



Welcome

Novedades 2021

Redes Industriales

Antonio Gordillo / 6 Mayo 2021 / IMA Marketing



Network

Agenda

- Overview Industrial Ethernet
 - FL SWITCH 1000 FO
 - FL SWITCH 1000 POE
 - FL SWITCH 2000 / 2008F
 - FL SWITCH 2000 C
 - FL SWITCH 2400 / 2500
 - FL SWITCH 1600 1700
 - FL SWITCH 2600 / 2700
 - FL SWITCH TSN 2000
-

Network

Agenda

Wireless

- FL BLE 1300
 - FL WLAN 1010
 - FL WLAN 2010
 - FL WLAN 4321

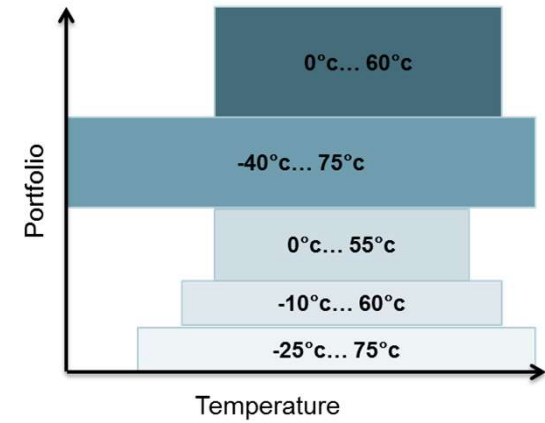
 - mGuard Cybersecurity news
-

Unmanaged switches

Today's portfolio

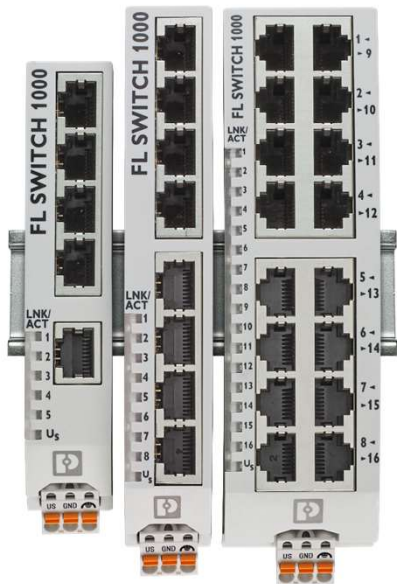


Today's Portfolio



FL SWITCH 1000 Series

Unmanaged Switches for Tomorrow's Market



FL SWITCH 1000 Series

Product Features

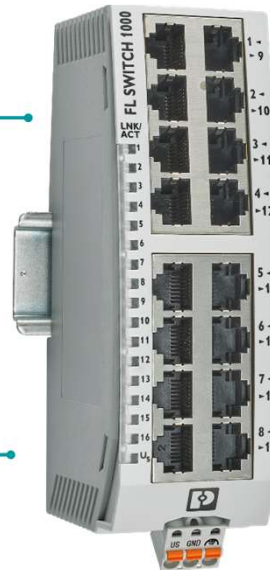


* pending

IEEE 802.3az Compliant



Building Automation
Target Industry



Gigabit Variants in 5 and 8 ports

CC-Link IE ^{*}Field

16 port density in
40mm Width

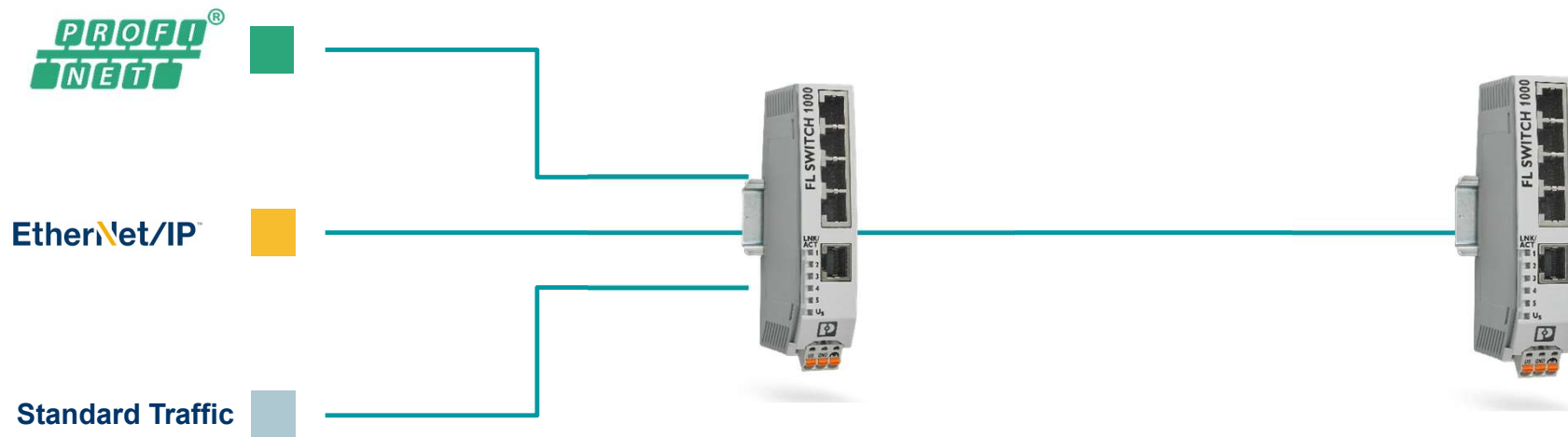
Predefined Automation
Prioritization with QoS

EtherNet/IP 


FL SWITCH 1000 Series

Prioritization of Automation Protocols (IEEE 802.1Q)

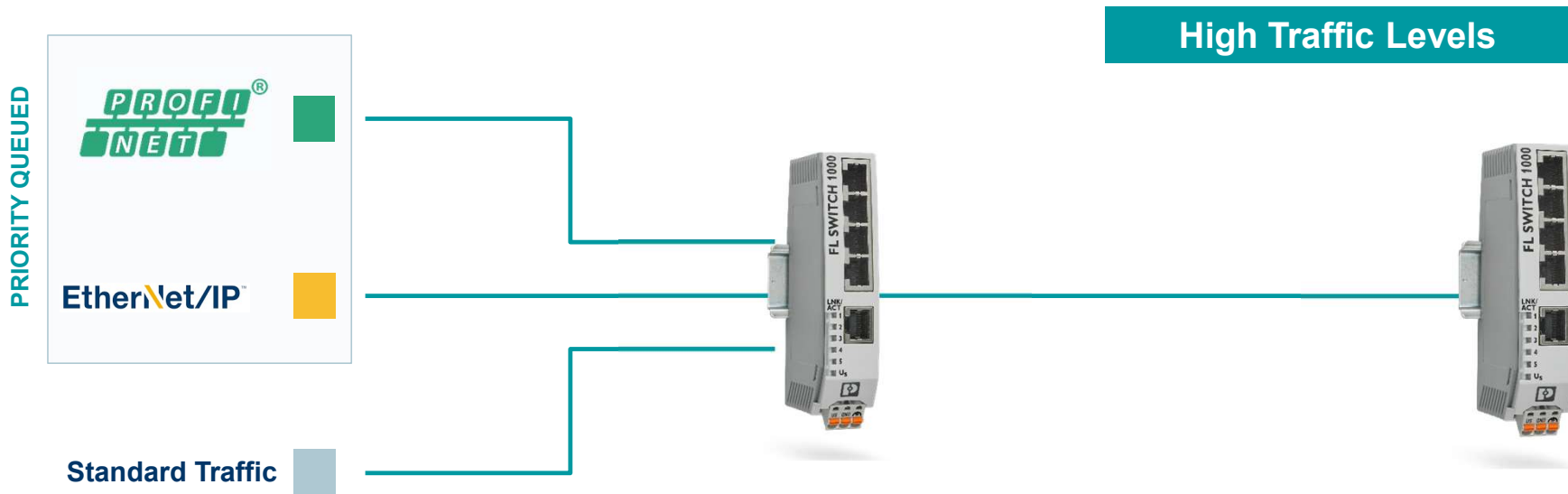
Standard Traffic Levels



As traffic is received, it is transmitted as supplied

FL SWITCH 1000 Series

Prioritization of Automation Protocols (IEEE 802.1Q)



FL SWITCH 1000 Series

Prioritization of Traffic (IEEE 802.1Q)

