## Industrial Ethernet Switches

### Overview

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**Unmanaged Switches**

Adaptable and universal

Switches are the basic coupling elements in Ethernet networks. They connect the Ethernet participants together. In an Ethernet network the communication basically originates from the participants. The switches connect the participants together and enable the communication. Unmanaged switches are the simplest active network component. They do not need to be configured and are therefore very flexible. They use the basic standard protocols, such as auto-negotiation, auto-crossing, and flow-control and can automatically adjust to the different transmission speeds or connector wiring.

Unmanaged switches are protocol transparent. Each port on the switch creates an individual collision domain. The use of twisted-pair cabling with an RJ45 interface or fibre-optic cable based on the IEEE 802.3 specification interfaces are supported by all Weidmüller switches.
Unmanaged Switches Fast Ethernet – Basic Line

5 and 8-Port unmanaged Fast Ethernet Switches
- Two redundant voltage inputs 12/24/48 V DC (0.6 to 60 V DC)
- IP30 aluminium housing
- Rugged hardware design well suited for hazardous locations
  (Class I Div. 2 /ATEX Zone 2) and maritime environments (DNV-GL)
- –40°C to 75°C operating temperature range (T models)

Technical data

<table>
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<th>Value</th>
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<td>Switch Properties</td>
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<td>MAC Table Size</td>
<td>IE-SW-BL05-Series: 1K / IE-SW-BL08-Series: 2K</td>
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<td>Packet Buffer Size</td>
<td>IE-SW-BL05-Series: 384 kbit / IE-SW-BL08-Series: 768 kbit</td>
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<td>100BaseFX (SC/ST-duplex connection)</td>
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<td>10/100BaseT(auto negotiation speed, Full/Half duplex mode, and auto MDIX/MXI connection)</td>
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<td>DP Switches</td>
<td>Enable/Disable broadcast storm protection</td>
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<tr>
<td>Specification optical fiber</td>
<td>100BaseFX Multi-Mode Single-Mode</td>
</tr>
<tr>
<td>Transceiver Type</td>
<td></td>
</tr>
<tr>
<td>Fiber Cable Type</td>
<td>OM1 50/125 µm 6.02 800 Mbit/sek</td>
</tr>
<tr>
<td>Typical Distance</td>
<td>4 km 5 km 40 km</td>
</tr>
<tr>
<td>Power</td>
<td></td>
</tr>
<tr>
<td>Optical Power</td>
<td>TX Range (dBm) -10 to -20 0 to -5</td>
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<tr>
<td></td>
<td>RX Range (dBm) -3 to -32 3 to -34</td>
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<td></td>
<td>Link Budget (dB) 12 29</td>
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<td></td>
<td>Dispersion Penalty (dB) 3</td>
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<tr>
<td>Wave-length</td>
<td>Typical (mm) 1300 1310</td>
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<tr>
<td></td>
<td>RX Range (mm) 1100 to 1600 1100 to 1600</td>
</tr>
<tr>
<td></td>
<td>TX Range (mm) 1280 to 1340 1280 to 1340</td>
</tr>
<tr>
<td></td>
<td></td>
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</table>

Note: When connecting a single-mode fiber transceiver over a short distance, we recommend using an attenuator to prevent the transceiver from being damaged by excessive optical power.

Power Requirements
- Input Voltage: 12/24/48 V DC (0.6 to 60 V DC), two redundant inputs
- Input Current: IE-SW-BL05 5TX: 0.09 A at 24 V
  IE-SW-BL05 1SC/1ST/1SCS: 0.11 A at 24 V
  IE-SW-BL08 6TX: 0.11 A at 24 V
  IE-SW-BL08 2SC/2ST/2SCS: 0.15 A at 24 V
  IE-SW-BL08 8TX: 0.11 A at 24 V

Warranty
- Warranty Period: 5 years

Regulatory Approvals
- Hazardous Location: UL/ULc Class I, Division 2, Groups A, B, C and D /ATEX Zone 2
- Safety: UL cUL Listed
- LMV: EN 50522/24 /GSPR 32
- FCC Part 15b Class A
- IEC 61000-4-2 ESD: Contact: 5 kV, Air: 8 kV
- IEC 61000-4-3 RS: 60 MHz to 1 GHz: 10 V/m
- IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV
- IEC 61000-4-6 Surge: Power: 2 kV; Signal: 2 kV
- IEC 61000-4-11 Surge: 3 kV
- IEC 61000-4-12 Surge: 5 kV
- Time: IEC-SW-BL05-Series: 3,040,784 hrs, IEC-SW-BL08-Series: 2,701,531 hrs
- Database: Tekcordia (Bellevue), GB

Ordering Information

<table>
<thead>
<tr>
<th>Version</th>
<th>Model Type</th>
<th>Operating Temperature</th>
<th>Order No.</th>
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<tbody>
<tr>
<td>5 * R445</td>
<td>IE-SW-BL05-5TX</td>
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<td>7 * R445</td>
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<td>18 * R445</td>
<td>IE-SW-BL05-18TX</td>
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<td>19 * R445</td>
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<td>20 * R445</td>
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<td>21 * R445</td>
<td>IE-SW-BL05-21TX</td>
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<td>22 * R445</td>
<td>IE-SW-BL05-22TX</td>
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<td>25 * R445</td>
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<td>26 * R445</td>
<td>IE-SW-BL05-26TX</td>
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<td>-10 to +60 °C</td>
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<td>28 * R445</td>
<td>IE-SW-BL05-28TX</td>
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<td>29 * R445</td>
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Accessories

<table>
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<tr>
<th>Model Type</th>
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<tbody>
<tr>
<td>10P Rack Mounting Kit</td>
<td>RMKIT</td>
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<tr>
<td>Wall mounting kit for IE-SW-BL05 series</td>
<td>IE-WALLMOUNT-KIT-30M</td>
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<tr>
<td>Wall mounting kit for IE-SW-BL08 series</td>
<td>IE-WALLMOUNT-KIT-46MM</td>
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</table>
Technical data

Technology
Standards
IEEE 802.3 for 10BaseT
IEEE 802.3u for 100BaseT(X) and 100BaseFX
IEEE 802.3x for Flow Control

Switch Properties
Packet Buffer Size
IEEE-SW-VL09-Series: 1K, IEEE-SW-VL16-Series: 4K

Interface
Fibre Ports: 100BaseFX (SC/ST-duplex connection)
RJ45 Ports: 10/100Base(T) auto negotiation speed, Full/Half duplex mode, and auto MDI/MDIX connection

Power Requirements
Input Voltage: 12/24/48 V DC (9.6 to 60 V DC)
Input Current: IE-SW-VL09/16TX: 0.26 A at 24 V
IE-SW-VL16/16TX: 0.26 A at 24 V
IE-SW-VL16/SC/ST: 0.4 A at 24 V
Overload Current Protection: 1.6 A
Reverse Polarity Protection: Present

Physical Characteristics
Housing: Metal, IP30 protection
Dimensions (W x H x D): IE-SW-VL09-Series: 53.8 x 135 x 105 mm (2.11 x 5.31 x 4.13 in)
IE-SW-VL16-Series: 80.5 x 135 x 105 mm (3.16 x 5.31 x 4.13 in)
Weight: IE-SW-VL09-Series: 780 g
IE-SW-VL16-Series: 1140 g

Physical Characteristics
Installation
Wall Mounting Kit: IE-WALLMOUNT-KIT-46MM
Ordering Information

