Booklet

One-page information

HIRSCHMANN

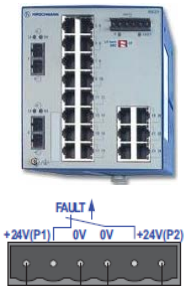
A BELDEN BRAND

Product Overview

HUS Version Nov 18, 2014

Unmanaged Switches

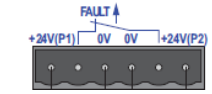
The configurable **Unmanaged RS20 and RS30** family of switches are ideal for applications that require more than the basic SPIDERs.
Port densities include: 8x, 9x, 16x, 17x, 24x and 25x ports in a compact DIN rail switch housing.
Up to 3x fiber ports, redundant power inputs via dual 24 VDC, fault relay (triggerable by loss of one power input and/or the loss of the link(s) specified).



The **Unmanaged OCTOPUS** switches are designed for use at the field level with automation networks, while offering IP67, IP65 or IP54 (depending on specific model),

The OCTOPUS resist the effects of mechanical stress, humidity, dirt, dust, shock and vibrations.
Unmanaged OCTOPUS switches ar available with the 10-port version also being available with PoE ports (24 VDC or 110 VAC powered)

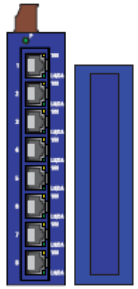
The **RS2 Series** of unmanaged switches offer advanced features such as redundant power inputs and most offer fault relay (triggerable by loss of power and/or port-link).
Standard features include 10/100 ports, Class 1 Div 2, optional -40 to +70°C and MTBF exceeding 100 years



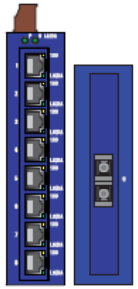
SPIDER and SPIDER II family of switches provides users with an economical, yet highly Reliable hardened Ethernet switch.
Models are avaiable with fiber (MM/SM), Twisted Pair, FE- and GE-ports, PoE ports.
All SPIDER switches are extremely compact and have LED indicators that provide information on power status, link status and data rate

SPIDER Unmanaged Switches

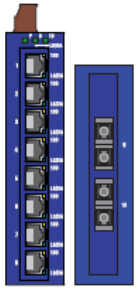
EEC: -40° C to +70° C



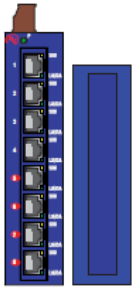
SPIDER II 8TX
SPIDER II 8TX EEC



SPIDER II 8TX/1FX EEC
SPIDER II 8TX/1FX-SM EEC

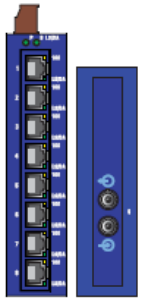


SPIDER II 8TX/2FX EEC
SPIDER II 8TX/2FX-SM EEC

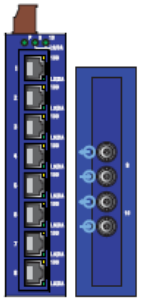


SPIDER II 8TX PoE

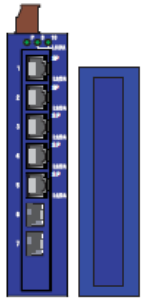
SPIDER II 16TX EEC
SPIDER II 16TX/2DS-S EEC



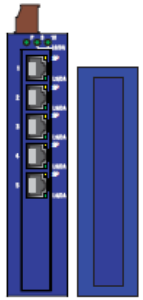
SPIDER II 8TX/1FX-ST EEC



SPIDER II 8TX/2FX-ST EEC

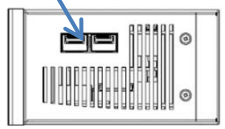


SPIDER II Giga 5T/2S EEC



SPIDER II Giga 5T EEC

SPIDER II 16TX/2DS-S EEC
(Bottom view)



2 x Fiber Uplink Ports
(100/1000MBit/s SFP slot)

		10/100/1000 BASE-TX RJ45	10/100 BASE-TX, RJ45	10/100 BASE-TX PoE ports incl.	Fiber - Multimode 100 BASE-FX, D-SC	Fiber – Multimode 100 BASE-FX, ST/BFOC	Fiber – Singlemode 100 BASE-FX, D-SC	Fiber – SFP slots 1000 BASE-FX	Jumbo frame support with up to 9014 Byte user data	QoS support IEEE 802.1D
SPIDER 1TX/1FX	943 890-001		1		1					
SPIDER 1TX/1FX EEC	943 927-001		1		1					
SPIDER 1TX/1FX-SM	943 891-001		1				1			
SPIDER 1TX/1FX-SM EEC	843 928-001		1				1			
SPIDER 3TX-TAP	943 899-001		3							
SPIDER 4TX/1FX	943 221-001		4		1					
SPIDER 4TX/1FX EEC	943 221-101		4		1					
SPIDER 4TX/1FX–ST EEC	943 914-001		4			1				
SPIDER 4TX/1FX-SM EEC	943 880-001		4				1			
SPIDER 5TX	943 824-002		5							
SPIDER 5TX EEC	943 824-102		5							
SPIDER 8TX	943 376-001		8							
SPIDER 8TX EEC	943 376-201		8							
SPIDER II 8TX	943 957-001		8							
SPIDER II 8TX EEC	943 958-001		8							
SPIDER II 8TX PoE	942 008-001		4	4						
SPIDER II 8TX/1FX EEC	943 958-111		8		1					
SPIDER II 8TX/1FX-SM EEC	943 958-131		8				1			
SPIDER II 8TX/2FX EEC	943 958-211		8		2					
SPIDER II 8TX/2FX-SM EEC	943 958-231		8				2			
SPIDER II 8TX/1FX-ST EEC	943 958-121		8			1				
SPIDER II 8TX/2FX-ST EEC	943 958-221		8			2				
SPIDER II 16TX EEC	942 120-001	16								
SPIDER II 16TX/2DS-S EEC	942 121-001	16						2(DS)		
SPIDER II Giga 5T EEC	943 962-001	5								
SPIDER II Giga 5T/2S EEC	943 963-002	5						2		
SPIDER II Giga 5T EEC Jumbo	943 962-202	5							✓	
SPIDER II Giga 5T/2S EEC Jumbo	943 963-202	5						2	✓	
SPIDER II Giga 5T EEC PRO	943 962-102	5								✓
SPIDER II Giga 5T/2S EEC PRO	943 963-102	5						2		✓

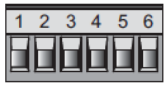
SPIDER Unmanaged POE / PoE+ (PSE and PD) Switches

PSE – Power Sourcing Equipment / PD – Powered Device

PSE

SPIDER Giga 2TX PoE EEC **942 059-001**

PoE / PoE+ injector (802.3 af and 802.3at), redundant 24/48VDC inputs (33W)

Figure	Pin assignment on the device		Specification of the operating voltage
	1	Power supply connection 2, 0 V, minus terminal	Rated voltage range DC 24 V ... 48 V Voltage range DC incl. maximum tolerances 21 V ... 53 V
	2	Power supply connection 2, 24/48 V, plus terminal	
	3	–	
	4	–	
	5	Power supply connection 1, 0 V, minus terminal	
	6	Power supply connection 1, 24/48 V, plus terminal	

PD

SPIDER 5TX PD EEC **942 051-001**

PoE powered switch. 1x 10/100 RJ45 PoE input, 4x 10/100 RJ45 (non-PoE) ports

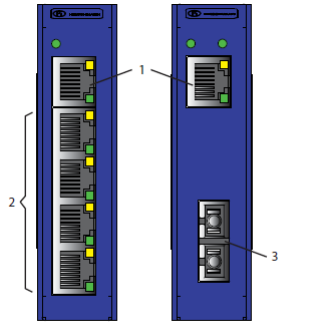
SPIDER 1TX/1FX-MM PD EEC **942 051-002**

PoE powered media converter. 1x 10/100 RJ45 PoE input, 1x multimode (SC) port

SPIDER 1TX/1FX-SM PD EEC **942 051-003**

PoE powered media converter. 1x 10/100 RJ45 PoE input, 1x singlemode (SC) port

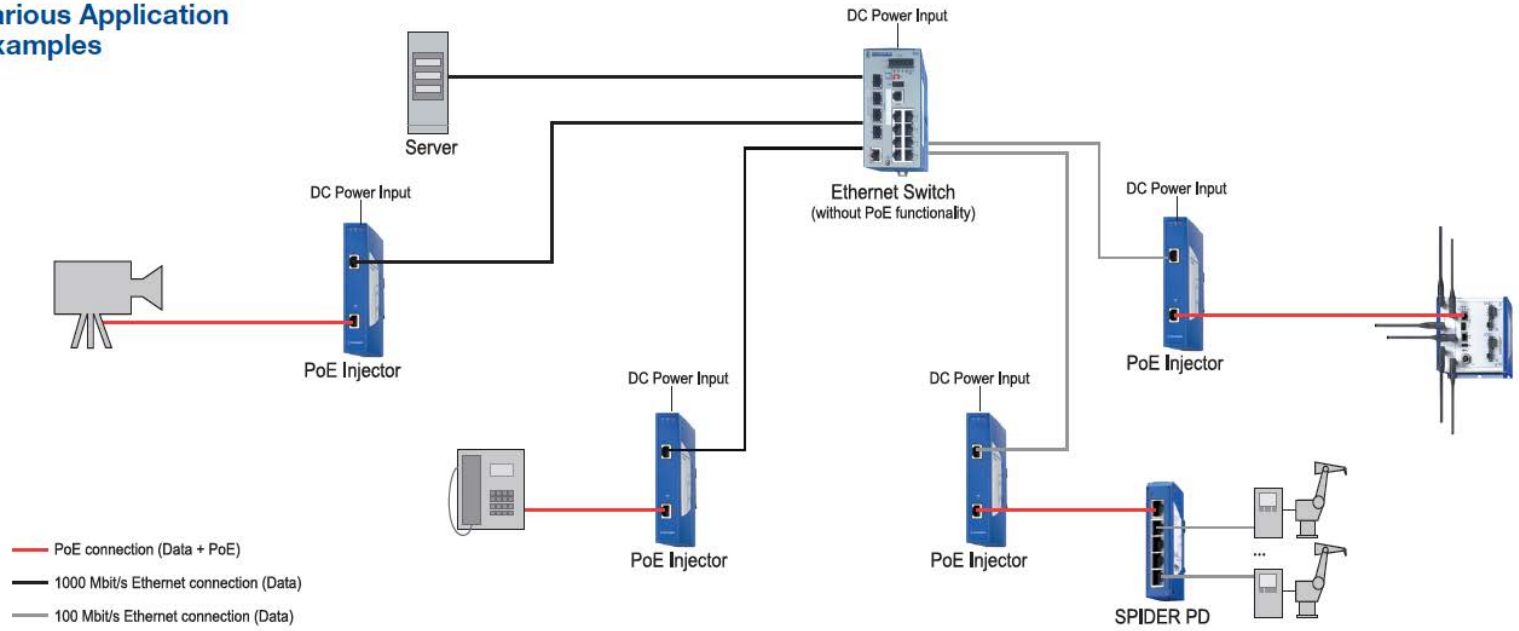
1: Port 1 10/100 Mbit/s PoE PD port



SPIDER 5TX PD EEC

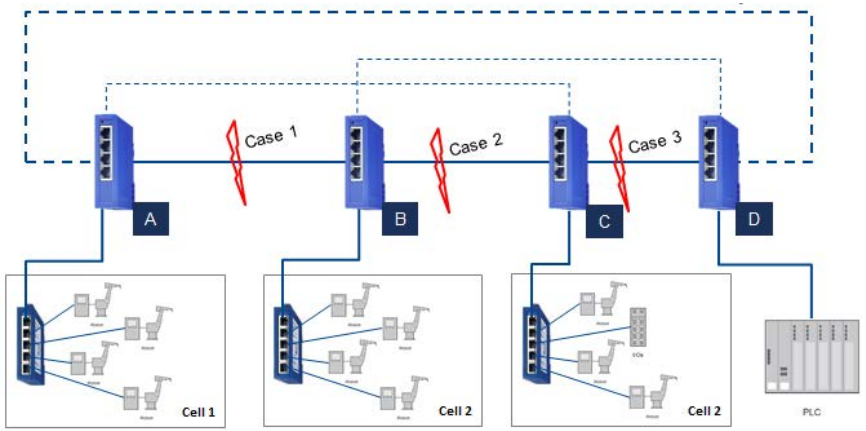
SPIDER 1TX/1FX-MM PD EEC
SPIDER 1TX/1FX-SM PD EEC

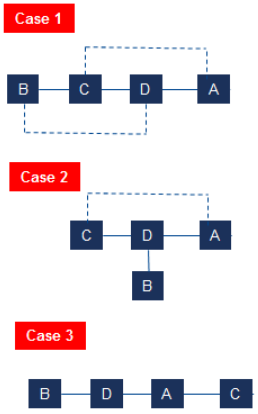
Various Application Examples



GECKO Light-Managed Switch

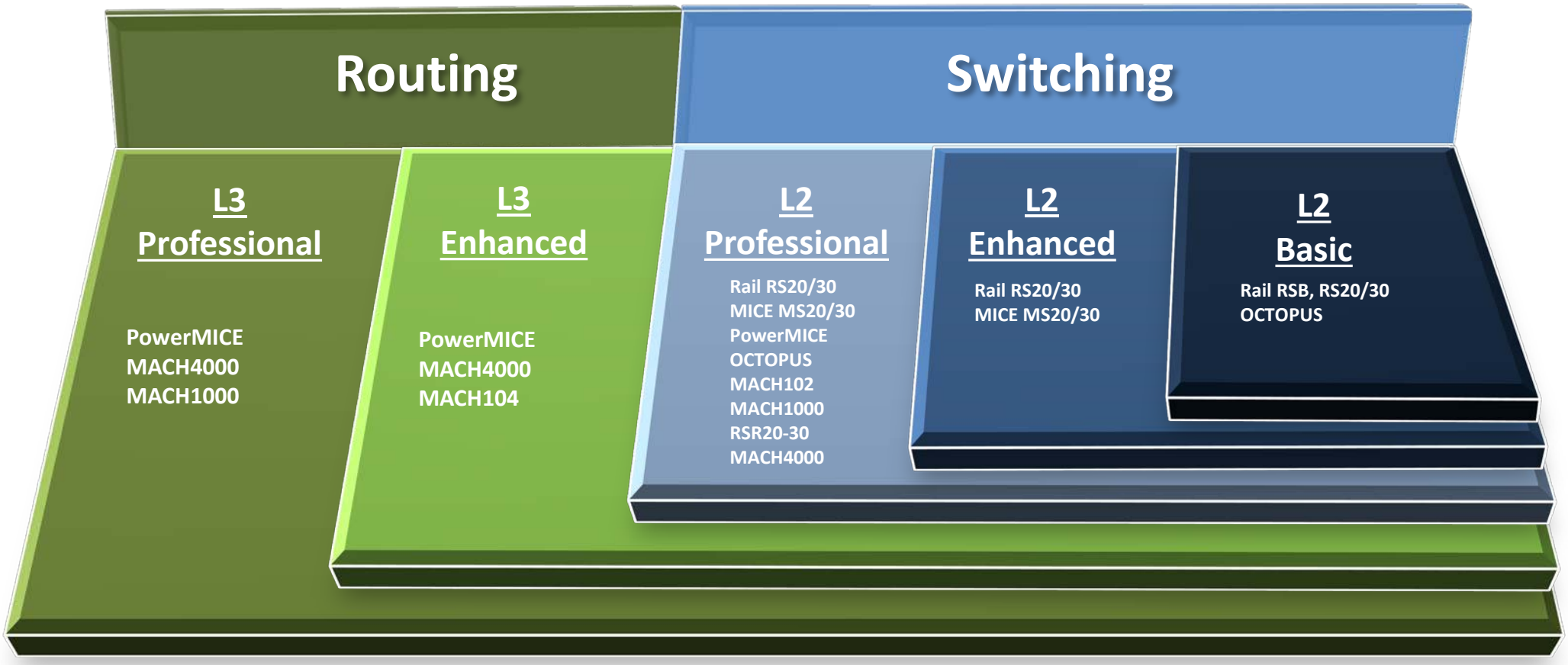
- **Entry-level managed (web / SNMP) switch with cost-effective feature-set**
- **4 x 10/100 RJ45**
- **Compact SPIDER 5TX housing (25mm x 114mm x 79mm)**
- **0°C to +60°C operation**
- **24V DC**
- **CE, FCC, cUL 508**
- **Order number: 942 104-001**





- **Management**
  - SNMP v1, v2c, v3 (security level: authNoPriv)
  - Web based management (HTTPS)
- **Diagnostic**
  - Device status indication (LEDs)
  - RMON (1) statistics
  - Simple interface statistics (MIB-2)
  - Error logging local → Log-File
  - Topology Discovery according to IEEE 802.1AB (LLDP)
- **Configuration**
  - BOOTP/DHCP
  - DHCP client, option 82
  - Via HiDiscovery
  - Via Industrial HiVision
- **Security**
  - HTTPS
  - SNMPv3 (authNoPriv)
  - Possibility to disable each port
- **Redundancy**
  - RSTP according to IEEE 802.1D-2004
- **Filter**
  - Store and Forward switching
  - TOS/DSCP prioritization (Mapping TOS/DSCP to 802.1D/p)
  - Prioritization through 4 queues
  - Static unicast/multicast address entries (up to 100)

Software Classic for Hardware Platform 4



Detail information page 62 - ….

Software Overview

RS20 / RS22 Switches w/ 100 meg max ports and opt. PoE

RS20						D			H	H	XX.X
1. Design	2. FE-ports	3. GE-ports	4. Uplink port 1	5. Uplink port 2	6. Temperature	7. Power Supply	8. Approvals	9. Software	10. Configuration	11. OEM type	12. Software release

Optional

1. Design

RS20	All ports 100 Mbit/s max
RS22	Ports include 4x PoE

2. FE Ports

04	4x 10/100	17	17x 10/100
08	8x 10/100	24	24x 10/100
09	9x 10/100	25	25x 10/100
16	16x 10/100		

3. GE Ports

00	No Gigabit ports

4./5. Uplink

T1	RJ45 - 10/100 RJ45
M2	Multimode SC – 100 Mbit/s 1300nm; 50/125µm; 0 – 8 dB; 0-5km; 1.0dB/km; 800MHz*km
M4	Multimode ST – 100 Mbit/s 1300nm; 50/125µm; 0 – 8 dB; 0-5km; 1.0dB/km; 800MHz*km
S2	Singlemode SC – 100 Mbit/s 1300nm; 9/125µm; 0 – 16 dB; 0-30km; 0,4dB/km; 3,5ps/(nm*km)
S4	Singlemode ST – 100 Mbit/s 1300nm; 9/125µm; 0 – 16 dB; 0-30km; 0,4dB/km; 3,5ps/(nm*km
E2	Singlemode+ SC– 100 Mbit/s 1300nm; 9/125µm; 7 – 29 dB; 20-65km; 0,4dB/km; 3,5ps/(nm*km)
L2	Singlemode LH SC– 100 Mbit/s 1550nm; 9/125µm; 7– 29 dB; 24-86km; 0,3dB/km; 19ps/(nm*km)
G2	Singlemode LH+ SC – 100 Mbit/s 1550nm; 9/125µm; 14-47dB; 67-176km; 0,25dB/km; 19ps/(nm*km)

4. & 5. For Dual Uplink Ports

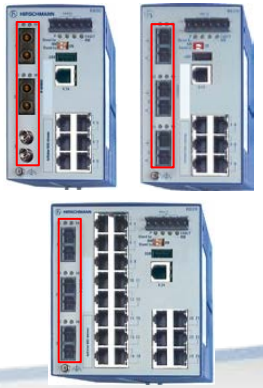
4. & 5. For Triple Uplink Ports

4. Ports 1 & 2	5. Port 3
MM 2x above M2	M2 M4
NN 2x above M4	S2 S4
VV 2x above S2	E2 L2
UU 2x above S4	G2
EE 2x above E2	

Configurator

Dual Uplinks:
Single Port 1 + Single Port 2

Triple Uplinks:
Dual Port 1 + Single Port 2



6. Temp. Rating

S	Standard (0-60 deg C)
T	Extended (-40 to +70 deg C)
E	Extended (T-rating + conformal coating)

7. Voltage

D	**RS20 –** 9.6 to 60VDC or 18 to 30 VAC
P	**RS22 –** 47 to 52 VDC

8. Approvals & Certs.

A	cUL 508, cUL 1604 class 1 Div.2
H	"A" + GL, IEC 61850-3, IEEE1613, EN50121-4
B	"H" + ATEX 100a, Zone 2

9. OS Type

P	Professional ("E" + security, extended diagnosis and redundancy
E	Enhanced (web/SNMP mgmt access, diagnosis, filters, redundancy
U	Unmanaged

10. Config.

H	Standard/Default
X	Customer specific
P	PROFINET pre-settings
E	EtherNet/IP presettings

11. OEM

H	Standard
H	Customer specific
F	Metal enclosure (RS22)

12. Software

XX.X	Newest software

RS30 / RS32 Switches w/ 2x Gigabit, balance 100 meg ports, opt. PoE

RS30						D			H	H	XX.X
1. Design	2. FE-ports	3. GE-ports	4. Uplink port 1	5. Uplink port 2	6. Temperature	7. Power Supply	8. Approvals	9. Software	10. Configuration	11. OEM type	12. Software release

Optional

Configurator

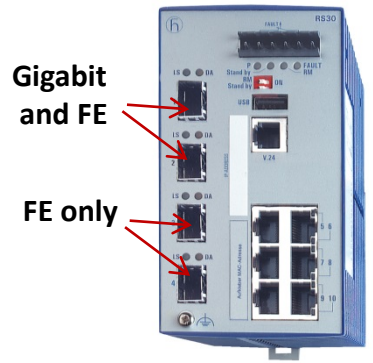
1. Design
- RS30 All ports 100 Mbit/s max
- RS32 Ports include 4x PoE

2. FE Ports
- 08 8x 10/100
- 16 16x 10/100
- 24 24x 10/100

3. GE Ports
- 02 2 Gigabit ports

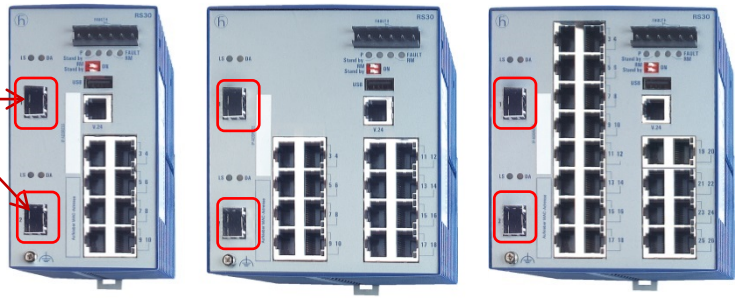
4. Uplink Port 1
- T1 RJ45 - 10/100/1000 Mbit/s
- O6 SFP socket – 1000 Mbit/s
- OO 2x 100/1000 Mbit/s SFP sockets
  (OO in this field must use ZZ in next field)

Port 2
- T1 RJ45 - 10/100/1000 Mbit/s
- O6 SFP socket – 1000 Mbit/s
- ZZ 2x 100 Mbit/s SFP sockets
  (ZZ in this field must use OO in previous field)



RS30 with double SFP slot
>>> OO ZZ <<<

Configurable 10/100/1000 RJ45 and/or Gigabit-only SFP



RS30 with 2 Gigabit + 8, 16, 24 10/100 BASE-TX ports

6. Temp. Rating
- S Standard (0-60 deg C)
- T Extended (-40 to +70 deg C)
- E Extended (T-rating + conformal coating)

7. Voltage
- D **RS30 –** 9.6 to 60 VDC or 18 to 30 VAC
- P **RS32 –** 47 to 52 VDC

8. Approvals & Certs.
- A cUL 508, cUL 1604 class 1 Div.2
- H "A" + GL, IEC 61850-3, IEEE1613, EN50121-4
- B "H" + ATEX 100a, Zone 2

9. OS Type
- P Professional ("E" + security, extended diagnostics and redundancy
- E Enhanced (web/SNMP mgmt access, diagnostics, filters, redundancy)
- U Unmanaged

10. Config.
- H Standard/Default
- X Customer specific
- P PROFINET pre-settings
- E EtherNet/IP presettings

11. OEM
- H Standard
- H Customer specific
- F Metal enclosure (RS22)

12. Software
- XX.X Newest software

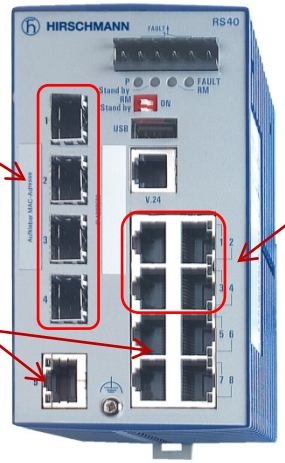
RS40 Switches w/ 9x Gigabit (4 of which are RJ45/SFP combo ports)

RS20	00	09	CC	CC		D			H	H	XX.X
1. Design	2. FE-ports	3. GE-ports	4. Uplink port 1	5. Uplink port 2	6. Temperature	7. Power Supply	8. Approvals	9. Software	10. Configuration	11. OEM type	12. Software release

Optional

1. Design	RS20	All ports 100 Mbit/s max
	RS22	Ports include 4x PoE
2. FE Ports	00	FE integrated into Gigabit ports
3. GE Ports	09	9x Gigabit ports • 5x 10/100/1000 Mbit/s RJ45 • 4x RJ45/SFP combo ports (SFP sockets support 100 and 1000 Mbit/s SFPs)

Configurator

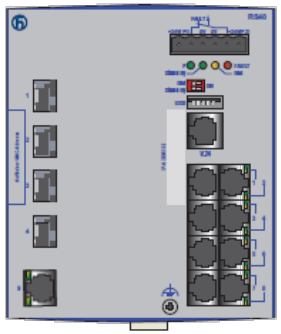


Ports 1 – 4
Gigabit and FE SFP
(combo ports)

Ports 1 – 4
10/100/1000 RJ45
(combo ports)

Ports 5 – 9
10/100/1000 RJ45

Note larger enclosure size for E and T temp variants



6. Temp. Rating	S	Standard (0-60 deg C)
	T	Extended (-40 to +70 deg C)
	E	Extended (T-rating + conformal coating)
7. Voltage	D	9.6 to 60VDC or 18 to 30 VAC
8. Approvals & Certs.	A	cUL 508, cUL 1604 class 1 Div.2
	H	"A" + GL, IEC 61850-3, IEEE1613, EN50121-4
	B	"H" + ATEX 100a, Zone 2
9. OS Type	P	Professional ("E" + security, extended diagnostics and redundancy
	E	Enhanced (web/SNMP mgmt access, diagnostics, filters, redundancy)
10. Config.	H	Standard/Default
	X	Customer specific
	P	PROFINET pre-settings
	E	EtherNet/IP presettings
11. OEM	H	Standard
	H	Customer specific
12. Software	XX.X	Newest software

MS20 / MS30 (MICE) Modular Switch Blackplanes

MS30		02					H	H	xx.x
1. Design	2. FE-ports	3. GE-ports	4. Temperature	5. Power Supply	6. Approvals	7. Software	8. Configuration	9. OEM type	10. Software release

Optional

1. Design

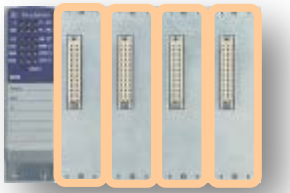
MS20	All ports 100 Mbit/s max
MS30	Ports include 4x PoE
MS4128	OBSOLETE – See MSP Series

2. FE Ports

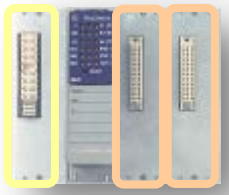
08	8x 10/100
16	16x 10/100
24	24x 10/100

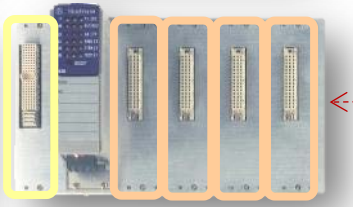
3. GE Ports

00	Gigabit ports (MS20 only)
02	Gigabit ports (MS30 only)



MS20-08 and MS20-1600





MS30-0802 and MS30-1602

Hot-plug MB-2T backplane extension accessory (delivered with MSx0-24xx or ordered separately). Only compatible with MSx0-16, to make Mx-24.

