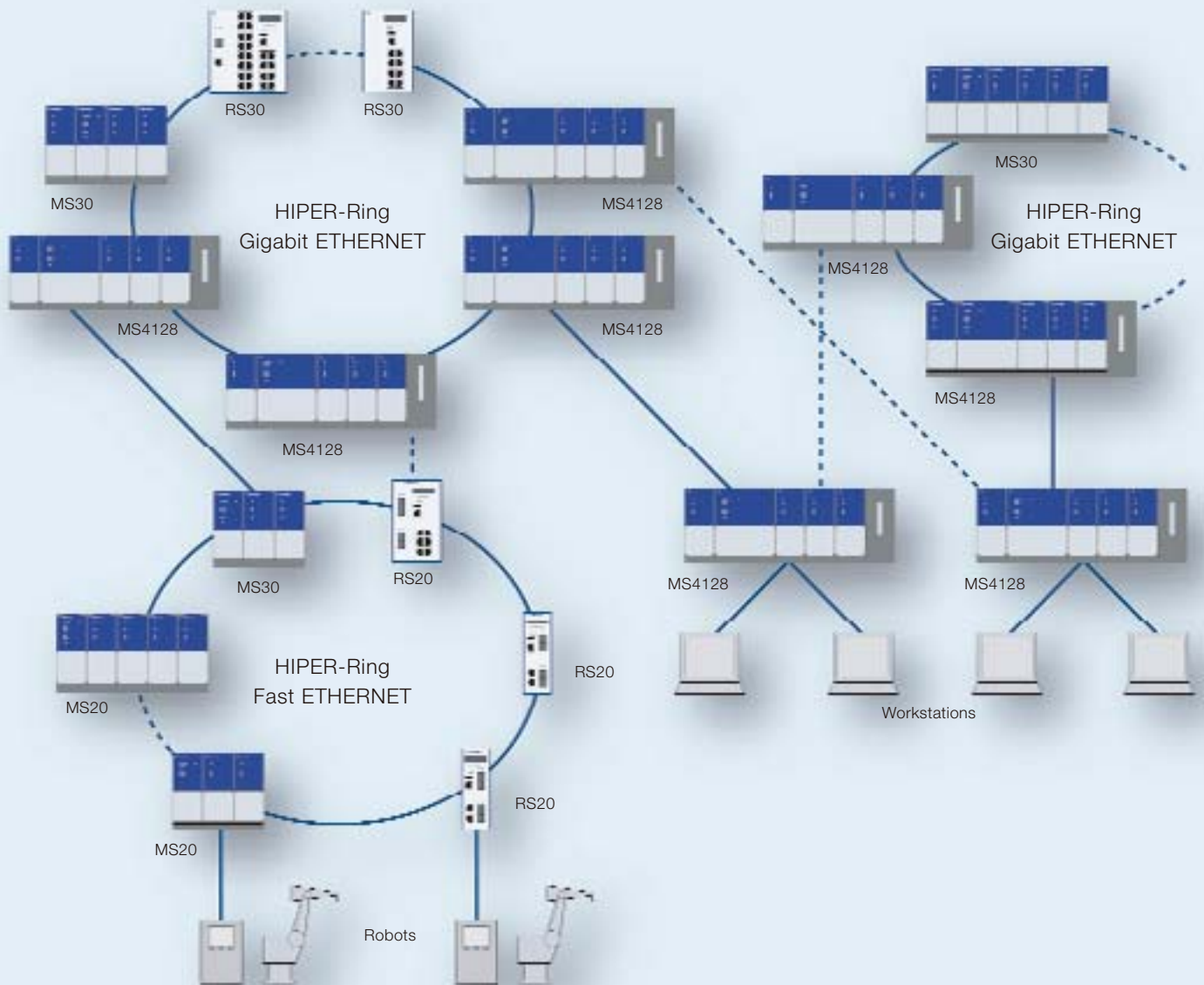**Flexibility pays off at the bottom line:**

MICE enhanced.

- modular switch family
- OpenRail concept
- up to 4 Gigabit ports
- full Layer 3 functionality
- flexible adaptation to existing systems
- media variety

HIRSCHMANN

MICE goes OpenRail.

