

SF2 - 3U 19" 8-Port Managed Ethernet Switch, PoE, RJ45



- 3U, 18 HP, 19" rack mountable
- 8 Fast Ethernet ports on RJ45 connectors
- Power over Ethernet PSE functionality
- Configuration via web interface, Telnet CLI, SNMP ver. 3 or external dongle
- Service interface via D-Sub
- LEDs for port, PoE and board states
- Wide input range PSU (14.4 to 154 V), EN 50155 qualified
- -40 to +70(+85)°C according to EN 50155 Class Tx with qualified components

The SF2 is a stand-alone, managed industrial Fast Ethernet switch that comes in a compact 3U, 18HP, 19" cassette. It provides eight channels at the front panel accessible through RJ45 connectors. It is supplied by its integrated, rugged power supply unit (PSU), with a power connector at the front panel. The entire switch consumes less than 7 W and needs no cooling.

The SF2 is managed by its own PowerPC® CPU that integrates the management firmware. A service port is accessible at the front panel on a D-Sub connector, providing an easy way to configure the switch. A command line interface is available via the RS232 at the service port and over Ethernet via Telnet or Secure Shell (SSH). The switch can also be configured via SNMP (version 3) and through its HTTP web server. Additionally, the service connector can be used to attach an external dongle to store or update the switch configuration. This makes it easy to exchange the unit for service purposes.

All of the ports are individually configurable. The SF2 supports full-duplex and half-duplex operation with auto-negotiation, high-speed non-blocking store-

and-forward-switching, Quality of Service (QoS) support with four traffic classes IEEE 802.1p and three-level 802.1x security as well as the logical segmentation of ports (802.1q VLANs). The switch is fault tolerant and restores itself on its own: If a link is temporarily unavailable, frames can be sent via backup/redundant links (spanning tree protocol / link aggregation) and no data loss occurs. Its built-in test mechanisms make the SF2 an even more reliable component in the communication system. In addition, the switch can act as Power over Ethernet (PoE) Power Sourcing Equipment (PSE), supplying other devices on ports 1 and 2 with power. The SF2 was specifically designed for rugged mobile communication systems with high demands. It is thus for example fully compliant with the EN 50155 railway standard. All components inside the cassette are specified for a -40 to +70°C operation temperature (+85°C for ten minutes according to EN 50155 Class Tx). There are no socketed components, hardening the box against shock and vibration. Its PCBs are ready for coating and the switch has a guaranteed minimum standard availability of 5 years.

Technical Data

Switch Fabric Key Features

- Eight 10/100Base-T ports at front panel
 - Electrical isolation: 1500 Vrms
- Auto-negotiation
- High-speed non-blocking, store-and-forward switching
- 8K MAC address lookup table with automatic learning and aging
- QoS (Quality of Service) support with 4 traffic classes (IEEE 802.1p tagged frames)
- Layer 2 switching
- Back pressure or IEEE802.3x flow control
- Automatic MDI/MDI-X crossover (all ports)
- TCP/IP (IPv4, IPv6)

Management Firmware System Features

- Saving and restoring user configurations
- Software upgrades through TFTP
- System logs (syslog) and e-mail alerts for critical events
- Remote monitoring (RMON) and alarm generation
- Displaying the running configuration in the form of CLI commands
- DHCP client, server and relay
- Management interfaces through
 - CLI (RS232 console, Telnet, SSH)
 - SNMP v3
 - WebUI (HTTP and HTTPS/SSL)
- Switch configuration can be loaded from external dongle

Management Firmware Layer 2 Features

- Transparent bridging
- QoS (DiffServ) and 802.1p traffic prioritization queuing, polishing, shaping
- VLAN-aware bridging with GARP
- Static and dynamic VLANs (through GVRP)
- Dynamic learning of multicast groups through GMRP
- Rapid Spanning Tree Protocol and Multiple Spanning Tree Protocol to ensure loop free topology formation
- Reducing multicast traffic in the network through multicast snooping - IGS (IPv4) and MLDS (IPv6)
- IGMP proxy
- Aggregating physical ports for increasing bandwidth and redundancy through link aggregation (LACP)
- Link Layer Discovery Protocol (LLDP)
- SNMP (v1, v2c, v3) agent and MIB support, configuration save/restore