Media module slot to left of the head module supports 2x Gigabit.

Media module slot to right of head module have max speed of 100 Mbit/s

4. Temp. Rating

S	Standard (0-60 deg C)
T	Extended (-40 to +70 deg C)
E	Extended (T-rating + conformal coating)

5. Voltage

A	18 – 32V DC
C	18 – 60V DC / 2x 4-pin plug
E	18 – 60V DC / 1x 6-pin plug

6. Approvals & Certs.

Z	cCE
Y	Ce, cUL 508
A	"Y" + ISA 12.12.01 C1D2
B	"A" + ATEX Zone2
E	CE, UL 508, GL, EN 50121-4
H	"A" + "E" + IEC61850-3, IEEE 1613

7. OS Type

P	Professional ("E" + security, extended diagnostics and redundancy
E	Enhanced (web/SNMP mgmt access, diagnostics, filters, redundancy)

8. Config.

H	Standard/Default
X	Customer specific

9. OEM

H	Standard
H	Customer specific

10. Software

XX.X	Newest software

MS20 / MS30 (MICE) Media Modules

MM2	0	-							HH
1. Product	2. Technology		3. Port Type 1	4. Port Type 2	5. Port Type 3	6. Port Type 4	7. Temp. range	8. Approvals	9. OEM type

2. Technology

0	Standard	~~1 Realtime~~	
2	PoE	3	Precision Time Protocol (PTP)
4	Digital IO		

3. - 6. Ports 1-4

Z6	SFP slot Fiber (100Mbit/s)
G2	Singlemode Fiber Long Haul+: SM LH+ /SC (100Mbit), 14-47dB (67-176km); 1550nm
L2	Singlemode Fiber Long Haul: SM LH /SC (100Mbit), 7-29dB (24-86km); 1550nm
S2	Singlemode Fiber: SM /SC (100Mbit), 0-16dB (0-30km); 1300nm
S4	Singlemode Fiber: SM /ST (100Mbit), 0-16dB (0-30km); 1300nm
M2	Multimode Fiber: MM /SC (100Mbit), 0-8dB (0-5km); 1300nm
M3	Multimode Fiber /MM /MTRJ (100Mbit), 0-8dB (0-5km); 1300nm
M4	Multimode Fiber: MM /ST(100Mbit), 0-8dB (0-5km); 1300n
F4	Multimode Fiber :MM /ST(10Mbit), 0-9,5dB (0-2km); 850nm
P9	Plastic optic fiber POF/SCRJ(100Mbit), 0-7dB (0-140m); 650nm
T1	Twisted Pair: RJ45 (10/100 Mbit)
T5	Twisted Pair: M12 (10/100 Mbit)
A8	AUI: DSub-male (10 Mbit)
99	Empty

7. Temp. Rating

S	Standard (0-60 deg C)	T	Extended (-40 to +70 deg C)
E	Extended (T-rating + conformal coating)		

6. Approvals & Certs.

Z	cCE
Y	Ce, cUL 508
A	"Y" + ISA 12.12.01 C1D2
B	"A" + ATEX Zone2
E	CE, UL 508, GL, EN 50121-4
S	CE, UL 508, GL, IEC61850-3, IEEE 1613, EN50121-4
H	"A" + "E" + IEC61850-3, IEEE 1613

Due to changes of the standards, some of the approval ratings may no longer be met (ATEX Zone 2, ISA 12.12.01 class1 div.2, IEC 61850, IEEE1613). Recertification is in progress. Please check latest specifications and datasheets.

Gigabit modules for MS4128-xx and MS30

MM4- 2TX/SFP 943 622-001
Now MM30-07079999 xx
2x Gigabit RJ45/SFP Combo Ports

MM4- 4TX/SFP 943 010-001
Now: MM30-07070707...
4x Gigabit RJ45/SFP Combo Ports
(if using with MS30, only 2 ports active)

Any MM2xx or MM3xx media module can be plugged into any MSxx MICE backplane

MS4128 / PowerMICE Obsolescence and Product Migration

Layer 2

MS4128-L2P	943 009-102 ----->	MSP30-24040SCY999HHE2A
MS4128-L2P ATEX	943 009-101 ----->	MSP30-24040SCWY99HHE2A
MS4128-L2P EEC	943 009-103 ----->	MSP30-24040TCWY99HHE2A

Layer 3

MS4128-L3E	943 009-202 ----->	MSP30-24040SCY9URHHE3A
MS4128-L3E ATEX	943 009-201 ----->	MSP30-24040SCWYURHHE3A
MS4128-L3E EEC	943 009-203 ----->	MSP30-24040TCY9URHHE3A
MS4128-L3P	943 009-302 ----->	MSP30-24040SCY9MRHHE3A
MS4128-L3P ATEX	943 009-301 ----->	MSP30-24040SCWYMRHHE3A
MS4128-L3P EEC	943 009-303 ----->	MSP30-24040TCY9MRHHE3A

Note:

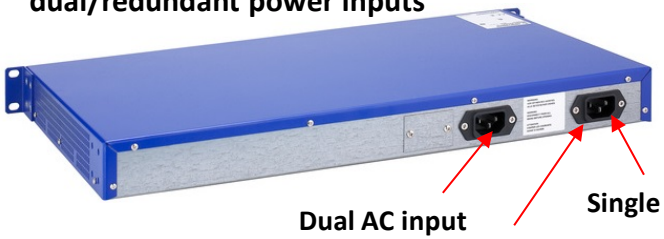
- *Above cross is to 7-slot MSP. Backplanes with fewer media module slots are available.*
- *MS20/30/4128 media modules are not compatible with the MSP's media modules*
- *The MSP Series has more configuration options, including number of media module slots, PoE and other approvals. Please use the configuration tool to ensure that the resulting cross/part meets the application.*

MACH102 Fanless Fixed & Modular Rack Mount Switches

All MACH102 models have 2x Gig RJ45/SFP combo ports

- SFP sockets accept 100 and Gig SFPs
- RJ45 ports are 10/100/1000 Mbit/s

"R" in part number suffix adds dual/redundant power inputs



Redundant on left, standard on right

Fixed Port Switches (-F and -FR)

MACH102-8TP-F **943 969-201**
Fixed, not modular w/ continuous front plate, 8x 10/100 RJ45 + 2x Gig RJ45/SFP combo ports (SFP socket supports 100 or Gig SFPs), **single** 100-240 VAC input

MACH102-8TP-FR **943 969-301**
Fixed, not modular w/ continuous front plate, 8x 10/100 RJ45 + 2x Gig RJ45/SFP combo ports (SFP socket supports 100 or Gig SFPs), **dual** 100-240 VAC input

MACH102-24TP-F **943 969-401**
Fixed, not modular w/ continuous front plate, 24x 10/100 RJ45 + 2x Gig RJ45/SFP combo ports (SFP socket supports 100 or Gig SFPs), **single** 100-240 VAC input

MACH102-24TP-FR **943 969-501**
Fixed, not modular w/ continuous front plate, 8x 10/100 RJ45 + 2x Gig RJ45/SFP combo ports (SFP socket supports 100 or Gig SFPs), **dual** 100-240 VAC input

MACH102 switches with -F are not modular. Those with –R have redundant power inputs

Modular Port Switch Chassis

MACH102-8TP **943 969-001**
Modular w/ 2x slots for media modules with cover plates included, 8x 10/100 RJ45 + 2x Gig RJ45/SFP combo ports (SFP socket supports 100 or Gig SFPs), **single** 100-240 VAC input

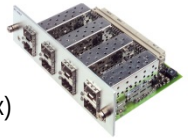
MACH102-8TP-R **943 969-101**
Modular w/ 2x slots for media modules with cover plates included, 8x 10/100 RJ45 + 2x Gig RJ45/SFP combo ports (SFP socket supports 100 or Gig SFPs), **dual** 100-240 VAC input

Media Expansion Modules

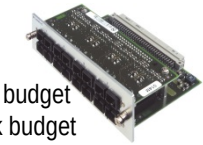
For modular (non-F) versions

M1-8TP-RJ45-PoE **942 028-001**
8x PoE / PoE+
If PoE+ is used, only 4 Ports will be supported due to 120W limitation per expansion module.
Module requires separate external 48VDC power supply (46 - 57VDC), >50VDC for PoE+.

M1-8TP-RJ45 **943 970-001**
8x 10/100 BASE-TX



M1-8SFP **943 970-301**
8x empty 100BASE-FX SFP sockets
Distance see SFP transceivers (M-FAST SFP-xx)



M1-8MM-SC **943 970-101**
8x multimode100BASE-FX, SC socket
Distance MM (50/125µm): 0-5000m, 11 dB link budget
MM (62.5/125µm): 0-4000m, 8 dB link budget

M1-8SM-SC **943 970-201**
8x singlemode 100BASE-FX, SC socket
Distance SM (9/125µm): 0-32.5km, 16 dB link budget

MACH104 All-Gig Rack Mount Switches – L2, L3 and PoE / PoE+

24x Gigabit (4 are Combo)

MACH104-20TX-F 942 003-001

MACH104-20TX-F-L3P 942 003-002

- 4x Gig RJ45/SFP combo ports (SFP socket supports 100 or Gig SFPs) + 20x GE RJ45, single 100-240 VAC input

MACH104-20TX-FR 942 003-101

MACH104-20TX-FR-L3P 942 003-102

- 4x Gig RJ45/SFP combo ports (SFP socket supports 100 or Gig SFPs) + 20x GE RJ45, dual 100-240 VAC input

20x Gigabit (4 are Combo) and 4x Gigabit PoE

MACH104-20TX-F-4PoE 942 003-201

MACH104-20TX-F-4PoE-L3P 942 003-202

- 4x Gig RJ45/SFP combo ports (SFP socket supports 100 or Gig SFPs) + 20x GE RJ45 (four of which are PoE, IEEE 802.3af).
- PoE power supply integrated, single 100-240 VAC input

16x PoE /PoE+

MACH104-16TX-PoEP 942 030-001

MACH 104-16TX-PoEP-L3P 942 030-002

- 4x Gig RJ45/SFP combo ports (SFP socket supports 100 or Gig SFPs) + 16x GE PoE/PoE+ RJ45.
- PoE / PoE+ power supply integrated, single 100-240 VAC input (fan inside the power supply)

MACH104-16TX-PoEP-R 942 026-001

MACH104-16TX-PoEP-R-L3P 942 026-002

- 4x Gig RJ45/SFP combo ports (SFP socket supports 100 or Gig SFPs) + 16x GE PoE/PoE+ RJ45.
- PoE / PoE+ power supply integrated, dual load-sharing 100-240 VAC inputs (fan inside the power supply)

MACH104-16TX-PoEP-E **942 027-001**

MACH104-16TX-PoEP-E-L3P **942 027-002**

- 4x Gig RJ45/SFP combo ports (SFP socket supports 100 or Gig SFPs) + 16x GE PoE/PoE+ RJ45.
- Fanless, but requires external 48VDC (44-57VDC) for PoE or 54VDC (52-57VDC) if using any PoE+

16x PoE /PoE+ and 2x 10 Gig

MACH104-16TX-PoEP+2X 942 031-001

MACH104-16TX-PoEP+2X-L3P 942 031-002

- 2x 10Gig XFP + 4x Gig RJ45/SFP combo ports (SFP socket supports 100 or Gig SFPs) + 16x GE PoE/PoE+ RJ45.
- PoE / PoE+ power supply integrated, single 100-240 VAC input (fan inside the power supply)

MACH104-16TX-PoEP+2X-R 942 033-001

MACH104-16TX-PoEP+2X-R-L3P 942 033-002

- 2x 10Gig XFP + 4x Gig RJ45/SFP combo ports (SFP socket supports 100 or Gig SFPs) + 16x GE PoE/PoE+ RJ45.
- PoE / PoE+ power supply integrated, dual load-sharing 100-240 VAC inputs (fan inside the power supply)

MACH104-16TX-PoEP+2X-E 942 032-001

MACH104-16TX-PoEP+2X-E-L3P 942 032-002

- 2x 10Gig XFP + 4x Gig RJ45/SFP combo ports (SFP socket supports 100 or Gig SFPs) + 16x GE PoE/PoE+ RJ45.
- Fanless, but requires external 48VDC (44-57VDC) for PoE or 54VDC (52-57VDC) if using any PoE+

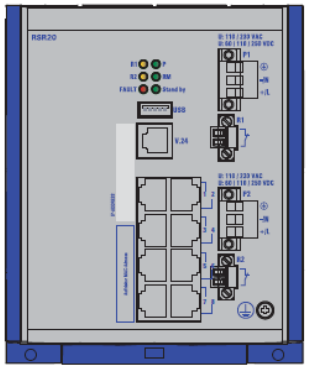
NOTE: MACH104-16TX-PoEP…. Maximum number of Powered Devices (PDs)

- PoE / IEEE 802.3af – 16 × PD class 0 (15.4 W)
- PoE+ / IEEE 802.3at – 8 × PD class 4 (30 W)
- Mixed PoE / PoE+ - Maximum of 240W
- For even heat dissipation, it is recommend to distribute the PoE power equally between the two port groups (ports 5 to 12 and ports 13 to 20).

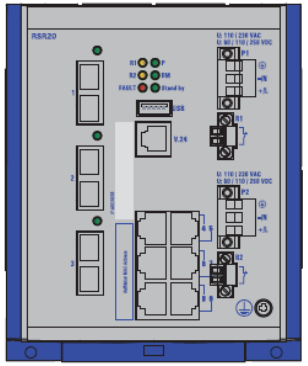
MACH104-16TX-PoEP+2X….

MACH104-16TX-PoEP….

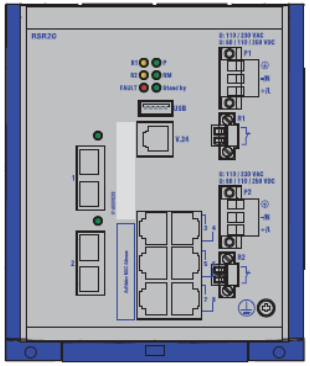
RSR Über-Rugged™ DIN Rail Mount Switches



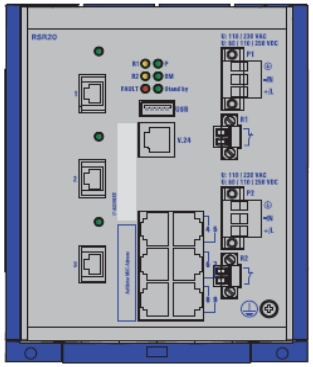
RSR20 08 00 T1T1T1
8x 10/100BASE-TX(RJ45)



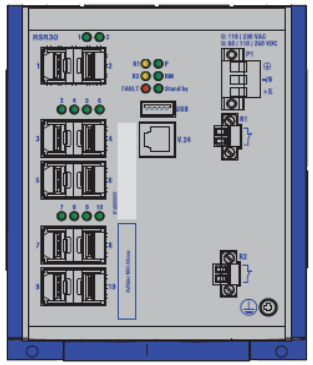
RSR20 09 00 MMM2T1
3x 100BASE-FX(SC)
6x 10/100BASE-TX(RJ45)



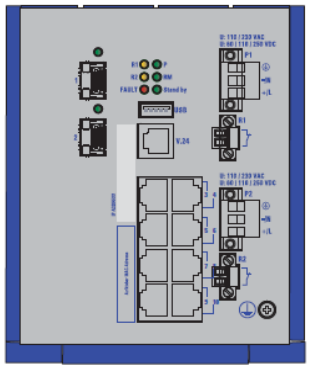
RSR20 08 00 M2M2T1
2x 100BASE-FX(SC)
6x 10/100BASE-TX(RJ45)



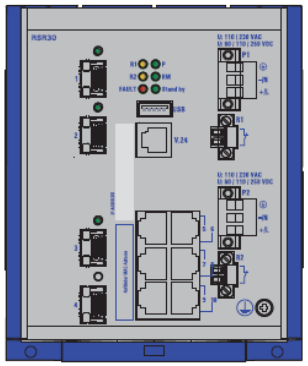
RSR20 09 00 JJM3T1
3x 100BASE-FX(MTRJ)
6x 10/100BASE-TX(RJ45)



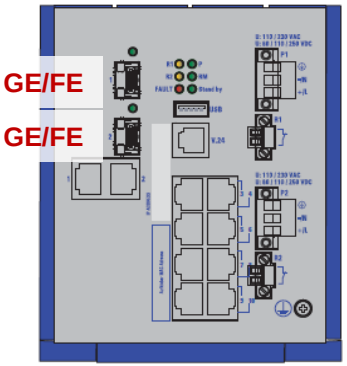
RSR30 07 03 00 06 Z6
3x SFP slot (GE)
7x SFP slot (FE)



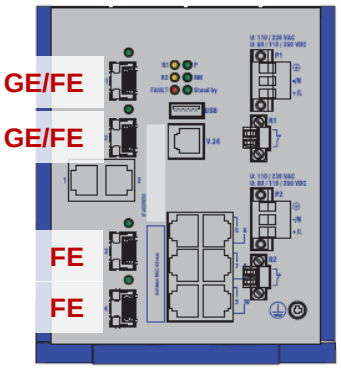
RSR30 08 02 06 06 T1
2x SFP slot (GE)
8x 10/100BASE-TX(RJ45)



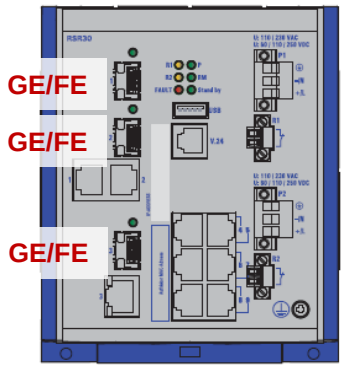
RSR30 08 02 00ZZT1
2x SFP slot (GE)
2x SFP slot (FE)
6x 10/100BASE-TX(RJ45)



RSR30 08 02 0707T1
2x GE/FE RJ45/SFP Combo port
8x 10/100BASE-TX(RJ45)



RSR30 08 02 CCZZT1
2x GE/FE RJ45/SFP Combo port
2x SFP slot (FE)
6x 10/100BASE-TX(RJ45)



RSR30 06 03 CC07T1
3x GE/FE RJ45/SFP Combo port
6x 10/100BASE-TX(RJ45)

Note: All combo ports support GE and FE SFPs

RSR Configuration

RSR20	-								H	P	H	H	xx.x
1. Product		3. 10/100 Mbit/s ports	4. 10/100/1000 Mbit/s ports	5. Uplink port 1 configuration	6. Uplink port 2 configuration	7. Temperature range	8. Voltage range 1	9. Voltage range 2	10. Approvals	11. Software version	12. Confi-guration	13. OEM type	14. SW release

1. Design

- RSR20 – All ports 100 Mbit/s max
- RSR30 – Up to 3x Gig uplink ports

3. FE Ports

- 06 – 6x 100 Mbit/s (RSR30)
- 07 – 7x 100 Mbit/s (RSR30)
- 08 – 8x 100 Mbit/s (RSR20,RSR30)
- 09 – 9x 100 Mbit/s (RSR20)

4. GE Ports

- 00 – 0x 1000 Mbit/s (RSR20)
- 02 – 2x 1000 Mbit/s (RSR30)
- 03 – 3x 1000 Mbit/s (RSR30)

5. Ports Type - 1. Uplink

- CC – 2x Combo Port Gigabit
- 00 – 2x SFP Slot Gigabit
- TT – 2x Twisted Pair (RJ45)
- MM – 2x Multimode (D-SC)
- JJ – 2x Multimode (MTRJ)
- NN – 2x Multimode (BFOC/ST)
- VV – 2x Singlemode (D-SC)
- UU – 2x Singlemode (BFOC/ST)
- LL – 2x Singlemode Long Haul (D-SC)
- GG – 2x Singlemode Long Haul+ (D-SC)
- ZZ – 2x SFP Slot (100 Mbit/s)
- 07 – Combo port (1000 Mbit/s)
- 06 – SFP slot (1000 Mbit/s)
- T1 – Twisted Pair (RJ45)
- M2 – Multimode (D-SC)
- M3 – Multimode (MTRJ)
- M4 – Multimode (BFOC/ST)
- S2 – Singlemode (D-SC)
- S4 – Singlemode (BFOC/ST)
- L2 – Singlemode Long Haul (D-SC)
- G2 – Singlemode Long Haul+ (D-SC)
- Z6 – SFP slot (100 Mbit)

Not all options are possible in all RSR types

6. Ports Type - 2. Uplink

ZZ I 07 I 06 I T1 I M2 I M3 I M4 I S2 I S4 I L2 I G2 I Z6

Configurator

7. Temp Rating

- S – Standard (0-60 deg C)
- U – Extended (-40 to +85 deg C)
- F – Extended (U-rating and conformal coating)

8. Voltage 1

- C – 24/36/48 V DC
- K – 60/120/250 V DC 110/230 V AC

9. Voltage 2

- 9 – Empty / Not Added
- C – 24/36/48 V DC
- K – 60/120/250 V DC 110/230 V AC

10. Approvals

- H – UL508;GL, IEC 61850-3, IEEE1613, EN50121-4

11. OS Type

- P – Professional

12. Configuration

- H – Hirschmann

13. OEM type

- H – Hirschmann

14. OS release

- xx.x – Newest software

MACH1000 Über-Rugged™ Rack-Mount Switches

MAR1020-99 TT … Max. 24 ports 10/100 Mbit/s

MAR1030-CC TT …
Max. 24 ports 10/100 Mbit/s
+ 2 ports FE/GE (Combo SFP/RJ45)

MAR1030-4O TT …
Max. 24 ports 10/100 Mbit/s
+ 4 ports GE (SFP); 1000 Mbit/s

MAR1030-OT TT …
Max. 24 ports 10/100 Mbit/s
+ 2 ports GE (SFP) + 2 ports 10/100/1000 Mbit/s (RJ45)

MAR1030-4T TT …
Max. 24 ports 10/100 Mbit/s
+ 4 ports 10/100/1000 Mbit/s (RJ45)

MAR1022-99 TT …
Max. 24 ports 10/100 Mbit/s
incl. 4 ports PoE (RJ45)

MAR1032-CC TT …
Max. 24 ports 10/100 Mbit/s
incl. 4 ports PoE + 2 ports FE/GE (Combo SFP/RJ45)

MAR1120-99 TT …
Rear: Max. 20 ports 10/100 Mbit/s
Front: 1 „service“ port (10/100Base-TX; RJ45)

MAR1130-4T TT …
Rear: Max. 20 ports 10/100 Mbit/s
+ 2/4 ports GE (div. variation)
Front: 1 „service“ port in the front (10/100Base-TX; RJ45)

MACH1000 (1020 / 1030) Configuration

MAR1xxx				15. Temp. range	16. Voltage 1	17. Voltage 2	18. Approvals	P	H	H	xx.x
1. Chassis Type	2. GE Ports	3. – 14. Media ports						19. OS Type	20. Config	13. OEM type	14. OS Ver.

1. Chassis type

MAR1020	Fast Ethernet
MAR1030	Gigabit Ethernet
MAR1022	Fast Ethernet with PoE
MAR1032	Gigabit Ethernet with PoE
MAR1120	Fast Ethernet - Ports rear
MAR1130	Gigabit Ethernet - Ports rear
MAR1122	Fast Ethernet with PoE - Ports front
MAR1132	Gigabit Ethernet with PoE - Ports front

Configurator

2. GE ports

Only MACH103x

CC	2x FE/GE SFP/RJ45 Combo ports
4O	4x GE SFP; 1000 Mbit/s
4T	4x 10/100/1000 Mbit/s; RJ45
OT	2x GE SFP and 2x 10/100/1000 Mbit/s; RJ45
99	No Gigabit/empty (only possible in MAR102x)

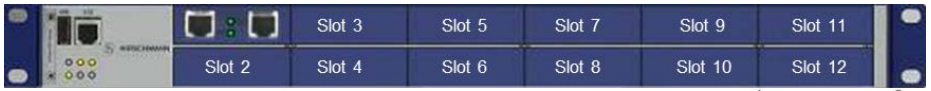
3. – 14. FE ports

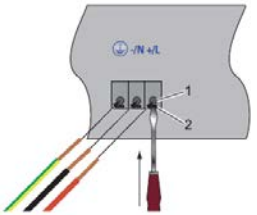
12 slots. Each slot has two ports of same type. Any mix permitted. Empty ports have to be located at the end of the port sequence.