RS30 RS30

MS30

HIPER-Ring
Gigabit ETHERNET

MS4128

MS4128

MS4128

MS4128

MS4128

MS30

HIPER-Ring
Gigabit ETHERNET

MS4128

MS4128

MS30

RS20

HIPER-Ring
Fast ETHERNET

RS20

MS20

MS20

RS20

MS4128

MS4128

Workstations

Robots

Applications

ETHERNET solutions with the new individual MICE modular products are in demand wherever highly available data networks with large data volumes are to be implemented under critical conditions, such as electromagnetic interference fields. For example in the traffic sector in video surveillance of tunnels, airports or railway stations. The MICE family is also ideal for use in industrial applications such as the rigorous daily production routine of a welding line, or on an offshore oil rig where failures cannot be tolerated.

When individuality meets performance: MICE.

MICE System

The new, flexible MICE: Hirschmann has now extended the "OpenRail" concept to embrace the MICE family. In addition to the three MS 20, MS 30 and Power MICE base units, there is a wide, freely selectable variety of media modules to suit every application.

Switch MS 20-08

Switch MS 20-16

Switch MS 20-24 (including backplane extension MB-2T)

Switch MS 30-08

Switch MS 30-16

Switch MS 30-24 (including backplane extension MB-2T)

Switch MS 4128-Lxx

Backplane extension MB-2T

Media modules RJ 45, M 12, SC, ST, LC Multimode, Singlemode, Long Haul, POF, HCS

Fiberoptic module M-SFP-xx Multimode, Singlemode, Long Haul

Requirements and Solutions

With MICE enhanced, Hirschmann has now imported the proven "OpenRail" concept of highly flexible modular switches to the MICE family. This pick and mix approach allows you to create customized solutions for individual requirements, using a wide range of products. From the MS 20 through the MS 30 right up to the Power MICE.

You get exactly the hardware and functionality you need. The new, efficient MICE concept offers a free choice, guarantees a high investment security and opens up totally new perspectives. All this with the reliability and high fail safety you are used to from Hirschmann.

Power MICE

Description	Managed Industrial Gigabit ETHERNET Switch		
	Software Layer 2 Professional	Software Layer 3 Enhanced	Software Layer 3 Professional
Type	**MS4128-L2P**	**MS4128-L3E**	**MS4128-L3P**
Order No.	943 009-101	943 009-201	943 009-301
Technical data			
Port type and quantity	up to 28 Ports via media modules, 4 x 1000 Base-Fiber with SFP modules, or 4 x 10/100/1000 Base-TX, and 24 x Fast ETHERNET via media modules		
Management	serial interface, Web Interface, SNMP V1/V2/V3, HiVision		
Diagnostics	LEDs, cable tester, 2 x signal contact, RMON, Port Mirroring, Topology Discovery 802.1AB		
Configuration	CLI, TELNET, BootP, DHCP, DHCP Option 82, HIDiscovery, auto configuration adapter (ACA21-USB)		
Security	SNMP V3, Port security, Authentication (802.1x)		
		ACL (Access Control List)	
Redundancy functions	HIPER-Ring, double HIPER-Ring, RSTP, redundant network/ring coupling, Dual Homing, Link Aggregation, redundant 24 V power supply, redundant signal contact		
Filter	QoS 4 classes, port priority (IEEE 802.1D/p), VLAN (IEEE 802.1Q), Multicast (IGMP Snooping/Querier), Multicast GMRP IEEE 802.1D, Broadcast Limiter, Fast Aging		
Flow Control	Flow Control 802.3 x, Port Priority 802.1D/p, Priority (TOS/DIFFSERV), Prio (MAC/IP), Prio Mapping (TOS Layer 2), Traffic Shaping (Unicast, Multicast, Broadcast) Ingress/Egress		
Routing		Static Routing, RIP, VRRP	Static Routing, RIP, OSPF, VRRP, Multicast Routing (PIM-DM, IGMP V1/V2/V3, DVMRP)

