OCTOPUS IP67/IP65/IP54 Industrial Ethernet Switches

Specially designed for use at the field level with automation networks, the switches in the OCTOPUS family ensure the highest industrial protection ratings (IP67, IP65 or IP54) regarding mechanical stress, humidity, dirt, dust, shock and vibrations. They are also capable of withstanding heat and cold, while fulfilling the strictest fire prevention requirements. The rugged design of the OCTOPUS switches are ideal for installing directly on machinery, outside of control cabinets and distribution boxes. The switches can be cascaded as often as required – permitting implementation of decentralized networks with short paths to the respective devices to considerably reducing costs for cabling.

The OCTOPUS family includes switches with 5 up to 28 ports. Gigabit versions are also available which, just like the Fast Ethernet models, feature vibration-resistant M12 connectors for twisted pair cables or fiber-optic ports according to IEC 63076-3-106 v1/v4. The software comes in Basic and Professional versions, providing management, diagnostic and filtering features, as well as redundancy methods and security mechanisms to varying degrees. All switches feature compact water- and dust-resistant housings and have an operating temperature range of -40 °C to +70 °C.

OCTOPUS Fast Ethernet Unmanaged Waterproof IP67/IP54 Switches

Product	Part No.	Order No.	Ports/Features
	OCTOPUS 5TX EEC	943 892-001	5 x 10/100 Mbit/s M12-coding, Unmanaged
	OCTOPUS OS20-001000T5T5TAFUHB	942 025-001	10 x 10/100Base-TX, M12 D coding, 4-pole (24 V version)
	OCTOPUS OS20-001000T5T5TNEUHB	942 025-002	10 x 10/100Base-TX, M12 D coding, 4-pole (110 V version)

OCTOPUS PoE Fast Ethernet Unmanaged Waterproof IP54 Switches

Product	Part No.	Order No.	Ports/Features
	OCTOPUS OS24-081000T5T5TFFUHB	942 025-003	8 x 10/100Base-TX PoE (Phantom Power) and 2 x 10/100Base-TX (24 V version)
	OCTOPUS OS24-081000T5T5TNEUHB	942 025-004	8 x 10/100Base-TX PoE (Phantom Power) and 2 x 10/100Base-TX (110 V version)

OCTOPUS Fast Ethernet Managed Waterproof IP67/IP65/IP54 Switches			
Product	**Part No.**	**Order No.**	**Ports/Features**
	OCTOPUS 8M	943 931-001	8 x 10/100Base-TX, M12 D-coding, 4-pole
	OCTOPUS 8M-Train	943 983-001	8 x 10/100Base-TX, M12 D-coding, 4-pole (EN 50155)
	OCTOPUS 8M-Train-BP	942 091-001	8 x 10/100Base-TX, M12 D-coding, 4-pole (EN 50155), Bypass-Relay
	OCTOPUS OS20-000900T5T5TAFBHH	942 025-005	9 x 10/100Base-TX, M12 D-coding, 4-pole (24 V version)
	OCTOPUS OS20-000900T5T5TNEBHH	942 025-006	9 x 10/100Base-TX, M12 D-coding, 4-pole (110 V version)
	OCTOPUS OS20-0010001M1MTREPHH	943 988-001	8 x 10/100Base-TX, M12 D coding, 4-pole, 2 x 100Base-FX Multimode Ports IAW IEC 61076-3-106, Version 1
	OCTOPUS OS20-0010004M4MTREPHH	943 988-003	8 x 10/100Base-TX, M12 D coding, 4-pole, 2 x 100Base-FX Multimode Ports IAW IEC 61076-3-106, Version 4
	OCTOPUS OS20-0010001S1STREPHH	943 988-002	8 x 10/100Base-TX, M12 D coding, 4-pole, 2 x 100Base-FX Singlemode Ports IAW IEC 61076-3-106, Version 1
	OCTOPUS OS20-0010004S4STREPHH	943 988-004	8 x 10/100Base-TX, M12 D coding, 4-pole, 2 x 100Base-FX Singlemode Ports IAW IEC 61076-3-106, Version 4
	OCTOPUS 16M	943 912-001	16 x 10/100Base-TX, M12 D-coding, 4-pole
	OCTOPUS 16M-Train	943 984-001	16 x 10/100Base-TX, M12 D-coding, 4-pole (EN 50155)
	OCTOPUS 16M-Train-BP	942 092-001	16 x 10/100Base-TX, M12 D-coding, 4-pole (EN 50155), Bypass-Relay
	OCTOPUS 24M	943 923-001	24 x 10/100Base-TX, M12 D coding, 4-pole
	OCTOPUS 24M-Train	943 985-001	24 x 10/100Base-TX, M12 D coding, 4-pole (EN 50155)
	OCTOPUS 24M-Train-BP	942 093-001	24 x 10/100Base-TX, M12 D-coding, 4-pole (EN 50155), Bypass-Relay