TT	2x Twisted Pair, 10/100 Mbit/s; RJ45
MM	2x Multimode , 100 Mbit/s; SC
JJ	2x Multimode , 100 Mbit/s; MTRJ
NN	2x Multimode , 100 Mbit/s; ST
BB	2x Multimode , 100 Mbit/s; LC
VV	2x Singlemode , 100 Mbit/s; SC
UU	2x Singlemode , 100 Mbit/s; ST
LL	2x Singlemode LH , 100 Mbit/s; SC
GG	2x Singlemode LH+ , 100 Mbit/s; SC
ZZ	2x SFP slot , 100 Mbit/s; SFP
FF	2x Multimode , 10 Mbit/s; ST
RR	2x Twisted Pair , 100 Mbit/s; M12
PP	Not populated / Empty

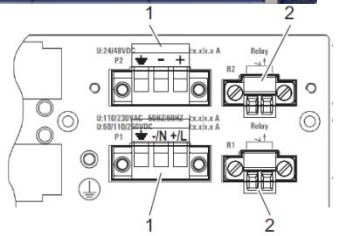
15. Temp. range

S	Standard 0°C ... +60°C
U	Extended -40°C ... +85°C
F	Extended -40°C ... +85°C including Corformal Coating





Example of C and G spring clip (left) and pluggable terminal plug L and M (right)



16. Voltage 1

C	24/36/48 VDC – spring clip
G	110/250 VDC and 110/230 VAC – spring clip
L	24/36/48 VDC - power plug
M	110/250 VDC and 110/230 VAC – pwr plug

17. Operating voltage 2

!	Same selection as above. Connector type must match, voltage can be different.
9	Not populated / Empty

18. Approvals

H	UL508; UL1604 Class 1 Div2; GL, IEC 61850-3, IEEE1613, EN50121-4; NEMA TS
T	EN50155

19. OS Type

P	Professional

20. Configuration

H	Hirschmann

21. OEM type

H	Hirschmann

22. OS Version

xx.x	Newest software

MACH1040 Full-Gigabit L2 / L3 Configuration

MAR1xxx	4C	4C	4C	4C	99	99				H		H	H	xx.x
1. Product	2. ports						3. Temp. range	4. power supply 1	5. power supply 2	6. Approvals	7. SW version	8. Confi-guration	9. OEM type	10. SW release

1. Chassis type		
	MAR1040	Full GE switch I 16 ports
	MAR1042	Full GE switch incl. 4 ports PoE
	MAR1140	Full GE switch I 16 ports rear and one port in front
	MAR1142	Full GE switch I and one port in front 16 ports rear incl. 4 ports PoE

2. Gigabit ports		
	4C4C4C4C9999	16x 10/100/1000 Mbit/s ports Combo Ports ☞ SFP slots – dual speed

3. Temperature range		
	S	Standard 0°C ... +60°C
	U	Extended -40°C ... +85°C
	F	Extended -40°C ... +85°C including Corformal Coating

4. Voltage range power supply 1		
	L	24/36/48 V DC --- power plug
	M	110/250 V DC -- 110/230 V AC --- power plug

5. Voltage range power supply 2		
	L	24/36/48 V DC --- power plug
	M	110/250 V DC -- 110/230 V AC --- power plug
	9	empty

6. Approvals		
	H	UL508; UL1604 Class 1 Div2; GL, IEC 61850-3, IEEE1613, EN50121-4; NEMA TS

7. Software version		
	P	Layer 2 - Professional
	R	Layer 3

8. Configuration		
	H	Hirschmann

9. OEM type		
	H	Hirschmann

10. Software release		
	xx.x	Newest software

MACH1142 switch incl. 4 PoE ports

Configurator

Power supply MACH1042 (with PoE)

Port 1 (230 V AC supports chassis operating voltage)

Port 2 (230 V AC supports exclusive 4 ports PoE)
- No operating voltage redundancy -

MACH4000 Backbone Switch

10 Gigabit Ethernet

Max: 48x GE + 3x 10 GE

MACH 4002 – 48G+3X-L2P	943 878-101
MACH 4002 – 48G+3X-L3E	943 878-201
MACH 4002 – 48G+3X-L3P	943 878-301

Base chassis: 3 XFP sockets + 16 TP-ports

Max: 24x GE + 3x 10 GE

MACH 4002 – 24G+3X-L2P	943 915-101
MACH 4002 – 24G+3X-L3E	943 915-201
MACH 4002 – 24G+3X-L3P	943 915-301

Base chassis: 3 XFP sockets + 8 TP-ports

Gigabit Ethernet

Maximum ports: 48x GE

MACH 4002 – 48G-L2P	943 911-101
MACH 4002 – 48G-L3E	943 911-201
MACH 4002 – 48G-L3P	943 911-301

Base chassis: 8 combo- + 8 TP-ports

Max: 24x GE

MACH 4002 – 24G-L2P	943 916-101
MACH 4002 – 24G-L3E	943 916-201
MACH 4002 – 24G-L3P	943 916-301

Base chassis: 8 combo ports

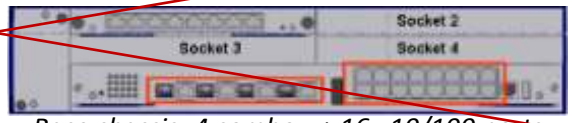
~~Fast Ethernet~~

EOL

Refer customers to MACH 4002-48G

Max: 48 FE + 4x GE

MACH 4002 – 48+4G-L2P	943 859-101
MACH 4002 – 48+4G-L3E	943 859-201
MACH 4002 – 48+4G-L3P	943 859-301



Base chassis: 4 combo- + 16x 10/100 ports

Plug-in power supply for MACH4002-chassis

M4-S-AC/DC 300W **943 870-001**
operating voltage: 100-240V AC / 120-350V DC

M4-S-24VDC 300W **943 871-001**
operating voltage: 19-32V DC, max 15A

M4-S-48VDC 300W **943 872-001**
operating voltage: 38-72V DC, max 8A

Optional external power

M4-POWER Chassis **943 874-001**
19“ rack-mount chassis

M4-P-AC/DC 300W **943 875-001**
Operating voltage: 100-240V AC, 129-350V DC

M4-P-24VDC 300W **943 876-001**
Operating voltage: 24V DC (19V – 32V)

M4-P-48VDC 300W **943 877-001**
Operating voltage: 48V DC (38V – 72V)

MACH4000 Media Modules

M4-8TP-RJ45 943 863-001

- 8x 10/100/1000MBit/s RJ45 sockets
- AutoNeg, AutoCrossing, Cable Diagnostic
- 10/100MBit/s with MACH 4002 - 48+4G

M4-FAST 8TP-RJ45-PoE 943 873-001

- 8x 10/100MBit/s RJ45 sockets
- PoE is provided over pairs 1-2, 3-6

M4-FAST 8-SFP 943 864-001

- 8x FE SFP sockets

M4-GIGA 8-SFP 943 879-001

- 8x GE/FE SFP sockets
- Not for use in the MACH 4002-48+4G

MACH 4000 basic device	Maximum port number				Number of installed ports (basic board)				Maximum number of media modules		Max. PoE power
	TP ports 10/100 Mbit/s	TP ports 10/100 1000 Mbit/s	Combo ports TP/SFP 10/100 1000 Mbit/s	XFP slots 10 Gbit/s	TP ports 10/100 Mbit/s	TP ports 10/100 1000 Mbit/s	Combo ports TP/SFP 10/100 1000 Mbit/s	XFP slots 10 Gbit/s	10/100 Mbit/s	10/100 1000 Mbit/s	
MACH 4002-48+4G	48	4	4	-	16	-	4 [1]	-	4 [3]	-	137 W
MACH 4002-24G	-	24	8	-	-	-	8 [2]	-	-	2	163 W
MACH 4002-48G	-	48	8	-	-	8	8 [2]	-	-	4	110 W
MACH 4002-24G+3X	-	24	-	3	-	8	-	3	-	2	157 W
MACH 4002-48G+3X	-	48	-	3	-	16	-	3	-	4	106 W

[1] SFP 1000 Mbit/s

[2] SFP 100/1000 Mbit/s

[3] M4-8TP RJ45, M4-8TP RJ45-PoE or M4-FAST 8-SFP

OpenOCTOPUS OS20 / OS30

OCTOPUS 16M (943 912-001)
managed ruggedized IP67-Switch 16 TX,
Approvals: E1, DIN 5510-2, NF F 16-101, NF F 16-102, GL

OCTOPUS 16M Train (943 984-001)
managed ruggedized IP67-Switch 16 TX,
Approvals: EN 50155, EN 50121-4, DIN 5510-2, NF F 16-101, NF F 16-102

OCTOPUS 16M 8PoE (943 960-001)
managed ruggedized IP67-Switch 16 TX, including 8 ports PoE
Approvals: EN50155

OCTOPUS 24M (943 923-001)
managed ruggedized IP67-Switch 24 TX,
Approvals: E1, DIN 5510-2, NF F 16-101, NF F 16-102, GL

OCTOPUS 24M Train (943 985-001)
managed ruggedized IP67-Switch 24 TX,
Approvals: EN 50155, EN 50121-4, DIN 5510-2, NF F 16-101, NF F 16-102

OCTOPUS 24M Train-BP (943 093-001)
managed ruggedized IP67-Switch 24 TX, including 2 Bypass Relais
EN 50155, EN 50121-4, DIN 5510-2, NF F 16-101, NF F 16-102

OCTOPUS 24M-8PoE (943 063-001)
managed ruggedized IP67-Switch 24 TX, including 8 ports PoE
Approvals: E1, EN 50155, EN 50121-4, DIN 5510-2, NF F 16-101, NF F 16-102

OCTOPUS 8M (943 931-001)
managed ruggedized IP67-Switch 8 TX,
Approvals: E1, DIN 5510-2, NF F 16-101, NF F 16-102, GL

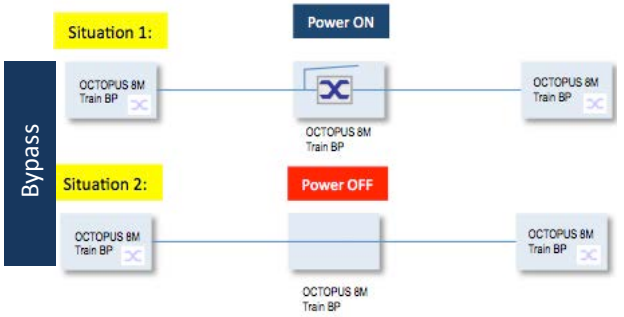
OCTOPUS 8M Train (943 983-001)
managed ruggedized IP67-Switch 8 TX,
Approvals: EN 50155, EN 50121-4, DIN 5510-2, NF F 16-101, NF F 16-102

OCTOPUS 8M –Train-BP (943 091-001)
managed ruggedized IP67-Switch 8 TX, including 2 Bypass Relais
Approvals: EN 50155, EN 50121-4, DIN 5510-2, NF F 16-101, NF F 16-102

OCTOPUS 8M - 6PoE (943 967-101)
managed ruggedized IP67-Switch 8 TX, including 6 ports PoE
Approvals: EN50155

OCTOPUS 8M -8PoE (943 967-001)
managed ruggedized IP67-Switch 8 TX, including 8 ports PoE
Approvals: EN50155

Product Code	Product Name		Power supply	Ports	FE
943892001	OCTOPUS 5TX EEC	Unmanaged	9,6V - 32V	5-port	5 Cu
943931001	OCTOPUS 8M	Managed	9,6V - 60V	8-port	8 Cu
943983001	OCTOPUS 8M Train	Managed	9,6V - 60V	8-port	8 Cu
943967101	OCTOPUS 8M-6PoE	Managed	48V	8-port	8 Cu
943967001	OCTOPUS 8M-8PoE	Managed	48V	8-port	8 Cu
942091001	OCTOPUS 8M-Train-BP	Managed	9,6V - 60V	8-port	8 Cu
943912001	OCTOPUS 16M	Managed	9,6V - 60V	16-port	16 Cu
943984001	OCTOPUS 16M Train	Managed	9,6V - 60V	16-port	16 Cu
943960001	OCTOPUS 16M-8PoE	Managed	48V	16-port	16 Cu
942092001	OCTOPUS 16M-Train-BP	Managed	9,6V - 60V	16-port	16 Cu
943923001	OCTOPUS 24M	Managed	9,6V - 60V	24-port	24 Cu
943985001	OCTOPUS 24M Train	Managed	9,6V - 60V	24-port	24 Cu
942063001	OCTOPUS 24M-8PoE	Managed	48V	24-port	24 Cu
942093001	OCTOPUS 24M-Train-BP	Managed	9,6V - 60V	24-port	24 Cu



OpenOCTOPUS OS20 / OS30

OCTOPUS OS24-080900T5T5TFFB (942 025-007)
managed ruggedized IP67-Switch 9 TX, including 8 ports PoE
Approvals: E1, EN 50155, EN 50121-4, DIN 5510-2, NF F 16-101, NF F 16-102

OCTOPUS OS24-080900T5T5TNEB (942 025-008)
managed ruggedized IP67-Switch 9 TX, including 8 ports PoE
Approvals: EN 50155, EN 50121-4, DIN 5510-2, NF F 16-101, NF F 16-102

OCTOPUS OS24-081000T5T5TFFU (942 025-003)
unmanaged ruggedized IP54-Switch 10 TX, including 8 ports PoE
Approvals: E1, EN 50155, EN 50121-4, DIN 5510-2, NF F 16-101, NF F 16-102

OCTOPUS OS24-081000T5T5TFNEU (942 025-004)
unmanaged ruggedized IP54-Switch 10 TX, including 8 ports PoE
Approvals: EN 50155, EN 50121-4, DIN 5510-2, NF F 16-101, NF F 16-102

Variant 1 and 4 IEC 61076-3-106 connectors are not sold by Belden and need to be sourced via third party , such as Metz Connect.
See parts and link below.

Var 1 plug/shell (EtherNet/IP)	1401015000ME
Var 4 plug/shell (Profinet)	14010850F0ME
Duplex LC insert (multimode)	1402800820-I
Duplex LC insert (singlemode)	1402900820-I

http://www.metz-connect.com/us/productsearch/E-DAT%20Industry%20IP67%20V1

02	2 * 1000 Mbit/s Ethernet
1M	M-FAST SFP-MM / LC / EEC / variant 1
1S	M-FAST SFP-SM / LC / EEC / variant 1
1P	M-FAST SFP-SM+ / LC / EEC / variant 1
1L	M-FAST SFP-LH / LC / EEC / variant 1
1A	M-SFP-SX / LC / EEC / variant 1
1B	M-SFP-LX / LC / EEC / variant 1
1C	M-SFP-LH / LC / EEC / variant 1
1D	M-SFP-LH+ / LC / EEC / variant 1
4M	M-FAST SFP-MM / LC / EEC / variant 4
4S	M-FAST SFP-SM / LC / EEC / variant 4
4P	M-FAST SFP-SM+ / LC / EEC / variant 4
4L	M-FAST SFP-LH / LC / EEC / variant 4
4A	M-SFP-SX / LC / EEC / variant 4
4B	M-SFP-LX / LC / EEC / variant 4
4C	M-SFP-LH / LC / EEC / variant 4
4D	M-SFP-LH+ / LC / EEC / variant 4

OCTOPUS OS20-0010001M1MTREP (943 988-001)
managed ruggedized IP67-Switch 8 TX, 2 FX-MM,
Approvals: E1, EN50155

OCTOPUS OS20-0010001S1STREP (943 988-002)
managed ruggedized IP67-Switch 8 TX, 2 FX-SM,
Approvals: E1, EN50155

OCTOPUS OS20-0010004M4MTREP (943 988-003)
managed ruggedized IP67-Switch 8 TX, 2 FX-SM,
Approvals: E1, EN50155

OCTOPUS OS20-0010004S4STREP (943 988-004)
managed ruggedized IP67-Switch 8 TX, 2 FX-SM,
Approvals: E1, EN50155

Accessory

OCTOPUS Dust cap (942 057-001; 25 pieces)

Optical ports variant 1

EtherNet/IP

IEC 61076-3-106 variant 1	Multimode fibre	Singlemode fibre
Fast Ethernet	FO link up to 4 km 943 988-001	FO link up to 22 km 943 988-002
Gigabit Ethernet	FO link up to 550m 943 988-005	FO link up to17 km 943 988-006

Optical ports variant 4

PROFINET

IEC 61076-3-106 variante 4	Multimode fibre	Singlemode fibre
Fast Ethernet	FO link up to 4 km 943 988-003	FO link up to 22 km 943 988-004
Gigabit Ethernet	FO link up to 550m 943 988-007	FO link up to 17 km 943 988-008

OpenOCTOPUS OS20 / OS30

OCTOPUS OS20-000900T5T5TAFB (942 025-005)
managed ruggedized IP67-Switch 9 TX,
Approvals: E1, EN 50155, EN 50121-4, DIN 5510-2, NF F 16-101, NF F 16-102

OCTOPUS OS20-001000T5T5TAFU (942 025-001)
unmanaged ruggedized IP54-Switch 10 TX
Approvals: EN 50155, EN 50121-4, DIN 5510-2,
NF F 16-101, NF F 16-102

OCTOPUS OS30-0008021A1ATREP (943 988-005)
managed ruggedized IP67-Switch 8 TX, 2FX-MM (Gigabit)
Approvals: E1, EN50155

OCTOPUS OS30-0008021B1BTREP (943 988-006)
managed ruggedized IP67-Switch 8 TX, 2FX-SM (Gigabit)
Approvals: E1, EN50155

OCTOPUS OS30-0008024A4ATREP (943 988-007)
managed ruggedized IP67-Switch 8 TX, 2FX-MM (Gigabit)
Approvals: E1, EN50155

OCTOPUS OS30-0008024B4BTREP (943 988-008)
managed ruggedized IP67-Switch 8 TX, 2FX-SM (Gigabit)
Approvals: E1, EN50155

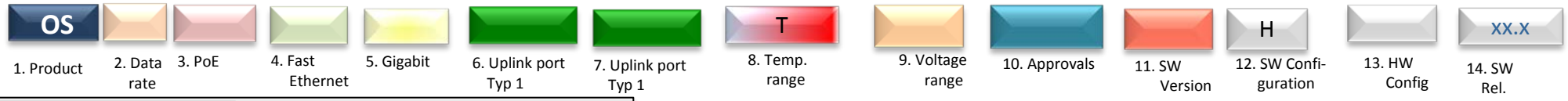
OCTOPUS OS32-080802T6T6TPEP (942 069-002)
managed ruggedized IP65, IP67-Switch 10 TX,
including 8 ports PoE (10/100 Mbit/s), M12 „D“ coding,
2x 1000 Mbit/s M12 „X“-coding
Approvals: CE, C-Tick, GOST-R, EN 50155

OCTOPUS OS32-081602T6T6TPEP (942 069-001)
managed ruggedized IP65, IP67-Switch 18 TX,
including 8 ports PoE (10/100 Mbit/s), M12 „D“ coding
8 ports 10/100 Mbit/s, M12 „D“ coding
2x 1000 Mbit/s, M12 „X“-coding
Approvals: CE, C-Tick, GOST-R, EN 50155

OCTOPUS OS32-0808020606TPEP (942 069-004)
managed ruggedized IP65, IP67-Switch 10 Ports
including 8 ports PoE, M12 „D“ coding,
2 ports 1000BASE-SFP sockets
Approvals: CE, C-Tick, GOST-R, EN 50155

OCTOPUS OS32-0816020606TPEP (942 069-003)
managed ruggedized IP54-Switch 18 Ports
including 8 ports PoE, M12 „D“ coding,
8 ports 10/100 Mbit/s, M12 „D“ coding
2 ports 1000BASE-SFP sockets
Approvals: CE, C-Tick, GOST-R, EN 50155

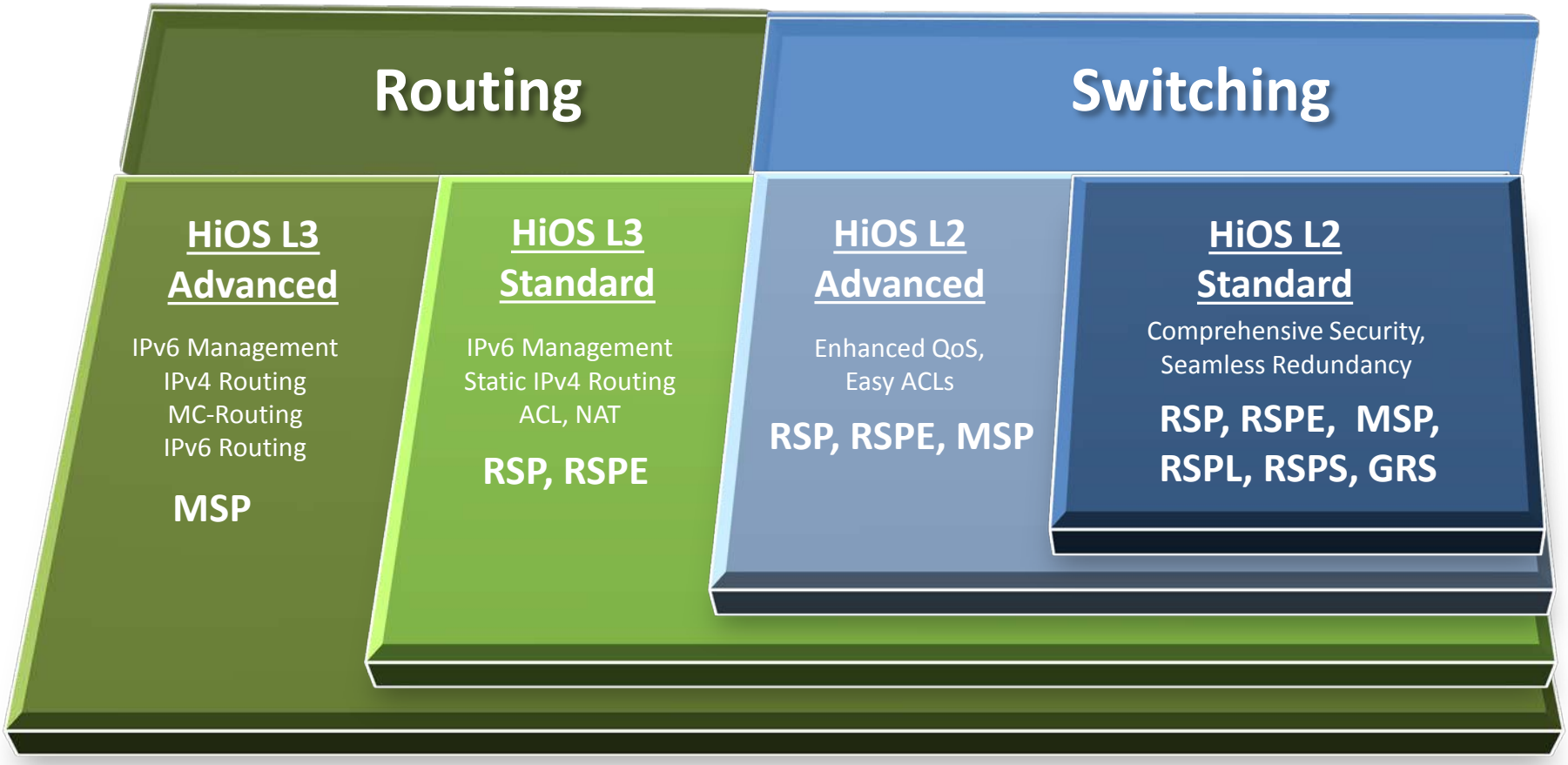
OpenOCTOPUS OS20 / OS30 Configuration



1. Product	OS	
2. Data rate	20	10/100 Mbit/s
	22	10/100 Mbit/s and PoE
	24	10/100 Mbit/s with PoE/PoE+
	30	10/100/1000 Mbit/s
	32	10/100/1000 Mbit/s and PoE
3. PoE ports	00	No PoE ports
	06	6x Fast Ethernet PoE ports
	08	8x Fast Ethernet PoE ports
4. 10/100 Mbit/s ports	05	5x 10/100 Mbit/s
	08	8x 10/100 Mbit/s
	09	9x 10/100 Mbit/s
	10	10x 10/100 Mbit/s
	16	16x 10/100 Mbit/s
	24	24x 10/100 Mbit/s
5. 10/100/1000 Mbit/s ports	00	none
	02	2x 10/100/1000 Mbit/s
6. / 7. Uplink port Typ 1 / Typ 2	T5	Fast Ethernet, M12
	R5	Fast Ethernet with Bypass relay
	T6	Gigabit, M12
	1M	Fast Ethernet MM/LC/EEC
	1S	Fast Ethernet SM/LC/EEC
	1A	Gigabit SX/LC/EEC
	1B	Gigabit LX/LC/EEC
	4M	Fast Ethernet MM/LC/EEC
	4S	Fast Ethernet SM/LC/EEC
	4A	Gigabit SX/LC/EEC
	4B	Gigabit LX/LC/EEC
	06	Fast- /Gigabit SFP slot

8. Temperature range	T	Extended -40°C ... +70°C
9. Voltage range 1	A	9,6 to 60 V DC, M12 voltage plug included
	F	16,8 to 60 V DC 7/8“ !!! Accessory 5-pole connector 942 086-005
	N	50,4 to 138 V DC, 7/8“ !!! Accessory 4-pole connector 942 086-004
	P	47 to 52 V DC, M12 voltage plug included
	R	16,8 to 45 V DC, M12 voltage plug included
	I	9,6 to 32 V DC, M12 voltage plug included
10. Approvals	J	- CE, C-Tick, UL508, GOST-R, e1/E1, Ukraine, Kazahhstan
	M	- CE, C-Tick, UL508, GOST-R, e1/E1, GL
	F	- CE, C-Tick, GOST-R, EN50121-4, EN50155, EN45545, DIN 5510-2, NF F 16-101, NF F 16-102
	E	- CE, C-Tick, GOST-R, e1/E1, EN50121-4, EN50155, EN45545, DIN 5510-2, NF F16-101, NF F16-102
11. Software Version	B	Basic
	P	Professional
	U	Unmanaged
12. Configuration	H	Hirschmann
13. HW Config	B	IP54
	H	IP65 and IP67
14. SW release	XX.X	newest SW-version

Software HiOS for Hardware Platform 5



Detail information page 62 - ….