PRIORITY QUEUED



Ethernet/IP



NON-PRIORITY QUEUED

Standard Traffic

Queues assigned in accordance with standard recommendations

FL SWITCH 1000 Series

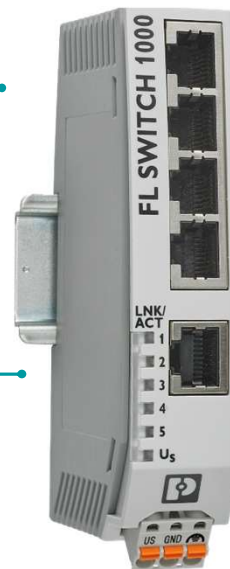
Product Features



* pending

Powered by both 24V DC/AC

Edge mount light pipe
for flat mounting visibility



Industrially Rated Temperature
-10 to 60C

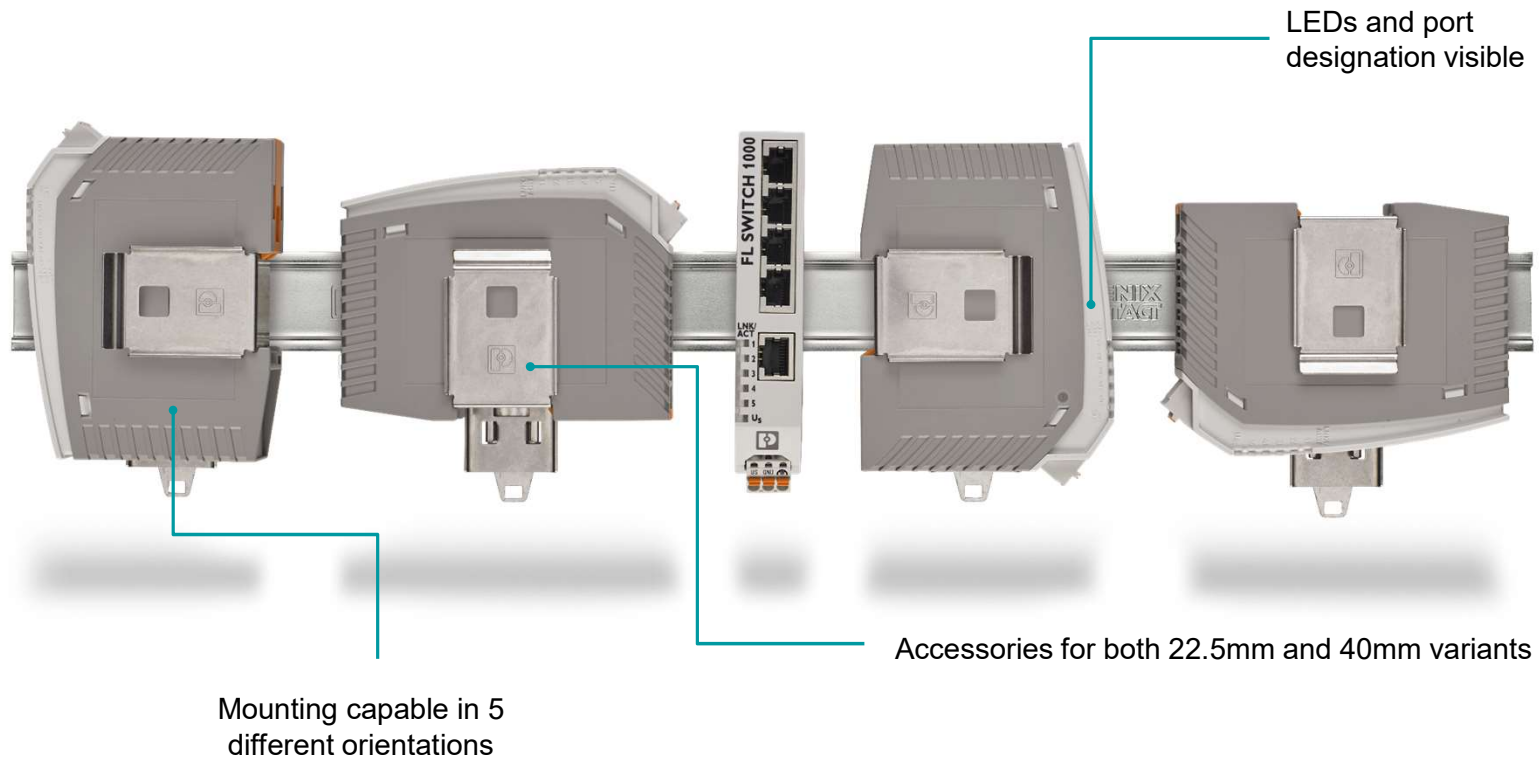
Leaner Profile with
22.5mm Width

Push-In Connector with
extraction feature



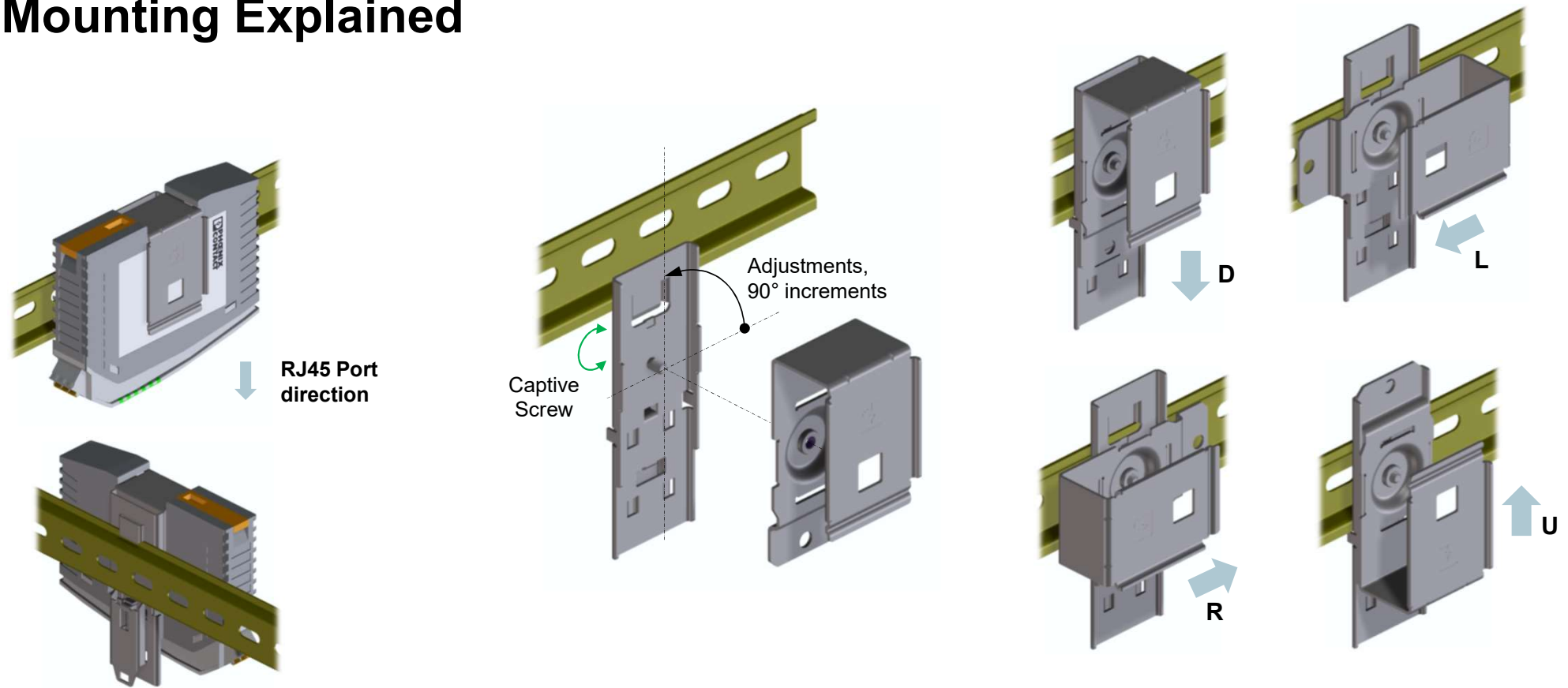
FL SWITCH 1000 Series

Product Mounting



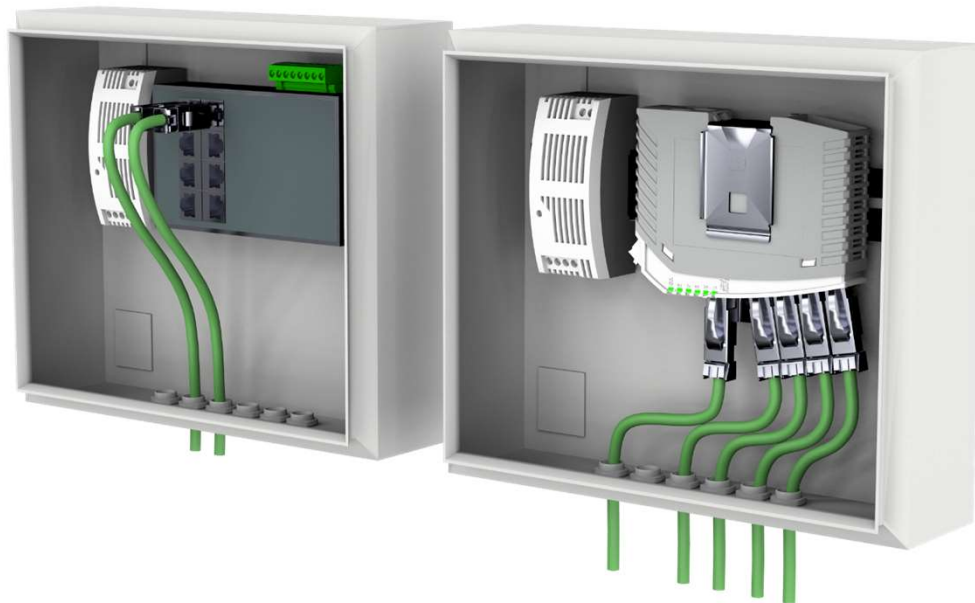
FL SWITCH 1000 Series

Mounting Explained



FL SWITCH 1000 Series

Product Mounting



Products fit within existing product dimensions

- Cable bend-radius is better managed in proposed mounting orientation
- Cable orientation allows installation in shallow enclosures
- Edge light pipe readouts still allow for port-based diagnostics

FL SWITCH 1000 Series

Product Roll Out Plan



Copper



Accessories



new

Fiber

2021

FL SWITCH 1000 Series

Product Technical Data

					
Description	FL SWITCH 1005N	FL SWITCH 1008N	FL SWITCH 1016N	FL SWITCH 1105N	FL SWITCH 1108N
Article	1085039	1085256	1085255	1085254	1085243
Ports	5 RJ45	8 RJ45	16 RJ45	5 RJ45	8 RJ45
Speed	10/100 Mbit/s	10/100 Mbit/s	10/100 Mbit/s	10/100/1000 Mbit/s	10/100/1000 Mbit/s
Input Voltage	9-32V DC and 18-30V AC	9-32V DC and 18-30V AC	9-32V DC and 18-30V AC	9-32V DC and 18-30V AC	9-32V DC and 18-30V AC
Temperature Range	-10 to 60C	-10 to 60C	-10 to 60C	-10 to 60C	-10 to 60C
Dimensions (W x H x D)	22.5 x 117 x 84 mm	22.5 x 140.4 x 92 mm	40 x 140.4 x 92mm	22.5 x 117 x 84 mm	22.5 x 140.4 x 92 mm

FL SWITCH 1000 Series

new

Product Technical Data

							
Description	FL SWITCH 1004N-FX	FL SWITCH 1004N-FX ST	FL SWITCH 1004N-FX SM	FL SWITCH 1004N-SFX	FL SWITCH 1005N-2SFX	FL SWITCH 1104N-SFP	FL SWITCH 1105N-2SFP
Article	1084159	1085179	1085214	1085177	1085176	1085173	1085171
Ports	4 RJ45, 1FX	4 RJ45, 1 FX ST	4 RJ45, 1 FX SM	4 RJ45, 1 SFX	5 RJ45, 2 SFX	4 RJ45, 1 SFP	5 RJ45, 2 SFP
Speed	10/100 Mbit/s	10/100 Mbit/s	10/100 Mbit/s	10/100 Mbit/s	10/100 Mbit/s	10/100/1000 Mbit/s	10/100/1000 Mbit/s
Input Voltage	9-32V DC and 18-30V AC	9-32V DC and 18-30V AC	9-32V DC and 18-30V AC	9-32V DC and 18-30V AC	9-32V DC and 18-30V AC	9-32V DC and 18-30V AC	9-32V DC and 18-30V AC
Temperature Range	-10 to 60C	-10 to 60C	-10 to 60C	-10 to 60C	-10 to 60C	-10 to 60C	-10 to 60C
Dimensions (W x H x D)	22.5 x 117 x 84 mm	22.5 x 117 x 84 mm	22.5 x 117 x 84 mm	22.5 x 117 x 84 mm	22.5 x 140.4 x 92mm	22.5 x 117 x 84 mm	22.5 x 140.4 x 92mm

FL SWITCH 1000 Series

new

Mounting Accessories

				
Description	FL DIN-RAIL ADAPTER 22.5	FL DIN-RAIL ADAPTER 40	FL PANEL ADAPTER 22.5	FL PANEL ADAPTER 40
Article	1085485	1085484	1085488	1085486
Type	DIN-RAIL	DIN-RAIL	PANEL	PANEL
Compatible Products	FL SWITCH 1005N FL SWITCH 1008N FL SWITCH 1105N FL SWITCH 1108N	FL SWITCH 1016N	FL SWITCH 1005N FL SWITCH 1008N FL SWITCH 1105N FL SWITCH 1108N	FL SWITCH 1016N

FL SWITCH 1000

Current Outlook

Order number	Article description	Narrow housing			
		Copper ports		Fiber ports	
		10/100 Mbit/s	10/100/1000 Mbit/s	100 Mbit/s	100/1000 Mbit/s
1085039	FL SWITCH 1005N	5 x RJ45			
1084159	FL SWITCH 1004N-FX	4 x RJ45		1 x MM SC	
1085214	FL SWITCH 1004N-FX SM	4 x RJ45		1 x SM SC	
1085179	FL SWITCH 1004N-FX ST	4 x RJ45		1 x MM ST	
1085177	FL SWITCH 1004N-SFX	4 x RJ45		1 x SFP	
1085256	FL SWITCH 1008N	8 x RJ45			
1085176	FL SWITCH 1005N-2SFX	5 x RJ45		2 x SFP	
1085255	FL SWITCH 1016N	16 x RJ45			
1085254	FL SWITCH 1105N		5 x RJ45		
1085173	FL SWITCH 1104N-SFP		4 x RJ45		1 x SFP
1085243	FL SWITCH 1108N		8 x RJ45		
1085171	FL SWITCH 1105N-2SFP		5 x RJ45		2 x SFP
Product Accessories					
1085488	FL Panel Adapter 22.5	Adapter for flat wall mount			
1085486	FL Panel Adapter 40				
1085485	FL Din-Rail Adapter 22.5	Adapter for flat DIN rail mount			
1085484	FL Din-Rail Adapter 40				



Unmanaged Switches

updates

FL SWITCH 1000

Now offering **full fiber flexibility**

- SC, ST or **SFP** fiber ports
- AC/DC powered
- 22.5mm form factor



POE Updates

Two New Variants

- Galvanically Isolated
- 27mm form factor
- Factory Automation Target



Network

PoE Unmanaged Switches

			
Article No.	1026765	1026937	1026932
Type Description	FL SWITCH 1000T-2POE-2SFP	FL SWITCH 1001T-4POE-GT	FL SWITCH 1001T-4POE-GT-SFP
Ports	2 RJ45 POE x 2 SFP	5 RJ45 (4 POE)	5 RJ45 (4 POE) x 1 SFP
Speed	10/100/1000 Mbit/s	10/100/1000 Mbit/s	10/100/1000 Mbit/s
PoE Power Budget	30W per port 60W per Switch	30W per port 120W per Switch	30W per port 120W per Switch
Supply Voltage	55 VDC 52 - 57 VDC	24/48 VDC 18 - 57 VDC	24/48 VDC 18 - 57 VDC
Temperature Range	-40 to 75C	-40 to 75C	-40 to 75C
Dimensions (mm) W x H x D	42 x 100 x 101	30 x 149 x 108	30 x 149 x 100

new

		
Article No.	1102077	1102079
Type Description	FL SWITCH 1001-4POE-GT	FL SWITCH 1000-8POE-GT
Ports	5 RJ45 (4 POE)	8 RJ45 POE
Speed	10/100/1000 Mbit/s	10/100/1000 Mbit/s
PoE Power Budget	30W per port 120W per switch	30W per port 120W per switch
Supply Voltage	24/48 VDC 19 - 57 VDC	24/48 VDC 19 - 57 VDC
Temperature Range	-10 to 60C	-10 to 60C
Dimensions (mm) W x H x D	27 x 130 x 120	27 x 130 x 120

Unmanaged switches with PoE

new

Web code #1557	Unmanaged Power over Ethernet switches				
	FL SWITCH 1000T-2POE-GT-2SFP	FL SWITCH 1001T-4POE-GT	FL SWITCH 1001T-4POE-GT-SFP	FL SWITCH 1001-4POE-GT	FL SWITCH 1000-8POE-GT
Order No.	1026765	1026937	1026932	1102077	1102079
					
Ports	2 RJ45 POE x 2 SFP	5 RJ45 (4 POE)	5 RJ45 (4 POE) x 1 SFP	5 RJ45 (4 POE)	8 RJ45 POE
PoE Power Budget	30W per port 60W per Switch	30W per port 120W per Switch			
Recommended Power Supply	TRIO-PS-2G/1AC/48DC/5 – 2903159 QUINT4-PS/1AC/48DC/5 – 2904610	0...90W total POE Power Output: UNO-PS/1AC/24DC/150W – 2904376 TRIO-PS-2G/1AC/24DC/5 – 2903148 QUINT4-PS/1AC/24DC/5 – 2904600			91...120W total PoE Power Output UNO-PS/1AC/24DC/240W – 2904372 TRIO-PS-2G/1AC/24DC/10 – 2903149 QUINT4-PS/1AC/24DC/10 – 2904601
Dimensions (W x H x D)	42 x 100 x 101	30 x 149 x 108	30 x 149 x 100	27 x 130 x 120	27 x 130 x 120
Temperature range	-40 to 75C	-40 to 75C	-40 to 75C	-10 to 60C	-10 to 60C
Power Supply	52-57V DC, redundant	18-57V DC, redundant	18-57V DC, redundant	19-57V DC	19-57V DC
Alarm Contact	Yes	Yes	Yes	No	No
Degree of protection	IP30	IP30	IP30	IP20	IP20
General	All standard FL SWITCH 1000/SFNT functions			All standard FL SWITCH 1000 functions	
LED diagnostics	Link Indication, Data Speed, PoE status, Link Failure			Link Indication, Data Speed, PoE status	
DIP Switch	Enable/Disable alarm per port			No	
QoS	Yes			Yes, Automation Protocol Prioritization	
Packset Size	Jumbo Frames (Frame Size 10240 Bytes/Frame)			Jumbo Frames (Frame Size 9216 Bytes/Frame)	
PoE Designation	PoE+ (IEEE 802.3at)			PoE+ (IEEE 802.3at)	
PoE Mode	Mode A: Power over data pairs			Mode A: Power over data pairs	
Galvanic Isolation	No			Yes	

Managed Switches

updates

FL SWITCH 2000 2300



Managed Switches

FL SWITCH 2000 – Updates 2021



FL SWITCH 2000

Overview product family – standard models

- No preconfiguration

Fast Ethernet (100 MBit/s)		Gigabit Ethernet (1000 MBit/s)	
FL SWITCH 20xx series FL SWITCH 2005 (2702323) FL SWITCH 2008 (2702324)		FL SWITCH 21xx series FL SWITCH 2105 (2702665) FL SWITCH 2108 (2702666)	FL SWITCH 2116 (2702908)
FL SWITCH 22xx series FL SWITCH 2205 (2702326) FL SWITCH 2208 (2702327) FL SWITCH 2207-FX (2702328) FL SWITCH 2207-FX SM (2702329) FL SWITCH 2206-2FX (2702330) FL SWITCH 2206-2FX SM (2702331) FL SWITCH 2206-2FX ST (2702332) FL SWITCH 2206-2FX SM ST (2702333)		FL SWITCH 23xx series FL SWITCH 2308 (2702652) FL SWITCH 2304-2GC-2SFP (2702653) FL SWITCH 2306-2SFP (2702970) FL SWITCH 2316 (2702909) FL SWITCH 2314-2SFP (1006191) FL SWITCH 2312-2GC-2SFP (2702910)	
FL SWITCH 24xx series FL SWITCH 2408 (1043412) FL SWITCH 2406-2SFX (1043414) FL SWITCH 2404-2TC-2SFX (1088853)		FL SWITCH 25xx series FL SWITCH 2508 (1043484) FL SWITCH 2506-2SFP (1043491) FL SWITCH 2504-2GC-2SFP (1088872)	FL SWITCH 2516 (1043496) FL SWITCH 2514-2SFP (1043499) FL SWITCH 2512-2GC-2SFP (1088856)
FL SWITCH 26xx series FL SWITCH 2608 (1043412)		FL SWITCH 27xx series FL SWITCH 2708 (1043412)	

