OpenRail Managed DIN Rail Mount Switches

EtherNet/IP ™
conformance tested

PROFINET

OpenRail Compact and Modular Switches

With the continued growth and demand for application-specific switches, Hirschmann has developed the OpenRail line of managed and unmanaged switches. The OpenRail series allows users to choose either a Compact or Modular switch, as well as specify port density, backbone type (RJ45/fiber) and speed, temperature ratings, conformal coating and a myriad of industry approvals. Both compact

and modular platforms offer redundant power inputs and fault relay (triggerable by loss of power and/or port link), while only the managed versions offers media/ring redundancy, multicast filtering/IGMP Snooping, VLAN, port mirroring, network diagnostics, port control, etc.

Compact Switches

A compact platform that allows for up to 24-ports in a mere 4.25" of DIN rail! Available in managed and unmanaged versions.

RS20 Series Managed/Unmanaged

8x, 9x, 16x, 24x and 25x 10/100 Mbps ports

RS20 Series Managed (Only)

4x 10/100 Mbps ports

RS30 Series

2x Gigabit Uplinks and 8x, 16x, and 24x 10/100 Mbps ports

Available as a managed or unmanaged switch

RS40 Series

9x Gigabit ports

Available as a managed switch only

Modular Switches (MICE)

A modular and flexible platform that facilitates an almost limitless variety of port variations while allowing users to change the switch's port density and configuration on the fly using hot-plug Media Modules. Only available as a managed switch.

MS20 Series

MS20-08: 8x 10/100 Mbps ports (max)

MS20-16: 16x 10/100 Mbps ports, with backplane extenison (MB-2T) a port density of 24x 10/100 Mbps can be obtained
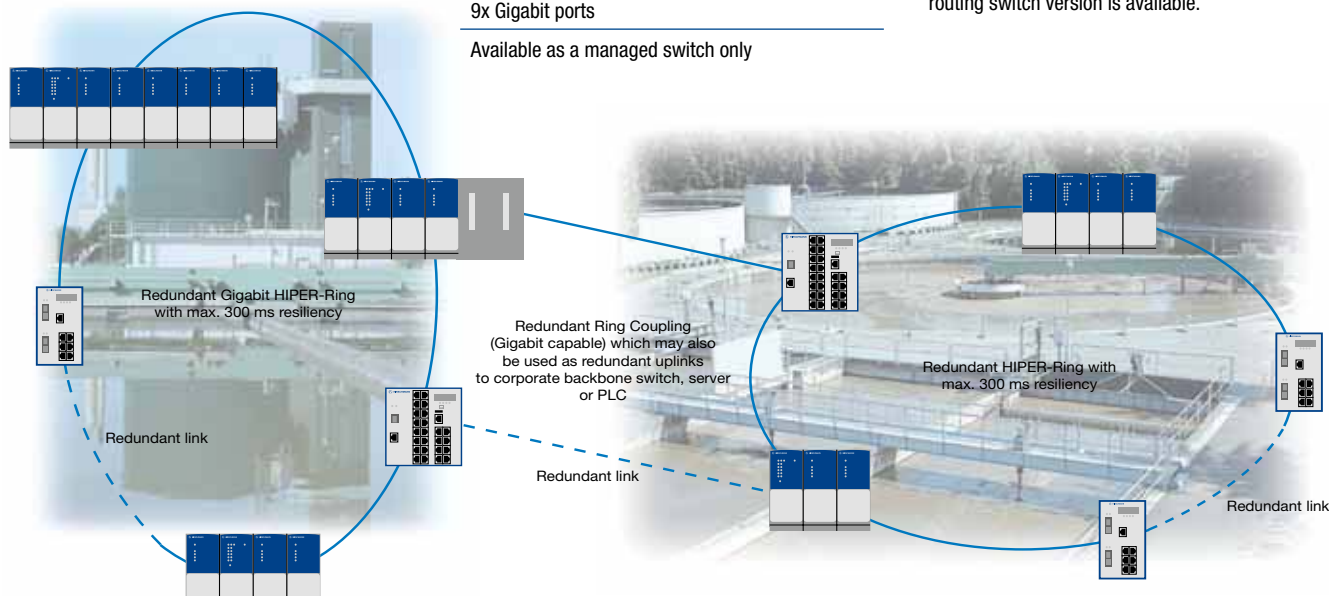
MS30 Series

MS30-08: 2x Gigabit and 8x 10/100 Mbps ports

MS30-16: 2x Gigabit and 16x 10/100 Mbps ports, with backplane extension (MB-2T) a port density of 28x 10/100 Mbps (max) can be obtained

MS40 Series (PowerMICE)

4x Gigabit and 16x 10/100 Mbps ports, with backplane extension (MB-2T) a port density of 28x 10/100 Mbps can be obtained. NOTE: Layer 3 routing switch version is available.

Redundant Gigabit HIPER-Ring with max. 300 ms resiliency

Redundant link

Redundant Ring Coupling (Gigabit capable) which may also be used as redundant uplinks to corporate backbone switch, server or PLC

Redundant link

Redundant HIPER-Ring with max. 300 ms resiliency

Redundant link

Example of compact and modular managed and unmanaged switches employeed in a Water Wastewater treatment plant.

OpenRail Configuration

RS20-0800S2TDHEHH04.0.	OpenRail Managed DIN Rail Mount Switches - Part Configurator

RS20-	**Design/Model**

Compact Rail Switch

RS20	10/100 Mbps Ethernet uplinks
RS22	10/100 Mbps Ethernet uplinks (4 xPoE)
RS30	10/100/1000 Mbps Ethernet uplinks
RS32	10/100/1000 Mbps Ethernet uplinks (4 x PoE)
RS40	Full Gigabit

Modular MICE Switch

| MS20 | 10/100 Mbps Ethernet uplinks |
| MS30 | 10/100/1000 Mbps Ethernet uplinks |

08	**Ports Fast Ethernet**

04 (only RS20)	00, 04, 08, 16, 24: number of 10/100 Mbps ports (00 for RS40)
08	
09 (only RS20, RS22)	09, 17, 25: number of 100 Mbps ports (RS20 > 2 fiber ports)
16	
17 (RS20, RS22, RS30, RS32)	
24 (RS20, RS22, RS30, RS32)	
24 (MS20, MS30)	
25 (RS20, RS22, RS30, RS32)	

00	**Ports Gigabit Ethernet**

00	00, 02: number of 1000 Mbps ports (00-RS22 and 02-RS30)
02	
09	09: number of 1000 Mbps ports (RS40)

S2	**Ports, Type 1. Uplink**

T1	1 x Twisted Pair RJ45 (10/100 Mbps)	**O6**	1 x SFP Slot Gigabit
M2	1 x Multimode SC (100 Mbps)	**MM**	2 x Multimode SC (100 Mbps)
M4	1 x Multimode ST (100 Mbps)	**NN**	2 x Multimode ST (100 Mbps)
S2	1 x Singlemode SC (100 Mbps)	**VV**	2 x Singlemode SC (100 Mbps)
S4	1 x Singlemode ST (100 Mbps)	**UU**	2 x Singlemode ST (100 Mbps)
L2	1 x Long Haul SC (100 Mbps)	**OO**	2 x SFP Slot Gigabit
G2	1 x Long Haul+ SC (100 Mbps)	**CC**	2 x SFP Combo Gigabit