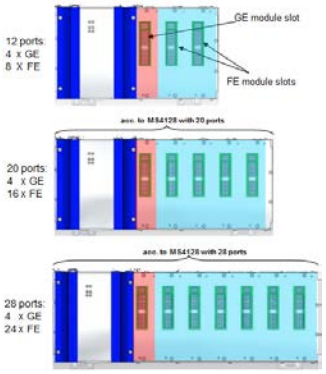
Function overview

MSP MICE Switch Power – Chassis/Backplane Configuration

Product name/-code

MSP	3		-		4	0				HH	E		xx.x
1. Product	2. Data rate	3. HW Typ		4. 10/100 Mbit/s Ports	5. 10/100/1000 Mbit/s Ports	6. 10/100/1000/10000 Mbit/s Ports	7. Temp. range	8. Operating voltage	9. approvals	10. SW-Paket	11. customized version	12. SW-config.	13. SW-Level	14. SW-version

1. Product	MSP	Modular Switch Power
2. Data rate	3	10/100 Mbit/s Ports 10/100/1000 Mbit/s Ports* *(only TP- and Combo ports in slot 1), SFP slots are dualspeed
3. HW Typ	0	0 - Standard
	2	2 - suitable for PoE or PoE+
4. numbers ports 10/100 Mbit/s	08	8 ports
	16	16 ports
	24	24 ports
5. numbers ports 10/100/1000 Mbit/s	04	4 Ports
6. numbers ports 10/100/1000/10000 Mbit/s	0	0 Ports



MSP32 integrates PoE/PoE+
optional for all ports
max. 120W per MSP32
max. 60W per module

Configurator

7. Temperature range	S	Standard 0°C ... +60°C
	T	Extended -40°C ... +70°C
	E	Extended -40°C ... +70°C including Corformal Coating
8. Operating voltage 2 plugs operating voltage for redundant power supplies	C	28V ... 60VDC (at MSP30
	P	47V ... 57VDC PoE (at MSP32) 53V ... 57VDC PoE+ (at MSP32)
9. approvals & certifications	Z9	– CE, FCC, EN 61131, (EN60950)
	Y9	– „Z9“ + cUL508; (UL60950)#1
	W9	– „Z9“ + ATEX Zone2
	WY	– „Y9“ + ATEX Zone 9
	V9	– „Z9“ + IEC 61850, IEEE 1613
	VY	– „V9“ +cUL508; (UL60950)#1
	VU	- „V9“ +cUL508; (UL60950)#1 + GL; (ABS; BV;DNS; LR) #1
	VT	- „V9“ + cUL508; (UL60950)#1 + EN50121
	U9	- „Z9“ + GL, (ABS, BV, DNV, LR)
	UY	- „U9“ + cUL508; (UL60950 #1
	T9	- „Z9“ + EN50121
	TY	- „T9“ + cUL508; (UL60950) #1
10. Software-packets	99	– reserved (L2 A)
	UR	– Unicast-Routing (L3 A)
	MR	– Multicast-Routing (incl. UR) (L3 A)
11. customized version	HH	– Hirschmann Standard
12. Software configuration	E	– Hirschmann Standard Configuration
13. Software level	2A	– HiOS Layer 2 Advanced
	3A	– HiOS Layer 3 Advanced
14. Software version	xx.x	– actual software-version

MSP MICE Switch Power – Media Module Configuration

Productname/-code

MSM			-					-			HH	9	E	xx.x
1. Product	2. Data rate	3. HW Type		4. Port 1	5. Port 2	6. Port 3	7. Port 4		8. Temperature range	9. approvals	10. Customized version	11. HW configuration	12. SW-config.	13. SW-release

1. Product

MSM	MICE media modul

2. Data rate

2	- 10/100 Mbit/s ports
4	- 10/100/1000 Mbit/s ports

3. HW Type

0	Standard
2	suitable for PoE or PoE+ (only in MSM42 T1T1T1T1)
4	suitable for I/O operation (only in MSM24 IOIOIOIO)

4. Port 1

T1	Twisted Pair; RJ45	L2	Long Haul; SC
M2	Multimode; SC	G2	Long Haul+; SC
M4	Multimode; ST	C1	Combo port
S2	Singlemode; SC	IO	Digital Input/Output (only in MSM24)
S4	Singlemode; ST		

5. Port 2

See port type 1. Uplink

6. Port 3

See port type 1. Uplink

7. Port 4

See port type 1. Uplink

8. Temperature range

S	Standard 0°C ... +60°C
T	Extended -40°C ... +70°C
E	Extended -40°C ... +70°C including Corformal Coating

9. approvals & certifications

Z9	– CE, FCC, EN 61131, (EN60950)	VU	- „V9“ +cUL508; (UL60950)#1 + GL; (ABS; BV;DNS; LR) #1
Y9	– „Z9“ + cUL508; (UL60950)#1	VT	- „V9“ + cUL508; (UL60950)#1 + EN50121
W9	– „Z9“ + ATEX Zone2	U9	- „Z9“ + GL, (ABS, BV, DNV, LR)
WY	– „Y9“ + ATEX Zone 9	UY	- „U9“ + cUL508; (UL60950 #1
V9	– „Z9“ + IEC 61850, IEEE 1613	T9	- „Z9“ + EN50121
VY	– „V9“ +cUL508; (UL60950)#1	TY	- „T9“ + cUL508; (UL60950) #1

10. customized version

HH	– Hirschmann Standard

11. Hardware configuration

9	- no FPGA

12. Software configuration

E	- Hirschmann; Standard Configuration

13. Software version

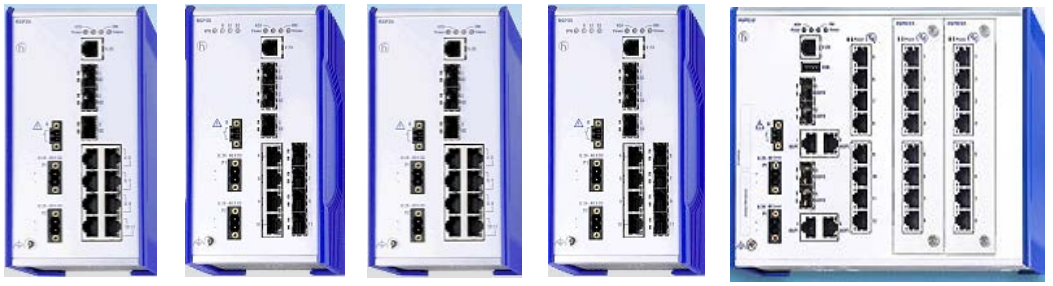
xx.x	– actual software-version

Configurator

RSP Series Variant Overview

RSP and modular RSPE

- All-inclusive package for the highest level of security and availability
- Option for “0ms” recovery (PRP, HSR)
- Option Fast MRP
- Prepared for add-on software packages (L3, NAT,…) in future
- Precise time stamping based on IEEE1588v2
- **RSP: 3x GE ports, plus 8x FE ports**
- **RSPE: Modular, up to 4x GE and 24x FE**



RSPS "Smart"	RSPL "Lite"	RSP	Based on HiOS Layer 2 Standard Release 2.0
			Plug & Work
		✓	DHCP: server per port
		✓	DHCP server: Pools per VLAN
		✓	Multiple stored firmware versions
	✓	✓	DHCP relay agent, option 82
			Security
	✓	✓	IEEE 802.1x
	✓	✓	Integrated Authentication Server (IAS)
			Redundancy
✓*		✓*	Fast MRP
✓*		✓*	PRP
✓*		✓*	HSR
			Time synchronization
✓		✓	PTPv2 TC two-step
✓		✓	PTPv2 BC

*option

RSPS, the Smart solution

- Reduced security features set but still on a high level
- Option for “0ms” recovery (PRP, HSR) and Fast MRP
- Precise time stamping based on IEEE1588v2
- FE type, 6 ports, 3 different port versions:
  - **6x 10/100 TX**
  - **2x 10/100 TX / 4x FE-SFP**
  - **4x 10/100 TX / 2x FE-SFP**
- Applications which require an uninterrupted redundancy technology (smart Red.-Box) and/or precise time stamping PTP IEEE1588v2

RSPL, the Lite solution

- all-round carefree package for the highest level of security (same as RSP)
- **2x GE Combo ports (option), plus 8 FE ports**
- **FE port options: 2x SFP / 6x TX, 4x SFP / 4x TX**
- No add-on software packages and IEEE1588 support
- No PRP and HSR
- Applications which require a comprehensive feature range including e.g. diagnostic and a high level of security, but no uninterrupted redundancy and PTP IEEE1588 support.

RSP Rail Switch Power Configuration

RSP			-					-					E		XX.X
1. Product	2. Data rate	3. HW type		4. 10/100 Mbit/s ports	5. 10/100/1000 Mbit/s ports	6. Uplink port configuration	7. Port configuration		8. Temperature range	9. Voltage range	10. Approvals	11. Redundancy configuration	12. Software configuration	13. Software level	14. Software version

1. Product

RSP — Rail Switch Power

2. Data rate

- 2 - 10/100 Mbit/s ports
- 3 - 10/100/1000 Mbit/s ports

3. HW type

- 0 - Standard
- 5 - Enhanced Redundancy (PRP, HSR, Fast MRP)

4. 10/100 Mbit/s ports

- 08 - 8x 10/100 Mbit/s
- 11 - 11x 10/100 Mbit/s

5. 10/100/1000 Mbit/s ports

- 00 - none
- 03 - 3x 10/100/1000 Mbit/s

6. Uplink port config

- 3Z6 - 3x SFP slot (100Mbit/s)
- 306 - 3x SFP slot (100/1000 Mbit/s)

7. Port configuration

- TT - All Twisted Pair /RJ45
- ZT - 4x SFP slot (100 Mbit/s) 4x Twisted Pair/RJ45 (100Mbit/s)

RSP25 11 00 3Z6 TT

RSP25 11 00 3Z6 ZT

RSP35 08 03 306 TT

RSP35 08 03 306 ZT

Configurator

8. Temperature range

- S - Standard 0°C ... +60°C
- T - Extended -40°C ... +70°C
- E - Extended -40°C ... +70°C including Corformal Coating

9. Operating voltage

- CC - 2x 24 – 48 VDC (18-60 VDC) 1x 60 -250 VDC (48-320 VDC) and 110 – 230 VAC (88-265 VAC)
- K9 - 2x 60-250 VDC (48-320 VDC) and 110-230 VAC (88-265 VAC)
- KK

10. approvals & certifications

- Z9 - CE, FCC, EN61131
- Y9 - **Z9** + cUL508
- V9 - **Z9** + IEC61850, IEEE1613
- VY - **V9** + cUL508

11. Redundancy configuration

- HS - Standard → RSP20/30
- HM - Fast MRP
- HP - PRP
- HH - HSR

→ RSP25/35

12. SW configuration

- E - Enhanced encryption (<56 Bit, up to 256 Bit DES) Management access

13. SW level

- 2S - HiOS Layer 2 Standard
- 2A - HiOS Layer 2 Advanced
- 2A - HiOS Layer 3 Standard

14. SW version

- xx.x - XX.X - Latest software version

RSPE Chassis Configuration

RSPE	3		-	24	04	407	T99	-				99	HH		E		xx.x
1. Product	2. Data rate	3. HW type		4. FE Ports	5. GE Ports	6. Uplink port configuration	7. Port configuration		8. Temperature range	9. Voltage range	10. Approvals	11. SW pack	12. Custom	13. HW Conf	14.	15.	16.SW Vers

1. Product

RSPE	Rail Switch Power Enhanced

2. Data rate

3	10/100/1000 Mbit/s ports

3. HW type

0	- Standard
2	- Standard with PoE
5	- Enhanced Redundancy (PRP, HSR, Fast MRP)
7	- Enhanced Redundancy with PoE

4. FE Ports

24	24x 10/100 Mbit/s

5. GE Ports

04	4x 10/100/1000 Mbit/s

6. Uplink port config

40 7	4x Combo ports (10/100/1000 Mbit/s)

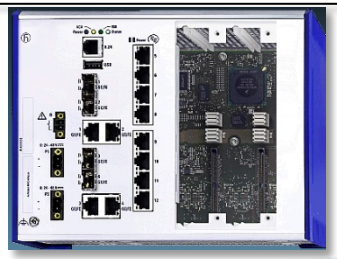
7. Port configuration

T9 9	8x Twisted Pair /RJ45

8. Temperature range

S	Standard 0°C ... +60°C
T	Extended -40°C ... +70°C
E	Extended -40°C ... +70°C including Corformal Coating

PoE--- **RSPE32/RSPE37**
Max. 120 Watt



Not used slots:
Accessoire –
RSPM-cover
942 131-001

9. Voltage range

CC	2x 24 – 48 VDC (18-60 VDC)
K9	1x 60 – 250 VDC (48- 320 VDC) and 110 -230 VAC (88-265 VAC)
KK	2x 48- 320 VDC and 88-265 VAC
PP	2x 47 – 57 VDC (PoE); 53 – 57 VDC (PoE+); **RSPE 32/37**

10. Approvals

Z9	CE, FCC, EN61131
T9	„T9“ + EN50121, NEMA TS2S2
V9	„Z9“ + IEC61850, IEEE1613
VY	„V9“ + cUL508
VU	„V9“ + cUL508; (UL60950)#1
VT	„V9“ + cUL508; (UL60950)#1, EN50121
Y9	„Z9“ + cUL508
X9	„Z9“ + cUL508; (UL60950)#1; ISA12.12
TY	„T9“ + cUL508; (UL60950)#1

11. SW package

99	reserved

12. Customization

HH	Hirschmann Standard

13. Hardware Configuration

S	S - Standard → RSPE 30/32
M	M – Fast MRP
P	P – PRP
H	H - HSR
	→ RSPE 35/37

14. SW Configuration

E	Entry

15. SW Level

2S	HiOS Layer 2 Standard
2A	HiOS Layer 2 Advanced
3S	HiOS Layer 3 Standard

16. SW version

XX.X	Latest software version

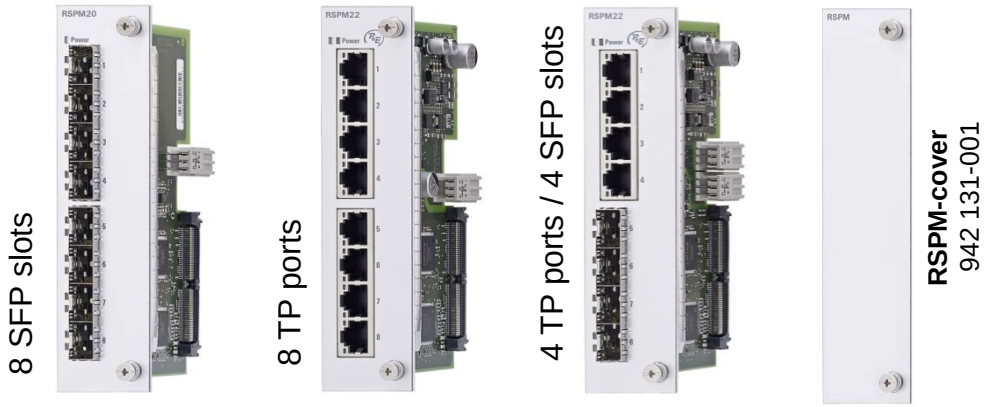
RSPM RSPE Expansion Module Configuration

RSPM	2		-				HH	S	9	99.9
1. Product	2. Data rate	3. HW type		4. Port 1	5. Port 2	6. Temperature range	7. Approvals	8. Custom	9. HW Conf	10. SW Config	16.SW Vers

1. Product	RSPM	RSPE Module
2. Data rate	2	10/100 Mbit/s ports
3. HW type	0	Standard
	2	Standard with PoE
4. Port Configuration Part 1	4Z6	4Z6 – 4x SFP slots (100 Mbit/s)
	4T1	4T1 – 4x TP-RJ45 (10/100 Mbit/s)
5. Port Configuration Part 2	4Z6	4Z6 – 4x SFP slots (100 Mbit/s)
	4T1	4T1 – 4x TP-RJ45 (10/100 Mbit/s)
6. Temperature range	S	Standard 0°C ... +60°C
	T	Extended -40°C ... +70°C
	E	Extended -40°C ... +70°C including Corformal Coating

7. Approvals	Z9	CE, FCC, EN61131
	T9	„T9“ + EN50121, NEMA TS2S2
	V9	„Z9“ + IEC61850, IEEE1613
	VY	„V9“ + cUL508
	VU	„V9“ + cUL508; (UL60950)#1
	VT	„V9“ + cUL508; (UL60950)#1, EN50121
	Y9	„Z9“ + cUL508
	X9	„Z9“ + cUL508; (UL60950)#1; ISA12.12
	TY	„T9“ + cUL508; (UL60950)#1

8. Customization	HH	Hirschmann Standard
9. Hardware Configuration	S	Standard (no FPGA)
10. SW Configuration	9	without software configuration
11. SW version	99.9	no software



Note: For purposes of heat dissipation, if using an 8x SFP module, the max number of SFPs in the other module cannot exceed 4, for a total of 12. Does not include chassis GE combo ports.

RSPL RSP Light Configuration

RSPL		0	-	08				-				HS	E	2S	
1. Product	2. Data rate	3. HW type		4. 10/100 Mbit/s ports	5. 10/100/1000 Mbit/s ports	6. Uplink port configuration	7. Port configuration		8. Temperature range	9. Voltage range	10. Approvals	11. Redundancy configuration	12. Software configuration	13. Software level	14. Software version

1. Product	RSPL	Rail Switch Power - Lite
2. Data rate	2	10/100 Mbit/s ports
	3	10/100/1000 Mbit/s ports
3. HW type	0	Standard
4. 10/100 Mbit/s ports	08	8x 10/100 Mbit/s
5. 10/100/1000 Mbit/s ports	00	none
	02	2x GE combo ports
6. Uplink port config	2Z6	2x SFP slot (100Mbit/s)
	20	2x GE combo ports
	7	
7. Port configuration	TT	- All Twisted Pair /RJ45
	YT	-2x SFP slot (100 Mbit/s) 6x Twisted Pair/RJ45 (100 Mbit/s)
	ZT	- 4x SFP slot (100 Mbit/s) 4x Twisted Pair/RJ45 (100Mbit/s)

8. Temperature range	S	Standard 0°C ... +60°C
	T	Extended -40°C ... +70°C
	E	Extended -40°C ... +70°C including Corformal Coating
9. Voltage range	CC	- 2x 24 - 48 VDC (18 – 60 VDC)
	M9	- 1x 110 – 250 VDC (88V -320 VDC) & 110 - 230 VAC (88-265 VAC)
10. Approvals	Z9	CE, FCC, EN61131
	V9	„Z9“ + IEC 61850, IEEE1613
11. Redundancy configuration	HS	Standard
12. SW configuration	E	Hirschmann Standard
13. SW level	2S	HiOS Layer 2 Standard
14. SW version	xx.x	Latest software version

Configurator

RSPS RSP Smart Configuration

RSPS	2		-	06	00			-					E	2S	
1. Product		3. HW type		4. 10/100 Mbit/s ports	5. 10/100/1000 Mbit/s ports	6. Uplink port configuration	7. Port configuration		8. Temperature range	9. Voltage range	10. Approvals	11. Redundancy configuration	12. Software configuration	13. Software level	14. Software version

1. Product	RSPL	Rail Switch Power - Smart
2. Data rate	2	10/100 Mbit/s ports
3. HW type	0	Standard
	5	Enhanced redundancy PRP Fast MRP, HSR (later release)
4. 10/100 Mbit/s ports	06	6x 10/100 Mbit/s
5. 10/100/1000 Mbit/s ports	00	none
6. Uplink port config	2T1	2x 10/100Mbit/s
	2Z6	2x SFP slots (100 Mbit/s)
7. Port configuration	TT	All Twisted Pair /RJ45
	YT	2x SFP slot (100 Mbit/s); 4x Twisted Pair/RJ45 (100 Mbit/s)

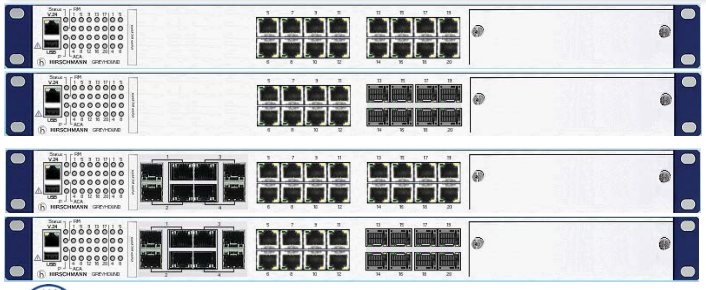
8. Temperature range	S	Standard 0°C ... +60°C
	T	Extended -40°C ... +70°C
	E	Extended -40°C ... +70°C including Corformal Coating
9. Voltage range	CC	2x 24 – 48 V DC (18 – 60 V DC)
	K9	1x 60 – 250 V DC & 110 – 230 V AC (88 -265 V AC)
	M9	1x 110 – 250 V DC (88V -320 V DC) & 110 - 230 V AC (88-265 V AC)
10. Approvals	Z9	CE, FCC, EN61131
	V9	„Z9“ + IEC 61850, IEEE1613
11. Redundancy configuration	HS	Standard
	HH	HSR
	HM	Fast MRP
	HP	PRP
12. SW configuration	E	Hirschmann Standard
13. SW level	2S	HiOS Layer 2 Standard
14. SW version	xx.x	Latest software version

Configurator

Greyhound Chassis Configuration

GRS	1			0	–			C			HH	S	H	2S	xx.x
1. Product	2. Series	3. Port Position	4. Data rate	5. PoE		6. fixed Ports	7. Temp. range	8. PS 1	9. PS 2	10. Approvals	11. Cust. conf.	12. HW conf.	13. SW conf.	14. SW Level	15. SW version

1. Chassis type	GRS	Greyhound Switch
2. Series	1	Greyhound Series
3. Port position	0	Ports front, power supply rear
	1	Ports rear, power supply rear
4. Data rate	2	FE Switch
	3	FE Switch with GE Uplink ports
5. PoE Support	0	no PoE support
6. Configuration of fixed ports	16T9	16x FE Twisted Pair ports, RJ45
	8T8Z	8x FE Twisted Pair ports, RJ45 8x FE SFP slots
7. Temperature range	S	Standard 0°C ... +60°C
	U	Extended -40°C ... +70°C
	F	Extended -40°C ... +70°C including Corformal Coating



GRS1020-16T9

GRS1020-8T8Z

GRS1030-16T9

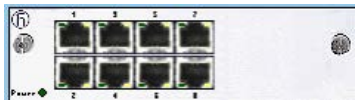
GRS1030-8T8Z

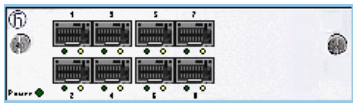
8. Power supply 1	C	24 ... 48 VDC
9. Power supply 2	C	24 ... 48 VDC
	9	empty
10. Approvals	Z9	CE, FCC, EN61131, EN60950
	Y9	„Z9“ + cUL60950
	X9	„Z9“ + cUL60950, ISA 12.12
	V9	„Z9“ + IEC61850-3, IEEE1613
	VY	„V9“ + cUL60950
	VU	„V9“ + cUL60950 + GL
	VT	„V9“ + cUL60950 + EN50121-4
	U9	„Z9“ + GL
	UY	„U9“ + cUL60950
	UT	„U9“ + cUL60950, EN50121-4
	T9	„Z9“ + EN50121-4
	TY	„T9“ + cUL60950
11. Customer configuration	HH	Hirschmann - Standard
12. HW configuration	S	Standard
13. SW Configuration	H	Hirschmann
14. SW version	2S	HiOS Layer 2 Standard
15. SW Version	xx.x	Newest software

Greyhound Media Module Configuration

GRM	2	0	–								
1. Product	2. Data rate	3. PoE		4. Configuration ports 1 and 3	5. Configuration ports 5 and 7	6. Configuration ports 2 and 4	7. Configuration ports 6 and 8	8. Temp. range	9. Approvals	10. Cust. conf.	11. HW conf.

1. Product	GRM	Greyhound Switch Media Module
2. Data rate	2	10/100 Mbit/s ports
3. PoE Support	0	no PoE support
4. Configuration of ports 1 and 3	ZZ	2x SFP slot, 100 Mbit/s
	TT	2x TP, RJ45, 100 Mbit/s
	VV	2x SM, D-SC, 100 Mbit/s
	UU	2x SM, BFOC, 100 Mbit/s
	MM	2x MM, D-SC, 100 Mbit/s
	NN	2x MM, BFOC, 100 Mbit/s
5. Configuration of ports 5 and 7		Same as ports 1 and 3 above. **Note: not all variations are possible to configure**
6. Configuration of ports 2 and 4		Same as ports 1 and 3 above. **Note: not all variations are possible to configure**
7. Configuration of ports 6 and 8		Same as ports 1 and 3 above. **Note: not all variations are possible to configure**





8. Temperature range	S	Standard 0°C ... +60°C
	U	Extended -40°C ... +70°C
	F	Extended -40°C ... +70°C including Corformal Coating
9. Approvals	Z9	CE, FCC, EN61131, EN60950
	Y9	„Z9“ + cUL60950
	X9	„Z9“ + cUL60950, ISA 12.12
	V9	„Z9“ + IEC61850-3, IEEE1613
	VY	„V9“ + cUL60950
	VU	„V9“ + cUL60950 + GL
	VT	„V9“ + cUL60950 + EN50121-4
	U9	„Z9“ + GL
	UY	„U9“ + cUL60950
	UT	„U9“ + cUL60950, EN50121-4
	T9	„Z9“ + EN50121-4
	TY	„T9“ + cUL60950
10. Customer configuration	HH	Hirschmann - Standard
11. HW configuration	S	Standard

EAGLE One Firewall and Router

EagleOne	02	00				DD		0000	HH	E	xx.x
1. Product	2. FE ports	3. GE ports	4. Port 1 type	5. Port 2 type	6. Temp. range	7. Voltage range	8. Approvals	9. SW Pack	10. OEM	11. SW Conf.	12. SW version

1. Product	EagleOne	2 port Security Router
2. FE ports	2	2x 10/100 Mbit/s ports
3. GE ports	00	not available
4. Port 1 type	T1 M2	1x Twisted Pair; RJ45 1x Multimode; D-SC
5. Port 2 type	T1 M2	1x Twisted Pair; RJ45 1x Multimode; D-SC
6. Temperature range	S T E	Standard 0°C ... +60°C Extended -40°C ... +70°C Extended -40°C ... +70°C including Corformal Coating

7. Voltage range	DD	12 ... 48 VDC; 24 VAC red. input
8. Approvals	Z9	CE, FCC, C-Tick, EN61131, EN60950
	Y9	„Z9“ + cUL508
	U9	„Z9“ + GL
	UY	„U9“ + cUL508
	UT	„U9“ + cUL508 + EN50121-4
	T9	„Z9“ + EN50121-4
	TY	„T9“ + cUL508
	V9	„Z9“ + IEC61850, IEEE1613
	VY	„V9“ + cUL508
	VU	„V9“ + cUL508, GL
	VT	„V9“ + cUL508, EN50121
9. SW - Package	000 0	reserved
10. OEM Type	HH	Hirschmann
11. SW - Configuration	E	Entry (Hirschmann)
12. SW- version	XX.X	newest SW-version

EAGLE20 / EAGLE30 Firewall and Router

EAGLE		0	04		206	TT	9	99				HS	E	3F	xx.x
1. Product	2. Data rate	3. HW type	4. FE ports	5. GE ports	6. Uplink port 2 configuration	7. Port conf.	8. Cell ports	9. WAN ports	10. Temp. range	11. Voltage range	12. Approvals	13. Type	14. Confi-guration	15. SW Level	16. SW version

1. Product	EAGLE	Security Router
2. Data rate	2	FE ports only
	3	FE and GE ports
3. Hardware type	0	Standard
4. FE ports	04	4x FE
5. GE ports	00	None
	02	4x GE
6. Uplink port	206	Only GE SFPs (EAGLE 30)
	999	Not avail. (EAGLE 20)
7. Port configuration	TT	Only RJ45
8. Cellular ports	9	Not available
9. WAN ports	99	Not available

Configurator

10. Temperature range	S	Standard 0°C ... +60°C
	T	Extended -40°C ... +70°C
	E	Extended -40°C ... +70°C including Corformal Coating
11. Voltage range 1	CC	2x 18 – 60 V DC
	K9	1x 48 – 320 V DC 88 – 265 V AC
8. Approvals	Z9	CE, FCC, C-Tick, EN61131, EN60950
	Y9	„Z9“ + cUL508
	U9	„Z9“ + GL
	UY	„U9“ + cUL508
	UT	„U9“ + cUL508 + EN50121-4
	T9	„Z9“ + EN50121-4
	TY	„T9“ + cUL508
	V9	„Z9“ + IEC61850, IEEE1613
	VY	„V9“ + cUL508
	VU	„V9“ + cUL508, GL
	VT	„V9“ + cUL508, EN50121
13. Type	HS	Hirschmann Standard
14. SW - configuration	E	extended encryption
15. SW - Level	3F	Layer 3 Firewall SW
16. SW- version	XX.X	newest SW-version

Tofino Xenon Firewall and Deep Packet Inspection

TofinoXe	02	00				DD		0000	TA	T	xx.x
1. Product	2. FE ports	3. GE ports	4. Port 1 type	5. Port 2 type	6. Temp. range	7. Voltage range	8. Approvals	9. SW Pack	10. OEM	11. SW Conf.	12. SW version

1. Product	TofinoXE	2 port Security Router
2. FE ports	02	2x 10/100 Mbit/s ports
3. GE ports	00	not available
4. Port 1 type	T1 M2	1x Twisted Pair; RJ45 1x Multimode; D-SC
5. Port 2 type	T1 M2	1x Twisted Pair; RJ45 1x Multimode; D-SC
6. Temperature range	S T E	Standard 0°C ... +60°C Extended -40°C ... +70°C Extended -40°C ... +70°C including Corformal Coating
7. Voltage range	DD	12 ... 48 VDC; 24 VAC red. input

