

Connectivity solutions for transport automation



The Belden product portfolio puts you on the fast track to highly available data communications in the transport automation industry.

Uncompromising traffic safety and the highest availability are today's requisites for success in transport automation.

Belden offers you complete, integrated communication solutions backed by the right service and support.





The quickest connections worldwide

The Belden portfolio extends from a comprehensive range of cables and connectors, through rugged Ethernet switches, to routers and firewalls – all harmonized to work seamlessly together. With that portfolio we can meet the high requirements of our customers, who demand robust, high-quality products for use under extremely challenging conditions.

With top-quality products from the Belden, Hirschmann™ and Lumberg Automation™ brands, backed by professional service and support, we provide you with the best possible complete solution in transport automation, whether for monitoring passenger flow, for traffic surveillance in tunnels, for networks at airports, on ships, or for on-board entertainment systems.

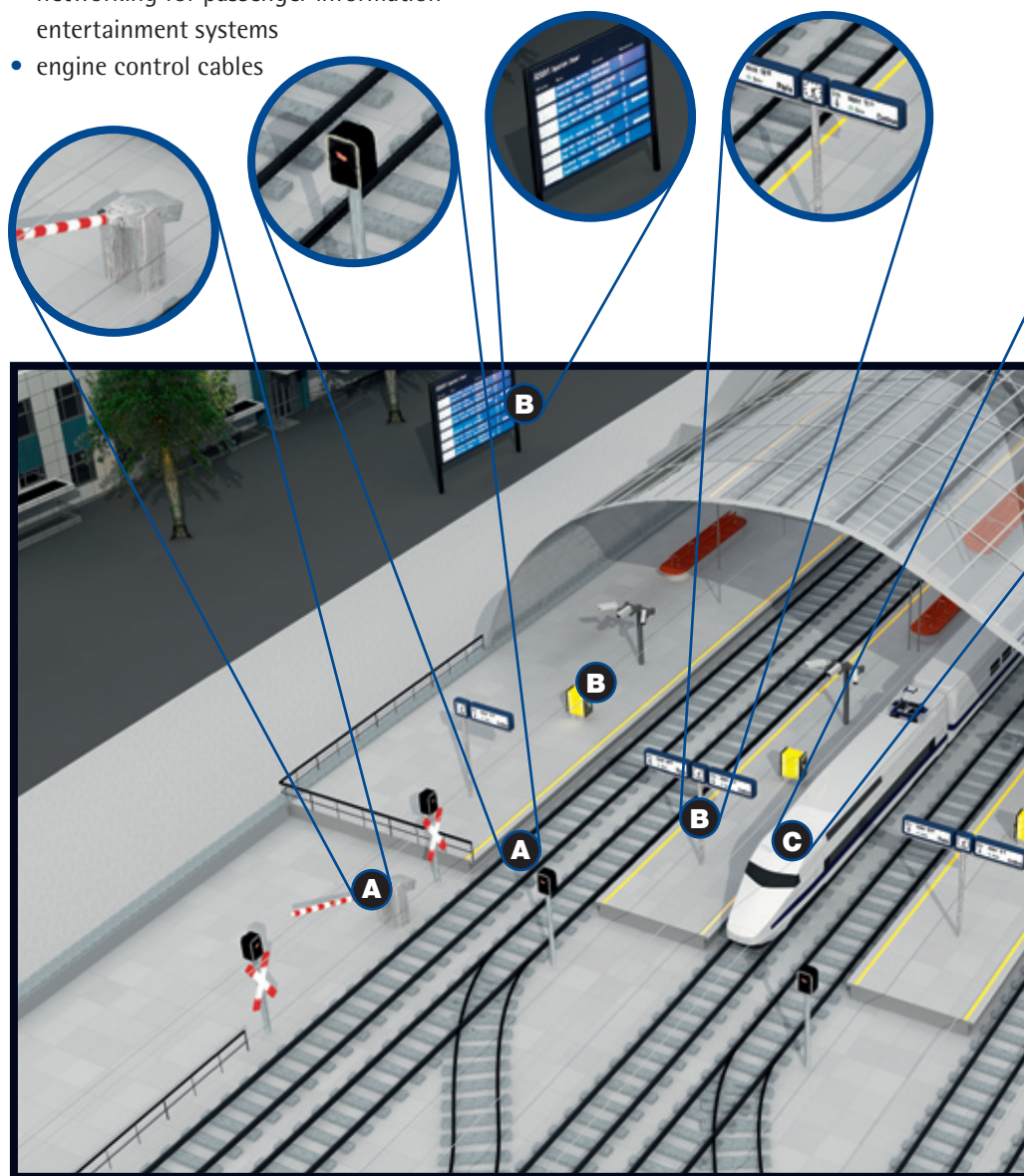


Staying on the safe side

Make sure that you stay ahead of the game and eliminate the risks. Our products contribute to passenger safety. Belden ensures maximum availability based on resilient redundant technologies:

- traffic monitoring and control for operation centers
- network management systems for metros through to high-speed trains
- IP camera-based platform surveillance
- public announcement systems in train stations
- surveillance of passenger carriages with IP cameras
- networking for passenger information entertainment systems
- engine control cables

In railway applications, Belden guarantees the highest possible passenger safety with highly available technologies and systems.





A Signaling technology

OCTOPUS family

- ruggedized switch family for extreme conditions
- open system with standardized M12 technology
- IP67 protection class and EN 50155 approvals



microFX

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



B Information systems

RSR

- compact ruggedized DIN Rail Switches
- extremely high EMI resistance
- withstands tremendous shocks and vibrations



C On-board communication

BAT family

- wireless access points and clients
- bridge functionality
- redundant WLAN links for reliable data transfer
- IP67 protection class



Connectivity solutions

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



Cable solutions

- engine control cable
- data communication cable
- HEW silicone sheeted cable
- UIC cables for internal and external vehicle wiring
- WTB and MVB databus cables



D Video surveillance

PoE switches

- Power over Ethernet (PoE) technology
- available as switches and routers



E Control room

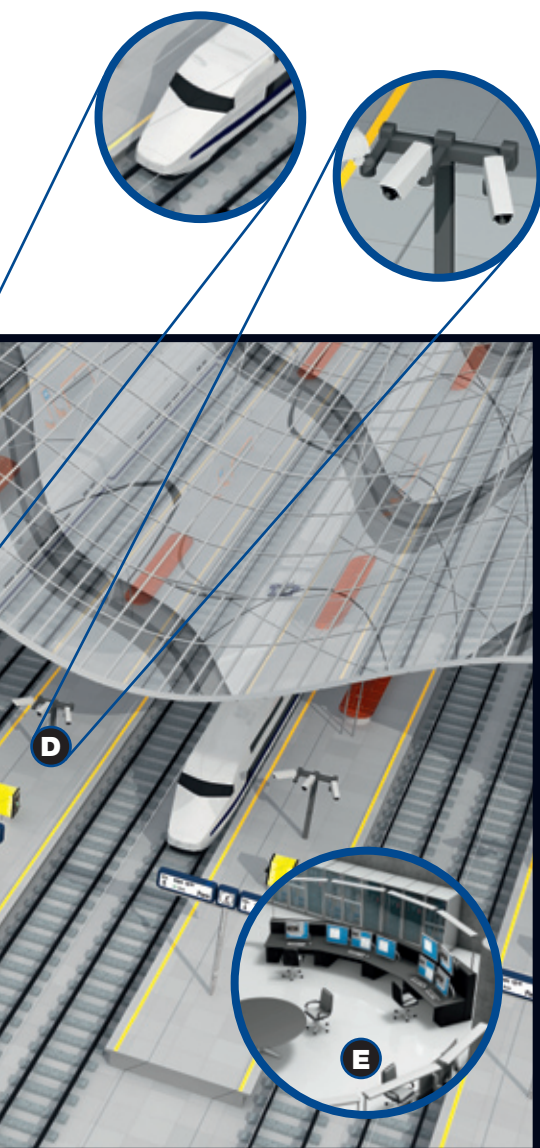
MACH family

- Gigabit backbone Layer 2/3 switches with up to 48 Gigabit Ethernet ports and three 10Gigabit Ethernet ports
- hot-swappable modules
- optional redundant power supply



