

SPIDER Series Unmanaged DIN Rail Mount Ethernet Switches



Entry-level Industrial Unmanaged Switches

The SPIDER family of switches provides users with an economical, yet highly reliable hardened Ethernet switch. Models are available with Fast Ethernet, Gigabit Ethernet and PoE ports.

All copper/RJ45 ports are auto-negotiating and auto-crossing – the SPIDERS will work with either patch or cross-over cables. The fiber ports are available in multimode (MM), singlemode (SM) with either SC or ST sockets or via SFP transceiver (see page 110). All SPIDER switches are extremely compact and have LED indicators that provide information on power status, link status, and data rate. Additional to that all "PRO" Variants fulfill the requirements of PROFINET Conformance Class A.



Technical Information

Product Description									
Type	SPIDER 1TX/1FX-x	SPIDER xTX-x	SPIDER II 8TX/x	SPIDER II Giga 5TX/x	SPIDER II 16TX/x	SPIDER Giga 2TX PoE EEC	SPIDER II 8TX PoE	SPIDER xTX-x PD EEC	
Switching/Routing	Unmanaged								
Available Ports	2	3, 5, 8	8, 9, 10	5, 7	16, 18	2	8	2, 5	
Construction									
Mounting	DIN Rail								
Protection Class	IP30								
Dimensions (WxHxD)	25 x 114 x 79 mm 25 x 126 x 79 mm for ST fiber models		35 x 154 x 121 mm 35 x 168 x 121 mm for ST fiber models		30 x 140 x 95 mm	35 x 154 x 121 mm	25 x 114 x 79 mm		
Weight	177 g		270 g		730 g	420 g	560 g	198 g	
Ambient Conditions									
Operating Temperature	0 °C to +60 °C, -40 °C to +70 °C for EEC models					-40 °C to +70 °C	-10 °C to +60 °C	-40 °C to +70 °C	
Storage/Transport Temperature	-40 °C to +70 °C, -40 °C to +85 °C for EEC models					-40 °C to +85 °C	-20 °C to +70 °C	-40 °C to +85 °C	
Relative Humidity (non-condensing)	0% to 95%								
Conformal Coating	n/a								
Interfaces									
V.24 Interface	n/a								
USB Interface	n/a								
Power Requirements									
Operating Voltage	9.6 to 32 V DC				18 to 32 V DC	21 to 53 V DC	18 to 32 V DC	36 to 57 V DC	
PoE (802.3af) Ports Supported	n/a						4	n/a	
PoE Plus (802.3at) Ports	n/a					1	n/a		
Powered Device (PD)	no							yes	
Regulatory Approvals									
Safety of Industrial Control Equipment	cUL508				cUL508, cUL60950-1	cUL508			
Hazardous Locations	n/a				ISA 12.12.01 C1D2, ATEX Zone 2	n/a			
Reliability									
MTBF Range	138 to 265 years	129 to 360 years	88 to 185 years	114 years	37 years	162 years	55 years	46 to 55 years	
Warranty	5 years standard								

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



All Copper/RJ45		
Part No.	Order No.	Ports
SPIDER 3TX-TAP	943 899-001	3 x 10/100 Mbit/s RJ45
SPIDER 5TX	943 824-002	5 x 10/100 Mbit/s RJ45
SPIDER 5TX EEC	943 824-102	5 x 10/100 Mbit/s RJ45
SPIDER 8TX	943 376-001	8 x 10/100 Mbit/s RJ45
SPIDER 8TX EEC	943 376-201	8 x 10/100 Mbit/s RJ45
SPIDER II 8TX	943 957-001	8 x 10/100 Mbit/s RJ45
SPIDER II 8TX EEC	943 958-001	8 x 10/100 Mbit/s RJ45
SPIDER II 16TX EEC	942 120-001	16 x 10/100 Mbit/s RJ45
SPIDER II Giga 5T EEC	943 962-002	5 x 10/100/1000 Mbit/s RJ45
SPIDER II Giga 5T EEC Pro	943 962-102	5 x 10/100/1000 Mbit/s RJ45, QoS according to IEEE 802.1D
SPIDER II Giga 5T EEC Jumbo	943 962-202	5 x 10/100/1000 Mbit/s RJ45, Jumbo Frames with up to 9014 Bytes user data

