

## IE-SW-SL28M-HV

**Weidmüller Interface GmbH & Co. KG**

Klingenbergstraße 26  
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Germany

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### Features of SubstationLine managed switch series

The SubstationLine includes Ethernet switches complying with the IEC 61850-3 and IEEE 1613 standards, making them robust enough for operation in harsh environments. The family includes variants for mounting on DIN rails and in 19" racks.

All products have a redundant power supply to ensure reliability in critical environments. The new family ranges from managed Fast Ethernet switches to 10-Gigabit Ethernet products with all the necessary features to operate according to the most demanding requirements.

- DIN-rail and 19" rack variants
- IEC 61850-3 and IEEE 1613 compliance
- PRP/HSR support according to Clause 4/Clause 5 of IEC 62439-3
- MMS server based on bridge model defined in IEC 61850-90-4
- Redundant power supply modules in all models
- Wide operating temperature range of -40°C up to 85°C
- Modular switch version with high flexibility in number and type of ports
- Fast/Gigabit/10-Gigabit interfaces
- Layer 3 models for hardware supported routing between up to 28 IP-subnets

### General ordering data

Version	Layer 2 Network Switch, Modular, 19" rack mount, managed, Fast/Gigabit/10-Gigabit Ethernet, IEC 61850-3 / IEEE 1613, high voltage, Number of ports: up to 28 (depending on used media interface modules), IP30, -40 °C...85 °C
Order No.	<a href="#">2779010000</a>
Type	IE-SW-SL28M-HV
GTIN (EAN)	4064675048275
Qty.	1 items

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**Technical data**

**Approvals**

Approvals



ROHS	Conform
UL File Number Search	<a href="#">UL Website</a>
Certificate no. (cULus)	E141197

**Dimensions and weights**

Depth	325 mm	Depth (inches)	12.7952 inch
Height	44 mm	Height (inches)	1.7323 inch
Width	440 mm	Width (inches)	17.3228 inch
Net weight	6450 g		

**Temperatures**

Storage temperature	-40 °C...85 °C	Operating temperature	-40 °C...85 °C
Humidity	5 to 95 % (non-condensing)		

**Environmental Product Compliance**

RoHS Compliance Status	Compliant with exemption
RoHS Exemption (if applicable/known)	6c, 7a, 7cl, 7cII
REACH SVHC	Lead 7439-92-1, Lead monoxide 1317-36-8
SCIP	9229992a-00b9-4096-8962-200a7f33e289

**EMC conformity and approvals**

Free fall	IEC 60870-2-2 class Cm	EMC standards	EN 55032, CISPR 22, EN 61000-3-2, EN 61000-3-3, FCC Part 15 Subpart B Class A, EN 55035, IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV, IEC 61000-4-3 RS: 80 MHz to 3 GHz: 10 V/m, IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV, IEC 61000-4-6 CS: 10 V, IEC 61000-4-8, IEC 61000-4-11
Vibration	IEC 60870-2-2 class Cm and class Bm	Shock	IEC 60870-2-2 class Cm
Safety standard	SELV according to EN 62368-1, UL 61010-1, UL 61010-2-201	Power Transmission & Distribution Systems acc. to standard	IEEE 1613, IEC 61850-3

**Environmental conditions**

Operating temperature, max.	85 °C
Operating temperature, min.	-40 °C
Humidity	5 to 95 % (non-condensing)
Storage temperature, max.	85 °C
Storage temperature, min.	-40 °C
Operating altitude	Altitude, max. 2000 m

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## Technical data

Note	in acc. with UL
Altitude, max.	6000 m
Note	for restrictions, see the manufacturer's declaration for operating altitude in section downloads

### Guarantee

Time interval 5 years

### Interfaces

Console port interface	RS-232 (RJ45 connector)	
Number of ports	up to 28 (depending on used media interface modules)	
Function reset button	<5 sec: System reboot and set LAN IP to factory Default, >5 sec: Factory default	
Supported media interface modules	Media module interface slot	M1, M2, M3
	Supported module	<a href="#">IE-SWM-SL04-4SC</a> , <a href="#">IE-SWM-SL04-4SCS</a> , <a href="#">IE-SWM-SL04-4ST</a> , <a href="#">IE-SWM-SL04-4STS</a> , <a href="#">IE-SWM-SL08-8GT</a> , <a href="#">IE-SWM-SL08-8GESFP</a> , <a href="#">IE-SWM-SL02-2GC-PRP/HSR</a>
	Media module interface slot	M4
	Supported module	<a href="#">IE-SWM-SL04-4GESFP</a> , <a href="#">IE-SWM-SL02-2GESFP+</a> , <a href="#">IE-SWM-SL04-4GESFP+</a>

