MURR ELEKTRONIK

stay connected

NETWORK TECHNOLOGY

from Murrelektronik

XELITY 8TX

XENTERRA 8TX

EFFICIENT NETWORK INSTALLATIONS

As the worlds of machinery and system connectivity grow closer together, Ethernet based solutions are becoming more and more important. The shift from Profibus to Profinet entails an increase in the number of Ethernet components in machinery and systems. Murrelektronik's switches allow you to achieve more flexible, cost effective installations of your Ethernet components.

From basic functionality to a huge variety of functions

Murrelektronik offers an extensive portfolio of switches. Unmanaged switches reliably cover basic functions and offer good value for money, while versions like the PROFINET managed switch offer a maximum range of functions.

- Installation solutions are made easier thanks to the wiring flexibility provided by the switches
- Integrated web servers and simple connections to network analysis tools make status communication easy
- Our compact, IP67 rated switches allow you to shift the coupling layer to the field making your control cabinet smaller

i

Murrelektronik stands for first class, high quality cables. Every Murrelektronik connector is fully tested. Tests include:

- Electrical
- High voltage
- Function
- Pin connection
- Short circuit
- Visual inspection

FULL PORTFOLIO OF ETHERNET CONNECTORS

Murrelektronik specializes in cordsets. We offer a wide range for wiring Ethernet systems:

- Solutions for office environments (IP20 rated, RJ45) and industrial applications (IP67 rated, M12) and IP67 applications (M12)
- angled IP20 versions for space-saving installations
- a variety of premolded cables in lenghts from .1 to 100m with a MOQ of one piece
- custom cable options add options to your installations
- 360° shielding for reliable data transfer

Another Plus: Murrelektronik's X-coded gigabit cables transfer up to 10 GBit/s

OVERVIEW

WHICH SWITCH IS RIGHT IN EACH CASE?

MANAGED SWITCHES

- Comprehenisve diagnostic options thanks to an integrated web server, network tools and automatic topology detection
- Neighbor detection

PROFINET managed switches
- Easy implementation via TIA portal with the help of a GSDML file
- On device replacement, automatic device integration via PROFINET baptism
- Full switch integration as PROFINET device
- Implementation of ring structures via MRP ring formation

Lite managed switches
- Easy setup via the web server
- New devices are created in the web server via a configuration file
- Priorization of PROFINET telegrams
- Ethernet/IP-enabled

UNMANAGED SWITCHES

- No programming required. Just plug and play
- Fastest setup
- Easy device replacement
- Inexpensive
- Wide range of options
- Prioritization of PROFINET telegrams to IEEE 802.3x
- Ethernet/IP-enabled
- IP20 and IP67 versions available

Tree PoE Switches
- 24 V and 48 V Operating voltage
- PoE+ up to 25,4 Watt

	MANAGED SWITCHES				UNMANAGED SWITCHES	
	Profinet managed switches		Lite managed switches			
	IP20 versions	IP67 versions	IP20 versions	IP67 versions	IP20 versions	IP67 versions
Redundant power supply	Yes	Yes	Yes	Yes	Yes, to some extent	Yes
Power supply M12 d-coded via IO port	No	Yes	No	Yes	No	Yes
RJ45	Yes	No	Yes	No	Yes	No
M12	No	Yes	No	Yes	No	Yes
4 ports	Yes	No	Yes	No	Yes	Yes
5 ports	No	Yes	No	Yes	Yes	No
6 ports	Yes	No	Yes	No	Yes	No
8 ports	No	No	No	No	Yes	Yes
16 ports	No	No	No	No	Yes	No
Gigabit	No	No	No	No	Yes	No
NAT	No	No	Yes	Yes	No	No
SNMP V1, V2 and V3	Yes	Yes	Yes	Yes	No	No
Secure remote access (open VPN)	Yes	Yes	Yes	Yes	No	No
Secure web server	Yes	Yes	Yes	Yes	No	No
NTP (Network Time Protocol)	Yes	Yes	Yes	Yes	No	No
LLDP neighborhood topology	Yes	Yes	Yes	Yes	No	No
LLDP PN neighborhood topology	Yes	Yes	No	No	No	No
IP address (can be set, DHCP)	Yes	Yes	Yes	Yes	No	No
PROFINET prioritization	Yes	Yes	Yes	Yes	Yes	Yes
PROFINET diagnosis	Yes	Yes	No	No	No	No
PROFINET MRP slave	Yes	Yes	No	No	No	No
Diagnosis options	Yes	Yes	Yes	Yes	No	No
Mirror port	Yes	Yes	Yes	Yes	No	No
Automatic PROFINET baptism	Yes	Yes	No	No	No	No
GSDML file	Yes	Yes	No	No	No	No
Standards and approvals	UL, CSA	UL, CSA	UL, CSA	UL, CSA	UL, CSA	UL, CSA
Step 7	Yes	Yes	No	No	No	No
TIA Portal	Yes	Yes	No	No	No	No
PC Worx	Yes	Yes	No	No	No	No
PoE Power over Ethernet	No	No	No	No	Yes	No

PROFINET MANAGED SWITCHES – CONNECTIVITY FOR INDUSTRIAL APPLICATIONS

Murrelektronik's **managed switches** are designed for connectivity in industrial areas. They make network setup quick and their extensive diagnostic options allow errors to be quickly spotted and corrected. This minimizes downtime. Neighborhood detection makes component replacement straighforward. Prioritization of Profinet data packages is also a plus.

- **Mirror ports** enable access to network data communication for logging data strings – via a free switch port. Users can take the data for analysis. Errors, the source of costly downtimes, can thus be avoided through predictive maintenance, and in addition, the machine can better utilized**.**

- **Prioritized Data Transfer**
  PROFINET data packages are prioritized within a network and thus transferred by the switches with greater reliability. Performance is increased by focusing on the real-time application of relevant data.

- **Automatic PROFINET Naming**
  The control system names each device within the PROFINET topology. If a device is replaced, all of the data required for resuming operation is automatically carried over to the replacement device via the control system. This saves time as the individual components do not have to be manually configured before operation resumes.

- **Neighborhood detection**
  Components support LLDP (Link Layer Discovery Protocol). They periodically send and receive information about themselves. In this way, the network topology is documented and stored in neighborhood tables.
  All users receive the protocol and thus share information about their neighbors, while PROFINET users enjoy a corresponding overview of their topology. Device failures are picked up by the neighborhood detection function.

