MACH1000 19" Ruggedized Rack-Mount Switches

Fast Ethernet Uplink Ports, Gigabit Ethernet Uplink Ports, and Full Gigabit Ethernet Switches

The MACH1000 is available in a 24 port custom configurable design with 2 or 4 additional Gigabit uplink (RJ45 and/or SFP for fiber) and PoE ports. The MACH1000 is also available in an all–Gigabit version, offering 16 10/100/1000 RJ45/SFP combo ports to provide countless copper/fiber combi-nations. These Über-Rugged™ switches are available with Layer 2 or Layer 3 capabilities. The fanless design and extremely efficient components are optimized for minimal heat generation and high MTBF (mean time between failure). The 16 port GE switches offer sub-10 second boot times and offer time synchronization IEEE 1588v2, precision 30 ns.
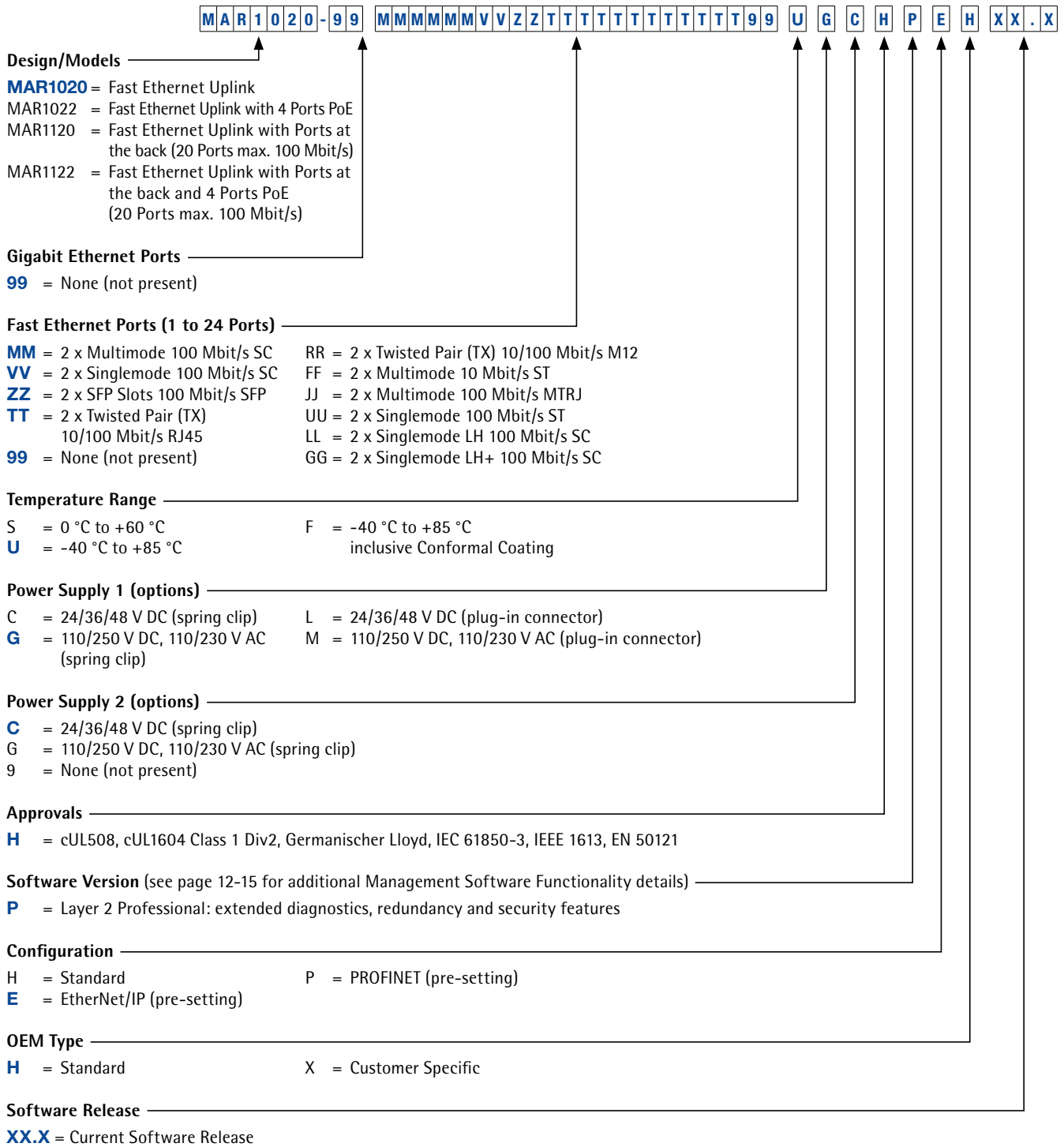
Technical Information