### MTBF

MTBF	According to Standard	Telcordia SR-332
	Operating time (hours), min.	647420 h

### Management features

Device configuration	Webbrowser (HTTP/HTTPS), SNMP v1/v2c/v3, Local serial console port (RS-232 via RJ-45 port), Upload of a configuration file via web-interface, TFTP-Server or external backup module, Command Line Interface (Telnet/SSH)	Monitoring function	SNMP v1/v2c/v3, Link Layer Discovery Protocol (LLDP), Port mirroring (local, remote), Port statistics, Port monitoring, Syslog, RMON (Remote monitoring), Event based warning via E-Mail, Event based warning via relay, Event based warning via SNMP trap, Ethernet cable diagnostics on RJ-45 ports
Network redundancy	Spanning Tree Protocol (STP), Rapid Spanning Tree Protocol (RSTP), Multiple Spanning Tree Protocol (MSTP), O-Ring (recovery time <10/30 ms at Fast/Gigabit Ethernet interface), O-Chain (recovery time <10/30 ms at Fast/Gigabit Ethernet interface), Link Aggregation Control Protocol (LACP), Fast recovery, Media Redundancy Protocol (MRP-manager/client), Parallel Redundancy Protocol (PRP) / High-availability Seamless Redundancy (HSR) RedBox function (specific media interface module required)	Network traffic filter	Quality of Service (QoS), Tag based VLAN, GVRP (GARP VLAN Registration Protocol), IGMP v2/v3, Traffic Rate Limiting, Differentiated Services Code Point (DSCP), Specific prioritization of GOOSE and Sampled Value messages, IGMP Snooping, MLD Snooping, MLD v1/v2

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IP-address management	Static, DHCP-Client, DHCP-Server (port based, pool-based), DHCP Option 82, DHCP-Relay, IPv4/IPv6	Security functions	VLAN segmentation, Enable/disable ports, TACACS+ and IEEE 802.1X User Authentication, DoS/DDoS auto prevention, Access Control List, DHCP snooping, Loop protection, Management access security via privilege level configuration for different user roles
Time synchronization management	SNTP server, SNTP client, PTPv2	Industrial protocol support	PROFINET device acc. to conformance class B, Modbus/TCP slave, MMS server

### Power supply

Reverse polarity protection	Yes	
Supply voltage	110/220 V DC, 110/220 V AC, 2 redundant isolated inputs	
Overload current protection	Yes	
Connection type	1x 10-pin fork/ring lug connection	
Voltage supply range	Voltage type	DC
	Voltage, min.	100 V
	Voltage, max.	370 V
	Voltage type	AC
	Voltage, min.	100 V
	Voltage, max.	240 V
Current consumption	Voltage	110 V
	Current	0.36 A
	Voltage type	DC
	Voltage	220 V
	Current	0.18 A
	Voltage type	DC
	Voltage	110 V
	Current	0.67 A
	Voltage type	AC
	Voltage	220 V
	Current	0.43 A
	Voltage type	AC

### Switch characteristics

Priority queues	8	Max. number of available VLANs	4095
VLAN-ID min	1	VLAN-ID max	4094
MAC table size	32 K	Packet buffer size	32 Mbit
Memory (RAM)	128 MB	Bandwidth backplane	128 Gbit/s
Number of IGMP-Groups per VLAN	128	Memory (Flash)	16 MB
Jumbo frame support	up to 10 KB		

### Technical data

Housing main material	Metal	Type of mounting	19" rack mounting
Protection degree	IP30	Speed	Fast/Gigabit/10-Gigabit Ethernet
Switch	managed		

## Technical data

### Technology

Data switching Standard	Store and Forward	Flow control	IEEE 802.3x flow control
	IEEE 802.3 for 10BASE-T, IEEE 802.3u for 100BASE-TX and 100BASE-FX, IEEE 802.3ab for 1000BASE-T, IEEE 802.3z for 1000BASE-X, IEEE 802.3ae for 10-Gigabit Ethernet, IEEE 802.3x for flow control, IEEE 802.3ad for port trunk with LACP, IEEE 802.1D for the Spanning Tree protocol, IEEE 802.1w for Rapid STP, IEEE 802.1s for the Multiple Spanning Tree Protocol (MSTP), IEEE 802.1p for Class of Service, IEEE 802.1Q for VLAN tagging, IEEE 802.1X for authentication, IEEE 802.1AB for Link Layer Discovery protocol (LLDP), IEEE 1588 PTPv2 for time synchronization		