  If a PROFINET managed switch is included in the topology, device replacement is tool free. The replacement device is identified and configured automatically. This method is part of the overall „device replacement without engineering tools“ concept.

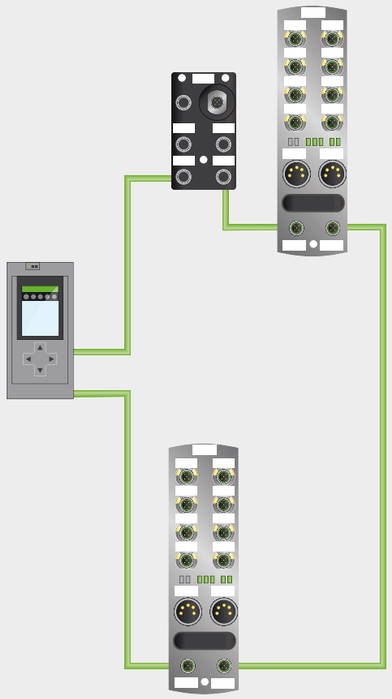
CENTRAL INTERFACE

Murrelektronik’s efficient switches play a key role in PROFINET installations. Besides linear structures, they also enable star, tree and ring topologies.

- **MRP ring formation as a slave**
- **Mirror ports**
- **Optimized data transfer via prioritization**
- **Automatic PROFINET Naming**
- **Neighborhood detection**

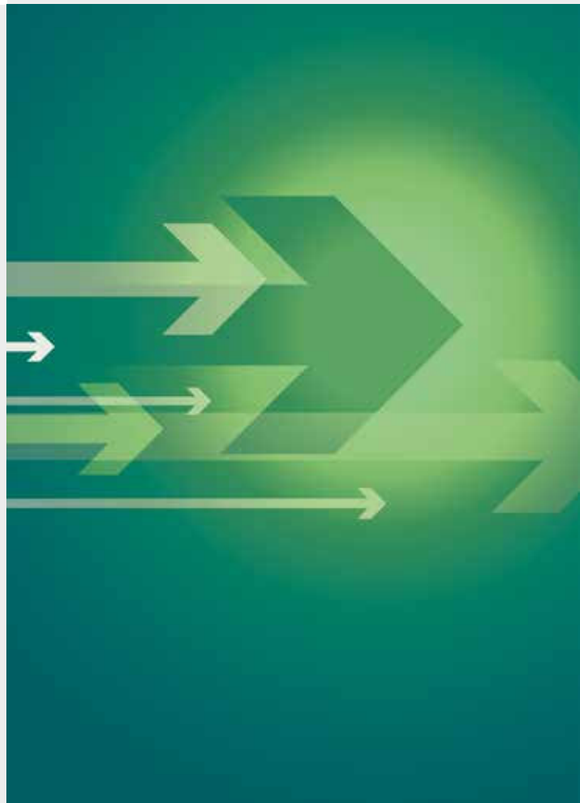
MRP RING FORMATION

Profinet managed switches can be integrated into a network as a slave. This makes redundant wiring and failsafe operation possible. If the data communication path is interrupted, devices in the communication chain are served by the other side of the ring.



RSTP – RAPID SPANNING TREE PROTOCOL

RSTP is a network protocol using in local networks to deactivate redundant paths. If necessary, these paths can be reactivated. In RSTP protocols, failure no longer affects the entire network structure, but is now confined to defective inaccessible paths. Intact paths remain up and running while the new topology is calculated. This ensures that only one active path exists at any time between two end devices. If it cannot be used, the protocol automatically falls back on the deactivated path ensuring high network availability.



PRODUCT INFORMATION

Profinet managed switch			
Order data			
Art. No.	**58184**	**58185**	**58186**
Ports			
Fieldbus	5 × M12 (female connector), D-coded	4 × RJ45	6 × RJ45
System supply	1 M12 (male connector), A-coded	Spring clamp terminal: 0.2...2.5 mm²	
Supply voltage	1 x 24 V via M12, A-coded	2 x 24 V via MSTBO 2.5/4-G1R	
Polarity protection	Yes		
Relay for alarm contact	No		Yes
Technical data			
Operating voltage	9,5...31,5 V		
Max. power consumption	3 W	2,5 W	3 W
Transfer rate	10/100 Mbit/s		
Operating mode	Autocrossing/Autonegotiation		
Switch Management			
Switch Form	PROFINET – Managed Switch		
Web server	HTTP, HTTPS		
Vlan (Qos) IEEE 802.P	yes		
Port Mirroring	yes		
Protocols	DHCP, SNMP (v1, v2c, v3), RSTP, STP, LLDP, NTP, RMON, SSH (CLI)		
Remote maintenance	Open VPN		
Alarm contact	no		yes
Fieldbus	Profinet, Ethernet, Ethernet/IP		
General data			
Protection type	IP67	IP20	
Enclosure	Black plastic		
Fastening type	3-hole screw fastening	DIN rail (EN 50022)	
Temperature range	0...+60 °C (Storage temperature -40...+85 °C)		
Dimensions H x W x D	105×60×40 mm	111×22.5×99 mm	111×45×99 mm
Weight	ca. 250 g	ca. 130 g	ca. 250 g
max. operating height	3000 m		
Schock/Vibration	30g/10g	15g/1g	
Profinet			
Adressierung	DHCP		
FSU (Fast-Start-Up)	no		
Shared Device/Input	no		
Specification	V2.3, Conformance Class B		
MRP	Yes / Slave		
Diagnosis			
Communication status	per LED, LLDP		
Monitoring – no voltage	yes		

