MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

SIEMENS

6GK1105-2AD00

INDUSTRIAL ETHERNET OPTICAL SWITCH

Used with the applicable SIMATIC NET OSM ITP53 configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Siemens Industrial Ethernet OSM/ESM Manual C79000-Z8976-C068-10; ITP53 2AD00 and applicable technical data.

SIEMENS
SIMATIC NET

Industrial Ethernet OSM/ESM

Operating Instructions

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Classification of Safety-Related Notices

This document contains notices which you should observe to ensure your own personal safety, as well as to protect the product and connected equipment. These notices are highlighted in the manual by a warning triangle and are marked as follows according to the level of danger:



Danger

indicates that death or severe personal injury **will** result if proper precautions are not taken.



Warning

indicates that death or severe personal injury **can** result if proper precautions are not taken.



Caution

with warning triangle indicates that minor personal injury can result if proper precautions are not taken.

Caution

without warning triangle indicates that damage to property can result if proper precautions are not taken.

Notice

indicates that an undesirable result or status can occur if the relevant notice is ignored.

Note

highlights important information on the product, using the product, or part of the documentation that is of particular importance and that will be of benefit to the user.

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Disclaimer

We have checked the contents of this manual for agreement with the hardware and software described. Since deviations cannot be precluded entirely, we cannot guarantee full agreement. However, the data in this manual are reviewed regularly and any necessary corrections included in subsequent editions. Suggestions for improvement are welcome.

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1.1.3 OSM ITP53

Possible Attachments

The OSM ITP53 allows attachment of up to five DTEs or network segments using the ITP connector. By coupling an OSM via ports 7 and 8 it is possible to create optical bus and ring structures. The OSM TP53 can be coupled with other OSM TP53, OSM TP62, OSM ITP22, OSM ITP62, and OSM BC08 modules via the optical ports.

The additional FO port of the OSM ITP53 (port 1) also allows redundant coupling of rings via fiber-optic cable (see Section 3.3).

The OSM ITP53 also has eight digital inputs. The states of the inputs are available in a management information base (MIB) and can be read using an SNMP get request. Depending on the configuration of the device, changes at these inputs can also trigger the sending of E-mails, SNMP traps and/or entries in the log of the OSM. The use of these functions is described in the OSM/ESM Network Management User Manual /1/.



Figure 3: OSM ITP53

Properties of the OSM ITP53	
Electrical ports	5 x 10/100 Mbps autonegotiation/autocrossover ports ITP connectors (sub-D 9-pin female)
Optical ports	3 x 100 Mbps FO ports (full duplex) BFOC female connectors
Maximum distance between two OSMs	3000 m
Maximum ring span with 50 OSMs	150 km
Digital Inputs	8 x DC 24V

Note

Industrial Ethernet OSM ITP53 is available in two versions:

- OSM ITP53 with eight digital inputs:
  The eight digital inputs are connected over two plug-in 6-pin terminal blocks on the top of the device. To display the status of these inputs using the eight device LEDs, there is an additional display mode known as the "Input Status" that is selected using a third mode LED.
- OSM ITP53 without digital inputs:
  There are no digital inputs and the "Input Status" display mode is not available. The operating states are displayed by two mode LEDs.

Technical Specifications 7

Ports	
Attachment of DTEs or network segments twisted pair/Industrial Twisted Pair	6 x 9-pin sub-D female connectors for OSM ITP62, OSM ITP62-LD 5 x 9-pin sub-D female connectors for OSM ITP53 8 x 9-pin sub-D female connectors for ESM ITP80 2 x RJ-45 jacks for OSM TP22 4 x RJ-45 jacks for ESM TP40 6 x RJ-45 jacks for OSM TP62 8 x RJ-45 jacks for ESM TP80 All electrical ports support 10/100 Mbps autonegotiation OSMs/ESMs with digital inputs: The electrical ports support autocrossover.
Standby-sync port for redundant coupling of rings	1 x 9-pin sub-D female connector (not OSM TP22, ESM TP40)
Attachment of further OSMs and DTEs via FO	2 x 2 BFOC sockets for OSM ITP 62, OSM ITP62-LD, OSM TP62, OSM TP22 3 x 2 BFOC sockets for OSM ITP 53 8 x 2 BFOC sockets for OSM BC08 (100 Mbps, 100BaseFX, full duplex)
Connector for power supply and signaling contact	1 x 6-pin plug-in terminal block
Power supply (redundant inputs decoupled)	2 sources of DC 24V (DC 18 to 32V) safety extra-low voltage (SELV) Power supply connected over high resistance to casing (not electrically isolated). Tested in compliance with IEC 6100-4-5, 1995 "Surge Immunity Test" using the DEHN Blitzductor VT AD 24V, Type No. 918 402 lightning protection device