Network Management Software

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

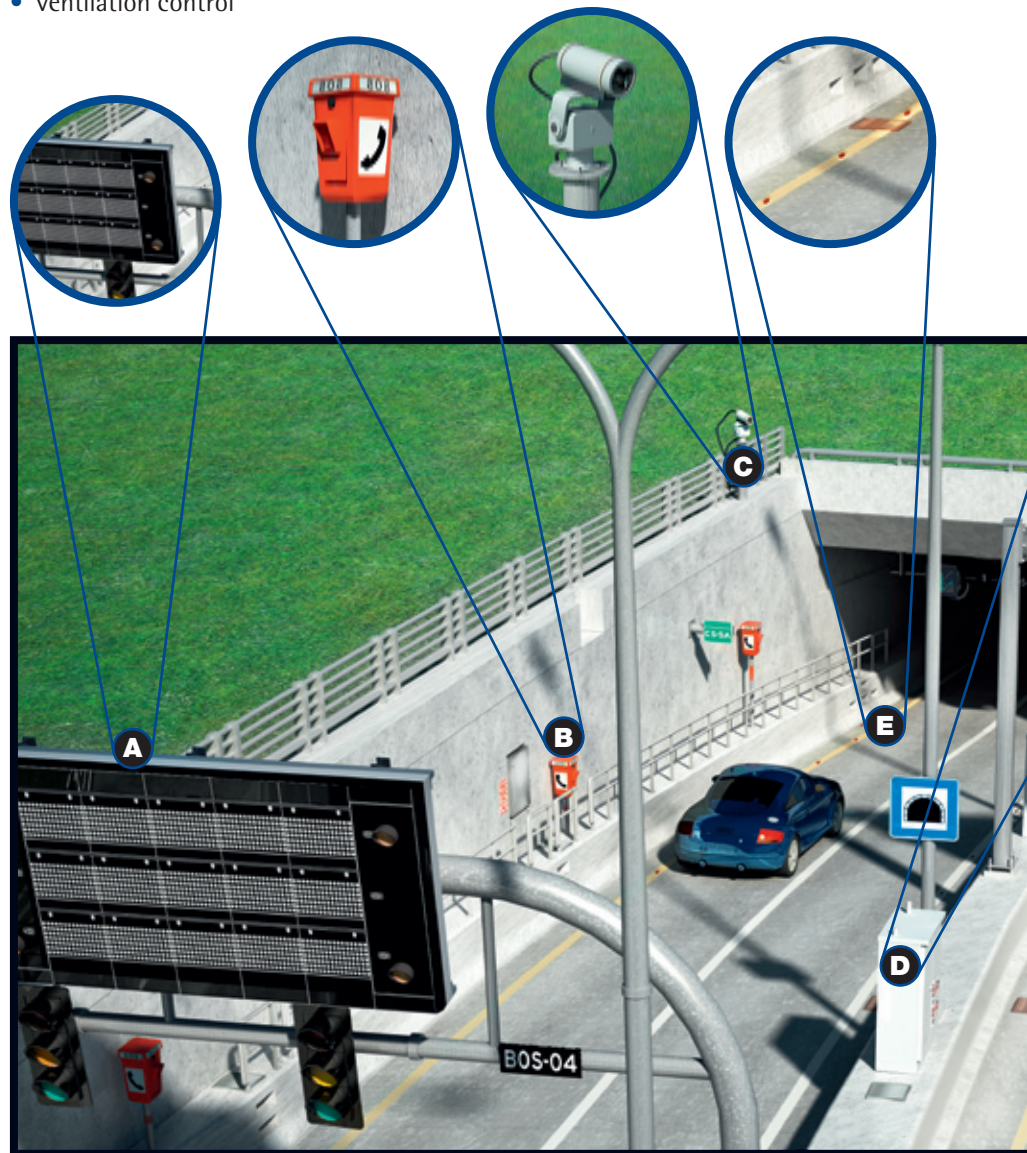


More safety through traffic surveillance

Well-engineered surveillance systems give you an added margin of safety. Belden products are found along highways, in tunnels and in city centers. These applications require long service life at extreme temperatures, fanless cooling and redundant functionality:

- emergency telephones
- tunnel surveillance
- traffic control via information panels and controllable overhead signs
- vehicle counting systems
- emergency power control
- ventilation control

In traffic surveillance,
Belden's highly reliable,
redundant solutions deliver
outstanding service life
and temperature resistance.