PRODUCT INFORMATION

Lite managed switch			
Order data			
Art. No.	**58183**	**58181**	**58182**
Ports			
Fieldbus	5 × M12 (Female), D-coded	4 × RJ45	6 × RJ45
System supply	1 × M12 (Male), A-coded	Spring clamp terminal : 0.2...2.5 mm²	
Supply voltage	1 x 24 V via M12, A-coded	2 x 24 V via MSTBO 2.5/4-G1R	
Polarity protection	Yes		
Relay for alarm contact	No		yes
Technical data			
Operating voltage	9.5...31.5 V		
Max. power consumption	3 W	2,5 W	3 W
Transfer rate	10/100 Mbit/s full duplex		
Operating mode	Autocrossing/Autonegotiation		
Switch Management			
Switch Form	Lite – Managed Switch		
Web server	HTTP, HTTPS		
Vlan (Qos) IEEE 802.P	yes		
Port Mirroring	yes		
Protocols	DHCP, SNMP (v1, v2c, v3), RSTP, STP, LLDP, NTP, RMON, SSH (CLI)		
Remote maintenance	Open VPN		
Alarm contact	no		yes
Fieldbus	Profinet, Ethernet, Ethernet/IP		
General data			
Protection type	IP67	IP20	
Enclosure	Black plastic		
Fastening type	3-hole screw fastening	Snaps onto mounting rail (EN 50022)	
Temperature range	0...+60 °C (Storage temperature -40...+85 °C)		
Dimensions H x W x D	105×60×40 mm	111×22.5×99 mm	111×45×99 mm
Weight	ca. 250 g	ca. 130 g	ca. 250 g
max. operating height	3000 m		
Schock/Vibration	30g/10g	15g/1g	
Diagnosis			
Communication status	per LED, LLDP		
Monitoring – no voltage	yes		

UNMANAGED SWITCHES

Murrelektronik's **unmanaged switches** enable the straightforward, compact connection of Ethernet devices. They are a great solution for industrial applications in rugged environments like machine tools and packaging machines. They are vibration-proof, resistant to EMC influences and suitable for a wide temperature range.

IP67 Unmanaged Switches

Murrelektronik's IP67 switches have a compact and very robust housing. These switches can also be powered directly via an output port from fieldbus modules such as Impact67, MVK Metal or SOLID67.

PoE Switches

The PoE Switches are available for any PoE application, no matter whether 24 V or 48 V operating voltage. With up to 25.4 W at one port, all PoE+ subscribers can be supplied. In addition, they offer a high data transmission rate of 1000 MBit/s.

XELITY®

Although developed and produced in Germany **Xelity®** series switches are inexpensive. Once complete, the series will include managed and unmanaged switches with a choice of 4, 6, 8, 16 or 24 ports in a compact housing. The switches have a similar housing with push in terminals for the power connection that make installation simple. They are resistant to EMC influences and are able to be redundantly supplied with power to ensure system availability. They prioritize Profinet protocols while transferring data packages of up to 100 Mbit/s. The high temperature range (-25 to +60 °C) and UL listing allow for worldwide usage.

MADE IN GERMANY

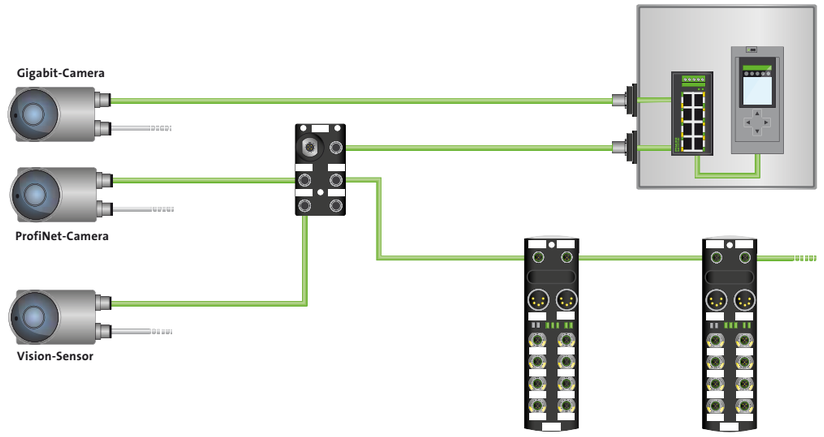
Xelity switches are produced at Murrelektronik's headquarters in Oppenweiler. We adhere to a zero error policy in all areas and continuously invest in machinery, systems and quality control to further develop and improve technical processes. By involving our suppliers and consistently implementing process optimization measures, we produce high quality, state-of-the-art products.

GIGABIT SPEED DATA TRANSFER WITH 8-PORT SWITCH (ART. NO. 58173, 58176)

Murrelektronik's 8-port gigabit switches allow you to integrate devices, like vision cameras, that generate high volumes of data into your system. The gigabit switch also supports jumbo frames (up to 9216 bytes) and Vlan prioritizing to IEEE 802.3x standard.

NOW AVAILABLE IN A 16 PORT VERSION!

- **16-port unmanaged switch with Profinet prioritization**
- **2 gigabit Ethernet uplink ports and 14 fast Ethernet downlink ports**
- **Redundant power supply and a metal housing**



IP67 CONNECTIVITY

- **4 or 8 M12 ports (d-coded)**
- **EMC Resistant Housing**
- **Vibration-proof**
- **Wide temperature range (-25…60 °C)**
- **Profinet prioritization (QoS IEEE 802.1q)**
- **Redundant power supply (18…30 V)**

XENTERRA SWITCHES

Murrelektronik has expanded it‘s switch portfolio with the new, compact Xenterra switch family. They are characterized by their flat yet robust design.

Xenterra is available in 5, 8 or 16 port versions allowing you to select the right sized switch for your application.

The switches can be either DIN rail or wall mounted which further reduces the space needed for installation.

The transmission speed of all Xenterra switches is 100Mbit/s.

TREE PoE SWITCHES

Power over Ethernet provides a significant installation advantage. PoE cameras or PoE Panel PCs, which previously required one cable for power and one cable for data now only need a single cable for power and data transmission.

PoE switches are a must for reducing your wiring efforts. Murrelektronik‘s TREE series is made up of 5 to 8 port switches that have the option of supplying both 24V and 48V allowing users to select the switch that best meets their needs.

Another advantage – our TREE PoE switches use standard 8-pole RJ45 cables.