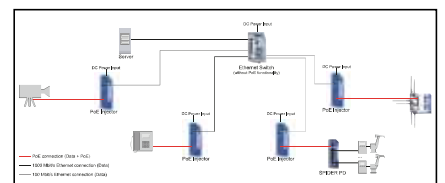


Copper/RJ45 and Fiber		
Part No.	Order No.	Ports
SPIDER 1TX/1FX	943 890-001	1 x 10/100 Mbit/s RJ45, 1 x 100 Mbit/s MM SC
SPIDER 1TX/1FX EEC	943 927-101	1 x 10/100 Mbit/s RJ45, 1 x 100 Mbit/s MM SC
SPIDER 1TX/1FX-SM	943 891-001	1 x 10/100 Mbit/s RJ45, 1 x 100 Mbit/s SM SC
SPIDER 1TX/1FX SM EEC	943 928-001	1 x 10/100 Mbit/s RJ45, 1 x 100 Mbit/s SM SC
SPIDER 4TX/1FX	943 221-001	4 x 10/100 Mbit/s RJ45, 1 x 100 Mbit/s MM SC
SPIDER 4TX/1FX EEC	943 221-101	4 x 10/100 Mbit/s RJ45, 1 x 100 Mbit/s MM SC
SPIDER 4TX/1FX-ST EEC	943 914-001	4 x 10/100 Mbit/s RJ45, 1 x 100 Mbit/s MM ST
SPIDER 4TX/1FX SM EEC	943 880-001	4 x 10/100 Mbit/s RJ45, 1 x 100 Mbit/s SM SC
SPIDER II 8TX/1FX EEC	943 958-111	8 x 10/100 Mbit/s RJ45, 1 x 100 Mbit/s MM SC
SPIDER II 8TX/1FX-ST EEC	943 958-121	8 x 10/100 Mbit/s RJ45, 1 x 100 Mbit/s MM ST
SPIDER II 8TX/2FX EEC	943 958-211	8 x 10/100 Mbit/s RJ45, 2 x 100 Mbit/s MM SC
SPIDER II 8TX/2FX-ST EEC	943 958-221	8 x 10/100 Mbit/s RJ45, 2 x 100 Mbit/s MM ST
SPIDER II 8TX/1FX-SM EEC	943 958-131	8 x 10/100 Mbit/s RJ45, 1 x 100 Mbit/s SM SC
SPIDER II 8TX/2FX-SM EEC	943 958-231	8 x 10/100 Mbit/s RJ45, 2 x 100 Mbit/s SM SC
SPIDER II 16TX/2DS-S EEC	942 121-001	16 x 10/100 Mbit/s RJ45, 2 x 100/1000 Mbit/s SFP
SPIDER II Giga 5T/2S EEC	943 963-002	5 x 10/100/1000 Mbit/s RJ45, 2 x 1000 Mbit/s SFP
SPIDER II Giga 5T/2S EEC Pro	943 963-102	5 x 10/100/1000 Mbit/s RJ45, 2 x 1000 Mbit/s SFP, QoS according to IEEE 802.1D
SPIDER II Giga 5T/2S EEC Jumbo	943 963-202	5 x 10/100/1000 Mbit/s RJ45, 2 x 1000 Mbit/s SFP, Jumbo Frames with up to 9014 Bytes user data

Ethernet Switches powered via PoE		
Part No.	Order No.	Ports
SPIDER 5TX PD EEC	942 051-001	5 x 10/100 Mbit/S RJ45, 1 x PoE PD according to IEEE 802.3af
SPIDER 1TX/1FX-MM PD EEC	942 051-002	1x 10/100 Mbit/S RJ45, 1 x PoE PD according to IEEE 802.3af, 1 x 100 Mbit/s MM SC
SPIDER 1TX/1FX-SM PD EEC	942 051-003 1	1x 10/100 Mbit/S RJ45, 1 x PoE PD according to IEEE 802.3af, 1 x 100 Mbit/s SM SC