FL SWITCH 2000

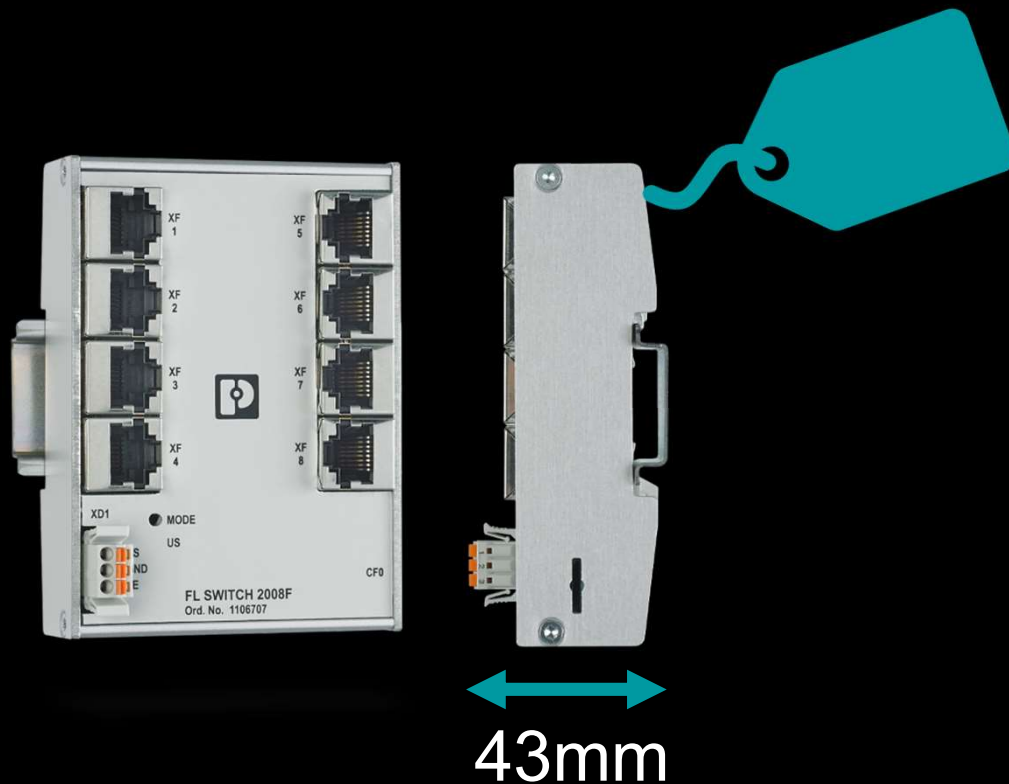
Overview product family – PROFINET models

- PROFINET optimized variants
 - Gigabit and fiber optic variants
 - Additional status LEDs (BF, SF) for PN diagnosis
 - BF → Bus error, no connection with PLC
 - SF → System fault
 - Preconfigured in factory default
 - DCP activated
 - LLDP activated
 - PROFINET device activated



Fast Ethernet (100 MBit/s)	Gigabit Ethernet (1000 MBit/s)
FL SWITCH 22xx series FL SWITCH 2208 PN (1044024) FL SWITCH 2206-2SFX PN (1044028) FL SWITCH 2216 PN (1044029) FL SWITCH 2214-2SFX PN (1044030)	FL SWITCH 23xx series FL SWITCH 2308 PN (1009220) FL SWITCH 2306-2SFP PN (1009222) FL SWITCH 2316 PN (1031673) FL SWITCH 2314-2SFP PN (1031683)
FL SWITCH 24xx series 1089133 FL SWITCH 2408 PN 1089126 FL SWITCH 2406-2SFX PN 1089150 FL SWITCH 2416 PN 1089139 FL SWITCH 2414-2SFX PN	FL SWITCH 25xx series 1089134 FL SWITCH 2508 PN 1089135 FL SWITCH 2506-2SFP PN 1089205 FL SWITCH 2516 PN 1089154 FL SWITCH 2514-2SFP PN
FL SWITCH 26xx series FL SWITCH 2608 PN (1043416)	FL SWITCH 27xx series FL SWITCH 2708 PN (1043416)

Managed Switches updates



FL SWITCH 2008F

- For flat cabinets
- All features like FL SWITCH 2008

Managed Switch Flat

FL SWITCH 2008F

■ Main features

- Installation depth of 37 mm from the DIN rail
- Temperature range: 0°C ... +60°C
- Supply voltage: 18 V DC ... 32 V DC
- Loop protection via RSTP
- Syslog, SNMP, and CLI
- PROFINET (Conformance Class A) and EtherNet/IP™ basic functions



Managed Switch for flat control cabinets

8 x RJ45

10/100 Mbps

75 x 105 x 43.5

FL SWITCH 2008F

1106707

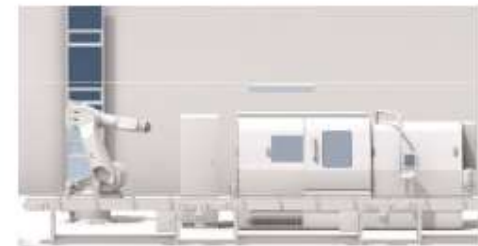
FL SWITCH 2000F

Portfolio overview



	FL SWITCH 20xxF
Transmission speed	Fast Ethernet (100 Mbit/s)
Operating temperature	0°C - 60°C
Supply voltage	18-32 V DC
Approvals	CE 

New – Q4 2020



Machine building

Same feature set as standard FL SWITCH 20xx models

FL SWITCH 2000

Overview product family – Coated models

- Conformally coated PCBs
- Perfect for harsh environments with corrosive surrounding
- No specific preconfiguration



Fast Ethernet (100 MBit/s)

FL SWITCH 22xx series

FL SWITCH 2208C (1095627)
FL SWITCH 2206C-2FX (1095628)

New



Process Technology



FL SWITCH 2400 2500

FL SWITCH 2000

Portfolio overview



FL SWITCH 20xx/21xx

Basic functionality (e.g. for machine building)



FL SWITCH 22xx/23xx

+
Fiber optic variants
+
Full PROFINET support
+
Extended redundancy, security
and management features



FL SWITCH 24xx/25xx

+
Flat design
+
Metal housing
+
Relay contact

New

Extended performance

FL SWITCH 2000

Portfolio overview



New

	FL SWITCH 24xx	FL SWITCH 25xx
Transmission speed	Fast Ethernet (100 Mbit/s)	Gigabit Ethernet (1000 Mbit/s)
Operating temperature	-40°C - 70°C	
Supply voltage	19.2-32 V DC, redundant	
Alarm output	Alarm relais output	
Approvals	      	

Note: Not all maritime approvals will be available at market launch



Factory Automation



Marine and offshore



Flat cabinets

FL SWITCH 2000

Overview product family – PROFINET models

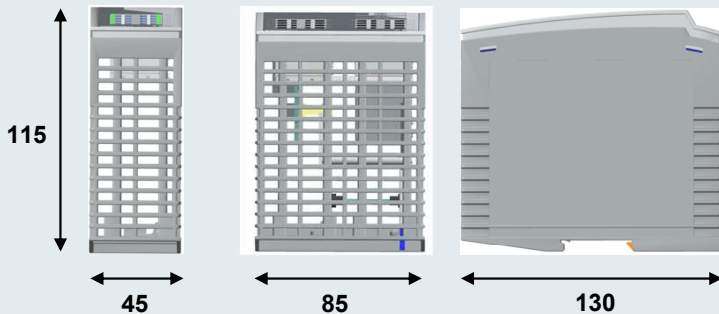
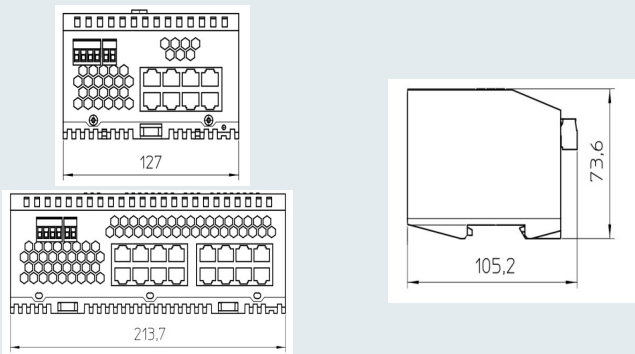
- PROFINET optimized variants
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Fast Ethernet (100 MBit/s)	Gigabit Ethernet (1000 MBit/s)
FL SWITCH 22xx series FL SWITCH 2208 PN (1044024) FL SWITCH 2206-2SFX PN (1044028) FL SWITCH 2216 PN (1044029) FL SWITCH 2214-2SFX PN (1044030)	FL SWITCH 23xx series FL SWITCH 2308 PN (1009220) FL SWITCH 2306-2SFP PN (1009222) FL SWITCH 2316 PN (1031673) FL SWITCH 2314-2SFP PN (1031683)
FL SWITCH 24xx series 1089133 FL SWITCH 2408 PN 1089126 FL SWITCH 2406-2SFX PN 1089150 FL SWITCH 2416 PN 1089139 FL SWITCH 2414-2SFX PN	FL SWITCH 25xx series 1089134 FL SWITCH 2508 PN 1089135 FL SWITCH 2506-2SFP PN 1089205 FL SWITCH 2516 PN 1089154 FL SWITCH 2514-2SFP PN

FL SWITCH 2000

Overview technical data

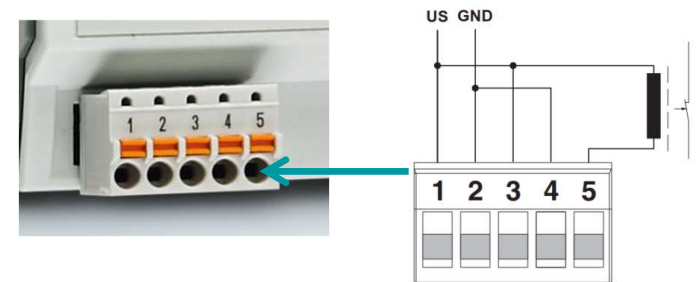
	FL SWITCH 20xx/21xx/22xx/23xx	FL SWITCH 24xx/25xx
Dimensions	 115 45 85 130	 127 213.7 73.6 105.2
Operating Temperature	0°C - 60°C (FL SWITCH 20xx/21xx) -40°C - 70°C (FL SWITCH 22xx/23xx)	-40°C - 70°C
Supply voltage	18-32 V DC, non-redundant (FL SWITCH 20xx/21xx) 12-57 V DC, redundant (FL SWITCH 22xx/23xx)	19.2-32 V DC, redundant
Alarm output	Digital alarm output (FL SWITCH 22xx/23xx)	Alarm relais contact

FL SWITCH 2000

Alarm output

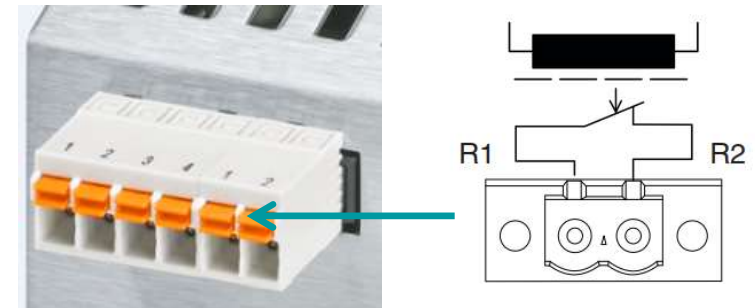
- **FL SWITCH 22xx/23xx**

- Digital alarm output (open drain output)
 - Normal mode → Output is connected to ground potential
 - Error/Alarm mode → Output is floated
 - External relays required
 - e. g. RIF-0-RPT-24DC/21 (2903370)



- **FL SWITCH 24xx/25xx**

- Alarm relais contact



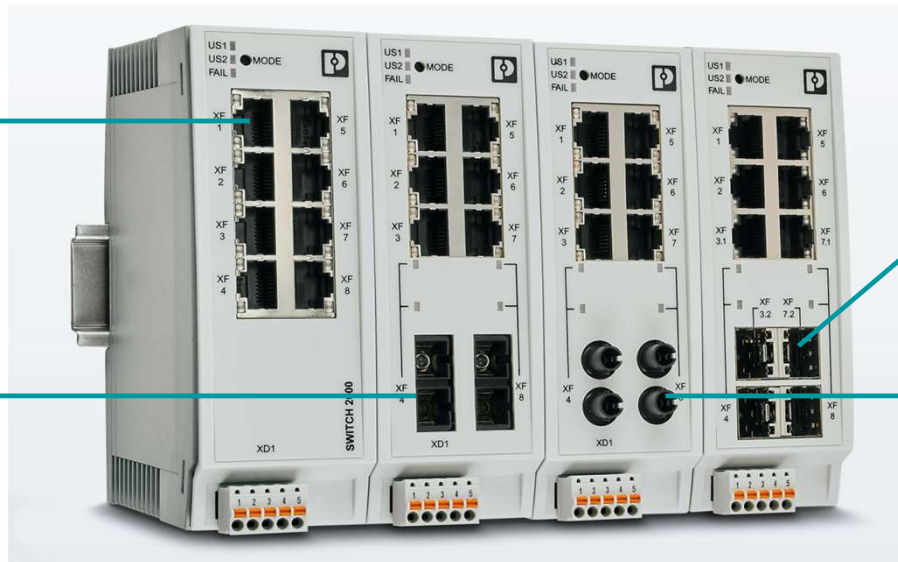
FL SWITCH 2000

Connections via copper and fiber

Copper connection
(RJ45)



Fiber connection
(SC-D)



Slot for SFP modules



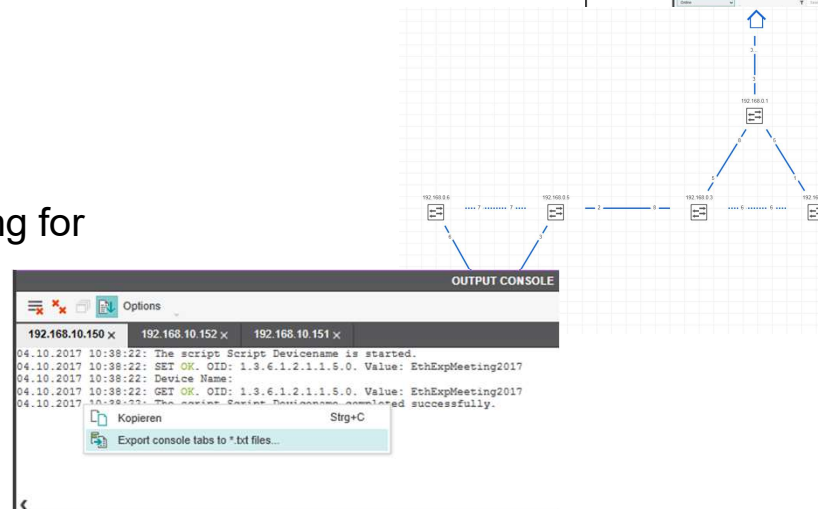
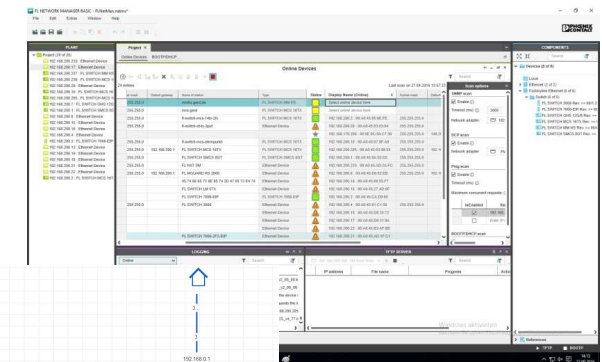
Fiber connection
(ST-D)



FL SWITCH 2000 – Feature Set

Configuration via FL NETWORK MANAGER

- With the FL NETWORK MANAGER you are able to get a quick and easy startup of your network. The software supports you with the following functions:
 - Network detection for unknown IP addresses
 - IP assignment
 - Single/Multiple device configuration
 - Multiple Firmware Update
 - Comfortable up and download handling for configuration files
 - SNMP Scripting
 - Topology detection