OCTOPUS PoE Fast Ethernet Managed Waterproof IP67/IP65 Switches			
Product	**Part No.**	**Order No.**	**Ports/Features**
	OCTOPUS 8M-6PoE	943 967-101	6 x 10/100Base-TX PoE (phantom power) and 2 x 10/100Base-TX , M12 D coding, 4-pole
	OCTOPUS 8M-8PoE	943 967-001	8 x 10/100Base-TX PoE (phantom power), M12 D coding, 4-pole

OCTOPUS IP67/IP65/IP54 Industrial Ethernet Switches *(continued)*

Product	Part No.	Order No.	Ports/Features
OCTOPUS PoE Fast Ethernet Managed Waterproof IP67/IP65/IP54 Switches			
	OCTOPUS OS24-080900T5T5TFFBHH	942 025-007	8 x 10/100Base-TX PoE-Plus (Phantom Power) and 1 x 10/100Base-TX (24 V version)
	OCTOPUS OS24-080900T5T5TNEBHH	942 025-008	8 x 10/100Base-TX PoE-Plus (Phantom Power) and 1 x 10/100Base-TX (110 V version)
	OCTOPUS 16M-8PoE	943 960-001	8 x 10/100Base-TX PoE (phantom power) and 8 x 10/100Base-TX, M12 D coding, 4-pole
	OCTOPUS 24M-8 PoE	942 063-001	8 x 10/100Base-TX PoE (phantom power) and 16 x 10/100Base-TX, M12 D-coding, 4 pole
OCTOPUS Gigabit Ethernet Managed Waterproof IP67/IP65 Switches			
	OCTOPUS OS30-0008021A1ATREPHH	943 988-005	8 x 10/100Base-TX, 2 x Gigabit Multimode Ports IAW IEC 61076-3-106, Version 1
	OCTOPUS OS30-0008024A4ATREPHH	943 988-007	8 x 10/100Base-TX, 2 x Gigabit Multimode Ports IAW IEC 61076-3-106, Version 4
	OCTOPUS OS30-0008021B1BTREPHH	943 988-006	8 x 10/100Base-TX, 2 x Gigabit Singlemode Ports IAW IEC 61076-3-106, Version 1
	OCTOPUS OS30-0008024B4BTREPHH	943 988-008	8 x 10/100Base-TX, 2 x Gigabit Singlemode Ports IAW IEC 61076-3-106, Version 4
OCTOPUS PoE Gigabit Ethernet Managed Waterproof IP67/IP65 Switches			
	OCTOPUS OS32-080802T6T6TPEPHH	942 069-002	8 x 10/100Base-TX PoE (phantom power) and 2 x 1000BaseT
	OCTOPUS OS32-081602T6T6TPEPHH	942 069-001	8 x 10/100Base-TX PoE (phantom power) and 8 x 10/100Base-TX, 2 x 1000Base
	OCTOPUS OS32-0808020606TPEPHH	942 069-004	8 x 10/100Base-TX PoE (phantom power) and 2 x SFP-sockets for 10/100Base-FX and 1000Base-X housing IEC 61076-3-106, Version 1
	OCTOPUS OS32-0816020606TPEPHH	942 069-003	8 x 10/100Base-TX PoE (phantom power) and 8 x 10/100Base-TX and 2 x SFP-sockets for 10/100Base-FX and 1000Base-X housing IEC 61076-3-106, Version 1
OCTOPUS Gigabit Ethernet Managed Layer 3 Waterproof IP67/IP65 Switches			
	OCTOPUS OS3x-xx16xxx	942 133-999	Up to 20 ports, thereof max. 4 GE TX or FX, up to 15 PoE Layer2 and Layer 3 Software Various power supplies
	OCTOPUS OS3x-xx24xxx	942 133-999	Up to 28 ports, thereof max. 4 GE TX or FX, up to 15 PoE Layer 2 and Layer 3 software Various power supplies

OCTOPUS IP67/IP65 Industrial Ethernet Switches

OCTOPUS OS30/OS34

The OCTOPUS OS30/34, with Gigabit Ethernet (GE) ports available for either fiber or copper cabling with PoE, allows customers to choose a switch that meets specific needs:

- The smaller housing allows for a maximum of 20 ports, including four Gigabit ports and up to 15 PoE ports.
- The full-sized OCTOPUS adds eight additional Fast Ethernet ports for a total of 28 ports per OCTOPUS.
- The OCTOPUS OS30/34 is available either with Layer 3 routing software or with Layer 2 switching software.