### Classifications

ETIM 6.0	EC000734	ETIM 7.0	EC000734
ETIM 8.0	EC000734	ETIM 9.0	EC000734
ETIM 10.0	EC000734	ECLASS 9.0	19-17-01-06
ECLASS 9.1	19-17-01-06	ECLASS 10.0	19-17-04-01
ECLASS 11.0	19-17-04-01	ECLASS 12.0	19-17-04-01
ECLASS 13.0	19-17-04-01	ECLASS 14.0	19-17-04-01
ECLASS 15.0	19-17-04-01		

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## Accessories

### Configuration backup and restore module (for use with switches of Advanced- and SubstationLine)



- Module for saving and loading a device configuration
- Reduce system downtime by simple reconfiguration in case of replacing devices
  - 2 storage spaces selectable via DIP switch
  - Compact, rugged, reliable design
  - For use with switches of Advanced- and SubstationLine

### General ordering data

Type	IE-EBR-MODULE-RS232-ALM	Version	
Order No.	<a href="#">2682610000</a>	Configuration backup and restore module, IP40, -10 °C...60 °C	
GTIN (EAN)	4050118692105		
Qty.	1 ST		

### SubstationLine series



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  - IEC 61850-3 and IEEE 1613 compliance
  - PRP/HSR support according to Clause 4/Clause 5 of IEC 62439-3
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  - Redundant power supply modules in all models
  - Wide operating temperature range of -40°C up to 85°C
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  - Layer 3 models for hardware supported routing between up to 28 IP-subnets

### General ordering data

Type	IE-SWM-SL02-2GESFP+	Version	
Order No.	<a href="#">2779210000</a>	Media interface module for modular switch, Gigabit Ethernet/10-Gigabit Ethernet, Number of ports: 2x 1000BaseSFP/10GBaseSFP+	
GTIN (EAN)	4064675048572		
Qty.	1 ST	slot, -40 °C...60 °C	
Type	IE-SWM-SL04-4GESFP	Version	
Order No.	<a href="#">2779200000</a>	Media interface module for modular switch, Gigabit Ethernet, Number of ports: 4x 1000BaseSFP slot, -40 °C...85 °C	
GTIN (EAN)	4064675048565		
Qty.	1 ST		

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## Accessories

Type	IE-SWM-SL04-4GESFP+	Version
Order No.	<a href="#">2779220000</a>	Media interface module for modular switch, Gigabit Ethernet/10-
GTIN (EAN)	4064675048589	Gigabit Ethernet, Number of ports: 4x 1000BaseSFP/10GBaseSFP+
Qty.	1 ST	slot, -40 °C...60 °C
Type	IE-SWM-SL04-4SC	Version
Order No.	<a href="#">2779170000</a>	Media interface module for modular switch, Fast Ethernet, Number of
GTIN (EAN)	4064675048534	ports: 4x SC Multi-mode, -40 °C...85 °C
Qty.	1 ST	
Type	IE-SWM-SL04-4SCS	Version
Order No.	<a href="#">2779160000</a>	Media interface module for modular switch, Fast Ethernet, Number of
GTIN (EAN)	4064675048527	ports: 4x SC Single-mode, -40 °C...85 °C
Qty.	1 ST	
Type	IE-SWM-SL04-4ST	Version
Order No.	<a href="#">2779190000</a>	Media interface module for modular switch, Fast Ethernet, Number of
GTIN (EAN)	4064675048558	ports: 4x ST Multi-mode, -40 °C...85 °C
Qty.	1 ST	
Type	IE-SWM-SL04-4STS	Version
Order No.	<a href="#">2779180000</a>	Media interface module for modular switch, Fast Ethernet, Number of
GTIN (EAN)	4064675048541	ports: 4x ST Single-mode, -40 °C...85 °C
Qty.	1 ST	
Type	IE-SWM-SL08-8GESFP	Version
Order No.	<a href="#">2779150000</a>	Media interface module for modular switch, Fast/Gigabit Ethernet,
GTIN (EAN)	4064675048510	Number of ports: 8x 100/1000BaseSFP Slot, -40 °C...85 °C
Qty.	1 ST	
Type	IE-SWM-SL08-8GT	Version
Order No.	<a href="#">2779140000</a>	Media interface module for modular switch, Fast/Gigabit Ethernet,
GTIN (EAN)	4064675048503	Number of ports: 8x RJ45, -40 °C...85 °C
Qty.	1 ST	
Type	IE-SWM-SL02-2GC-PRP/HSR	Version
Order No.	<a href="#">2985050000</a>	Media interface module for modular switch, PRP/HSR RedBox,
GTIN (EAN)	4099986846364	Fast/Gigabit Ethernet, Number of ports: 2x combo-ports
Qty.	1 ST	(10/100/1000BaseT(X) or 100/1000BaseSFP), -40 °C...85 °C