

# FL SWITCH 1605 M12 - Industrial Ethernet Switch



2700200

<https://www.phoenixcontact.com/gb/products/2700200>

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Unmanaged Switch 1600, 5 M12 ports 10/100 Mbps, degree of protection: IP65/IP66/IP67, PROFINET Conformance-Class A

## Product description

**Ethernet interface:** The FL SWITCH 1605 M12 has five Ethernet ports on the front in M12 format, to which only CAT5/CAT6 Ethernet cables with D-coded M12 connectors can be connected. The data transmission speed is 10 Mbps or 100 Mbps. In addition, each port has an autocrossing function at 100 Mbps. It is not necessary to distinguish between 1:1 and crossover Ethernet cables. **Switching properties of the FL SWITCH 1605 M12 – Store and forward:** The switch independently learns the addresses for terminal devices, which are connected via a port, by evaluating the source addresses in the data telegrams. Only packets with unknown addresses, with a source address of this port or with a multicast/broadcast address in the destination address field are forwarded via the corresponding port. The switch can store up to 4096 addresses in its address table with an aging time of 40 seconds. This is important if more than one terminal device is connected to one or more ports. In this way, several independent subnets can be connected to one switch. **- Multi-address function:** The switch independently learns the addresses for terminal devices, which are connected via a port, by evaluating the source addresses in the data telegrams. Only packets with unknown addresses, with a source address of this port or with a multicast/broadcast address in the destination address field are forwarded via the corresponding port. The switch can store up to 4096 addresses in its address table with an aging time of 40 seconds. This is important if more than one terminal device is connected to one or more ports. In this way, several independent subnets can be connected to one switch. **- Quality of Service (QoS)** With the aid of the Quality of Service function, the switch can process PROFINET traffic preferentially. To do this, the switch detects the QoS priority from the Ethernet packets and forwards the Ethernet packets with higher priority first.

## Your advantages

- Robust IP67 housing
- Easy panel mounting

## Commercial data

Item number	2700200
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DNN114
Product key	DNN114
Catalog page	Page 300 (C-6-2019)
GTIN	4046356499781
Weight per piece (including packing)	277.6 g
Weight per piece (excluding packing)	220 g
Customs tariff number	85176200
Country of origin	DE

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## Technical data

### Dimensions

Dimensional drawing	
Width	30 mm
Height	200 mm
Depth	41 mm
Drill hole spacing	186 mm

### Notes

General	<b>NOTE:</b> Meet noise immunity requirements Connect FE using a mounting screw when mounting on a conductive surface. When mounting on a non-conductive surface, FE is connected using the mounting screw via a cable lug.
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### Material specifications

Color	anthracite
Material base plate	High-grade steel (1.4301/1.4016)
Housing material	PBT

### Mounting

Mounting type	Wall mounting
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### Interfaces

#### Ethernet

Connection method	M12, shielded
Note on the connection method	D-coded
Transmission speed	10/100 Mbps
Transmission physics	Twisted pair connection
Transmission length	100 m (per segment)
Signal LEDs	Data receive, link status
No. of channels	5 (M12 ports)

### Product properties

Type	Stand-Alone
Product type	Switch
Product family	Unmanaged Switch 1600
MTTF	302.5 Years (SN 29500 standard, temperature 25°C, operating cycle 21%) 156.52 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)

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	40.43 Years (SN 29500 standard, temperature 55°C, operating cycle 100%)
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## Insulation characteristics

Protection class	III (IEC 61140, EN 61140, VDE 0140-1)
Overvoltage category	II
Degree of pollution	2

## Switch functions

Basic functions	Unmanaged switch/auto negotiation, complies with standard IEEE 802.3, store-and-forward switching mode, 2 priority classes according to IEEE802.1p, PTCP filter
PROFINET conformance class	Conformance-Class A
Status and diagnostic indicators	LEDs: US (power supply), 2 LEDs per Ethernet port (Link and Activity)
Additional functions	Autonegotiation

## Security functions

Basic functions	Unmanaged switch/auto negotiation, complies with standard IEEE 802.3, store-and-forward switching mode, 2 priority classes according to IEEE802.1p, PTCP filter
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## Electrical properties