Order Number: 2702889

Industrial Ethernet

FL SWITCH 2000 at a glance

① Web code: #1551		Intelligent switches for machine automation		Managed switches for automation applications		Flat managed switches for automation applications		Managed IP67 switches for field installation	
		FL SWITCH 2000(F)	FL SWITCH 2100	FL SWITCH 2200	FL SWITCH 2300	FL SWITCH 2400	FL SWITCH 2500	FL SWITCH 2600	FL SWITCH 2700
Transmission speed		Fast Ethernet (100 Mbit/s)	Gigabit Ethernet (1000 Mbit/s)	Fast Ethernet (100 Mbit/s)	Gigabit Ethernet (1000 Mbit/s)	Fast Ethernet (100 Mbit/s)	Gigabit Ethernet (1000 Mbit/s)	Fast Ethernet (100 Mbit/s)	Gigabit Ethernet (1000 Mbit/s)
Variants		 5/8 Ports	 8 Ports (flat)	 16 Ports	 5/8 Ports	 16 Ports	 8 Ports	 16 Ports	 8 port
Dimensions (WxHxD)		45 mm / 130 mm / 115 mm (5/8 port) 75 mm / 105 mm / 43 mm (8 port flat models) 85 mm / 130 mm / 115 mm (16 port)		45 mm / 130 mm / 115 mm (5/8 port) 85 mm / 130 mm / 115 mm (16 port)		128 mm / 110 mm / 69 mm (8 port) 214 mm / 110 mm / 69 mm (16 port)		60 mm / 226 mm / 46 mm (8 port)	
Temperature range		0°C - 60°C		-40°C - 70°C		-40°C - 70°C		-40°C - 70°C	
Power supply		18 - 32 V DC (Combicon)		12 - 57 V DC, redundant (Combicon)		19.2 - 32 V DC, redundant (Combicon)		9 - 57 V DC, redundant (M12)	
Alarm contact		-		Digital alarm output		Relais contact		-	
Degree of protection		IP20		IP20		IP20		IP65/IP66/IP67	
Housing, Port direction		Plastic, front		Plastic, front		Metal, bottom		Metal, front	
Conformal Coating		-		On models „C“		-		-	
Approvals/ Certifications	CE	Yes		Yes		Yes		Yes	
	UL	Yes		Yes		Yes		Yes*	
	Marine	-		DNV/GL, ABS, LR, RINA, BV, ClassNK, BSH		DNV/GL*, ABS*, LR*, RINA*, BV*, BSH		-	
	Process	-		ATEX, IECEx, UL HazLoc		-		-	
	Automation protocols	-		Profinet (only PN models), CC-Link IE field (only some models)		Profinet (only PN models)		Profinet* (only PN models)	
Maximum packet size (MTU)		Jumbo Frames (Frame size 9k Bytes/Frame) (only 21xx variants)		Jumbo Frames (Frame size 9k Bytes/Frame) (only 23xx/25xx/27xx variants)					

Industrial Ethernet

FL SWITCH 2000 at a glance

① Web code: #1551		Intelligent switches for machine automation		Managed switches for automation applications		Flat managed switches for automation applications		Managed IP67 switches for field installation	
		FL SWITCH 2000(F)	FL SWITCH 2100	FL SWITCH 2200	FL SWITCH 2300	FL SWITCH 2400	FL SWITCH 2500	FL SWITCH 2600	FL SWITCH 2700
Transmission speed		Fast Ethernet (100 Mbit/s)	Gigabit Ethernet (1000 Mbit/s)	Fast Ethernet (100 Mbit/s)	Gigabit Ethernet (1000 Mbit/s)	Fast Ethernet (100 Mbit/s)	Gigabit Ethernet (1000 Mbit/s)	Fast Ethernet (100 Mbit/s)	Gigabit Ethernet (1000 Mbit/s)
Variants		 5/8 Ports  8 Ports (flat)  16 Ports		 5/8 Ports  16 Ports		 8 Ports  16 Ports		 8 port	New – Q1 2021
Filter	Quality of Service VLAN Multicast filter Traffic delimiter	Class of service, DSCP (8 queues) Up to 8 static IGMP snooping/querier (v1, v2) Broadcast, Multicast, unknown Unicast delimiter			Class of service, DSCP (8 queues) Up to 32 static IGMP snooping/querier (v1, v2) Broadcast, Multicast, unknown Unicast delimiter				
Management	Configuration interfaces User management IP configuration IP assignment Time synchronization	Web-based management (HTTP/HTTPS), SNMPv1/v2/v3, Command Line Interface (Telnet, SSH), Smart mode button, SD card Role based BootP, DHCP client Port based DHCP server, Topology-based** SNTP client			Web-based management (HTTP/HTTPS), SNMPv1/v2/v3, Command Line Interface (Telnet, SSH), Smart mode button, SD card, PROFINET IO Role based BootP, DHCP client, DCP Pool based/Port based DHCP server, DHCP Relay Agent (DHCP option 82), Topology-based** SNTP client				
Diagnosis	Event messaging LLDP Port mirroring Port diagnostics	Syslog, SNMP traps Global enable/disable N:1 Port mirroring Port statistics, Port utilization, CRC surveillance			Syslog, SNMP traps Port based enable/disable N:1 Port mirroring Port statistics, Port utilization, CRC surveillance				
Redundancy	Rapid Spanning Tree MRP Link Aggregation	RSTP Client -			RSTP, Fast Ring Detection, Large Tree Support Client/Manager Static Trunking, LACP				
Security	Port security Authentication	- -			MAC based RADIUS authentication (IEEE 802.1x)				
Automation	PROFINET EtherNet/IP	Conformance Class A, MRP, LLDP, PTCP filter, Fast startup, traffic prioritization (Class of Service) IGMP snooping/querier, Extended multicast filter, DHCP, traffic prioritization (DSCP)			Conformance Class B, PN device , MRP, LLDP, PTCP filter, Fast startup, PN Status LEDs (only PN variants), traffic prioritization (Class of Service, Ethertype based) IGMP snooping/querier, Extended multicast filter, DHCP, traffic prioritization (DSCP)				

* Pending

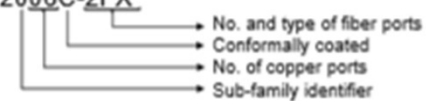
** Added with firmware 3.00 (January 2021)

Industrial Ethernet

FL SWITCH 2000 at a glance

Product Coding:

FL SWITCH 2006C-2FX

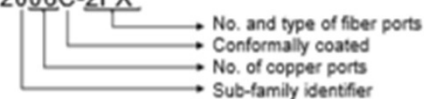


	Standard Housing		Flat Housing		Preconfiguration in factory default	Conformal coating	Copper ports		Fiber ports	
	Order number	Article description	Order number	Article description			10/100 Mbit/s	10/100/1000 Mbit/s	100 Mbit/s	100/1000 Mbit/s
Intelligent switches for machine automation	2702323	FL SWITCH 2005					5 x RJ45			
	2702324	FL SWITCH 2008	1106707	FL SWITCH 2008F			8 x RJ45			
	2702903	FL SWITCH 2016					16 x RJ45			
	2702665	FL SWITCH 2105						5 x RJ45		
	2702666	FL SWITCH 2108						8 x RJ45		
	2702908	FL SWITCH 2116						16 x RJ45		

Industrial Ethernet

FL SWITCH 2000 at a glance

Product Coding:
FL SWITCH 2006C-2FX

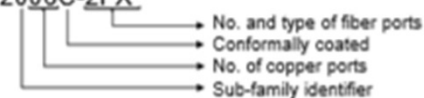


	Standard Housing		Flat Housing		Preconfiguration in factory default	Conformal coating	Copper ports		Fiber ports	
	Order number	Article description	Order number	Article description			10/100 Mbit/s	10/100/1000 Mbit/s	100 Mbit/s	100/1000 Mbit/s
Managed Switch for Automation applications	2702326	FL SWITCH 2205					5 x RJ45			
	2702327	FL SWITCH 2208	1043412	FL SWITCH 2408			8 x RJ45			
	1095627	FL SWITCH 2208C				x	8 x RJ45			
	1044024	FL SWITCH 2208 PN	1089133	FL SWITCH 2408 PN	PROFINET mode		8 x RJ45			
	2702328	FL SWITCH 2207-FX					7 x RJ45		1 x MM SC	
	2702329	FL SWITCH 2207-FX SM					7 x RJ45		1 x SM SC	
	2702330	FL SWITCH 2206-2FX					6 x RJ45		2 x MM SC	
	1095628	FL SWITCH 2206C-2FX				x	6 x RJ45		2 x MM SC	
	2702331	FL SWITCH 2206-2FX SM					6 x RJ45		2 x SM SC	
	2702332	FL SWITCH 2206-2FX ST					6 x RJ45		2 x MM ST	
	2702333	FL SWITCH 2206-2FX SM ST					6 x RJ45		2 x SM ST	
	2702969	FL SWITCH 2206-2SFX	1043414	FL SWITCH 2406-2SFX			6 x RJ45		2 x SFX	
	1044028	FL SWITCH 2206-2SFX PN	1089126	FL SWITCH 2406-2SFX PN	PROFINET mode		6 x RJ45		2 x SFX	
	2702334	FL SWITCH 2204-2TC-2SFX	1088853	FL SWITCH 2404-2TC-2SFX			4 x RJ45		2 x combo, 2 x SFX	
	2702904	FL SWITCH 2216	1043416	FL SWITCH 2416			16 x RJ45			
	1044029	FL SWITCH 2216 PN	1089150	FL SWITCH 2416 PN	PROFINET mode		16 x RJ45			

Industrial Ethernet

FL SWITCH 2000 at a glance

Product Coding:
FL SWITCH 2006C-2FX



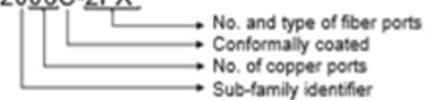
Standard Housing		Flat Housing		Preconfiguration in factory default	Conformal coating	Copper ports		Fiber ports	
Order number	Article description	Order number	Article description			10/100 Mbit/s	10/100/1000 Mbit/s	100 Mbit/s	100/1000 Mbit/s
2702905	FL SWITCH 2214-2FX					14 x RJ45		2 x MM SC	
2702906	FL SWITCH 2214-2FX SM					14 x RJ45		2 x SM SC	
1006188	FL SWITCH 2214-2SFX	1043423	FL SWITCH 2414-2SFX			14 x RJ45		2 x SFX	
1044030	FL SWITCH 2214-2SFX PN	1089139	FL SWITCH 2414-2SFX PN	PROFINET mode		14 x RJ45		2 x SFX	
2702907	FL SWITCH 2212-2TC-2SFX	1088875	FL SWITCH 2412-2TC-2SFX			12 x RJ45		2 x combo, 2 x SFX	
2702652	FL SWITCH 2308	1043484	FL SWITCH 2508				8 x RJ45		
1009220	FL SWITCH 2308 PN	1089134	FL SWITCH 2508 PN	PROFINET mode			8 x RJ45		
2702970	FL SWITCH 2306-2SFP	1043491	FL SWITCH 2506-2SFP				6 x RJ45		2 x SFP
1009222	FL SWITCH 2306-2SFP PN	1089135	FL SWITCH 2506-2SFP PN	PROFINET mode			6 x RJ45		2 x SFP
2702653	FL SWITCH 2304-2GC-2SFP	1088872	FL SWITCH 2504-2GC-2SFP				4 x RJ45		2 x combo, 2 x SFP
2702909	FL SWITCH 2316	1043496	FL SWITCH 2516				16 x RJ45		
1031673	FL SWITCH 2316 PN	1089205	FL SWITCH 2516 PN	PROFINET mode			16 x RJ45		
1006191	FL SWITCH 2314-2SFP	1043499	FL SWITCH 2514-2SFP				14 x RJ45		2 x SFP
1031683	FL SWITCH 2314-2SFP PN	1089154	FL SWITCH 2514-2SFP PN	PROFINET mode			14 x RJ45		2 x SFP
2702910	FL SWITCH 2312-2GC-2SFP	1088856	FL SWITCH 2512-2GC-2SFP				12 x RJ45		2 x combo, 2 x SFP

Managed switches for automation applications

Industrial Ethernet

FL SWITCH 2000 at a glance

Product Coding:
FL SWITCH 2006C-2FX



	Standard Housing		Flat Housing		Preconfiguration in factory default	Conformal coating	Copper ports		Fiber ports	
	Order number	Article description	Order number	Article description			10/100 Mbit/s	10/100/1000 Mbit/s	100 Mbit/s	100/1000 Mbit/s
Managed IP67 switches for field installation	1106500	FL SWITCH 2608					8 x M12 (D-coded)			
	1106616	FL SWITCH 2608 PN			PROFINET mode		8 x M12 (D-coded)			
	1106615	FL SWITCH 2708						8 x M12 (X-coded)		
	1106610	FL SWITCH 2708 PN			PROFINET mode			8 x M12 (X-coded)		

NETWORK

goes field



Ethernet Switches for field installation

IP65/66/67

Metal housing
(Zinc die cast)

Profile and wall
mountable

Slim design
(60mm)



Ethernet Switches for field installation



Ethernet Switches for field installation

M12 classic

- Use existing cables/connectors
- Established technology

M12 Push/Pull

- Save time due to fast locking system



Classical and new connection method

M12

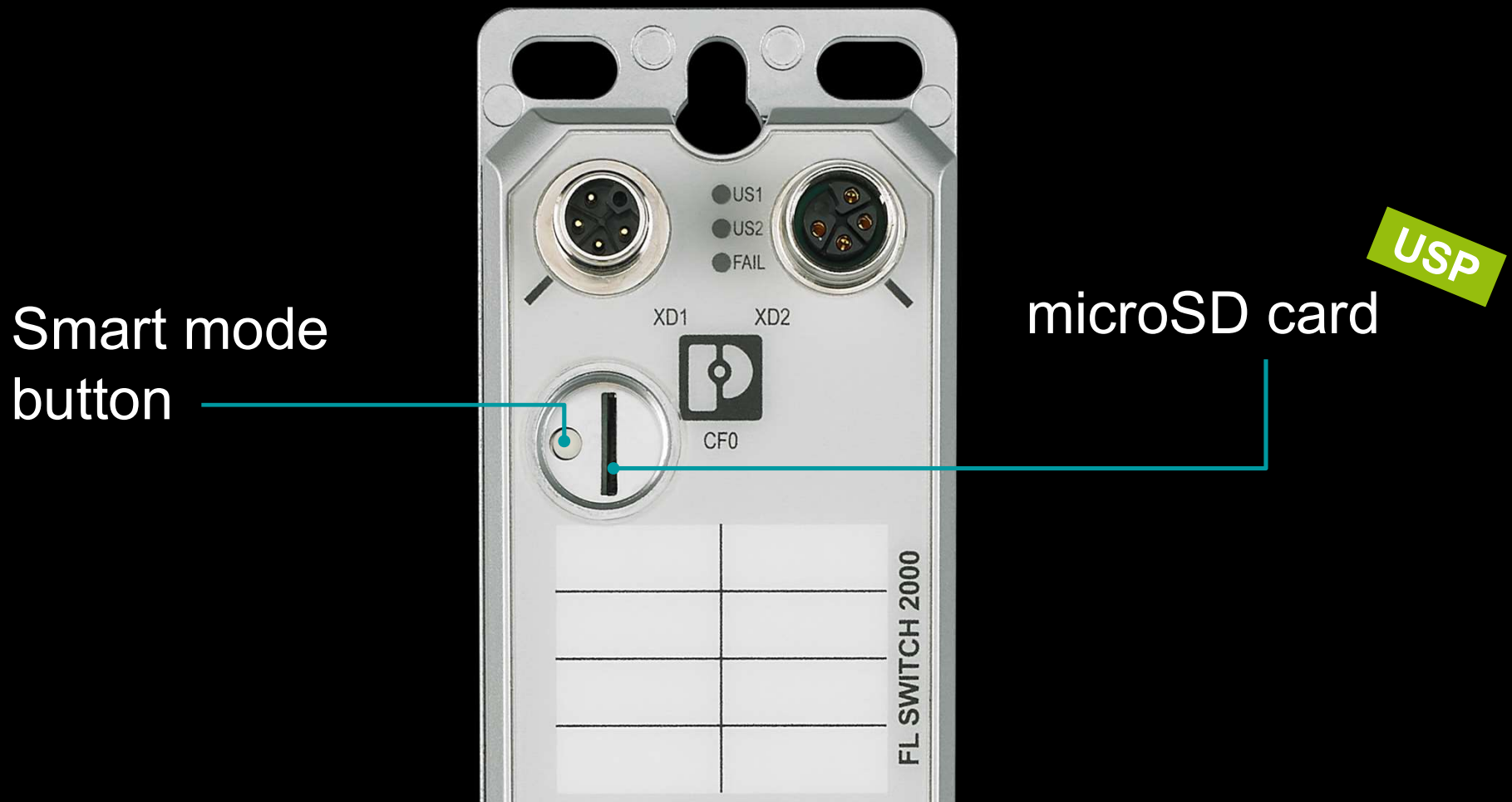
M12 Push/Pull



Ethernet Switches for field installation



Ethernet Switches for field installation



Ethernet Switches for field installation

Target Industries



Factory Automation



Other field & M12 applications

Ethernet Switches for field installation

FL SWITCH 1600/1700



- **Unmanaged**
- Fast Ethernet & Gigabit
- **All features** of the new FL SWITCH 1000/1100 series supported

