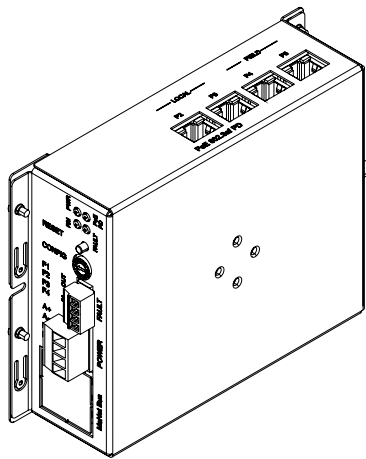


Sinteso™ / Cerberus™ PRO

FN2012-A1

Ethernet switch (modular)



Integrated switch for Ethernet backbone in FS20/FS720 fire detection systems and remote switch for third-party products

- For installation in approved FS20 / FS720 housings
- 2x Ethernet ports for local Ethernet (station-internal)
- 2x Ethernet ports for external Ethernet with enhanced EMC protection and ground fault monitoring
- 2x slots for optional Ethernet modules (ring ports)
- MoNet bus connection for transmitting the signal with peripheral data bus via connection module (MoNet)
- Configurable with 16-pin rotary switch
- 1x potential-free relay output for fault signal
- Supply connection (redundant)
- Supply via MoNet bus
- 2x slots for optional Ethernet modules (ring ports) – not included in the scope of delivery
 - VN2002 Ethernet module (MM)
 - VN2003 Ethernet module (SM)

Use

Ethernet switch (modular) FN2012 is used to operate an Ethernet network in a fire detection system and supports the transmission of degraded mode signals on a system-wide basis.

Intended use

- Integrated switch for Ethernet backbone in FS20 / FS720 fire detection systems
- Remote switch for third-party products, such as for connecting a management station

Functions

LED	Color	Function	State	Meaning
PWR	Green	Power LED	Lit up	• Normal operation
			Does not light up	• No power supply
FAULT	Yellow	General fault	See separate FAULT-LED table	
RM	Green	Redundancy manager	See separate RM-LED table	
PD	Green	Not connected	--	No function
			--	No function
P2	Green / yellow	Ethernet status LEDs	Green lights up	• Link up
P3			Green does not light up	• Link down
P4			Yellow flashes	• Data communication active
P5			Yellow does not light up	• No data communication

Status LED

Function displays of the FAULT-LED

Function display	Meaning	FAULT-LED flashing pattern (every 2 sec.)
Normal Operation	Normal operation	
FW Update Mode	Ready for firmware update	
FW Update Running	Ethernet switch is loading firmware	
FW Update Failed	FW update could not be completed, network connection may be interrupted	
Checksum Failed	The FW checksum is not correct	
Fatal FAULT	Ethernet switch generates another fault	

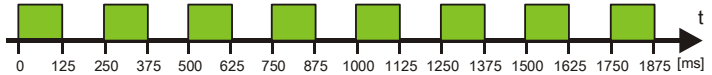
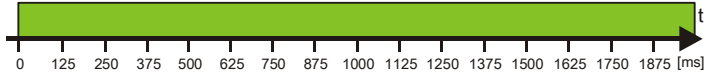
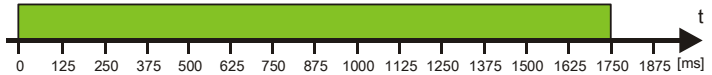
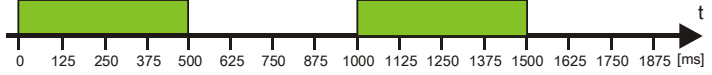
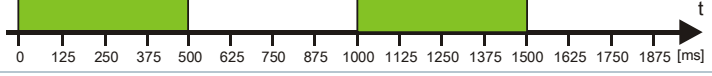
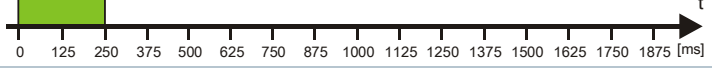
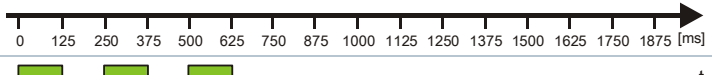
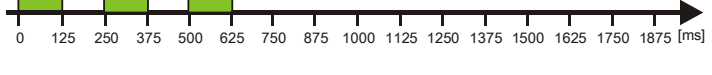
FAULT-LED flashing pattern

Function display	Possible troubleshooting actions
FW Update Failed	<ul style="list-style-type: none"> Ethernet switch tries to establish the connection again to load the FW. Restart the FW update via Cerberus-Engineering-Tool.
Checksum Failed	<ul style="list-style-type: none"> Restart the FW update via Cerberus-Engineering-Tool.
Fatal FAULT	<ul style="list-style-type: none"> Carry out a reset. If unsuccessful, there is a hardware fault. Replace Ethernet switch. Check whether other error messages are displayed in the FS720 system.