PoE Ethernet Switch/Injector		
Part No.	Order No.	Ports
SPIDER II 8TX PoE	942 008-001	8 x 10/100 Mbit/s RJ45, 4 x PoE according to IEEE802.3af
SPIDER GIGA 2TX PoE EEC	942 059-001	2 x 10/100/1000 Mbit/s RJ45, 1 x PoE+ according to IEEE802.3at

NOTE: EEC stands for extended environmental conditions (-40 °C to +70 °C).



Example of PoE Injector Installation Illustrating the use of PoE.



SPIDER III Series Unmanaged DIN Rail Mount Ethernet Switches



SPIDER III Standard and Premium Line

Transferring large amounts of data in harsh environments and in industrial applications just got easier with the plug-and-play technology built into this full-range line of unmanaged switches. The SPIDER III family of industrial Ethernet switches offers both Standard and Premium options. Which to use depends on the specific requirements for your application. Both are easy to install and will help you maximize your network availability.



SPIDER III Standard Line: Cost-Effective and Compact

SPIDER III Standard Line switches are suitable for both harsh environments and applications in which switch management is unnecessary. This makes them the ideal choice for the OEM machine manufacturing industry where reliability and cost-effectiveness are the driving decision makers.



SPIDER III Premium Line: Full-Featured and User Customizable

The SPIDER III Premium switches expand on the benefits of the Standard Line offerings by adding configurable switch functionality typically only found in managed switches. Plus, you'll find additional hardware options and expanded industrial certifications for broader deployment in what matters – your applications. Approvals include those for use in process industries (ISA12.12.01 and ATEX Class 2), transportation applications (EN 50121-4 and E1) and marine applications (Navy GL and DNV). In addition the switches fulfill PROFINET Conformance Class A requirements to set up PROFINET networks.



USB Configuration Interface

The Hirschmann SPIDER III Premium switches come with a USB interface that allows for quick customization of individual port parameters. The easy-to-use Switch Programming Tool makes it easy to generate a configuration file and transfer it to a switch using a USB drive. This free application is available for both Windows and Linux operating systems. And it's portable so it doesn't require any installation. In order to document the configuration of a particular switch, the Switch Programming Tool can also export a detailed configuration report in PDF format. Plus, you can download the running configuration of a switch and open it with the Switch Programming Tool so the configuration can be read and edited.



Four Easy Steps to Configure a Premium Switch

1. Use the Switch Programming Tool to configure all switch and port parameters.
2. Save the configuration file to a USB drive.
3. Connect the USB drive to the switch.
4. Power-cycle the switch to transfer and apply the new configuration.

Features

- Turn off unused ports to help secure the network.
- Use the potential free-fault relay contact to supervise redundant power status or any port's link status without management software.
- During periods of heavy traffic the flow control mechanism – which acts as an overload protection for the device – holds off additional traffic from the network and ensures that no data packets are lost.
- Activate Broadcast and/or Multicast Storm protection to limit traffic on the ports when Broadcast or Multicast data packets flood the device.
- Enable or disable the transmission of large data packets (jumbo frames) to increase network efficiency.
- Eliminate duplex mismatch errors by matching Auto-Negotiation, Speed and Duplex Mode parameters to the end device settings.
- Use the Quality of Service function to prevent time-critical data traffic (language, video or real-time data) from being disrupted by less time-critical data traffic during periods of heavy traffic. By enabling this feature the switches can be applied in PROFINET conformance class A applications.
- Regulate energy efficiency depending on network traffic through the Energy Efficient Ethernet standard. Save energy by operating the physical layer of a link in low power mode when there is no traffic to send.