FL SWITCH 2600/2700



- **Managed**
- Fast Ethernet & Gigabit
- PN models
- **All features** of FL SWITCH 22xx/23xx supported

FL SWITCH 1600/1700

Portfolio Overview

New – Q1 2021



	FL SWITCH 16xx	FL SWITCH 17xx
Transmission speed	Fast Ethernet (100 Mbit/s)	Gigabit Ethernet (1000 Mbit/s)
Operating temperature	-40°C - 70°C	
Supply voltage	9-57 V DC, redundant	
Alarm output	-	
Degree of protection	IP65/IP66/IP67	
Approvals	CE 	

Target Markets



Factory Automation



Field Installation

FL SWITCH 2600/2700

Portfolio overview

New – Q1 2021



	FL SWITCH 26xx	FL SWITCH 27xx
Transmission speed	Fast Ethernet (100 Mbit/s)	Gigabit Ethernet (1000 Mbit/s)
Operating temperature	-40°C - 70°C	
Supply voltage	9-57 V DC, redundant	
Alarm output	-	
Degree of protection	IP65/IP66/IP67	
Approvals	CE  LISTED 	

Note: Not all approvals will be available at market launch



Factory Automation



Field Installation

FL SWITCH 2600/2700

Robust design

- Metal housing (Zinc die cast)
- Slim design (60mm)
- Profile and wall mountable



FL SWITCH 2600/2700

Established configuration handling

- Micro SD card
- Smart mode button



FL SWITCH 2600/2700

Flexible M12 connector options

✓ M12 classic

Use existing cables/connectors

Established technology



✓ M12 Push/Pull

Save time due to fast locking system

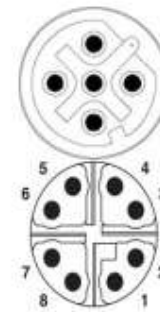


FL SWITCH 2600/2700

Flexible M12 connector options

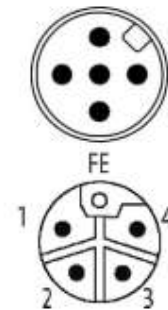
■ Ethernet connectors

- M12 D-coded connectors on 100 Mbps models
- M12 X-coded connectors on Gigabit models



■ Power connectors

- M12 A-coded on standard models
- M12 L-coded on PROFINET models (PNO defined standard)



FL SWITCH 2600/2700

Simple power cabling

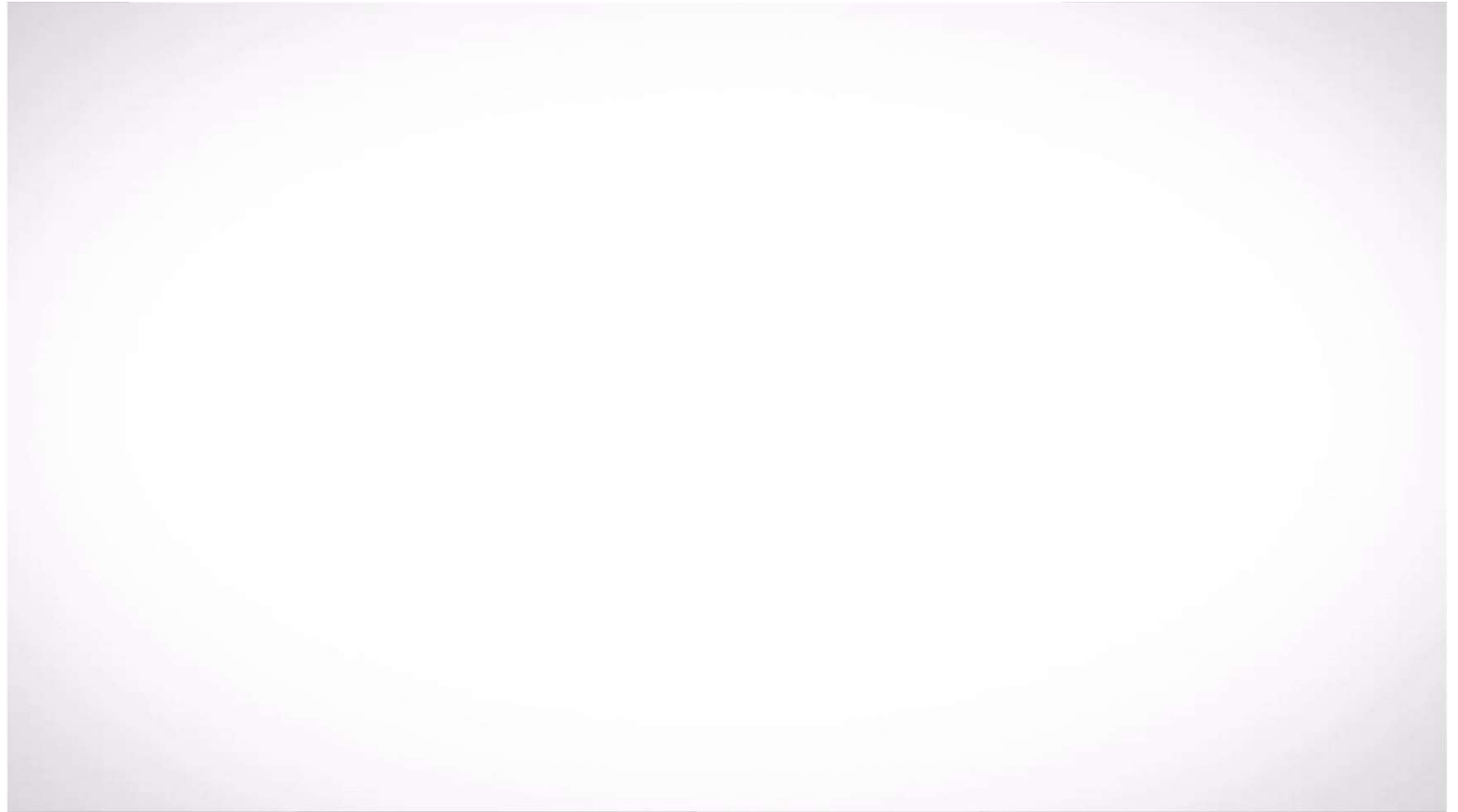
- Redundant Power input/output
- Scalable networks



Pre-Launch Information

FL SWITCH 2600/2700 – Portfolio

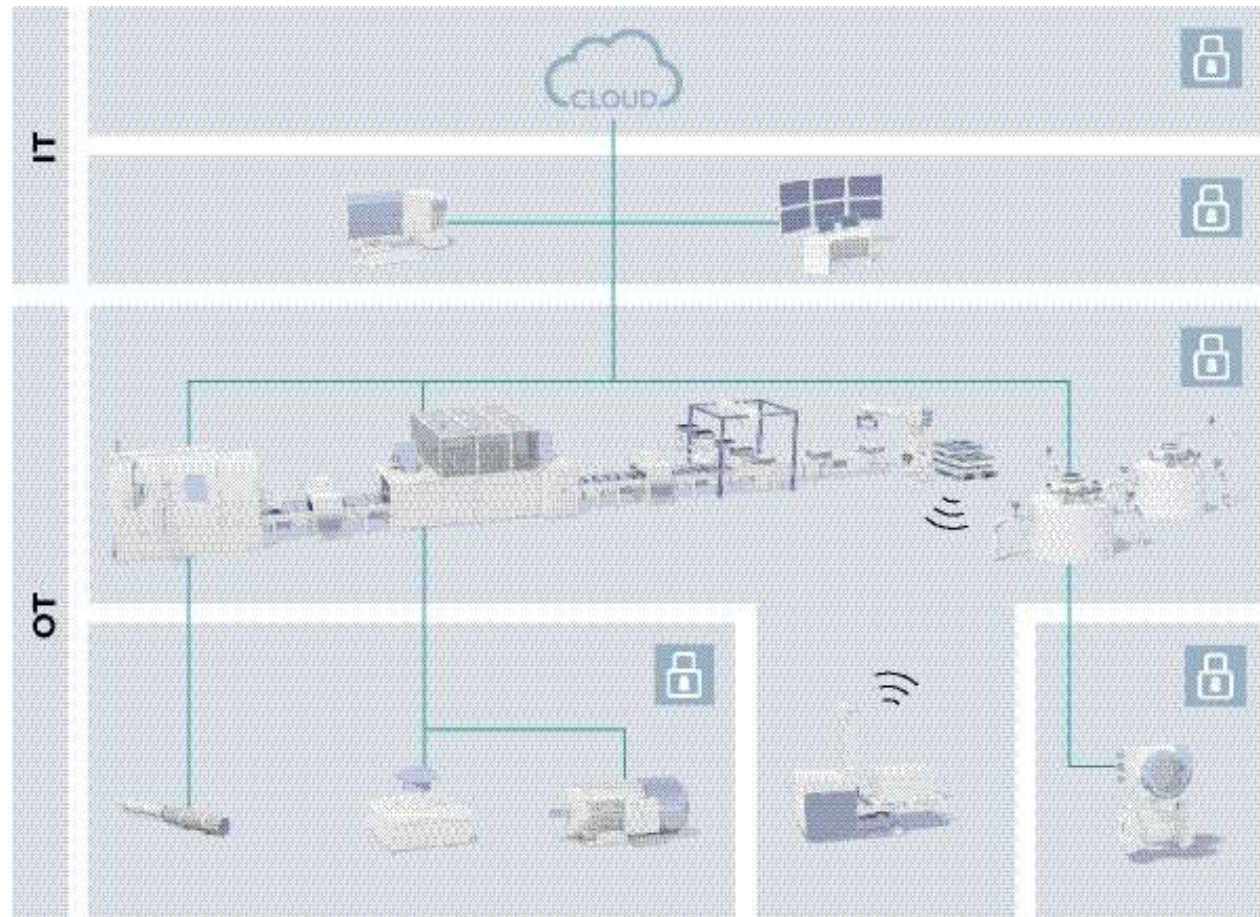
Ord.-No.	Designation			Function description
1106500	FL SWITCH 2608			Managed IP67 switch with 8 x 10/100 MBit/s ports (M12 D-coded)
1106616	FL SWITCH 2608 PN			Managed IP67 switch with 8 x 10/100 MBit/s ports (M12 D-coded), Profinet status LEDs (SF, BF) and Profinet preconfiguration
1106615	FL SWITCH 2708			Managed IP67 gigabit switch with 8 x 10/100/1000 MBit/s ports (M12 X-coded)
1106610	FL SWITCH 2708 PN			Managed IP67 gigabit switch with 8 x 10/100/1000 MBit/s ports (M12 X-coded), Profinet status LEDs (SF, BF) and Profinet preconfiguration



FL SWITCH TSN 2000

New Architecture of Automation

- Implementation:
- Real Time
- Cybersecurity
- CLOUD / EDGE
- Functional Safety

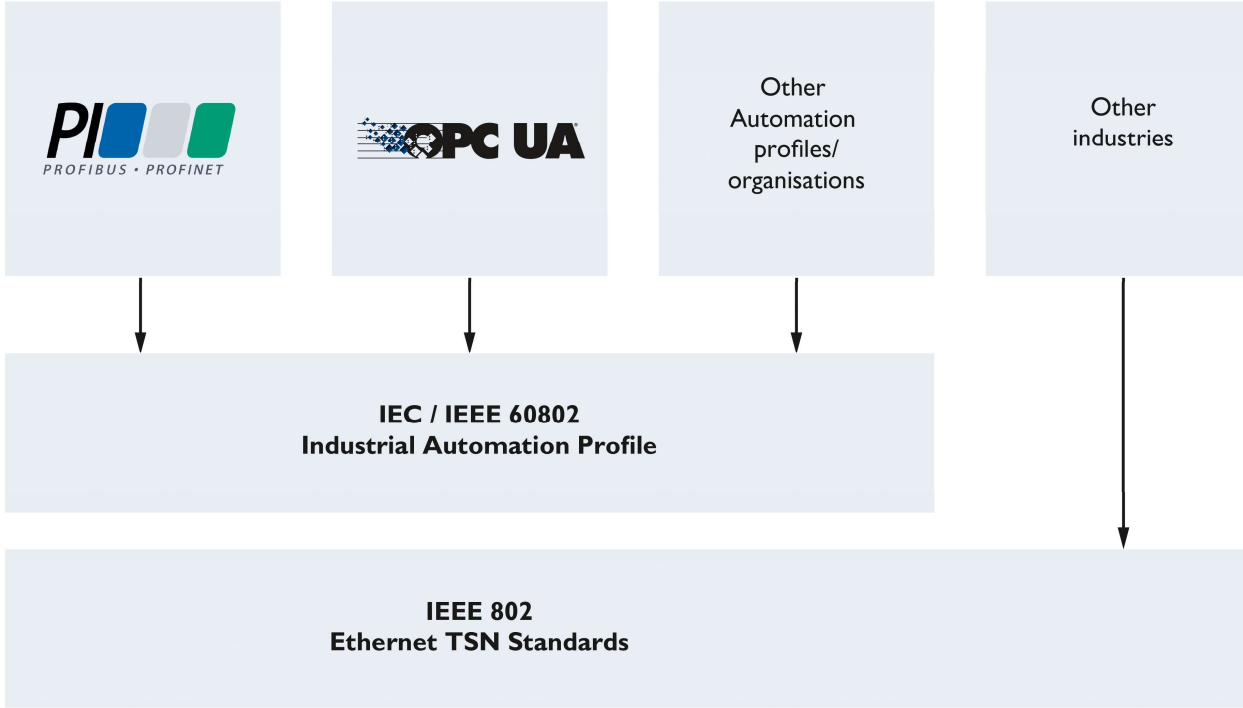


A new Standard

TSN

Ethernet

IEEE	Designation	Details
802.1Q	Streame	Robust routing through the network
802.1AS	Time synchronization	One synchronous time in the system
802.1Qtw	Scheduled Traffic	Communication acooring to timetable
802.1Qbu	Frame Preemption	High priority interrupts low priority
802.1Qcc	Stream Router Configuration	Configuration options of TSN networks
802.1....		



