GIGABIT PERFORMANCE WITH UNMANAGED SWITCHES

New addition to the SPIDER family: The fourth generation has arrived!

- Large selection of entry-level switches
- Two full Gigabit switch versions now available
- New, larger housing with up to 10 ports
- Simple rail mounting
- Very user-friendly installation – plug & play

SIMPLY A GOOD CONNECTION

HIRSCHMANN
A Belden Company

Regarding the details in this brochure: The information/details in this publication merely contain general descriptions or performance factors which, when applied in an actual situation, do not always correspond with the described form, and may be amended by way of the further development of products. The desired performance factors shall only be deemed binding if these are expressly agreed on conclusion of the contract. Please note that some characteristics of the recommended accessory parts may differ from the appropriate product. This might limit the possible operating conditions for the entire system.

DS 280 720-058 · Edition 2 · 0408 · Hirschmann Automation and Control GmbH · Printed in Germany

- Production bases
- Sales subsidiaries
- Selected distribution partners

WWW.HIRSCHMANN.COM

HIRSCHMANN
A Belden Company

The versatile SPIDER family now offers Gigabit performance.

Requirements and Solutions

Hirschmann developed the attractively priced SPIDER family for customers who are looking for a low-cost path to Industrial Ethernet. These simple unmanaged switches offer plug & play functionality in the lower area of the network pyramid. Fourth-generation SPIDER switches feature higher port density and Gigabit-Ethernet on all ports.

Based on a universal layout, SPIDER switches are available in a whole range of 2 – 8 (+ 2) port variations and a large selection of special versions. The choice includes Gigabit performance, an expanded temperature range between – 40° C up to + 70° C, E1 approval and optional fiber optics.

The SPIDER product family includes 21 user-friendly entry-level switches which support star or line network topologies over large distances at a sensational price per port ratio. The Hirschmann portfolio covers the entire Industrial Ethernet pyramid from the entry-level right up to the Layer 3 backbone switch with the quality and reliability that Hirschmann customers expect.

Product features

The SPIDER range offers a wide variety of connectivity options in the entry-level market segment: 2 – 8 (+ 2) ports, optional fiber optic ports and extended temperature range on all versions. The first full Gigabit switches deliver high performance at entry-level prices.

- Plug & play 10/100 Mbps Ethernet
- Auto-sensing, auto-crossing and auto-negotiation
- Expanded housing version for additional ports
- Simple, fast field installation (star and line topology)
- Excellent price/performance ratio (price per port)
- Extended temperature range: – 40° C up to + 70° C
- E1 approval from the German Federal Motor Vehicle Bureau (EEC types), 2005/83/EG Motor Vehicle Directive
- Simple rail mounting
- Industrial UL-approved circuit design
- Optical ports for SC or ST connectors and single- or multimode communications
- LED device and network status display

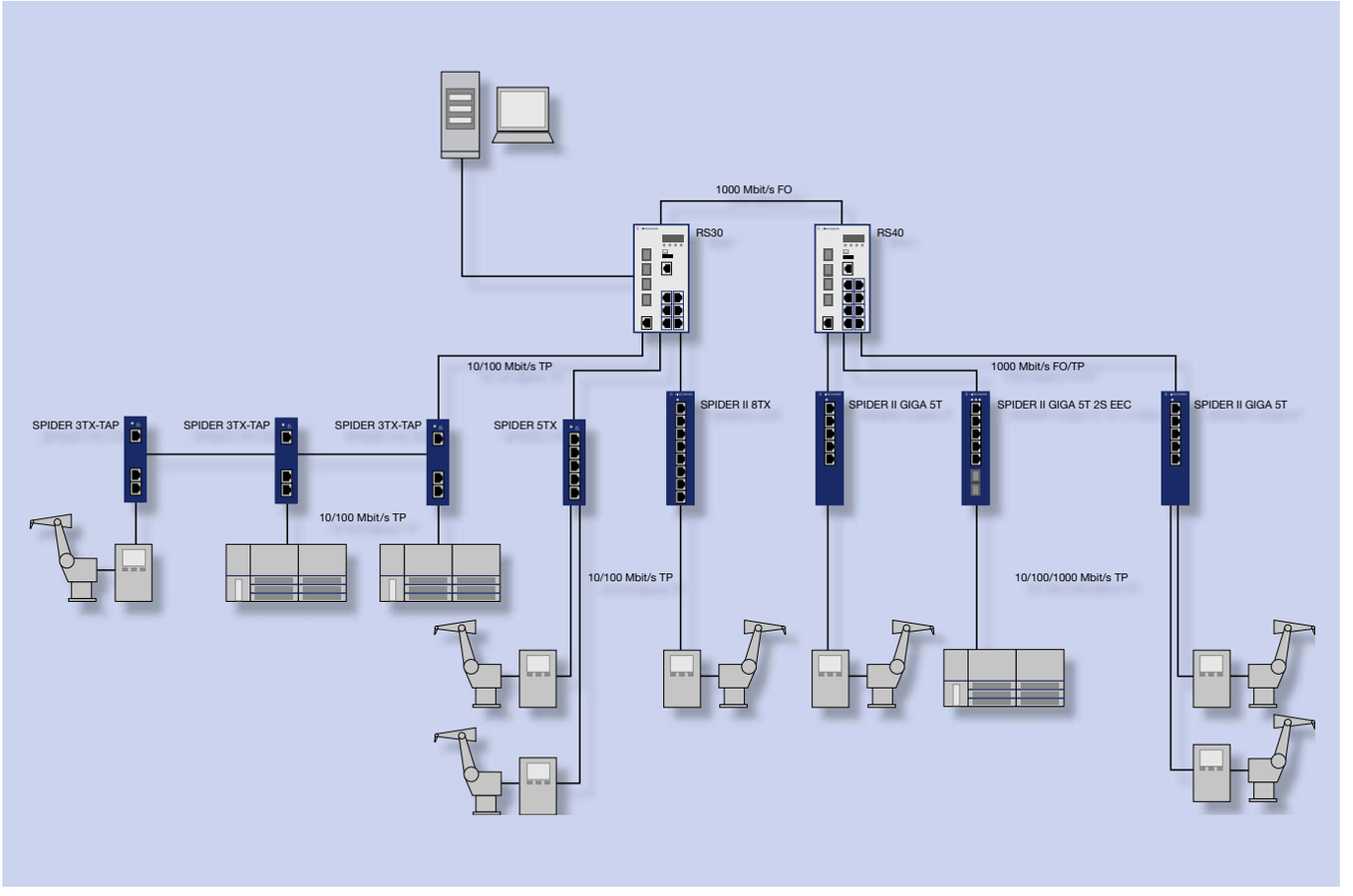
Large selection of versions:

- A total of 21 versions with 2 – 10 ports
- 100 BaseTX plus 1 100 Base FX port also available

Gigabit versions:

- 5 x 1000 BaseT (RJ 45) or
- 4 x 1000 BaseT (RJ 45)
  1 x Combo Port (RJ 45 + SFP Slot)
  1 x Fiber Uplink Port (SFP Slot)

Gigabit performance now with unmanaged switches. The new SPIDER Gigabit switches.