Management Firmware Security Features

- User authentication using 802.1x
- Controlling management access through SNMP, CLI and web only from authorized managers
- MAC based and IP based access list (ACL) for traffic filtering
- Rate-limiting and storm control to prevent packet flooding from malicious peers

Supported Ethernet Standards

- Transparent bridging: IEEE 802.1d, 2004
- VLAN: IEEE 802.1q Rev D5.0, 2005
- Port based VLANs: IEEE 802.1q Rev D5.0, 2005
- GVRP/GMRP support: IEEE 802.1d
- Rapid Spanning Tree Protocol: IEEE 802.1d
- Multiple Spanning Tree: IEEE 802.1s, IEEE 802.1q Rev D5.0, 2005
- IGMP snooping: draft-ietf-magma-snoop-12.txt
- MLD snooping: draft-ietf-magma-snoop-12.txt
- Link aggregation: IEEE 802.3ad, 2005
- Port based authentication with EAP: IEEE 802.1x - REV2004
- Link Layer Discovery Protocol: IEEE 802.1ab, 2005
- Power over Ethernet support: IEEE 802.1af
- Priority based switching: IEEE 802.1p

Power Over Ethernet Features

- Power over Ethernet functions on ports 1 and 2
 - PSE (Power Sourcing Equipment) function
 - Supplies one PD class 0 device or two PD class 2 devices (up to 15W total)

Service Interface

- 9-pin D-Sub connector at front
- RS232 / V24
- I²C interface for external dongle

Front I/O

- 8 Ethernet ports via RJ45 connectors
- 1 service interface via 9-pin D-Sub plug connector
- 1 power input via mixed 7-pin D-Sub plug connector
- 16 link and activity Ethernet status LEDs (2 per channel)
- 4 Power over Ethernet status LEDs, 2 each for ports 1 and 2
- Status LEDs for power, reset and error codes

Electrical Specifications

- Power supply unit
 - 14.4..154 VDC wide range according to EN 50155
- Isolation (according to EN 50155)
 - Input/output: 1500 Vrms
 - Input/shield: 1500 Vrms (7W2 D-Sub power connector: 1000 Vrms)
 - Output/shield: 1500 Vrms
 - Ground/shield: 1500 Vrms
 - Service connector: 1000 Vrms
- Power consumption: 24 W (incl. 15 W PoE)
- MTBF: 381,460 h @ 40°C according to IEC/TR 62380 (RDF 2000)

Technical Data

Mechanical Specifications

- 19" rack-mount standard
- Dimensions: 3U, 18HP, 168 mm depth
- Weight: 870 g

Environmental Specifications

- Temperature range (operation):
 - -40..+70°C (qualified components, +85°C for ten minutes according to EN50155 Class Tx)
- Temperature range (storage): -40..+85°C
- Relative humidity (operation): max. 95% non-condensing
- Relative humidity (storage): max. 95% non-condensing
- Altitude: -300 m to + 3,000 m
- Shock: according to EN 60068-2-27
- Bump: according to EN 60068-2-29
- Vibration (sinusoidal): according to EN 60068-2-6

Safety

- PCBs manufactured with a flammability rating of 94V-0 by UL recognized manufacturers

