

SSF-1x2-RUGGED / SSF-1x4-RUGGED / SSF-1x4POE-RUGGED

Industrial Ethernet Switch

Manual



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INDUSTRIAL ETHERNET SWITCHES

Ordering Information

SSF-1x2-RUGGED Gigabit Ethernet Switch 2x 10/100/1000Base-Tx to 100/1000Base-X SFP slot, PoE+ 60W budget DIN rail and wall installation.

SSF-1x4-RUGGED Gigabit Ethernet Switch 4x 10/100/1000Base-Tx + 1x 100/1000Base-X SFP slot ports, DIN rail and wall installation

SSF-1x4POE-RUGGED Gigabit Ethernet Switch 4x 10/100/1000Base-Tx to 100/1000Base-X SFP slot, PoE+ 120W budget DIN rail and wall installation.

Overview

The Industrial Ethernet models listed above are high performance and reliable Ethernet switches. All Industrial models are hardened for -40 to +75°C operation and have 6kV surge protection on all ports. All PoE models deliver 30W per each UTP port supporting 802.3at PoE+ standard. Reliability is highly ranked with an MTBF exceeding 120,000 hours. All Industrial Ethernet models listed in this manual have passed IEC standards as described in the Technical Specifications table.

Package includes DIN rail mounting bracket, wall bracket, screw block power connector and one User Manual.

Features

- IEEE 802.3 10Base-T, 802.3u 100Base-TX, 802.3z 1000Base-T, 802.3af and 802.3at support
- Auto-Negotiation and Auto MDI/MDIX
- 6kV Ethernet surge protection on all TP ports
- Full-duplex and Half-duplex flow control modes
- Auto PoE detection for connected PD devices
- 15.4W PoE power for IEEE 802.3af and 30W PoE power for IEEE 802.3at standard for each copper port (PSE models only)
- Store and Forward switching mechanism
- Extreme -40 ~ +75°C operating temperature
- DIN rail or Wall mount installation options, IP40 rated housing
- 9-52V DC wide power input (48-52V DC for PoE PSE models)

Technical Specifications by Model

MODEL	SSF-1X2-RUGGED	SSF-1X4-RUGGED	SSF-1X4RUGGED-POE
TP ports (RJ45)	2 x 10/100/1000	4 x 10/100/1000	4 x 10/100/1000
SFP slots	1 x 100/1000	1 x 100/1000	1 x 100/1000
LEDs			
Network Protocols	CSMA/CD	CSMA/CD	CSMA/CD
Bandwidth	10G	10G	10G
Packet buffer size	1M	1M	1M
Packet max. size (bytes)	10K	10K	10K
MAC address table size	4K	4K	4K
Safety	CE/LVD EN60950	CE/LVD EN60950	CE/LVD EN60950
Power input	DC 48~52V	DC 9~56V	DC 48~52V
Reverse Polarity Protection	Yes	Yes	Yes
PoE budget	60W	None	120W
Max PoE power per port	30W	n/a	30W
Mounting DIN rail bracket	Yes	Yes	Yes
Mounting Wall bracket	Yes	Yes	Yes
Operating Temp (°C)	-40 ~ +75	-40 ~ +75	-40 ~ +75
Storage Temp (°C)	-50 ~ +85	-50 ~ +85	-50 ~ +85
Operating Humidity	10 ~ 90% non-condensing	10 ~ 90% non-condensing	10 ~ 90% non-condensing
Dimensions (mm) *	120x 88x 35	138x 108x 49	120x 88x 35
Weight (g)			
MTBF	120,000 hours	120,000 hours	120,000 hours
Warranty	2 years	2 years	2 years

* dimensions are taken with no SFPs inserted, nor power block connectors

Industrial Compliance by Model

MODEL	SSF-1X2-RUGGED	SSF-1X4-RUGGED	SSF-1X4RUGGED-POE
EMI	FCC Part 15 Subpart B Class A, EN 55022 Class A	FCC Part 15 Subpart B Class A, EN 55022 Class A	FCC Part 15 Subpart B Class A, EN 55022 Class A
EMS	EN 61000-4-2 (ESD) Level 3 Criteria B, EN 61000-4-3 (RS) Level 3 Criteria A, EN 61000-4-4 (EFT) Level 3 Criteria A, EN 61000-4-5 (Surge) Level 3 Criteria B, EN 61000-4-6 (CS) Level 3 Criteria A, EN 61000-4-8(PFMF, Magnetic Field) Field Strength 300A/m Criteria A		
Vibration	IEC 60068-2-6	IEC 60068-2-6	IEC 60068-2-6
Freefall	IEC 60068-2-32	IEC 60068-2-32	IEC 60068-2-32
Shock	IEC 60068-2-27	IEC 60068-2-27	IEC 60068-2-27
Rail Traffic	EN 50121-4	EN 50121-4	EN 50121-4
Traffic Control	NEMA-TS2	NEMA-TS2	NEMA-TS2