The switch meets market specific regulations, including EN 50155 for operating conditions in railway vehicles, EN 50121-4 for use on railway lines, EN 45545 for fire protection in trains, GL for ships and e1 for use in road vehicles.

Technical Information

Product Description	
Type	**OCTOPUS**
Description	Managed or unmanaged IP 67 / IP 67 / IP54 switches in accordance with IEEE 802.3, store-and-forward-switching and routing, electrical and optical Fast-Ethernet (10/100 MBit/s) and Gigabit-Ethernet (10/100/1000MBit/s), electrical M12 ports (TX) or optical IEC ports (FX), PoE Power-Sourcing Equipment
Port Type and Quantity	Up to 28 ports, thereof max. 4 GE TX or FX, up to 15 PoE
Network Size – Length of Cable	
Twisted Pair (TP)	0 to 100 m
Fibre (FX)	0 to 116 km
Power Requirements	
Operating Voltage	24 to 110 VDC, 110 to 230 VAC
Ambient Conditions	
Operating Temperature	-40 °C up to +70 °C
Relative Humidity (also condensing)	10% up to 100%
Mechanical Construction	
Protection Class	IP54, IP65 and IP67
Software	
Supported HiOS Software Levels	Layer 2 Standard (L2S), Layer 2 Advanced (L2A) or Layer 3 Standard (L3S)
Approvals	
Safety of Industrial Control Equipment	cUL 60950-1
Road Vehicles	E1, GL
Along Track and Onboard Train	EN 50155, EN 50121-4, EN 45545

NOTE: These are the prominent technical specifications. For complete technical specifications visit: www.hirschmann.com

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OCTOPUS Configurations

OS34-15 16 04 T6 T6 T5 T BB Z9 99 HH S E 3S XX.X

Design
OS20 = Fast Ethernet Ports
OS30 = FE and GE Ports
OS24 = Fast Ethernet Ports with PoE
OS34 = FE and GE Ports with PoE

PoE Ports
00 = no PoE Ports
08 = 8 x Fast Ethernet PoE Ports
10 = 10 x Fast Ethernet PoE Ports
11 = 11 x Fast Ethernet PoE Ports
12 = 12 x Fast Ethernet PoE Ports
14 = 14 x Fast Ethernet PoE Ports
15 = 15 x Fast Ethernet PoE Ports

Fast Ethernet Ports
08 = 8 x Fast Ethernet Ports
16 = 16 x Fast Ethernet Ports
24 = 24 x Fast Ethernet Ports
12 = 12 x Fast Ethernet Ports
20 = 20 x Fast Ethernet Ports
28 = 28 x Fast Ethernet Ports

Gigabit Ethernet Ports
00 = 0 x Gigabit Ethernet Ports
04 = 4 x Gigabit Ethernet Ports
02 = 2 x Gigabit Ethernet Ports

Type 1 Uplink Port
T5 = M12 D-coded
T6 = M12 X-coded
1M = FE, 4 km@50 µm, 4 km@62.5 µm, 1310 nm, IEC 61076-3-106 V1
1L = FE, 40–100 km@9 µm, 1550 nm, IEC 61076-3-106 V1
1B = GE, 17.5 km, 1310 nm, IEC 61076-3-106 V1
4M = FE, 4 km@50 µm, 4 km@62.5 µm, 1310nm, IEC 61076-3-106 V4
4L = FE, 40–100 km@9 µm, 1550 nm, IEC 61076-3-106 V4
4B = GE, 17.5 km, 1310 nm, IEC 61076-3-106 V4
R5 = M12 D-coded with bypass relay
R6 = M12 X-coded with bypass relay
1S = FE, 22.5 km@9 µm, 1310 nm, IEC 61076-3-106 V1
1P = FE, 25–62.5km@9µm, 1310 nm, IEC 61076-3-106 V1
1A = GE, 550 m@50 µm 275 m@62.5 µm, 850 nm, IEC 61076-3-106 V1
1C = GE, 24 to 68 km, 1550 nm, IEC 61076-3-106 V1
1D = GE, 60 to 116 km, 1550 nm, IEC 61076-3-106 V1
4S = FE, 22.5 km@9 µm, 1310 nm, IEC 61076-3-106 V4
4P = FE, 25–62.5km@9µm, 1310 nm, IEC 61076-3-106 V4
4A = GE, 550 m@50 µm 275 m@62,5 µm, 850 nm, IEC 61076-3-106 V4
4C = GE, 24 to 68 km, 1550 nm, IEC 61076-3-106 V4
4D = GE, 60 to 116 km, 1550 nm, IEC 61076-3-106 V4

