

# FL SWITCH 2214-2FX - Industrial Ethernet Switch



2702905

<https://www.phoenixcontact.com/us/products/2702905>

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Managed Switch 2000, 14 RJ45 ports 10/100 Mbps, 2 SC multi-mode 100 Mbps, PROFINET Conformance-Class B, Extended temperature range

## Your advantages

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

## Commercial data

|                                      |                     |
|--------------------------------------|---------------------|
| Item number                          | 2702905             |
| Packing unit                         | 1 pc                |
| Minimum order quantity               | 1 pc                |
| Sales key                            | DN17                |
| Product key                          | DNN121              |
| Catalog page                         | Page 310 (C-6-2019) |
| GTIN                                 | 4055626397184       |
| Weight per piece (including packing) | 672 g               |
| Weight per piece (excluding packing) | 470 g               |
| Customs tariff number                | 85176200            |
| Country of origin                    | DE                  |

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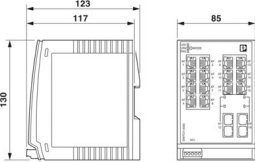


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## Technical data

### Dimensions

|                     |  |
|---------------------|--|
| Dimensional drawing |  |
| Width               | 85 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 |
| Thread type   | ()                |

### Interfaces

#### Ethernet (RJ45)

|                               |                                   |
|-------------------------------|-----------------------------------|
| 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               | 14 (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               | 264.71 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)     |
|                    | 135.79 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)  |
|                    | 18.92 Years (SN 29500 standard, temperature 55°C, operating cycle 100%)     |
| Special properties | Extended temperature range  |
| Signal delay       | ≥ 6.5 μs (Store and Forward mode, 10/100 Mbps, depending on the frame size) |

## Data management status

|                  |    |
|------------------|----|
| Article revision | 04 |
|------------------|----|

## 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                             | 375 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 | 13.2 W ( $U_S = \text{Min}$ , $T_{\text{amb}} = \text{Max}$ , $DO_1 = \text{Max}$ ) |
| Test section                                    | 500 V DC 1 min.   |
| Transmission medium                             | Copper  |
|   | FO  |

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## Supply

|                             |   |
|-----------------------------|---|
| Supply voltage (DC)         | 24 V DC (redundant)   |
| Supply voltage range        | 12 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    | 1.8 A (U <sub>S</sub> = Min, T <sub>amb</sub> = Max, DO <sub>I</sub> = Max) |
| Typical current consumption | 375 mA (at U <sub>S</sub> = 24 V DC and 25 °C ambient temperature)          |
| Current consumption         | 375 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          | Ⓢ II 3 G Ex ec IIC T4 Gc |
| Certificate             | DEMKO 16 ATEX 1709X      |
| References to standards | EN 60079-0               |

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|   |   |
|---|---|
|   | EN 60079-7  |
| <b>IECEX</b>                                |   |
| Identification                              | Ex ec IIC T4 Gc   |
| Certificate                                 | IECEX ULD 16.0018 X   |
| References to standards                     | IEC 60079-0   |
|   | IEC 60079-7   |
| <b>UL, USA/Canada</b>                       |   |
| Identification                              | cULus   |
| <b>UL Ex, USA / Canada</b>                  |   |
| 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   |
| <b>EAC Ex</b>                               |   |
| Identification                              | 2Ex e IIC T4 Gc X   |
| Certificate                                 | RU C-DE.HB49.B.00118/21   |
| The following continue to apply for EAC Ex: |   |
| Identification                              | При монтаже использовать подходящий допущенный корпус со степенью защиты не ниже IP66.  |
|   | На корпусе/шкафу управления должна быть размещена предупреждающая надпись, запрещающая открывать корпус или шкаф во взрывоопасной зоне.                 |
|   | Эксплуатация устройства допускается только при условии, что все оптические порты заняты подключенными устройствами или закрыты прилагаемыми заглушками. |
| <b>CCC / China-Ex</b>                       |   |
| Identification                              | Ex ec IIC T4 Gc   |
| Certificate                                 | 2022122310115629  |
| <b>Corrosive gas test</b>                   |   |
| Identification                              | ISA S71.04.2013 G3 Harsh Group A  |
| <b>UKCA Ex (UKEX)</b>                       |   |
| Identification                              | Ⓜ II 3 G Ex ec IIC T4 Gc  |
| Certificate                                 | PxCIMA22UKEX2702910X  |
| <b>DNV GL data</b>                          |   |
| Temperature                                 | B   |
| Humidity                                    | B   |
| Vibration                                   | A   |
| EMC   | B   |
| Enclosure                                   | Required protection according to the Rules shall be provided  |

