

# Industrial Ethernet Switch - FL SWITCH 3016E - 2891066

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Managed Ethernet switch meets IEC 61850-3 and IEEE 1613 standards. Provides 16 RJ45 ports at 10/100 Mbps and operating temperature of -40°C ... +70°C.

## Product Description

FL SWITCH 3000 managed industrial Ethernet switches combine extensive network performance and security features with complete IEEE redundancy (STP/RSTP/MST) and 15 ms recovery time extended ring redundancy. Unique web customization provides a simplified user interface for today's applications and scalable functionality for future needs. A comprehensive mix of fiber optic and copper port connections meets a wide range of applications.


## Your advantages

- Network structure according to IEC 61850
- IEEE 1613



IEC 61850-3

## Key Commercial Data

|              |   |
|--------------|---|
| Packing unit | 1 pc  |
| GTIN         | <br>4 046356 764353 |
| GTIN         | 4046356764353   |

## Technical data

### Note

|                         |   |
|-------------------------|---|
| Utilization restriction | EMC: class A product, see manufacturer's declaration in the download area |
|-------------------------|---|

### Dimensions

|        |         |
|--------|---------|
| Width  | 78.6 mm |
| Height | 145 mm  |
| Depth  | 125 mm  |

### Ambient conditions

|   |                  |
|---|------------------|
| Degree of protection                    | IP20             |
| Ambient temperature (operation)         | -40 °C ... 70 °C |
| Ambient temperature (storage/transport) | -40 °C ... 85 °C |

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## Technical data

### Ambient conditions

|  |  |
|--|--|
| Permissible humidity (operation)         | 5 % ... 95 % (non-condensing)                          |
| Permissible humidity (storage/transport) | 5 % ... 95 % (non-condensing)                          |
| Air pressure (operation)                 | 57 kPa ... 108 kPa (up to 4850 m above mean sea level) |
| Air pressure (storage/transport)         | 57 kPa ... 108 kPa (up to 4850 m above mean sea level) |

### Interfaces

|                               |                                   |
|-------------------------------|-----------------------------------|
| Interface                     | Ethernet (RJ45)                   |
| No. of ports                  | 16 (RJ45 ports)                   |
| Note on the connection method | Auto negotiation and autocrossing |
| Transmission physics          | Ethernet in RJ45 twisted pair     |
| Transmission speed            | 10/100 Mbps                       |
| Transmission length           | 100 m                             |

### Function

|                                  |  |
|----------------------------------|--|
| Basic functions                  | Store and forward switch, Extended Ring and IEEE redundancy, Multicast control, IGMP snooping, trunking, Port and Tagging VLANs, Port and IEEE 802.1x security, SNMP V3 and Https security, SNTP, web customization, user accounts |
| Redundancy                       | ERR (Extended ring redundancy)   |
| Status and diagnostic indicators | LEDs: U <sub>S1</sub> , U <sub>S2</sub> (redundant voltage supply), link and activity per port   |
| Signal contact control voltage   | 24 V DC  |
| Signal contact control current   | 100 mA   |

### Network expansion parameters

|   |  |
|---|--|
| Cascading depth                         | Network, linear, and star structure: any |
| Maximum conductor length (twisted pair) | 100 m                                    |

### Supply voltage

|                             |  |
|-----------------------------|--|
| Supply voltage              | 24 V DC (redundant)                                      |
| Residual ripple             | 3.6 V <sub>PP</sub> (within the permitted voltage range) |
| Supply voltage range        | 12 V DC ... 48 V DC                                      |
| Typical current consumption | 312 mA (at U <sub>S</sub> = 24 V DC)                     |
| Inrush current              | 6.4 A (200 μs)   |

### General

|                  |   |
|------------------|---|
| Mounting type    | DIN rail  |
| Type AX          | Block design  |
| Net weight       | 1640 g  |
| Housing material | Aluminum  |
| MTTF             | 32.4 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%) |

### Connection data

|                                    |                                      |
|------------------------------------|--------------------------------------|
| Connection method                  | Pluggable COMBICON screw connections |
| Conductor cross section solid min. | 0.2 mm <sup>2</sup>                  |

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## Technical data

### Connection data

|                                       |                     |
|---------------------------------------|---------------------|
| Conductor cross section solid max.    | 2.5 mm <sup>2</sup> |
| Conductor cross section flexible min. | 0.2 mm <sup>2</sup> |
| Conductor cross section flexible max. | 2.5 mm <sup>2</sup> |
| Conductor cross section AWG min.      | 24                  |
| Conductor cross section AWG max.      | 12                  |
| Stripping length                      | 7 mm                |