<table>
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<th>Model Type</th>
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<tr>
<td>16 * RA45</td>
<td>IE-SW-VL16-16TX</td>
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<tr>
<td>16 * RA45 3 * SC/Multimode</td>
<td>IE-SW-VL16/16TX/SC</td>
<td>-40 to -75 °C</td>
<td>1286500000</td>
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</table>

<table>
<thead>
<tr>
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<th>Model Type</th>
<th>Operating Temperature</th>
<th>Order No.</th>
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<td>14 * RA45 2 * ST-Multimode</td>
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<td>-40 to -75 °C</td>
<td>1286600000</td>
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<th>Version</th>
<th>Model Type</th>
<th>Order No.</th>
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<td>10&quot; Rack Mounting Kit</td>
<td>RM407</td>
<td>1241440000</td>
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<tr>
<td>Wall Mounting Kit</td>
<td>IE-WALLMOUNT-KIT-46MM</td>
<td>1504440000</td>
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</tbody>
</table>
5-Port IP67 unmanaged Fast Ethernet Switches
- M12 connection system and IP67 protected housing
- 10/100BaseT (X), 4-pin M12 (D-coded)
- Full/half duplex mode and auto MDI/MDI-X
- Input voltage 12 to 45 V DC, 18 to 30 V AC

### Technical data

#### Technology

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<thead>
<tr>
<th>Standards</th>
<th>IEEE 802.3 for 10BaseT</th>
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<tr>
<td></td>
<td>IEEE 802.3u for 100BaseT (X)</td>
</tr>
<tr>
<td></td>
<td>IEEE 802.3x for Flow Control</td>
</tr>
</tbody>
</table>

#### Processing Type
- Store and Forward

#### Flow Control
- IEEE 802.3x flow control, back pressure flow control

#### Switch Properties
- MAC Table Size: 2 K
- Packet Buffer Size: 384 Kbit

#### Interface
- M12-Ports: 10/100BaseT (X) auto negotiation, full/half duplex mode and auto MDI/MDI-X connection, 4-pin, D-coded

#### Power Requirements
- Input Voltage: 24/38 V DC (12 to 45 V DC), 18 to 30 V AC (47 to 63 Hz), one input
- Input Current: 0.28 A to 24 V AC
- 0.10 A to 24 V DC
- 0.08 A to 30 V DC
- Overload Current Protection: 1.1 A
- Reverse Polarity Protection: Present

#### Physical Characteristics
- Housing: Plastic, IP67 protection, encapsulated
- Dimensions (W x H x D): 60 x 125 x 29.6 mm (2.36 x 4.92 x 1.09 Zoll)
- Weight: 270 g
- Installation: Wall mounting, screwed

#### Environmental Limits
- Operating Temperature: Standard Models: -25 to 60 °C (-13 to 140 °F)
  Wide Temp. Models: -40 to 75 °C (-40 to 167 °F)
- Storage Temperature: -40 to 85 °C (-40 to 185 °F)
- Ambient Relative Humidity: 5 to 95 % (non-condensing)

### Regulatory Approvals

#### Safety
<table>
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#### EMC
<table>
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<tr>
<th>FCC Part 15 Class A</th>
<th>EN 55022 Class A</th>
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<tbody>
<tr>
<td>IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV</td>
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<tr>
<td>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m</td>
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<tr>
<td>IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV</td>
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<tr>
<td>IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV</td>
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<tr>
<td>IEC 61000-4-6 CS: 10 V</td>
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<tr>
<td>IEC 61000-4-8</td>
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</tbody>
</table>

#### Shock
| IEC 60068-2-27 |

#### Freefall
| IEC 60068-2-32 |

#### Vibration
| IEC 60068-2-6 |

#### MTBF (mean time between failures)
| 3,451,678 h |

#### Database
| Tekcordia (Belcore), GB |

#### Warranty
| Warranty Period: 5 years |

### Ordering data

#### Version
<table>
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<th>Model Type</th>
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<td>IE-SW/IP67-5M12</td>
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<td>IE-SW/IP67-7M12</td>
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<td>IE-SW/IP67-12M12</td>
<td>-40 to +75 °C</td>
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</table>

#### Order No.
| IE-SW/IP67-5M12 | 1504410000 |
| IE-SW/IP67-7M12 | 1504420000 |
5 and 8-Port unmanaged Gigabit Ethernet Switches

- Gigabit Ethernet on all ports
- Variants with slots for SFP transceivers
- Redundant dual 12/24/48 V DC power inputs
- Relay output warning for power failure and port break alarm
- Broadcast storm protection
- Supports jumbo frame transmission

Technical data

**Technology**

**Standards**
- IEEE 802.3 for 10BaseT
- IEEE 802.3u for 100BaseT (X) and 100BaseFX
- IEEE 802.3ab for 1000BaseT(X)
- IEEE 802.3z for 1000BaseX
- IEEE 802.1Q for VLAN

**Processing Type**
- Store and Forward

**Flow Control**
- IEEE 802.1Q Flow control, back pressure

**Switch Properties**

**MAC Table Size**
- 8 K

**Packet Buffer Size**
- IE-SW-BL05-4GT-Series: 1 Mbit
- IE-SW-VL08-Series: 4 Mbit

**Jumbo frame support**
- IE-SW-BL05-4GT-Series: 10 KByte
- IE-SW-VL08-Series: 9.8 KByte

**Interface**

**Fibre Ports**
- 100/1000BaseSFP

**RJ45 Ports**
- 10/100/1000BaseT(X) auto negotiation speed, Full/Half duplex mode, and auto MDI/MDI-X connection

**DIP Switches**
- Port fault alarm enable/disable
- Jumbo frame support enable/disable
- IEEE 802.3az energy saving enable/disable
- Switching between 100BaseSFP and 1000BaseSFP at SFP slot

**Alarm Contact**
- 1 relay output with current carrying capacity of 1 A at 24 V DC

**Power Requirements**

**Input Voltage**
- 12/24/48 V DC (8.6 to 60 V DC), redundant dual inputs

**Input Current**
- IE-SW-BL05-4GT-1GS: 0.14 A at 24 V
- IE-SW-VL08-4ST-2GS: 0.31 A at 24 V
- IE-SW-VL08-8GT: 0.19 A at 24 V

**Connection**
- 1 removable 6-contact terminal block

**Physical Characteristics**

**Housing**
- Metal, IP20 protection

**Dimensions (W x H x D)**
- IE-SW-BL05-4GT-Series: 29 x 135 x 105 mm (1.14 x 5.31 x 4.13 in)
- IE-SW-VL08-4ST-2GS: 53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in)
- IE-SW-VL08-8GT: 53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in)

**Weight**
- IE-SW-BL05-4GT-Series: 290 g
- IE-SW-VL08-4ST-2GS: 630 g
- IE-SW-VL08-8GT: 630 g

**Installation**
- S/W rail, wall (with optional mounting kit)

**Environmental Limits**

**Operating Temperature**
- Standard Models: -10 to 60 °C (14 to 140 °F)
- Wide Temp. Models: -40 to 75 °C (-40 to 167 °F) (on request)

**Storage Temperature**
- -40 to 85 °C (-40 to 185 °F)

**Ambient Relative Humidity**
- 5 to 95 % (non-condensing)

**Regulatory Approvals**

**Safety**
- UL 508

**Hazardous Location**
- US/CSA Class I, Division 2, Groups A, B, C, and D
- ATEX Zone 2 Ex nR eIC:IC:14.6c

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Technical Note:
- IE-SW-BL05-4GT-1GS and IE-SW-VL08-2GS support 1x or 2x 100/1000Base SFP slots.
- Corresponding SFP modules for Fast/Gigabit Ethernet, see page F.2.
Managed Switches
Configurable according to requirements

Managed switches offer extensive control mechanisms for data distribution and bandwidth management to co-ordinate and cope with the different requirements of communication participants in an industrial network. Configuration is either web-based using a simple and intuitive user interface or via a serial console.