8. Approvals	Z9	CE, FCC, C-Tick, EN61131, EN60950
	Y9	„Z9“ + cUL508
	U9	„Z9“ + GL
	UY	„U9“ + cUL508
	UT	„U9“ + cUL508 + EN50121-4
	T9	„Z9“ + EN50121-4
	TY	„T9“ + cUL508
	V9	„Z9“ + IEC61850, IEEE1613
	VY	„V9“ + cUL508
	VU	„V9“ + cUL508, GL
	VT	„V9“ + cUL508, EN50121
9. SW - Package	0001	Firewall + Event Logger
	0003	„0001“ + Net Connect
	0005	„0001“ + Modbus Enforcer
	0007	„0003“ + Modbus Enforcer
	0009	„0001“ + OPC Enforcer
	000B	„0003“ + OPC Enforcer
	000D	„0005“ + OPC Enforcer
	000F	„0007“ + OPC Enforcer
	000H	„0001“ + EtherNet/IP Enforcer
	000K	„0003“ + EtherNet/IP Enforcer
	000N	„0005“ + EtherNet/IP Enforcer
	000Q	„0007“ + EtherNet/IP Enforcer
	000S	„0009“ + EtherNet/IP Enforcer
	000V	„000B“ + EtherNet/IP Enforcer
	000X	„000H“ + OPC Enforcer
	000Z	„000K“ + OPC Enforcer
10. OEM Type	HH	Hirschmann
11. SW - Configuration	E	Entry (Hirschmann)
12. SW- version	XX.X	newest SW-version

EAGLE Comparison

		EAGLE20-0400 EAGLE30-0402	EAGLE20	EAGLE One
Physical	Number of 100Mb/s ports	4	2	2
	Number of 1Gb/s ports	2		
	Serial port	x	x	x
	Redundant power supply	Low voltage only	x	x
	Relay contact	x	x	x
	Digital input	x		x
	ACA20 (USB)	x	x	x
	ACA30 (SD)	x		
	Voltage	18 to 60 VDC 48 to 320 VDC 88 to 265 VAC	9.6 to 60 VDC 18 to 30 VAC	9.6 to 60 VDC 18 to 30 VAC
	Operating temperature	0°C to 60°C -40°C to 70°C	0°C to 60°C	0°C to 60°C
	Dimensions (W x H x D)	W: 98 mm H: 164 mm D: 120 mm	W: 60 mm H: 145 mm D: 125 mm	W: 60 mm H: 145 mm D: 125 mm
	Weight	1500 g	600 g	660 g
	Protection class	IP30	IP20	IP20
Management	Industrial HiVision	x	x	x
	Central Management Platform			
	Multiple device simultaneous configuration	x	x	x
	SNMP traps	x	x	x
	LLDP		x	x
	Port statistics	x	x	x
	Port configuration check	x	x	x
	Configuable device status levels	x	x	x
	Self tests	x	x	x
	Device status alarm	x	x	x
	HiDiscovery	x	x	x
	Management VLAN	x	x	x
	Undo modification of changes	x	x	x
	Multiple stored configuration files	x	x	x
	Automatic software updates	x		
	Port auto power down	x		
	Store two versions of firmware	x	x	x

		EAGLE20-0400 EAGLE30-0402	EAGLE20	EAGLE One
Certifications	cUL508	Pending	x	x
	Germanische Lloyd	Pending	x	
	EN 60950	Pending		
	EN 61850-3	x		x
	IEEE 1613	x		x
	ISA-12.12.01 Class 1 Div 2	Pending		
	NEMA TS 2	Pending		
	EN 50121-4	Pending		x
Redundancy	Layer 2 redundancy		x	x
	Router redundancy		x	x
Logging	Event log	x	x	x
	Syslog	x	x	x
Time	NTP client / server	x	x	x
	SNTP client / server		x	x
NAT	1:1 NAT	x	x	x
	IP Masquerading	x	x	x
	Double NAT	x		
Servers	DHCP server		x	x
	DHCP relay agent		x	x
	DNS server	x	x	x
	DynDNS		x	x
Switch	VLANs	x		
	Static MAC addresses	x		
	Configurable aging timer	x		
	Prioritisation	x		
	802.1D/p mapping	x		
Router	Static routing	x	x	x
	Port based routing	x	x	x
	VLAN based routing	x		
	Multinetting	x	x	x
	Secondary IP interface addresses	x	x	x
	Port Forwarding	x	x	x
	PPPoE		x	x
VPN	IPSec VPNs	x (since Release 2.x)	x	x
	OpenVPN			

		EAGLE20-0400 EAGLE30-0402	EAGLE20	EAGLE One
Security	User management	x	x	x
	Password policy	x		
	Limited login attempts	x		
	SNMP v1/2/3, HTTPS, SSH	x	x	x
	HTTPS certificate import via web interface	x		
	Certificate creation	x		
	RADIUS authentication	x	x	x
	Encrypted configuration file	x		
	Persistent log files	x	x	x
	Login banner	x	x	x
	Editable CLI prompt	x		
	IP access restriction SSH/HTTPS/SNMP	x	x	x
	Operation without IP address			
	Audit trail	x		
Firewall	Stateful Inspection firewall	x	x	x
	Layer 3 firewall	x	x	x
	Layer 2 firewall	x (ACLs only)	x	x
	Firewall rules using IP and MAC addresses in the same rule	x		
	User firewall accounts		x	x
	Access Control Lists	x	x	x
	Configurable default policy (accept / drop / reject)	x		
	Denial of Service	x	x	x
	Rate limiting		x	x
	Firewall learning mode		x	x
	Deep packet inspection			
	Preconfigured rules for industrial protocols			
	Preconfigured rules for industrial devices			
	Asset-based firewall configuration			

OpenBAT Wireless 802.11-based wireless LAN

BAT-?															9		H	
1. Product	2. Country approvals	3. Slot 1	4. slot 2	5. Slot 3	6. AP/AC	7. Voltage range 1	8. Voltage range 2	9. App 1	10. App 2	11. Inst.	12. Ports Eth 1	13. Ports Eth 2	14. Temp. range	15. SW Option 1	16. SW Option 2	17. SW Option 3	18. Conf	19. Impl	20. SW

1. Product

BAT-R	WLAN Access Point (DIN rail mountable)
BAT-F	IP65/67 housing

2. Country approvals

EU	Europe	CN	China
US	USA/Canada (FCC/IC)	SG	Singapure
AU	Australia	JP	Japan

3. Slot 1

W	WLAN Module

4. Slot 2

9	not mounted
W	WLAN Module

5. Slot 3

9	not mounted

6. Client / Access point

A	Access Point
C	Access Client

7. Voltage range 1

C	24 – 48 VDC
K	60 -250 VDC; 110 – 230 VAC
P	PoE, 802.3af (single radio)
W	24 VDC, PoE (single radio)

8. Voltage range 2

C	24 – 48 VDC
K	60 -250 VDC; 110 – 230 VAC
W	24 VDC, PoE (single radio)
9	not assembled

9. Approvals 1

I	Substation (EN61850)	G	ATEX Zone 2
M	Vehicles, E1	M	no additional approval
F	ANSI/ISA61010-1 + Class 1 Div 2		

10. Approvals 2

9	no additional approvals

Configurator

11. Installation

Voltage range 1/2: only „K“

A	OPERATOR ACCESS AREA Area for which one of the following conditions applies when operated as intended: - accessible without TOOLS - access options for the OPERATOR provided deliberately - the OPERATOR is informed of access, regardless of which he need
B	SERVICE ACCESS AREA Area outside the OPERATOR AREA which must be accessible to the SERVICER even when switched off.

12. Ports Ethernet 1

07	Combo Gigabit Ethernet

13. Ports Ethernet 2

T1	TP 10/100/1000 Mbit/s; RJ45
99	not assembled

14. Temperature range

S	Standard 0°C ... +60°C
T	Extended -40°C ... +70°C
E	Extended -40°C ... +70°C including Corformal Coating

15. SW Option 1

9	none	B	VPN-50
A	VPN-5	C	VPN-100

16. SW Option 2

9	none

17. SW Option 3

D	Public Spot	P	PRP
9	none	A	Auto WDS

18. Configuration

Z	Starter Kit (Antenna, Connector incl.)
9	no accessoiries

19. Implementation

H	Hirschmann Standard

20. SW version

XX.X	Newest software version

OpenBAT What's included with (Z) & without (9) the Starter Kit

OpenBAT-F

No Accessories option includes the following...

1× Installation manual and 1 × CD/DVD with PDF docs and software
1× or 2x Field installable power plug, for 6 to 8 mm OD cable (connector type dependent on the configured power input. A power plug with a larger thread, e.g. for 8 to 10 mm cable OD, can be found in the Other Accessories below .
1× or 2x (depending on device model) Dust cap for power socket(s)
1× V1 sealing cap for optical connection
1× Sealing caps for power supply
3× per WLAN module Sealing caps N for antenna
4× or 5× (depending on device model) M12 cap

9

Starter Kit includes all of the above and...

1× Terminal cable: M12 connector, 8-pin on DB9 socket
1× or 2× (depending on device model) X-coded M12 plug
2× per WLAN module 50-Ω terminators for equipping free antenna connections
3× per WLAN module 3-dBi dipole dual-band antennas for initial operation

Z

OpenBAT-R

No Accessories option includes the following...

1× Installation manual and 1 × CD/DVD with PDF docs and software
1× per C or W power input configuration, a 2-pin pluggable terminal block for power
1× per K power input configuration, a 3-pin pluggable terminal block for power
1× per C, K or W power input configuration, a 2-pin pluggable terminal block for signal/fault output

Starter Kit includes all of the above and...

1× Terminal cable: M12 connector, 8-pin on DB9 socket
2× 50-Ω terminators for equipping free antenna connections (for device variants with 1 wireless module exclusively)
3× 50-Ω terminators for equipping free antenna connections (only for device variants with 2 wireless modules)
3× per WLAN module 3-dBi dipole dual-band antennas for initial operation

OpenBAT Accessories

• ACA 21-M12 (EEC) - Auto Configuration Adapter w/ M12 for OpenBAT-F	943 913-001
• ACA 21-USB (EEC) - Auto Configuration Adapter w/ USB for OpenBAT-R	943 271-003
• Terminal/serial configuration cable w/ 8-pin M12 to DB9 socket	942 087-001
• Field-attachable 8-pin M12 Ethernet X-Code plug for Gigabit	934 637-032 (Hirschmann) Lumberg part no. 0986 EMC 600
• Single-ended M12, male, X-coded, Gigabit Ethernet	Lumberg part no. RSTS 8X-478/…M
• Single-ended M12, male, X-coded, Gigabit Ethernet, rail industry approval	Lumberg part no. BRSTS 8X-552/…M
• 7/8” plug for K power input option, cable OD 6-8 mm	942 086-003
• 7/8” plug for K power input option, cable OD 8-10mm	Lumberg part no. RKC 30/11
• 7/8” plug for W and C power input option, cable OD 8-10mm	942 086-004
• 7/8” plug for W and C power input option, cable OD 6 to 8 mm	Lumberg part no. RKC 40/11
• 4-pin female M12 A-Code field-attachable for relay output, cable OD 3-6.5 mm	Lumberg part no. RKC 4/7
• 4-pin female M12 A-Code field-attachable for relay output, cable OD 4-8 mm	Lumberg part no. RKC 4/9
• Locking screw for M12 socket, metal, IP67 (25 pieces)	942 057-001
• Locking screw for M12 plug, metal, IP67 (10 pieces)	942 115-001
• Locking screw for 7/8“ plug, metal, IP67 (10 pieces)	942 111-001
• BAT-ANT-N-3AGN-IP67 (10 pcs.)	942 110-001
• 50-Ω terminators for unused antenna connections, N (10 pieces)	942 118-001
• Pole mounting kit for OpenBAT-F	942 116-001
• SFP mounting/extraction tool for IP67 socket	942 079-001

OpenBAT WLAN Controller and Third-Party IEC 61076 Accessories

BAT-Controller WLC xx

Central Firmware deployment and management of the Access Point. Requires an external web server.

WLC25	manages < 25 APs	942 034-001
WLC50	manages < 50 APs	942 034-002
WLC100	manages < 100 APs	942 034-003
WLC200	manages < 200A Ps	942 034-004
WLC500	manages < 500 APs	942 034-005
WLC1000	manages < 1000 APs	942 034-006

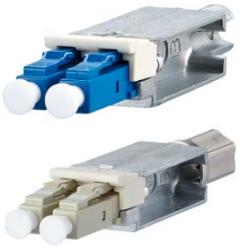
Variant 1 and 4 IEC 61076-3-106 connectors are currently not sold by Belden and need to be sourced via third party , such as Metz Connect. See parts and link below.

Var 1 plug/shell (EtherNet/IP)	1401015000ME
Var 4 plug/shell (Profinet)	14010850F0ME
Duplex LC insert (multimode)	1402800820-I
Duplex LC insert (singlemode)	1402900820-I

http://www.metz-connect.com/us/productsearch/E-DAT%20Industry%20IP67%20V1

EtherNet/IP
Variant 1

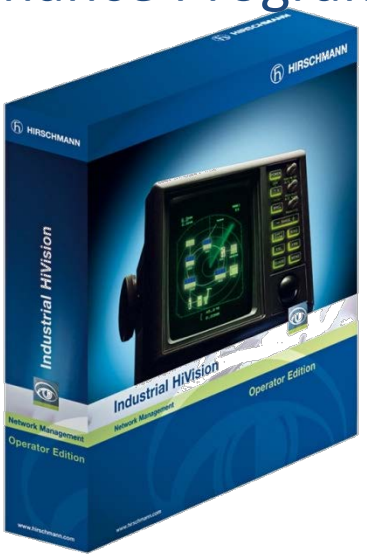
PROFINET
Variant 4



Industrial HiVision License / AMP (Annual Maintenance Program)

License keys for Industrial HiVision depend on the number of devices (nodes) to be monitored. The following classifications are available. You can also add the licenses.

Part Number	Nodes
943156016	16
943156032	32
943156064	64
943156128	128
943156256	256
943156512	512
943156124	1024
943156248	2048
943156496	4096

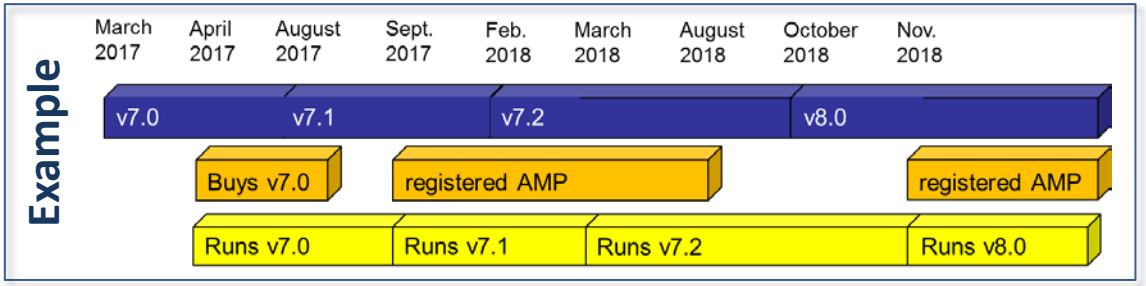


Option: Upgrade from lower to higher version of Industrial HiVision via **A**nnual **M**aintenance **P**lan

You already have a full version of Industrial HiVision ≥ version 4.0

You want to be able, within 12 months after first licensing, to make a continuous upgrade to the latest Industrial HiVision version.

After the 12 months you want to be free to decide whether you want to order a new AMP or not.



IHV – Annual Maintenance Plan, 16 Nodes	942 021-016	IHV – Annual Maintenance Plan, 512 Nodes	942 021-512
IHV – Annual Maintenance Plan, 32 Nodes	942 021-032	IHV – Annual Maintenance Plan, 1024 Nodes	942 021-124
IHV – Annual Maintenance Plan, 64 Nodes	942 021-064	IHV – Annual Maintenance Plan, 2048 Nodes	942 021-248
IHV – Annual Maintenance Plan, 128 Nodes	942 021-128	IHV – Annual Maintenance Plan, 4096 Nodes	942 021-496
IHV – Annual Maintenance Plan, 256 Nodes	942 021-256		

Auto Configuration Adapter & Terminal/Serial Cable

ACA 11, ACA21, ACA 31

ACA 11 943 751-001
(RS20/30/40, MS20/30, MACH100, MACH1000, RSR, MACH4000)

ACA 11 (EEC) 943 751-002
(RS20/30/40, MS20/30, MACH100, MACH1000, RSR, MACH4000)

ACA 11-minDIN (EEC) 943 973-001
(BAT 54 family)

ACA 21-M12 943 913-001

ACA 22-M12 (EEC) 942 125-001

ACA 21-M12 (EEC) 943 913-003
(OCTOPUS family)

ACA 22-USB (EEC) 942 124-001

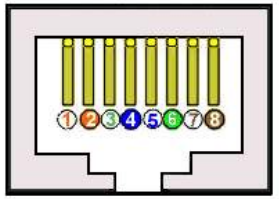
ACA 21-USB (EEC) 943 271-003
(RS20/30/40, MS20/30, MACH100, MACH1000, RSR, MACH4000)

ACA 31 942 074-001
(MSP, RSP, RSPE, RSPL, RSPS)

VT 100 terminal settings

Speed	9,600	Handshake	Off
Data	8 Bit	Parity	None
Stopbit	1 Bit		

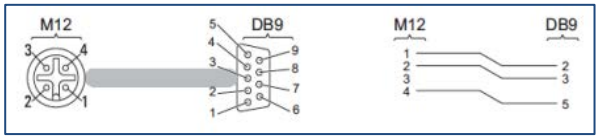
Terminal cable: RJ45 on USB 942 096-001
Terminal cable: RJ45 on Sub-D9 942 097-001



Special PIN config for MSP
(942 096-001/942 097-001)
>> CISCO terminal cable <<

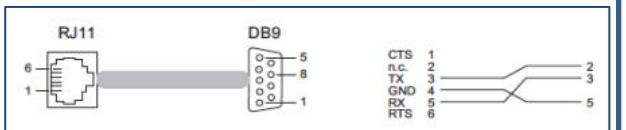
PIN assigment	Function
1	-
2	-
3	TX
4	GND
5	-
6	RX
7	-
8	-

Terminal cable: M12 on Sub-D9 943 902-001



PIN assignment of the V.24 interface(M12)
and wiring to the DB9 connector

Terminal cable: RJ11 on Sub-D9 943 301-001



PIN assignment of the V.24 interface (RJ11)
and wiring to the DB9 connector

Overview SFP Speed and RJ45 SFP Interoperability

Device	FO-SFP 100	FO-SFP 1000	TP-SFP 100	TP-SFP 1000
MS4128 MM3 4SFP MM4(2) TX/SFP	✔	✔		✔
MSP30/32 MSM20, MSM40	✔	✔		
MACH102/104 GE Combo ports	✔	✔	✔	✔
MACH1000 GE Combo ports	✔	✔	✔	✔
MACH4002 48+4G Basic Board		✔		✔
MACH4002 24G/48G Basic Board GE	✔	✔	✔	✔
OS20	✔			
OS30/32	✔	✔		
EAGLE30	✔	✔		✔ *
Spider II Giga 5T/2S		✔		✔ **
OpenBAT		✔		

Device	FO-SFP 100	FO-SFP 1000	TP-SFP 100	TP-SFP 1000
RS20				
RS30		✔		
RS40	✔	✔		✔
RSP20	✔			
RSP25	✔		✔	
RSP30	✔	✔		
RSP35	✔	✔	✔	
RSPL20	✔			
RSPL30	✔	✔		
RSPS20/25	✔			
RSR20				
RSR30	✔	✔		✔
MS20 MM3 4SFP	✔			
MS30 MM3 4SFP MM4(2) TX/SFP	✔	✔		✔

*as of rev 1.2
** TP-SFP only on port 7

Overview XFP (10-Gigabit)

XFP Transceiver	Cable type	Wave-length	Connector	Transmit Power min	Receiver Sensitivity	Transmission range	Modal Bandwith (MHz x km
M-XFP SR/LC 943 917-001	62,5/125µm Multimode	850nm	LC	-1,0 dBm	-11,1 dBm	2m – 26m	160
	62,5/125µm Multimode	850nm	LC			2m – 33m	200
	50/125µm Multimode	850nm	LC			2m -66m	400
	50/125µm Multimode	850nm	LC			2m – 100m	500
	50/125µm Multimode	850nm	LC			2m – 300m	2000
M-XFP LR/LC 943 917-001	9/125µm Singlemode	1300nm	LC	-1,0 dBm	-14,4 dBm	2m – 10km	
M-XFP ER/LC 943 920-001	9/125µm Singlemode	1550nm	LC	+ 2,0 dBm	-16,0 dBm	10km – 40km	
M-XFP ZR/LC 943 921-001	9/125µm Singlemode	1550nm	LC	+4,0 dBm	-24 dBm	40km – 80km	

Overview XFP (Gigabit)

	M- SFP-SX/LC 943 014-001 M- SFP-SX/LC EEC 943 896-001	M-SFP-LX/LC 943 015-001 M- SFP-LX/LC EEC 943 897-001	M-SFP-MX/LC EEC 942 108-001	M- SFP-LX+/LC 942 023-001 M- SFP-LX+/LC EEC 942 024-001	M- SFP-LH/LC 943 042-001 M- SFP-LH/LC EEC 943 898-001	M- SFP-LH+/LC 943 049-001	M-SFP-BIDI-Bundle LX/LC EEC 943 974-101	M-SFP-BIDI-Bundle LH/LC EEC 943 975-101	M- SFP-TX/RJ45 943 977-001
	Multimode	Multimode Singlemode	Multimode	Singlemode	Singlemode	Singlemode	Singlemode	Singlemode	Gigabit RJ45 SFP
Transmit Power max.	-4,0dBm	-3dBm	-3dBm	+2dBm	+5dBm	+5dBm			
Transmit Power min.	-9,5dBm	-9,5dBm	-9dBm	-3dBm	0dBm	0dBm			
Center wavelength	850 nm	1310 nm	1310 nm	1310 nm	1550 nm	1550 nm	A: 1310 nm B: 1550 nm	A: 1490 nm B: 1590 nm	
Receiver sensitivity	-20dBm	-20dBm	-17dBm	-23dBm	-22dBm	-30dBm			
Maximum Optical Input Power	0dBm	-3dBm	-3dBm	-3dBm	0dBm	-10dBm			
Optical budget	0 -7,5dB	0 – 10,5dB	0 -12dB	5 -20dB	5 - 22dB	13 - 30dB	0 – 11dB	5 – 24dB	
Maximum Link Span	0 - 275m GI 62,5/125 0 – 550m GI 50/125	0 - 550m* GI 62,5/125 0 – 550m* GI 50/125 0 -20km SM 9/125	0 – 500m GI 62,5/125 0 – 1,5km GI 50/125	5 - 42km SM 9/125	23 – 80km 0,25 dB/km SM 9/125	71 – 108 km 0,25dB/km 71-128 km 0,21 dB/km SM 9/125	0 – 20 km 0,25dB/km SM 9/125	23 – 80 km 0,25dB/km SM 9/125	

*with f/o adapter inline with IEE 802.3-2000 clause 38 (single-mode fiber offset-launch mode conditioning patch cord

Overview SFP (100 Mbit/s)

	M-FAST SFP-MM/LC 943 865-001 M-FAST SFP-MM/LC EEC 943 945-001 Multimode	M-FAST SFP-SM/LC 943 866-001 M-FAST SFP-SM/LC EEC 943 946-001 Singlemode	M-FAST SFP-SM+/LC 943 867-001 M-FAST SFP-SM+/LC EEC 943 947-001 Singlemode	M-FAST SFP-LH/LC 943 868-001 M-FAST SFP-LH/LC EEC 943 948-001 Singlemode	M- FAST SFP-TX/RJ45 942 098-001
Transmit Power max.	-14dBm GI 62,5/125	-8dBm	-0dBm	-0dBm	
Transmit Power min.	-20dBm GI 62,5/125	-15dBm	-5dBm	-5dBm	
Center wavelength	1310 nm	1310 nm	1310 nm	1550 nm	
Receiver Sensitivity	-31dBm	-28dBm	-34dBm	-34dBm	
Maximum Input	-14dBm	-8dBm	-10dBm	-10dBm	
Loss budget	0 – 11dB GI 62,5/125 0 – 8dB GI 50/125	0 – 13dB Singlemode	10 – 29dB Singlemode	10 – 29dB Singlemode	
Maximum Link Span	0 -4 km GI 62,5/125 1,0dB/km, 500 MHz*km 0 – 5 km GI 50/125 1,0dB/km, 800MHz*km	0 -25 km SI 9/125 0,4dB/km	25 – 65 km SI 9/125	47 -104km SI 9/125 0,25dB/km 55 -140km SI 9/125 0,18dB/km	

Fast ETHERNET RJ45 SFP
only in RSP25/35 familypluggable

Power Supplies

RPS15 943 662-015

Input data	100-240V AC; 47 to 63Hz or 85 to 375 DC Max. 0,35A at 296V AC Activation current: <36A at 240V AC
Output data	24V DC (-0,5%, +0,5%) 1,3A at 100 – 240V AC
Current consumption	0,17 A at 230 V AC

RPS30 943 662-003

Input data	100-240V AC; 47 to 63Hz or 85 to 375 DC Max. 0,35A at 296V AC Activation current: <36A at 240V AC
Output data	24V DC (-0,5%, +0,5%) 1,3A at 100 – 240V AC
Current consumption	Max. 0,35 A at 296 V AC

RPS80 EEC 943 662-080

Input data	100-240V AC(+/-15%); 50-60Hz or 110 to 300V DC (-20/+25%) Activation current: <13A at 230V AC
Output data	24-28V DC (typ. 24,1 V) external adjustable 3,4 -3,0 A continous Min 5,0 – 4,5A for typ. 4 sec
Current consumption	Max. 1,0 – 1,8 A at 100-240 V AC Max. 0,85 – 0,3 A at 110-200 V DC

RPS120EEC (CC) 943 662-121

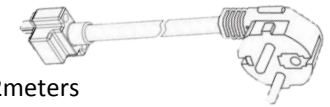
Input data	100-240V AC; (-15/+10%) 50 to 60Hz or 110 to 300V DC (+/- 20%) Max. 1,4 - 0,65 A at 100-240V AC Max. 1,2 – 0,45 A at 120 – 300V DC Activation current: < 15A at 100 and 230V AC
Output data	24-28V DC (typ. 24,1 V); externally adjustable Min. 5 – 4,5 A continous 7,5 – 6,7A for 4 sec
Current consumption	Max. 1,4-0,65 A at 100-240 V AC Max. 1,2 -0,45 A at 120-300V DC

RPS60/48V EEC 943 953-001

Input data	**100-240V AC**; 50-60Hz or 85 to 264V DC; 47 – 63Hz (DC 100 to 375V) Max. 0,7A at 230V AC; max. 1,3A at 100V AC Activation current: <40A at 264V AC
Output data	47-52V DC (typ. 48V); externally adjustable 1,25A static at 48V nominal 1,88A (150% of nominal load) for max. 2,5 sec
Current consumption	Max. 0,7 A at 230 V; max. 1,3 A at 100 V

Power cord (942 000-001) for pluggable connection
for the power supply of MACH1000 family and RSR20/30; cable length 2meters

Power cord that has a CEE 7/4 plug (Schuko) at one end
(942 067-001; 1,5m 942 067-101; 2,5m)) for pluggable connection
for the power supply of MACH1000 family and RSR20/30; cable length 2meters