Applications

The SPIDER family is an attractive solution wherever simple unmanaged switches are used in a star or line topology. These entry-level switches are ideal for process and factory automation, machinery manufacturing, industrial systems, printing presses, etc. The fiber optic versions guarantee interference-free data communications over considerable distances.

Rugged design and IP30 protection ensure that these industrial switches perform flawlessly even in extreme environments. Excellent EMC immunity negates the effects of strong electrical fields. Good resistance to shock, vibration and temperature protects the switches in harsh industrial environments.

SPIDER II Giga	Full Gigabit switches	
Product name	**SPIDER II Giga 5T EEC**	**SPIDER II Giga 5T/2S EEC**
		
Product description		
Description	Entry-level Industrial Ethernet Rail Switch, store and forward switching mode, 10/100/1000 Mbps Ethernet	Entry-level Industrial Ethernet Rail Switch, store and forward switching mode, 10/100/1000 Mbps Ethernet
Port type and quantity	5 x 10/100/1000 BASE-T, TP-cable, RJ 45 sockets, auto-crossing, auto-negotiation, auto-polarity	4 x 10/100/1000 BASE-T, TP-cable, RJ 45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x Combo port (10/100/1000 BASE-T RJ 45 plus related GE-SFP slot), 1 x GE-SFP slot
Type	SPIDER II Giga 5T EEC	SPIDER II Giga 5T/2S EEC
Order No.	943 962-002	943 963-002
More Interfaces		
Power supply/signaling contact	1 plug-in terminal block, 3-pin, no signaling contact	1 plug-in terminal block, 3-pin, no signaling contact
Network size – length of cable		
Twisted Pair (TP)	0 – 100 m	0 – 100 m
Multimode fiber (MM) 50/125 µm		0 – 550 m, 0 – 7.5 dB link budget at 850 nm, (with M-SFP-SX/LC)
Multimode fiber (MM) 62.5/125 µm		0 – 275 m, 0 – 7.5 dB link budget at 850 nm, (with M-SFP-SX/LC)
Singlemode fiber (SM) 9/125 µm		0 – 20 km, 0 – 11 dB link budget at 1300 nm, (with M-SFP-LX/LC)
Singlemode fiber (LH) 9/125 µm (Long Haul transceiver)		16 – 80 km, 6 – 22 dB link budget at 1550 nm, (with M-SFP-LH/LC) 44 – 120 km, 15 – 32 dB link budget at 1550 nm, (with M-SFP-LH+/LC)
Network size – cascadibility		
Line/star topology	Any	Any
Power requirements		
Operating voltage	9.6 – 32 VDC	9.6 – 32 VDC
Service		
Diagnostics	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)
Ambient conditions		
Operating temperature	0 °C up to + 60 °C	– 40 °C up to + 70 °C
Storage/transport temperature	– 40 °C up to + 70 °C	– 40 °C up to + 85 °C
Relative humidity (non-condensing)	10 % up to 95 %	10 % up to 95 %
Mechanical construction		
Dimensions (W x H x D)	35 mm x 138 mm x 121 mm	35 mm x 138 mm x 121 mm
Mounting	DIN rail	DIN rail
Weight	240 g	250 g
Protection class	IP30	IP30
Mechanical stability		
IEC 60068-2-27 shock	15 g, 11 ms duration, 18 shocks	
IEC 60068-2-6 vibration	3.5 mm, 3 – 9 Hz, 10 cycles, 1 octave/min.; 1 g, 9 – 150 Hz, 10 cycles, 1 octave/min.	
EMC interference immunity		
EN 61000-4-2 electrostatic discharge (ESD)	6 kV contact discharge, 8 kV air discharge	
EN 61000-4-3 electromagnetic field	10 V/m (80 – 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 – 80 kHz)	
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 508 (E175531)	
Scope of delivery and accessories		
Scope of delivery	Device, terminal block, operating manual	
Accessories to order separately	Rail power supply RPS 30, RPS 80 EEC or RPS 120 EEC, 19" installation frame	

SPIDER II 8TX/2FX-ST EEC	SPIDER II 8TX/1FX-SM EEC	SPIDER II 8TX/2FX-SM EEC	Product name
			
			Product description
Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet (10 Mbps) and Fast-Ethernet (100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet (10 Mbps) and Fast-Ethernet (100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet (10 Mbps) and Fast-Ethernet (100 Mbps)	Description
8 x 10/100 BASE-TX, TP cable, RJ 45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100 BASE-FX, MM cable, SC sockets	8 x 10/100 BASE-TX, TP cable, RJ 45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100 BASE-FX, MM cable, SC sockets	8 x 10/100 BASE-TX, TP cable, RJ 45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100 BASE-FX, MM cable, SC sockets	Port type and quantity
SPIDER II 8TX/2FX-ST EEC	SPIDER II 8TX/1FX-SM EEC	SPIDER II 8TX/2FX-SM EEC	Type
943 958-221	943 958-131	943 958-231	Order No.
			More interfaces
act	1 plug-in terminal block, 3-pin, no signal contact		Power supply/signaling contact
			Network size – length of cable
0 – 100 m	0 – 100 m	0 – 100 m	Twisted Pair (TP)
0 – 5000 m, 8 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 800 MHz x km			Multimode fiber (MM) 50/125 µm
0 – 4000 m, 11 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 500 MHz x km			Multimode fiber (MM) 62.5/125 µm
	0 – 32.5 km, 16 dB link budget at 1300 nm, A = 0.4 dB/km, 3 dB reserve, D = 3.5 ps/(nm x km)	0 – 32.5 km, 16 dB link budget at 1300 nm, A = 0.4 dB/km, 3 dB reserve, D = 3.5 ps/(nm x km)	Singlemode fiber (SM) 9/125 µm
			Network size – cascadibility
Any	Any	Any	Line/star topology
			Power requirements
9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC	Operating voltage
Max. 330 mA	Max. 275 mA	Max. 330 mA	Current consumption at 24 VDC
Max. 8.4 W 28.7 Btu(IT)/h	Max. 7.0 W 23.9 Btu(IT)/h	Max. 8.4 W 28.7 Btu(IT)/h	Power consumption
			Service
LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	Diagnostics
			Ambient conditions
–40 °C up to +70 °C	–40 °C up to +70 °C	–40 °C up to +70 °C	Operating temperature
–40 °C up to +85 °C	–40 °C up to +85 °C	–40 °C up to +85 °C	Storage/transport temperature
10 % up to 95 %	10 % up to 95 %	10 % up to 95 %	Relative humidity (non-condensing)
55.2 years MIL-HDBK 217F: Gb 25 °C	58.7 years MIL-HDBK 217F: Gb 25 °C	55.7 years MIL-HDBK 217F: Gb 25 °C	MTBF
			Mechanical construction
35 mm x 138 mm x 121 mm	35 mm x 138 mm x 121 mm	35 mm x 138 mm x 121 mm	Dimensions (W x H x D)
DIN rail	DIN rail	DIN rail	Mounting
260 g	253 g	260 g	Weight
IP30	IP30	IP30	Protection class
			Mechanical stability
	15 g, 11 ms duration, 18 shocks		IEC 60068-2-27 shock
	3.5 mm, 3 – 9 Hz, 10 cycles, 1 octave/min.; 1 g, 9 – 150 Hz, 10 cycles, 1 octave/min.		IEC 60068-2-6 vibration
			EMC interference immunity
	6 kV contact discharge, 8 kV air discharge		EN 61000-4-2 electrostatic discharge (ESD)
	10 V/m (80 – 1000 MHz)		EN 61000-4-3 electromagnetic field
	2 kV power line, 4 kV data line		EN 61000-4-4 fast transients (burst)
kV data line	Power line: 2 kV (line/earth), 1 kV (line/line), 1 kV data line		EN 61000-4-5 surge voltage
	10 V (150 kHz – 8 MHz)		EN 61000-4-6 conducted immunity
			EMC emitted immunity
	FCC CFR47 Part 15 Class A		FCC CFR47 Part 15
	EN 55022 Class A		EN 55022
			Approvals
	cUL 508 (E175531)		Safety of industrial control equipment
			EMV regulations for assembly in vehicles
			Scope of delivery and accessories
	Device, terminal block, operating manual		Scope of delivery
PS 120 EEC, 19" installation frame	Rail power supply RPS 30, RPS 80 EEC or RPS 120 EEC, 19" installation frame		Accessories to order separately