S2	**Ports, Type 2. Uplink**

T1	1 x Twisted Pair RJ45 (10/100 Mbps)	**L2**	1 x Long Haul SC (100 Mbps)
M2	1 x Multimode SC (100 Mbps)	**G2**	1 x Long Haul+ SC (100 Mbps)
M4	1 x Multimode ST (100 Mbps)	**O6**	1 x SFP Slot Gigabit
S2	1 x Singlemode SC (100 Mbps)	**ZZ**	2 x SFP Slot FE (100 Mbps)

T	**Temperature Range**

S	0°C up to +60°C
T	−40°C up to +70°C
E	−40°C up to +70°C includes Conformal Coating

D	**Power Supply**

A	MICE 24 VDC (18−32 V)
C	MICE 24 V/48VDC (18−60 V)
D	Rail 12/24 V/48 VDC (9.6−60 V) and 24 VAC (18−30 V)
E	MICE 24/18 VDC (18−60 V) 6 pin connector
P	Rail 47−52 VDC (PoE)

H	**Approvals**

A	cUL508 · cUL1604 · Class1 Div.2
H	cUL508 · cUL1604 · Class1 Div.2
	GL: German Lloyd · IEC 61850-3: Substation
	IEEE1613: Substation · EN 50121-4: Railway (along track)
B	cUL508 · cUL1604 · Class1 Div.2
	GL: German Lloyd · IEC 61850-3: Substation
	IEEE1613: Substation · EN 50121-4: Railway (along track)
	ATEX100a, Zone 2: Hazardous Location

E	**Software Version**

U	Unmanaged
E	Enhanced, additional filters and redundancy
P	Professional, additional security and advanced redundancy

NOTE: Due to the vast number of switch variations (port density, port type, approvals, power input, etc.), Hirschmann has developed a part number matrix that permits users to custom-tailor their own switch. Simply decide on Compact or Modular, number of ports, the type of uplink ports (these can be used as standard ports), and select the temperature, power and approvals.

It is highly recommended that configurations are verified using the online Configurator.

www.configurator.hirschmann.com

H	**Configuration**

H	Standard	**P**	PROFINET pre-setting
X	Customer specific	**E**	EtherNet/IP pre-setting

H	**OEM-Type**

| **H** | Standard |
| **X** | Customer specific |

04.0.	**Software Release**

| **04.0.** | Software release 4.0. |
| **XX.X.** | Newest software release |

Required Field	Optional

Compact Managed DIN Rail Mount Switches

EtherNet/IP conformance tested
PROFINET

RS20 Series Compact Switches

300ms HiPer-Ring

All copper ports are 10/100 Mbps.
Uplink ports are 100 Mbps.

- Available in 4/8/9/16/17/24 and 25 x100 Mbps ports
- Fully managed (web, SNMP and CLI) – VLAN, IGMP snooping (multicast filtering), port mirroring, port control, port security, link alarms, broadcast limiter, traffic diagnostics, ring redundancy and much more
- Fiber ports are available in multimode and/or singlemode
- Dual power inputs and fault relay
- USB port for configuration backup/restore and fast device replacement
- Std. 0° C to + 60° C (– 40° C to + 70° C, conformal coating available)
- Differentiator between similar switches listed is the firmware level/features. See bottom of page 5 (E is Enhanced, P is Professional)

All Copper

Part No.	Order No.	Ports
RS20-0400T1T1SDAE	943 434-007	4 x RJ45
RS20-0400T1T1SDAP	943 434-008	4 x RJ45
RS20-0800T1T1SDAE	943 434-021	8 x RJ45
RS20-0800T1T1SDAP	943 434-022	8 x RJ45
RS20-1600T1T1SDAE	943 434-023	16 x RJ45
RS20-1600T1T1SDAP	943 434-024	16 x RJ45
RS20-2400T1T1SDAE	943 434-041	24 x RJ45
RS20-2400T1T1SDAP	943 434-042	24 x RJ45

Multimode

Part No.	Order No.	Ports
RS20-0400M2T1SDAE	943 434-009	3 x RJ45, 1 x SC
RS20-0400M2T1SDAP	943 434-010	3 x RJ45, 1 x SC
RS20-0400M2M2SDAE	943 434-001	2 x RJ45, 2 x SC
RS20-0400M2M2SDAP	943 434-002	2 x RJ45, 2 x SC
RS20-0800M2M2SDAE	943 434-003	6 x RJ45, 2 x SC
RS20-0800M2M2SDAP	943 434-004	6 x RJ45, 2 x SC
RS20-0800M4M4SDAE	943 434-017	6 x RJ45, 2 x ST
RS20-0800M4M4SDAP	943 434-018	6 x RJ45, 2 x ST
RS20-1600M2T1SDAE	943 434-025	15 x RJ45, 1 x SC
RS20-1600M2T1SDAP	943 434-026	15 x RJ45, 1 x SC
RS20-1600M2M2SDAE	943 434-005	14 x RJ45, 2 x SC
RS20-1600M2M2SDAP	943 434-006	14 x RJ45, 2 x SC
RS20-2400M2M2SDAE	943 434-043	22 x RJ45, 2 x SC
RS20-2400M2M2SDAP	943 434-044	22 x RJ45, 2 x SC

Single-Mode

Part No.	Order No.	Ports
RS20-0400S2T1SDAE	943 434-011	3 x RJ45, 1 x SC
RS20-0400S2T1SDAP	943 434-012	3 x RJ45, 1 x SC
RS20-0400S2S2SDAE	943 434-013	2 x RJ45, 2 x SC
RS20-0400S2S2SDAP	943 434-014	2 x RJ45, 2 x SC
RS20-0800S2S2SDAE	943 434-019	6 x RJ45, 2 x SC
RS20-0800S2S2SDAP	943 434-020	6 x RJ45, 2 x SC
RS20-1600S2S2SDAE	943 434-027	14 x RJ45, 2 x SC
RS20-1600S2S2SDAP	943 434-028	14 x RJ45, 2 x SC
RS20-2400S2S2SDAE	943 434-045	22 x RJ45, 2 x SC
RS20-2400S2S2SDAP	943 434-046	22 x RJ45, 2 x SC

NOTE: Add an "-E" to all-copper 4, 8, 16 and 24 port switches for pre-configured IGMP Snooping, auto-negotiation on the uplinks and more (a factory-set configuration for EtherNet/IP). Please contact us for more details.

RS30 Series Compact Switches

FAST 30ms HiPer-Ring

All copper ports are 10/100 Mbps.
Uplink ports are Gigabit.