Powerful and reliable network redundancy

It is particularly important to have network redundancy to ensure system availability in today’s Industrial Ethernet infrastructures. This is because in a highly integrated system, a connection error can lead to machine stoppage and thus to production losses. To minimise such risks in a managed Ethernet network, Weidmüller has integrated high-performance redundancy mechanisms into its managed switches. This is in addition to the RSTP/STP standard and port-trunking.
Ring redundancy

The Turbo-Ring technology integrated into Weidmüller’s switches allows you to restore a network connection in case of failure in under 20 ms, and this with up to 250 switches in a ring. Turbo-Ring offers thee different topology options (Ring-Coupling, Dual-Ring and Dual-Homing) for different application requirements to ensure the maximum possible availability of industrial network applications.

Ring-Coupling

In some applications, it is not sensible to have all equipment and devices in a single large redundant ring networked together, as some of the devices may be located in remote parts of the plant. For such structures, Ring-Coupling is ideal. It connects devices in multiple, smaller rings that are connected redundantly and directly with one another.

Dual-Homing

With Dual-Homing, two separate rings are connected through one managed switch via two independent connection points. The back-up connection is activated if the primary connection fails.
**Dual-Ring**

In a Dual-Ring, two neighbouring rings are connected with one another using one switch, without the need for additional ports or cabling. This configuration reduces the total number of ports and saves cabling costs, as an additional primary and back-up line is not needed.

**Turbo-Chain**

Turbo-Chain offers the possibility of creating multiple redundant networks without the limitations of ring technology. Turbo-Chain can be simply configured by defining two end-points in a segment. This means you can connect or extend existing redundant networks. When compared with traditional ring coupling or a network re-design, Turbo-Chain is more flexible as well as being more cost efficient and it has significant savings potential when compared to the effort for network restructuring and re-cabling. In addition Turbo Chain also supports IEEE 802.1w/D RSTP and STP protocols.

- Flexible network topology
- Unlimited and simple network expansion
- Quick troubleshooting (recovery time < 20 ms)
- Cost-effective configurations

**Port trunking for flexible connections**

IEEE 802.3ad (LACP, Link Aggregation Control Protocol) permits flexible network connections and a redundant path for critical applications. It provides the means for a user to link via a higher bandwidth over the PremiumLine managed switches by combining more ports into a trunk group.
QoS supports real-time capability

Quality of Service (QoS) enables the possibility of prioritisation of data traffic in a network and ensures that important data is consistently available. Weidmüller managed switches can deal with IEEE 802.1p/1Q layer 2 CoS tags and also layer 3 TOS information. The QoS functionality of Weidmüller’s managed switches improves network performance and ensures that time-critical applications are given priority.

IGMP snooping and GMRP for filtering multicast data traffic

Weidmüller managed switches support GMRP (Generic Multicast Registration Protocol) and IGMP snooping. These protocols limit multicast data traffic so that it is only forwarded to the devices that actually require it. This reduces unnecessary network data traffic.

IEEE 1588 PTP - improves time synchronisation of automation devices

IEEE 1588 PTP, also known as Precision Time Protocol (PTP), was developed to synchronise real-time clocks which are located at specific nodes of a distributed system. Weidmüller managed switches with IEEE 1588 PTP are particularly suited for motion control applications where distributed clocks must be synchronised with high levels of accuracy.
**Managed Switches introduction**

**VLAN – simplifies network planning**

VLAN stands for virtual LAN. It is a network structure with all the characteristics of a normal LAN, but not geographically constrained. A network can be divided into different sections using the VLAN function. It is possible, for example, to group servers or workstations together, based on their function. Data will only then be sent to Ethernet devices of a specific VLAN group. The option for isolating VLANs completely from one another serves to increase the security of data transfer and offers additional protection from unauthorised access or unauthorised data traffic.

**Automatic topology detection using LLDP**

The Link Layer Discovery Protocol (LLDP - IEEE 802.1AB) is a data link layer protocol which publishes information about a device containing its IP address, description and functional information to its neighbouring devices over the network. All of Weidmüller’s managed switches fully support LLDP.

**Optimum integration and real-time communication**

Weidmüller-managed switches support the automation protocols PROFINET RT and Ethernet/IP. The devices can thus be easily integrated into the respective engineering tools (TIA-Portal, RSLogix) and parameterised and diagnosed via the standard software environment. In addition, the automation protocols support the prioritised transmission of data, thereby enabling real-time communication between the network participants.
5-Port managed Fast Ethernet Switches

- Supports the automation protocols Modbus/TCP, PROFINET RT and EtherNet/IP
- Turbo Ring and Turbo Chain with fast recovery time (<20 ms for up to 250 switches)
- IGMP snooping, 802.1Q, port- and tag-based VLAN
- Configurable error messages via SNMP trap, e-mail or relay output
- User-friendly, web-based configuration and management

Technical data

**Standards**
- IEEE 802.3 for 10BaseT
- IEEE 802.3u for 100BaseTX
- IEEE 802.3ae for Gigabit Ethernet
- IEEE 802.1Q for VLAN Tagging
- IEEE 802.1D-2004 for Spanning Tree Protocol
- IEEE 802.1w for Rapid STP
- IEEE 802.1p for 802.1Q Tagging
- IEEE 802.1Q for VLAN Tagging
- IEEE 802.1Q for 802.1Q Tagging

**Protocols**
- IGMP v1/v2
- IGMP snooping
- IPv4
- IPv6
- IPv4 (PROFINET-IO device in compliance with Conformance Class B)
- IPv4 and IPv6 for EtherCAT IEC
- IPv4 and IPv6 for Ethernet/IP

**MIB**
- MIB-II
- Private MIB

**Flow Control**
- IEEE 802.3x flow control
- Back pressure flow control

**Switch Properties**
- MAC Table Size: 2K
- Packet Buffer Size: 1MB

**Interface**
- 5 RJ45 Ports
- 1 100BaseFX (SC/ST-duplex connection)
- Full/Half duplex mode, and auto MDI/MDI-X connection
- RS-232 (RJ45 connector)
- DIP Switches: Turbo Ring, Master, Coupler, Reserve
- Alarm Contact: 1 relay output with current carrying capacity of 1 A at 24 V DC

**Specification optical fiber**
- Transceiver Type: 100Base FX
- Fiber Cable Type: OM4, 50/125 μm
- Typical Distance: 4 km, 5 km

**Wave-length**
- TX Range (nm): 1270 to 1360 nm
- RX Range (nm): 1100 to 1650 nm

**Optical**
- TX Range (dBm): -10 to 0 dBm
- RX Range (dBm): -3 to -12 dBm
- Link Budget (dB): 12 dB
- Dispersion Penalty (dB): 3 dB

**Power Requirements**
- Input Voltage: 12/24/48 V DC (8.6 to 60 V DC), two redundant inputs
- Input Current: IE-SW-VL05M-5TX: 0.24 A at 24 V
- IE-SW-VL05M-3TX/2ST/2SC: 0.32 A at 24 V
- Overload Current Protection: Present
- Connection: 1 removable 6-contact terminal block
- Reverse Polarity Protection: Present

**Physical Characteristics**
- Housing: Metal, IP30 protection
- Dimensions (W x H x D): 53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in)
- Weight: IE-SW-VL05M-5TX: 0.59 kg
- Installation: DIN Rail, wall (optional mounting kit)