A Traffic control systems

B Emergency telephones

OpenRail family

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



C Video surveillance

RS PoE switches

- Power over Ethernet (PoE) technology
- Industrial Ethernet switches
- redundant power inputs
- available with conformal coating
- extended temperature range: -40°C up to +60°C



F Control room

MACH family

- Gigabit backbone Layer 2/3 switches with up to 48 Gigabit Ethernet ports and three 10Gigabit Ethernet ports
- hot-swappable modules
- optional redundant power supply



Network Management Software

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



D Traffic redirection

Fieldbus repeaters

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



Cable solutions

- silicone sheeted cables for extreme temperatures



E Safety lighting

Connectivity solutions

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



Receptacle connectors

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

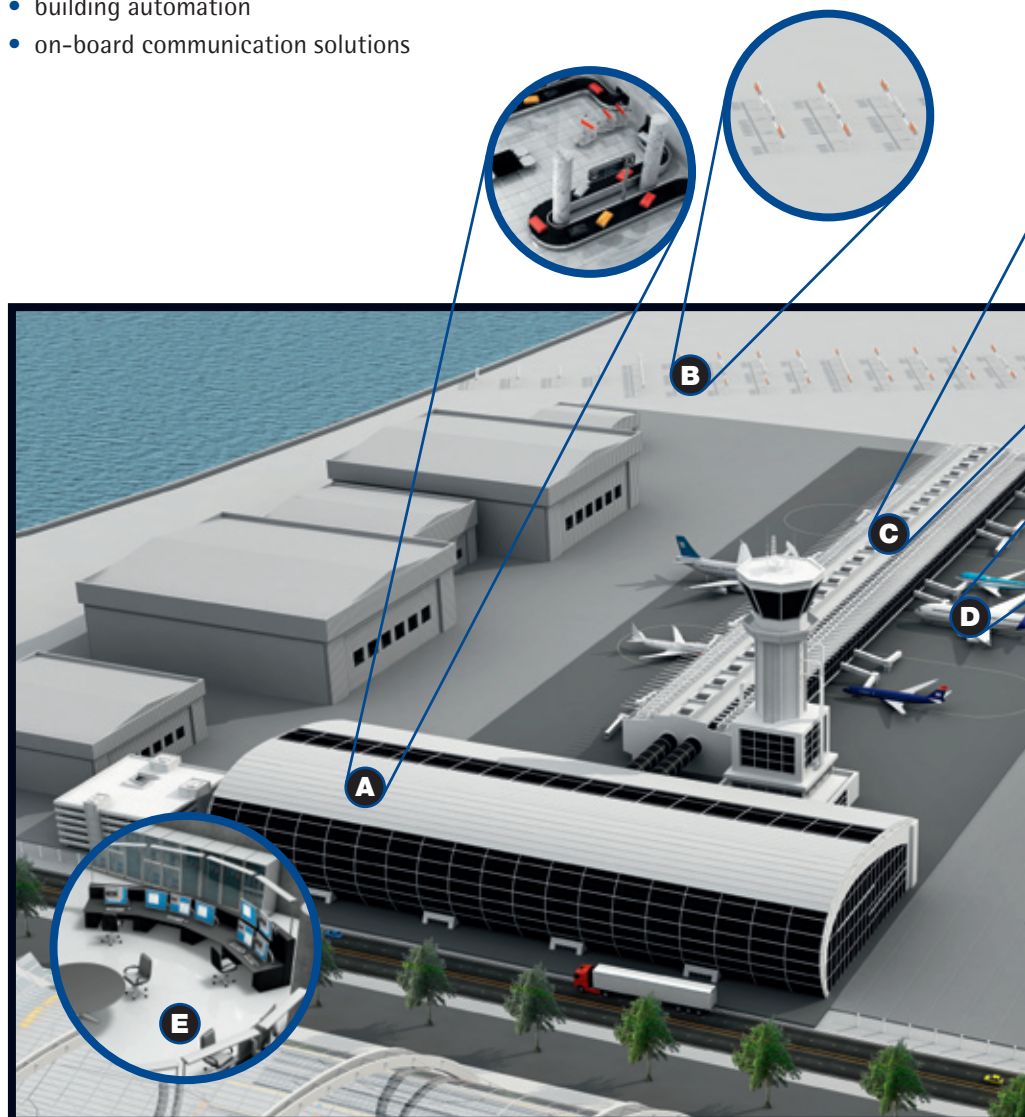


A focus on reliability

Ready for takeoff with Belden – an enviable reputation for outstanding reliability has made our solutions a popular choice at airports around the world. These rugged products have a proven track record in all areas of airport operations. A broad selection of redundancy mechanisms and security features make our products ideally suited for airport applications:

- networks for airport security surveillance
- networking for flight information displays
- baggage carousels
- runway lighting
- inflight entertainment systems
- networks for check-in counters
- building automation
- on-board communication solutions

The high safety standards at airports today require highly available communication and network technology.