Troubleshooting

Function displays of the RM-LED (redundancy manager)

There must be one master Ethernet switch in an MRP 1. All other Ethernet switches must be clients.

Function display	Meaning	RM-LED flashing pattern (every 2 sec.)
Search Manager	Ethernet switch is initializing Searching for MRP manager Topology has changed as a result of connecting or removing other Ethernet ring participants	
Manager	Ethernet switch is configured as the manager and has also assumed the role of the ring manager	
Claim Manager	Ethernet switch is the manager but is not configured as the manager	
Manager Ring open	Ethernet ring is interrupted at at least one point	
Claim Manager Ring open		
Double Manager	Two Ethernet switches are configured as managers	
Client	Ethernet switch is configured as a client	
Unidirectional Data Link Fault	A section of the MRP ring has a unidirectional connection due to incorrect cabling or hardware faults	

RM-LED flashing pattern

¹ MRP: Media Redundancy Protocol

Function display	Possible troubleshooting actions
Claim Manager	<ul style="list-style-type: none"> Adapt configuration. A ring manager must be configured in each MRP ring.
Ring open	<ul style="list-style-type: none"> Check MRP ring. The ring is interrupted at at least one station. Check if cable is defective. Deactivated ring port LEDs show open ports <ul style="list-style-type: none"> Cable defective/not plugged in.
Double Manager	<ul style="list-style-type: none"> Adapt configuration. Only one Ethernet switch may be configured as a ring manager.
Unidirectional Data Link Fault	<ul style="list-style-type: none"> Check cabling of all fiber optic cable sections. Replace each Ethernet switch in turn until the faulty device is found.

Troubleshooting

Type Overview

Type	Item number	Designation	Notes
FN2012-A1	S54400-B152-A1	Ethernet switch (modular)	Ethernet modules for optical Ethernet must be ordered separately

DIN rail clip and mounting material included in the scope of delivery.

Accessories

Optional optical Ethernet modules

Type	Item number	Designation	Notes
VN2002-A1	S54400-A43-A1	Ethernet module (MM)	For multi-mode fibers
VN2003-A1	S54400-A44-A1	Ethernet module (SM)	For single-mode fibers

Additional mounting materials

Type	Item number	Designation	Notes
FHA2029-A1	S54400-B79.A1	Mounting kit (switch, Comfort)	For installation in empty housing (Eco), (Standard), and (Comfort) and in the housing (Comfort) of stations

Title	Document ID	
	Sinteso	Cerberus PRO
System description	008836	A6V10210355
Product data	008837	A6V10210368
Planning	008843	A6V10210362
Mounting/Installation	008851	A6V10210390

Related documents such as environmental declarations, CE declarations, etc., can be downloaded at the following Internet address:

<http://siemens.com/bt/download>

Technical data

Supply	Operating voltage	DC 24 V
	Standby power consumption	95 mA @24 V
	Power consumption installed, supply via MoNet bus or AUX power	Max. 190 mA @24 V
Ethernet interfaces	Bushes	4x RJ45, 10 / 100 Mbit/s
	Length of line	Max. 100 m via FC TP standard cable
Connections	External supply input	4-pin terminal
	Fault terminal	4-pin terminal
	<ul style="list-style-type: none"> Fault output 'F1', 'F2' 	Potential-free relay contact (common) Switching current max. 1 A, resistive Switching voltage max. DC 30 V
	MoNet bus	22-pin ribbon cable connector
	External Ethernet connections, 'P2', 'P3'	<ul style="list-style-type: none"> Additional overvoltage protection Enhanced EMC protection Ground fault monitored
	Circuits	<ul style="list-style-type: none"> All connections are power-limited All connections except local and MoNet connections are monitored
Fiber optic cables, Ethernet modules	Type of connection	LC connector
	Wavelength	1300 nm
Ethernet module (MM) VN2002	Multi-mode fiber optic	
	Fiber type, range, optical budget	<ul style="list-style-type: none"> Fiber length 62.5 / 125μm: 4 km with 11 dBm damping ¹ Fiber length 50 / 125μm: 2 km with 7.5 dBm damping ¹
Ethernet module (SM) VN2003	Single mode fiber optic	
	Fiber type, range, optical budget	<ul style="list-style-type: none"> Fiber length 9 / 125μm: 40 km with 29 dBm damping ¹
Mechanical data	Dimensions (W x H x D), with cover, without optional modules	165 x 121 x 43 mm
	Weight	560 g
Ambient conditions	For indoor applications in dry rooms only	
	Operating temperature	-10 °C...+55 °C
	Storage temperature	-20 °C...+75 °C
	Rel. humidity during operation	93 % at a temperature of 40 °C
	Protection category	IP30

¹ The length is an approximate value and is dependent on the optical cable damping

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