**Ordering data**

<table>
<thead>
<tr>
<th>Version</th>
<th>Model Type</th>
<th>Operating Temperature</th>
<th>Order No.</th>
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<tr>
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<td>IE-SW-VL05M-5TX</td>
<td>-10 to +60 °C</td>
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<td>5 RJ45</td>
<td>IE-SW-VL05M-5TX</td>
<td>-40 to +75 °C</td>
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<td>2 RJ45, 2 * SC Multimode</td>
<td>IE-SW-VL05M-3TX/2SC</td>
<td>-10 to +60 °C</td>
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<tr>
<td>2 RJ45, 2 * SC Multimode</td>
<td>IE-SW-VL05M-3TX/2SC</td>
<td>-40 to +75 °C</td>
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<tr>
<td>2 RJ45, 2 * ST Multimode</td>
<td>IE-SW-VL05M-3TX/2ST</td>
<td>-10 to +60 °C</td>
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<td>2 RJ45, 2 * ST Multimode</td>
<td>IE-SW-VL05M-3TX/2ST</td>
<td>-40 to +75 °C</td>
<td>1504390000</td>
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**Accessories**

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<th>Model Type</th>
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<tbody>
<tr>
<td>External Backup and Restore Module</td>
<td>EBR-Module RS232</td>
</tr>
<tr>
<td>19” Rack Mounting Kit</td>
<td>RM KIT</td>
</tr>
<tr>
<td>Wall mounting kit</td>
<td>E-WALLMOUNT-KIT-40MM</td>
</tr>
</tbody>
</table>

**Environmental Limits**

- Operating Temperature: Standard models: -10 to 60 °C (14 to 140 °F)
- Storage Temperature: Models with extended temperature range: -40 to 75 °C

**Regulatory Approvals**

- Safety: UL 508, UL 60950-1, CSA C22.2 No. 60950-1, EN60950-1

**Accessories**

- External Backup and Restore Module: EBR-Module RS232
- 19” Rack Mounting Kit: RM KIT
- Wall mounting kit: E-WALLMOUNT-KIT-40MM
Managed Switches Fast Ethernet – Value Line

8-Port managed Fast Ethernet Switches
- Supports the automation protocols Modbus/TCP, PROFINET RT and EtherNet/IP
- Turbo Ring and Turbo Chain with fast recovery time (<20 ms for up to 250 switches)
- IGMP snooping, 4oS, port- and tag-based VLAN
- Configurable error messages via SNMP trap, e-mail or relay output
- User-friendly, web-based configuration and management

Technical data

Standards
IEEE 802.3 for 10BaseT
IEEE 802.3u for 100BaseTX and 100BaseFX
IEEE 802.3z for Flow Control
IEEE 802.1D-2004 for Spanning Tree Protocol
IEEE 802.1w for Rapid STP
IEEE 802.1p for Class of Service
IEEE 802.1Q for 8/Q Tagging
IEEE .x for 8/$1 Tagging
IEEE .4 for 8/$1 Tagging
IEEE .x for Ethernet-like MIB
IEEE .w for P-%5ID*E MIB
IEEE .x for Private MIB

Flow Control
IEEE 802.3x flow control + back pressure flow control

Switch Properties
MAC Table Size 8K
Packet Buffer Size 1MBit

Interface
Fibre Ports 100BaseFX (SC/ST-duplex connection)
RJ45 Ports 10/100BaseT(X) auto negotiation speed, Full/Half duplex mode, and auto MDI/MDI-X connection
Console Port RS 232 (RJ45 connector)

DIP Switches
Turbo Ring, Master, Coupler, Reserve

Alarm Contact 1 relay output with current carrying capacity of 1 A at 24 V DC

Specification optical fiber
Transceiver Type 100Base FX
Fiber Cable Type OM1
Typical Distance 4 km 5 km 40 km
Wave-length TX Range (nm) 1260 to 1380 1280 to 1345
RX Range (nm) 1100 to 1600 1100 to 1600
Optical Link Budget (dB) -3 to -32 -3 to -34

Power Dispersion Penalty (dB) 3 1

Note: When connecting a single-mode fiber transceiver over a short distance, we recommend using an attenuator to prevent the transceiver from being damaged by excessive optical power.

Power Requirements
Input Voltage 12/24/48 V DC (9.8 to 60 V DC), two redundant inputs
Input Current IE-SW-VL08MT-8TX: 0.18 A at 24 V
IE-SW-VL08MT-5TX: 0.30 A at 24 V
IE-SW-VL08MT-5TX: 0.35 A at 24 V
Overload Current Protection Present
Reverse Polarity Protection Present

Physical Characteristics
Housing Metal, IP protection
Dimensions (W x H x D) 53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in)

Weight IE-SW-VL08MT-8TX: 650 g
IE-SW-VL08MT-5TX: 890 g

Physical Characteristics
Installation DIN Rail, wall (with optional mounting kit)

Environmental Limits
Operating Temperature -40 to 75 °C (-40 to 167 °F)
Storage Temperature -40 to 85 °C (-40 to 185 °F)

Ambient Relative Humidity 5 to 95 % (noncondensing)

Regulatory Approvals
Safety UL 508, UL 60950 1*

Hazardous Location US/31 Class 1, Division 2, Groups A, B, C and D*
ATEX Zone 2 Ex nA IIIC T4 Ga*

EMC EN 55032/24
DIN 50837/24
IEC 61000-3-2
IEC 61000-3-3: 30 V/AC
IEC 61000-4-5: Surge: 2 kV, Signal: 2 kV
IEC 61000-4-6: 10 V
IEC 61000-4-8

Maritime DNV-GL

Shock IEC 60068-2-27

Vibration IEC 60068-2-6

MTBF (mean time between failures) Time 1,339,459 hrs / 1,253,872 hrs (models IE-SW-VL08MT-STX-3SC and IE-SW-VL08MT-STX-1SC/2SCs)

Database Telcordia (Bellcore), GB

Warranty Warranty Period 5 years

Ordering data

<table>
<thead>
<tr>
<th>Version</th>
<th>Model Type</th>
<th>Operating Temperature</th>
<th>Order No.</th>
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<tbody>
<tr>
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<td>IE-SW-VL08MT-STX</td>
<td>-40 to +75 °C</td>
<td>12404940000</td>
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<tr>
<td>5 * RJ45, 1 * SE Multimode, 2 * SD-Singlemode</td>
<td>IE-SW-VL08MT-STX-1SC/2SCs</td>
<td>-40 to +75 °C</td>
<td>1346240000</td>
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<tr>
<td>6 * RJ45, 2 * ST Multimode</td>
<td>IE-SW-VL08MT-STX-2ST</td>
<td>-40 to +75 °C</td>
<td>12408990000</td>
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<td>6 * RJ45, 2 * SE Multimode</td>
<td>IE-SW-VL08MT-STX-2SC</td>
<td>-40 to +75 °C</td>
<td>1244770000</td>
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<td>6 * RJ45, 2 * SD-Singlemode</td>
<td>IE-SW-VL08MT-STX-2SCS</td>
<td>-40 to +75 °C</td>
<td>1241020000</td>
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Accessories

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<th>Order No.</th>
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<tbody>
<tr>
<td>External Backup and Restore Module</td>
<td>EBR-Module R5232</td>
</tr>
<tr>
<td>RM Rack Mounting Kit</td>
<td>RM-KIT</td>
</tr>
<tr>
<td>Wall mounting kit</td>
<td>IE-WALL_MOUNT_KIT-46MM</td>
</tr>
</tbody>
</table>