Type 2 Uplink Port
(see Type 1 Uplink Port)

Kind of Local Ports
T5 = M12 D-coded

Temperature Range
T = -40 °C to +70 °C

Power Supply and Connector Type
BB = 2 x 24 V DC (16.8 to 30 V DC), M12
HH = 2 x 36/48 V DC (25.2 to 60 V DC), M12
FF = 2 x 24/36/48 V DC (16.8 to 60 V DC), 7/8" 5 poles
N9 = 1 x 72/110 V DC (50.4 V to 138 V DC), 7/8" 4 poles
M9 = 1 x 110/120/220/230 V AC (88 to 265 V AC), 7/8" 3 poles

Approvals
Z9 = CE, FCC, EN 61131, EN 60950-1
U9 = CE, FCC, EN 61131, EN 60950-1, GL
UT = CE, FCC, EN 61131, EN 60950-1, GL, UL60950-1, EN 50121-4
T9 = CE, FCC, EN 61131, EN 60950-1, EN 50121-4
S9 = CE, FCC, EN 61131, EN 60950-1, EN 50121-4, EN 50155, EN 45545
R9 = CE, FCC, EN 61131, EN 60950-1, E1
Y9 = CE, FCC, EN 61131, EN 60950-1, UL60950-1
UY = CE, FCC, EN 61131, EN 60950-1, GL, UL60950-1
US = CE, FCC, EN 61131, EN 60950-1, GL, UL60950-1, EN 50121-4, EN 50155
TY = CE, FCC, EN 61131, EN 60950-1, EN 50121-4, UL60950-1
SY = CE, FCC, EN 61131, EN 60950-1, EN 50121-4, EN 50155, EN 45545, UL60950-1

Software Packages
99 = Reserved

OEM-Type
HH = Standard

Hardware Configuration
S = Standard
M = Fast MRP (Port 1, 2)
P = PRP (Port 1, 2)
H = HSR (Port 1, 2)
D = HSR

Software Configuration
E = Reserved

Software Version
2S = HiOS Layer 2 Standard
2A = HiOS Layer 2 Advanced
3S = HiOS Layer 3 Standard

Software Release
XX.X = Current Software Release

OCTOPUS IP67/IP65/IP54 System Accessories

OCTOPUS IP67/IP65/IP54 Connectivity Solutions		
Part No.	**Order No.**	**Description**
EF12RJ45 OCTOPUS	934 498-001	Bulkhead M12 to RJ45
ACA21-M12 EEC	943 913-002	ACA21 auto configuration adapter for OCTOPUS managed switches
OCTOPUS Terminal Cable	943 902-001	M12 4-pin to Sub-D 9-pin terminal cable
EM12S 001L0200 OCTOPUS	934 578-001	2 m Fast Ethernet patch cord 2 x M12 D-code
EM12S 001L0500 OCTOPUS	934 578-002	5 m Fast Ethernet patch cord 2 x M12 D-code
EM12S 001L1000 OCTOPUS	934 578-003	10 m Fast Ethernet patch cord 2 x M12 D-code
EM12G 001L0100 OCTOPUS	942 081-001	1 m Gigabit Ethernet patch cord 2 x M12 X-code
EM12G 001L0200 OCTOPUS	942 081-002	2 m Gigabit Ethernet patch cord 2 x M12 X-code
EM12G 001L0500 OCTOPUS	942 081-003	5 m Gigabit Ethernet patch cord 2 x M12 X-code
EM12S OCTOPUS	934 445-001	Field attachable FE M12 connector D-code
EM12G OCTOPUS	942 083-001	Field attachable GE M12 connector X-code

Railway Approved Ethernet Data Cables		
Part No.	**Order No.**	**Description**
Ethernet Rail Transit Cable BE43769	942 037-001	500 m Railway Approved Ethernet Data Cable 100 Mbit/s, Cat 5e, AWG 22/19 Stranded
Ethernet Rail Gigabit Cable BE43800	942 075-500	500 m Railway Approved Ethernet Data Cable 1000 Mbit/s, Cat 5e, AWG 26/19 Stranded
Ethernet Rail 10Gb Cable BE43802	942 127-001	500 m Railway Approved Ethernet Data Cable 10 Gb/s, Cat 7, AWG 24/19 Stranded