MICE Switches

Description	Managed Industrial ETHERNET Switch	
Type	**MS20xx**	**MS30xx**
Technical data	**Fast ETHERNET**	**Gigabit ETHERNET**
Port type and quantity	8 – 24 Ports Fast ETHERNET	
		2 Ports Gigabit ETHERNET, 1000 Base-Fiber with SFP modules, or 10/100/1000 Base-TX
Power supply	24 V DC (18 – 32 V) or 24/48 V DC (18 – 60 V)	
Operating temperature	0 °C ut to + 60 °C, or – 40 °C up to + 70 °C (optional with conformal coating)	
Software Enhanced		
Management	serial interface, Web-Interface, SNMP V1/V2/V3, HiVision File transfer SW HTTP/TFTP	
Diagnostics	LEDs, Log File, Syslog, signal contact, RMON, Port Mirroring, Topology Discovery 802.1AB	
Configuration	CLI, TELNET, BootP, DHCP, DHCP Option 82, HIDiscovery, auto configuration adapter (ACA21-USB)	
Security	Port Security (IP and MAC), SNMP v3 (no encryption)	
Redundancy functions	HIPER-Ring, RSTP 802.1w, redundant net coupling, Dual Homing, redundant 24 V power supply, redundant signal contact	
Filter	QoS 4 classes, port priority (802.1D/p), VLAN (802.1Q), Multicast (IGMP Snooping/Querier), BC-Limiter, Fast Aging	
Flow Control	Flow Control 802.3x, port priority 802.1D/p, priority (TOS/DIFFSERV)	
Software Professional -> Consists of Software Enhanced and additional functionality		
Diagnostics	cable tester	
Security	SNMP V3, SSH, Authentication (802.1x)	
Filter	Multicast GMRP IEEE 802.1D	
Flow Control	Prio (MAC/IP), Prio Mapping (TOS Layer 2), Traffic Shaping (Unicast, Multicast, Broadcast) Ingress/Egress	
Other services	realtime clock with energy buffer	