Note: * does not apply to models IE-SW-VL08MT-STX-3SC and IE-SW-VL08MT-STX-1SC/2SCs
### Technical data

**IEEE 802.3 for 10BaseT** • IEEE 802.3u for 100BaseFX and IEEE 802.3x for Flow Control
• IEEE 802.1Q-2004 for Spanning Tree Protocol • IEEE 802.1x for Rapid STP
• IEEE 802.1Q for VLAN Tagging • IEEE 802.1p for Class of Service • IEEE 802.1Q for Authentication
• IEEE 802.3ad for Port Trunk with LACP

**Protocols**
- IGMP v1/v2 • DMRP • SNMPv1/v2c/v3 • DHCP Server/Client • Bonjour • TFTP • SMTP • RARP
- DMRP • LACP • HTTP • HTTPS • Telnet • Syslog

**IEEE 802.1Qad for Port Trunking**
- IEEE 802.1p for Class of Service
- IEEE 802.1Q for 802.1Q Tagging

**Security**
- IEEE 802.1X, HTTPS, SNMPv3, and SSH supported

**Power Requirements**
- Overload Current Protection: Present
- Connection: 2 removable B-contact terminal blocks
- Reverse Polarity Protection: Present

**Physical Characteristics**
- Shock: EN61000-4-5 (Surge) level 3
- Vibration: EN61000-4-6 (CB) level 3
- EMI: EN61000-4-2 (ESD): IE-SW-PL08M...Series: level 3
- EMI: EN50155:2022 (Electrostatic Discharge): level 3
- EMI: EN50155:2022 (EFT): level 3
- EMI: EN50155:2022 (Surge) level 3

**Approval**
- CE mark for E1
- UL, CUL, CE, LVD, E1, TÜV, and EAC mark

**Environmental Limits**
- Operating Temperature: Standard Models: 0 to 60 °C (32 to 140 °F)
- Wide Temp. Models: 40 to 75 °C
- Storage Temperature: 40 to 65 °C (40 to 149 °F)

**Ambient Relative Humidity**
- 5 to 95 % (non-condensing)

**Regulatory Approvals**
- UL 508, UL 60950-1, CSA C22.2 No. 60950-1, EN 60950-1
- LMI: IEC 60669-2-7
- Freifeld: IEC 60669-2-12
- Vibration: IEC 60669-2-6

**Regulatory Approvals**
- IEC 60669-2-7
- EN 60669-2-12
- IEC 60669-2-6

**Warranty**
- Warranty Period: 5 years

### Managed Switches Fast Ethernet – Premium Line

**IEEE 802.3 for 10BaseT** • IEEE 802.3u for 100BaseFX and IEEE 802.3x for Flow Control

**IEEE 802.1Q for VLAN Tagging** • IEEE 802.1p for Class of Service • IEEE 802.1Q for Authentication

**IEEE 802.3ad for Port Trunking**

**Technical data**

- IEEE 802.3 for 10BaseT • IEEE 802.3u for 100BaseFX and IEEE 802.3x for Flow Control
- IEEE 802.1Q-2004 for Spanning Tree Protocol • IEEE 802.1x for Rapid STP
- IEEE 802.1Q for VLAN Tagging • IEEE 802.1p for Class of Service • IEEE 802.1Q for Authentication
- IEEE 802.3ad for Port Trunk with LACP

**Protocols**
- IGMP v1/v2 • DMRP • SNMPv1/v2c/v3 • DHCP Server/Client • Bonjour • TFTP • SMTP • RARP
- DMRP • LACP • HTTP • HTTPS • Telnet • Syslog

**IEEE 802.1Qad for Port Trunking**
- IEEE 802.1p for Class of Service
- IEEE 802.1Q for 802.1Q Tagging

**Security**
- IEEE 802.1X, HTTPS, SNMPv3, and SSH supported

**Power Requirements**
- Overload Current Protection: Present
- Connection: 2 removable B-contact terminal blocks
- Reverse Polarity Protection: Present

**Physical Characteristics**
- Shock: EN61000-4-5 (Surge) level 3
- Vibration: EN61000-4-6 (CB) level 3
- EMI: EN61000-4-2 (ESD): IE-SW-PL08M...Series: level 3
- EMI: EN50155:2022 (Electrostatic Discharge): level 3
- EMI: EN50155:2022 (EFT): level 3
- EMI: EN50155:2022 (Surge) level 3

**Approval**
- CE mark for E1
- UL, CUL, CE, LVD, E1, TÜV, and EAC mark

**Environmental Limits**
- Operating Temperature: Standard Models: 0 to 60 °C (32 to 140 °F)
- Wide Temp. Models: 40 to 75 °C
- Storage Temperature: 40 to 65 °C (40 to 149 °F)

**Ambient Relative Humidity**
- 5 to 95 % (non-condensing)

**Regulatory Approvals**
- UL 508, UL 60950-1, CSA C22.2 No. 60950-1, EN 60950-1
- LMI: IEC 60669-2-7
- Freifeld: IEC 60669-2-12
- Vibration: IEC 60669-2-6

**Warranty**
- Warranty Period: 5 years

### Ordering data

**Version**
- 8 * RJ45
- 6 * RJ45, 2 * SC-Multimode
- 6 * RJ45, 2 * ST-Multimode
- 6 * RJ45, 2 * SC-Multimode
- 16 * RJ45
- 16 * RJ45, 2 * SC-Multimode
- 16 * RJ45, 2 * ST-Multimode

**Model Type**
- IE-SW-PL08M-8TX
- IE-SW-PL08M-14TX
- IE-SW-PL08M-16TX
- IE-SW-PL16M-14TX
- IE-SW-PL16M-16TX
- IE-SW-PL16M-20TX
- IE-SW-PL16M-24TX

**Operating Temperature**
- 0 to 60 °C
- 0 to 60 °C
- 0 to 60 °C
- 0 to 60 °C
- 0 to 60 °C
- 0 to 60 °C
- 0 to 60 °C

**Order No.**
- 1241040000
- 1241070000
- 1241090000
- 1241100000
- 1241090000
- 1241100000
- 1241120000
- 1241130000
- 1286780000
- 1286780000
- 1286780000

**Database**
- Telcordia T568B, Bellcore, GB

**Warranty**
- Warranty Period: 5 years
Managed Switches Fast/Gigabit Ethernet – Premium Line

10-Port managed Fast/Gigabit Ethernet Switches
- Supports the automation protocols Modbus/TCP, PROFINET RT and EtherNet/IP
- 2 Gigabit Ethernet ports for redundant ring and 1 Gigabit Ethernet port for uplink solution
- Ring redundancy with fast recovery time (< 20 ms for up to 250 switches)
- IEEE 1588 PTP, LLDP, SNMP Inform, QoS, IGMP snooping, VLAN, IEEE 802.1X, HTTPS, SNMPv3, and SSH supported

Technical data

### Standards
- IEEE 802.3 for 10BaseT
- IEEE 802.3u for 100BaseT(X)
- IEEE 802.3ab for 1000BaseT(X)
- IEEE 802.3x for 1000BaseT
- IEEE 802.3x for Flow Control
- IEEE 802.1D-2004 for Spanning Tree Protocol
- IEEE 802.1w for Rapid STP
- IEEE 802.1Q for VLAN Tagging
- IEEE 802.1Q for Class of Service
- IEEE 802.1p for QoS
- IEEE 802.1D for Spanning Tree
- IEEE 802.1D for Troubleshooting
- IEEE 802.1D for Device in compliance with Conformance Class B
- EtherCAT/PROFINET RT (PROFINET-RS device in compliance with Conformance Class B)
- EtherCAT/IP (OP supports)
- LLDP
- IEEE 1500 PTP