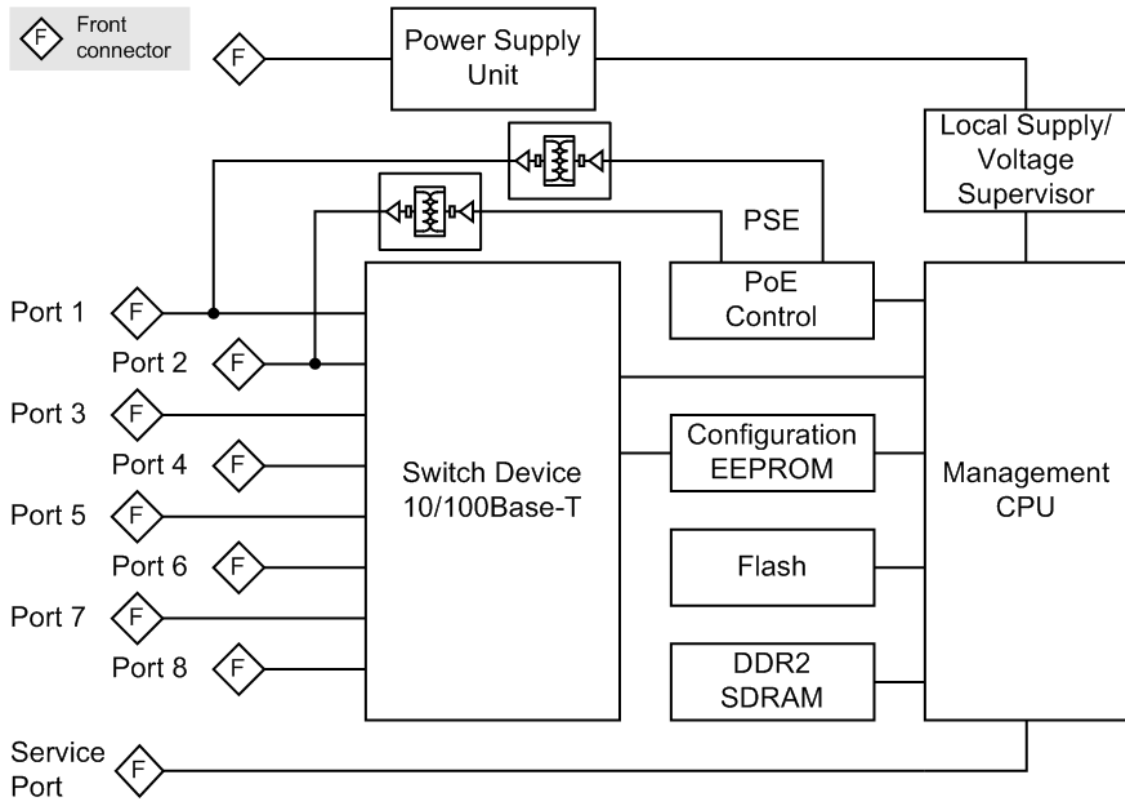
EMC

- Tested according to EN 55022 (radio disturbance), EN 61000-4-2 (ESD), EN 61000-4-4 (burst) and EN 61000-4-5 (surge)

Firmware

- Firmware for configuration and management included

Diagram



Configuration & Options

Standard Configurations

Article No.	Connectors	Front Panel	Management	Power over Ethernet
19SF01-00	RJ45	18 HP	Unmanaged	Yes (PSE on ports 1 and 2)
19SF02-00	RJ45	18 HP	Managed	Yes (PSE on ports 1 and 2)
19SF03-00	M12	22 HP	Managed	Yes (PSE on ports 1 and 2)
19SF04-00	M12	22 HP	Unmanaged	Yes (PSE on ports 1 and 2)

Options

Ethernet-powered version without PSU (on request)

- Class 2 Powered Device supplied via Ethernet Port 1
 - No internal power supply unit

Environmental specifications

- Conformal coating on request

Ordering Information

Standard SF2 Models

19SF02-00 Managed Switch with 8 Fast Ethernet ports on RJ45, PoE, PSU, 18HP, -40..+85°C with qualified components

Related Hardware

05SF02-00 I2C dongle for F302, G302 and managed SFxx switches, 512Kb, D-Sub, -40..+85°C

19SF01-00 Unmanaged Switch with 8 Fast Ethernet ports on RJ45, PSU, 18HP, -40..+85°C with qualified components

19SF03-00 Managed Switch with 8 Fast Ethernet ports on M12, PoE, PSU, 22HP, -40..+85°C with qualified components, conformal coating

19SF04-00 Unmanaged Switch with 8 Fast Ethernet ports on M12, PSU, 22HP, -40..+85°C with qualified components, conformal coating

Miscellaneous Accessories

05SF02-00 I2C dongle for F302, G302 and managed SFxx switches, 512Kb, D-Sub, -40..+85°C

Software: Firmware/BIOS

14ETSW-00 Ethernet Switch Firmware for managed RSx, SFx and F302 models

For operating systems not mentioned here contact MEN sales.

Documentation

20SF02-00 SF2/SF3 User Manual

21ETSW-ER 14ETSW-00 Managed Ethernet Switch Firmware Errata

21ETSW-00 Managed Ethernet Switch Quick Start Guide

21ETSW-01 Managed Ethernet Switch Command Line Interface User Manual - Command Reference

For the most up-to-date ordering information and direct links to other data sheets and downloads, see the SF2 online data sheet under » www.men.de.

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