RPS90/48V LV 943 980-001

Input data	**24V DC** (4,2A) 48V DC (2,1A)
Output data	48-54V DC (typ. 48V); externally adjustable 1,25A static at 48V nominal 1,88A (150% of nominal load) for max. 2,5 sec
Current consumption	24 V DC (4,2 A); 48 V DC (2,1 A)

RPS90/48V HV 943 979-001

Input data	**100-240V AC**; 50-60Hz or 85 to 264V DC; 47 – 63Hz (DC 100 to 375V)
Output data	48-54V DC (typ. 48V); externally adjustable 1,25A static at 48V nominal 1,88A (150% of nominal load) for max. 2,5 sec
Current consumption	60 V DC (1,7 A), 250 V DC (0,4 A), 110 V AC (1,0 A), 230 V AC (0,5 A)

PC150/36V/48V-IP67

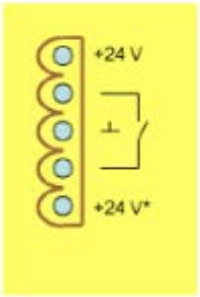
Input data	Rated voltage: **24V DC / 36V DC / 48V DC** Voltage range: **24 -48V DC** Input current: **3,8 – 8A DC** Fuse: **16 A (T)**
Output data	Output voltage: **48V DC (0 to +2% accuracy)** Output current (max.): **3,2A**

PC150/72V/48V-IP67

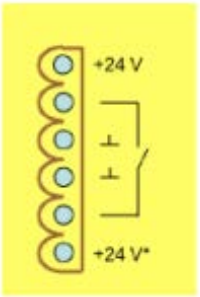
Input data	Rated voltage: **72V DC / 96V DC / 110V DC** Voltage range: **72 - 110V DC** Input current: **1,5 – 2,4A DC** Fuse: **6,3 A (T)**
Output data	Output voltage: **48V DC (0 to +2% accuracy)** Output current (max.): **3,2A**

Pluggable Power/Terminal Plugs

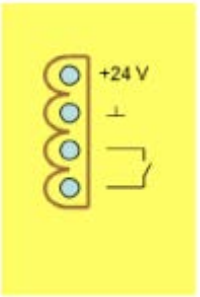
Name	Order number	Type	Applicable Series
Terminal block, 5 pin + interlock (50 pcs)	943 845-001	5 pin interlock (screw)	Rail RS2-xx/xx
Terminal block, 6 pin + interlock (50 pcs)	943 845-002	6 pin interlock (screw)	MICE MS2108/MS3124
Terminal block, 5 pin green (50 pcs)	943 845-003	5 pin snap (green)	Rail unmanaged
Terminal block, 4 pin black (50 pcs)	943 845-004	4 pin snap	Power MICE MS4128
Terminal block, 3 pin (50 pcs)	943 845-005	3 pin snap	SPIDER
Terminal block, 6 pin (50 pcs)	943 845-006	6 pin snap	Rail RS20/30/40
Terminal block, 4 pin (50 pcs)	943 845-007	4 pin snap with coding	MICE MS20/MS30
Terminal block, 3 pin (50 pcs)	943 845-008	3 pin power (screw)	RSR/MACH1000 (HV power supply)
Terminal block, 2 pin (50 pcs)	943 845-009	2 pin power (screw)	RSR/PoE-PS (LV power supply)
Terminal block, 2 pin (50 pcs)	943 845-010	2 pin relay (screw)	RSR/MACH1000 relay
Terminal block, 3 pin (50 pcs)	943 845-011	3 pin power (screw)	MACH1000 (LV power supply)
Terminal block, 6 pin (50 pcs)	943 845-013	6 pin (screw)	EAGLE One, Tofino Xenon
Power cord	942 000-001	3 pin power molded (screw)	RSR/MACH1000 (HV power supply)



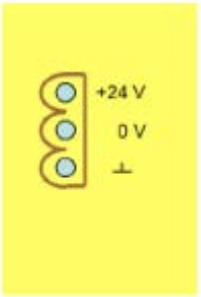
RTx and RHx
RS2-xx/xx



RS20/30/40,
RS2-4R, RS2-16
MS2108, MS3124



MS20/30
MS4128
MSP



SPIDER

MIPP Order Code for Modules

	HOUSING		MODULE 1				MODULE 2				MODULE 3				MODULE 4				MODULE 5				MODULE 6			
M	I	P	P	/	L	D	/	2	S	3	P	/	c	u	e	4	/	1	N	N	N	/				/				/				/			

Housing

Housing			
X	No Housing	H	2 x double module fiber
A	1 x single module	I	3 x double module fiber
B	2 x single module	J	1 x single + 1 x double fiber
C	3 x single module	K	1 x single + 2 x double fiber
D	4 x single module	L	2 x single + 1 x double fiber
E	5 x single module	M	2 x single + 2 x double fiber
F	6 x single module	N	3 x single + 1 x double fiber
G	1 x double module fiber	O	4 x single + 1 x double fiber

Mounting	
D	Standard DIN Rail
W	Wall Mount Plate included
X	No Housing

Fiber Splice Box Module

EXAMPLE MODULE 1: 2 S 3 P

Module	
1	Single module for 12 fibers
2	Double module for 24 fibers

Adapter	
B	ST - ST Duplex adapters in metal
T	ST - ST Duplex adapters in plastic
M	SC - SC Duplex adapters in metal
S	SC - SC Duplex adapters in plastic
L	LC - LC Duplex adapters
E	E-2000™ - E-2000™ adapters

Application	
1	MM/OM1
2	MM/OM2
3	MM/OM3
4	MM/OM4
5	6 x SM/OS2 / 6 x OM1
6	6 x SM/OS2 / 6 x OM2
7	6 x SM/OS2 / 6 x OM3
8	6 x SM/OS2 / 6 x OM4
9	SM/OS2 UPC
A	SM/OS2 APC

* Note: 5-8 for double module only

Accessories	
P	Pigtails
B	Brilliance Field Installable connectors
N	No accessories

Copper Patch Panel Module

EXAMPLE MODULE 2: c u e 4

Module	
c	Single copper module

Keystones / Couplers	
c	Unshielded couplers
d	Shielded couplers
u	Unshielded keystones
s	Shielded keystones

Category	
d	Cat. 5e
e	Cat. 6
a	Cat. 6A

Number of Connections	
2	2 keystones / couplers
4	4 keystones / couplers

Blind Module

EXAMPLE MODULE 3: 1 N N N

Two options	
1	Single Blind Module
2	Double Blind Module

Keystone Color Chart

OM1 (light ivory) 62.5/125	Multimode	
OM2 (light ivory) 50/125	Multimode	
OM3 (light green) 50/125	Multimode	
OM4 (pink) 50/125	Multimode	
OS1/OS2 (azure) 9/125	Singlemode	

Power Consumption and Output

Device name		Device model	Maximum power consumption	Power output
2 uplink ports:				
RS20-0400...		2xTX port	5.3 W	18.1 Btu (IT)/h
RS20-0400...		1xFX port, 1xTX port	6.5 W	22.2 Btu (IT)/h
RS20-0400...		2xFX port	7.7 W	26.3 Btu (IT)/h
RS20-0800...	RS22-0800...	2xTX port	5.3 W	18.1 Btu (IT)/h
RS20-0800...	RS22-0800...	1xFX port, 1xTX port	6.5 W	22.2 Btu (IT)/h
RS20-0800...	RS22-0800...	2xFX port	7.7 W	26.3 Btu (IT)/h
RS20-1600...	RS22-1600...	2xTX port	9.4 W	32.1 Btu (IT)/h
RS20-1600...	RS22-1600...	1xFX port, 1xTX port	10.6 W	36.2 Btu (IT)/h
RS20-1600...	RS22-1600...	2xFX port	11.8 W	40.3 Btu (IT)/h
RS20-2400-...	RS22-2400-...	2xTX port	12.1 W	41.3 Btu (IT)/h
RS20-2400-...	RS22-2400-...	1xFX port, 1xTX port	13.3 W	45.4 Btu (IT)/h
RS20-2400-...	RS22-2400-...	2xFX port	14.5 W	52.9 Btu (IT)/h
RS30-0802-...	RS32-0802-...	2xTX port	8.9 W	30.4 Btu (IT)/h
RS30-0802-...	RS32-0802-...	1xFX port, 1xTX port	8.6 W	29.4 Btu (IT)/h
RS30-0802-...	RS32-0802-...	2xFX port	8.3 W	28.4 Btu (IT)/h
RS30-1602-...	RS32-1602-...	2xTX port	13.0 W	44.4 Btu (IT)/h
RS30-1602-...	RS32-1602-...	1xFX port, 1xTX port	12.7 W	43.4 Btu (IT)/h
RS30-1602-...	RS32-1602-...	2xFX port	12.4 W	42.4 Btu (IT)/h
RS30-2402-...	RS32-2402-...	2xTX port	15.7 W	53.6 Btu (IT)/h
RS30-2402-...	RS32-2402-...	1xFX port, 1xTX port	15.4 W	52.6 Btu (IT)/h
RS30-2402-...	RS32-2402-...	2xFX port	15.1 W	51.6 Btu (IT)/h
3 uplink ports:				
RS20-0900-...	RS22-0900-...	3xFX port	9.6 W	32.8 Btu (IT)/h
RS20-1700-...	RS22-1700-...	3xFX port	13.7 W	46.7 Btu (IT)/h
RS20-2500-...	RS22-2500-...	3xFX port	16.4 W	56.0 Btu (IT)/h
4 uplink ports:				
RS30-0802-...	RS32-0802-...	4xFX port	12.7 W	43.3 Btu (IT)/h
RS30-1602-...	RS32-1602-...	4xFX port	16.8 W	57.3 Btu (IT)/h
RS30-2402-...	RS32-2402-...	4xFX port	19.5 W	66.5 Btu (IT)/h
RS40-...		4xFX port	20.0 W	68.2 Btu (IT)/h

Device name	Device model	Maximum power consumption	Power output
2 uplink ports:			
RS22-0800...	2xTX port	70.9 W	31.8 Btu (IT)/h
RS22-0800...	1xFX port, 1xTX port	72.1 W	35.9 Btu (IT)/h
RS22-0800...	2xFX port	73.3 W	40.0 Btu (IT)/h
RS22-1600...	2xTX port	75.0 W	45.8 Btu (IT)/h
RS22-1600...	1xFX port, 1xTX port	76.2 W	49.9 Btu (IT)/h
RS22-1600...	2xFX port	77.4 W	54.0 Btu (IT)/h
RS22-2400-...	2xTX port	77.7 W	55.0 Btu (IT)/h
RS22-2400-...	1xFX port, 1xTX port	78.9 W	59.1 Btu (IT)/h
RS22-2400-...	2xFX port	80.1 W	66.6 Btu (IT)/h
RS32-0802-...	2xTX port	74.5 W	44.1 Btu (IT)/h
RS32-0802-...	1xFX port, 1xTX port	74.2 W	43.1 Btu (IT)/h
RS32-0802-...	2xFX port	73.9 W	42.1 Btu (IT)/h
RS32-1602-...	2xTX port	78.6 W	58.1 Btu (IT)/h
RS32-1602-...	1xFX port, 1xTX port	78.3 W	57.1 Btu (IT)/h
RS32-1602-...	2xFX port	78.0 W	56.1 Btu (IT)/h
RS32-2402-...	2xTX port	81.3 W	67.3 Btu (IT)/h
RS32-2402-...	1xFX port, 1xTX port	81.0 W	66.3 Btu (IT)/h
RS32-2402-...	2xFX port	80.7 W	65.3 Btu (IT)/h
3 uplink ports:			
RS22-0900-...	3xFX port	75.2 W	46.5 Btu (IT)/h
RS22-1700-...	3xFX port	79.3 W	60.4 Btu (IT)/h
RS22-2500-...	3xFX port	82.0 W	69.7 Btu (IT)/h
4 uplink ports:			
RS32-0802-...	4xFX port	78.3 W	57.0 Btu (IT)/h
RS32-1602-...	4xFX port	82.4 W	71.0 Btu (IT)/h
RS32-2402-...	4xFX port	85.1 W	80.2 Btu (IT)/h

Power Consumption and Output

Device name MS family	Power consumption	Power output
MS20-0800..A	5,0 W	17,1 Btu (IT)/h
MS20-0800…C.. MS20-0800…E..	7,4 W	25,4 Btu (IT)/h
MS30-0802…A..	5,6 W	19,2 Btu (IT)/h
MS30-0802…C..	8,6 W	29,6 Btu (IT)/h
MS20-1600…A..	12 W	40,0 Btu (IT)/h
MS20-1600…C..	15,6 W	52,2 Btu (IT)/h
MS30-1602…A..	12,6 W	41,1 Btu (IT)/h
MS30-1602…C..	16,8 W	56,7 Btu (IT)/h
MS20-2400…A..	12,0 W	40,0 Btu (IT)/h
MS20-2400…C..	16,8 W	56,7 Btu (IT)/h
MS30-2402…A..	12,6 W	42,1 Btu (IT)/h
MS30-2402…C..	18,0 W	60,9 Btu (IT)/h

Device name media modules	Power consumption	Power output
MM23-S2S2T1T1	5,5 W	18,8 Btu (IT)/h
MM23-F4F4T1T1	5,5 W	18,8 Btu (IT)/h
MM30-07070707	9,0 W	30,8 Btu (IT)/h
MM30-07079999	5,8 W	19,8 Btu (IT)/h
MM33-07079999	7,5 W	25,6 Btu (IT)/h

Module	Power consump-tion	Power output
MM2 media modules:		
MM2-4TX1	0.8 W	2.8 Btu (IT)/h
MM2-4TX1-EEC	0.8 W	2.8 Btu (IT)/h
MM2-4FXM3	7.0 W	23.9 Btu (IT)/h
MM2-2FXM3/2TX1	3.4 W	11.6 Btu (IT)/h
MM2-2FXM2	3.4 W	11.6 Btu (IT)/h
MM2-2FXS2	3.4 W	11.6 Btu (IT)/h
MM3 media modules:		
MM3-4FLM4	5.0 W	17.1 Btu (IT)/h
MM3-4TX5	0.8 W	2.8 Btu (IT)/h
MM3-1FXM2/3TX1	2.2 W	7.5 Btu (IT)/h
MM3-1FXM2/3TX1-EEC	2.2 W	7.5 Btu (IT)/h
MM3-2FXM2/2TX1	3.4 W	11.6 Btu (IT)/h
MM3-2FXM2/2TX1-EEC	3.4 W	11.6 Btu (IT)/h
MM3-2FXM4/TX1	3.4 W	11.6 Btu (IT)/h
MM3-4FXM2	7.0 W	23.9 Btu (IT)/h
MM3-4FXM4	7.0 W	23.9 Btu (IT)/h
MM3-1FXS2/3TX1	2.2 W	7.5 Btu (IT)/h
MM3-2FXS2/2TX1	3.4 W	11.6 Btu (IT)/h
MM3-4FXS2	7.0 W	23.9 Btu (IT)/h
MM3-1FXL2/3TX1	3.4 W	11.6 Btu (IT)/h
MM4 media modules:		
MM4-4TX/SFP	9.0 W	30.8 Btu (IT)/h
MM4-2TX/SFP	5.8 W	19.8 Btu (IT)/h
Open variant media modules:		
MM20-... 4 TX-/0 FX ports	0.8 W	2.8 Btu (IT)/h
MM20-... 3 TX-/1 FX ports	2.3 W	7.9 Btu (IT)/h
MM20-... 2 TX-/2 FX ports	3.8 W	13.0 Btu (IT)/h
MM20-... 0 TX-/2 FX ports	3.8 W	13.0 Btu (IT)/h
MM20-... 1 TX-/3 FX ports	5.3 W	18.1 Btu (IT)/h
MM20-... 0 TX-/4 FX ports	6.8 W	23.2 Btu (IT)/h
MM20-A8A89999...	3.4 W	11.6 Btu (IT)/h
MM20-F4F4F4F4...	5.0 W	17.1 Btu (IT)/h
MM20-Z6Z6Z6Z6...	8.0 W	27.3 Btu (IT)/h
MM20-P9P9P9P9SAHH	8.0 W	27.3 Btu (IT)/h
MM20-P9P9T1T1SAHH	5.2 W	17.8 Btu (IT)/h
MM22-T1T1T1T1... - internal operating voltage - external PoE voltage - no PD - 4 x Class0-PD	0.8 W 1.3 W 2 W + PDs	2.8 Btu (IT)/h 4.3 Btu (IT)/h 6.9 Btu (IT)/h
MM23-T1T1T1T1...	4.5 W	15.4 Btu (IT)/h
MM23-M2M2T1T1...	6.0 W	20.5 Btu (IT)/h

Power Consumption and Output

Device name RSR family	Power consumption incl. SFP modules	Power output incl SFP modules
3x Combo port and 6x TX port (100 Mbit/s	15 W	51 Btu (IT)/h
2x combo port, 2x SFP slot (100 Mbit/s) and 6x TX port (10/100 Mbit/s)	16 W	55 Btu (IT)/h
2x Combo port and 8x TX port (10/100 Mbit/s)	14 W	48 Btu (IT)/h
2x SFP slot (1000 Mbit/s), 2x SFP slot (100 Mbit/s) and 6x TX ports (10/100 Mbit/s)	14 W	48 Btu (IT)/h
2x SFP slot (1000Mbit/s) and 8x TX ports	12 W	41 Btu (IT)/h
3x SFP slot (1000Mbit/s) and 7x TX ports	21 W	72 Btu (IT)/h
3x FX port (100Mbit/s) and 6x TX ports	14 W	48 Btu (IT)/h
2x FX port (100Mbit/s) and 6x TX ports	12 W	41 Btu (IT)/h
8x FX port (100Mbit/s) and 6x TX ports	10 W	34 Btu (IT)/h

Device name RSP family	Power consumption	Power output
RSP20-11003Z6TT…	15 W	51 Btu (IT)/h
RSP20-11003Z6ZT	18 W	61 Btu (IT)/h
RSP25-11003Z6TT	19 W	65 Btu (IT)/h
RSP25-11003Z6ZT	22 W	75 Btu (IT)/h
RSP30-0803306TT	15 W	51 Btu (IT)/h
RSP30-0803306ZT	18 W	61 Btu (IT)/h
RSP35-0803306TT	19 W	65 Btu (IT)/h
RSP35-0803306ZT	22 W	75 Btu (IT)/h

Device name MSP family	Power consumption	Power output
MSP30-0804	16 W	55 Btu (IT)/h
MSP30-1604	17 W	58 Btu (IT)/h
MSP30-2404	18 W	61 Btu (IT)/h
MSP32-0804	17 W	58 Btu (IT)/h
MSP32-1604	18 W	61 Btu (IT)/h
MSP32-2404	19 W	65 Btu (IT)/h
MSM40 media modules		
MSM40-C1C1C1C1 (GE)	5 W	17 Btu (IT)/h
MSM40-C1C1C1C1 (FE)	5 W	17 Btu (IT)/h
MSM40-T1T1T1T1 (GE)	3 W	10 Btu (IT)/h
MSM40-T1T1T1T1 (FE)	2 W	7 Btu (IT)/h
MSM42 media modules		
MSM42-T1T1T1T1 (GE)	4 W	14 Btu (IT)/h
MSM42-T1T1T1T1 (FE)	3 W	10 Btu (IT)/h
MSM20 media modules		
MSM20-xxT1T1T1 (GE)	5 W	17 Btu (IT)/h
MSM20-xxT1T1T1 (FE)	4 W	14 Btu (IT)/h
MSM20-xxxxT1T1 (GE)	4 W	14 Btu (IT)/h
MSM20-xxxxT1T1 (FE)	4 W	14 Btu (IT)/h
MSM20-xxxxxxxx (GE/FE)	5 W	17 Btu (IT)/h
MSM24-IOIOIOIO	7 W	24 Btu (IT)/h

Power Consumption and Output

Device name	Maximum power consumption	Power output
RSP20-11003Z6TT...	15 W	51 BTU (IT)/h
RSP20-11003Z6ZT...	18 W	61 BTU (IT)/h
RSP25-11003Z6TT...	19 W	65 BTU (IT)/h
RSP25-11003Z6ZT...	22 W	75 BTU (IT)/h
RSP30-08033O6TT...	15 W	51 BTU (IT)/h
RSP30-08033O6ZT...	18 W	61 BTU (IT)/h
RSP35-08033O6TT...	19 W	65 BTU (IT)/h
RSP35-08033O6ZT...	22 W	75 BTU (IT)/h

Device name	Maximum power consumption	Power output
RSPL20-08002Z6TT.....	8 W	27 BTU (IT)/h
RSPL20-08002Z6YT.....	10 W	34 BTU (IT)/h
RSPL30-08022O7YT.....	14 W	47 BTU (IT)/h
RSPL30-08022O7ZT.....	16 W	55 BTU (IT)/h

Device name	Maximum power consumption	Power output
RSPS20-....2Z6YT.....	10 W	34 BTU (IT)/h
RSPS20-....2Z6TT.....	8 W	27 BTU (IT)/h
RSPS20-....2T1TT.....	7 W	24 BTU (IT)/h
RSPS25-....2Z6YT.....	12 W	41 BTU (IT)/h
RSPS25-....2Z6TT.....	10 W	34 BTU (IT)/h
RSPS25-....2T1TT.....	9 W	31 BTU (IT)/h

Device name	Max. power consumption	Power output
SPIDER II 8TX	4,1 W	14,0 Btu (IT)/h
SPIDER II 8TX EEC	5,8 W	19,8 Btu (IT)/h
SPIDER II 8TX/1FX EEC	6,3 W	21,5 Btu (IT)/h
SPIDER II 8TX/2FX EEC	8,4 W	28,7 Btu (IT)/h
SPIDER II 8TX/1FX-SM EEC	7,0 W	23,9 Btu (IT)/h
SPIDER II 8TX 1FX-ST EEC	7,0 W	23,9 Btu (IT)/h
SPIDER II 8TX/2FX-SM EEC	8,4 W	28,7 Btu (IT)/h
SPIDER II 8TX/2FX-ST EEC	8,4 W	28,7 Btu (IT)/h
SPIDER II GIGA 5T EEC	3,6 W	12,1 Btu (IT)/h
SPIDER II GIGA 5T/2S EEC	6,6 W	21,6 Btu (IT)/h
SPIDER II GIGA 5T EEC PRO	3,6 W	12,1 Btu (IT)/h
SPIDER II GIGA 5T/2S EEC PRO	6,6 W	21,6 Btu (IT)/h
SPIDER II GIGA 5T EEC JUMBO	3,6 W	12,1 Btu (IT)/h
SPIDER II GIGA 5T/2S EEC JUMBO	6,6 W	21,6 Btu (IT)/h
SPIDER II 8TX PoE non PD (powered device)	4,6 W	15,7 Btu (IT)/h
SPIDER II 8TX PoE 4x Class 0-PD (powered device)	74,9 W	255,5 Btu (IT)/h

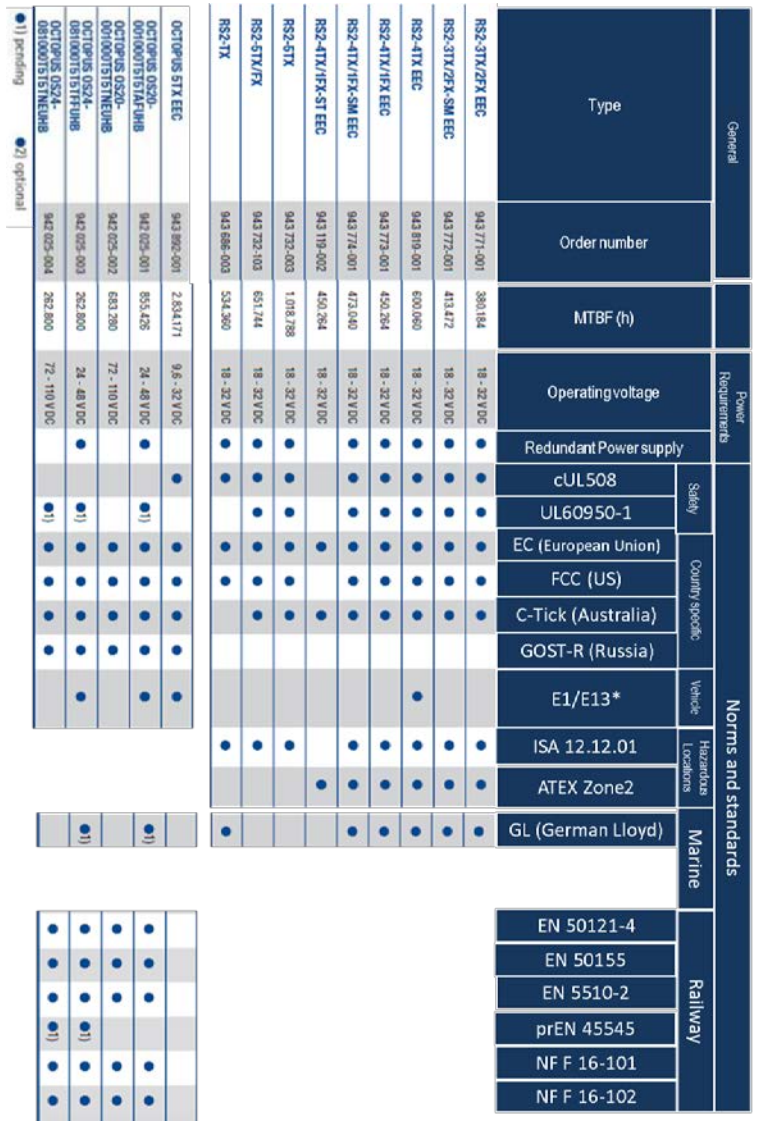
Standards and Approvals

General			Power Requirements		Norms and standards						
					Safety		Country specific				Vehicle
Type	Order number	MTBF (h)	Operating voltage	Redundant Power supply	cUL508	UL60950-1	EC (European Union)	FCC (US)	C-Tick (Australia)	GOST-R (Russia)	e1/E13*
SPIDER 1TX/1FX	943 890-001	2.321.198	9,6 - 32 V DC		●		●	●	●	●	
SPIDER 1TX/1FX EEC	943 927-001	2.321.198	9,6 - 32 V DC		●		●	●	●	●	
SPIDER 1TX/1FX-SM	943 891-001	1.208.655	9,6 - 32 V DC		●		●	●	●	●	
SPIDER 1TX/1FX-SM EEC	943 928-001	1.208.655	9,6 - 32 V DC		●		●	●	●	●	
SPIDER 3TX-TAP	943 899-001	3.158.778	9,6 - 32 V DC		●		●	●	●	●	
SPIDER 4TX/1FX	943 221-001	1.706.945	9,6 - 32 V DC		●		●	●	●	●	
SPIDER 4TX/1FX EEC	943 221-101	1.706.945	9,6 - 32 V DC		●		●	●	●	●	
SPIDER 4TX/1FX-SM EEC	943 880-001	1.132.654	9,6 - 32 V DC		●		●	●	●	●	
SPIDER 4TX/1FX-ST EEC	943 914-001	1.706.945	9,6 - 32 V DC				●	●	●	●	
SPIDER 5TX	943 824-002	2.093.802	9,6 - 32 V DC		●		●	●	●	●	
SPIDER 5TX EEC	943 824-102	2.093.802	9,6 - 32 V DC		●		●	●	●	●	●
SPIDER 8TX	943 376-001	1.664.170	9,6 - 32 V DC		●		●	●	●	●	
SPIDER 8TX EEC	943 376-201	1.664.170	9,6 - 32 V DC		●		●	●	●	●	