Local diagnostics	US Supply voltage US Green LED
	X1...X5 Link status Green LED
	X1...X5 Receiving/sending telegrams Green LED
Maximum power dissipation for nominal condition	0.96 W
Test section	Between the Ethernet ports 1500 V AC 1 min.
	24 V supply (US) / FE 500 V DC 1 min.
Transmission medium	Copper

## Supply

Supply voltage (DC)	24 V DC (M12 connector)
Supply voltage range	9 V DC ... 32 V DC
Power supply connection	via M12 connector
Residual ripple	3.6 V <sub>PP</sub>
Max. current consumption	40 mA (+10 mA per port)
Typical current consumption	40 mA (at U <sub>S</sub> = 24 V DC)
Current consumption	40 mA ... 80 mA (at 24 V DC)

## Connection data

Connection method	M12, shielded
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## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP65
	IP66

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	IP67
Ambient temperature (operation)	-40 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 70 °C
Altitude	max. 2000 m (above mean sea level (operation))
Permissible humidity (operation)	10 % ... 95 %
Permissible humidity (storage/transport)	10 % ... 95 % (non-condensing)
Air pressure (operation)	86 kPa ... 108 kPa (2000 m above mean sea level)
Air pressure (storage/transport)	66 kPa ... 108 kPa (3500 m above sea level)

## EMC data

Conformance with EMC directives	Noise emission test in accordance with EN 61000-6-3/IEC 61000-6-3 EN 61000-6-3 (noise emission) Class B
	EN 55011 (emitted interference) Class B
	EN 55022 (emitted interference) Class B
	EN 61000-4-2 (ESD) Criterion B
	EN 61000-4-3 (electromagnetic fields) Criterion A, 20 V/m
	EN 61000-4-3 (electromagnetic fields) Criterion A, 10 V/m
	EN 61000-4-4 Criterion A, 2.2 kV
	EN 61000-4-5 (surge) Criterion A, interfaces 1 kV
Noise immunity	EN 61000-6-2
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise emission	EN 61000-6-4

## System properties

### Functionality

Basic functions	Unmanaged switch/auto negotiation, complies with standard IEEE 802.3, store-and-forward switching mode, 2 priority classes according to IEEE802.1p, PTCP filter
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## Signaling

Status display	LEDs: US (power supply), 2 LEDs per Ethernet port (Link and Activity)
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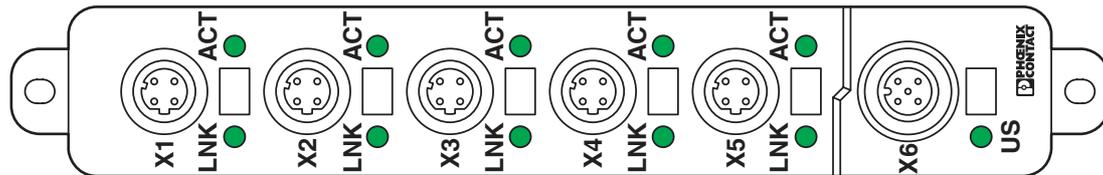