A Baggage handling

MICE family

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



EAGLE20

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



Connectivity solutions

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



Actuator/sensor distribution boxes

- 4, 6, 8, 10 and 12 port distribution box
- space saving design
- shock and vibration proof
- IP67 protection class



B Airfield lighting

OpenRail family

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



C Building automation

BAT family

- wireless access points and clients
- bridge functionality
- redundant WLAN links for reliable data transfer
- IP67 protection class



D On-board communication

Cable solutions

- on-board communication cable
- non-flammable
- chemical resistant



E Control room

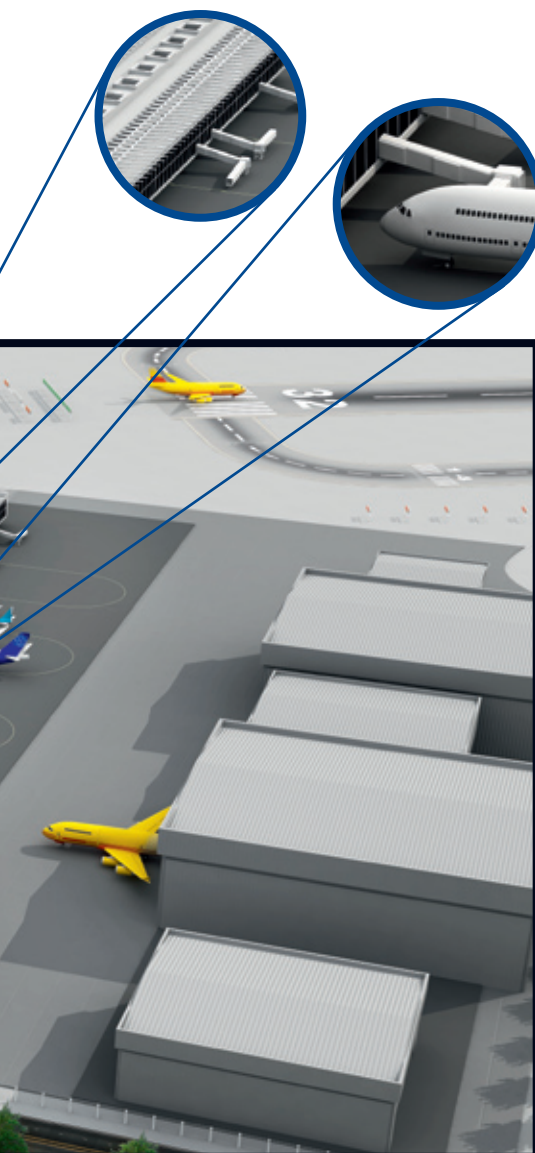
MACH family

- Gigabit backbone Layer 2/3 switches with up to 48 Gigabit Ethernet ports and three 10Gigabit Ethernet ports
- hot-swappable modules
- optional redundant power supply