General			Power Requirements		Norms and standards						
					Safety		Country specific				Vehicle
Type	Order number	MTBF (h)	Operating voltage	Redundant Power supply	cUL508	UL60950-1	EC (European Union)	FCC (US)	C-Tick (Australia)	GOST-R (Russia)	e1/E13*
SPIDER II 8TX	943 957-001	1.623.640	9,6 - 32 V DC		●		●	●	●	●	●
SPIDER II 8TX EEC	943 958-001	1.239.618	9,6 - 32 V DC		●		●	●	●	●	●
SPIDER II 8TX/1FX EEC	943 958-111	1.009.693	9,6 - 32 V DC		●		●	●	●	●	●
SPIDER II 8TX/1FX-SM EEC	943 958-131	1.001.101	9,6 - 32 V DC		●		●	●	●	●	●
SPIDER II 8TX/1FX-ST EEC	943 958-121	950.841	9,6 - 32 V DC		●		●	●	●	●	●
SPIDER II 8TX/2FX EEC	943 958-211	771.188	9,6 - 32 V DC		●		●	●	●	●	●
SPIDER II 8TX/2FX-SM EEC	943 958-231	839.560	9,6 - 32 V DC		●		●	●	●	●	●
SPIDER II 8TX/2FX-ST EEC	943 958-221	771.188	9,6 - 32 V DC		●		●	●	●	●	●
SPIDER II Giga 5T EEC	943 962-002	1.084.142	9,6 - 32 V DC		●		●	●	●	●	●
SPIDER II Giga 5T EEC Jumbo	943 962-202	1.084.142	9,6 - 32 V DC		●		●	●	●	●	●
SPIDER II Giga 5T EEC PRO	943 962-102	1.084.142	9,6 - 32 V DC		●		●	●	●	●	●
SPIDER II Giga 5T/2S EEC	943 963-002	1.001.113	9,6 - 32 V DC		●		●	●	●	●	●
SPIDER II Giga 5T/2S EEC Jumbo	943 963-202	1.001.113	9,6 - 32 V DC		●		●	●	●	●	●
SPIDER II Giga 5T/2S EEC PRO	943 963-102	1.001.113	9,6 - 32 V DC		●		●	●	●	●	●
SPIDER 1TX/1FX-MM PD EEC	942 051-002	484.428	36 - 57 V DC		●		●	●	●	●	●
SPIDER 1TX/1FX-SM PD EEC	942 051-003	484.428	36 - 57 V DC		●		●	●	●	●	●
SPIDER 5TX PD EEC	942 051-001	401.208	36 - 57 V DC		●		●	●	●	●	●
SPIDER II 8TX PoE	942 008-001	479.015	18 - 32 V DC		●		●	●	●	●	●

Standards and Approvals

General	Power Requirements		Norms and standards																					
			Safety		Country specific				Hazardous Locations		Marine										Railway			
Type	Operating voltage	Redundant Power supply	cUL508		EC (European Union)	FCC (US)	C-Tick (Australia)	GOST-R (Russia)	ISA 12.12.01	ATEX Zone2	ABS	BV (Bureau Veritas)	DNV (Det Norske Veritas)	GL (German Lloyd)	LR (Lloyd's Register)	KR (Korea)	RINA (Italy)	BSH (Compass Distance)	EN 50121-4					
RS20-xxxxxxxxDAUHHXX.X.	9,6 - 60 V DC 18 - 30 V AC	●	●		●	●	●	●	●									●						
RS20-xxxxxxxxDHUHHXX.X.	9,6 - 60 V DC 18 - 30 V AC	●	●		●	●	●	●	●				●	●				●	●					
RS20-xxxxxxxxDBUHHXX.X.	9,6 - 60 V DC 18 - 30 V AC	●	●		●	●	●	●	●	●			●	●				●	●					
RS20-xxxxxxxxDAUHHXX.X.	9,6 - 60 V DC 18 - 30 V AC	●	●		●	●	●	●	●									●						
RS20-xxxxxxxxDHUHHXX.X.	9,6 - 60 V DC 18 - 30 V AC	●	●		●	●	●	●	●					●				●	●					
RS20-xxxxxxxxDBUHHXX.X.	9,6 - 60 V DC 18 - 30 V AC	●	●		●	●	●	●	●	●				●				●	●					
RS30-xxxxxxxxDAUHHXX.X.	9,6 - 60 V DC 18 - 30 V AC	●	●		●	●	●	●	●									●						
RS30-xxxxxxxxDHUHHXX.X.	9,6 - 60 V DC 18 - 30 V AC	●	●		●	●	●	●	●		●	●	●	●	●	●	●	●	●					
RS30-xxxxxxxxDBUHHXX.X.	9,6 - 60 V DC 18 - 30 V AC	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
RS30-xxxxxxxxDAUHHXX.X.	9,6 - 60 V DC 18 - 30 V AC	●	●		●	●	●	●	●									●						
RS30-xxxxxxxxDHUHHXX.X.	9,6 - 60 V DC 18 - 30 V AC	●	●		●	●	●	●	●		●	●	●	●	●	●	●	●	●					
RS30-xxxxxxxxDBUHHXX.X.	9,6 - 60 V DC 18 - 30 V AC	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					

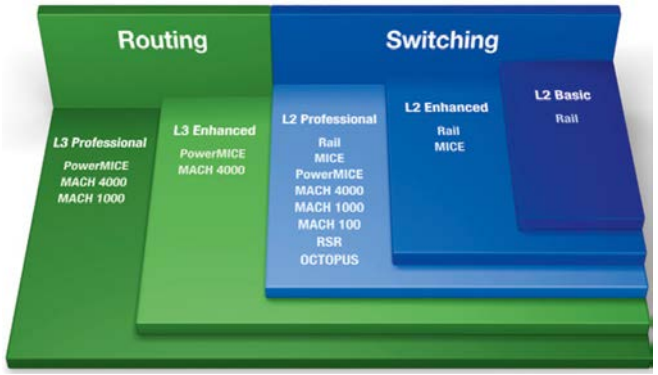


Classic

Platform 4

The Classic Switch Software (Release 8)

Software Platform for Hirschmann™ **managed** **MACH**, **MICE**, **Rail** and **OCTOPUS** families



Switching	
Layer 2 **Basic**	Suitable for **RSB20**, **OCTOPUS**. The cost-effective entrance into managed switch capabilities. Includes statistics, filters, and redundancy technologies. The alternative for unmanaged switches.
Layer 2 **Enhanced**	Suitable for **RS20/RS30/RS40**, **MS20/MS30**. Basic level plus a wide range of management, filter and diagnostic functions. Fast redundancy mechanisms, industrial profiles like EtherNet/IP and PROFINET and security features are also supported. Ideally suited for standard industrial applications.
Layer 2 **Professional**	Suitable for **RS20/RS30/RS40**, **MS20/MS30**, **OCTOPUS**, **PowerMICE**, **RSR20/RSR30**, **MACH100**, **MACH1000**, **MACH4000**. Enhanced software plus extended diagnostic, filter properties, security and redundancy features. A software package for applications where great value is placed on uncompromising plant safety and the highest level of availability.

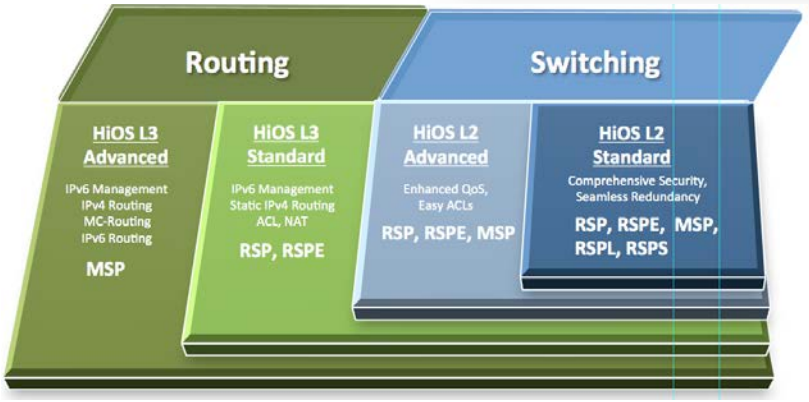
Routing	
Layer 3 **Enhanced**	Suitable for **PowerMICE**, **MACH4000**. Professional L2 software plus additional security, static routing, router and link redundancy. The Layer 3 software for smaller networks and applications with extended security requirements.
Layer 3 **Professional**	Suitable for **PowerMICE**, **MACH1040**, **MACH4000**. Layer 3 Enhanced plus a wide range of dynamic routing protocols, fast router redundancy and enhanced link redundancy.

HiOS

Platform 5

HiOS - Hirschmann™ Operating System

Software Platform for Hirschmann™ **managed** **RSP**, **MSP** and **Embedded** **Ethernet Switch** families



Switching	
Layer 2 **Standard**	Suitable for **RSP** and **EES** series. In addition to numerous management and diagnostic options, HiOS provides precise time synchronization compliant with IEEE 1588v2 plus a variety of redundancy protocols. With zero switchover times, the PRP (Parallel Redundancy Protocol) and HSR (High-Availability Seamless Redundancy) redundancy methods ensure smooth production processes. Comprehensive security mechanisms protect your network against attacks and operating errors, so also contributing to high network availability. Management protocols include Telnet, SSHv2, HTTP, HTTPS, TFTP, SFTP, and SNMP v1/v2/v3. In addition to PRP and HSR, redundancy protocols also include MRP (Media Redundancy Protocol), Fast MRP, and RSTP (Rapid Spanning Tree Protocol). The security mechanisms of the operating system comprise MAC-based Port Security, Authentication (IEEE802.1x), Gust/unauthenticated VLAN, Radius Client, Restricted Management Access, Local User Accounts, various Privilege Levels, Management Authentication via Radius, Account Locking, configurable Password Policy and Login Attempts, Audit Trail, CLI/SNMP Logging, and HTTPS-certified Management.
Layer 2 **Advanced**	Suitable for **MSP** series. The Advanced Level includes all features of the Standard level plus additional "Quality of Service" functions such as DiffServ and VLAN extensions, MAC and IP based VLANs, and security mechanisms like Access Control List (ACL), Radius Enhancements, IP source guard, Dynamic ARP inspection and IEEE802.1x Multi Client Authentication.

Function Platform 4 (Classic) + Platform 5 (HiOS)

⚠ = Feature is hardware dependent and not supported by all devices in this software level.
(This information is only available for HiOS)

	HiOS						Classic						
Management	**Since**	**L2E**	**L2S**	**L2A**	**L3S**	**L3A**	**Since**	**L2B (<=05.0)**	**L2B+ (>=05.2)**	**L2E**	**L2P**	**L3E**	**L3P**
DNS Client	02.0			✓	✓	✓	-						
TFTP	01.0	✓	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
SFTP	01.0	✓	✓	✓	✓	✓	-						
SCP	02.0	✓	✓	✓	✓	✓	-						
LLDP (802.1AB)	01.0	✓	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
LLDP-MED	02.0		✓	✓	✓	✓	07.0				✓	✓	✓
SSHv1	-						02.0				✓	✓	✓
SSHv2	01.0	✓	✓	✓	✓	✓	08.0				✓	✓	✓
V.24	01.0	✓	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
HTTP	01.0	✓	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
HTTPS	01.0	✓	✓	✓	✓	✓	08.0				✓	✓	✓
Traps	01.0	✓	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
SNMP v1/v2/v3	01.0	✓	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
Telnet	01.0	✓	✓	✓	✓	✓	01.0			✓	✓	✓	✓

Diagnostics	**Since**	**L2E**	**L2S**	**L2A**	**L3S**	**L3A**	**Since**	**L2B (<=05.0)**	**L2B+ (>=05.2)**	**L2E**	**L2P**	**L3E**	**L3P**
Management Address Conflict Detection	02.0	✓	✓	✓	✓	✓	02.0			✓	✓	✓	✓
MAC Notification	02.0		✓	✓	✓	✓	08.0				✓	✓	✓
Signal contact	01.0	⚠	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
Device Status Indication	01.0	✓	✓	✓	✓	✓	03.0	✓	✓	✓	✓	✓	✓
TCPDump	01.0	✓	✓	✓	✓	✓	06.0				✓	✓	✓
LEDs	01.0	✓	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
Syslog	01.0	✓	✓	✓	✓	✓	01.0			✓	✓	✓	✓
Persistent logging on ACA21/31	01.0	⚠	✓	✓	✓	✓	-						
Email logging	02.0			✓	✓	✓	-						
Port Monitor	02.0	✓	✓	✓	✓	✓	07.0				✓	✓	✓
Link flap detection	02.0	✓	✓	✓	✓	✓	07.0				✓	✓	✓
Duplex Mismatch Detection	02.0	✓	✓	✓	✓	✓	06.0			✓	✓	✓	✓
Link speed and duplex monitor	05.0	✓	✓	✓	✓	✓	09.0				✓	✓	✓
RMON (1,2,3,9)	01.0	✓	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
Port Mirroring 1:1	01.0	✓	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
Port Mirroring 8:1	01.0	✓	✓	✓	✓	✓	06.0			✓	✓	✓	✓
Port Mirroring N:1	05.0	✓	✓	✓	✓	✓	08.0				✓	✓	✓
RSPAN	05.0			✓	✓	✓	-						
SFLOW	02.0			✓	✓	✓	-						
VLAN Mirroring	05.0			✓	✓	✓	-						
System information	01.0	✓	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
Self tests on cold start	01.0	✓	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
Copper cable test	02.0	⚠	⚠	✓	✓	✓	01.0				✓	✓	✓
SFP management (temperature, optical input and output power)	01.0	✓	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
Configuration check dialog	01.0	✓	✓	✓	✓	✓	07.0				✓	✓	✓
Switch dump	01.0	✓	✓	✓	✓	✓	06.0			✓	✓	✓	✓
Snapshot configuration feature	03.0	✓	✓	✓	✓	✓	-						

Status of the list: Classic = 09.0; HiOS = 05.0 (04.11.2014)

Function Platform 4 (Classic) + Platform 5 (HiOS)

⚠ = Feature is hardware dependent and not supported by all devices in this software level.
(This information is only available for HiOS)

Configuration	HiOS Since	L2E	L2S	L2A	L3S	L3A	Classic Since	L2B (<=05.0)	L2B+ (>=05.2)	L2E	L2P	L3E	L3P
Auto-Configuration Adapter ACA11 limited support (RS20/30/40,MS20/30)	-						03.1	✓		✓	✓	✓	✓
Automatic configuration undo (roll-back)	01.0	✓	✓	✓	✓	✓	04.0		✓	✓	✓	✓	✓
Configuration fingerprint	02.0	✓	✓	✓	✓	✓	08.0			✓	✓	✓	✓
Text based configuration file (XML)	01.0	✓	✓	✓	✓	✓	-						
Auto-Configuration Adapter ACA11 full support	-						05.2		✓				
BOOTP/DHCP client with auto configuration	01.0	✓	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
DHCP Server: per port	02.0		✓	✓	✓	✓	04.1				✓	✓	✓
DHCP Server: pools per VLAN	02.0		✓	✓	✓	✓	07.1				✓	✓	✓
DHCP Server: Option 43	-						08.0				✓	✓	✓
Auto-Configuration Adapter ACA31 (SD card)	01.0	⚠	⚠	⚠	⚠	✓	-						
Auto-Configuration Adapter ACA21 (USB)	03.0		⚠	⚠	⚠	✓	01.0			✓	✓	✓	✓
HiDiscovery	01.0	✓	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
DHCP Relay with Option 82	02.0	⚠	⚠	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
Command Line Interface (CLI)	01.0	✓	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
CLI scripting	02.0	✓	✓	✓	✓	✓	01.0				✓	✓	✓
Full featured MIB support	01.0	✓	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
WEB based management	01.0	✓	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
Context sensitive help	01.0	✓	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓

Filter	Since	L2E	L2S	L2A	L3S	L3A	Since	L2B (<=05.0)	L2B+ (>=05.2)	L2E	L2P	L3E	L3P
Disable Learning (hub functionality)	-						03.0			✓	✓	✓	✓
Independent VLAN learning	01.0	✓	✓	✓	✓	✓	01.0			✓	✓	✓	✓
Fast aging	01.0	✓	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
Static unicast/multicast address entries	01.0	✓	✓	✓	✓	✓	01.0		✓	✓	✓	✓	✓
QoS / Port prioritization (802.1D/p)	01.0	✓	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
TOS/DSCP prioritization	01.0	✓	✓	✓	✓	✓	04.0	✓	✓	✓	✓	✓	✓
Interface trust mode	01.0	✓	✓	✓	✓	✓	-						
CoS queue management	01.0	✓	✓	✓	✓	✓	01.0					✓	✓
IP Ingress DiffServ classification and policing	02.0			✓	✓	✓	-						
IP Egress DiffServ classification and policing	02.0			⚠		✓	-						
Jumbo Frames	04.0		⚠	✓	✓	✓	-						
VLAN (802.1Q)	01.0	✓	✓	✓	✓	✓	01.0			✓	✓	✓	✓
Protocol-based VLAN	02.0			✓	✓	✓	01.0						✓
GVRP	-						03.0				✓	✓	✓
Voice VLAN	02.0		✓	✓	✓	✓	07.0				✓	✓	✓
MAC-based VLAN	02.0			✓	✓	✓	-						
IP subnet-based VLAN	02.0			✓	✓	✓	-						
GMRP	-						01.0				✓	✓	✓
IGMP Snooping/Querier (v1/v2/v3)	-						01.5		✓	✓	✓	✓	✓
IGMP Snooping/Querier per VLAN (v1/v2/v3)	01.0	✓	✓	✓	✓	✓	-						
Unknown multicast filtering	01.0	✓	✓	✓	✓	✓	-						
Multiple VLAN Registration Protocol (MVRP)	03.0	✓	✓	✓	✓	✓	-						
Multiple MAC Registration Protocol (MMRP)	03.0	✓	✓	✓	✓	✓	-						
Multiple Registration Protocol (MRP)	03.0	✓	✓	✓	✓	✓	-						

Function Platform 4 (Classic) + Platform 5 (HiOS)

⚠ = Feature is hardware dependent and not supported by all devices in this software level.
(This information is only available for HiOS)

	HiOS						Classic						
Security	**Since**	**L2E**	**L2S**	**L2A**	**L3S**	**L3A**	**Since**	**L2B (<=05.0)**	**L2B+ (>=05.2)**	**L2E**	**L2P**	**L3E**	**L3P**
IP-based Port Security	-						01.0			✓	✓	✓	✓
MAC-based Port Security	01.0	✓	✓	✓	✓	✓	01.0			✓	✓	✓	✓
Port-based access control with 802.1X	01.0	✓	✓	✓	✓	✓	01.0				✓	✓	✓
Guest/unauthenticated VLAN	01.0	✓	✓	✓	✓	✓	07.0				✓	✓	✓
Integrated Authentication Server (IAS)	01.0	✓	✓	✓	✓	✓	-						
RADIUS VLAN assignment	01.0	✓	✓	✓	✓	✓	07.0				✓	✓	✓
RADIUS policy assignment	02.0			✓	✓	✓	-						
Multi-client authentication per port	02.0			✓	✓	✓	07.0				✓	✓	✓
MAC authentication bypass	02.0			✓	✓	✓	07.0				✓	✓	✓
DHCP Snooping	02.0			✓	✓	✓	-						
IP Source Guard	02.0			⚠		✓	-						
Dynamic ARP Inspection	02.0			✓	✓	✓	-						
Automatic Denial-of-Service Prevention	02.0	✓	✓	✓	✓	✓	-						
LDAP	05.0			✓	✓	✓	-						
Ingress MAC-based ACL	02.0			✓	✓	✓	01.0					✓	✓
Egress MAC-based ACL	02.0			⚠		✓	-						
Ingress IPv4-based ACL	02.0			✓	✓	✓	01.0					✓	✓
Egress IPv4-based ACL	02.0			⚠		✓	-						
Time-based ACL	02.0			✓	✓	✓	-						
VLAN-based ACL	02.0		⚠	✓	✓	✓	-						
Ingress VLAN-based ACL	02.0		⚠	✓	✓	✓	01.0					✓	✓
Egress VLAN-based ACL	02.0			⚠		✓	-						
Basic ACL	03.0		⚠				-						
ACL flow-based limiting	03.0			✓	✓	✓	-						
Access to management restricted by VLAN	01.0	✓	✓	✓	✓	✓	01.0			✓	✓	✓	✓
Device security indication	01.0	✓	✓	✓	✓	✓	-						
Audit trail	01.0	✓	✓	✓	✓	✓	-						
CLI logging	01.0	✓	✓	✓	✓	✓	-						
HTTPS certificate management	01.0	✓	✓	✓	✓	✓	08.0				✓	✓	✓
Restricted management access	01.0	✓	✓	✓	✓	✓	06.0				✓	✓	✓
Appropriate use banner	01.0	✓	✓	✓	✓	✓	-						
Configurable password policy	01.0	✓	✓	✓	✓	✓	-						
Configurable number of login attempts	01.0	✓	✓	✓	✓	✓	-						
SNMP logging	01.0	✓	✓	✓	✓	✓	06.0			✓	✓	✓	✓
Multiple privilege levels	01.0	✓	✓	✓	✓	✓	-						
Local user management	01.0	✓	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
Remote authentication via RADIUS	01.0	✓	✓	✓	✓	✓	05.0				✓	✓	✓
Account locking	01.0	✓	✓	✓	✓	✓	-						

Industrial Profiles	**Since**	**L2E**	**L2S**	**L2A**	**L3S**	**L3A**	**Since**	**L2B (<=05.0)**	**L2B+ (>=05.2)**	**L2E**	**L2P**	**L3E**	**L3P**
EtherNet/IP protocol	05.0	⚠	⚠	✓	✓	✓	03.0			✓	✓	✓	✓
IEC61850 protocol (MMS server, switch model)	03.0	✓	✓	✓	✓	✓	08.0				✓	✓	✓
ModbusTCP	05.0	✓	✓	✓	✓	✓	-						
PROFINET IO protocol	05.0	⚠	⚠	✓	✓	✓	03.0			✓	✓	✓	✓

Function Platform 4 (Classic) + Platform 5 (HiOS)

⚠ = Feature is hardware dependent and not supported by all devices in this software level.
(This information is only available for HiOS)

	HiOS						Classic						
Time Synchronization	**Since**	**L2E**	**L2S**	**L2A**	**L3S**	**L3A**	**Since**	**L2B (<=05.0)**	**L2B+ (>=05.2)**	**L2E**	**L2P**	**L3E**	**L3P**
PTPv2 Transparent Clock two-step	01.0	⚠	⚠	✓	✓	✓	07.0				⚠	⚠	⚠
PTPv2 Boundary Clock	01.0	⚠	⚠	✓	✓	✓	05.0			✓	✓	✓	✓
IRIG-B	01.1	⚠					-						
Buffered Real Time Clock	01.0	⚠	✓	✓	✓	✓	-						
SNTP Client	01.0	✓	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
SNTP Server	01.0	✓	✓	✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓

Flow Control	**Since**	**L2E**	**L2S**	**L2A**	**L3S**	**L3A**	**Since**	**L2B (<=06.0)**	**L2B+ (>=06.2)**	**L2E**	**L2P**	**L3E**	**L3P**
Queue-Shaping / Max. Queue Bandwidth	03.0		⚠	✓	✓	✓	-						
Egress broadcast limiter per port	-						01.0			✓	✓	✓	✓
Flow control (802.3X)	01.0	✓	✓	✓	✓	✓	01.0			✓	✓	✓	✓
Egress interface shaping	01.0	✓	✓	✓	✓	✓	-						
Ingress storm protection	01.0	✓	✓	✓	✓	✓	-						

Miscellaneous	**Since**	**L2E**	**L2S**	**L2A**	**L3S**	**L3A**	**Since**	**L2B (<=06.0)**	**L2B+ (>=06.2)**	**L2E**	**L2P**	**L3E**	**L3P**
Dual software image support	01.0	⚠	⚠	✓	✓	✓	01.0				✓	✓	✓
Digital IO management	02.0			⚠		✓	07.0			✓	✓	✓	✓
PoE (802.3AF)	02.0		⚠	⚠	⚠	✓	03.0			✓	✓	✓	✓
PoE+ (802.3AT)	02.0		⚠	⚠	⚠	✓	07.0		✓		✓	✓	✓
PoE fast startup	05.0		⚠	⚠	⚠	✓	07.1				✓	✓	✓
VLAN unaware mode	01.0	✓	✓	✓	✓	✓	-						
Cable crossing	01.0	✓	✓	✓	✓	✓	04.1	✓	✓	✓	✓	✓	✓
Port power down	01.0	✓	✓	✓	✓	✓	-						

Routing	**Since**	**L2E**	**L2S**	**L2A**	**L3S**	**L3A**	**Since**	**L2B (<=06.0)**	**L2B+ (>=06.2)**	**L2E**	**L2P**	**L3E**	**L3P**
IP/UDP helper	04.0				✓	✓	-						
Full wire speed IPv4 port-based routing	04.0				✓	✓	01.0					✓	✓
VLAN-based routing	04.0				✓	✓	01.0					✓	✓
Loopback interface	04.0				✓	✓	-						
ICMP filter	04.0				✓	✓	-						
Net directed broadcasts	04.0				✓	✓	06.0					✓	✓
OSPFv2	04.0					✓	01.0						✓
RIP v1,v2	04.0					✓	01.0					✓	✓
ICMP Router Discovery (IRDP)	04.0				✓	✓	01.0					✓	✓
ECMP	04.0					✓	01.0					✓	✓
Static unicast routing	04.0				✓	✓	-						
Proxy ARP	04.0				✓	✓	01.0					✓	✓
Static route tracking	04.0				✓	✓	05.0					✓	✓

Multicast Routing	**Since**	**L2E**	**L2S**	**L2A**	**L3S**	**L3A**	**Since**	**L2B (<=06.0)**	**L2B+ (>=06.2)**	**L2E**	**L2P**	**L3E**	**L3P**
DVMRP	04.0					⚠	01.5						✓
IGMP v1,v2,v3	04.0				✓	✓	01.5						✓
IGMP Proxy (Multicast Routing)	04.0				✓	✓	-						
PIM-DM (RFC3973)	04.0					⚠	01.5						✓
PIM-SM / SSM (RFC4601)	04.0					⚠	07.0						✓

HiOS Feature Overview per Device

⚠ = Feature is hardware dependent and not supported by all devices in this software level.
(This information is only available for HiOS)

