

# FL SWITCH 2206-2FX - Industrial Ethernet Switch



2702330

<https://www.phoenixcontact.com/us/products/2702330>

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Managed Switch 2000 series, 6 RJ45 ports 10/100 Mbps, 2 SC multi-mode 100 Mbps, degree of protection: IP20, Ambient temperature (operation): -40 °C ... 70 °C, Supply voltage range: 9 V DC ... 57 V DC, PROFINET Conformance-Class B, Extended temperature range, Development process certified in accordance with IEC 62443-4-1, Compatible with IEC 62443-4-2

## Your advantages

- MRP (client and manager)
- VLANs
- DHCP client, DHCP server (pool-based and port-based), DHCP option 82
- Ambient temperature -40 °C ... 70 °C
- RSTP
- Slim design
- Web-based management, SNMP
- Configuration memory
- Easy and fast startup and commissioning with the FL NETWORK MANAGER software
- Suitable for PROFINET and EtherNet/IP™ networks

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 2702330       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | DN17          |
| Product key                          | DNN121        |
| GTIN                                 | 4055626136479 |
| Weight per piece (including packing) | 430.2 g       |
| Weight per piece (excluding packing) | 260 g         |
| Customs tariff number                | 85176200      |
| Country of origin                    | DE            |

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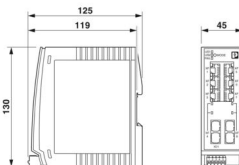


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## Technical data

### Dimensions

|                     |                                                                                    |
|---------------------|------------------------------------------------------------------------------------|
| Dimensional drawing |  |
| Width               | 45 mm                                                                              |
| Height              | 130 mm                                                                             |
| Depth               | 119 mm                                                                             |

### Notes

|                     |                                              |
|---------------------|----------------------------------------------|
| General             | Support by phone or on-site (fee is charged) |
| Note on application |                                              |
| Note on application | Only for industrial use                      |

### Material specifications

|                  |                                |
|------------------|--------------------------------|
| Housing material | Polycarbonate fiber reinforced |
|------------------|--------------------------------|

### Mounting

|               |                   |
|---------------|-------------------|
| Mounting type | DIN rail mounting |
|---------------|-------------------|

### Interfaces

#### Ethernet (RJ45)

|                               |                                   |
|-------------------------------|-----------------------------------|
| Number of interfaces          | 6                                 |
| Connection method             | RJ45                              |
| Note on the connection method | Auto negotiation and autocrossing |
| Transmission speed            | 10/100 Mbps                       |
| Transmission physics          | Copper                            |
| Transmission length           | 100 m (per segment)               |
| Signal LEDs                   | Data receive, link status         |
| No. of channels               | 6 (RJ45 ports)                    |

#### Ethernet FO

|                              |                        |
|------------------------------|------------------------|
| Number of interfaces         | 2                      |
| Connection method            | SC                     |
| Transmission speed           | 100 Mbps (full duplex) |
| Transmit capacity, minimum   | -19 dBm                |
| Transmit capacity, maximum   | -14 dBm                |
| Minimum receiver sensitivity | -32 dBm                |
| Maximum receiver sensitivity | -14 dBm                |

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|                      |                                                        |
|----------------------|--------------------------------------------------------|
| Transmission physics | multi-mode fiberglass                                  |
| Transmission length  | 11000 m (fiberglass with F-G 62.5/125 0.7 dB/km F1000) |
|                      | 6400 m (fiberglass with F-G 50/125 0.7 dB/km F1200)    |
|                      | 3000 m (fiberglass with F-G 62.5/125 2.6 dB/km F600)   |
|                      | 2800 m (fiberglass with F-G 50/125 1.6 dB/km F800)     |
| Wavelength           | 1300 nm                                                |
| Signal LEDs          | Data receive, link status                              |
| No. of channels      | 2 (SC multi-mode)                                      |

## Output data

Digital:

|             |              |
|-------------|--------------|
| Output name | Alarm output |
|-------------|--------------|