THE SMALL DIMENSIONS ENABLE NEW APPLICATIONS:

- **They can be cleverly integrated into machines with Panel PCs.**
- **They are suited for use with self-propelled transport systems (AGV) – the switches are screwed directly to the wall.**
- **They are ideal for small terminal boxes and narrow switch cabinets.**

PRODUCT INFORMATION

Unmanaged Switch			
Order data			
Art. No.	**58810**	**58811**	**58812**
Ports			
Fieldbus	4 × RJ45	6 × RJ45	8 × RJ45
Supply Switch	Push-in clamp: 0,2...2,5 mm²		
Technical data			
Operating voltage	+9,5...31,5 V		
Transfer rate	10/100 Mbit/s full duplex		
Operating mode	Autocrossing/Autonegotiation		
Switch Management			
Web server	no		
VLAN (QoS) IEEE 802.P	yes		
Port Mirroring	no		
Protocols	no		
Remote maintenance	no		
Alarm contact	no		
Fieldbus	Profinet, Ethernet, Ethernet/IP		
General data			
Protection type	IP20		
Enclosure	Black plastic		
Assembly	Snaps onto mounting rail TH35 (EN 60715)		
Temperature range	-25...+60 °C (Storage temperature -40...+85 °C)		
Dimensions H x W x D	140 × 30 × 85,1 mm	140 × 30 × 85,1 mm	105 × 41,6 × 85,1 mm
Weight	150 g	170 g	130 g
Max. altitude	3000 m		
Power consumption	1,2 W		
Power consumption 24V	50 mA ± 25%		

PRODUCT INFORMATION

Unmanaged Switch	 		
Order data			
Art. No.	**58151/58152**	**58171**	**58172**
Ports			
Fieldbus	4/8 x RJ45	8 × RJ45	6 × RJ45
Supply Switch	Spring clamp terminal : 0,2...2,5 mm²	Screw terminal: 0,2...1,5 mm²	
Technical data			
Operating voltage	2 × 9...48 V DC, redundant		2 × 9...30 V DC, redundant
Transfer rate	10/100 Mbit/s full duplex		
Operating mode	Autocrossing/Autonegotiation		
Switch Management			
Web server	no		
VLAN (QoS) IEEE 802.P/ProfiNet Prio	yes		
Port Mirroring	no		
Protocols	no		
Remote maintenance	no		
Alarm contact	no		
Fieldbus	Profinet, Ethernet, Ethernet/IP		
General data			
Protection type	IP20		
Enclosure	Metal black		
Assembly	Snaps onto mounting rail TH35 (EN 60715)		
Temperature range	-10...+70 °C (Storage temperature -40...+85 °C)		
Dimensions H x W x D	110 × 22,5 × 89,6 mm/110 × 45,3 × 89,6 mm	90 × 45,2 × 78 mm	

PRODUCT INFORMATION

Unmanaged Switch			
Order data			
Art. No.	**58900**	**58901**	**58902**
Designation	Xenterra 5 TX	Xenterra 5 TX WM	Xenterra 8 TX
Ports			
Fieldbus	5 × RJ45	5 × RJ45	8 × RJ45
Supply Switch	Spring-loaded terminal: 0,2…2,5 mm²		
Technical data			
Operating voltage	+9…36 V DC +8…28 V AC		
Transfer rate	10/100 Mbit/s full duplex		
Operating mode	Autocrossing/Autonegotiation		
Switch Management			
Web server	no		
VLAN (QoS) IEEE 802.P	yes		
Port Mirroring	no		
Protocols	no		
Remote maintenance	no		
Alarm contact	no		
Fieldbus	Profinet, Ethernet, Ethernet/IP		
General data			
Protection type	IP20		
Enclosure	Aluminium eloxiert		
Assembly	Snaps onto mounting rail TH35 (EN 60715)	Wall mounting M4 bore, round-head screw	Snaps onto mounting rail TH35 (EN 60715)
Temperature range	-40…+70 °C (Storage temperature -40…+85 °C)		
Dimensions H x W x D	105 × 42 × 32,5 mm	105 × 42 × 28 mm	105 × 58 × 32,5 mm
Weight	205 g		255 g
Max. altitude	3000 m		
Power consumption	0,9 W		1,15 W

PRODUCT INFORMATION

Unmanaged Switch			
Order data			
Art. No.	**58903**	**58904**	**58905**
Designation	Xenterra 8 TX WM	Xenterra 16 TX	Xenterra 16 TX WM
Ports			
Fieldbus	8 × RJ45	16 × RJ45	16 × RJ45
Supply Switch	Spring-loaded terminal: 0,2…2,5 mm²		
Technical data			
Operating voltage	+9…36 V DC +12…28 V AC		
Transfer rate	10/100 Mbit/s full duplex		
Operating mode	Autocrossing/Autonegotiation		
Switch Management			
Web server	no		
VLAN (QoS) IEEE 802.P	yes		
Port Mirroring	no		
Protocols	no		
Remote maintenance	no		
Alarm contact	no		
Fieldbus	Profinet, Ethernet, Ethernet/IP		
General data			
Protection type	IP20		
Enclosure	Aluminium eloxiert		
Assembly	Wall mounting M4 bore, round-head screw	Snaps onto mounting rail TH35 (EN 60715)	Wall mounting M4 bore, round-head screw
Temperature range	-40…+70 °C (Storage temperature -40…+85 °C)		
Dimensions H x W x D	105 × 58 × 28 mm	105 × 110 × 32,5 mm	105 × 110 × 28 mm
Weight	350 g	405 g	
Max. altitude	3000 m		
Power consumption	1,15 W		2,37 W

PRODUCT INFORMATION

Unmanaged Switch			
Order data			
Art. No.	**58173**	**58174**	**58176**
Ports			
Fieldbus	8 x RJ45	16 x RJ45	8 x RJ45
Supply Switch	Screw terminal: 0,2...1,5 mm²		
Technical data			
Operating voltage	2 x 9...48 V DC, redundant		2 x 9...30 V DC, redundant
Transfer rate	10/100/1000 Mbit/s full duplex	14 x 10/100 & 2x 10/100/1000 Mbit/s full duplex	8x 10/100/1000 Mbit/s full duplex
Operating mode	Autocrossing/Autonegotiation		
Switch Management			
Web server	no		
VLAN (QoS) IEEE 802.P	yes		
Port Mirroring	no		
Protocols	no		
Remote maintenance	no		
Alarm contact	no		
Fieldbus	Profinet, Ethernet, Ethernet/IP		
General data			
Protection type	IP20		
Enclosure	Metal black		Black plastic
Assembly	Snaps onto mounting rail TH35 (EN 60715)		
Temperature range	-10...+70 °C (Storage temperature -40...+85 °C)	0...+70 °C (Storage temperature -20...+70 °C)	0...+60 °C (Storage temperature -10...+70 °C)
Dimensions H x W x D	90 × 45,2 × 78 mm	145 × 54 × 113 mm	90 × 45,2 × 78 mm
Diagnosis			
Communication status	per LED		
Monitoring – no voltage	yes		