Ports	
Power loss at 24 V DC	20 W
Load on the signaling contact	DC 24 V / max. 100 mA safety extra-low voltage (SELV)
Current consumption at rated voltage	1000 mA
Overcurrent protection at input	Non-replaceable fuse (1.6 A / 250 V / slow)
Digital Inputs	Input voltage: • Rated voltage DC 24 V safety extra-low voltage (SELV) • For state "1": +13 ...+30V • For state "0": –30 ... +3V Max. input current: 8 mA Max. cable length: 30 m Inputs electrically isolated from electronics.

Permitted Cable Lengths	
FO cable length between two OSMs	For OSM ITP62, OSM ITP53, OSM TP62, OSM TP22: 0-3000 m (62.5/125 µm glass fiber; 1 dB/km at 1300 nm; 600 MHz*km; 6 dB max. permitted FO cable attenuation at 3 dB link power margin) 0-3000 m (50/125 µm glass fiber; 1 dB/km at 1300 nm; 600 MHz*km; 6 dB max. permitted FO cable attenuation at 3 dB link power margin) For OSM ITP62-LD: 0-26000 m (10/125 µm single mode fiber; 0,5 dB/km at 1300 nm; 13 dB max. permitted FO cable attenuation at 2 dB link power margin)
ITP cable length	0-100 m
TP cable length	0-10 m with TP cord up to 100 m total length when using the FastConnect cabling system
Length of the ITP XP Standard Cable 9/9 at standby-sync port	0-40 m

Cascading Depth	
Bus/star structure	Any (only depending on signal propagation time)
Redundant ring	50 (for reconfiguration time < 0.3 s)

Switching Properties of OSM/ESM	
Number of learnable addresses	Up to 7000
Aging time	40s (default)
Latency	4 µs (measured at 75% load between two ports operating at 100 Mbps)
Switching procedure	Store and forward

Permitted Ambient Conditions/EMC	
Operating temperature	0°C to +60°C
Storage/transport temperature	-40°C to +80°C
Relative humidity in operation	‹ 95% (no condensation)
Operating altitude	Max. 2000 m
Noise emission	EN 55081 Class A
Noise immunity	EN 50082-2
Laser protection	Class 1 complying with IEC 60825 -1

Mechanical Design	
Dimensions (W x H x D) in mm	217 x161 x 69
Weight in g	1400
Installation options	Standard rail S7-300 rail Wall mounted Installation in 19" cubicle **Only horizontal installation permitted** **(ventilation slits top/bottom)**
Degree of protection	IP 20

Consignment / Order Numbers	
Consignment	- SIMATIC NET Industrial Ethernet OSM/ESM - Fittings for 19" cubicle installation/wall mounting - 6-pin plug-in terminal block for power supply and signaling contact - One to two 6-pin plug-in terminal blocks for OSMs/ESMs with digital inputs - Documentation on the CD - Product information bulletin
Order number:	
Industrial Ethernet OSM ITP62 with digital inputs	6GK1105-2AA10
Industrial Ethernet OSM ITP62 without digital inputs	6GK1105-2AA00
Industrial Ethernet OSM ITP62-LD with digital inputs	6GK1105-2AC10
Industrial Ethernet OSM ITP62-LD without digital inputs	6GK1105-2AC00
Industrial Ethernet OSM ITP53 with digital inputs	6GK1105-2AD10
Industrial Ethernet OSM ITP53 without digital inputs	6GK1105-2AD00
Industrial Ethernet OSM ITP80 with digital inputs	6GK1105-3AA10
Industrial Ethernet OSM ITP80 without digital inputs	6GK1105-3AA00
Industrial Ethernet OSM TP62 with digital inputs	6GK1105-2AB10
Industrial Ethernet OSM TP62 without digital inputs	6GK1105-2AB00
Industrial Ethernet OSM TP80 with digital inputs	6GK1105-3AB10
Industrial Ethernet OSM TP80 without digital inputs	6GK1105-3AB00
Industrial Ethernet OSM TP22 with digital inputs	6GK1105-2AE00
Industrial Ethernet OSM TP40 with digital inputs	6GK1105-3AC00
Industrial Ethernet OSM BC08 with digital inputs	6GK1105-4AA00