## Product properties

|                    |                                                                             |
|--------------------|-----------------------------------------------------------------------------|
| Product type       | Switch                                                                      |
| Product family     | Managed Switch 2000                                                         |
| Type               | Book type                                                                   |
| MTTF               | 343.16 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)     |
|                    | 153.37 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)  |
|                    | 18.66 Years (SN 29500 standard, temperature 70°C, operating cycle 100%)     |
| Special properties | Extended temperature range                                                  |
|                    | Development process certified in accordance with IEC 62443-4-1              |
|                    | Compatible with IEC 62443-4-2                                               |
| Signal delay       | ≥ 6.5 µs (Store and Forward mode, 10/100 Mbps, depending on the frame size) |
| Basic functions    | Store-and-forward switch, complies with IEEE 802.3                          |

## Insulation characteristics

|                     |                |
|---------------------|----------------|
| Protection class    | III (VDE 0106) |
| Degree of pollution | 2              |

## Switch functions

|                                |                                                    |
|--------------------------------|----------------------------------------------------|
| Diagnostic functions           | RMON History                                       |
|                                | LLDP (Link Layer Discovery Protocol)               |
|                                | SNMP-Traps                                         |
|                                | N:1-Portmirroring                                  |
|                                | ACD (Address Conflict Detection)                   |
|                                | SysLog                                             |
|                                | CRC-Surveillance                                   |
| Basic functions                | Store-and-forward switch, complies with IEEE 802.3 |
| Signal contact control voltage | typ. 24 V DC                                       |
| PROFINET conformance class     | Conformance-Class B                                |
| PROFINET device function       | PROFINET device                                    |

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|                                  |                                                                                                         |
|----------------------------------|---------------------------------------------------------------------------------------------------------|
|                                  | Fast Startup                                                                                            |
| Filter functions                 | Quality of Service (8 priority classes)                                                                 |
|                                  | Class of Service                                                                                        |
|                                  | DiffServ/DSCP                                                                                           |
|                                  | Port-Priorisierung                                                                                      |
|                                  | VLAN (up to 32 VLANs)                                                                                   |
|                                  | IGMP Snooping/Querier (v1/v2)                                                                           |
|                                  | Auto-Query-Port                                                                                         |
|                                  | Extended Multicast Filtering                                                                            |
| IP parameterization              | DHCP client                                                                                             |
|                                  | DHCP Option 82 (Relay Agent)                                                                            |
|                                  | DHCP server (pool-based, port-based)                                                                    |
|                                  | BootP                                                                                                   |
|                                  | DCP (Discovery and Configuration Protocol)                                                              |
| MAC address table                | 8k                                                                                                      |
| Management                       | Web-based management (HTTP/HTTPS)                                                                       |
|                                  | Role-based user management (LDAP, RADIUS)                                                               |
|                                  | SNMPv1/v2/v3                                                                                            |
|                                  | Command Line Interface (Telnet, SSH)                                                                    |
| Redundancy                       | MRP (Media Redundancy Protocol)                                                                         |
|                                  | RSTP (Rapid Spanning Tree Protocol)                                                                     |
|                                  | FRD (Fast Ring Detection)                                                                               |
|                                  | Large Tree Support                                                                                      |
|                                  | LACP (Link Aggregation Control Protocol)                                                                |
|                                  | PROFINET S2 system redundancy                                                                           |
| Status and diagnostic indicators | LEDs: US1, US2 (power supply), Fail (alarm contact), 2 LEDs per Ethernet port (Link/Activity and Speed) |
| Additional functions             | Transmission of MMS and GOOSE (IEC 61850-8-1)                                                           |
|                                  | Transmission of Modbus/TCP                                                                              |
| Time synchronization             | SNTP (Simple Network Time Protocol)                                                                     |
| Security functions               |                                                                                                         |
| Port security                    | MAC-based, RADIUS (IEEE 802.1X), MAC Authentication Bypass                                              |
| Basic functions                  | Store-and-forward switch, complies with IEEE 802.3                                                      |