Switches with optical ports

SPIDER 4TX/1FX	SPIDER 4TX/1FX EEC	SPIDER 4TX/1FX-ST EEC
		
Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet and Fast-Ethernet (10/100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet and Fast-Ethernet (10/100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet and Fast-Ethernet (10/100 Mbps)
4 x 10/100 BASE-TX, TP cable, RJ 45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100 BASE-FX, MM cable, SC sockets	4 x 10/100 BASE-TX, TP cable, RJ 45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100 BASE-FX, MM cable, SC sockets	4 x 10/100 BASE-TX, TP cable, RJ 45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100 BASE-FX, MM cable, SC sockets
SPIDER 4TX/1FX	SPIDER 4TX/1FX EEC	SPIDER 4TX/1FX-ST EEC
943 221-001	943 221-101	943 914-001
1 plug-in terminal block, 3-pin, no signal contact		1 plug-in terminal block, 3-pin, no signal conta
0 – 100 m	0 – 100 m	0 – 100 m
0 – 5000 m, 8 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 800 MHz x km	0 – 5000 m, 8 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 800 MHz x km	0 – 5000 m, 8 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 800 MHz x km
0 – 4000 m, 11 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 500 MHz x km	0 – 4000 m, 11 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 500 MHz x km	0 – 4000 m, 11 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 500 MHz x km
Any	Any	Any
9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC
Max. 150 mA	Max. 150 mA	Max. 150 mA
Max. 3.9 W 13.3 Btu(IT)/h at 24 VDC	Max. 3.9 W 13.3 Btu(IT)/h at 24 VDC	Max. 3.9 W 13.3 Btu(IT)/h at 24 VDC
LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)
0 °C up to + 60 °C	– 40 °C up to + 70 °C	– 40 °C up to + 70 °C
– 40 °C up to + 70 °C	– 40 °C up to + 70 °C	– 40 °C up to + 70 °C
10 % up to 95 %	10 % up to 95 %	10 % up to 95 %
112.0 years; MIL-HDBK 217F: Gb 25 °C	112.0 years; MIL-HDBK 217F: Gb 25 °C	112.0 years; MIL-HDBK 217F: Gb 25 °C
25 mm x 114 mm x 79 mm	25 mm x 114 mm x 79 mm	25 mm x 114 mm x 79 mm
DIN rail	DIN rail	DIN rail
120 g	120 g	120 g
IP30	IP30	IP30
15 g, 11 ms duration, 18 shocks		15 g, 11 ms duration, 18 shocks
3.5 mm, 3 – 9 Hz, 10 cycles, 1 octave/min.; 1 g, 9 – 150 Hz, 10 cycles, 1 octave/min.		3.5 mm, 3 – 9 Hz, 10 cycles, 1 octave/min.; 1 g, 9 – 150 Hz, 10 cycles, 1 octave/min.
6 kV contact discharge, 8 kV air discharge		6 kV contact discharge, 8 kV air discharge
10 V/m (80 – 1000 MHz)		10 V/m (80 – 1000 MHz)
2 kV power line, 4 kV data line		2 kV power line, 4 kV data line
Power line: 2 kV (line/earth), 1 kV (line/line), 1 kV data line		Power line: 2 kV (line/earth), 1 kV (line/line), 1 k
10 V (150 kHz – 8 MHz)		10 V (150 kHz – 8 MHz)
FCC CFR47 Part 15 Class A		FCC CFR47 Part 15 Class A
EN 55022 Class A		EN 55022 Class A
cUL 508 (E175531)		cUL 508 (E175531)
Device, terminal block, operating manual		Device, terminal block, operating manual
Rail power supply RPS 30, RPS 80 EEC or RPS 120 EEC, 19" installation frame		Rail power supply RPS 30, RPS 80 EEC or RP