### Protocols
- IGMPv1/v2
- IGMP
- IGMP-Snooping
- IGMP
- IGMP Snooping
- IPv6
- IP

### MIB
- MIB-II
- SNMP
- Private MIB

### Flow Control
- IEEE 802.3a flow control
- back pressure flow control

### Switch Properties
- Priority Queues
- 4
- Max. Number of Available VLANs
- 64
- VLAN ID Range
- VID 1 to 4094
- IGMP Groups
- 256
- MAC Table Size
- 8 K
- Packet Buffer Size
- 1 MBit

### Interface
- Fibre Ports
- 1000BaseSFP
- (1000BaseSFP modules are not supported)
- RJ45 Ports
- 10/100BaseT(X) or 10/100/1000BaseT(X)

### Console Port
- RS 232 (RJ45 connector)

### DIP Switches
- Turbo-5ing, Master, Coupler, Reserve

### Alarm Contact
- 2 relay outputs with a current carrying capacity from 1 A at 24 V DC

### Power Requirements
- Input Voltage
- 24 V DC (12 to 45 V DC), two redundant inputs
- Input Current
- 0.48 A at 24 V
- 0.38 A at 24 V
- Overload Current Protection
- Present
- Reverse Polarity Protection
- Present

### Physical Characteristics
- Housing
- Metal, IP30 protection
- Dimensions (W x H x D)
- 80.2 x 135 x 105 mm (3.16 x 5.31 x 4.13 in)
- Weight
- 1.710 g
- Installation
- DIN-Rail, wall (with optional mounting kit)

### Environment Limits
- Operating Temperature
- Standard Models: -10 to 60 °C (32 to 140 °F)
- Wide Temp. Models: -40 to 75 °C (-40 to 167 °F)
- Storage Temperature
- -40 to 85 °C (-40 to 185 °F)
- Ambient Relative Humidity
- 5 to 95 % (non-condensing)

### Regulatory Approvals
- Safety
- UL 508, UL 60950-1, CSA C22.2 No. 60950-1, EN60950-1
- Hazardous Location
- UL/ULc, Class I, Division 2, Groups A, B, C and D
- ATEX Zone 2

### EMC
- EN 55032/24
- CISP5, IEC 2007-2
- IEC 61000-4-4:2004
- IEC 61000-4-5:2005
- IEC 61000-4-6:2005
- IEC 61000-4-8:2005

### Shock
- IEC 60068-2-27

### Freefall
- IEC 60068-2-32

### Vibration
- IEC 60068-2-6

### Shock (mean time between failures)
- Time
- 977,000 hrs

### Database
- Telcordia (Bellcore, GB)

### Warranty
- Warranty Period
- 5 years

### Ordering data

#### Version
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<th>Operating Temperature</th>
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<td>-10 to 60 °C</td>
<td>1241280000</td>
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<td>7 * RJ45 10/100BaseT(X)</td>
<td>-10 to 60 °C</td>
<td>1241300000</td>
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#### Accessories

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<tr>
<th>Model Type</th>
<th>Order No.</th>
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<tbody>
<tr>
<td>External Backup and Restore Module</td>
<td>EBR-Modul RS232</td>
</tr>
<tr>
<td>10P Rack Mounting Kit</td>
<td>RM-KIT</td>
</tr>
</tbody>
</table>

### Note
The IE-SW-PL10M 1GT-2GS-7TX supports up to 2x 1000Base SFP slots. Corresponding SFP modules for Gigabit Ethernet, see page F.2.
18-Port managed Fast/Gigabit Ethernet Switches

- Supports the automation protocols Modbus/TPC, PROFINET RT and EtherNet/IP
- 2 Gigabit Ethernet ports plus 16 Fast Ethernet ports for copper and fibre
- Ring redundancy with rapid recovery time (< 20 ms for up to 250 switches)
- IEEE 1588 PTP, //DP, S1MP Inform, 4oS,
- Ring redundancy with rapid recovery time (< 20 ms for up to 250 switches)

Technical data

### Standards
- IEEE 802.3 for 10BaseT
- IEEE 802.3u for 100BaseTX and 100BaseFX
- IEEE 802.3ab for 1000BaseX
- IEEE 802.3 for 1000BaseX (for Flow Control) and 802.10a/b
- IEEE 802.1w for Rapid STP
- IEEE 802.10 for VLAN Tagging
- IEEE 802.1p for Class of Service
- IEEE 802.1X for Authentication
- IEEE 802.3ad for Port-Trunk mit LACP

### ISP/IP

- No: 1286970000
- Description: 1386990000
- Description: 1241320000
- Description: 1241330000
- Description: 1241340000
- Description: 1241350000

### Power Requirements

- Input Voltage: 24 V DC (12 to 45 V DC), redundant dual inputs
- Input Current: 24 V DC
- Overload Current Protection: Present
- Connection: 2 removable 6-contact terminal blocks
- Reverse Polarity Protection: Present

### Physical Characteristics

- Housing: Metal, IP30 protection
- Weight: 1630 g
- Installation: DIN Rail, wall (with optional mounting kit)

### Environmental Limits

- Operating Temperature: Standard Models: 0 to 60 °C (32 to 140 °F)
- Wide Temp. Models: -40 to 75 °C (-40 to 167 °F)
- Storage Temperature: -40 to 85 °C (-40 to 185 °F)

### Regulatory Approvals

- Safety: UL 508, UL 60950-1, CSA C22.2 No. 60950-1, EN60950-1
- Hazardous Location: UL/ULC Class I, Division 2, Groups A, B, C and D, ATEx Zone 2.x nT c, cEx eT 4 G II
- EMC: FCC Part 15, CISPR (EN55022) Class A
- EN61000-4-2 (ESD), level 2; EN61000-4-3 (RS), level 3; EN61000-4-4 (GTE), level 2; EN61000-4-6 (Surge), level 3; EN61000-4-5 (CS), level 3; EN61000-4-8; EN61000-4-12
- Maritime: DNV-GL
- Shock: IEC 60068-2-27
- Freefall: IEC 60068-2-32
- Vibration: IEC 60068-2-6

### MTBF (mean time between failures)

- Time: 240,000 hrs

### Warranty

- Warranty Period: 5 years
Managed Switches Gigabit Ethernet – Premium Line

9-Port managed Gigabit Ethernet Switches
- Supports the automation protocols Modbus/TCP, PROFINET RT and EtherNet/IP
- 4* 10/100/1000BaseT(X) ports plus 5* combo-ports (10/100/1000BaseT(X) or 100/1000BaseSFP slot)
- Ring redundancy with rapid recovery time (< 20 ms for up to 250 switches)
- IEEE 1588 PTP, LLDP, SNMP Inform, GoS, IGMP snooping, VLAN, IEEE 802.1X, HTTPS, SNMPv3, and SSH supported

Technical data

Standards
- IEEE 802.3 for 10BaseT
- IEEE 802.3u for 100BaseT(X) and 100BaseFX
- IEEE 802.3ab for 1000BaseT(X)
- IEEE 802.3x for 100BaseX
- IEEE 802.3x for Flow Control
- IEEE 802.10-2004 for Spanning Tree Protocol
- IEEE 802.1w for Rapid STP
- IEEE 802.10 for VLAN Tagging
- IEEE 802.1p for Class of Service
- IEEE 802.3x for Flow Control