## Electrical properties

|                                                 |                                                                                     |
|-------------------------------------------------|-------------------------------------------------------------------------------------|
| Current consumption                             | 260 mA                                                                              |
| Local diagnostics                               | US1/2 Supply voltage US1, US2 Green LED                                             |
|                                                 | FAIL Div. LED red                                                                   |
|                                                 | LINK Link status Green LED                                                          |
| Maximum power dissipation for nominal condition | 6.75 W ( $U_S = \text{Min}$ , $T_{\text{amb}} = \text{Max}$ , $DO_1 = \text{Max}$ ) |
| Test section                                    | 24 V supply / functional ground 500 V DC 1 min                                      |
|                                                 | Ethernet interface/all other potentials 2.25 kV DC 1 min                            |
| Transmission medium                             | Copper                                                                              |

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|  |    |
|--|----|
|  | FO |
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## Supply

|                             |                                                                             |
|-----------------------------|-----------------------------------------------------------------------------|
| Supply voltage (DC)         | 24 V DC (redundant)                                                         |
| Supply voltage range        | 9 V DC ... 57 V DC                                                          |
| Power supply connection     | via COMBICON, max. conductor cross-section 1.5 mm <sup>2</sup>              |
| Residual ripple             | 3.6 V <sub>PP</sub> (within the permitted voltage range)                    |
| Max. current consumption    | 1.5 A (U <sub>S</sub> = Min, T <sub>amb</sub> = Max, DO <sub>I</sub> = Max) |
| Typical current consumption | 255 mA (at U <sub>S</sub> = 24 V DC and 25 °C ambient temperature)          |
| Current consumption         | 260 mA                                                                      |

## Function

|                                |              |
|--------------------------------|--------------|
| Signal contact control voltage | typ. 24 V DC |
|--------------------------------|--------------|

## Connection data

|                                   |                                                                                                |
|-----------------------------------|------------------------------------------------------------------------------------------------|
| Connection method                 | Push-in spring connection                                                                      |
| Note on the connection method     | Use only copper connecting cables providing the permitted temperature range (-40 °C ... 75 °C) |
| Conductor cross-section, rigid    | 0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>                                                   |
| Conductor cross-section, flexible | 0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>                                                   |
| Conductor cross-section AWG       | 24 ... 16                                                                                      |
| Stripping length                  | 9 mm                                                                                           |

## Environmental and real-life conditions

### Ambient conditions

|                                          |                                                                         |
|------------------------------------------|-------------------------------------------------------------------------|
| Degree of protection                     | IP20                                                                    |
| Ambient temperature (operation)          | -40 °C ... 70 °C                                                        |
| Ambient temperature (storage/transport)  | -40 °C ... 85 °C                                                        |
| Permissible humidity (operation)         | 10 % ... 95 % (non-condensing)                                          |
| Permissible humidity (storage/transport) | 10 % ... 95 % (non-condensing)                                          |
| Shock (operation)                        | 30g (EN 60068-2-27)                                                     |
| Vibration (operation)                    | in acc. with IEC 60068-2-6: 5g, 150 Hz                                  |
| Air pressure (operation)                 | 80 kPa ... 110 kPa up to 2000 m above mean sea level (Without derating) |
| Air pressure (storage/transport)         | 79 kPa ... 108 kPa up to 2000 m above mean sea level (Without derating) |

## Standards and regulations

|                                                                   |     |
|-------------------------------------------------------------------|-----|
| Free from substances that could impair the application of coating | Yes |
|-------------------------------------------------------------------|-----|

## Approvals

|                       |                                                  |
|-----------------------|--------------------------------------------------|
| Shipbuilding approval | Tested in accordance with IEC 60945 and IACS E10 |
|-----------------------|--------------------------------------------------|

### ATEX

|                |                           |
|----------------|---------------------------|
| Identification | Ex II 3 G Ex ec IIC T4 Gc |
| Certificate    | DEMKO 16 ATEX 1709X       |

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## IECEEx

|                |                      |
|----------------|----------------------|
| Identification | Ex ec IIC T4 Gc      |
| Certificate    | IECEEx ULD 16.0018 X |