SPIDER 4TX/1FX-SM EEC	SPIDER II 8TX/1FX EEC	SPIDER II 8TX/1FX-ST EEC	SPIDER II 8TX/2FX EEC
			
Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet and Fast-Ethernet (10/100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet (10 Mbps) and Fast-Ethernet (100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet (10 Mbps) and Fast-Ethernet (100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet (10 Mbps) and Fast-Ethernet (100 Mbps)
4 x 10/100 BASE-TX, TP cable, RJ 45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100 BASE-FX, MM cable, SC sockets	8 x 10/100 BASE-TX, TP cable, RJ 45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100 BASE-FX, MM cable, SC sockets	8 x 10/100 BASE-TX, TP cable, RJ 45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100 BASE-FX, MM cable, SC sockets	8 x 10/100 BASE-TX, TP cable, RJ 45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100 BASE-FX, MM cable, SC sockets
SPIDER 4TX/1FX-SM EEC	SPIDER II 8TX/1FX EEC	SPIDER II 8TX/1FX-ST EEC	SPIDER II 8TX/2FX EEC
943 880-001	943 958-111	943 958-121	943 958-211
act	1 plug-in terminal block, 3-pin, no signal contact		1 plug-in terminal block, 3-pin, no signal conta
0 – 100 m	0 – 100 m	0 – 100 m	0 – 100 m
	0 – 5000 m, 8 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 800 MHz x km	0 – 5000 m, 8 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 800 MHz x km	0 – 5000 m, 8 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 800 MHz x km
	0 – 4000 m, 11 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 500 MHz x km	0 – 4000 m, 11 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 500 MHz x km	0 – 4000 m, 11 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 500 MHz x km
0 – 32.5 km, 16 dB link budget at 1300 nm, A = 0.4 dB/km, 3 dB reserve, D = 3.5 ps/(nm x km)			
Any	Any	Any	Any
9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC
Max. 150 mA	Max. 235 mA	Max. 275 mA	Max. 330 mA
Max. 3.9 W 13.3 Btu(IT)/h at 24 VDC	Max. 6.3 W 21.5 Btu(IT)/h	Max. 7.0 W 23.9 Btu(IT)/h	Max. 8.4 W 28.7 Btu(IT)/h
LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)
–40 °C up to +70 °C	–40 °C up to +70 °C	–40 °C up to +70 °C	–40 °C up to +70 °C
–40 °C up to +70 °C	–40 °C up to +85 °C	–40 °C up to +85 °C	–40 °C up to +85 °C
10 % up to 95 %	10 % up to 95 %	10 % up to 95 %	10 % up to 95 %
93.9 years; MIL-HDBK 217F: Gb 25 °C	65.8 years MIL-HDBK 217F: Gb 25 °C	58.4 years MIL-HDBK 217F: Gb 25 °C	55.2 years MIL-HDBK 217F: Gb 25 °C
25 mm x 114 mm x 79 mm	35 mm x 138 mm x 121 mm	35 mm x 138 mm x 121 mm	35 mm x 138 mm x 121 mm
DIN rail	DIN rail	DIN rail	DIN rail
120 g	253 g	253 g	260 g
IP30	IP30	IP30	IP30
	15 g, 11 ms duration, 18 shocks		15 g, 11 ms duration, 18 shocks
	3.5 mm, 3 – 9 Hz, 10 cycles, 1 octave/min.; 1 g, 9 – 150 Hz, 10 cycles, 1 octave/min.		3.5 mm, 3 – 9 Hz, 10 cycles, 1 octave/min.; 1 g, 9 – 150 Hz, 10 cycles, 1 octave/min.
	6 kV contact discharge, 8 kV air discharge		6 kV contact discharge, 8 kV air discharge
	10 V/m (80 – 1000 MHz)		10 V/m (80 – 1000 MHz)
	2 kV power line, 4 kV data line		2 kV power line, 4 kV data line
kV data line	Power line: 2 kV (line/earth), 1 kV (line/line), 1 kV data line		Power line: 2 kV (line/earth), 1 kV (line/line), 1 k
	10 V (150 kHz – 8 MHz)		10 V (150 kHz – 8 MHz)
	FCC CFR47 Part 15 Class A		FCC CFR47 Part 15 Class A
	EN 55022 Class A		EN 55022 Class A
	cUL 508 (E175531)		cUL 508 (E175531)
	Device, terminal block, operating manual		Device, terminal block, operating manual
PS 120 EEC, 19" installation frame	Rail power supply RPS 30, RPS 80 EEC or RPS 120 EEC, 19" installation frame		Rail power supply RPS 30, RPS 80 EEC or RPS

SPIDER 1TX/1FX-SM EEC	SPIDER 3TX-TAP	SPIDER 5TX	SPIDER 5TX EEC	SPIDER II 8TX
				
Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet and Fast-Ethernet (10/100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet and Fast-Ethernet (10/100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet and Fast-Ethernet (10/100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet and Fast-Ethernet (10/100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet (10 Mbps) and Fast-Ethernet (100 Mbps)
1 x 10/100 BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100 BASE-FX, MM cable, SC sockets	3 x 10/100 BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity	5 x 10/100 BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity	5 x 10/100 BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity	8 x 10/100 BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity
SPIDER 1TX/1FX-SM EEC	SPIDER 3TX-TAP	SPIDER 5TX	SPIDER 5TX EEC	SPIDER II 8TX
943 928-001	943 899-001	943 824-002	943 824-102	943 957-001
act	1 plug-in terminal block, 3-pin, no signal contact			1 plug-in terminal block, 3-pin, no signal conta
0 – 100 m	0 – 100 m	0 – 100 m	0 – 100 m	0 – 100 m
0 – 32.5 km, 16 dB link budget at 1300 nm, A = 0.4 dB/km, 3 dB reserve, D = 3.5 ps/(nm x km)				
Any	Any	Any	Any	Any
9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC
Max. 130 mA	Max. 130 mA	Max. 130 mA	Max. 130 mA	Max. 130 mA
Max. 3.0 W 10.2 Btu(IT)/h at 24 VDC	Max. 2.2 W 7.5 Btu(IT)/h at 24 VDC	Max. 2.2 W 7.5 Btu(IT)/h at 24 VDC	Max. 2.2 W 7.5 Btu(IT)/h at 24 VDC	Max. 4.1 W 14.0 Btu(IT)/h
LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)
–40 °C up to +70 °C	0 °C up to +60 °C	0 °C up to +60 °C	–40 °C up to +70 °C	0 °C up to +60 °C
–40 °C up to +70 °C	–40 °C up to +70 °C	–40 °C up to +70 °C	–40 °C up to +70 °C	–40 °C up to +70 °C
10 % up to 95 %	10 % up to 95 %	10 % up to 95 %	10 % up to 95 %	10 % up to 95 %
101.5 years; MIL-HDBK 217F: Gb 25 °C	138.5 years; MIL-HDBK 217F: Gb 25 °C	123.7 years; MIL-HDBK 217F: Gb 25 °C	123.7 years; MIL-HDBK 217F: Gb 25 °C	98.8 years, MIL-HDBK 217F: Gb 25 °C
25 mm x 114 mm x 79 mm	25 mm x 114 mm x 79 mm	25 mm x 114 mm x 79 mm	25 mm x 114 mm x 79 mm	35 mm x 138 mm x 121 mm
DIN rail	DIN rail	DIN rail	DIN rail	DIN rail
105 g	113 g	113 g	113 g	246 g
IP30	IP30	IP30	IP30	IP30
	15 g, 11 ms duration, 18 shocks			15 g, 11 ms duration, 18 shocks
	3.5 mm, 3 – 9 Hz, 10 cycles, 1 octave/min.; 1 g, 9 – 150 Hz, 10 cycles, 1 octave/min.			3.5 mm, 3 – 9 Hz, 10 cycles, 1 octave/min.; 1 g, 9 – 150 Hz, 10 cycles, 1 octave/min.
	6 kV contact discharge, 8 kV air discharge			6 kV contact discharge, 8 kV air discharge
	10 V/m (80 – 1000 MHz)			10 V/m (80 – 1000 MHz)
	2 kV power line, 4 kV data line			2 kV power line, 4 kV data line
kV data line	Power line: 2 kV (line/earth), 1 kV (line/line), 1 kV data line			Power line: 2 kV (line/earth), 1 kV (line/line), 1 k
	10 V (150 kHz – 8 MHz)			10 V (150 kHz – 8 MHz)
	FCC CFR47 Part 15 Class A			FCC CFR47 Part 15 Class A
	EN 55022 Class A			EN 55022 Class A
	cUL 508 (E175531)		cUL 508 (E175531)	cUL 508 (E175531)
			Approval according to motor vehicle directive 2005/83/EG (e1)	
	Device, terminal block, operating manual			Device, terminal block, operating manual
PS 120 EEC, 19" installation frame	Rail power supply RPS 30, RPS 80 EEC or RPS 120 EEC, 19" installation frame			Rail power supply RPS 30, RPS 80 EEC or RP