Pre-Launch Information

FL SWITCH TSN 2000 – Customer Benefits

Product description

The new FL SWITCH TSN 2000 supports Time Sensitive Networking (TSN), a series of standardized transmission mechanisms for deterministic real-time communication in Ethernet networks. The new device complements the FL SWITCH 2000 series and supports all the functions of this product family plus TSN functionality.

- ✓ Integrated TSN mechanisms increase performance, robustness, and availability of today's networks
- ✓ Extensive new options for setting up distributed and time-critical applications
- ✓ User-friendly PROFINET-TSN configuration
- ✓ Can be used in classic applications and for the future introduction of TSN without exchanging devices

Features

- Support of the Profinet TSN profile:
 - IEEE 802.1AS (precise time synchronization)
 - Frame preemption
 - Stream management via PROFINET
- User-friendly TSN configuration via PROFINET 2.4 engineering
- Support of all functions of the FL SWITCH 2300

Product



Ord.-No.	Designation
1232304	FL SWITCH TSN 2316

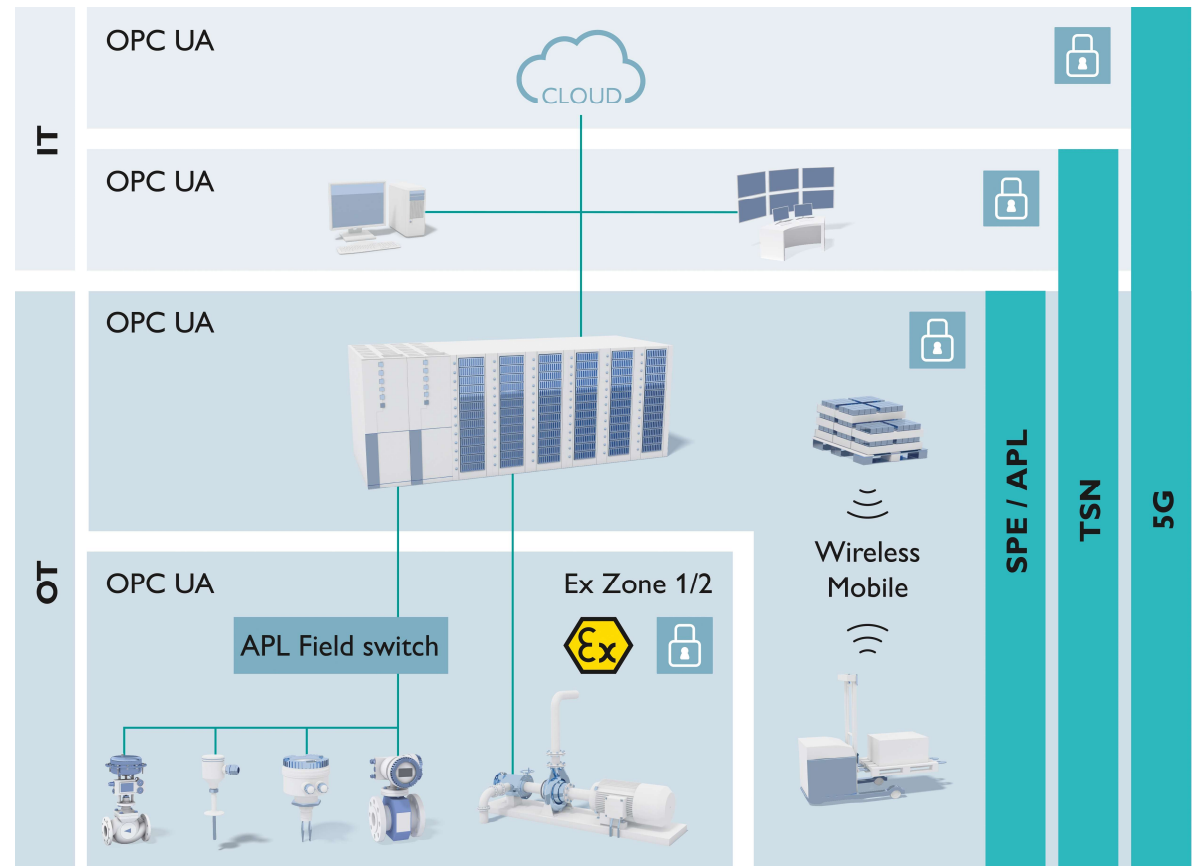
Function description

Managed TSN switch with 16 gigabit RJ45 ports

TSN Technology

FL SWITCH TSN 2000

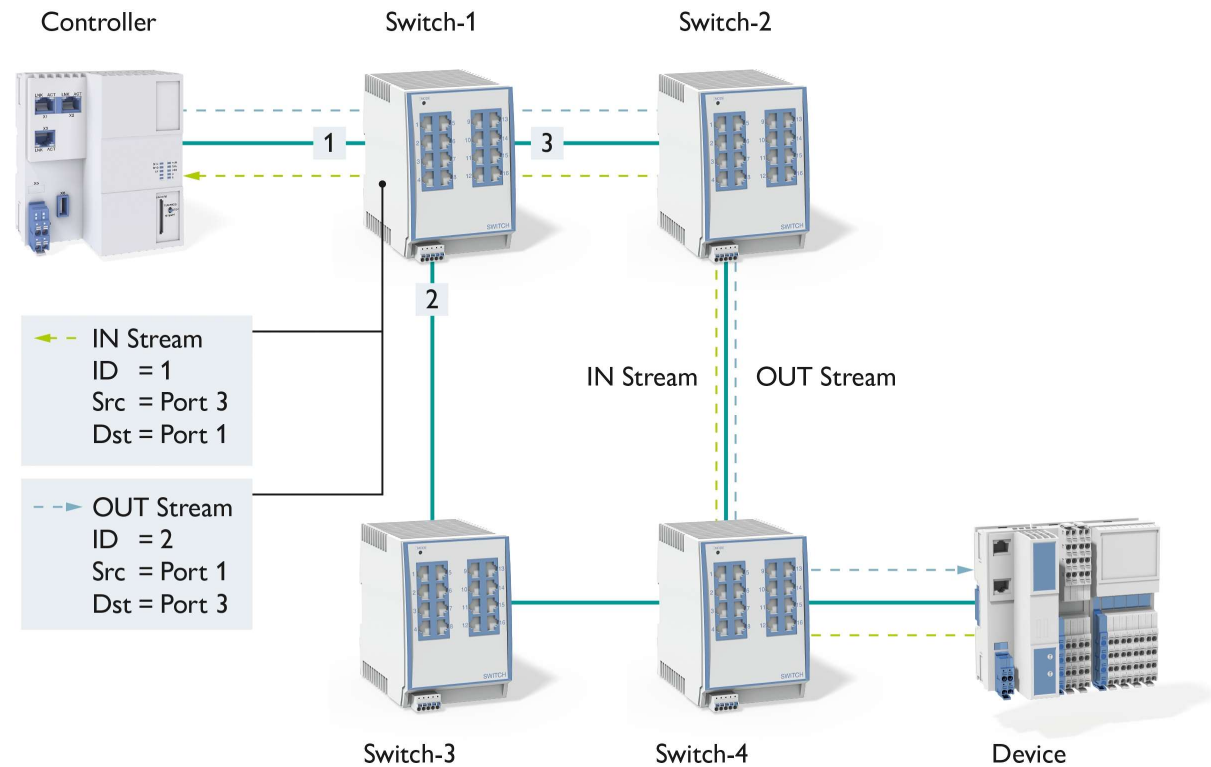
- Understanding Architecture



TSN Technology

FL SWITCH TSN 2000

- Time Synchronization
- Scheduling and traffic shaping
- Selection of communication paths