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## Drawings

Product drawing



X1 - X5: Ethernet connection

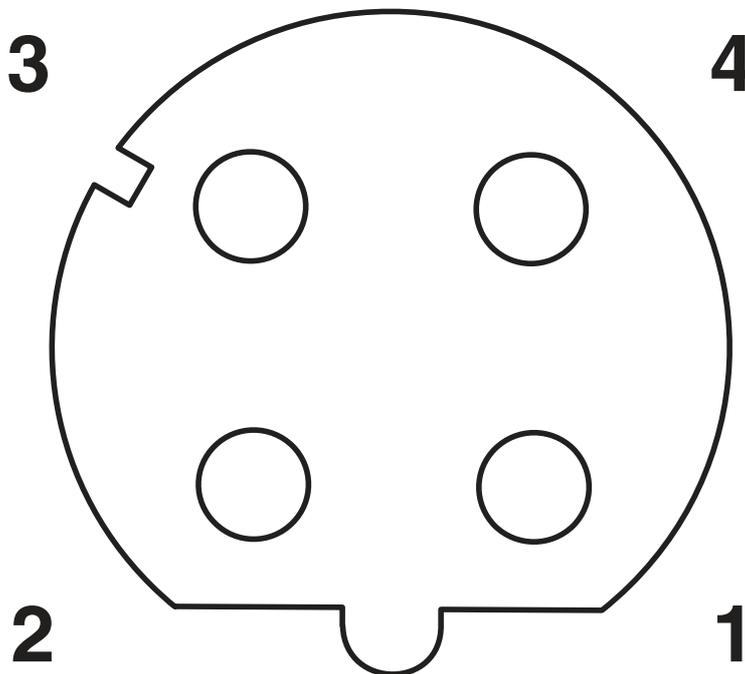
X6: Supply voltage

ACT: ACT LEDs

LNK: Link LED

US: U<sub>S1</sub> LED

Schematic diagram



### Assignment of the LAN socket

Pin 1 Transmit +

Pin 2 Receive +

Pin 3 Transmit -

Pin 4 Receive -

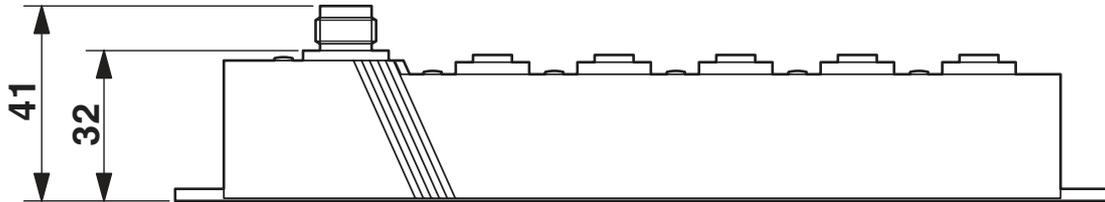
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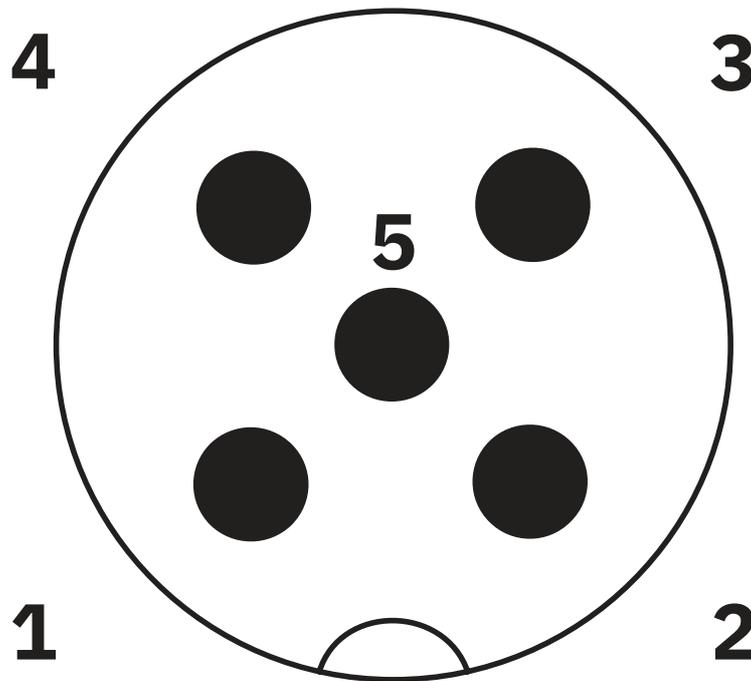
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Dimensional drawing



Side view (dimensions in mm)

Schematic diagram



## Connecting the supply voltage

PIN 1 Us

PIN 2 n.c.

Pin 3 GND

Pin 4 n.c.