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upon installation on board

## EMC data

|                                 |  |
|---------------------------------|--|
| Conformance with EMC directives | EN 61000-6-2 EN 61000-4-2 (ESD) Criterion B                    |
|                                 | 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   |
| Electromagnetic compatibility   | Conformance with EMC Directive 2014/30/EU                      |
| Noise emission                  | 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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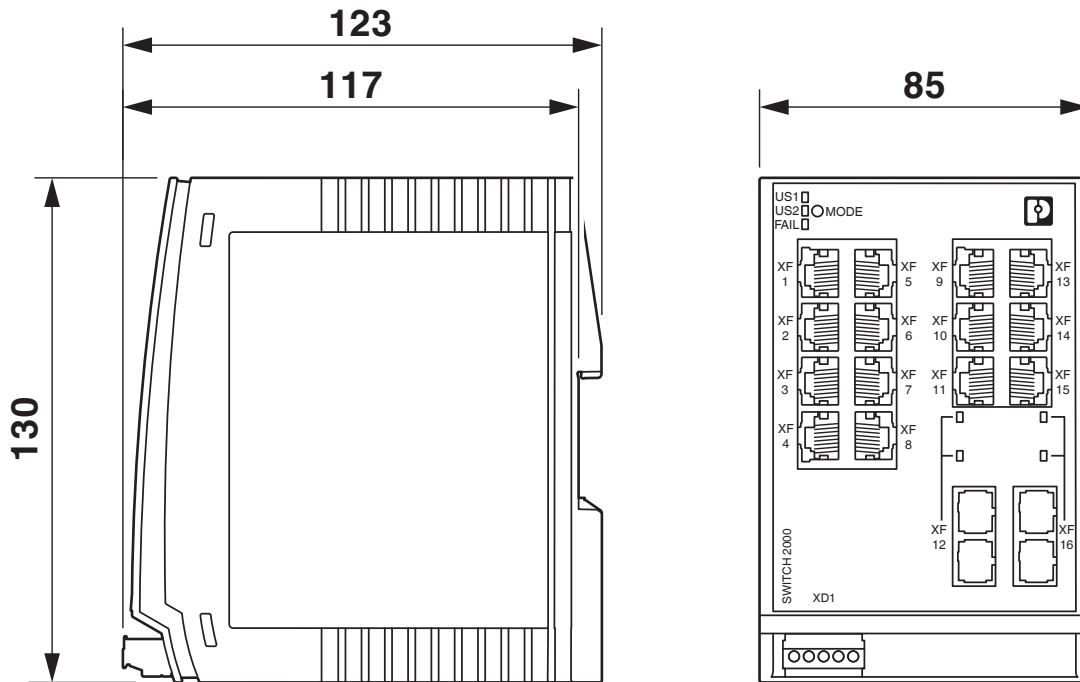


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## Drawings

Dimensional drawing





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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2702905>



**EAC**

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



**DNV GL**

Approval ID: TAA00000YV



**LR**

Approval ID: LR22250919TA



**NK**

Approval ID: TA24215M



**BV**

Approval ID: 48146\_B0 BV

**BSH**

Approval ID: 1045



**RINA**

Approval ID: ELE014724XG001

**ABS**

Approval ID: 21\_2066186\_1\_PDA

**UAE-RoHS**

Approval ID: 23-02-63229



**cULus Listed**

Approval ID: E238705



**IECEX**

Approval ID: IECEX ULD 16.0018X

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**cUL Listed**

Approval ID: E366272



**ATEX**

Approval ID: DEMKO 16 ATEX 1709X



**CCC**

Approval ID: 2022122310115629

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 19170401 |
| ECLASS-12.0 | 19170401 |
| ECLASS-13.0 | 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                                | 8f5d4841-4958-49f7-8919-55cc3105bbf3 |

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