Qualcom TSN 5G ACIA

Automation

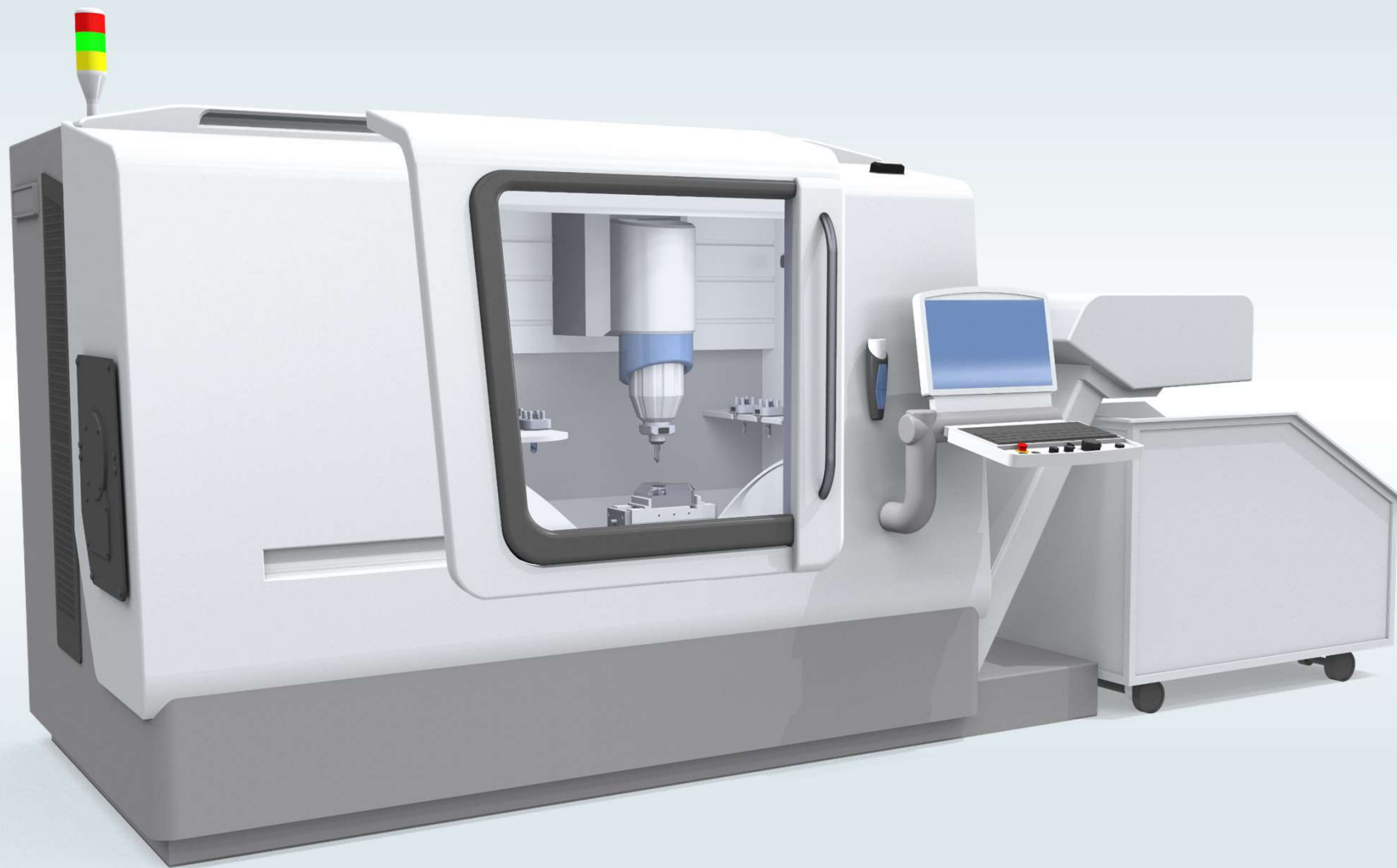
New products 2021

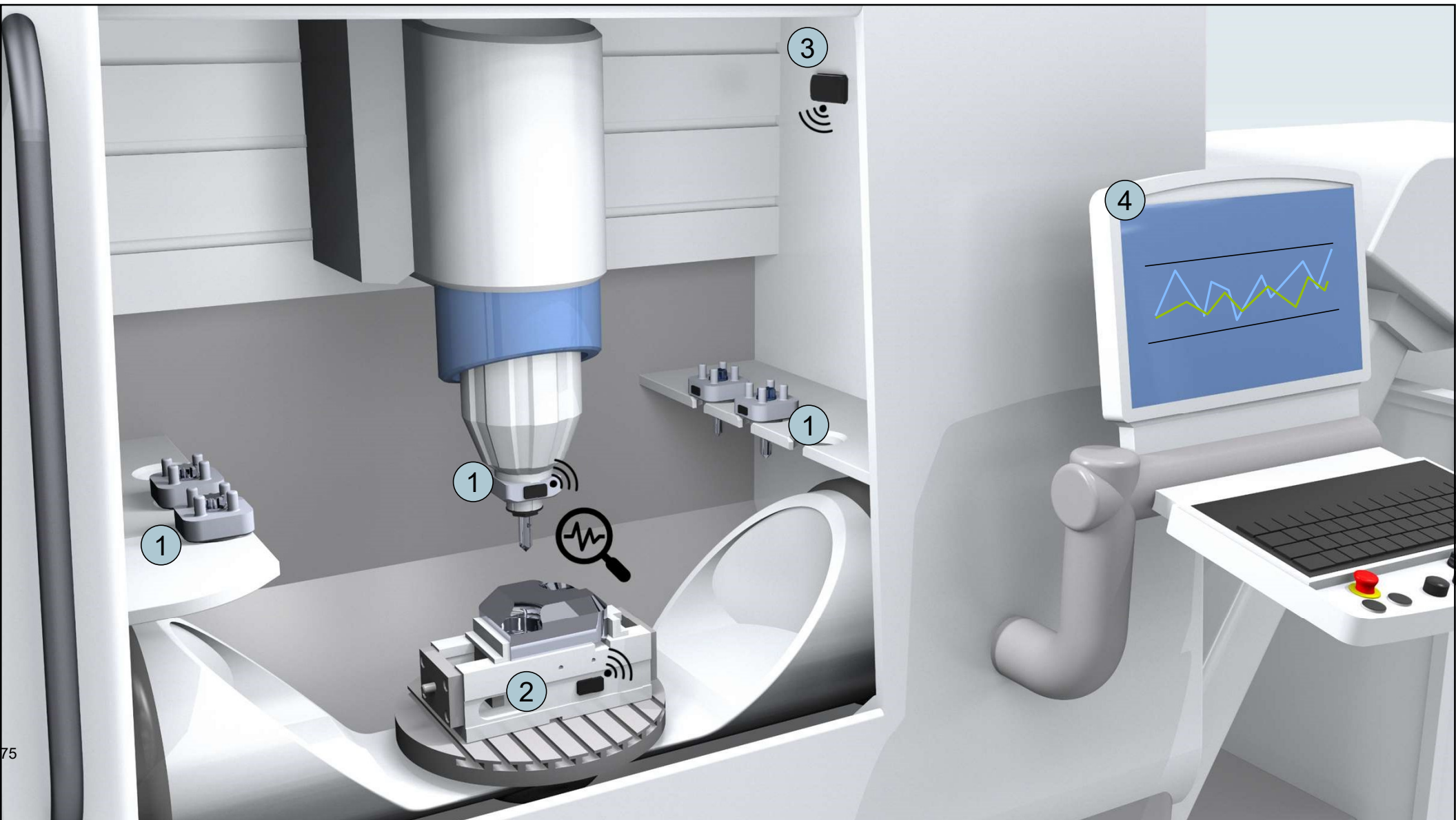


Wireless New products

Bluetooth LE

Sensor communication





Machine tools with Bluetooth LE

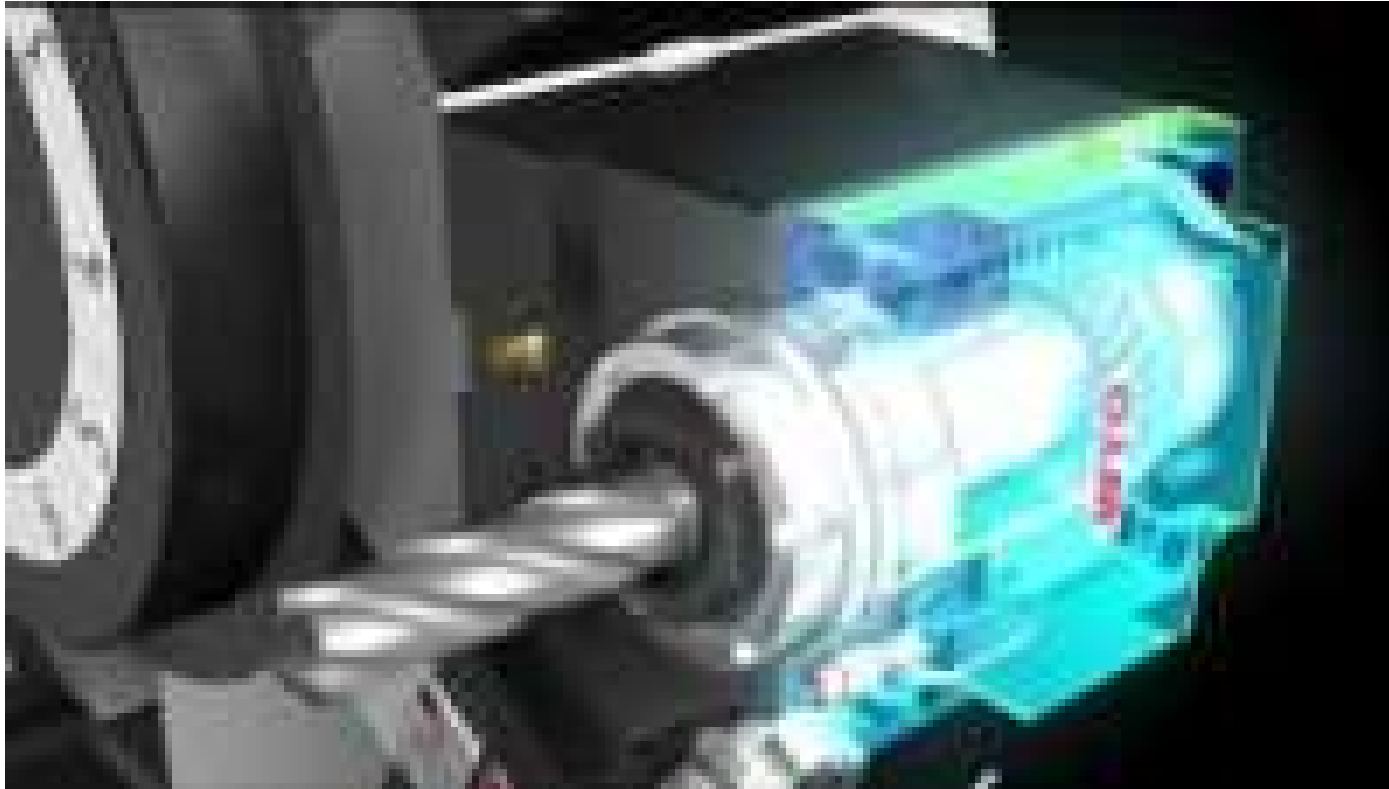


Allmatic



WTO

<https://youtu.be/laN7fWx6Vto>



Machines with Bluetooth

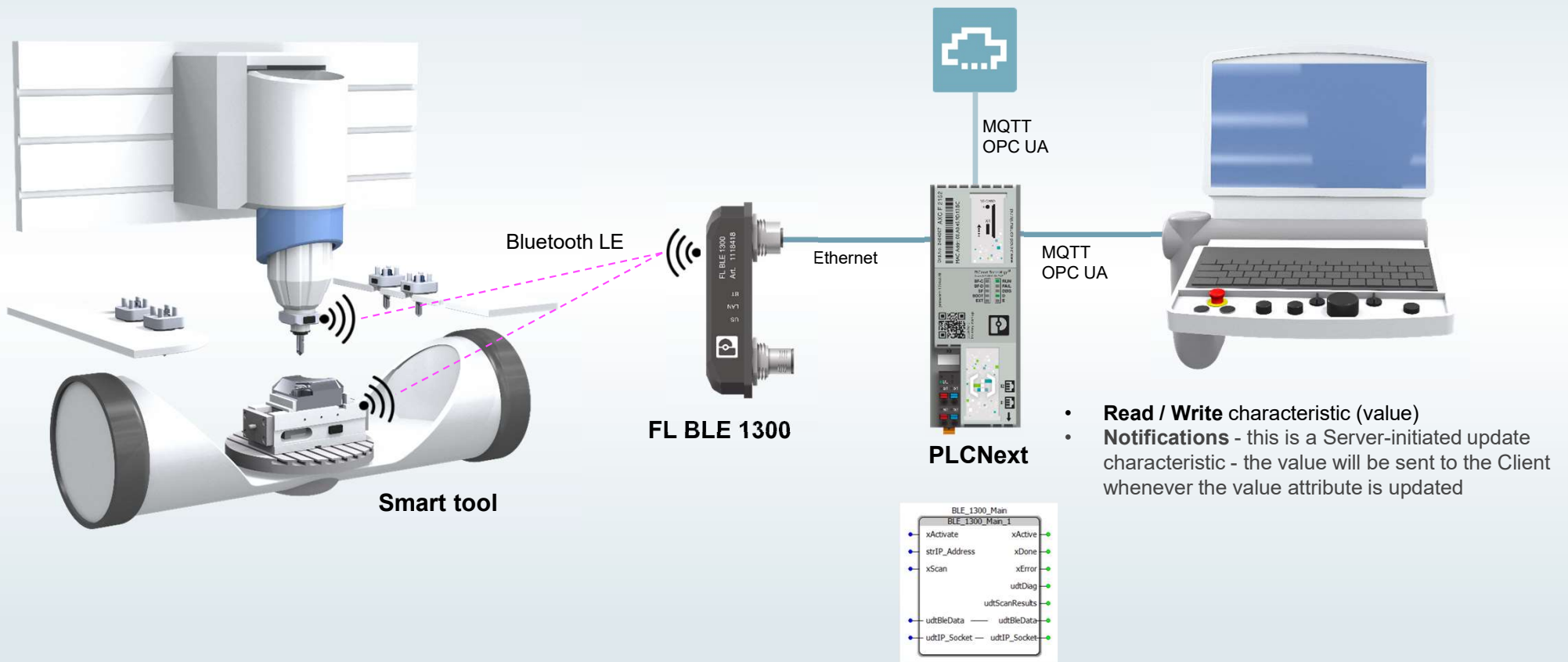
WTO

FL BLE 1300 – Bluetooth Low Energy Adapter



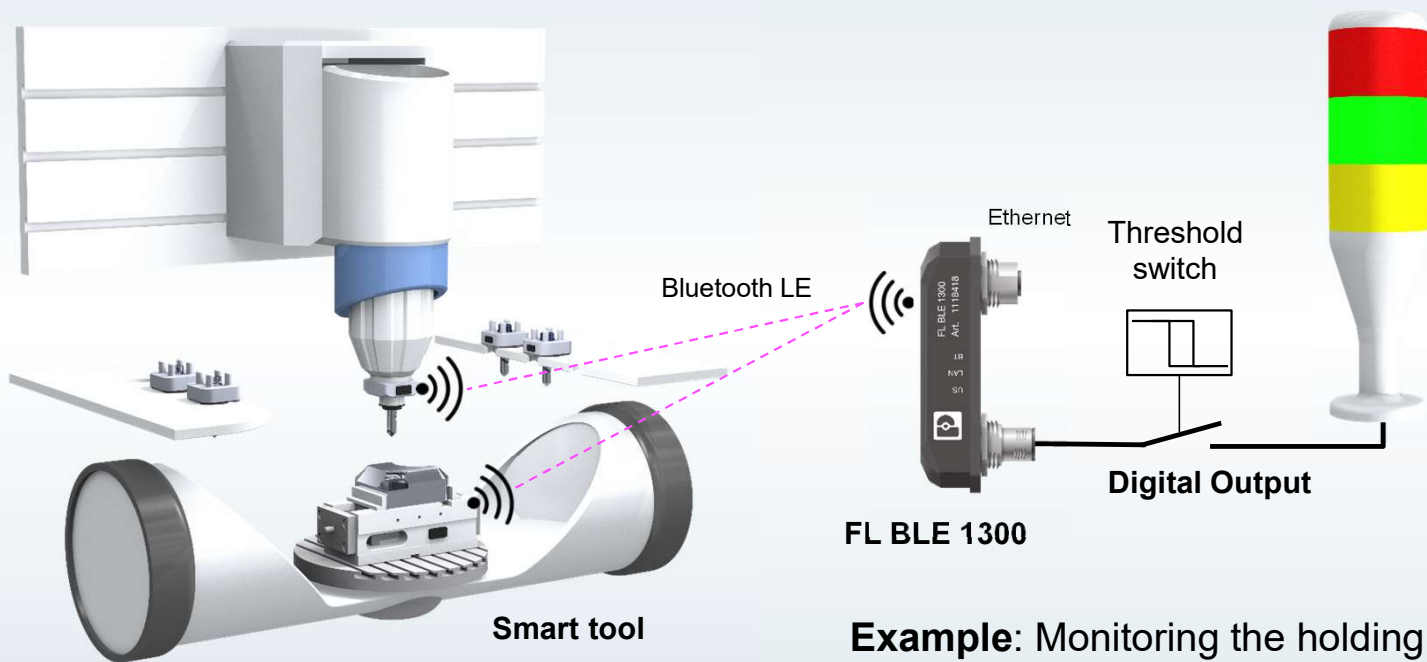
- **Bluetooth Low Energy 5.0**
- **Generic Attribute Profile (GATT)**
- **Up to eight sensors via TCP**
- **Protection class IP65**
- **M12 connections (Ethernet, Power)**

Bluetooth LE GATT – IP Gateway



GATT: Generic Attribute Profile

Bluetooth LE - threshold monitoring



Example: Monitoring the holding force of the clamp.