## UL, USA/Canada

|                |       |
|----------------|-------|
| Identification | cULus |
|----------------|-------|

## UL Ex, USA / Canada

|                |                                                                                               |
|----------------|-----------------------------------------------------------------------------------------------|
| Identification | Class I, Division 2, Groups A, B, C, and D, T4                                                |
|                | Class I, Zone 2, AEx ec IIC T4                                                                |
|                | Ex ec IIC T4 Gc X                                                                             |
| Certificate    | E366272                                                                                       |
| Note           | UL 60079-0 Ed. 6 / UL 60079-7 Ed. 5, CSA 22.2 No. 60079-0 Ed. 3 / CSA C22.2 No. 60079-7 Ed. 2 |

## EAC Ex

|                |                         |
|----------------|-------------------------|
| Identification | 2Ex e IIC T4 Gc X       |
| Certificate    | RU C-DE.HB49.B.00118/21 |

The following continue to apply for EAC Ex:

|                |                                                                                                                         |
|----------------|-------------------------------------------------------------------------------------------------------------------------|
| Identification | Install the device in a suitable, approved housing with at least IP66 protection.                                       |
|                | The housing/control cabinet must be equipped with a warning sign prohibiting opening in the potentially explosive area. |
|                | The operation of devices is permitted if all optical ports are connected or sealed with the supplied filler plugs.      |

## CCC / China-Ex

|                |                  |
|----------------|------------------|
| Identification | Ex ec IIC T4 Gc  |
| Certificate    | 2022122310115629 |

## Corrosive gas test

|                |                                  |
|----------------|----------------------------------|
| Identification | ISA S71.04.2013 G3 Harsh Group A |
|----------------|----------------------------------|

## UKCA Ex (UKEX)

|                |                           |
|----------------|---------------------------|
| Identification | Ex II 3 G Ex ec IIC T4 Gc |
| Certificate    | PxCIMA22UKEX2702910X      |

## Shipbuilding data

|             |                                                                                         |
|-------------|-----------------------------------------------------------------------------------------|
| Temperature | B                                                                                       |
| Humidity    | B                                                                                       |
| Vibration   | A                                                                                       |
| EMC         | B                                                                                       |
| Enclosure   | Required protection according to the Rules shall be provided upon installation on board |

## EMC data

|                               |                                                                                          |
|-------------------------------|------------------------------------------------------------------------------------------|
| Electromagnetic compatibility | Conformance with EMC Directive 2014/30/EU<br>EN 61000-6-2 EN 61000-4-2 (ESD) Criterion B |
|-------------------------------|------------------------------------------------------------------------------------------|

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|                                 |                                                                |
|---------------------------------|----------------------------------------------------------------|
| Conformance with EMC directives | EN 61000-6-2 EN 61000-4-3 (electromagnetic fields) Criterion A |
|                                 | EN 61000-6-2 EN 61000-4-4 (EFT burst) Criterion A              |
|                                 | EN 61000-6-2 EN 61000-4-5 (surge) Criterion A                  |
|                                 | EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A    |
|                                 | EN 61000-6-2 EN 61000-6-4 (interference) Class A               |
|                                 | EN 61000-6-2 EN 61000-6-4 (conducted interference) Class A     |
| Noise immunity                  | EN 61000-6-2                                                   |
| Noise emission                  |                                                                |
| Standards/regulations           | EN 61000-6-4                                                   |

## System properties

|                 |                                                    |
|-----------------|----------------------------------------------------|
| Functionality   |                                                    |
| Basic functions | Store-and-forward switch, complies with IEEE 802.3 |

## Signaling

|                |                                                                                                         |
|----------------|---------------------------------------------------------------------------------------------------------|
| Status display | LEDs: US1, US2 (power supply), Fail (alarm contact), 2 LEDs per Ethernet port (Link/Activity and Speed) |
|----------------|---------------------------------------------------------------------------------------------------------|