SPIDER family	2 port media converter switches		
Product name	**SPIDER 1TX/1FX**	**SPIDER 1TX/1FX EEC**	**SPIDER 1TX/1FX-SM**
			
Product description			
Description	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet and Fast-Ethernet (10/100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet and Fast-Ethernet (10/100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet and Fast-Ethernet (10/100 Mbps)
Port type and quantity	1 x 10/100 BASE-TX, TP cable, RJ 45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100 BASE-FX, MM cable, SC sockets	1 x 10/100 BASE-TX, TP cable, RJ 45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100 BASE-FX, MM cable, SC sockets	1 x 10/100 BASE-TX, TP cable, RJ 45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100 BASE-FX, MM cable, SC sockets
Type	SPIDER 1TX/1FX	SPIDER 1TX/1FX EEC	SPIDER 1TX/1FX-SM
Order No.	943 890-001	943 927-001	943 891-001
More interfaces			
Power supply/signaling contact	1 plug-in terminal block, 3-pin, no signal contact		1 plug-in terminal block, 3-pin, no signal conta
Network size – length of cable			
Twisted Pair (TP)	0 – 100 m	0 – 100 m	0 – 100 m
Multimode fiber (MM) 50/125 µm	0 – 5000 m, 8 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 800 MHz x km	0 – 5000 m, 8 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 800 MHz x km	
Multimode fiber (MM) 62.5/125 µm	0 – 4000 m, 11 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 500 MHz x km	0 – 4000 m, 11 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 500 MHz x km	
Singlemode fiber (SM) 9/125 µm			0 – 32.5 km, 16 dB link budget at 1300 nm, A = 0.4 dB/km, 3 dB reserve, D = 3.5 ps/(nm x km)
Network size – cascadibility			
Line/star topology	Any	Any	Any
Power requirements			
Operating voltage	9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC
Current consumption at 24 VDC	Max. 130 mA	Max. 130 mA	Max. 130 mA
Power consumption	Max. 3.0 W 10.2 Btu(IT)/h at 24 VDC	Max. 3.0 W 10.2 Btu(IT)/h at 24 VDC	Max. 3.0 W 10.2 Btu(IT)/h at 24 VDC
Service			
Diagnostics	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)
Ambient conditions			
Operating temperature	0° C up to +60° C	–40° C up to +70° C	0° C up to +60° C
Storage/transport temperature	–40° C up to +70° C	–40° C up to +70° C	–40° C up to +70° C
Relative humidity (non-condensing)	10 % up to 95 %	10 % up to 95 %	10 % up to 95 %
MTBF	128.1 years; MIL-HDBK 217F: Gb 25° C	128.1 years; MIL-HDBK 217F: Gb 25° C	101.5 years; MIL-HDBK 217F: Gb 25° C
Mechanical construction			
Dimensions (W x H x D)	25 mm x 114 mm x 79 mm	25 mm x 114 mm x 79 mm	25 mm x 114 mm x 79 mm
Mounting	DIN rail	DIN rail	DIN rail
Weight	105 g	105 g	105 g
Protection class	IP30	IP30	IP30
Mechanical stability			
IEC 60068-2-27 shock	15 g, 11 ms duration, 18 shocks		15 g, 11 ms duration, 18 shocks
IEC 60068-2-6 vibration	3.5 mm, 3 – 9 Hz, 10 cycles, 1 octave/min.; 1 g, 9 – 150 Hz, 10 cycles, 1 octave/min.		3.5 mm, 3 – 9 Hz, 10 cycles, 1 octave/min.; 1 g, 9 – 150 Hz, 10 cycles, 1 octave/min.
EMC interference immunity			
EN 61000-4-2 electrostatic discharge (ESD)	6 kV contact discharge, 8 kV air discharge		6 kV contact discharge, 8 kV air discharge
EN 61000-4-3 electromagnetic field	10 V/m (80 – 1000 MHz)		10 V/m (80 – 1000 MHz)
EN 61000-4-4 fast transients (burst)	2 kV power line, 4 kV data line		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		Power line: 2 kV (line/earth), 1 kV (line/line), 1 k
EN 61000-4-6 conducted immunity	10 V (150 kHz – 8 MHz)		10 V (150 kHz – 8 MHz)
EMC emitted immunity			
FCC CFR47 Part 15	FCC CFR47 Part 15 Class A		FCC CFR47 Part 15 Class A
EN 55022	EN 55022 Class A		EN 55022 Class A
Approvals			
Safety of industrial control equipment	cUL 508 (E175531)		cUL 508 (E175531)
EMV regulations for assembly in vehicles			
Scope of delivery and accessories			
Scope of delivery	Device, terminal block, operating manual		Device, terminal block, operating manual
Accessories to order separately	Rail power supply RPS 30, RPS 80 EEC or RPS 120 EEC, 19" installation frame		Rail power supply RPS 30, RPS 80 EEC or RP

SPIDER family	2 port media converter switches				Switches for linear and star topologies					Switches with optical ports										
Product name	**SPIDER 1TX/1FX**	**SPIDER 1TX/1FX EEC**	**SPIDER 1TX/1FX-SM**	**SPIDER 1TX/1FX-SM EEC**	**SPIDER 3TX-TAP**	**SPIDER 5TX**	**SPIDER 5TX EEC**	**SPIDER II 8TX**	**SPIDER II 8TX EEC**	**SPIDER 4TX/1FX**	**SPIDER 4TX/1FX EEC**	**SPIDER 4TX/1FX-ST EEC**	**SPIDER 4TX/1FX-SM EEC**	**SPIDER II 8TX/1FX EEC**	**SPIDER II 8TX/1FX-ST EEC**	**SPIDER II 8TX/2FX EEC**	**SPIDER II 8TX/2FX-ST EEC**	**SPIDER II 8TX/1FX-SM EEC**	**SPIDER II 8TX/2FX-SM EEC**	**Product name**
																				