PRODUCT INFORMATION

Unmanaged Switch		
Order data		
Art. No.	**58160**	**58161**
Ports		
Fieldbus	4 × M12 (Female), D-coded	8 × M12 (Female), D-coded
System supply	1 × M12 (Male), A-coded	1 × M12 (Male), A-coded
Technical data		
Operating voltage	2 × 18...30 V DC, redundant	
Transfer rate	10/100 Mbit/s full duplex	
Operating mode	Autocrossing/Autonegotiation	
Switch Management		
Switch Form	Unmanaged Switch	
Web server	no	
VLAN (QoS) IEEE 802.p	yes	
Port Mirroring	no	
Protocols	no	
Remote maintenance	no	
Alarm contact	no	
General data		
Protection type	IP67	
Enclosure	Zinc die-cast, matt nickel-plated	
Temperature range	-25...+60 °C (Storage temperature -40...+80 °C)	
Fastening type	4-hole screw mounting	
Dimensions H x W x D	95 × 55 × 31 mm	145 × 55 × 31 mm
Diagnosis		
Communication status	per LED	
Monitoring – no voltage	yes	

PRODUCT INFORMATION

Unmanaged PoE Switch		
Order data		
Art. No.	**58190**	**58191**
Designation	TREE 5 TX 4 PoE GE 48V	TREE 5 TX 4 PoE 1 SFP GE 48V
Ports		
Fieldbus	5 × RJ45	5 RJ45 + 1 x SFP
Supply Switch	Screw terminal 0,2 ... 2,5 mm²	
Technical data		
Operating voltage	12 - 57 V DC	
Transfer rate	RJ45 10/100/1000 Mbit/s full duplex	RJ45 SFP 100/1000 Mbit/s full duplex
Operating mode	Autocrossing/Autonegotiation	
Switch Management		
Web server	no	
VLAN (QoS) IEEE 802.p	yes	
Port Mirroring	no	
Protocols	no	
Remote maintenance	no	
Alarm contact	no	
Fieldbus	Profinet, Ethernet, Ethernet/IP	
General data		
Protection type	IP20	
Enclosure	Metal	
Assembly	Snaps onto mounting rail TH35 (EN 60715)	
Temperature range	-40...+70 °C (Storage temperature -40...+85 °C)	
Dimensions H x W x D	110 x 32 x 90 mm	
Diagnosis		
Communication status	per LED	
Monitoring – no voltage	yes	