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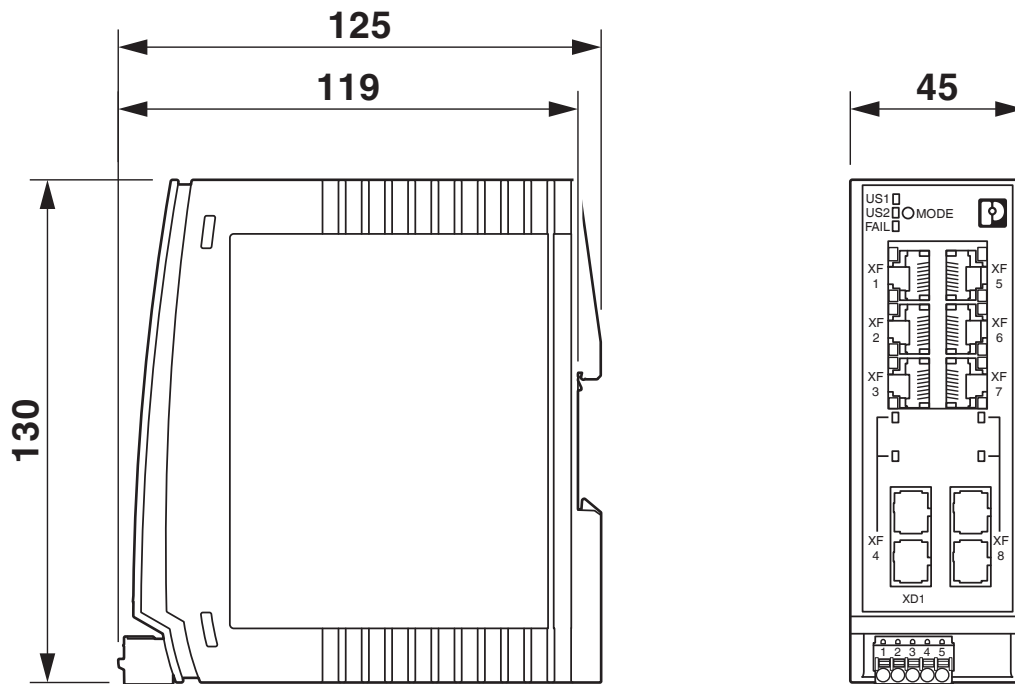
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## Drawings

Dimensional drawing



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2702330>



**DNV GL**

Approval ID: TAA00000YV



**LR**

Approval ID: LR22250919TA



**NK**

Approval ID: TA24215M



**BV**

Approval ID: 48146\_B1 BV

**BSH**

Approval ID: Nr. 966



**RINA**

Approval ID: ELE014724XG001

**ABS**

Approval ID: 21\_2066186\_1\_PDA



**cULus Listed**

Approval ID: E238705



**cUL Listed**

Approval ID: E366272



**IECEx**

Approval ID: IECEx ULD 16.0018X



**ATEX**

Approval ID: DEMKO 16 ATEX 1709X

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**CCC**

Approval ID: 2022122310115629

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 19170401 |
| ECLASS-15.0 | 19170401 |

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC000734 |
|----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 43222600 |
|-------------|----------|

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## Environmental product compliance

|                                         |                                                                                                                                                                                                                                   |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EU RoHS                                 |                                                                                                                                                                                                                                   |
| Fulfills EU RoHS substance requirements | Yes                                                                                                                                                                                                                               |
| Exemption                               | 7(a), 7(c)-I                                                                                                                                                                                                                      |
| China RoHS                              |                                                                                                                                                                                                                                   |
| Environment friendly use period (EFUP)  | EFUP-50                                                                                                                                                                                                                           |
|                                         | An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required. |
| EU REACH SVHC                           |                                                                                                                                                                                                                                   |
| REACH candidate substance (CAS No.)     | Lead(CAS: 7439-92-1)                                                                                                                                                                                                              |
| SCIP                                    | ddcd2723-7724-4e70-8f8c-1287a7dfe067                                                                                                                                                                                              |

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