Product description																				**Product description**
Description	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet and Fast-Ethernet (10/100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet and Fast-Ethernet (10/100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet and Fast-Ethernet (10/100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet and Fast-Ethernet (10/100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet and Fast-Ethernet (10/100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet and Fast-Ethernet (10/100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet and Fast-Ethernet (10/100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet (10 Mbps) and Fast-Ethernet (100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet (10 Mbps) and Fast-Ethernet (100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet and Fast-Ethernet (10/100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet and Fast-Ethernet (10/100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet and Fast-Ethernet (10/100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet and Fast-Ethernet (10/100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet (10 Mbps) and Fast-Ethernet (100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet (10 Mbps) and Fast-Ethernet (100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet (10 Mbps) and Fast-Ethernet (100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet (10 Mbps) and Fast-Ethernet (100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet (10 Mbps) and Fast-Ethernet (100 Mbps)	Entry-level Industrial Ethernet Rail-Switch, store and forward switching mode, Ethernet (10 Mbps) and Fast-Ethernet (100 Mbps)	Description
Port type and quantity	1 x 10/100BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100BASE-FX, MM cable, SC sockets	1 x 10/100BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100BASE-FX, MM cable, SC sockets	1 x 10/100BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100BASE-FX, MM cable, SC sockets	1 x 10/100BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100BASE-FX, MM cable, SC sockets	3 x 10/100BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity	5 x 10/100BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity	5 x 10/100BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity	8 x 10/100BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity	8 x 10/100BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity	4 x 10/100BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100BASE-FX, MM cable, SC sockets	4 x 10/100BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100BASE-FX, MM cable, SC sockets	4 x 10/100BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100BASE-FX, MM cable, SC sockets	4 x 10/100BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100BASE-FX, MM cable, SC sockets	8 x 10/100BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100BASE-FX, MM cable, SC sockets	8 x 10/100BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100BASE-FX, MM cable, SC sockets	8 x 10/100BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100BASE-FX, MM cable, SC sockets	8 x 10/100BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100BASE-FX, MM cable, SC sockets	8 x 10/100BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100BASE-FX, MM cable, SC sockets	8 x 10/100BASE-TX, TP cable, RJ45 sockets, auto-crossing, auto-negotiation, auto-polarity, 1 x 100BASE-FX, MM cable, SC sockets	Port type and quantity
Type	SPIDER 1TX/1FX	SPIDER 1TX/1FX EEC	SPIDER 1TX/1FX-SM	SPIDER 1TX/1FX-SM EEC	SPIDER 3TX-TAP	SPIDER 5TX	SPIDER 5TX EEC	SPIDER II 8TX	SPIDER II 8TX EEC	SPIDER 4TX/1FX	SPIDER 4TX/1FX EEC	SPIDER 4TX/1FX-ST EEC	SPIDER 4TX/1FX-SM EEC	SPIDER II 8TX/1FX EEC	SPIDER II 8TX/1FX-ST EEC	SPIDER II 8TX/2FX EEC	SPIDER II 8TX/2FX-ST EEC	SPIDER II 8TX/1FX-SM EEC	SPIDER II 8TX/2FX-SM EEC	Type
Order No.	943 890-001	943 927-001	943 891-001	943 928-001	943 899-001	943 824-002	943 824-102	943 957-001	943 958-001	943 221-001	943 221-101	943 914-001	943 880-001	943 958-111	943 958-121	943 958-211	943 958-221	943 958-131	943 958-231	Order No.
More interfaces																				**More interfaces**
Power supply/signaling contact	1 plug-in terminal block, 3-pin, no signal contact		1 plug-in terminal block, 3-pin, no signal contact		1 plug-in terminal block, 3-pin, no signal contact			1 plug-in terminal block, 3-pin, no signal contact		1 plug-in terminal block, 3-pin, no signal contact		1 plug-in terminal block, 3-pin, no signal contact		1 plug-in terminal block, 3-pin, no signal contact		1 plug-in terminal block, 3-pin, no signal contact		1 plug-in terminal block, 3-pin, no signal contact		Power supply/signaling contact
Network size – length of cable																				**Network size – length of cable**
Twisted Pair (TP)	0 – 100 m	0 – 100 m	0 – 100 m	0 – 100 m	0 – 100 m	0 – 100 m	0 – 100 m	0 – 100 m	0 – 100 m	0 – 100 m	0 – 100 m	0 – 100 m	0 – 100 m	0 – 100 m	0 – 100 m	0 – 100 m	0 – 100 m	0 – 100 m	0 – 100 m	Twisted Pair (TP)
Multimode fiber (MM) 50/125 µm	0 – 5000 m, 8 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 800 MHz x km	0 – 5000 m, 8 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 800 MHz x km								0 – 5000 m, 8 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 800 MHz x km	0 – 5000 m, 8 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 800 MHz x km	0 – 5000 m, 8 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 800 MHz x km		0 – 5000 m, 8 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 800 MHz x km	0 – 5000 m, 8 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 800 MHz x km	0 – 5000 m, 8 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 800 MHz x km	0 – 5000 m, 8 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 800 MHz x km			Multimode fiber (MM) 50/125 µm