Network Management Software

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

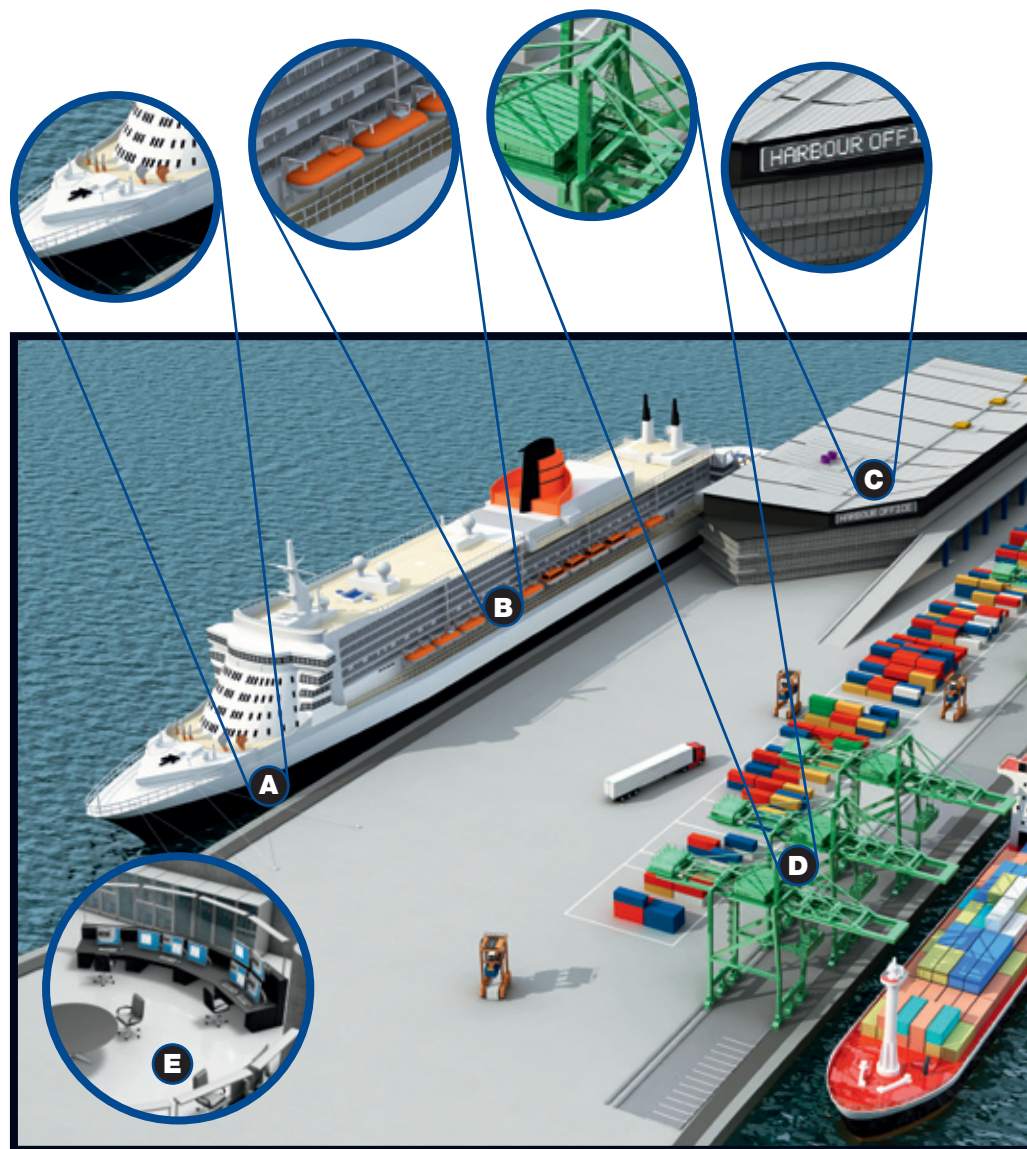


Maximizing on-board performance

Get ready for tomorrow's multimedia world. Belden's innovative data communication solutions open the door to a whole new range of applications, on passenger, cargo and military ships. Our products' extreme ruggedness and Germanischer Lloyd approval promise the highest network performance at sea:

- multimedia services like pay TV, gaming, telephony, etc.
- passenger information systems
- booking and payment systems
- wireless LAN
- Internet access

Innovative data communication solutions on board:
With the rugged, resilient products and solutions from Belden, you can be sure of the highest network performance at sea.





A Engine room

Connectivity solutions

- AS-Interface flat and round cable modules
- actuator/sensor connecting and interconnecting cables
- valve connectors
- IP67 protection class



B Cabins

BAT family

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



C Building automation

OpenRail family

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



Cable solutions

- data transmission cable (250V)
- motor leads
- power cable (1000V)
- high temperature resistant
- high chemical and high oil resistant



D Crane control

Scalable Mobile Control System

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



Fieldbus systems and distributors

- fieldbus modules for AS-Interface, DeviceNet, CANopen and Profibus
- actuator/sensor distribution box
- IP67/IP69K protection class, vibration and shock resistant



Connectivity solutions

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



E Control room

MACH family

- Gigabit backbone Layer 2/3 switches with up to 48 Gigabit Ethernet ports and three 10Gigabit Ethernet ports
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- optional redundant power supply



Network Management Software

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



F Approvals

Marine approvals

- German Lloyd approval



GLOBAL LOCATIONS

For worldwide Industrial Sales
and Technical Support, visit:
www.belden.com/industrial

