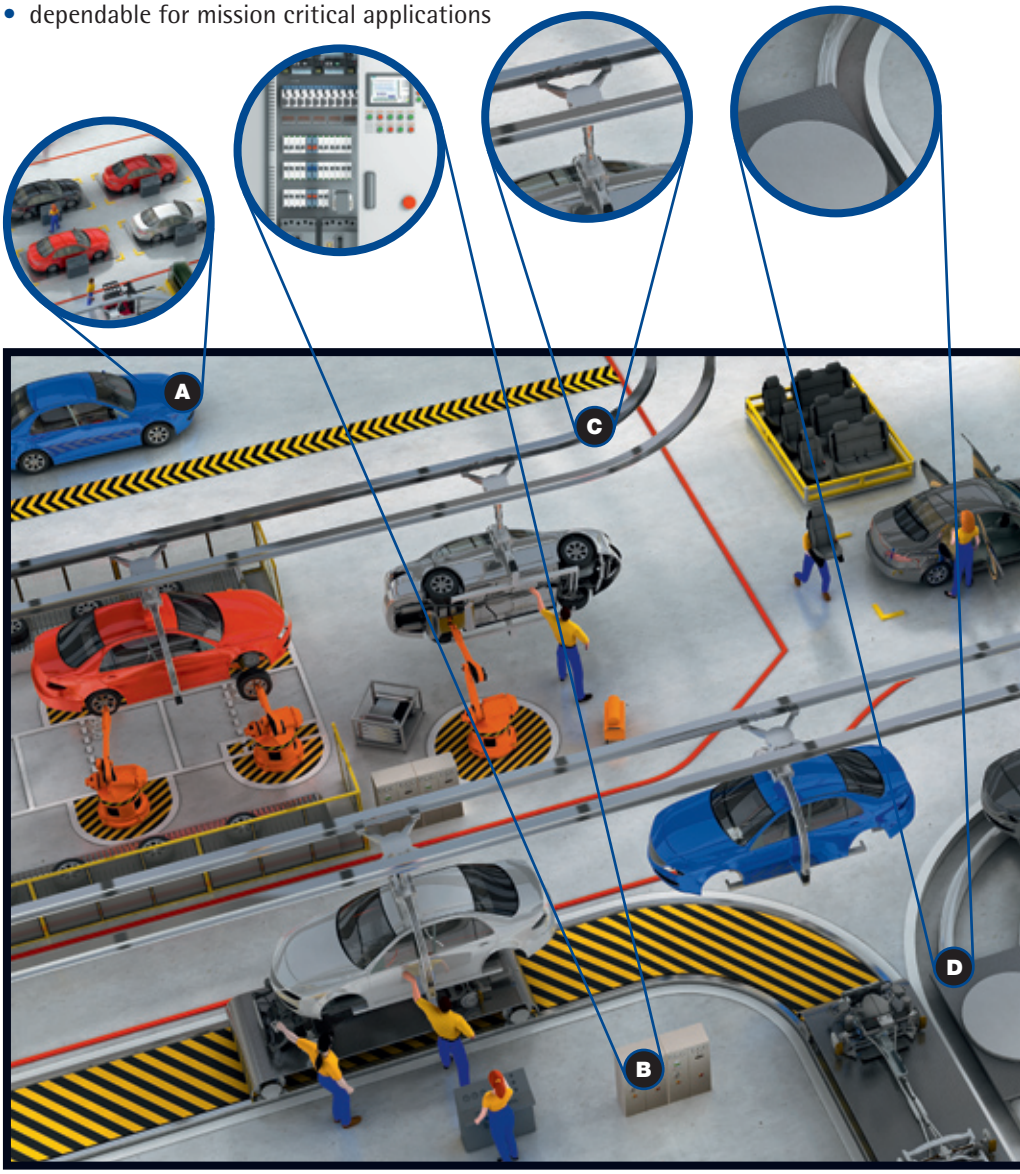
- universal I/O functionality
- unlimited combinations of inputs and outputs
- saving of I/O memory
- exact diagnostics

Top quality right through final assembly

On the just-in-time final assembly line, products supplied by Belden, Hirschmann™ and Lumberg Automation™ ensure that the chassis, suspension system and engine form a perfect unit. Our solutions support wireless workstation connectivity as well as distribution panel and control room applications:

- redundancy for high availability
- movable, flexible wireless BAT-Rail systems for mobile nut runner stations
- early warning system for better protection
- compact connector solutions for applications where space is at a premium
- dependable for mission critical applications

Belden also offers flexible solutions with maximum reliability and availability in final assembly.



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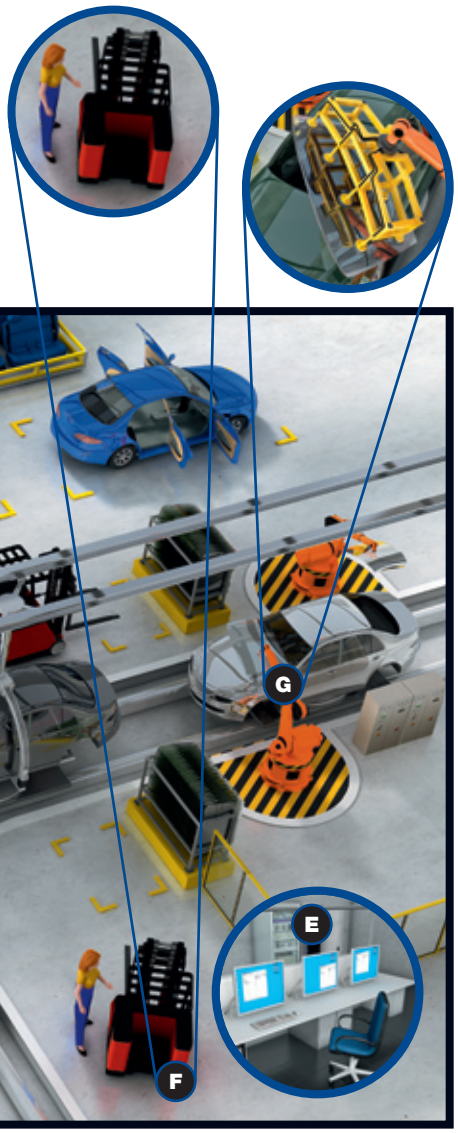

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- various media connection options
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Network Management Software
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F Forklift

BAT Client
- rugged metal DIN rail mount housing
- single LAN – IEEE802.11b/g and 802.11a/h
- up to 108 Mbps bandwidth
- redundant 24 VDC power inputs (incl. IEEE802.3af PoE support)

OCTOPUS family
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- safety though the backplane concept
- bushead for Profibus, Interbus and DeviceNet

Actuator/sensor distribution boxes
- 4, 6, 8, 10 and 10 port distribution box
- space saving design
- shock and vibration proof
- IP67 protection class

Actuator/sensor connectors
- good chemical and oil resistance
- vibration and shock resistance
- M8, M12, 7/8", M23

T-connectors and adapters
- T-connector to double a port
- plug-in version or as a cable version
- double solenoid valve adapter

Scalable Mobile Control System
- control solution for mobile plant applications
- safe load indication for cranes
- EN 13849-1 PL d compliant (SIL-2)

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Printed in Germany
DS 280 720-086/106759 Edition 04/2009