- Available in 8 x, 16 x and 24 x10/100 Mbps ports. All with 2 additional Gigabit ports
- Identical management and features as RS20
- Fiber uplink ports are available in multi mode and/or singlemode by using Gigabit SFP

All Copper

Part No.	Order No.	Ports
RS30-0802T1T1SDAE	943 434-029	8 x 10/100 RJ45, 2 x 10/100/1000 RJ45
RS30-0802T1T1SDAP	943 434-030	8 x 10/100 RJ45, 2 x 10/100/1000 RJ45
RS30-1602T1T1SDAE	943 434-033	16 x 10/100 RJ45, 2 x 10/100/1000 RJ45
RS30-1602T1T1SDAP	943 434-034	16 x 10/100 RJ45, 2 x 10/100/1000 RJ45
RS30-2402T1T1SDAE	943 434-037	24 x 10/100 RJ45, 2 x 10/100/1000 RJ45
RS30-2402T1T1SDAP	943 434-038	24 x 10/100 RJ45, 2 x 10/100/1000 RJ45

Fiber

Part No.	Order No.	Ports
RS30-08020606SDAE	943 434-031	8 x 10/100 RJ45, 2 x Gigabit SFP
RS30-08020606SDAP	943 434-032	8 x 10/100 RJ45, 2 x Gigabit SFP
RS30-16020606SDAE	943 434-035	16 x 10/100 RJ45, 2 x Gigabit SFP
RS30-16020606SDAP	943 434-036	16 x 10/100 RJ45, 2 x Gigabit SFP
RS30-24020606SDAE	943 434-039	24 x 10/100 RJ45, 2 x Gigabit SFP
RS30-24020606SDAP	943 434-040	24 x 10/100 RJ45, 2 x Gigabit SFP

RS40 Series Compact Switches

FAST 30ms HiPer-Ring

All ports are Gigabit

- Available with 9 ports (4 of which are combo ports)
- Identical management and features as RS20 and RS30
- 9 x 10/100/1000 RJ45 and 4 x RJ45/SFP combo ports (function of one RJ45 is lost for each SFP utilized)
- Fiber uplink ports are available in multimode and/or singlemode by using Gigabit or 100 Mbps SFP

Compact Switches - RS40

Part No.	Ports
RS40-0009CCCCSDAE	9 x 10/100/1000 RJ45 4 x 100/1000 SFP
RS40-0009CCCCSDAP	9 x 10/100/1000 RJ45 4 x 100/1000 SFP

NOTE: A combo port is a dual 10/100/1000 Mbps RJ45 and 1000 Mbps SFP port. Only one is active at a time. The use of one SFP port disables one RJ45 port. The use of two SFP ports disables two RJ45 ports, etc.

BELDEN

1.717.217.2299

www.hirschmann-usa.com

Über-Rugged™ Managed DIN Rail Mount Switches

RSR Series
Compact Über-Rugged™ Switches

RSR–XX Ruggedized Gigabit Ethernet Switches for DIN Rail–Mount

- Extended temperature range: -40°C to +85°C
- Up to two AC/DC inputs with choice of voltage
- DIN rail or panel mounting
- Extremely high RFI/EMI immunity

- Robust metal housing
- Resistant to shock and vibration
- From 8TX to 10 ports fiber
- Panel mount kit available
- Ultra–fast ring recovery time <10ms

BLAZING 10ms HiPer–Ring

RSR30-0802CCZZT1UCCHPHH04.0.	Uber-Rugged Managed DIN Rail Mount Switches - Part Configurator

RSR30-	**Design/Model**			
	RSR20	Rail Switch Rugged Fast Ethernet		
	RSR30	Rail Switch Rugged Gigabit Ethernet Uplink Ports		

09	**Ports Fast Ethernet**			
	06	6x 100 Mbps Ethernet	08	8x 100 Mbps Ethernet
	07	7x 100 Mbps Ethernet	09	9x 100 Mbps Ethernet

02	**Ports Gigabit Ethernet**			
	00	0x 1000 Mbps Ethernet	03	3x 1000 Mbps Ethernet
	02	2x 1000 Mbps Ethernet		

S2	**Ports Typ1, Uplink**			
	CC	2 x Combo Port Gigabit Ethernet	07	Combo Port Gigabit Ethernet
	OO	2 x SFP Slot Gigabit Ethernet	O6	SFP Slot Gigabit Ethernet
	TT	2 x Twisted Pair (Tx) / RJ45	T1	Twisted Pair (Tx) / RJ45
	MM	2 x Multimode FX SC	M2	Multimode FX SC
	JJ	2 x Multimode FX MTRJ	M3	Multimode FX MTRJ
	NN	2 x Multimode FX ST	M4	Multimode FX ST
	VV	2 x Singlemode FX SC	S2	Singlemode FX SC
	UU	2 x Singlemode FX ST	S4	Singlemode FX ST
	LL	2 x Singlemode Long Haul FX SC	L2	Singlemode Long Haul FX SC
	GG	2 x Singlemode Long Haul+ FX SC (200 km)	G2	Singlemode Long Haul+ FX SC (200 km)
	ZZ	2 x SFP Slot (100 Mbps)	Z6	SFP Slot (100 Mbps)

M2	**Ports Type 2, Uplink**			
	ZZ	2 x SFP Slot (100 Mbps)	M4	Multimode FX ST
	07	Compo Port Gigabit Ethernet	S2	Singlemode FX SC
	O6	SFP Slot Gigabit Ethernet	S4	Singlemode FX ST
	T1	Twisted Pair (Tx) / RJ45	L2	Singlemode Long Haul FX SC
	M2	Multimode FX SC	G2	Singlemode Long Haul+ FX SC (200 km)
	M3	Multimode FX MTRJ	Z6	SFP Slot (100 Mbps)

T1	**Remaining Ports**			
	T1	Twisted Pair (Tx) / RJ45	Z6	SFP Slot (100 Mbps)

U	**Temperature Range**		
	S	Standard	0° C up to + 60° C
	U	Extended	− 40° C up to + 85° C
	F	Extended	− 40° C up to + 85° C inclusive Conformal Coating

C	**Voltage Range 1**			
	C	24/36/48 VDC	K	60/120/250 VDC and 110/230 VAC

C	**Voltage Range 2**			
	9	Not availabe	K	60/120/250 VDC and 110/230 VAC
	C	24/36/48 VDC		

H	**Approvals**	
	H	UL508, GL, IEC 61850; IEEE 1613; EN 50121

P	**Software Version**	
	P	Professional

H	**Configuration**						
	H	Professional	X	Customer specific	P	PROFINET pre-setting	E	Ethernet/IP pre-setting

H	**OEM-Type**			
	H	Standard	X	Customer specific

04.0.	**Software Release**			
	04.0	Software Release 4.0	XX.X.	Newest Software Release

Required Field	Optional

Managed Modular DIN Rail Mount Switches

EtherNet/IP™
conformance tested

PROFI NET

MS20 Modular Switches

300ms HiPer-Ring

PoE

All ports are 10/100 Mbps. Fully managed (web, SNMP and CLI) – IGMP snooping (multicast filtering), VLAN, port mirroring, port control, port security, link alarms, broadcast limiter, traffic diagnostics, HIPER–Ring redundancy, RSTP, etc.

- Available in a 2- and 4-slot version (4-slot can be expanded to a 6 slot using MB-2T)
- Requires the use of media modules
- Dual power inputs and dual fault relay outputs
- USB configuration backup/restore and fast device replacement
- Std. 0° C to + 60° C (– 40° C to + 70° C and conformal coating available)
- Differentiator between similar switches listed is the firmware level/features. (E = Enhanced, P = Professional).

MS20-08   MS20-16   MS20-24 (including backplane extension MB-2T)

MS20 Modular Switches / All Ports are 10/100 Mbps		
Part No.	Order No.	Ports
MS20-0800SAAE	943 435-001	2 x any MM2/MM3 (4 slots, max. 8 x 10/100 Mbps ports)
MS20-0800SAAP	943 435-002	2 x any MM2/MM3 (4 slots, max. 8 x 10/100 Mbps ports)
MS20-1600SAAE	943 435-003	4 x any MM2/MM3 (6 slots max. 16 x 10/100 Mbps ports/24 ports w/ MB-2T)
MS20-1600SAAP	943 435-004	4 x any MM2/MM3 (6 slots max. 16 x 10/100 Mbps ports/24 ports w/ MB-2T)

MS30 Modular Switches

FAST 30ms HiPer-Ring

PoE

Uplink ports are 10/100/1000 Mbps. All other ports are 10/100 Mbps. Same functionality and features as MS20, with the exception of an added slot for a Gigabit Media Module (for 2 x 10/100/1000 Mbps uplinks).