Overview of Configurable Parameters

	Parameter	Values
Global	Power Supply Unit 1/2 Alarm	Enable/Disable
	Aging Time	0s ... 1048575s
	QoS 802.1 D/p Mapping	VLAN Priority 0 ... 7, Traffic Class 0 ... 3
	QoS DSCP Mapping	DSCP value 0 ... 63, Traffic Class 0 ... 3
Per Port	Port State	On/Off
	Flow Control	On/Off
	Link Alarm	On/Off
	Broadcast Mode	On/Off
	Broadcast Threshold	0% ... 100%
	Multicast Mode	On/Off
	Multicast Threshold	0% ... 100%
	Jumbo Frames	On/Off
	QoS Trust Mode	Untrusted, TrustDot1p, TrustIpDscp
	Port Priority	0 ... 7
Per TX Port	Auto-Negotiation	On/Off
	Speed	10 Mbit/s, 100 Mbit/s
	Duplex Mode	FDX/HDX
	Auto-Crossing	On/Off
	MDI State	MDI, MDI-X
Per FX Port	Duplex Mode	FDX/HDX



The stand-alone SPIDER Switch Programming Tool runs without installation (even from a USB drive), allowing for the customization of each individual port to the application's needs.



Technical Information – SPIDER III Standard and Premium Line Switches

Product Description		
Type	SPIDER III Standard Line Switches	SPIDER III Premium Line Switches
Description	Unmanaged, Industrial ETHERNET Rail Switch, fanless design, store and forward switching mode, electrical and optical Fast-Ethernet (10/100 MBit/s) and Gigabit-Ethernet (10/100/1000 MBit/s), IP30 plastic housing	Unmanaged, configurable Industrial ETHERNET Rail Switch, fanless design, store and forward switching mode, electrical and optical Fast-Ethernet (10/100 MBit/s) and Gigabit-Ethernet (10/100/1000 MBit/s), USB port for configuration, IP40 metal housing
Port Type and Quantity	Up to 8 FE or GE ports, thereof max. 2 FE or GE FX ports	Up to 9 FE or 8 GE ports, thereof max. 3 FE or 1 GE FX ports
Interfaces		
Power Supply/Signaling Contact	1 x plug-in terminal block, 3-pin, with spring clamps	1 x plug-in terminal block, 6-pin, with spring clamps
USB Interface	n/a	1 x USB for configuration
Power Requirements		
Operating Voltage	12/24 V DC (9,6 to 32 V DC)	12/24/48 V DC (9,6 to 60 V DC), 24 V AC, redundant
Current Consumption at 24 V DC	Max. 555 mA depending on the variant	Max. 360 mA depending on the variant
Power Consumption	1,3 to 13,3 W depending on the variant	2,4 to 9,0 W depending on the variant
Service		
Diagnostics	LEDs (power, link status, data)	LEDs (power, link status, data), Fault Relay
Configurable Parameters	n/a	Global settings: power supply unit alarm, aging time, QoS 802.1p mapping, QoS DSCP mapping Port settings: flow control, port state, broadcast mode/threshold, multicast mode/threshold, QoS Trust Mode, port priority, link alarm TX port settings: auto-negotiation, speed, duplex mode, auto-crossing, MDI state, energy efficient ethernet FX port settings: duplex mode
Ambient Conditions		
Operation Temperature	0 °C to +60 °C, -40 °C to +70 °C (depending on the variant)	-40 °C to +70 °C
Storage/Transport Temperature	-40 °C to +85 °C	
Relative Humidity (non-condensing)	10% to 95%	
Protective Paint on PCB	n/a	Conformal Coating
Mechanical Construction		
Dimensions (W x H x D)	26/38 x 102 x 79 mm, 45 x 110 x 88 mm (w/o terminal block) depending on the variant	39/49/56 x 135 x 117 mm (w/o terminal block) depending on the variant
Mounting	DIN Rail, Wall Mounting (requires a Mounting Plate)	
Weight	100 g to 250 g depending on the variant	400 g to 510 g depending on the variant
Protection Class	IP30 (plastic housing)	IP40 (metal housing)
Mechanical Stability		
IEC 60068-2-27 Shock	15 g, 11 ms duration, 18 shocks	
IEC 60068-2-6 Vibration	3.5 mm, 5 Hz to 8.4 Hz, 10 cycles, 1 octave/min. 1 g, 8.4 Hz to 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 to 1000 MHz)	
EN 61000-4-4 Fast Transients (Burst)	2 kV power line, 4 kV data line	
EN 61000-4-5 Surge Voltage	Power line: 2 kV (line/earth), 1 kV (line/line), 1 kV data line	
EN 61000-4-6 Conducted Immunity	10 V (150 kHz to 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 61010-1/61010-2-201	
Hazardous Locations	n/a	ISA12.12.01 Class 1 Div. 2, ATEX Class 2
Ship	n/a	Germanischer Lloyd, DNV
Railway	n/a	EN 50121-4
Road Vehicles	n/a	E1
Substation	n/a	EN 61850-3, IEEE 1613 (pending)

