



OCTOPUS 16M-2FX

Industrial Networking:Industrial Ethernet:OCTOPUS System IP67:Switch

Product description

Description	Managed IP67 switch in accordance with IEEE 802.3, store and forward switching mode, Layer 2 software professional, ETHERNET (10 Mbit/s) and Fast-ETHERNET (100 Mbit/s)
Port type and quantity	14 x 10/100 BASE-TX, M12 D coding, 4-pole, 2-pair TP cable auto-crossing, auto-negotiation, auto-polarity 2 x 100Base-FX MM, microFX
Type	OCTOPUS 16M-2FX
Order No.	943 912-002

More Interfaces

Power supply/signaling contact	1 M12 A coding 5-pin connector
V.24 interface	1 M12 A coding 4-pin socket
USB interface	1 M12 A coding 5-pin socket

Network size - length of cable

Twisted pair (TP)	0 - 100 m
Multimode fiber (MM) 50/125 µm	0-5000m, 8dB Link Budget at 1300 nm, A = 1dB/km, 3dB Reserve, B = 800 MHz x km
Multimode fiber (MM) 62.5/125 µm	0-4000m, 11dB Link Budget at 1300 nm, A = 1dB/km, 3dB Reserve, B = 500 MHz x km

Network size - cascading

Line - / star topology	Any
Ring structure (HIPER-Ring)	50 (reconfiguration time <0,3 sec.)

Power requirements

Operating voltage	9.6 to 60 V DC
Power consumption	max. 13.0 W
Current consumption at 24 V DC	480 mA

Service

	Serial interface, Web interface, SNMP V1/V2/V3 (HiVision/Industrial HiVision)
Diagnostics	LEDs (power 1, power 2, link status, data, redundancy manager, error) cable tester, signalling contact (24 V DC/ A), RMON (statistics, history, alarms, events), SysLog support, port mirroring
Configuration	Command Line Interface (CLI scripting), auto-configuration adapter (ACA21-M12), TELNET, BootP, DHCP Option 82, HiDiscovery
Security	Port security (MAC and IP address), SNMPv3, SSHv3 SNMP access settings (VLAN/IP), IEEE 802.1X authentication
Other services	4 QoS queues, user priority (IEEE 802.1D/p), VLAN (IEEE 802.1Q), unknown multicast filtering, multicast support (IGMP Snooping/Querier, GMRP), broadcast limiter per port, ingress and egress packet limiter, Flow Control IEEE 802.3x, LLDP (topology discovery IEEE 802.1AB), Link Aggregation (IEEE 802.3ad), buffered real-time clock, PTP support (Precision Time Protocol) (IEEE 1588 client), SNTP support (Simple Network Time Protocol, client/server)

Redundancy

Redundancy functions	HIPER-Ring (ring topology), RSTP (Rapid Spanning Tree Protocol, IEEE 802.1w), redundant network/ring coupling, redundant 24 V power supply
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Ambient conditions

Operating temperature	-40 °C to +70 °C
Storage/transport temperature	-40 °C to +85 °C

Mechanical construction

Dimensions (W x H x D)	261 mm x 189 mm x 70 mm
Mounting	Wall mounting
Weight	1950 g
Protection class	IP 67
Mechanical stability	
IEC 60068-2-27 shock	15 g, 11 ms duration, 18 shocks
IEC 60068-2-6 vibration	1 mm, 2 Hz - 13.2 Hz, 90 min.; 0.7g, 13.2 Hz - 100 Hz, 90 min.; 3.5 mm, 3 Hz - 9 Hz, 10 cycles, 1 octave/min.; 1g, 9 Hz - 150 Hz, 10 cycles, 1 octave/min.
EMC interference immunity	
EN 61000-4-2 electrostatic discharge (ESD)	4 kV contact discharge, 8 kV air discharge
EN 61000-4-3 electromagnetic field	10 V/m (80 - 1000 MHz)
EN 61000-4-4 fast transients (burst)	2 kV power line, 1 kV data line
EN 61000-4-5 surge voltage	power line: 2kV (linie/earth), 1 kV (linie/line), 1 kV data line
EN 61000-4-6 conducted immunity	3 V (10 kHz - 150 kHz), 10 V (150 kHz - 80 MHz)
EMC emitted immunity	
FCC CFR47 Part 15	FCC CFR47 Part 15 Class A
EN 55022	EN 55022 Class A
Approvals	
Safety of industrial control equipment	cUL 508
Germanischer Lloyd	GL
Employment in vehicles	E1
Electronic mechanisms on rail-mounted vehicles	EN 50155
Scope of delivery and accessories	
Scope of delivery	covers for sealing unused ports, description and operating instructions
Accessories to order separately	autob configuration adapter(ACA21-M12) order no. 943 931-001 modem cable, shielded M12 4-pins on Sub-D 9-pins order no. 943 902-001 field assembleable M12-connector EM12S OCTOPUS order no. 934 445-001 patchcords EM12S 001Lxxxx OCTOPUS order no. 934 578-xxx crossing M12 to RJ45 EF12RJ45 OCTOPUS order no. 934 498-001
Note	Please note that some recommended accessory parts only support a temperature range from -25°C to +70°C and might limit the possible operating conditions for the entire system. Specially designed connector types with protection class IP67 and extended temperature range are available on request. Furthermore unsealed accessories like RJ45 adapters or terminal access cables are certainly not suitable inside IP67 areas.