- MS30-08 can have a max of 8 x 10/100 Mbps ports and 2 x 10/100/1000 Mbps ports
- MS30-16 can have 16 x 10/100 Mbps ports (24 ports max w/ MB-2T) and 2 x 10/100/1000 Mbps ports
- Uplinks may be copper and/or fiber. Fiber is available in multimode and singlemode by using Gigabit or 100 Mbps SFPs.

MS30-08   MS30-16   MS30-24 (including backplane extension MB-2T)

MS30 Modular Switches / Uplink Ports are 10/100/1000 Mbps - All Other Ports are 10/100 Mbps		
Part No.	Order No.	Ports
MS30-08002SAAE	943 435-005	2 x any MM2/MM3 and 1 x MM4-2TX/SFP (max 10 ports)
MS30-08002SAAP	943 435-006	2 x any MM2/MM3 and 1 x MM4-2TX/SFP (max 10 ports)
MS30-16002SAAE	943 435-007	4 x any MM2/MM3 (6 x w/MB-2T) and 1 x MM4-2TX/SFP (max 26 ports)
MS30-16002SAAP	943 435-008	4 x any MM2/MM3 (6 x w/MB-2T) and 1 x MM4-2TX/SFP (max 26 ports)

MS Backplane Extensions

MICE 2-slot backplane extensions are used for MS20-16, MS30-16 and MS4128, Only one per switch may be used for a maximum of six total slots.

MS Backplane Extensions		
Part No.	**Order No.**	**Extensions for Use With**
MB-2T	943 733-102	MS20-16, MS30-16, and MS4128
MB20-2TAHH	943 435-002	Same as above but with -40°C to +75°C

PowerMICE Gigabit Layer 2/3 Switches

FAST 30ms HiPer-Ring **PoE**

For applications that require a more powerful and feature-rich switch, Hirschmann offers its PowerMICE modular switches. Similar in functionality and features to the MS30-16 on the previous page, the PowerMICE adds two additional Gigabit ports (for a total of four) and an option to have Layer 3 routing capabilities.

MICE Modular Managed Industrial Ethernet Layer 2/3 Switches with Professional or Enhanced Management				
Part No.	**Order No.**	**Layer/Management**	**Ports**	**Configurations**
MS4128:L2P	943 009-001	Layer 2/Professional	28	24x 10/100 Mbps + 4 Gigabit (any copper/fiber mix)
MS4128-L3E	943 009-201	Layer 3/Enhanced	28	24x 10/100 Mbps + 4 Gigabit (any copper/fiber mix)
MS4128-L3P	943 009-201	Layer 3/Professional	28	24x 10/100 Mbps + 4 Gigabit (any copper/fiber mix)

MICE Media Modules

Any combination of the following hot-swappable media modules may be used to attain the desired port density/type on a MICE switch. The only restriction is the number of slots that the MICE has (one media module per slot).

MICE Modules: Maximum Module Density	
Modular Switch	**Density**
MS20-08	2 x any MM2/MM3
MS20-16	4 x any MM2/MM3 (6 x MB-2T)
MS30-08	2 x any MM2/MM3 plus 1 x MM4-2TX/SFP
MS30-16	4 x any MM2/MM3 (6 x MB-2T), plus 1 x MM4-2TX/SFP
MS4128	4 x any MM2/MM3 (6 x MB-2T), plus 1 x any MM4

NOTE: SFPs are needed for MM4 fiber functionality.

MICE Modules: ALL COPPER			
Type	**Part No.**	**Order No.**	**Ports/Speed**
ALL COPPER	MM2-4TX1	943 722-101	4 x 10/100 Mbps RJ45
ALL COPPER	MM2-4TX1-EEC	943 722-151	4 x 10/100 Mbps RJ45, ext. temperature range*
MICE Modules: MULTIMODE			
MULTIMODE	MM2-4FXM3	943 721-101	4 x 100 Mbps MM MTRJ
MULTIMODE	MM2-2FXM2	943 718-101	2 x 100 Mbps MM SC
MULTIMODE	MM3-4FXM2	943 764-101	4 x 100 Mbps MM SC
MULTIMODE	MM3-4FXM4	943 835-101	4 x 100 Mbps MM ST
MULTIMODE	MM3-1FXM2/3TX1	943 839-101	1 x 100 Mbps MM SC, 3 x RJ45
MULTIMODE	MM3-2FXM4/2TX1	943 837-101	2 x 100 Mbps M ST, 2 x RJ45
MULTIMODE	MM2-2FXM3/2TX1	943 720-101	2 x 100 Mbps MM MTRJ, 2 x RJ45
MULTIMODE	MM3-4FLM4	943 760-101	4 x 10 Mbps MM ST
MULTIMODE	MM3-2FXM2/2TX1	943 761-101	2 x 100 Mbps MM SC, 2 x RJ45
MULTIMODE	MM3-2FXM2/2TX1-EEC	943 761-151	2 x 100 Mbps MM SC, 2 x RJ45, ext. temperature range*
MULTIMODE	MM3-1FXM2/1FXS2/2TX1	943 929-101	2 x 100 Mbps SC (1 x MM and 1 x SM), 2 x RJ45

NOTE: EEC media modules have an extended temperature range of −40°C to +70°C. Additional EEC modules are available.
Please consult your Hirschmann representative or **www.hirschmann-usa.com**

Managed Modular DIN Rail Mount Switches

| MICE Modules: SINGLEMODE			
Type	**Part No.**	**Order No.**	**Ports/Speed**
SINGLEMODE	MM2-2FXS2	943 719-101	2 x 100 Mbps SM SC
SINGLEMODE	MM3-2FXS2/2TX1	943 762-101	2 x 100 Mbps SM SC, 2 x RJ45
SINGLEMODE	MM3-2FXS2/2TX1-EEC	943 762-151	2 x 100 Mbps SM SC, 2 x RJ45, ext. temp.*
SINGLEMODE	MM3-1FXS2/3TX1	943 838-101	1 x 100 Mbps SM SC, 3 x RJ45
SINGLEMODE	MM3-4FXS2	943 836-101	4 x 100 Mbps SM SC
SINGLEMODE	MM3-1FXL2/3TX1	943 763-101	1 x 100 Mbps SM, SC Long Haul, 3 x RJ45
SINGLEMODE	MM3-1FXLH+/3TX1	943 930-101	1 x 100 Mbps SM SC Long Haul+, 3 x RJ45
SINGLEMODE	MM3-1FXS2/3TX1-EEC	943 838-151	1 x 100 Mbps SM SC, 3 x RJ45, ext. temp.*

MICE Modules: GIGABIT			
Type	**Part No.**	**Order No.**	**Ports/Speed**
GIGABIT	MM4-2TX/SFP	943 622-001	2 x Gigabit RJ45 2 SFP Slots** for MS30 and MS4128
GIGABIT	MM4-4TX/SFP	943 010-001	4 x Gigabit RJ45 4 SFP Slots** for MS4128 only

NOTE: **For every SFP used, one copper port is lost. SFPs need to be purchased separately.