Protocols
- IGMPv1/v2, IGMPv3, SNMPv1/v2c/v3, DHCP Server/Client, DHCP Option 60/67/82, BootP
- TFTP, SNMP, SMTP, TFTP, RMON, HTTP, HTTPS, Telnet, SSH, Systor, Modbus/TCP
- PROFINET RT (PROFINET ID device in compliance with Conformance Class D)
- EtherCAT (CP support)
- SNMP Information, LLDP, IEEE 1588 PTP, IPv6

MIB
- MIBII
- EthernetLike MIB
- P-BRIDGE MIB
- O-BRIDGE MIB
- Bridge MIB
- RSTP MIB
- RMON MIB Group 1, 2, 3, 6, Private MIB

Flow Control
- IEEE 802.3x flow control - back pressure flow control

Switch Properties
- Priority Queues: 4
- Max. Number of Available VLANs: 64
- VLAN ID Range: 1 to 4094
- IGMP Groups: 226
- MAC Table Size: 8 K
- Packet Buffer Size: 1MB

Interface
- Fibre Ports: 10/100/1000BaseSFP
- RJ45 Ports: 10/100/1000BaseT(X) auto negotiation
- Console Port: RS 232 (RJ45 connector)
- DIP Switches: Turbo-Ring, Master, Coupler, Reserve
- Alarm Contact: 2 relay outputs with a current carrying capacity from 1 A at 24 V DC
- Digital Inputs: 4 inputs with the same power, but electrically isolated from the electronics
  - +13 to +30 V for states “1”
  - -30 to +3 V for states “0”
  - Max. input current: 8 mA

Power Requirements
- Input Voltage: 12/24/48 V DC (9.6 to 60 V DC), two redundant inputs
- Input Current: 0.81 A at 24 V
- Over-voltage Protection: Present
- Over-current Protection: Present
- Reverse Polarity Protection: Present
- Housing: Metal, IP30 protection
- Dimensions (W x H x D): 87.1 x 135 x 107 mm (3.43 x 5.31 x 4.21 in)
- Weight: 1510 g
- Installation: DIN-Rail, wall (with optional mounting kit)

Environmental Limits
- Operating Temperature: Standard Models: 0 to 60 °C (32 to 140 °F)
- Wide Temp. Models: 40 to 75 °C (40 to 167 °F)
- Storage Temperature: 40 to 85 °C (-40 to 185 °F)
- Ambient Relative Humidity: 5 to 95% (non-condensing)

Regulatory Approvals
- Safety: UL 508, EN 60529

EMI
- FCC Part 15, CISPR (EN55022) Class A
- EN61000-4-3 (ESD), level 3
- EN61000-4-4 (EFT), level 3
- EN61000-4-5 (Surge), level 3
- EN61000-4-6 (CS), level 3
- EN61000-4-8

Maritime
- LVD
- Shock: IEC 60068-2-27
- Freefall: IEC 60068-2-32
- Vibration: IEC 60068-2-6
- MTF (mean time between failures): 330,000 hrs
- Database: Telcordia (Bellcore), GB
- Warranty: 5 years

Ordering data

Order No.
- Model Type: IE-SW-PL09M-5GC-4GT
- Operating Temperature: 0 to 60 °C
- Amount: 1241370000

Order No.
- Model Type: IE-SW-PL09MT-5GC-4GT
- Operating Temperature: -40 to 75 °C
- Amount: 1287020000

Accessories

Order No.
- Model Type: EBR-Modul RS232
- Amount: 1241430000

Order No.
- Model Type: IE-WALLMOUNT-KIT-46MM
- Amount: 1504440000

Order No.
- Model Type: RM-KIT
- Amount: 1241440000

Order No.
- Model Type: IL-WALLMOUNT-KIT-40MM
- Amount: 1504440000

Note
The IE-SW-PL09M series supports up to 5x 100/1000Base SFP slots. Corresponding SFP modules for Fast/ Gigabit Ethernet, see page F.2.
Power over Ethernet describes a process where power can be supplied to a network-compatible device over the 8-wire Ethernet cable. In a narrower sense, PoE today means the IEEE 802.3af (DTE Power over MDI) standard which was adopted in June 2003.

The main advantage of Power over Ethernet is that you do not require a separate power supply cable and so can install Ethernet devices in hard-to-reach places or in areas where there is not sufficient room for many cables. This means that you can save some significant installation costs, and that you can also integrate the power supply into a central uninterruptible power supply (UPS) to improve the reliability of the connected devices.

PoE is used by network devices that need small amounts of power. It is typically used for IP telephones, network cameras, operating panels or wireless communications devices such as WLAN access points.

Weidmüller PoE switches support the IEEE 802.3at standard (also known as PoE+) and can therefore supply end devices with up to 30 W per PoE port.

Weidmüller PoE switches also offer further advantages by their simple power supply needs. They do not require an additional 48 V supply in addition to the standard 24 V supply.
Unmanaged Switches Fast Ethernet - Power over Ethernet – Basic Line

6-Port unmanaged Fast Ethernet PoE+ Switches
- 4x IEEE 802.3at/at konforme PoE-Ports
- Up to 30 watts per PoE port
- 12/24/48 V DC redundant wide-range power supply
- Integrated DC/DC converter can supply 48 V PoE devices across the entire input voltage range of 12-57 V DC
- Intelligent power consumption detection and classification
- Broadcast Storm Protection

Environmental Limits
- Operating Temperature: Standard models: -10 to 60°C (14 to 140°F), models with extended temperature range: -40 to 75°C (-40 to 167°F)
- Storage Temperature: -40 to 85°C (-40 to 185°F)
- Ambient Relative Humidity: 5 to 95% (non-condensing)

Regulatory Approvals
- Safety: UL 508
- EMC: EN 55032/24, CISPR 32, FCC Part 15 Class A
- IEC 61000-4-8
- Vibration: IEC 60068-2-6
- Shock: IEC 60068-2-27
- Freefall: IEC 60068-2-32
- Data retention: Telcordia TEL-core, TEL

Warranty
- Warranty Period: 5 years

Ordering data

<table>
<thead>
<tr>
<th>Version</th>
<th>Type</th>
<th>Operating Temperature</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 * RJ45 10/100 BaseT(X), 4 * RJ45 10/100 BaseT(X) PoE+, 4 * RJ45 10/100 BaseT(X) PoE+</td>
<td>IE-SW-BL06T-2TX-8PoE</td>
<td>-10 to +60 °C</td>
<td>1241380000</td>
</tr>
<tr>
<td>1 * RJ45 10/100 BaseT(X), 4 * RJ45 10/100 BaseT(X) PoE+, 1 * ST Multimode</td>
<td>IE-SW-BL06T-1TX-9PoE-1ST</td>
<td>-10 to +60 °C</td>
<td>1504270000</td>
</tr>
<tr>
<td>4 * RJ45 10/100 BaseT(X) PoE+, 2 * SC Multimode</td>
<td>IE-SW-BL06T-4PoE-2SC</td>
<td>-10 to +60 °C</td>
<td>1504210000</td>
</tr>
<tr>
<td>4 * RJ45 10/100 BaseT(X) PoE+, 2 * ST Multimode</td>
<td>IE-SW-BL06T-4PoE-2ST</td>
<td>-10 to +60 °C</td>
<td>1504230000</td>
</tr>
</tbody>
</table>

Accessories

<table>
<thead>
<tr>
<th>Type</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>19” Rack Mounting Kit</td>
<td>RMKIT</td>
</tr>
<tr>
<td>Wall mounting kit</td>
<td>IE-WALLMOUNT-KIT-46MM</td>
</tr>
</tbody>
</table>

