

# FL SWITCH 2016 - Industrial Ethernet Switch



2702903

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Managed Switch 2000 series, 16 RJ45 ports 10/100 Mbps, degree of protection: IP20, PROFINET Conformance-Class A, Development process certified in accordance with IEC 62443-4-1, Compatible with IEC 62443-4-2

## Your advantages

- Unmanaged Mode
- MRP client
- VLANs
- DHCP client, DHCP server (port-based)
- RSTP
- 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                          | 2702903             |
| Packing unit                         | 1 pc                |
| Minimum order quantity               | 1 pc                |
| Sales key                            | DNN121              |
| Product key                          | DNN121              |
| Catalog page                         | Page 305 (C-6-2019) |
| GTIN                                 | 4055626397207       |
| Weight per piece (including packing) | 534.4 g             |
| Weight per piece (excluding packing) | 435 g               |
| Customs tariff number                | 85176200            |
| Country of origin                    | DE                  |

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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 |
|---------------|-------------------|

### 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               | 16 (RJ45 ports)                   |

### Product properties

|                |                                                                                                                                                       |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product type   | Switch                                                                                                                                                |
| Product family | Managed Switch 2000                                                                                                                                   |
| Type           | Book type                                                                                                                                             |
| MTTF           | 365.63 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)<br>218.22 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%) |

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|                    |                                                                                                 |
|--------------------|-------------------------------------------------------------------------------------------------|
|                    | 46.17 Years (SN 29500 standard, temperature 55°C, operating cycle 100%)                         |
| Special properties | Development process certified in accordance with IEC 62443-4-1<br>Compatible with IEC 62443-4-2 |
| Signal delay       | ≥ 6.5 µs (Store and Forward mode, 10/100 Mbps, depending on the frame size)                     |

## 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                          |
| PROFINET conformance class       | Conformance-Class A                                                         |
| Filter functions                 | Quality of Service (8 priority classes)                                     |
|                                  | Class of Service                                                            |
|                                  | DiffServ/DSCP                                                               |
|                                  | Port-Priorisierung                                                          |
|                                  | VLAN (up to 8 VLANs)                                                        |
|                                  | IGMP Snooping/Querier (v1/v2)                                               |
|                                  | Auto-Query-Port                                                             |
| IP parameterization              | Extended Multicast Filtering                                                |
|                                  | DHCP client                                                                 |
|                                  | DHCP server (port based)                                                    |
| MAC address table                | BootP                                                                       |
|                                  | 8k                                                                          |
|                                  |                                                                             |
| Management                       | Web-based management (HTTP/HTTPS)                                           |
|                                  | Role-based user management (LDAP)                                           |
|                                  | SNMPv1/v2/v3                                                                |
|                                  | Command Line Interface (Telnet, SSH)                                        |
| Redundancy                       | MRP (Media Redundancy Protocol)                                             |
|                                  | RSTP (Rapid Spanning Tree Protocol)                                         |
| Status and diagnostic indicators | LEDs: US (power supply), 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

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

## Electrical properties

|                                                 |                                                          |
|-------------------------------------------------|----------------------------------------------------------|
| Current consumption                             | 315 mA                                                   |
| Local diagnostics                               | US Supply voltage Green LED                              |
|                                                 | LNK/ACT Link status Green LED                            |
|                                                 | SPD Data transmission speed Green LED                    |
| Maximum power dissipation for nominal condition | 9 W (At $U_S = 18$ V DC and 60°C ambient temperature)    |
| 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                                                   |

## Supply

|                             |                                                                |
|-----------------------------|----------------------------------------------------------------|
| Supply voltage (DC)         | 24 V DC (single)                                               |
| Supply voltage range        | 18 V DC ... 32 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    | 0.5 A (At $U_S = 18$ V DC and 60°C ambient temperature)        |
| Typical current consumption | 315 mA (at $U_S = 24$ V DC and 25 °C ambient temperature)      |
| Current consumption         | 315 mA                                                         |