MICE Modules: SPECIAL PURPOSE 1588 Compliant			
Type	**Part No.**	**Order No.**	**Ports/Speed**
REALTIME	MM3-4TX1-RT	943 117-001	4 x RJ45, IEEE 1588 realtime modules
REALTIME	MM3-2FXM2/2TX1-RT	943 117-002	2 x 100 Mbps MM SC, 2 x RJ45,
REALTIME	MM3-2FXS2/2TX1-RT	943 117-003	2 x 100 Mbps SM SC, 2 x RJ45,
REALTIME	MM3-2FLM4/2TX1-RT	943 117-004	2 x 10 Mbps MM ST, 2 x RJ45,
REALTIME	MM3-4TX1-RT-EEC	943 955-001	4 x RJ45, railway certifications EN 50155, EN 50121-4
REALTIME	MM3-2FXM2/2TX1-RT-EEC	943 955-002	2 x 100 Mbps MM SC, 2 x RJ45, IEEE 1588, railway certifications EN 50155, EN 50121-4
REALTIME	MM3-2FXS2/2TX1-RT-EEC	943 955-003	2 x 100 Mbps SM SC, 2 x RJ 45, IEEE 1588, railway certifications EN 50155, EN 50121-4
AUI	MM3-2AUI	943 840-101	2 x AUI SUB-D 15-pin male D-sub
IP67	MM3-4TX5	943 841-101	4 x M12 socket (D-code), for connectors see OCTOPUS family
POE	MM22-T1T1T1T1SAHH	943 938-002	4 x RJ45 PoE (externeal PoE power supply)
SFP	MM20-Z6Z6Z6Z6SAHH	943 938-001	4 x 100 Mbps SFP, for MS20, MS30 and MS4128

NOTE: *All media modules are availble (special order) with extended temperature range of −40°C to +70°C.
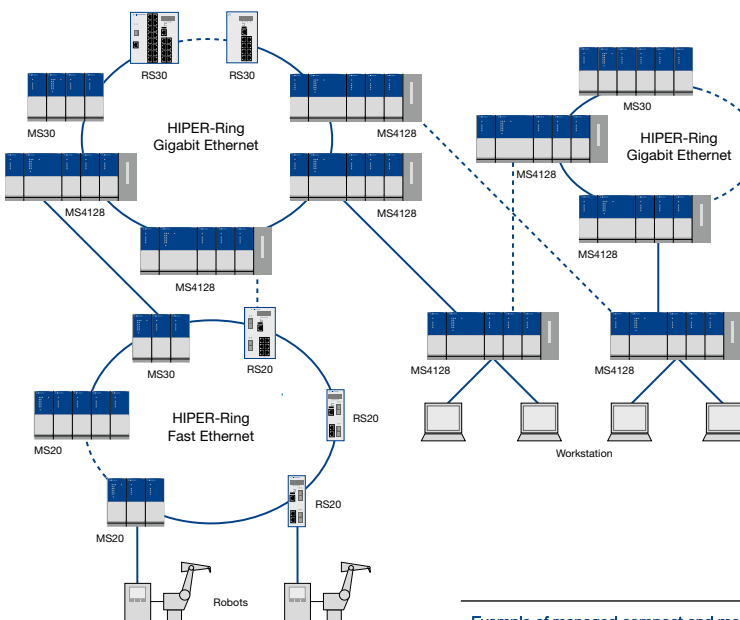
NOTE: All OpenRail switches have the ability of being designed into a redundant ring with 300ms resiliency at 100 Mbps and 30 ms at 1000 Mbps (each with 100 switches in the ring).

All OpenRail switches also have the capability to support redundant ring coupling. Compact and modular switch capabilities are fully compatible in a network.

Example of managed compact and modular switches used in a HIPER-Ring featuring Fast and Gigabit Ethernet.

Management Software Functionality

Technical Tips and Tools

An excellent documentation resource for everything pertaining to Hirschmann's hardware and software can be found on our ftp server - **ftp.hirschmann-usa.com**

The different management versions are listed and explained on the tabel to the right. Alternatively, you may also access our online switch at **http://demo.hirschmann-usa.com** to see the management functionality live in one of our switches.

Please note that you will need the Java Runtime Environment (JRE) to view the content. If you experience difficilties accessing the switch, it may be due to the policies of some companies to have their firewalls block this two-way data traffic.
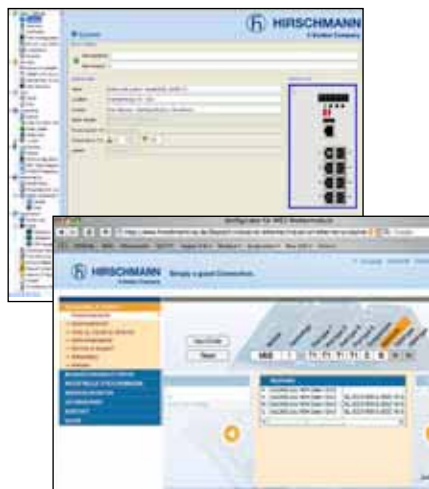
EtherNet/IP (Allen-Bradley) and PROFINET (Siemens) users please note that Hirschmann's managed switches are easily integrated into the respective PLCs/HMIs, enabling switch management from/by the PLC/HMI. The seamless integration also provides network/switch status to the PLC/HMI for alarming and network statistics. Enjoy the benefits of direct, hassle-free configuration with our online tool at **www.configurator.hirschmann.com**

L2: Enhanced	L2: Professional	L3: Enhanced	L3: Professional	Management Software Functionality
				Plug & Play
	●	●	●	DHCP server per port
	●	●	●	IP address conflict detection
	●	●	●	Multiple stored firmware versions
●	●	●	●	Automatic configuration undo
●	●	●	●	DHCP relay agent, option 82
●	●	●	●	External flash memory
				Security
	●	●	●	Radius - IEEE 802.1x
	●	●	●	SSH
	●	●	●	SNMP v2c, v3 encryption
	●	●	●	Port security IP, multiple addresses
●	●	●	●	Port security MAC
●	●	●	●	Port security IP
●	●	●	●	SNMP v2c, v3 (password encryption)
				Switching
	●	●	●	GVRP
	●	●	●	Multicast GMRP – 802.1D
	●	●	●	Optimized for video multicasting
●	●	●	●	Static VLAN, Q-MIB – 802.3ac, 802.1Q
●	●	●	●	Broadcast, unicast, multicast limiter
●	●	●	●	Multicast IGMP querier
●	●	●	●	Multicast IGMP snooping
●	●	●	●	Port priority – 802.1D/p
				Redundancy
	●	●	●	Link aggregation – 802.3ad
●	●	●	●	RSTP – 802.1w
●	●	●	●	Redundant net coupling
●	●	●	●	HIPER-Ring redundancy manager
●	●	●	●	HIPER-Ring
●	●	●	●	MRP-Ring
				Industrial Profile
●	●	●	●	PROFINET Profile
●	●	●	●	EtherNet/IP Profile
				Routing
			●	DVMRP/PIM DM multicast routing
			●	OSPF
		●	●	RIP v1/v2
		●	●	Static routing
		●	●	VRRP, HiVRRP (<500 ms) router redundancy
		●	●	Layer 3 ACL
				Diagnostic
	●	●	●	Text configuration file
	●	●	●	Cable diagnostic TX
	●	●	●	Automatic configuration check
●	●	●	●	HUB functionality (disable learning)
●	●	●	●	Syslog
●	●	●	●	Log file
●	●	●	●	Port mirroring
●	●	●	●	Topology discovery 802.1ad

Enjoy the benefits of direct, hassle-free configuration with our online tool at: **www.configurator.hirschmann.com**

Unmanaged DIN Rail Mount Switches

Entry-level Unmanaged Switches
SPIDER Family

All ports are 10/100 Mbps. Now available with POE. The SPIDER family of switches provides users with an economical, yet highly reliable Ethernet switch. All copper/RJ45 ports are 10/100 auto-negotiating and auto-crossing – the SPIDERS will work with either patch or cross-over cables. The fiber ports are all 100 Mbps and available in multimode (MM) and singlemode (SM) with either SC or ST sockets. Unless specified, all switches are rated 0°C to +60°C, have a 24 VDC power input via pluggable terminal block and have an average MTBF exceeding 100 years.