Technical data

- Standards: IEEE 802.3 for 10BaseT, IEEE 802.3u for 100BaseT(X) and 100BaseFX, IEEE 802.3x for Flow Control, IEEE 802.3at for PoE, IEEE 802.3at for PoE+
- Processing Type: Store and Forward
- Flow Control: IEEE 802.3x flow control, back pressure, flow control
- Switch Properties: IEEE 802.3at PoE ports
- MAC table size: 2K
- Packet buffer size: 768 KB
- Interface: 100BaseFX (SC/ST-duplex connection)
- IGMP Ports: 10/100BaseT(X) auto negotiation speed, full/duplex mode and auto MDI/MDIX connection
- DP Switches: Enable/disable broadcast storm protection

Specification optical fiber
- Transceiver Type: 100Base FX, Multi-Mode
- Fiber Cable Type: OM1, 50/125 µm
- Typical Distance: 4 km, 5 km
- Wave length: 1300 nm
- TX Range (mm): 1260 to 1300
- RX Range (mm): 1100 to 1260
- TX Range (dBm): -10 to -20
- RX Range (dBm): -3 to -32
- Link-Budget (dB): 12
- Dispersion Penalty (dB): 3

Power Requirements
- Input Voltage: 12/24/48 V DC (12 to 57 V DC), two redundant inputs
- Input Current: 6.19 A at 12 VDC, 5.55 A at 24 VDC, 2.71 A at 48 VDC
- Imprush current: 64.50 A at 48 VDC (0.1 – 1 ms)
- Power loss: 36.4 BTU/h
- Connection: 1 removable 4-pole terminal block
- Reverse polarity protection: Present
- Overcurrent current protection: Present
- PoE power budget total: 62 W at 12 V DC (12/17 V DC) 120 W at 24/48 V DC (18/57 V DC)
- PoE output voltage: 50 V DC at 12/24/48 V DC input voltage
- PoE output power: 51.4 W at 802.3at, 30 W at 802.3bt
- PoE output current: 350 mA at 802.3at, 650 mA at 802.3bt
- PoE pinout: Mode A: wire pair 1, 2 (V+), wire pair 3, 6 (V-)

Physical Characteristics
- Housing: Aluminium, IP30 protection
- Dimensions (W x H x D): 50 x 114 x 70 mm (1.96 x 4.53 x 2.76 in)
- Weight: 375 g
- Installation: DIN rail, wall (with optional mounting kit)
5-Port unmanaged Gigabit Ethernet PoE+ Switches

- Gigabit Ethernet at all ports
- 4x IEEE 802.3at/at conform PoE ports
- Up to 36 Watt per PoE port
- 12/24/48 V DC redundant wide-range power supply
- Support for jumbo frames
- Intelligent power consumption detection and classification
- Intelligent PoE surge voltage and short-circuit protection

Technical data

Standards
- IEEE 802.3 for 10BaseT
- IEEE 802.3u for 100BaseT(X) and 100BaseFX
- IEEE 802.3ab for 1000BaseT
- IEEE 802.3z for 1000BaseX
- IEEE 802.3x for Flow Control
- IEEE 802.3af for PoE
- IEEE 802.3at for PoE+
- IEEE 802.3az for Energy Efficient Ethernet

Processing Type
- Store and Forward

Flow Control
- IEEE 802.3x Flow, back pressure
- IEEE 802.3ad

Switch Properties
- MAC table size: 8 K
- Packet buffer size: 1 Mbit
- Jumbo Frame support: 10 KB

Interface
- Fibre-optic ports: 100/1000BaseSFP
- RJ45 Ports: 1/10/100/1000BaseT(X) auto negotiation speed, Full/Half duplex mode and auto MDI/MDIX connection

DIP Switches
- Broadcast storm protection: enable/disable
- Jumbo Frame support: enable/disable
- PoE: High Power: enable/disable
- Switching between 100baseSFP and 1000baseSFP at SFP slot

Power Requirements
- Input voltage: 12/24/48 V DC (12 to 57 V DC), two redundant inputs
- Current consumption: 5.92 A at 12 VDC, 5.65 A at 24 VDC, 3.21 A at 48 VDC
- Inrush current: 17.4 A at 24 VDC (0.1 – 1 ms)
- Power loss: 36.4 BTU/h
- Connection: 2x removable pole terminal blocks
- Reverse polarity protection: Present
- Overcurrent current protection: Present
- PoE: Present
- PoE power budget total: 62 W at 12 V DC (12-17 V DC)
- PoE output voltage: 5.3 V DC at 12/24/48 V DC input voltage
- PoE output power: 15.4 W at 802.3at, 30 W at 802.3at, 30 W in high power mode
- PoE output current: 350 mA at 802.3at, 600 mA at 802.3at, 720 mA in high power mode
- PoE port: Mode A: wire pair 1, 2 (V+); wire pair 3, 6 (V-)

Physical Characteristics
- Housing: Aluminium, IP30 protection
- Dimensions (W x H x D): 29 x 135 x 105 mm (1.14 x 5.31 x 4.13 Zoll)
- Weight: 360 g
- Installation: DIN-Rail, wall (with optional mounting kit)

Environmental Limits
- Operating Temperature: Standard Models: 0 to 60 °C (32 to 140 °F)
- Wide Temp. Models: 40 to 75 °C (40 to 167 °F)
- Storage Temperature: -40 to 65 °C (-40 to 157 °F)
- Ambient Relative Humidity: 5 to 95 % (non-condensing)

Regulatory Approvals
- Safety: UL 508
- EMC: EN 55032/24
- CISPR 32, FCC Part 15 Class A
- IEC 61000-4-2: ESD Contact 4 kV, Air 8 kV
- IEC 61000-4-3: RS: 80 Mhz to 1 GHz: 10 V/m
- IEC 61000-4-4: EFT: Power: 2 V Signal: 2 kV
- IEC 61000-4-5: Surge: Power: 2 V Signal: 2 kV
- IEC 61000-4-6: ES: 10 V
- IEC 61000-4-8

Shock
- IEC 6094-2-27

Freefall
- IEC 6094-2-32

Vibration
- IEC 6094-2-6

MTBF (mean time between failures)
- Time: IS-SW-BL05-1GT-4GTPhE: 1,564,608 hrs
- IS-SW-BL05-1GS-4GTPhE: 1,549,997 hrs

Database
- Telcordia (Bellcore), GB

Warranty
- Warranty Period: 5 years

Ordering data

Version | Type | Operating Temperature | Order No. |
--- | --- | --- | --- |
10/100/1000BaseT | IE-SW-BL05-1GT-4GTPhE | 0 to +60 °C | 1504320000 |
10/100/1000BaseT | IE-SW-BL05-1GS-4GTPhE | 0 to +60 °C | 1504330000 |
10/100/1000BaseSFP Slot | IE-SW-BL05-10S-4GTPhE | 0 to +75 °C | 1504360000 |
10/100/1000BaseT | IE-SW-BL05-10S-4GTPhE | 40 to +75 °C | 1504380000 |
10/100/1000BaseSFP Slot | IE-SW-BL05-10S-4GTPhE | 40 to +75 °C | 1504380000 |

Accessories

Type | Order No. |
--- | --- |
19'/2U Rack Mounting Kit | RM-KIT | 1241400000 |
Wall mounting kit | IE-WALLMOUNT-KIT-30MM | 1504450000 |

Note
The IE-SW-BL05-1GS-4GTPhE supports 1x 100/1000Base SFP slot. Corresponding SFP modules for Fast/Gigabit Ethernet, see page F.2.

Industrial Ethernet Switches

Weidmüller

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