Pin 5 functional ground

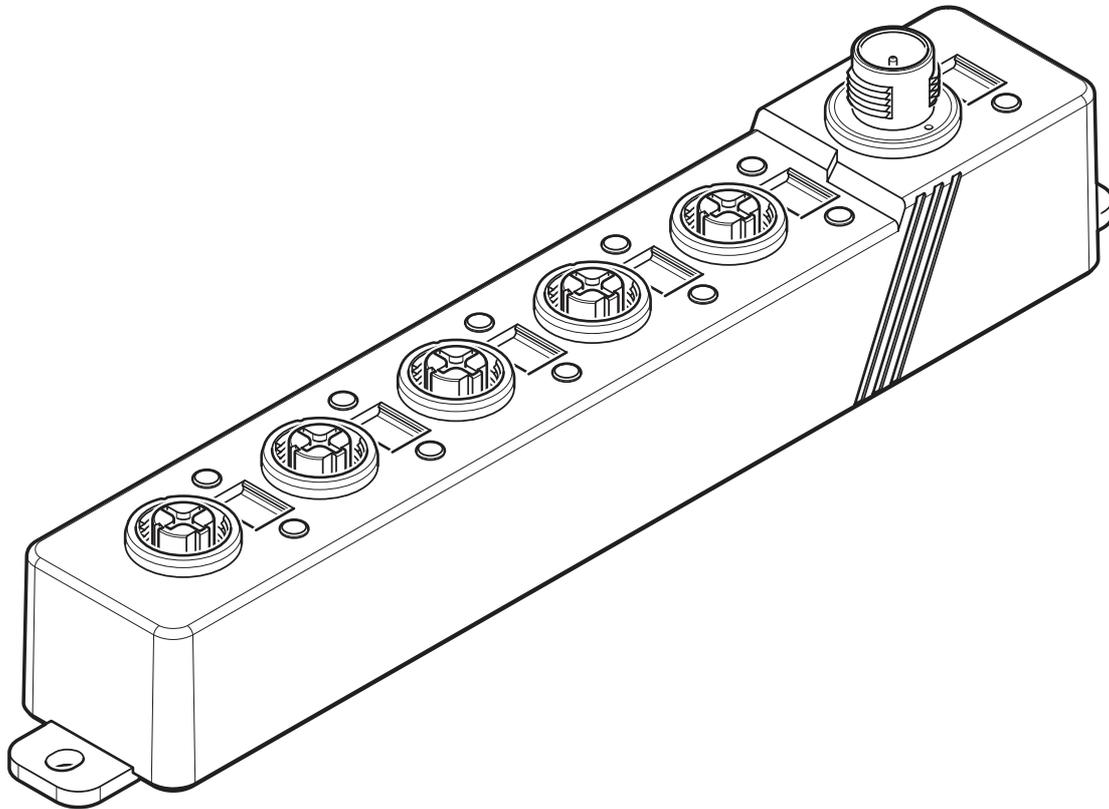
# FL SWITCH 1605 M12 - Industrial Ethernet Switch



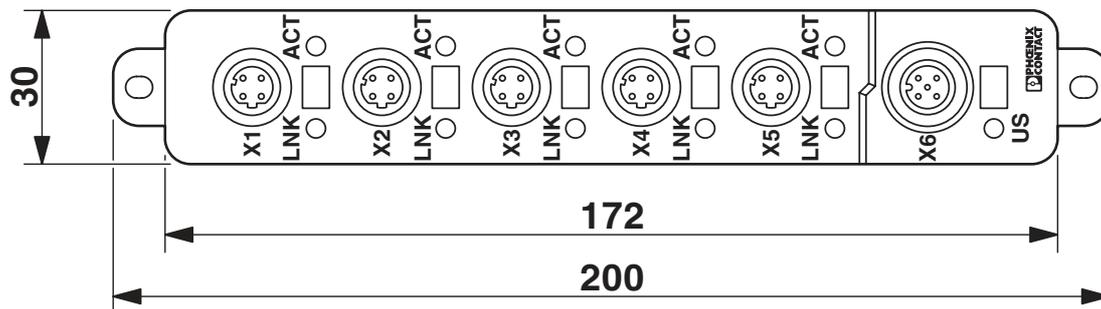
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Product drawing



Dimensional drawing



Top view (dimensions in mm)

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/gb/products/2700200>



**cUL Recognized**

Approval ID: FILE E 140324



**UL Recognized**

Approval ID: FILE E 140324



**EAC**

Approval ID: RU\*-DE.\*.B.00741/19

**cULus Recognized**

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## Classifications

### ECLASS

ECLASS-11.0	19170402
ECLASS-12.0	19170402
ECLASS-13.0	19170402

### ETIM

ETIM 8.0	EC000734
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### UNSPSC