	HiOS	L2E	L2E	L2S	L2S	L2S	L2S	L2S	L2S	L2S	L2A	L2A	L2A	L2A	L3S	L3S	L3S	L3A	L3A
Management	**Since**	**EES**	**EESX**	**RSPS**	**RSPL**	**RSP**	**RSPE**	**RED**	**GRS**	**OS**	**RSP**	**RSPE**	**OS**	**MSP**	**RSP**	**RSPE**	**OS**	**MSP (UR)**	**MSP (MR)**
DNS Client	02.0										✓	✓	✓	✓	✓	✓	✓	✓	✓
TFTP	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SFTP	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SCP	02.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LLDP (802.1AB)	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LLDP-MED	02.0			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SSHv2	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
V.24	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
HTTP	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
HTTPS	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Traps	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SNMP v1/v2/v3	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Telnet	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Diagnostics	**Since**	**EES**	**EESX**	**RSPS**	**RSPL**	**RSP**	**RSPE**	**RED**	**GRS**	**OS**	**RSP**	**RSPE**	**OS**	**MSP**	**RSP**	**RSPE**	**OS**	**MSP (UR)**	**MSP (MR)**
Management Address Conflict Detection	02.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MAC Notification	02.0			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Signal contact	01.0		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Device Status Indication	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TCPDump	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LEDs	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Syslog	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Persistent logging on ACA21/31	01.0		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Email logging	02.0										✓	✓	✓	✓	✓	✓	✓	✓	✓
Port Monitor	02.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Link flap detection	02.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Duplex Mismatch Detection	02.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Link speed and duplex monitor	05.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
RMON (1,2,3,9)	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Port Mirroring 1:1	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Port Mirroring 8:1	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Port Mirroring N:1	05.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
RSPAN	05.0										✓	✓	✓	✓	✓	✓	✓	✓	✓
SFLOW	02.0										✓	✓	✓	✓	✓	✓	✓	✓	✓
VLAN Mirroring	05.0										✓	✓	✓	✓	✓	✓	✓	✓	✓
System information	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Self tests on cold start	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Copper cable test	02.0		✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SFP management (temperature, optical input and output power)	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Configuration check dialog	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Switch dump	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Snapshot configuration feature	03.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Configuration	**Since**	**EES**	**EESX**	**RSPS**	**RSPL**	**RSP**	**RSPE**	**RED**	**GRS**	**OS**	**RSP**	**RSPE**	**OS**	**MSP**	**RSP**	**RSPE**	**OS**	**MSP (UR)**	**MSP (MR)**
Automatic configuration undo (roll-back)	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Configuration fingerprint	02.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Text based configuration file (XML)	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BOOTP/DHCP client with auto configuration	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DHCP Server: per port	02.0			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DHCP Server: pools per VLAN	02.0			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Auto-Configuration Adapter ACA31 (SD card)	01.0		✓	✓	✓	✓	✓				✓	✓		✓	✓	✓		✓	✓
Auto-Configuration Adapter ACA21 (USB)	03.0						✓	✓	✓	✓		✓	✓	✓		✓	✓	✓	✓
HiDiscovery	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DHCP Relay with Option 82	02.0		✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Command Line Interface (CLI)	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CLI scripting	02.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Full featured MIB support	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
WEB based management	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Context sensitive help	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Industrial Profiles	**Since**	**EES**	**EESX**	**RSPS**	**RSPL**	**RSP**	**RSPE**	**RED**	**GRS**	**OS**	**RSP**	**RSPE**	**OS**	**MSP**	**RSP**	**RSPE**	**OS**	**MSP (UR)**	**MSP (MR)**
EtherNet/IP protocol	05.0	✓		✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
IEC61850 protocol (MMS server, switch model)	03.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ModbusTCP	05.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PROFINET IO protocol	05.0	✓		✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

HiOS Feature Overview per Device

⚠ = Feature is hardware dependent and not supported by all devices in this software level.
(This information is only available for HiOS)

Filter	HiOS since	L2E EES	L2E EESX	L2S RSPS	L2S RSPL	L2S RSP	L2S RSPE	L2S RED	L2S GRS	L2S OS	L2A RSP	L2A RSPE	L2A OS	L2A MSP	L3S RSP	L3S RSPE	L3S OS	L3A MSP (Lite)	L3A MSP (Mid)
Independent VLAN learning	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Fast aging	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Static unicast/multicast address entries	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
QoS / Port prioritization (802.1D/p)	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
TOS/DSCP prioritization	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Interface trust mode	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
CoS queue management	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
IP ingress DiffServ classification and policing	02.0										✔	✔	✔	✔	✔	✔	✔	✔	✔
IP Egress DiffServ classification and policing	02.0													✔				✔	✔
Jumbo Frames	04.0					✔	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
VLAN (802.1Q)	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Protocol-based VLAN	02.0										✔	✔	✔	✔	✔	✔	✔	✔	✔
Voice VLAN	02.0			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
MAC-based VLAN	02.0										✔	✔	✔	✔	✔	✔	✔	✔	✔
IP subnet-based VLAN	02.0										✔	✔	✔	✔	✔	✔	✔	✔	✔
IGMP Snooping/Querier per VLAN (v1/v2/v3)	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Unknown multicast filtering	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Multiple VLAN Registration Protocol (MVRP)	03.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Multiple MAC Registration Protocol (MMRP)	03.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Multiple Registration Protocol (MRP)	03.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔

Time Synchronization	HiOS since	EES	EESX	RSPS	RSPL	RSP	RSPE	RED	GRS	OS	RSP	RSPE	OS	MSP	RSP	RSPE	OS	MSP (Lite)	MSP (Mid)
PTPv2 Transparent Clock two-step	01.0	✔		✔		✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
PTPv2 Boundary Clock	01.0	✔		✔		✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
IRIG-B	01.1	✔																	
Buffered Real Time Clock	01.0		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
SNTP Client	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
SNTP Server	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔

Flow Control	HiOS since	EES	EESX	RSPS	RSPL	RSP	RSPE	RED	GRS	OS	RSP	RSPE	OS	MSP	RSP	RSPE	OS	MSP (Lite)	MSP (Mid)
Queue-Shaping / Max. Queue Bandwidth	03.0					✔	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Flow control (802.3X)	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Egress interface shaping	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Ingress storm protection	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔

Miscellaneous	HiOS since	EES	EESX	RSPS	RSPL	RSP	RSPE	RED	GRS	OS	RSP	RSPE	OS	MSP	RSP	RSPE	OS	MSP (Lite)	MSP (Mid)
Dual software image support	01.0		✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Digital IO management	02.0													✔				✔	✔
PoE (802.3AF)	02.0						✔			✔		✔	✔	✔		✔	✔	✔	✔
PoE+ (802.3AT)	02.0						✔			✔		✔	✔	✔		✔	✔	✔	✔
PoE fast startup	05.0						✔			✔		✔	✔	✔		✔	✔	✔	✔
VLAN unaware mode	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Cable crossing	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Port power down	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔

Routing	HiOS since	EES	EESX	RSPS	RSPL	RSP	RSPE	RED	GRS	OS	RSP	RSPE	OS	MSP	RSP	RSPE	OS	MSP (Lite)	MSP (Mid)
IP/UDP helper	04.0														✔	✔	✔	✔	✔
Full wire speed IPv4 port-based routing	04.0														✔	✔	✔	✔	✔
VLAN-based routing	04.0														✔	✔	✔	✔	✔
Loopback interface	04.0														✔	✔	✔	✔	✔
ICMP filter	04.0														✔	✔	✔	✔	✔
Net directed broadcasts	04.0														✔	✔	✔	✔	✔
OSPFv2	04.0																	✔	✔
RIP v1,v2	04.0																	✔	✔
ICMP Router Discovery (IRDP)	04.0														✔	✔	✔	✔	✔
ECMP	04.0																	✔	✔
Static unicast routing	04.0														✔	✔	✔	✔	✔
Proxy ARP	04.0														✔	✔	✔	✔	✔
Static route tracking	04.0														✔	✔	✔	✔	✔

Multicast Routing	HiOS since	EES	EESX	RSPS	RSPL	RSP	RSPE	RED	GRS	OS	RSP	RSPE	OS	MSP	RSP	RSPE	OS	MSP (Lite)	MSP (Mid)
DVMRP	04.0																		✔
IGMP v1,v2,v3	04.0														✔	✔	✔	✔	✔
IGMP Proxy (Multicast Routing)	04.0														✔	✔	✔	✔	✔
PIM-DM (RFC3973)	04.0																		✔
PIM-SM / SSM (RFC4601)	04.0																		✔

HiOS Feature Overview per Device

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Security	HiOS since	L2E EES	L2E EESX	L2S RSPS	L2S RSPL	L2S RSP	L2S RSPE	L2S RED	L2S GRS	L2S OS	L2A RSP	L2A RSPE	L2A OS	L2A MSP	L3S RSP	L3S RSPE	L3S OS	L3A MSP (Lite)	L3A MSP (Mid)
MAC-based Port Security	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Port-based access control with 802.1X	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Guest/unauthenticated VLAN	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Integrated Authentication Server (IAS)	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
RADIUS VLAN assignment	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
RADIUS policy assignment	02.0										✓	✓	✓	✓	✓	✓	✓	✓	✓
Multi-client authentication per port	02.0										✓	✓	✓	✓	✓	✓	✓	✓	✓
MAC authentication bypass	02.0										✓	✓	✓	✓	✓	✓	✓	✓	✓
DHCP Snooping	02.0										✓	✓	✓	✓	✓	✓	✓	✓	✓
IP Source Guard	02.0													✓				✓	✓
Dynamic ARP Inspection	02.0										✓	✓	✓	✓	✓	✓	✓	✓	✓
Automatic Denial-of-Service Prevention	02.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LDAP	05.0										✓	✓	✓	✓	✓	✓	✓	✓	✓
Ingress MAC-based ACL	02.0										✓	✓	✓	✓	✓	✓	✓	✓	✓
Egress MAC-based ACL	02.0													✓				✓	✓
Ingress IPv4-based ACL	02.0										✓	✓	✓	✓	✓	✓	✓	✓	✓
Egress IPv4-based ACL	02.0													✓				✓	✓
Time-based ACL	02.0										✓	✓	✓	✓	✓	✓	✓	✓	✓
VLAN-based ACL	02.0					✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ingress VLAN-based ACL	02.0					✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Egress VLAN-based ACL	02.0													✓				✓	✓
Basic ACL	03.0					✓	✓			✓									
ACL flow-based limiting	03.0										✓	✓	✓	✓	✓	✓	✓	✓	✓
Access to management restricted by VLAN	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Device security indication	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Audit trail	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CLI logging	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
HTTPS certificate management	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Restricted management access	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Appropriate use banner	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Configurable password policy	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Configurable number of login attempts	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SNMP logging	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Multiple privilege levels	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Local user management	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Remote authentication via RADIUS	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Account locking	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Redundancy Functions	since	EES	EESX	RSPS	RSPL	RSP	RSPE	RED	GRS	OS	RSP	RSPE	OS	MSP	RSP	RSPE	OS	MSP (Lite)	MSP (Mid)
Device Level Ring	05.0	✓		✓		✓	✓	✓		✓	✓	✓	✓		✓	✓	✓		
HIPER-Ring (Ring Switch)	05.0										✓	✓	✓	✓	✓	✓	✓	✓	✓
HIPER-Ring over Link Aggregation	05.0										✓	✓	✓	✓	✓	✓	✓	✓	✓
Link Aggregation	03.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Link Backup	03.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Media Redundancy Protocol (MRP) (IEC62439-2)	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fast MRP (IEC62439-3)	01.0	✓		✓		✓	✓	✓		✓	✓	✓	✓		✓	✓	✓		
MRP over Link Aggregation	03.0										✓	✓	✓	✓	✓	✓	✓	✓	✓
High Availability Seamless Redundancy Protocol (HSR)	02.0	✓		✓		✓	✓	✓		✓	✓	✓	✓		✓	✓	✓		
Parallel Redundancy Protocol (PRP)	01.1	✓		✓		✓	✓	✓		✓	✓	✓	✓		✓	✓	✓		
Redundant network coupling	06.0P																		
Sub Ring Manager	04.0										✓	✓	✓	✓	✓	✓	✓	✓	✓
RSTP 802.1D-2004 (IEC62439-1)	01.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MSTP (802.1Q)	02.0																		
VRRP	04.0														✓	✓	✓	✓	✓
VRRP tracking	04.0														✓	✓	✓	✓	✓
HIVRRP (VRRP enhancements)	04.0														✓	✓	✓	✓	✓

HiOS Feature Overview per Device

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	HiOS	L2E	L2E	L2S	L2S	L2S	L2S	L2S	L2S	L2S	L2A	L2A	L2A	L2A	L3S	L3S	L3S	L3A	L3A
Security	**Since**	**EES**	**EESX**	**RSPS**	**RSPL**	**RSP**	**RSPE**	**RED**	**GRS**	**OS**	**RSP**	**RSPE**	**OS**	**MSP**	**RSP**	**RSPE**	**OS**	**MSP (UI)**	**MSP (MI)**
MAC-based Port Security	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Port-based access control with 802.1X	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Guest/unauthenticated VLAN	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Integrated Authentication Server (IAS)	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
RADIUS VLAN assignment	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
RADIUS policy assignment	02.0										✔	✔	✔	✔	✔	✔	✔	✔	✔
Multi-client authentication per port	02.0										✔	✔	✔	✔	✔	✔	✔	✔	✔
MAC authentication bypass	02.0										✔	✔	✔	✔	✔	✔	✔	✔	✔
DHCP Snooping	02.0										✔	✔	✔	✔	✔	✔	✔	✔	✔
IP Source Guard	02.0													✔				✔	✔
Dynamic ARP Inspection	02.0										✔	✔	✔	✔	✔	✔	✔	✔	✔
Automatic Denial-of-Service Prevention	02.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
LDAP	05.0										✔	✔	✔	✔	✔	✔	✔	✔	✔
Ingress MAC-based ACL	02.0										✔	✔	✔	✔	✔	✔	✔	✔	✔
Egress MAC-based ACL	02.0													✔				✔	✔
Ingress IPv4-based ACL	02.0										✔	✔	✔	✔	✔	✔	✔	✔	✔
Egress IPv4-based ACL	02.0													✔				✔	✔
Time-based ACL	02.0										✔	✔	✔	✔	✔	✔	✔	✔	✔
VLAN-based ACL	02.0					✔	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Ingress VLAN-based ACL	02.0					✔	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Egress VLAN-based ACL	02.0													✔				✔	✔
Basic ACL	03.0					✔	✔			✔									
ACL flow-based limiting	03.0										✔	✔	✔	✔	✔	✔	✔	✔	✔
Access to management restricted by VLAN	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Device security indication	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Audit trail	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
CLI logging	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
HTTPS certificate management	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Restricted management access	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Appropriate use banner	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Configurable password policy	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Configurable number of login attempts	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
SNMP logging	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Multiple privilege levels	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Local user management	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Remote authentication via RADIUS	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Account locking	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔

Redundancy Functions	**Since**	**EES**	**EESX**	**RSPS**	**RSPL**	**RSP**	**RSPE**	**RED**	**GRS**	**OS**	**RSP**	**RSPE**	**OS**	**MSP**	**RSP**	**RSPE**	**OS**	**MSP (UI)**	**MSP (MI)**
Device Level Ring	05.0	✔		✔		✔	✔	✔		✔	✔	✔	✔		✔	✔	✔		
HIPER-Ring (Ring Switch)	05.0										✔	✔	✔	✔	✔	✔	✔	✔	✔
HIPER-Ring over Link Aggregation	05.0										✔	✔	✔	✔	✔	✔	✔	✔	✔
Link Aggregation	03.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Link Backup	03.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Media Redundancy Protocol (MRP) (IEC62439-2)	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Fast MRP (IEC62439-3)	01.0	✔		✔		✔	✔	✔		✔	✔	✔	✔		✔	✔	✔		
MRP over Link Aggregation	03.0										✔	✔	✔	✔	✔	✔	✔	✔	✔
High Availability Seamless Redundancy Protocol (HSR)	02.0	✔		✔		✔	✔	✔		✔	✔	✔	✔		✔	✔	✔		
Parallel Redundancy Protocol (PRP)	01.1	✔		✔		✔	✔	✔		✔	✔	✔	✔		✔	✔	✔		
Redundant network coupling	06.0P																		
Sub Ring Manager	04.0										✔	✔	✔	✔	✔	✔	✔	✔	✔
RSTP 802.1D-2004 (IEC62439-1)	01.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
MSTP (802.1Q)	02.0																		
VRRP	04.0														✔	✔	✔	✔	✔
VRRP tracking	04.0														✔	✔	✔	✔	✔
HIVRRP (VRRP enhancements)	04.0														✔	✔	✔	✔	✔

Industrial Profiles	**Since**	**EES**	**EESX**	**RSPS**	**RSPL**	**RSP**	**RSPE**	**RED**	**GRS**	**OS**	**RSP**	**RSPE**	**OS**	**MSP**	**RSP**	**RSPE**	**OS**	**MSP (UI)**	**MSP (MI)**
EtherNet/IP protocol	05.0	✔		✔		✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
IEC61850 protocol (MMS server, switch model)	03.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
ModbusTCP	05.0	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
PROFINET IO protocol	05.0	✔		✔		✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔

Redundancy Protocol Comparison Per IEC 62439

Protocol		Most current Standard	Typical re-config	Remark	Available since
STP	Spanning Tree Protocol	IEEE 802.1d	30s	any topology/mesh, diameter limited	1990
RSTP	Rapid Spanning Tree Protocol	IEEE 802.1D-2004	2s	any topology/mesh, diameter limited	2004
CRP	Cross-Network Redundancy Protocol	IEC 62439-4:2010	1s worst case for 512 end nodes	any topology/ duplicated networks	2007
BRP	Beacon Redundancy Protocol	IEC 62439-5:2010	4...8ms worst case for 500 end nodes	Two top level switches with star, line or ring topologies	2007
DRP	Distributed Redundancy Protocol	IEC 62439-6:2010	100ms worst case for 50 switches	ring, double ring	2010
MRP	Media Redundancy Protocol	IEC 62439-2:2010	200ms worst case for 50 switches	ring	1998/2007
Fast MRP	Media Redundancy Protocol	IEC 62439-2:2010	30ms worst case for 50 switches 10ms worst case for 15 switches	ring	2010
Optimized RSTP	Rapid Spanning Tree Protocol	IEEE 802.1D-2004 (configuration requirements described in IEC 62439-1:2010)	5...20ms per switch	ring	2010
HSR	High-Availability Seamless Redundancy	IEC 62439-3:2012-07	0ms	ring	2010
PRP	Parallel Redundancy Protocol	IEC 62439-3:2012-07	0ms	any toplogy/ duplicated networks	2010

(1) pre-standard Hiper Ring since 1998, MRP since 2007
(2) pre-standard Fast Hiper Ring since 2007

Function Platform 4 (Classic) + Platform 5 (HiOS)

⚠ = Feature is hardware dependent and not supported by all devices in this software level.
(This information is only available for HiOS)

	HiOS						Classic						
Redundancy Functions	Since	L2E	L2S	L2A	L3S	L3A	Since	L2B (<=06.0)	L2B+ (>=06.2)	L2E	L2P	L3E	L3P
Device Level Ring	05.0	⚠	⚠	⚠	⚠		-						
HIPER-Ring (Manager)	-						01.0		✓	✓	✓	✓	✓
HIPER-Ring (Ring Switch)	05.0			✓	✓	✓	01.0	✓	✓	✓	✓	✓	✓
HIPER-Ring over Link Aggregation	05.0			✓	✓	✓	02.0				✓	✓	✓
Fast HIPER-Ring	-						04.0				✓	✓	✓
Link Aggregation	03.0	✓	✓	✓	✓	✓	01.0				✓	✓	✓
Link Backup	03.0	✓	✓	✓	✓	✓	-						
Media Redundancy Protocol (MRP) (IEC62439-2)	01.0	✓	✓	✓	✓	✓	03.0		✓	✓	✓	✓	✓
Fast MRP (IEC62439-3)	01.0	⚠	⚠	⚠	⚠		-						
MRP over Link Aggregation	03.0			✓	✓	✓	-						
High Availability Seamless Redundancy Protocol (HSR)	02.0	⚠	⚠	⚠	⚠		-						
Parallel Redundancy Protocol (PRP)	01.1	⚠	⚠	⚠	⚠		-						
Redundant network coupling	06.0P						01.0			✓	✓	✓	✓
Sub Ring Manager	04.0			⚠	✓	✓	05.0				✓	✓	✓
RSTP 802.1D-2004 (IEC62439-1)	01.0	✓	✓	✓	✓	✓	04.1		✓	✓	✓	✓	✓
MSTP (802.1Q)	0Z.0						06.0				✓	✓	✓
RSTP over MRP	-						05.0			✓	✓	✓	✓
VRRP	04.0				✓	✓	01.0					✓	✓
VRRP tracking	04.0				✓	✓	04.0					✓	✓
HiVRRP (VRRP enhancements)	04.0				✓	✓	04.0						✓

Layer 2 Redundancy Matrix

	HIPER Ring	Fast HIPER Ring	MRP	Fast MRP	Ring coupling	Subring Manager	RSTP	MSTP	PRP/HSR	Link Backup	**Link Aggregation**	Link Aggregation over HIPER ring	Link Aggregation over MRP (HiOS-2A)	VRRP/ HiVRRP (L3 device-only)
RS2 xx/xx	●	-	-	-	●	-	●	-	-	-	**-**	-	-	-
RS20-L2B/RSB	●	-	●	-	-	-	●	-	-	-	**-**	-	-	-
OpenRail RS20/30/40	●	-	●	-	●	-	●	●	-	-	**L2P**	-	-	-
OpenMICE MS20/30	●	-	●	-	●	-	●	●	-	-	**L2P**	-	-	-
MS2108/3124	●	-	-	-	●	-	●	-	-	-	-	-	-	-
MS4128	●	-	●	-	●	4	●	-	-	-	●	●	-	**L3P**
MSP	-	-	●	-	●	4	●	-	-	>v3.0	>v3.0	-	●	**UR/MR**
MACH102/104	●	-	●	-	●	-	●	●	-	-	●	-	-	**L3P**
MACH1000	●	●	●	-	●	4	●	●	-	-	●	-	-	**-**
MACH1040	●	●	●	-	●	8	●	●	-	-	●	-	-	**L3P**
RSR20/30	●	●	●	-	●	4	●	●	-	-	●	-	-	**-**
MACH4000	●	-	●	-	●	4	●	●	-	-	**L2P**	●	-	**L3P**
RSP25/35	-	-	●	●	-	4	●	-	●	>v3.0	>v3.0	-	●	-
RSPE35/37			●	●		4	●		●	●	●		●	●
RSPL20/30	-	-	●	-	-	-	●	-	-	-	-	-	-	-
RSPS25	-	-	●	●	-	-	●	-	●	**-**	-	**-**	**-**	**-**
GECKO	**-**	**-**	**-**	**-**	**-**	**-**	●	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Product, Feature and Approval Matrix

	WIRED (TP and/or Fibre)	WIRELESS	DIN RAIL	PANEL	19" RACK	MAXIMUM DATA SPEED	MAXIMUM PORT DENSITY	UNMANAGED	MANAGED/LAYER 2	MANAGED/LAYER 3 (ROUTING)	12 V DC	24 V DC	36 V DC	48 V DC	110/250 V DC	60/120/250 V DC	18-30 V AC	110/230 V AC	REDUNDANT POWER INPUTS	PoE (POWER SOURCE)	PoE+ (POWER SOURCE)	PoE (POWERED DEVICE)	-40°C/-40°F	-20°C/-4°F	0°C/32°F	50°C/122°F	60°C/140°F	70°C/158°F	85°C/185°F	cUL508	cUL1604/ISA 12.12.01/FM3611 (CLASS 1 DIV 2)	GL (Germanischer Lloyd)	IEC 61850-3 (SUBSTATION)	IEEE 1613 (SUBSTATION)	EN 50155, DIN 5510-2, NF F 16-101/102 (RAIL, ONBOARD)	EN 50121-4 (RAIL, TRACK-SIDE)	ATEX 100a, ZONE 2 (HAZARDOUS LOCATION)	cUL60950
SPIDER SPIDER II	●		●	○	○	G	18	●			●	●							●	○			◐	●	●	●	●	●		●	●						●	●
SPIDER (PD)	●		●	○	○	100	5	●						●								○	◐	●	●	●	●	●		●								
SPIDER (INJ.)	●		●	○		G	2	●				●	●	●					●	○	○		◐	●	●	●	●	●		●								
RS2	●		●	○	○	100	8	●			●	●							●				◐	●	●	●	●	●		●	●	●					●	●
GECKO	●		●		○	100	4		●		●	●											◐	●	●	●	●	●		●								
RS20	●		●		○	100	25	●	●		●	●	●	●				●	●	○			◐	●	●	●	●	●		●	●	●	●	●		●	●	
RS30	●		●		○	G	26	●	●		●	●	●	●				●	●	○			◐	●	●	●	●	●		●	●	●	●	●		●	●	
RS40	●		●		○	G	9		●		●	●	●	●				●	●				◐	●	●	●	●	●		●	●	●	●	●			●	
RSB	●		●		○	100	9		●		●	●	●	●					●				◐	●	●	●	●	●		●	●							
RSP	●		●		○	G	11		●	●		●	●	●		●		●	●				◐	●	●	●	●	●		●			●	●		●		
RSPS	●		●		○	G	11		●			●	●	●		●		●	●				◐	●	●	●	●	●		●			●	●		●		
RSPL	●		●		○	G	11		●			●	●	●		●		●	●				◐	●	●	●	●	●		●			●	●		●		
RSPE	●		●		○	G	11		●	●		●	●	●		●		●	●				◐	●	●	●	●	●		●			●	●		●		
RSR	●		●	○	○	G	10		●		●	●	●	●	●	●		●	●				◐	●	●	●	●	●	●	●	●	●	●	●	●		●		●
MS20	●		●		○	100	24		●			●	●	●		●			●	○			◐	●	●	●	●	●		●	●	●	●	●		●	●	
MS30	●		●		○	G	26		●			●	●	●		●			●	○			◐	●	●	●	●	●		●	●	●	●	●		●	●	
MSP	●		●		○	G	28		●	●		●	●	●		●			●	○	○		◐	●	●	●	●	●		●	●	●	●	●		●	●	●
OCTOPUS	●			○		G	24	●	●		●	●	●	●		●			●	○	○		◐	●	●	●	●	●		●		●			●	●		
MACH100	●			○	●	10G	26		●					●				●		○	○					●	●				●						●
MACH1000	●			○	●	G	28		●	●	●	●	●	●	●	●		●	●	○			◐	●	●	●	●	●	●	●	●	●	●	●	●			
MACH4000	●			○	●	10G	51		●	●		●		●				●	●	○						●	●				●						●
BAT		●	●	○	○	450	2		●	●	●	●	●	●	●	●		●	●			○	◐	●	●	●	●	●		●	●		●	●	●	●		●
Tofino Xenon	●		●		○	100	2		●	●	●	●	●	●			●		●				◐	●	●	●	●	●		●			●					
EAGLE20/30	●		●		○	G	2		●	●	●	●	●	●			●		●				◐	●	●	●	●	●		●			●					
EAGLE One	●		●		○	100	2		●	●	●	●	●	●			●		●				◐	●	●	●	●	●		●			●					
Fieldbus	●		●				3	●				●							●				◐		●	●					●	●					●

○ ○ Hollow markers indicate that a non-standard/accessory mounting option is available

Who and How to Contact

Inside Sales 855-400-9071 or inetsalesops@belden.com

Tech Support 717-217-2270 or inet-support.us@belden.com

Create own support ticket

https://hirschmann-support.belden.eu.com/

Alternate resources

Resource file download site
ftp://ftp.hirschmann-usa.com/INET-IndustrialNetworking

Online demo of switch management
http://demo.hirschmann-usa.com/