Multimode fiber (MM) 62.5/125 µm	0 – 4000 m, 11 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 500 MHz x km	0 – 4000 m, 11 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 500 MHz x km								0 – 4000 m, 11 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 500 MHz x km	0 – 4000 m, 11 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 500 MHz x km	0 – 4000 m, 11 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 500 MHz x km		0 – 4000 m, 11 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 500 MHz x km	0 – 4000 m, 11 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 500 MHz x km	0 – 4000 m, 11 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 500 MHz x km	0 – 4000 m, 11 dB link budget at 1300 nm, A = 1 dB/km, 3 dB reserve, B = 500 MHz x km			Multimode fiber (MM) 62.5/125 µm
Singlemode fiber (SM) 9/125 µm			0 – 32.5 km, 16 dB link budget at 1300 nm, A = 0.4 dB/km, 3 dB reserve, D = 3.5 ps/(nm x km)	0 – 32.5 km, 16 dB link budget at 1300 nm, A = 0.4 dB/km, 3 dB reserve, D = 3.5 ps/(nm x km)									0 – 32.5 km, 16 dB link budget at 1300 nm, A = 0.4 dB/km, 3 dB reserve, D = 3.5 ps/(nm x km)					0 – 32.5 km, 16 dB link budget at 1300 nm, A = 0.4 dB/km, 3 dB reserve, D = 3.5 ps/(nm x km)	0 – 32.5 km, 16 dB link budget at 1300 nm, A = 0.4 dB/km, 3 dB reserve, D = 3.5 ps/(nm x km)	Singlemode fiber (SM) 9/125 µm
Network size – cascadibility																				**Network size – cascadibility**
Line/star topology	Any	Any	Any	Any	Any	Any	Any	Any	Any	Any	Any	Any	Any	Any	Any	Any	Any	Any	Any	Line/star topology
Power requirements																				**Power requirements**
Operating voltage	9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC	9.6 – 32 VDC	Operating voltage
Current consumption at 24 VDC	Max. 130 mA	Max. 130 mA	Max. 130 mA	Max. 130 mA	Max. 130 mA	Max. 130 mA	Max. 130 mA	Max. 130 mA	Max. 130 mA	Max. 150 mA	Max. 150 mA	Max. 150 mA	Max. 150 mA	Max. 235 mA	Max. 275 mA	Max. 330 mA	Max. 330 mA	Max. 275 mA	Max. 330 mA	Current consumption at 24 VDC
Power consumption	Max. 3.0 W 10.2 Btu(IT)/h at 24 VDC	Max. 3.0 W 10.2 Btu(IT)/h at 24 VDC	Max. 3.0 W 10.2 Btu(IT)/h at 24 VDC	Max. 3.0 W 10.2 Btu(IT)/h at 24 VDC	Max. 2.2 W 7.5 Btu(IT)/h at 24 VDC	Max. 2.2 W 7.5 Btu(IT)/h at 24 VDC	Max. 2.2 W 7.5 Btu(IT)/h at 24 VDC	Max. 4.1 W 14.0 Btu(IT)/h	Max. 5.8 W 19.8 Btu(IT)/h	Max. 3.9 W 13.3 Btu(IT)/h at 24 VDC	Max. 3.9 W 13.3 Btu(IT)/h at 24 VDC	Max. 3.9 W 13.3 Btu(IT)/h at 24 VDC	Max. 3.9 W 13.3 Btu(IT)/h at 24 VDC	Max. 6.3 W 21.5 Btu(IT)/h	Max. 7.0 W 23.9 Btu(IT)/h	Max. 8.4 W 28.7 Btu(IT)/h	Max. 8.4 W 28.7 Btu(IT)/h	Max. 7.0 W 23.9 Btu(IT)/h	Max. 8.4 W 28.7 Btu(IT)/h	Power consumption
Service																				**Service**
Diagnostics	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	LEDs (power, link status, data, data rate)	Diagnostics
Ambient conditions																				**Ambient conditions**
Operating temperature	0°C up to +60°C	–40°C up to +70°C	0°C up to +60°C	–40°C up to +70°C	0°C up to +60°C	0°C up to +60°C	–40°C up to +70°C	0°C up to +60°C	–40°C up to +70°C	0°C up to +60°C	–40°C up to +70°C	–40°C up to +70°C	–40°C up to +70°C	–40°C up to +70°C	–40°C up to +70°C	–40°C up to +70°C	–40°C up to +70°C	–40°C up to +70°C	–40°C up to +70°C	Operating temperature
Storage/transport temperature	–40°C up to +70°C	–40°C up to +70°C	–40°C up to +70°C	–40°C up to +70°C	–40°C up to +70°C	–40°C up to +70°C	–40°C up to +70°C	–40°C up to +70°C	–40°C up to +85°C	–40°C up to +70°C	–40°C up to +70°C	–40°C up to +70°C	–40°C up to +70°C	–40°C up to +85°C	–40°C up to +85°C	–40°C up to +85°C	–40°C up to +85°C	–40°C up to +85°C	–40°C up to +85°C	Storage/transport temperature
Relative humidity (non-condensing)	10 % up to 95 %	10 % up to 95 %	10 % up to 95 %	10 % up to 95 %	10 % up to 95 %	10 % up to 95 %	10 % up to 95 %	10 % up to 95 %	10 % up to 95 %	10 % up to 95 %	10 % up to 95 %	10 % up to 95 %	10 % up to 95 %	10 % up to 95 %	10 % up to 95 %	10 % up to 95 %	10 % up to 95 %	10 % up to 95 %	10 % up to 95 %	Relative humidity (non-condensing)
MTBF	128.1 years; MIL-HDBK 217F: Gb 25°C	128.1 years; MIL-HDBK 217F: Gb 25°C	101.5 years; MIL-HDBK 217F: Gb 25°C	101.5 years; MIL-HDBK 217F: Gb 25°C	138.5 years; MIL-HDBK 217F: Gb 25°C	123.7 years; MIL-HDBK 217F: Gb 25°C	123.7 years; MIL-HDBK 217F: Gb 25°C	98.8 years, MIL-HDBK 217F: Gb 25°C	62.0 years MIL-HDBK 217F: Gb 25°C	112.0 years; MIL-HDBK 217F: Gb 25°C	112.0 years; MIL-HDBK 217F: Gb 25°C	112.0 years; MIL-HDBK 217F: Gb 25°C	93.9 years; MIL-HDBK 217F: Gb 25°C	65.8 years MIL-HDBK 217F: Gb 25°C	58.4 years MIL-HDBK 217F: Gb 25°C	55.2 years MIL-HDBK 217F: Gb 25°C	55.2 years MIL-HDBK 217F: Gb 25°C	58.7 years MIL-HDBK 217F: Gb 25°C	55.7 years MIL-HDBK 217F: Gb 25°C	MTBF
Mechanical construction																				**Mechanical construction**
Dimensions (W x H x D)	25 mm x 114 mm x 79 mm	25 mm x 114 mm x 79 mm	25 mm x 114 mm x 79 mm	25 mm x 114 mm x 79 mm	25 mm x 114 mm x 79 mm	25 mm x 114 mm x 79 mm	25 mm x 114 mm x 79 mm	35 mm x 138 mm x 121 mm	35 mm x 138 mm x 121 mm	25 mm x 114 mm x 79 mm	25 mm x 114 mm x 79 mm	25 mm x 114 mm x 79 mm	25 mm x 114 mm x 79 mm	35 mm x 138 mm x 121 mm	35 mm x 138 mm x 121 mm	35 mm x 138 mm x 121 mm	35 mm x 138 mm x 121 mm	35 mm x 138 mm x 121 mm	35 mm x 138 mm x 121 mm	Dimensions (W x H x D)
Mounting	DIN rail	DIN rail	DIN rail	DIN rail	DIN rail	DIN rail	DIN rail	DIN rail	DIN rail	DIN rail	DIN rail	DIN rail	DIN rail	DIN rail	DIN rail	DIN rail	DIN rail	DIN rail	DIN rail	Mounting
Weight	105 g	105 g	105 g	105 g	113 g	113 g	113 g	246 g	246 g	120 g	120 g	120 g	120 g	253 g	253 g	260 g	260 g	253 g	260 g	Weight