UNSPSC 21.0	43222600
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## Environmental product compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

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## Accessories

### NBC-MSD SCO/.../... - Network cable

1408713

<https://www.phoenixcontact.com/gb/products/1408713>



Network cable, Ethernet CAT5 (100 Mbps), 4-position, shielded, Plug straight M12, coding: D SPEEDCON / IP67, on free cable end, cable length: Free input (0.2 ... 40.0 m)

### NBC-MSD-MSD SCO/.../... - Network cable

1408706

<https://www.phoenixcontact.com/gb/products/1408706>



Network cable, Ethernet CAT5 (100 Mbps), 4-position, shielded, Plug straight M12, coding: D SPEEDCON / IP67, on Plug straight M12, coding: D SPEEDCON / IP67, cable length: Free input (0.2 ... 40.0 m)

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## NBC-MSD-MRD SCO/.../... - Network cable

1408700

<https://www.phoenixcontact.com/gb/products/1408700>



Network cable, Ethernet CAT5 (100 Mbps), 4-position, shielded, Plug straight M12, coding: D SPEEDCON / IP67, on Plug angled M12, coding: D SPEEDCON / IP67, cable length: Free input (0.2 ... 40.0 m)

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## NBC-MSD-R4AC SCO/.../... - Network cable

1408712

<https://www.phoenixcontact.com/gb/products/1408712>



Network cable, Ethernet CAT5 (100 Mbps), 4-position, Variable cable type, shielded, Plug straight M12, coding: D SPEEDCON / IP67, on Plug straight RJ45 / IP20, cable length: Free input (0.2 ... 40.0 m)

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## CUC-BH-M12D1PBK-A/R4BE - Control cabinet feed-through

1414397

<https://www.phoenixcontact.com/gb/products/1414397>



Control cabinet feed-through, M12, 4-pos., D-coded to RJ45 socket, socket entry: 90°, IP65/IP67

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## SACC-M12MSD-4QO SH PN - Data connector

1411068

<https://www.phoenixcontact.com/gb/products/1411068>



Data connector, PROFINET CAT5 (100 Mbps), 4-position, halogen-free, shielded, Plug straight M12, D, Insulation displacement connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 5 mm ... 9.7 mm

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## SACC-M12MRD-4Q SH - Data connector

1553624

<https://www.phoenixcontact.com/gb/products/1553624>



Data connector, Ethernet CAT5 (100 Mbps), 4-position, shielded, Plug angled M12, D, Insulation displacement connection, knurl material: Brass, nickel-plated, external cable diameter 4 mm ... 8 mm

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## SAC-5P-M12FR/.../... - Sensor/actuator cable

1697124

<https://www.phoenixcontact.com/gb/products/1697124>



Sensor/actuator cable, 5-position, Variable cable type, free cable end, on Socket angled M12, coding: A, cable length: Free input (0.2 ... 40.0 m)

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## SAC-5PY-F/M-F VP SH - Y distributor

1419933

<https://www.phoenixcontact.com/gb/products/1419933>



Y distributor, 5-position, shielded, Socket straight M12, coding: A SPEEDCON, on Socket straight M12, coding: A SPEEDCON and Plug straight M12, coding: A SPEEDCON, Parallel distributor

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## SACC-M12MS-5PL M - Connector

1424649

<https://www.phoenixcontact.com/gb/products/1424649>



Connector, Universal, 5-position, unshielded, Plug straight M12, A, Push-lock spring connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 4 mm ... 8 mm

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## SACC-M12MR-5PL M - Connector

1424651

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Connector, Universal, 5-position, unshielded, Plug angled M12, A, Push-lock spring connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 4 mm ... 8 mm



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## PROT-M12 - Screw plug

1680539

<https://www.phoenixcontact.com/gb/products/1680539>

An M12 screw plug for the unoccupied M12 sockets of the sensor/actuator cable, boxes and flush-type connectors



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## ZBF 8:UNBEDRUCKT - Zack Marker strip, flat

0808781

<https://www.phoenixcontact.com/gb/products/0808781>



Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: PLOTMARK, CMS-P1-PLOTTER, mounting type: snapped, for terminal block width: 8 mm, lettering field size: 5.15 x 8.15 mm, Number of individual labels: 10

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