ALL COPPER/RJ45 - SPIDER FAMILY / Entry-level Unmanaged Switches		
Part No.	**Order No.**	**Ports**
SPIDER 3TX-TAP	943 899-001	3 x RJ45
SPIDER 5TX	943 824-002	5 x RJ45
SPIDER 5TX EEC	943 824-102	5 x RJ45
SPIDER II 8TX	943 957-001	8 x RJ45
SPIDER II 8TX EEC	943 958-001	8 x RJ45
[NEW] SPIDER II 8TX POE	942 008-001	8 x RJ45 and 4 X POE, with metal housing and 24 VDC input
COPPER/RJ45 and FIBER - SPIDER FAMILY / Entry-level Unmanaged Switches		
Part No.	**Order No.**	**Ports**
SPIDER 4TX/1FX	943 221-001	4 x RJ45 and 1 x MM, SC
SPIDER 4TX/1FX EEC	943 221-101	4 x RJ45 and 1 x MM, SC
SPIDER 4TX/1FX-S EEC	943 914-001	4 x RJ45 and 1 x MM, ST
SPIDER 4TX/1FX SM EEC	943 880-001	4 x RJ45 and 1 x SM, SC
SPIDER 1TX/1FX	943 890-001	1x RJ45 and 1 x MM, SC
SPIDER 1TX/1FX EEC	943 927-101	1 x RJ45 and 1 x MM, SC
SPIDER 1TX/1FX-SM	943 891-001	1x RJ45 and 1 x MM, SC
SPIDER 1TX/1FX SM EEC	943 928-001	1 x RJ45 and 1 x SM, SC
SPIDER II 8TX/1FX EEC	943 958-111	8 x RJ45 and 1 x MM, SC
SPIDER II 8TX/1FX-ST EEC	943 958-121	8 x RJ45 and 1 x MM, ST
SPIDER II 8TX/2FX EEC	943 958-211	8 x RJ45 and 2 x MM, SC
SPIDER II 8TX/2FX-ST EEC	943 958-221	8 x RJ45 and 2 x MM, ST
SPIDER II 8TX/1FX-SM EEC	943 958-131	8 x RJ45 and 1 x SM, SC
SPIDER II 8TX/2FX-SM EEC	943 958-231	8 x RJ45 and 2 x SM, SC
FULL GIGABIT - SPIDER FAMILY / Entry-level Unmanaged Switches		
Part No.	**Order No.**	**Ports**
SPIDER II Giga 5T EEC	943 962-002	5 x RJ45 (10/100/1000)
SPIDER II Giga 5T/2S EEC	943 963-002	5 x RJ45 (10/100/1000), and 2 x SFP Slot (1000)

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

Feature-rich Unmanaged Switches
RS2 Switches

These 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 auto-negotiating and auto-crossing (either patch or cross-over cables will work in the ports), a 0°C to +60°C operating range, a 24 VDC power input via pluggable terminal block and have an average MTBF exceeding 100 years. All of the multimode (MM) and singlemode (SM) fiber optic ports are 100 Mbps and are available in a variety of connector options.

ALL COPPER/RJ45 / RS2 - Feature-rich Unmanaged Switches

Part No.	Order No.	Ports/Features
RS2-4TX EEC	943 819-001	4 x 10/100 Mbps RJ45, link loss alarm, power loss alarm, fault relay output, ext. temp. – 40° C to + 70° C
RS2-5TX	943 732-003	5 x 10/100 Mbps RJ45, rugged die-cast metal housing offering wall-mount option
RS2-TX	943 686-003	8 x 10/100 Mbps RJ45, link loss alarm, power loss alarm, fault relay output

COPPER/RJ45 and FIBER MIX - Feature-rich Unmanaged Switches

Part No.	Order No.	Ports/Features
RS2-3TX/2FX EEC	943 771-001	3 x 10/100 Mbps RJ45 and 2 x 100 Mbps MM-SC, link loss alarm, power loss alarm, fault relay output, ext. temp. – 40° C to + 70° C
RS2-3TX/2FX-SM EEC	943 772-001	3 x 10/100 Mbps RJ45 and 2 x 100 MbpsSM-SC, link loss alarm, power loss alarm, fault relay output, ext. temp. – 40° C to + 70° C
RS 2-5TX/FX	943 732-103	4 x 10/100 Mbps RJ45 and 1 x 100 Mbps MM-MTRJ, rugged die-cast metal housing offering wall-mount option
RS 2-4TX/1FX EEC	943 773-001	4 x 10/100 Mbps RJ45 and 1 x 100 Mbps MM-SC, link loss alarm, power loss alarm, fault relay output, ext. temp. – 40° C to + 70° C
RS 2-4TX/1FX-ST EEC	943 119-002	4 x 10/100 Mbps RJ45 and 1 x 100 Mbps MM-ST, link loss alarm, power loss alarm, fault relay output, ext. temp. – 40° C to + 70° C
RS 2-4TX/1FX-SM EEC	943 774-001	4 x 10/100 Mbps RJ45 and 1 x 100 Mbps SM-SC, link loss alarm, power loss alarm, fault relay output, ext. temp. – 40° C to + 70° C

OpenRail Unmanaged DIN Rail Mount Switches

OpenRail Unmanaged Switches
RS20 and RS30 Unmanaged Switches

Hirschmann's unmanaged OpenRail switches are ideal for applications that are less dependent upon the features of switch management while maintaining the highest feature-set for an unmanaged switch:

- 8 x, 9 x, 16 x, 17 x, 24 x and 25 x ports in a 4.25" footprint
- Up to 4 x 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)
- 10/100/1000 auto-negotiating and auto-crossing (either patch or crossover cables will work in the ports)
- Variety of connector options for Multimode (MM) and Singlemode (SM) fiber optic ports
- Choice of operating temperatures and conformal coating (standard is 0° C to +60° C, with – 40° C to + 70° C also available)
- Variety of approvals including IEC 61850-3, IEEE 1613, EN 50121-4 and ATEX 100a Zone 2

ALL COPPER/RJ45 / RS20 - OpenRail Unmanaged DIN Rail Switches

Part No.	Order No.	Ports/Features
RS20-1600T1T1SDAU	943 434-047	16 x 10/100 Mbps RJ45