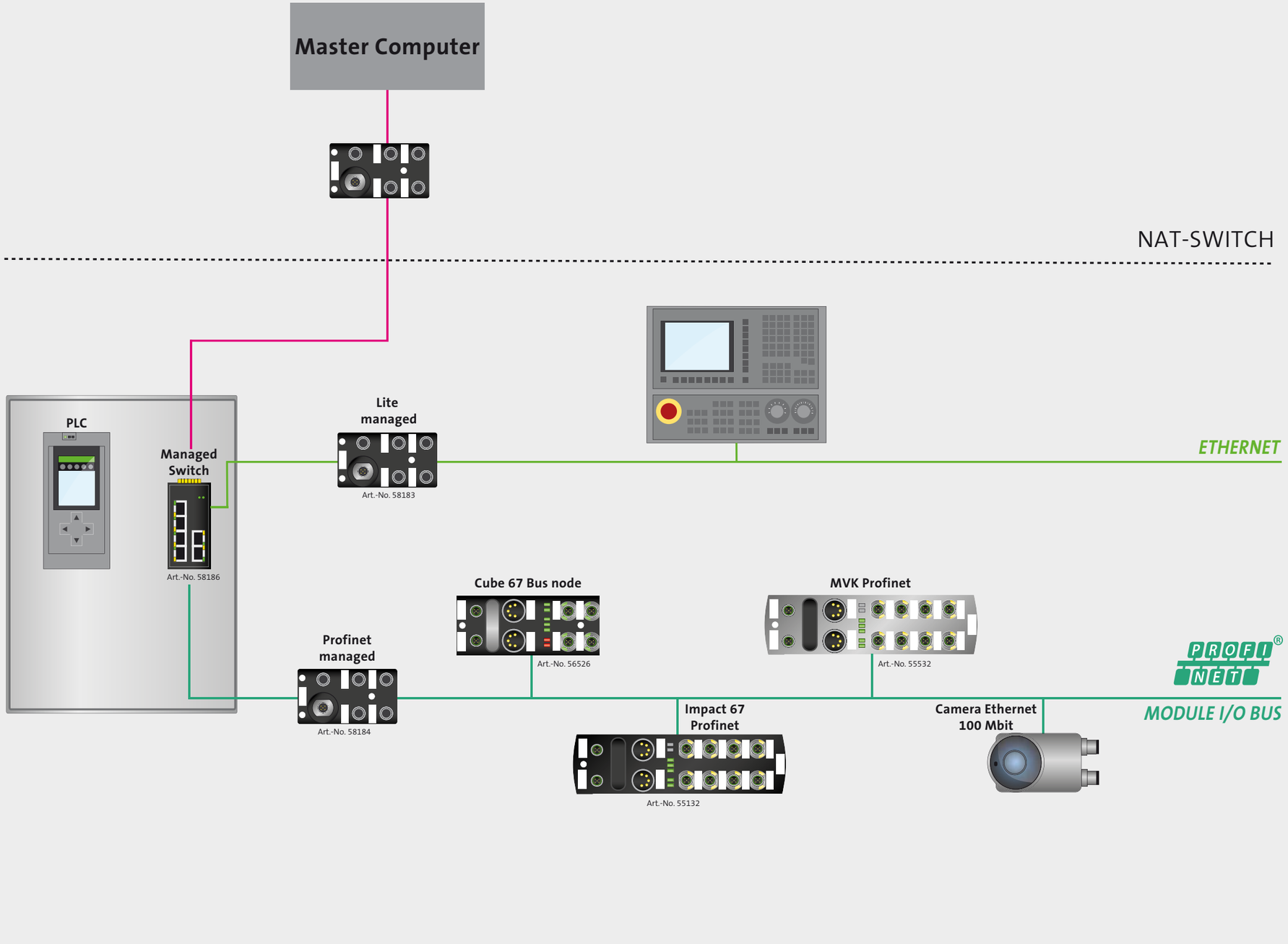
PRODUCT INFORMATION

Unmanaged PoE Switch			
Order data			
Art. No.	**58192**	**58193**	**58194**
Designation	TREE 8 TX 4 PoE GE	TREE 8 TX 8 PoE GE	TREE 10 TX 4 PoE 2 SFP GE
Ports			
Fieldbus	8 × RJ45	8 × RJ45	8 × RJ45 2 × SFP
Supply Switch	Spring-loaded terminal 0,2 ... 2,5 mm²		
Technical data			
Operating voltage	12-57 V DC		
Transfer rate	RJ45 10/100/1000 Mbit/s full duplex		RJ45 SFP 100/1000 Mbit/s full duplex
Operating mode	Autocrossing/Autonegotiation		
Switch Management			
Web server	no		
VLAN (Qos) IEEE 802.P	yes		
Port Mirroring	no		
Protocols	no		
Remote maintenance	no		
Alarm contact	no		
Fieldbus	Profinet, Ethernet, Ethernet/IP		
General data			
Protection type	IP20		
Enclosure	Metal		
Assembly	Snaps onto mounting rail TH35 (EN 60715)		
Temperature range	-40...+75 °C (Storage temperature -40...+85 °C)		
Dimensions H x W x D	145 x 54 x 113 mm		
Diagnosis			
Communication status	per LED		
Monitoring – no voltage	yes		

IMPLEMENTATION AREAS

Switches play a number of roles in installations.

They link PLCs with Ethernet users and they are also used in fieldbus applications to connect a wide range of modules.



NAT SWITCH

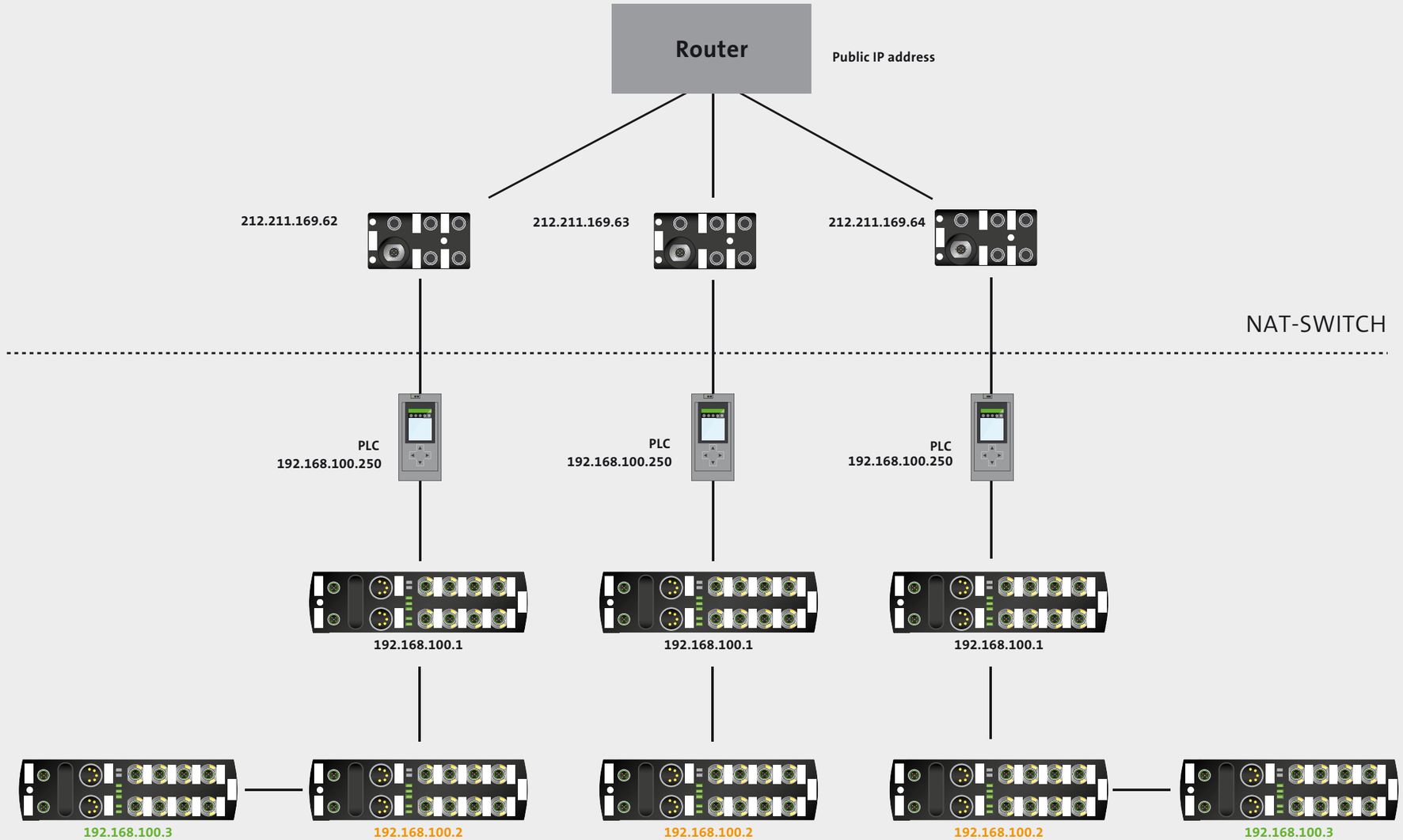
NAT function
NAT = Network Address Translation

Address conflicts occur when machinery and modules have the same address in a company network.

NAT switches are used to separate IP address ranges.

Only the requested server can set up data communication with a machine.

Other servers sending data to the switch are blocked by the firewall to suppress network attacks.



SM-R MANAGED SWITCHES

Yacoub Automation GmbH's SM-R etherRAIL managed switches are specially designed for use in harsh environments. The components are available in 8 x 100 Mbit and 8 x 1 Gigabit versions with M12 ports. SM8+2TX R PoE+ switches will be added to the family soon.

The devices are ideal for use in buses and trains as well as for cost-effective construction and expansion of decentralized industrial Ethernet networks.

The SM-R series supports full network management via SNMP and has an integrated web server for extensive configuration and diagnostics. The implemented protocols are BootP, SNMP (v1, v2, v3), RSTP, LLDP, NTP, DHCP, DHCP Option 82 and DCP.