Protection class	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	Protection class
Mechanical stability																				**Mechanical stability**
IEC 60068-2-27 shock	15 g, 11 ms duration, 18 shocks		15 g, 11 ms duration, 18 shocks		15 g, 11 ms duration, 18 shocks			15 g, 11 ms duration, 18 shocks		15 g, 11 ms duration, 18 shocks		15 g, 11 ms duration, 18 shocks		15 g, 11 ms duration, 18 shocks		15 g, 11 ms duration, 18 shocks		15 g, 11 ms duration, 18 shocks		IEC 60068-2-27 shock
IEC 60068-2-6 vibration	3.5 mm, 3 – 9 Hz, 10 cycles, 1 octave/min.; 1 g, 9 – 150 Hz, 10 cycles, 1 octave/min.		3.5 mm, 3 – 9 Hz, 10 cycles, 1 octave/min.; 1 g, 9 – 150 Hz, 10 cycles, 1 octave/min.		3.5 mm, 3 – 9 Hz, 10 cycles, 1 octave/min.; 1 g, 9 – 150 Hz, 10 cycles, 1 octave/min.			3.5 mm, 3 – 9 Hz, 10 cycles, 1 octave/min.; 1 g, 9 – 150 Hz, 10 cycles, 1 octave/min.		3.5 mm, 3 – 9 Hz, 10 cycles, 1 octave/min.; 1 g, 9 – 150 Hz, 10 cycles, 1 octave/min.		3.5 mm, 3 – 9 Hz, 10 cycles, 1 octave/min.; 1 g, 9 – 150 Hz, 10 cycles, 1 octave/min.		3.5 mm, 3 – 9 Hz, 10 cycles, 1 octave/min.; 1 g, 9 – 150 Hz, 10 cycles, 1 octave/min.		3.5 mm, 3 – 9 Hz, 10 cycles, 1 octave/min.; 1 g, 9 – 150 Hz, 10 cycles, 1 octave/min.		3.5 mm, 3 – 9 Hz, 10 cycles, 1 octave/min.; 1 g, 9 – 150 Hz, 10 cycles, 1 octave/min.		IEC 60068-2-6 vibration
EMC interference immunity																				**EMC interference immunity**
EN 61000-4-2 electrostatic discharge (ESD)	6 kV contact discharge, 8 kV air discharge		6 kV contact discharge, 8 kV air discharge		6 kV contact discharge, 8 kV air discharge			6 kV contact discharge, 8 kV air discharge		6 kV contact discharge, 8 kV air discharge		6 kV contact discharge, 8 kV air discharge		6 kV contact discharge, 8 kV air discharge		6 kV contact discharge, 8 kV air discharge		6 kV contact discharge, 8 kV air discharge		EN 61000-4-2 electrostatic discharge (ESD)
EN 61000-4-3 electromagnetic field	10 V/m (80 – 1000 MHz)		10 V/m (80 – 1000 MHz)		10 V/m (80 – 1000 MHz)			10 V/m (80 – 1000 MHz)		10 V/m (80 – 1000 MHz)		10 V/m (80 – 1000 MHz)		10 V/m (80 – 1000 MHz)		10 V/m (80 – 1000 MHz)		10 V/m (80 – 1000 MHz)		EN 61000-4-3 electromagnetic field
EN 61000-4-4 fast transients (burst)	2 kV power line, 4 kV data line		2 kV power line, 4 kV data line		2 kV power line, 4 kV data line			2 kV power line, 4 kV data line		2 kV power line, 4 kV data line		2 kV power line, 4 kV data line		2 kV power line, 4 kV data line		2 kV power line, 4 kV data line		2 kV power line, 4 kV data line		EN 61000-4-4 fast transients (burst)
EN 61000-4-5 surge voltage	Power line: 2 kV (line/earth), 1 kV (line/line), 1 kV data line		Power line: 2 kV (line/earth), 1 kV (line/line), 1 kV data line		Power line: 2 kV (line/earth), 1 kV (line/line), 1 kV data line			Power line: 2 kV (line/earth), 1 kV (line/line), 1 kV data line		Power line: 2 kV (line/earth), 1 kV (line/line), 1 kV data line		Power line: 2 kV (line/earth), 1 kV (line/line), 1 kV data line		Power line: 2 kV (line/earth), 1 kV (line/line), 1 kV data line		Power line: 2 kV (line/earth), 1 kV (line/line), 1 kV data line		Power line: 2 kV (line/earth), 1 kV (line/line), 1 kV data line		EN 61000-4-5 surge voltage
EN 61000-4-6 conducted immunity	10 V (150 kHz – 8 MHz)		10 V (150 kHz – 8 MHz)		10 V (150 kHz – 8 MHz)			10 V (150 kHz – 8 MHz)		10 V (150 kHz – 8 MHz)		10 V (150 kHz – 8 MHz)		10 V (150 kHz – 8 MHz)		10 V (150 kHz – 8 MHz)		10 V (150 kHz – 8 MHz)		EN 61000-4-6 conducted immunity
EMC emitted immunity																				**EMC emitted immunity**
FCC CFR47 Part 15	FCC CFR47 Part 15 Class A		FCC CFR47 Part 15 Class A		FCC CFR47 Part 15 Class A			FCC CFR47 Part 15 Class A		FCC CFR47 Part 15 Class A		FCC CFR47 Part 15 Class A		FCC CFR47 Part 15 Class A		FCC CFR47 Part 15 Class A		FCC CFR47 Part 15 Class A		FCC CFR47 Part 15
EN 55022	EN 55022 Class A		EN 55022 Class A		EN 55022 Class A			EN 55022 Class A		EN 55022 Class A		EN 55022 Class A		EN 55022 Class A		EN 55022 Class A		EN 55022 Class A		EN 55022
Approvals																				**Approvals**
Safety of industrial control equipment	cUL 508 (E175531)		cUL 508 (E175531)		cUL 508 (E175531)		cUL 508 (E175531)	cUL 508 (E175531)		cUL 508 (E175531)		cUL 508 (E175531)		cUL 508 (E175531)		cUL 508 (E175531)		cUL 508 (E175531)		Safety of industrial control equipment
EMV regulations for assembly in vehicles							Approval according to motor vehicle directive 2005/83/EG (e1)													EMV regulations for assembly in vehicles
Scope of delivery and accessories																				**Scope of delivery and accessories**
Scope of delivery	Device, terminal block, operating manual		Device, terminal block, operating manual		Device, terminal block, operating manual			Device, terminal block, operating manual		Device, terminal block, operating manual		Device, terminal block, operating manual		Device, terminal block, operating manual		Device, terminal block, operating manual		Device, terminal block, operating manual		Scope of delivery
Accessories to order separately	Rail power supply RPS 30, RPS 80 EEC or RPS 120 EEC, 19" installation frame		Rail power supply RPS 30, RPS 80 EEC or RPS 120 EEC, 19" installation frame		Rail power supply RPS 30, RPS 80 EEC or RPS 120 EEC, 19" installation frame			Rail power supply RPS 30, RPS 80 EEC or RPS 120 EEC, 19" installation frame		Rail power supply RPS 30, RPS 80 EEC or RPS 120 EEC, 19" installation frame		Rail power supply RPS 30, RPS 80 EEC or RPS 120 EEC, 19" installation frame		Rail power supply RPS 30, RPS 80 EEC or RPS 120 EEC, 19" installation frame		Rail power supply RPS 30, RPS 80 EEC or RPS 120 EEC, 19" installation frame		Rail power supply RPS 30, RPS 80 EEC or RPS 120 EEC, 19" installation frame		Accessories to order separately