### Standards and Regulations

|                |  |
|----------------|--|
| Type of test   | Shock in acc. with EN 60068-2-27/IEC 60068-2-27              |
| Test result    | 30g, 11 ms half-sine shock pulse                             |
| Type of test   | Vibration resistance in acc. with EN 60068-2-6/IEC 60068-2-6 |
| Test result    | 5g, 150 Hz, Criterion 3                                      |
| Type of test   | Free fall in acc. with IEC 60068-2-32                        |
| Test result    | 1 m  |
| Noise emission | EN 61000-6-4   |
| Noise immunity | IEC 61850-3, IEEE 1613, EN 61000-6-2: 2005                   |
| Conformance    | CE-compliant   |

### Environmental Product Compliance

|            |   |
|------------|---|
| REACH SVHC | Lead 7439-92-1  |
| China RoHS | Environmentally Friendly Use Period = 10;   |
|            | For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration" |

## Classifications

### eCl@ss

|               |          |
|---------------|----------|
| eCl@ss 10.0.1 | 19170401 |
| eCl@ss 4.0    | 27250500 |
| eCl@ss 4.1    | 27250500 |
| eCl@ss 5.0    | 19030100 |
| eCl@ss 5.1    | 19030100 |
| eCl@ss 6.0    | 19170100 |
| eCl@ss 7.0    | 19170106 |
| eCl@ss 8.0    | 19170106 |
| eCl@ss 9.0    | 19170106 |

### ETIM

|          |          |
|----------|----------|
| ETIM 3.0 | EC000734 |
| ETIM 4.0 | EC000734 |
| ETIM 5.0 | EC000734 |
| ETIM 6.0 | EC000734 |

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## Classifications

### ETIM

|          |          |
|----------|----------|
| ETIM 7.0 | EC000734 |
|----------|----------|

### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 43172901 |
| UNSPSC 7.0901 | 43201404 |
| UNSPSC 11     | 43172015 |
| UNSPSC 12.01  | 43201410 |
| UNSPSC 13.2   | 43222612 |
| UNSPSC 18.0   | 43222612 |
| UNSPSC 19.0   | 43222612 |
| UNSPSC 20.0   | 43222612 |
| UNSPSC 21.0   | 43222612 |

## Approvals


### Approvals


#### Approvals


UL Listed / cUL Listed / EAC / cULus Listed

#### Ex Approvals

### Approval details

|                            |   |   |               |
|----------------------------|---|---|---------------|
| UL Listed                  |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 140324 |
| mm <sup>2</sup> /AWG/kcmil |   | 30-14   |               |

|                            |   |   |               |
|----------------------------|---|---|---------------|
| cUL Listed                 |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 140324 |
| mm <sup>2</sup> /AWG/kcmil |   | 30-14   |               |

|     |   |                          |
|-----|---|--------------------------|
| EAC |  | RU *-<br>DE.A*08.B.00739 |
|-----|---|--------------------------|

# Industrial Ethernet Switch - FL SWITCH 3016E - 2891066

## Approvals

cULus Listed



## Accessories

### Accessories

#### Patch cable

Patch cable - FL CAT5 PATCH 0,3 - 2832250



Patch cable, CAT5, assembled, 0.3 m

Patch cable - FL CAT5 PATCH 0,5 - 2832263



Patch cable, CAT5, assembled, 0.5 m

Patch cable - FL CAT5 PATCH 1,0 - 2832276



Patch cable, CAT5, assembled, 1 m

Patch cable - FL CAT5 PATCH 2,0 - 2832289



Patch cable, CAT5, assembled, 2 m

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### Accessories

Patch cable - FL CAT5 PATCH 3,0 - 2832292



Patch cable, CAT5, assembled, 3 m

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Patch cable - FL CAT5 PATCH 5,0 - 2832580



Patch cable, CAT5, assembled, 5 m

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Patch cable - FL CAT5 PATCH 7,5 - 2832616



Patch cable, CAT5, assembled, 7.5 m

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Patch cable - FL CAT5 PATCH 10,0 - 2832629



Patch cable, CAT5, assembled, 10 m

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### Safety locking

Port Guard Security Element - FL PATCH GUARD - 2891424



Lockable security element

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## Industrial Ethernet Switch - FL SWITCH 3016E - 2891066

### Accessories

Key - FL PATCH GUARD KEY - 2891521



Key for lockable security element

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