Their compact design and IP54 rating allow, the devices to be used outside the control cabinets without any problems. The switch can be installed in most any environment as it's temperature range goes from -40 to + 70°C.

PRODUCT INFORMATION

Managed Switch / PoE+			
Order data			
Art. No.	**03.105.1**	**03.106.1**	**03.105.3**
Designation	SM 8TX-R	SM 8GTX-R	SM 8+2TX-R PoE+
Ports			
Fieldbus	8 x M12D (Female)	8 x M12X (Female)	8 x M12D / 2 x M12X (Female)
System supply	1 x M12A (Male)	1 x M12A (Male)	1 x M12A (Male)
Supply voltage	9,5 - 32,0 V	9,5 - 32,0 V	16,8 - 32,0 V
Reverse polarity protection	yes		
Overvoltage protection	yes		
PoE			
Ports			8 x M12D
IEEE 802.3 af/at			yes
Maximum power device			60 W
Maximum performance per port			30 W
Technical data			
Operating voltage	2 x 24 V via M12, A-coded	1 x 24 V via M12, A-coded	2 x 24 V via M12, A-coded
Transfer rate	10/100 Mbit/s	10/100/1000 Mbit/s	10/100/1000 Mbit/s
Operating mode	Autocrossing / Autonegotiation		
Switch Management			
Web server	HTTP, HTTPS		
Port Mirroring	yes		
Frame Priority (QoS) IEEE 802.1Q	yes		
Protocols	BootP, SNMP (v1, v2, v3), RSTP, LLDP, NTP, DHCP, DHCP Option 82, DCP		
Remote maintenance	openVPN		
Fieldbus	Ethernet		
General data			
Protection type	IP54		
Enclosure	Die casting black		
Fastening type	4-hole screw mounting		
Temperature range	-40...+70 °C		
Dimensions H x W x D	176x121x53 mm	176x121x53 mm	176x121x70 mm
Weight	650 g	750 g	900 g
max. operating height	3000 m		
Schock/Vibration	30g/10g		
Diagnosis			
Communication status	per LED		
Monitoring – no voltage	yes		

CONNECTION CONCEPTS

FACTS WORTH KNOWING

Every connector at Murrelektronik is fully tested.

- Electrical
- High voltage
- Function
- Pin connection
- Short circuit
- Visual check

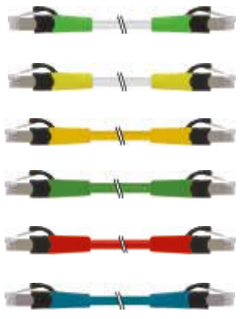
MODULAR ARTICLE NUMBERS

xxx = art. no. of the desired cable type
yyyy = cable length

7000 –	7 4 3 2 1	7 9 6	0 3 0 0
	Design	Cable type (xxx)	Cable length (yyyy)
	for RJ45 Professional with RJ45 0° on RJ45 45° on top	PUR, drag chain-ready, green	for 3 m cable length

Cable type	Art. No.
PUR, drag chain-ready, yellow	675
PUR, drag chain-ready, blue	677
PUR, flexible installation, green	794
PUR, torsion, green	793
PUR, drag chain-ready, green	796
PUR, drag chain-ready, purple	798
PVC, drag chain-ready, green	800
PUR, drag chain-ready, black	851
PUR, drag chain-ready, green	791
PUR, drag chain-ready, red	792

RJ45 CABINET LINE



Name	Art. No.	suitable for
Cabinet Line RJ45 St. 0°/ RJ45 St. 0°, gray, Ethernet 4-pole, AWG26 (0.14mm²)	**7000-74701-777yyyy**	all commercially available industrial Ethernet systems
Cabinet Line RJ45 St. 0°/ RJ45 St. 0° gigabit, gray, 8-pole, AWG26 (0.14mm²)	**7000-74711-778yyyy**	
Cabinet Line RJ45 St. 0°/ RJ45 St. 0° gigabit, yellow, 8-pole, AWG26 (0.14mm²)	**7000-74711-378yyyy**	
Cabinet Line RJ45 St. 0°/ RJ45 St. 0° gigabit, green, 8-pole, AWG26 (0.14mm²)	**7000-74711-478yyyy**	
Cabinet Line RJ45 St. 0°/ RJ45 St. 0° gigabit, red, 8-pole, AWG26 (0.14mm²)	**7000-74711-578yyyy**	
Cabinet Line RJ45 St. 0°/ RJ45 St. 0° gigabit, blue, 8-pole, AWG26 (0.14mm²)	**7000-74711-878yyyy**	

RJ45 PROFESSIONAL

4-pole, overmolded | transfer properties in line with CAT5 ISO/IEC 11801 Class D, AWG22 (0.34mm²)




	RJ45 connector 0°	RJ45 connector 45° on top	RJ45 connector 45° on bottom	RJ45 connector 45° on left
RJ45 connector 0°	**7000-74301-xxxyyyy**	**7000-74321-xxxyyyy**	**7000-74341-xxxyyyy**	**7000-74361-xxxyyyy**
RJ45 connector 45° on top	**7000 -74321-xxxyyyy**	**7000-74401-xxxyyyy**	**7000-74421-xxxyyyy**	**7000-74441-xxxyyyy**
RJ45 connector 45° on bottom	**7000-74341-xxxyyyy**	**7000-74421-xxxyyyy**	**7000-74481-xxxyyyy**	**7000-74501-xxxyyyy**
RJ45 connector 45° on left	**7000-74361-xxxyyyy**	**7000-74441-xxxyyyy**	**7000-74501-xxxyyyy**	**7000-74541-xxxyyyy**
RJ45 connector 45° on right	**7000-74381-xxxyyyy**	**7000-74461-xxxyyyy**	**7000-74521-xxxyyyy**	**7000-74561-xxxyyyy**
RJ45 connector 90° on top	**7000-74327-xxxyyyy**	**7000-74407-xxxyyyy**	–	–
RJ45 connector 90° on bottom	**7000-74347-xxxyyyy**	**7000-74427-xxxyyyy**	**7000-74487-xxxyyyy**	–
RJ45 connector 90° on left	**7000-74367-xxxyyyy**	**7000-74447-xxxyyyy**	**7000-74507-xxxyyyy**	**7000-74547-xxxyyyy**
RJ45 connector 90° on right	**7000-74387-xxxyyyy**	**7000-74467-xxxyyyy**	**7000-74527-xxxyyyy**	**7000-74567-xxxyyyy**