MULTIMODE - OpenRail Unmanaged DIN Rail Switches

Part No.	Order No.	Ports/Features
RS20-0900NNM4TDAU	943 434-058	3 x 100 Mbps MM fiber (ST) and 6 x 10/100 Mbps RJ45
RS20-0900MMM2TDAU	943 434-059	3 x 100 Mbps MM fiber (SC) and 6 x 10/100 Mbps RJ45
RS20-1600M2T1SDAU	943 434-049	1 x 100 Mbps MM fiber (SC) and 15 x 10/100 Mbps RJ45
RS20-1600M2M2SDAU	943 434-048	2 x 100 Mbps MM fiber (SC) and 14 x 10/100 Mbps RJ45
RS20-1600S2M2SDAU	943 434-052	1 x 100 Mbps MM fiber (SC)1 x 100 Mbps SM fiber (SC) and 14 x 10/100 Mbps RJ45
RS20-1600L2M2SDAU	943 434-055	1 x 100 Mbps MM fiber (SC)1 x 100 Mbps Long Haul SM fiber (SC) and 14 x 10/100 Mbps RJ45

SINGLEMODE - OpenRail Unmanaged DIN Rail Switches

Part No.	Order No.	Ports/Features
RS20-0900VVM2TDAU	943 434-060	3 x 100 Mbp SM fiber (SC) and 6 x 10/100 Mbps RJ45
RS20-1600S2T1SDAU	943 434-051	1 x 100 Mbps SM fiber (SC) and 15 x 10/100 Mbps RJ45
RS20-1600S2S2SDAU	943 434-053	2 x 100 Mbps SM fiber (SC) and 14 x 10/100 Mbps RJ45
RS20-1600L2T1SDAU	943 434-054	1 x 100 Mbps Long Haul SM fiber (SC) and 15 x 10/100 Mbps RJ45
RS20-1600L2S2SDAU	943 434-056	1 x 100 Mbps Long Haul SM fiber (SC) 1 x 100 Mbps SM fiber (SC) and 14 x 10/100 Mbps RJ45
RS20-1600L2L2SDAU	943 434-057	2 x 100 Mbps Long Haul SM fiber (SC) and 14 x 10/100 Mbps RJ45
RS20-1600S2M2SDAU	943 434-052	1 x 100 Mbps MM fiber (SC),1 x 100 Mbps SM fiber (SC) and 14 x 10/100 Mbps RJ45
RS20-1600L2M2SDAU	943 434-055	1 x 100 Mbps MM fiber (SC) 1 x 100 Mbps Long Haul SM fiber (SC) and 14 x 10/100 Mbps RJ45

NOTE: Don't see what you're looking for? Need an unmanaged switch with Gigabit uplinks? Custom configure your unmanaged RS20 or RS30 OpenRail switch using the configuration table on page 7!

As an example, the below configuration is a 24-port switch (23 x 10/100 RJ45 and 1 x 100 Mbps multimode SC). The "U" designates this as an unmanaged switch.

Please refer to the online OpenRail Configurator for online assistance.

RS20-2400M2T1SDAU

Workgroup Rack-mount Switches

Industrial Workgroup Switches
MACH100 Switches

300ms HiPer-Ring

Hirschmann has expanded its 19" rack switch product portfolio with the release of the MACH100 family, allowing workgroups to be networked by either copper and/or fiberoptic cable. The switches are offered in versions with 8 or 24 permanently installed 10/100 Mbps RJ45 Ethernet ports, or as modular devices with 8 permanent ports and slots for 2 additional 8 port media modules. Both versions offer two RJ45/SFP Gigabit Combo ports for connection to the network backbone. The switches are designed for a temperature range of 0°C to +50°C and support a large range of management and redundancy modes, as well as several functions for configuration and diagnostics. Further features are fanless cooling as well as an optional power supply. As a result the devices of the MACH100 family offer a high level of security and flexibility for Ethernet network design or upgrade in production-related areas.

- **Fanless design**
- **Hot-swappable** modules
- Optional **redundant power** inputs
- ACA 21 **USB Backup**
- Hirschmann CLI and WEB interface

- **L2P firmware** - DHCP Option 82, HiDiscovery, HIPER-Ring, MRP, RSTP, disable learning, SNTP, Industrial Profiles (EtherNet/IP, PROFINET)
- Fully integrated in **Industrial HiVision**
- Temperature range: 0°C to +50°C

NOTE: *SFPs need to be purchased separately (see accessories on page 23 for SFPs).*

MACH100 MODULAR		
Part No.	Order No.	Ports
MACH102-8TP	943 969-001	8 x 10/100BASE-TX RJ45 ports, 2 x GE combo ports (100 or 1000 MBps SFPs) and 2 x 8 port media module slots
MACH102-8TP-R	943 969-101	Same as -001 above, but w/ redundant 110/220 VAC power supply
FIXED PORTS		
Part No.	Order No.	Ports
MACH102-8TP-F	943 969-201	8 x 10/100BASE-TX RJ45 ports and 2 x GE combo ports (100 or 1000 MBps SFPs)
MACH102-8TP-FR	943 969-301	Same as -201, but w/ redundant 110/220 VAC power supply
MACH102-24TP-F	943 969-401	24 x 10/100BASE-TX RJ45 ports and 2 x GE combo ports (100 or 1000 MBps SFPs)
MACH102-24TP-FR	943 969-501	Same as -401, but w/ redundant 110/220 VAC power supply
MEDIA MODULES (2 Max. per Modular MACH 100)		
Part No.	Order No.	Ports
M1-8TP-RJ45	943 970-001	8 x 10/100BASE-TX, RJ45 media module
M1-8MM-SC	943 970-101	8 x 100BASE-FX MM, SC media module
M1-8SM-SC	943 970-201	8 x 100BASE-FX SM, SC media module
M1-8SFP	943 970-301	8 x 100BASE-X SFP media module

Über-Rugged™ Rack-mount Switches

Über-Rugged™ Switches
MACH1000 - 19" Rack-mount Switches

FAST 30ms HiPer-Ring   *PoE*

Why Über-Rugged™?
This is the only way to describe a switch that goes above and beyond the already rugged capabilities of Hirschmann's switches by being extremely immune to noise and able to provide maximum uptime in extreme environmental conditions. The MACH1000 features a 24-port custom configurable/modular design that is also available with two or four additional Gigabit uplink (RJ45 and/or SFP for fiber) and PoE ports.