LED Indicators (markings will vary with models)

	FUNCTION
PWR	Off – No power available; On – Power is present
Fiber LK/ACT LINK	Off – No link; On – Fiber link OK; Blinking – data traffic present
UTP GREEN	Off – 10M/100M; On – 1000M on RJ45 port
UTP YELLOW	Off – No link; On – UTP link OK; Blinking – data traffic present
SYS	Off – Switch failed; On – Switch operating normally

Note: Gigabit models require approx. 10 seconds from “Power On” to start operating

Switch Front Plate View

(common front view, may vary with model)



Models

SSF-1x2-RUGGED

SSF-1x4-RUGGED

SSF-1x4POE-RUGGED

Top Panel View

(Common top view, may vary with model)



Models

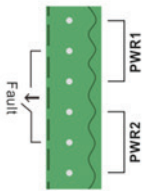
SSF-1x2-RUGGED

SSF-1x4-RUGGED

SSF-1x4POE-RUGGED

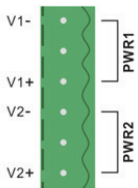
Top panel has terminal screw block for PWR1 and PWR2 input as well as Alarm Relay output and M3 grounding screw.

Alarm Relay Wiring



The alarm relay is closed during normal operation. If a fault is encountered (like power supply input lost) then relay contacts open until fault is remedied

Power input wiring



There are two independent and redundant power inputs, marked PWR1 and PWR2. Observe voltage polarity when wiring power to the screw block connector. Complete wiring without hot wires and with screw block connector disconnected from switch.

Installation Warning

Ensure proper electrical grounding availability before powering up device. The unit should be grounded using either the M3 grounding screw or with the DIN rail installation or wall mount brackets correctly grounded. Make sure power wires have adequate gauge for the power required by the unit to avoid risk of wires overheating and/or fire. This is especially important for the PoE PSE equipment. As general rule, keep power wiring on a different path from data cables and avoid crossing wires. This will reduce the risk of power surges on data ports.

Rear Panel View with DIN rail and Wall Mounting Brackets

(common rear view, may vary with model)



Models

SSF-1x2-RUGGED

SSF-1x4-RUGGED

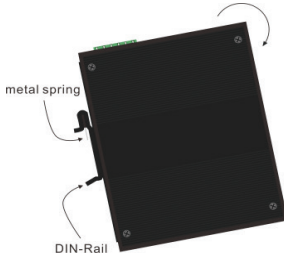
SSF-1x4POE-RUGGED

DIN Rail Mounting Procedure

All Industrial switches from the SSF-RUGGED series have DIN rail bracket mounted from factory to the rear panel of the unit. If wall mounting is needed, first remove the DIN rail bracket. If DIN rail bracket needs to be reattached, make sure the spring is located on top position when unit is vertical.

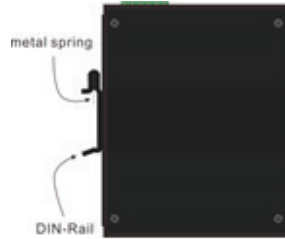
Step 1

Hold unit as in below image, making sure top of bracket with spring falls onto the top edge of TS-35 DIN rail.



Step 2

Rotate and snap the unit onto the DIN rail by pushing the bottom onto the TS-35 DIN rail. Unit will be secured to rail.

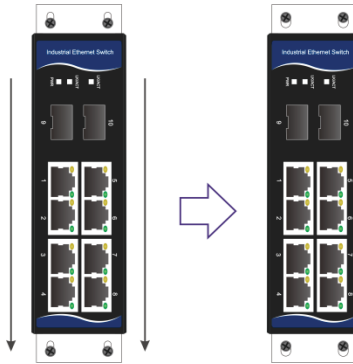


To remove unit from rail, repeat procedure in reverse. Start by pulling out the bottom of unit from the DIN rail.

Wall Mounting Procedure

All Industrial switches from the **SSF-RUGGED** series have DIN rail bracket mounted from factory to the rear panel of the unit. If wall mounting is needed, first remove the pre-installed DIN rail bracket.

Secure the wall mounting brackets to the switch as in the below diagram. You will need 4x M3 screws for the wall mounting brackets (included) and screws for wall securing that should have head diameter larger than 6mm and screw body less than 3.5mm (these screws are not included in the package).



Warning

1. Use only indoors in climate-controlled environments.
2. Avoid looking directly into fibers or lasers while unit is powered.
3. 9-52V DC wide power input (48-52V DC for PoE PSE models) - not included.

FCC and CE markings

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

This is a CE class B device, intended to be used in residential, commercial or industrial applications.