	RJ45 connector 45° on right	RJ45 connector 90° on top	RJ45 connector 90° on bottom	RJ45 connector 90° on left
RJ45 connector 0°	**7000-74381-xxxyyyy**	**7000-74327-xxxyyyy**	**7000-74347-xxxyyyy**	**7000-74367-xxxyyyy**
RJ45 connector 45° on top	**7000-74461-xxxyyyy**	**7000-74407-xxxyyyy**	**7000-74427-xxxyyyy**	**7000-74447-xxxyyyy**
RJ45 connector 45° on bottom	**7000-74521-xxxyyyy**	–	**7000-74487-xxxyyyy**	**7000-74507-xxxyyyy**
RJ45 connector 45° on left	**7000-74561-xxxyyyy**	–	–	**7000-74547-xxxyyyy**
RJ45 connector 45° on right	**7000-74581-xxxyyyy**	–	–	–
RJ45 connector 90° on top	–	**7000-74409-xxxyyyy**	**7000-74429-xxxyyyy**	**7000-74449-xxxyyyy**
RJ45 connector 90° on bottom	–	**7000-74429-xxxyyyy**	**7000-74489-xxxyyyy**	**7000-74509-xxxyyyy**
RJ45 connector 90° on left	–	**7000-74449-xxxyyyy**	**7000-74509-xxxyyyy**	**7000-74549-xxxyyyy**
RJ45 connector 90° on right	**7000-74587-xxxyyyy**	**7000-74469-xxxyyyy**	**7000-74529-xxxyyyy**	**7000-74569-xxxyyyy**




	M12 connector 0°	M12 female connector 0°	M12 connector 90°	With open end cable
RJ45 connector 0°	**7000-44711-xxxyyyy**	**7000-44621-xxxyyyy**	**7000-44761-xxxyyyy**	**7000-74101-xxxyyyy**
RJ45 connector 45° on top	**7000-44721-xxxyyyy**	**7000-44631-xxxyyyy**	**7000-44771-xxxyyyy**	**7000-74121-xxxyyyy**
RJ45 connector 45° on bottom	**7000-44731-xxxyyyy**	**7000-44641-xxxyyyy**	**7000-44781-xxxyyyy**	**7000-74141-xxxyyyy**
RJ45 connector 45° on left	**7000-44741-xxxyyyy**	**7000-44651-xxxyyyy**	**7000-44791-xxxyyyy**	**7000-74161-xxxyyyy**
RJ45 connector 45° on right	**7000-44751-xxxyyyy**	**7000-44661-xxxyyyy**	**7000-44801-xxxyyyy**	**7000-74181-xxxyyyy**
RJ45 connector 90° on top	**7000-44727-xxxyyyy**	**7000-44637-xxxyyyy**	**7000-44777-xxxyyyy**	**7000-74221-xxxyyyy**
RJ45 connector 90° on bottom	**7000-44737-xxxyyyy**	**7000-44647-xxxyyyy**	**7000-44787-xxxyyyy**	**7000-74241-xxxyyyy**
RJ45 connector 90° on left	**7000-44747-xxxyyyy**	**7000-44657-xxxyyyy**	**7000-44797-xxxyyyy**	**7000-74261-xxxyyyy**
RJ45 connector 90° on right	**7000-44757-xxxyyyy**	**7000-44667-xxxyyyy**	**7000-44807-xxxyyyy**	**7000-74281-xxxyyyy**

MURR ELEKTRONIK
stay connected

M12 CONNECTORS FOR ADVANCED INDUSTRIAL ETHERNET APPLICATIONS

Murrelektronik's X-coded M12 cordsets are the solution for error-free, high-speed data transfer at speeds of up to 10 gigabits per second.

A metal cross (X-shaped) in the connector safely separates the four data pairs from each other while the internal shielding protects the cable from external interference.

The combination of our X-coded M12 connectors with highly resistant PUR cables equals a cordset designed for industrial applications.

- **Increased requirements**
  The demand for higher transfer rates is on the rise in industrial Ethernet applications. The best example of this are high speed vision systems, which generate a high data volumes. These cables are also becoming more common in standard installations as well.

- **10 Gbit/s data transfer rate according to Cat. 6A (ISO/IEC 11801)**
- **Soldered shield connection between cable and connector**
- **360° shielding end to end**
- **IP65/67 rating**
- **Lengths to 50m**

Name	Art. No.
M12 connector straight X-coding, open end cable	**7000-21001-790xxxx**
M12 connector angled X-coding, open end cable	**7000-21021-790xxxx**
M12 connector straight X-coding, M12 connector straight X-coding (connecting cable)	**7000-51001-790xxxx**
M12 connector X-coding, insulation displacement technique	**7000-21101-0000000**
M12 flange female connector X-coding, front panel mounting, dip-solder contacts	**7000-21151-0000000**
M12 flange female connector X-coding, rear panel mounting, dip-solder contacts	**7000-21161-0000000**

Murrelektronik's Y-coded M12 cordsets transfer data and power in one connector.

The metal "Y" in the connector separates the four power transfer contacts from the four signal contacts in the pin arrangement making it possible to transfer up to 100 megabits per second of data while also providing 2 x 6A power.

Our Y-coded M12 connectors are combined with PUR cables making them suitable for a wide variety of moving applications.

- **Increased requirements**
  In industrial Ethernet applications, companies are focusing increasingly on installation costs. Single cable transmission of power and data helps reduce both the number of components required and costs.

- **100 Mbit/s data transfer rate according to Cat. 5e**
- **Power Transfer: up to 2 x 6A**
- **Soldered shield connection between cable and connector**
- **360° shielding end to end**
- **IP65/67 rating**

Name	Art. No.
M12 connector straight Y-coding, open end cable	**7000-15501-831xxxx**
M12 connector angled Y-coding, open end cable	**7000-15521-831xxxx**
M12 connector straight Y-coding, M12 connector straight Y-coding (connecting cable)	**7000-47001-831xxxx**
M12 M12 flange female connector Y-coding, dip-solder contacts	**7000-15701-0000000**
M12 flange female connector Y-coding, dip-solder contacts	**7000-15711-0000000**

Network technology – from Murrelektronik | 11_19 EN | Art. No. 9846602

MURR ELEKTRONIK

stay connected

www.murrelektronik.com