Media modules for MICE switches

Order No.	Type	Description	
943 840-001	MM3-2AUI	AUI	2 x AUI SUB-D 15-pin male
943 760-001	MM3-4FLM4	ETHERNET multimode	4 x 10BASE-FL, MM, ST
943 117-004	MM3-2FLM4/2TX1-RT	ETHERNET multimode/TX realtime	2 x 10BASE-FL, MM, ST, 2 x 10/100 BASE-TX, RJ45
943 718-001	MM2-2FXM2	Fast ETHERNET multimode	2 x 100BASE-FX, MM, SC
943 721-001	MM2-4FXM3	Fast ETHERNET multimode	4 x 100BASE-FX, MM, MTRJ
943 764-001	MM3-4FXM2	Fast ETHERNET multimode	4 x 100BASE-FX, SC
943 835-001	MM3-4FXM4	Fast ETHERNET multimode	4 x 100BASE-FX, MM, ST
943 720-001	MM2-2FXM3/2TX1	Fast ETHERNET multimode/TX	2 x 100BASE-FX, MM, MTRJ, 2 x 10/100BASE-TXRJ45
943 839-001	MM3-1FXM2/3TX1	Fast ETHERNET multimode/TX	1 x 100BASE-FX, SC, 3 x 10/100BASE-TX, RJ45
943 761-001	MM3-2FXM2/2TX1	Fast ETHERNET multimode/TX	2 x 100BASE-FX, MM, SC, 2 x 10/100BASE-TX, RJ45
943 837-001	MM3-4FXM4/2TX1	Fast ETHERNET multimode/TX	2 x 100BASE-FX, MM, ST, 2 x 10/100BASE-TX, RJ45
943 117-002	MM3-2FXM2/2TX1-RT	Fast ETHERNET multimode/TX realtime	2 x 100BASE-FX, MM, SC, 2 x 10/100BASE-TX, RJ45
943 761-051	MM3-2FXM2/2TX1-EEC	Fast ETHERNET multimode/TX-EEC	2 x 100BASE-FX,MM, SC, 2 x 10/100BASE-TX, RJ45
943 842-001	MM2-2FXP4	Fast ETHERNET POF/HCS	2 x 100BASE-FX, MM, ST
943 843-001	MM3-4FXP4	Fast ETHERNET POF/HCS	4 x 100BASE-FX, MM, ST
943 719-001	MM2-2FXS2	Fast ETHERNET singlemode	2 x 100BASE-FX, SM, SC
943 836-001	MM3-4FXS2	Fast ETHERNET singlemode	4 x 100BASE-FX, SM, SC
943 763-001	MM3-1FXL2/3TX1	Fast ETHERNET singlemode LH	1 x 100BASE-FX, SM, SC, 3 x 10/100BASE-TX, RJ45
943 838-001	MM3-1FXS2/3TX1	Fast ETHERNET singlemode/TX	1 x 100BASE-FX, SM, SC, 3 x 10/100BASE-TX, RJ45
943 762-001	MM3-2FXS2/2TX1	Fast ETHERNET singlemode/TX	2 x 100BASE-FX, SM, SC, 2 x 10/100BASE-TX, RJ45
943 117-003	MM3-2FXS2/2TX1-RT	Fast ETHERNET singlemode/TX realtime	2 x 100BASE-FX, SM, SC, 2 x 10/100BASE-TX, RJ45
943 838-051	MM3-1FXS2/3TX1-EEC	Fast ETHERNET singlemode/TX-EEC	1 x 100BASE-FX, SM, SC, 3 x 10/100BASE-TX, RJ45
943 722-001	MM2-4TX1	Fast ETHERNET TX	4 x 10/100BASE-TX, RJ45
943 841-001	MM3-4TX5	Fast ETHERNET TX	4 x 10/100BASE-TX, M12
943 117-001	MM3-4TX1-RT	Fast ETHERNET TX realtime	4 x 10/100BASE-TX, RJ45
943 722-051	MM2-4TX1-EEC	Fast ETHERNET TX-EEC	4 x 10/100BASE-TX, RJ45
943 622-001	MM4-2TX/SFP	Gigabit ETHERNET TX/SFP	2 x 1000BASE-SX, SFP Slot, 2 x 1000BASE-TX, RJ45
943 010-001	MM4-4TX/SFP	Gigabit ETHERNET TX/SFP	4 x 1000BASE-SX, SFP Slot, 4 x 1000BASE-TX, RJ45

SFP Transceiver

Description	SFP fiber optic transceiver for media modules MM4-TX/SFP and RS30xx			
Type	**M-SFP-SX/LC**	**M-SFP-LX/LC**	**M-SFP-LH/LC**	**M-SFP-LH+/LC**
Order No.	943 014-001	943 015-001	943 042-001	943 049-001
Technical data				
Port type and quantity	1 x 1000Base-SX with LC Connector			
Operating temperature	0° C up to + 60° C			
Multimode fiber (MM) 50/125 µm	0.5 km	0.55 km		
Multimode fiber (MM) 62,5/125 µm	0.28 km	0.55 km		
Singlemode fiber (SM) 9/125 µm		20 km	70 km	120 km

Product features

The new, modular MICE concept is geared to the future. Not only as far as the variety and compatibility with the previous MICE devices are concerned but also with regard to the technological capabilities. That means you are now getting "tailor-made" MICEs – at the same price and delivery terms as before.

- maximum possible individuality through the building block principle
- wide range of possibilities
- up to 4 Gigabit ports
- full Layer 3 functionality
- segmented software
- high investment security
- ordering by an individual code

Hirschmann Competence Center

Hirschmann's unparalleled support services match the top quality and flexibility of its products. Through consulting, training, and support we enable you to maximize your return on investment and deliver a total solution. See what we offer.

www.hicomcenter.com

HIRSCHMANN

Hirschmann. Simply a good Connection.

- ● Production bases
- ● Sales subsidiaries
- ● Selected distribution partners

Hirschmann Automation and Control GmbH

Industrial ETHERNET

FiberINTERFACES

Industrial Connectors

Test & Measurement

Electronic Control Systems

WWW.HIRSCHMANN.COM