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



SPIDER III Standard and Premium Line Switch Configurations

S P I D E R - P L - 2 0 - 0 8 T 1 9 9 9 9 9 9 T Z 9 H H H H

Design

- SPIDER-SL-20 = Standard Line Fast Ethernet Ports
- SPIDER-SL-40 = Standard Line Gigabit Ethernet Ports
- SPIDER PL-20** = Premium Line Fast Ethernet Ports
- SPIDER PL-40 = Premium Line Gigabit Ethernet Ports

Number of Copper Ports

- 01T1 = 1 x Twisted-Pair, RJ45
- 04T1 = 4 x Twisted-Pair, RJ45
- 05T1 = 5 x Twisted-Pair, RJ45
- 06T1 = 6 x Twisted-Pair, RJ45
- 07T1 = 7 x Twisted-Pair, RJ45
- 08T1** = 8 x Twisted-Pair, RJ45

Type 1 Fiber Port

- O6 = SFP Slot (100/1000 Mbit/s)
- Z6 = SFP Slot (100 Mbit/s)
- S2 = Singlemode, SC (100 Mbit/s)
- M2 = Multimode, SC (100 Mbit/s)
- M4 = Multimode, ST (100 Mbit/s)
- 99** = Empty

Type 2 Fiber Port

- O6 = SFP Slot (100/1000 Mbit/s)
- Z6 = SFP Slot (100 Mbit/s)
- S2 = Singlemode, SC (100 Mbit/s)
- M2 = Multimode, SC (100 Mbit/s)
- 99** = Empty

Type 3 Fiber Port

- Z6 = SFP Slot (100 Mbit/s)
- 99** = Empty

Temperature Range

- S = 0 °C to +60 °C
- T** = -40 °C to +70 °C
- E = -40 °C to +70 °C inclusive Conformal Coating

Approvals

- Z9** = CE, FCC, EN 61131, EN 60950
- Y9 = CE, FCC, EN 61131, EN 60950, cUL61010
- X9 = CE, FCC, EN 61131, EN 60950, cUL61010, ISA12.12.01 C1D2
- W9 = CE, FCC, EN 61131, EN 60950, ATEX Zone 2
- UY = CE, FCC, EN 61131, EN 60950, cUL61010, DNVGL
- TY = CE, FCC, EN 61131, EN 60950, cUL61010, EN 50121-4
- R9 = CE, FCC, EN 61131, EN 60950, e1
- WV = CE, FCC, EN 61131, EN 60950, cUL61010, ISA12.12.01 C1D2, ATEX Zone 2, DNVGL, EN 50121-4, e1
- WW = CE, FCC, EN 61131, EN 60950, cUL61010, ISA12.12.01 C1D2, ATEX Zone 2, DNVGL, EN 50121-4, IEC 61850-3, IEEE 1613

Customization

- HK = Plug-in Terminal Block with Spring Clamps
- HH** = Standard

Configuration

- HV = Extended Voltage Range: 12/24/48 V DC, 24 V AC
- HH** = Standard Voltage Range: 12/24 V DC