## 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)          | 0 °C ... 60 °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)                    | 2g, according to IEC 60068-2-6              |
| Air pressure (operation)                 | 86 kPa ... 108 kPa (1500 m above sea level) |
| Air pressure (storage/transport)         | 86 kPa ... 108 kPa (1500 m above sea level) |

## Standards and regulations

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

## Approvals

### UL, USA/Canada

|                |                                                                                                                 |
|----------------|-----------------------------------------------------------------------------------------------------------------|
| Identification | cULus                                                                                                           |
| Note           | UL 61010-1, Ed. 3 / UL 61010-2-201, Ed. 1, CSA C22.2 NO. 61010-2-201:14, Ed. 1 / CSA C22.2 NO.61010-1-12, Ed. 3 |

## EMC data

|                                 |                                                                |
|---------------------------------|----------------------------------------------------------------|
| Electromagnetic compatibility   | Conformance with EMC Directive 2014/30/EU                      |
| 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 B                  |
|                                 | EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A    |
|                                 | EN 61000-6-2 EN 61000-6-3 (noise emission) Class B             |
| Noise immunity                  | EN 61000-6-2 EN 61000-6-3 (conducted emissions) Class B        |
|                                 | 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: US (power supply), 2 LEDs per Ethernet port (Link/Activity and Speed) |
|----------------|-----------------------------------------------------------------------------|

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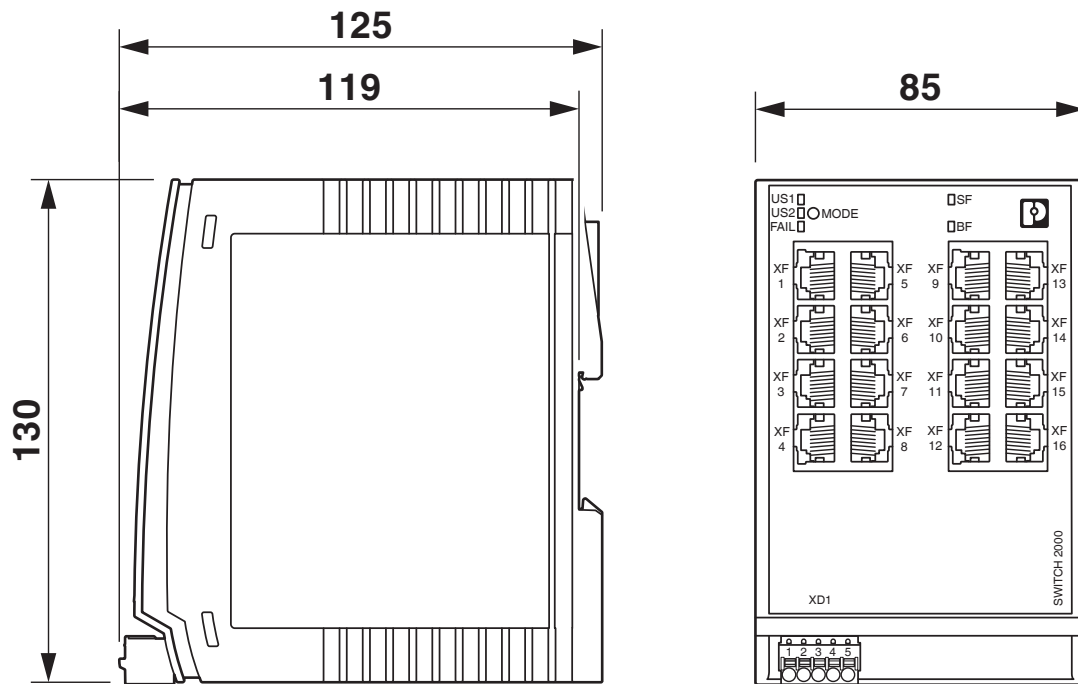
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## Drawings

Dimensional drawing



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## Approvals

🔗 To download certificates, visit the product detail page: <https://www.phoenixcontact.com/au/products/2702903>

### BSH

Approval ID: 1045



### cULus Listed

Approval ID: E238705

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| 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                                | f98be501-bf4f-4aba-8c77-820a5bd05df7 |

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