- 19" rack-mount, fanless design
- −40°C to +85°C standard operating temperature (conformal coating available)
- Exceeds IEC 61850-3 and IEEE 1613 standards for electric power substation communication equipment
- Exceeds NEMA TS-2 standard for traffic control equipment

- Redundant 24/36/48 VDC or 120/250 VDC and 110/230 VAC
- Extremely efficient components for minimal heat generation and high MTBF (mean time between failure)
- Ultra-fast ring recovery time < 10 ms

Über-Rugged™ Rack-mount Switches - Configurations

MAR1030-CCMMMMMMMVVZZTTTTTTTTTTTTTT99UGCHPHH04.0. / MACH1000 19" Switch

MAR1030-		Design/Model	
		MAR1020	Fast Ethernet uplink
		MAR1030	Gigabit Ethernet uplink
		MAR1022	Fast Ethernet uplink with 4 ports PoE
		MAR1032	Gigabit Ethernet uplink with 4 ports PoE
		MAR1120	Fast Ethernet uplink with ports at the back
		MAR1130	Gigabit Ethernet uplink with ports at the back
		MAR1122	Fast Ethernet uplink with ports at the back and 4 ports PoE
		MAR1132	Gigabit Ethernet uplink with ports at the back and 4 ports PoE

CC		Gigabit Ethernet Ports	
		99	Not present
		CC	2 ports combo (2 x 10/100/1000TX or 2 x GE SFP)
		40	4 ports GE SFP
		4T	4 ports 10/100/1000TX
		OT	2 ports GE SFP and 2 ports 10/100/1000TX

		Fast Ethernet Ports - 1 + 2 · 3 + 4 · 5 + 6 · 7 + 8 · 9 + 10 · 11 + 12 · 13 + 14 · 15 + 16 · 17 + 18 · 19 + 20 · 21 + 22 · 23 + 24	
MM	1 + 2		
MM	3 + 4	**TT**	2 x Twisted Pair (TX) 10/100 Mbps RJ45
MM	5 + 6	**RR**	2 x Twisted Pair (TX) 10/100 Mbps M12
VV	7 + 8	**FF**	2 x Multimode 10 Mbps ST
ZZ	9 + 10	**MM**	2 x Multimode 100 Mbps SC
TT	11 + 12	**JJ**	2 x Multimode 100 Mbps MTRJ
TT	13 + 14	**NN**	2 x Multimode 100 Mbps ST
TT	15 + 16	**VV**	2 x Singlemode 100 Mbps SC
TT	17 + 18	**UU**	2 x Singlemode 100 Mbps ST
TT	19 + 20	**LL**	2 x Singlemode LH 100 Mbps SC
TT	21 + 22	**GG**	2 x Singlemode LH+ 100 Mbps SC
99	23 + 24	**ZZ**	2 x SFP Slot 100 Mbps SFP
		99	Not present

U		Temperature Range		
		S	Standard	0° C up to + 60° C
		U	Extended	– 40° C up to + 85° C
		F	Extended	– 40° C up to + 85° C inclusive Conformal Coating

C		Power Supply 1			
		C	24/36/48 VDC (spring clip)	**G**	110/250 VDC/110/230 VAC (spring clip)
		L	24/36/48 VDC (plug-in connector)	**M**	110/250 VDC/110/230 VAC (plug-in connector)

C		Power Supply 2			
		C	24/36/48 VDC (spring clip)	**G**	110/250 VDC/110/230 VAC (spring clip)
		L	24/36/48 VDC (plug-in connector)	**M**	110/250 VDC/110/230 VAC (plug-in connector)
		9	not present		

H		Approvals	
		H	cUL508, cUL1604 Class 1 Div2, German Lloyd, IEC 61850-3, IEEE 1613, EN 50121

P		Software Version	
		P	Professional: extended diagnostics, redundancy and security features

H		Configuration					
		H	Standard	**P**	Pre-setting/pre-configure	**E**	Ethernet/IP pre-setting

H		OEM-Type			
		H	Standard	**X**	Customer specific

04.0.		Software Release			
		X	Current software release	04.0	example: former software release

Required Field	Optional

NOTE: Use the Hirschmann OpenRail system to configure your substation switch: **www.configurator.hirschmann.com**

Gigabit Backbone Layer 2/3 Rack-mount Switches

High Density Layer 2/3 Gigabit Backbone Switch
MACH400 Switch

FAST 30ms HiPer-Ring *PoE*

Capable of providing as many as 48 Gigabit ports and three 10Gigabit ports, the MACH4000 is the ultimate high-density Layer 2/3 Gigabit backbone switch for mission-critical applications requiring high-availability and high port densities.

The MACH4000 comes standard with up to 16 + ports and can be configured with as many as 32 additional ports (via hot-plug copper/fiber modules).

Standard features include:

- 19" rack-mount
- Two user-definable fault relays
- Hot-swappable media modules for continuous operation – up to 4 Media Modules (8 ports max. each)

- HIPER-Ring, redundant coupling and link aggregation capable
- Flexible power options: 100 – 240 VAC, 24 VDC and 48 VDC
- 0° C to + 60° C operating temperature

NOTE: *Fan module is included in each chassis. Please purchase media modules and power supply separately. See Accessories for SFPs + XFP. Configuration will dictate final port count and media type.

MACH4000 – High Density Layer 2/3 Gigabit Backbone Switch		
Part No.	**Order No.**	**Ports**
MACH4002 48+4G-L2P	943 859-101	Layer 2, Professional Management chassis
MACH4002 48+4G-L3E	943 859-201	Layer 3, Enhanced Management chassis
MACH4002 48+4G-L3P	943 859-301	Layer 3, Professional Management chassis

- Fixed ports: 4x Gigabit Ethernet combo ports* (1000 Mbps SFP socket or 10/100/1000 Mbps RJ45) and 16x RJ45 10/100 Mbps
- Media modules: 4 sockets (8 ports max each) for total 32 ports 10/100 Mbps (Media modules sold separately – see page 21. For software functionality – see page 15)

MACH4002-24G-L2P	943 916-101	Layer 2, Professional Management chassis
MACH4002-24G-L3E	943 916-201	Layer 3, Enhanced Management chassis
MACH4002-24G-L3P	943 916-301	Layer 3, Professional Management chassis

- Fixed ports: 8x Gigabit Ethernet combo ports* (SFP dual speed socket or TP 10/100/1000 Mbps)
- Media modules: 2x sockets (8 ports max each) for total 16 ports 10/100/1000 Mbps (Media modules sold separately – see page 21. For software functionality – see page 15)

MACH4002-24G+3X-L2P	943 915-101	Layer 2, Professional Management chassis
MACH4002-24G+3X-L3E	943 915-201	Layer 3, Enhanced Management chassis
MACH4002-24G+3X-L3P	943 915-301	Layer 3, Professional Management chassis

- Fixed ports: 3 x 10Gigabit Ethernet XFP socket and 8 Gigabit Ethernet ports TP/RJ45 10/100/1000 Mbps
- Media modules: 2x sockets (8 ports max each) for total 16 ports 10/100/1000 Mbps (Media modules sold separately – see page 21. For software functionality – see page 15)

MACH4002-48G-L2P	943 911-101	Layer 2, Professional Management chassis
MACH4002-48G-L3E	943 911-201	Layer 3, Enhanced Management chassis
MACH4002-48G-L3P	943 911-301	Layer 3, Professional Management chassis

- Fixed ports: 16 Gigabit Ethernet (8 Gigabit Ethernet combo ports* 100/1000 Mbps SFP dual speed socket or 10/100/1000 Mbps + 8 Gigabit 10/100/1000 Mbps RJ45)
- Media modules: Four sockets (8 ports max each) for total 32 ports 10/100/1000 Mbps (Media modules sold separately – see page 21. For software functionality – see page 15)

MACH4002-48G+3X-L2P	943 878-101	Layer 2, Professional Management chassis
MACH4002-48G+3X-L3E	943 878-201	Layer 3, Enhanced Management chassis
MACH4002-48G+3X-L3P	943 878-301	Layer 3, Professional Management chassis

- Fixed ports: Three 10Gigabit Ethernet XFP sockets and 16 Gigabit Ethernet ports (100/1000 Mbps SFP dual speed socket or 10/100/1000 Mbps RJ45)
- Media modules: Four sockets (8 ports max each) for total 32 ports 10/100/1000 Mbps (Media modules sold separately – see page 21. For software functionality – see page 15)