Holding force > minimum value => output high

Wireless LAN

update

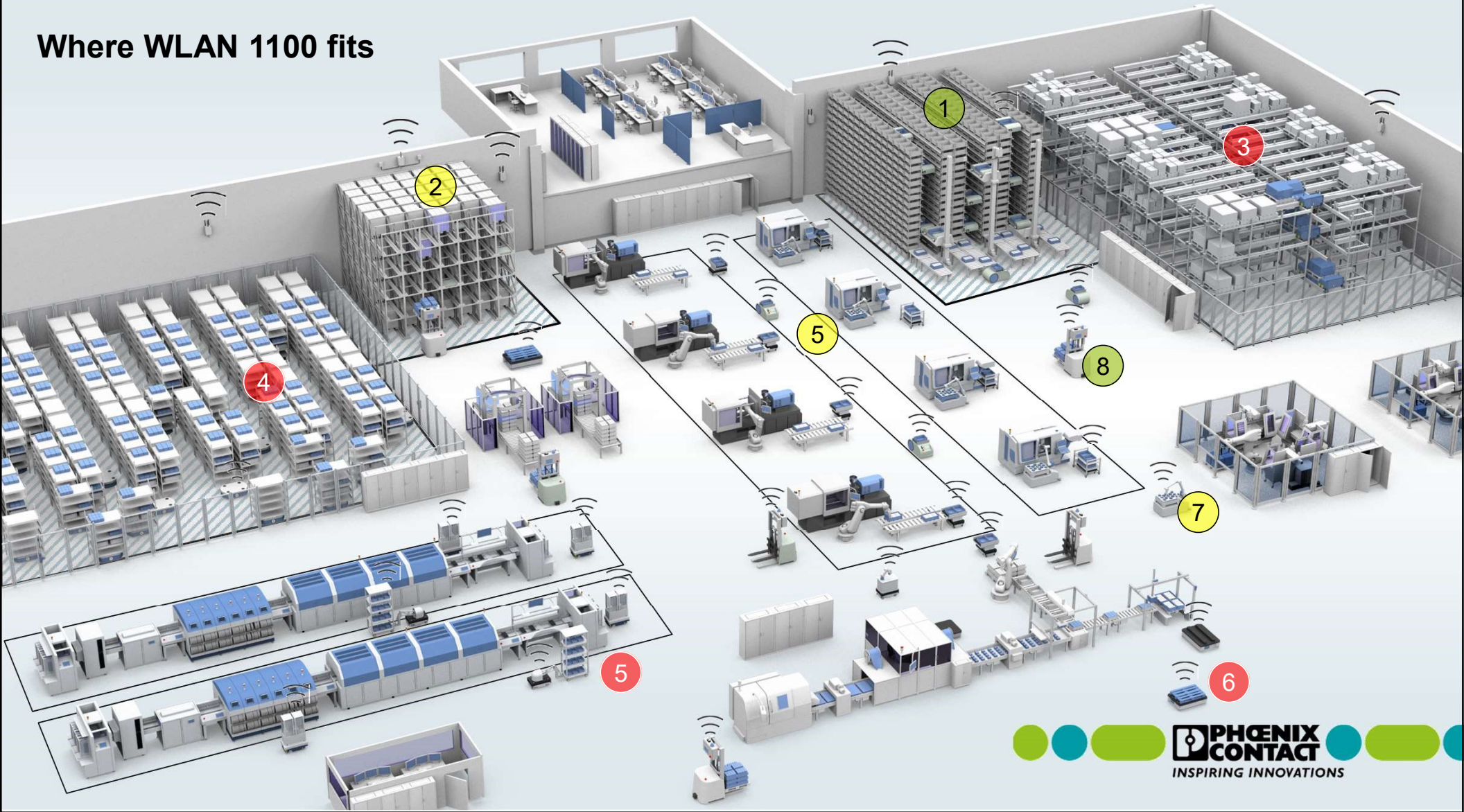
WLAN 1010 and WLAN 2010



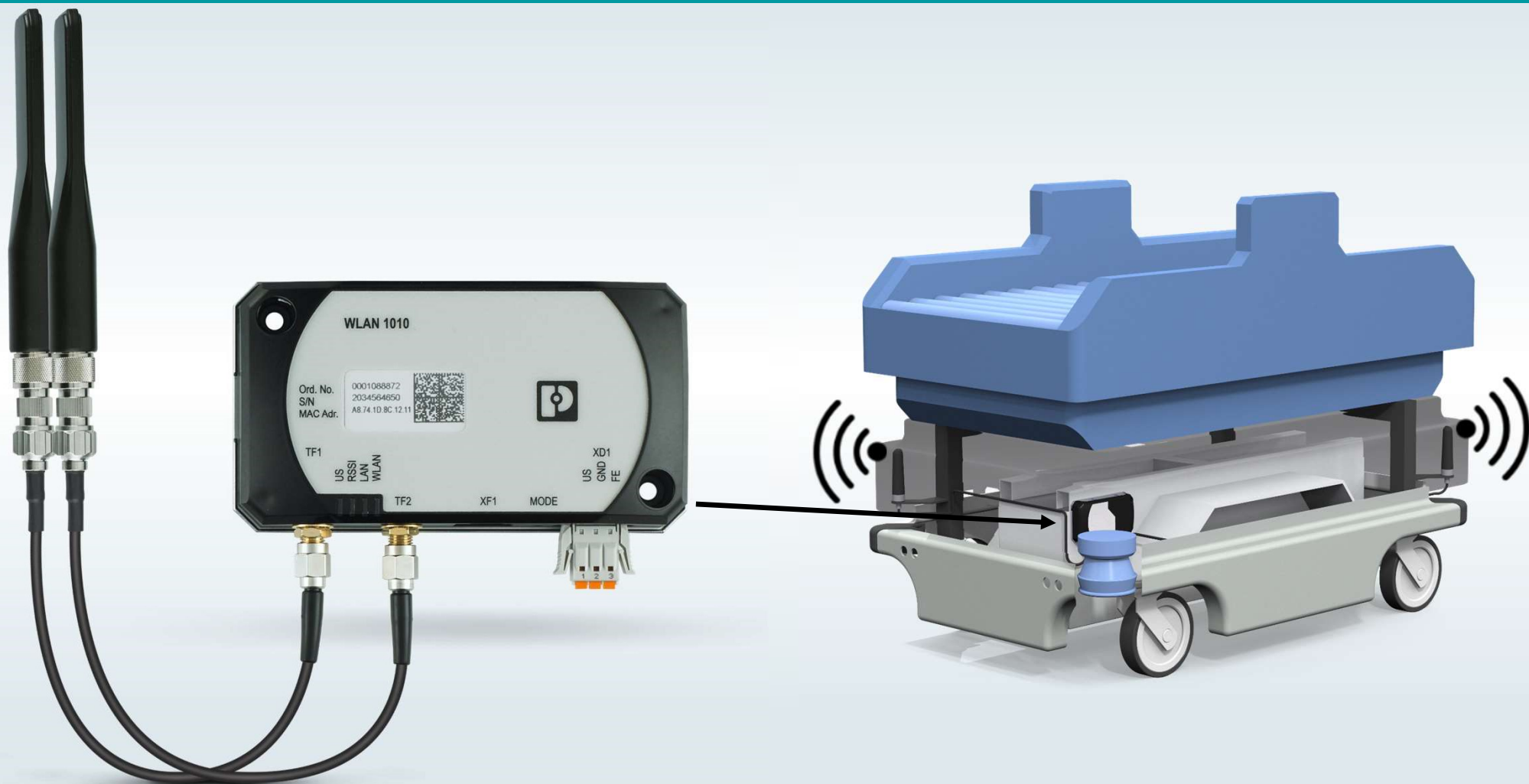
DIN Rail Adapter (optional)



Where WLAN 1100 fits



WLAN 1010



WLAN 2010



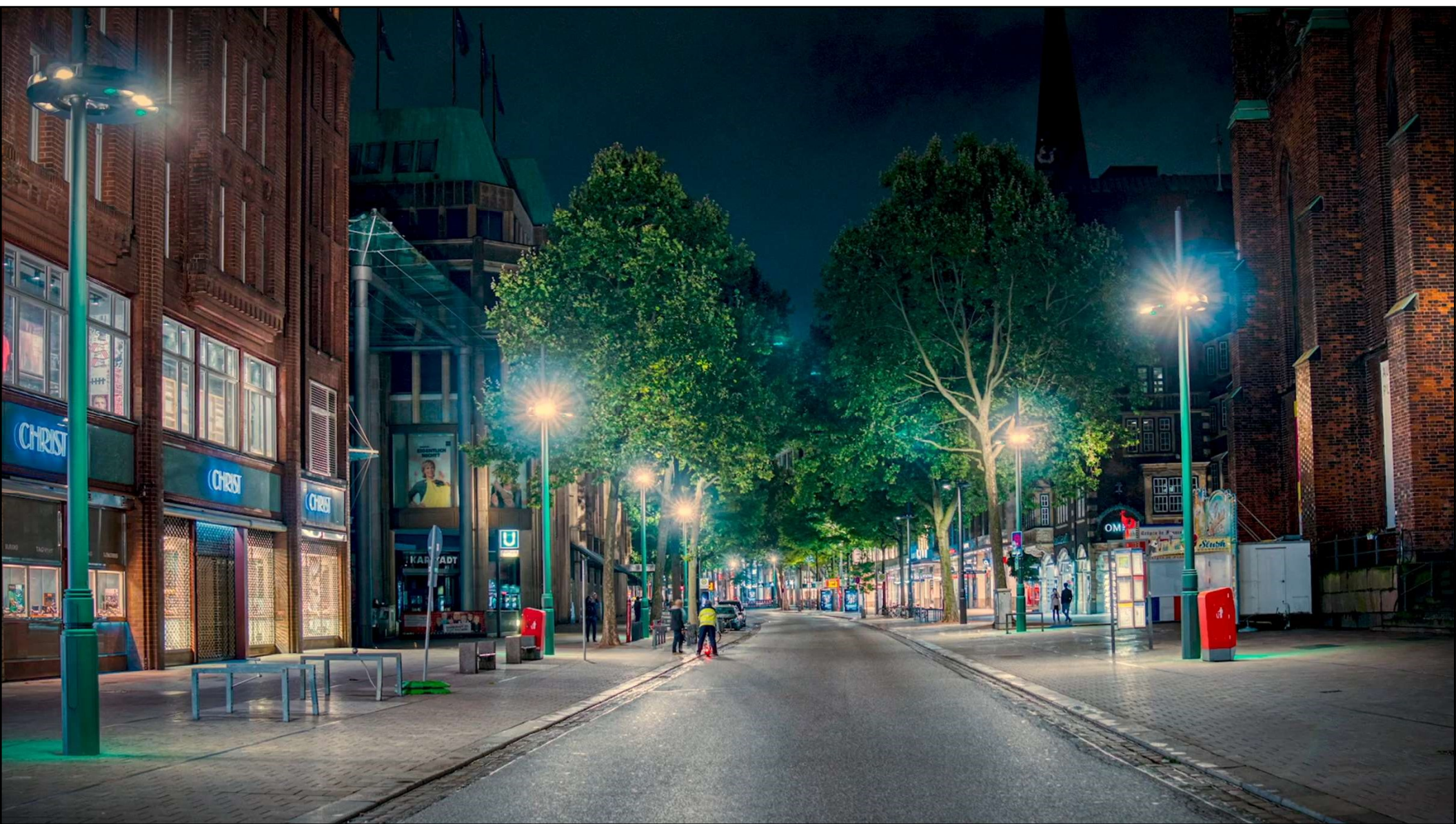
C1D2
Hazloc



- **-40°C up to +60°C**
- **Up to 60 Clients in Access Point mode**
- **+20% ... 40% more Performance**
- **WLAN Mesh-Mode**



WLAN Mesh



New WLAN High range
FL WLAN 4321



FL WLAN 4321

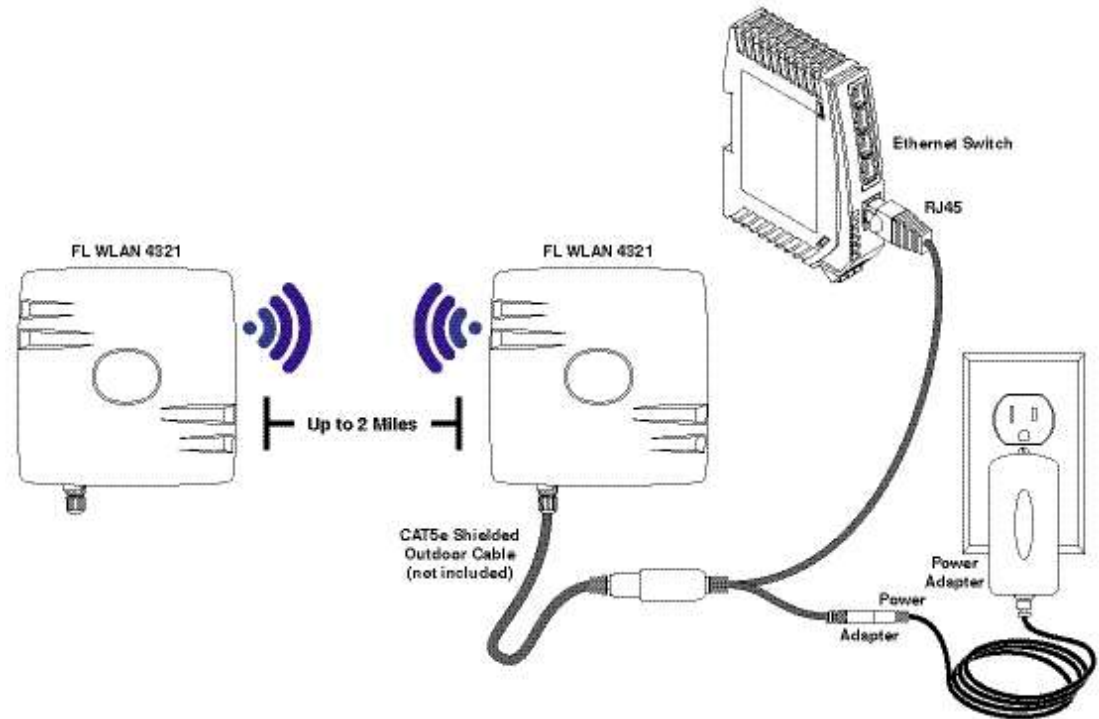


EASY Ethernet Extension! Setup tutorial of FL WLAN 4321

Easy to order (Plug and and almost Play)

FL WLAN 4321

■ Components



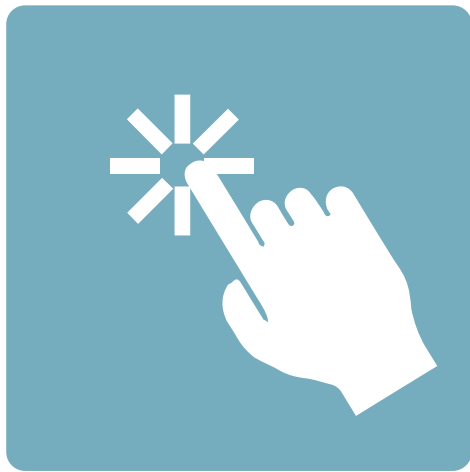
mGuard Security

news

mGuard 1100 - Secure machine integration



FL MGuard 1100 - new firmware (Rev. 1.4)



Ease of use



Two firewall tables
Comments in tables



Local time



Easy device exchange

FL MGuard 1100 - new firmware



IT



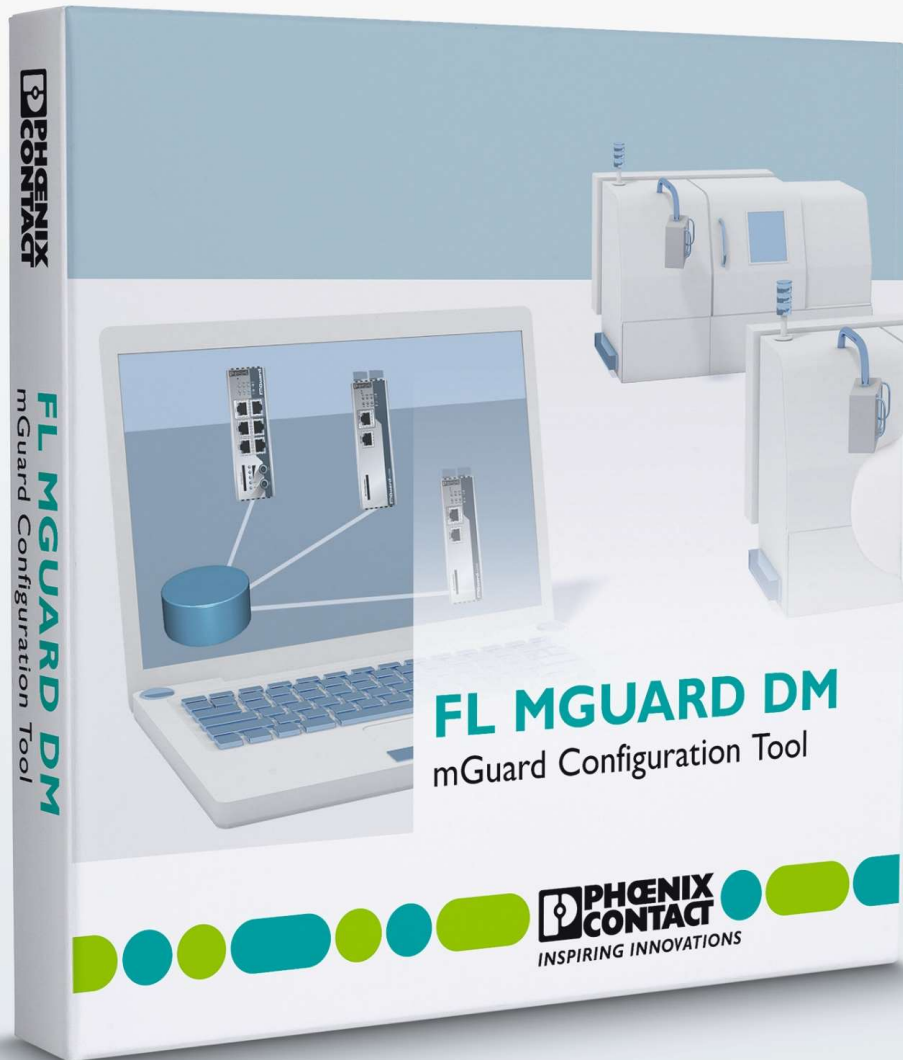
SNMP

Remote logging [TLS]



User roles

LDAP authentication [TLS]



FL MGUARD 1100

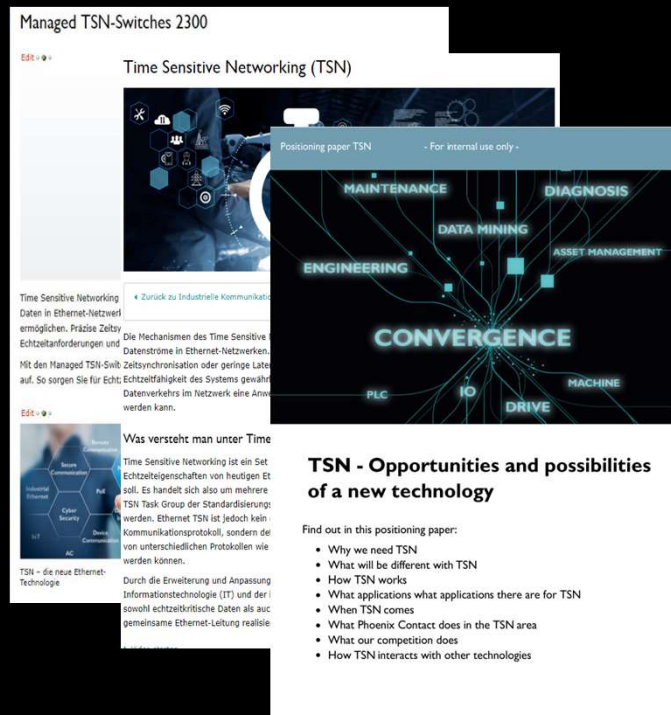
MGUARD device management

- FL MGUARD 1100 devices can be configured by the FL MGUARD DEVICE MANAGER
- Version > V 1.13

More info Phoenix Contact site...



Brochure



TSN positioning paper
TSN technology website



IP67 animation