Product Description			
Type	MAR1020 Series 1x2x	MAR1030 Series 1x3x	MAR1040 Series 1x4x
Available Ports	2 to 24	2 to 28	16 (Full Gigabit)
Construction			
Mounting	19" Control Cabinet		
Protection Class	IP30		
Dimensions (W x H x D)	445 x 44 x 308 mm		
Weight	appr. 5 kg		
Ambient Conditions			
Operating Temperature	0 °C to +60 °C, -40 °C to +85 °C, or -40 °C to +85 °C (inclusive Conformal Coating)		
Storage/Transport Temperature	-40 °C to +85 °C		
Relative Humidity (non-condensing)	10% to 95%		
Conformal Coating	Yes (variant dependent)		
Interfaces			
V.24 Interface	1 x RJ11 socket		
USB Interface	1 x USB (ACA21-USB adapter)		
Software			
Supported Classic Software Levels	Layer 2 Professional (L2P)		Layer 2 Professional (L2P), Layer 3 Professional (L3P)
Power Requirements			
Operating Voltage	24 - 48 V DC or 110 - 250 V DC and 110 - 230 V AC		
PoE (802.3af) Ports Supported	Yes (variant applicable)		
PoE Plus (802.3at) Ports Supported	n/a		
Regulatory Approvals			
Safety of Industrial Control Equipment	cUL508		
Hazardous Locations	cULus ISA12.12.01		
Ship	Germanischer Lloyd		
Transportation	NEMA TS2 (non-PoE models)		
Railway	EN 50121-4, EN 50155		
Substation	IEC 61850-3, IEEE 1613		
Reliability			
MTBF Range	21.5 to 38.9 years	20 to 47.6 years	27.1 to 27.8 years
Warranty	5 years standard		

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

MACH1000 19" Ruggedized Rack-Mount Switch Configurations

Fast Ethernet Uplink Ports: MAR1020- | MAR1022- | MAR1120- | MAR1122

| M A R 1 0 2 0 - 9 9 | M M M M M M V V Z Z T T T T T T T T T T T T T T 9 9 | U | G | C | H | P | E | H | X X . X |

Design/Models

MAR1020 = Fast Ethernet Uplink
MAR1022 = Fast Ethernet Uplink with 4 Ports PoE
MAR1120 = Fast Ethernet Uplink with Ports at
the back (20 Ports max. 100 Mbit/s)
MAR1122 = Fast Ethernet Uplink with Ports at
the back and 4 Ports PoE
(20 Ports max. 100 Mbit/s)

Gigabit Ethernet Ports

99 = None (not present)

Fast Ethernet Ports (1 to 24 Ports)

MM = 2 x Multimode 100 Mbit/s SC		RR = 2 x Twisted Pair (TX) 10/100 Mbit/s M12
VV = 2 x Singlemode 100 Mbit/s SC		FF = 2 x Multimode 10 Mbit/s ST
ZZ = 2 x SFP Slots 100 Mbit/s SFP		JJ = 2 x Multimode 100 Mbit/s MTRJ
TT = 2 x Twisted Pair (TX)		UU = 2 x Singlemode 100 Mbit/s ST
10/100 Mbit/s RJ45		LL = 2 x Singlemode LH 100 Mbit/s SC
99 = None (not present)		GG = 2 x Singlemode LH+ 100 Mbit/s SC

Temperature Range

S = 0 °C to +60 °C   F = -40 °C to +85 °C
U = -40 °C to +85 °C   inclusive Conformal Coating

Power Supply 1 (options)

C = 24/36/48 V DC (spring clip)   L = 24/36/48 V DC (plug-in connector)
G = 110/250 V DC, 110/230 V AC   M = 110/250 V DC, 110/230 V AC (plug-in connector)
(spring clip)

Power Supply 2 (options)

C = 24/36/48 V DC (spring clip)
G = 110/250 V DC, 110/230 V AC (spring clip)
9 = None (not present)

Approvals

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

Software Version (see page 12-15 for additional Management Software Functionality details)

P = Layer 2 Professional: extended diagnostics, redundancy and security features

Configuration

H = Standard   P = PROFINET (pre-setting)
E = EtherNet/IP (pre-setting)

OEM Type

H = Standard   X = Customer Specific

Software Release

XX.X = Current Software Release

NOTE: The last three part number categories (**Configuration, OEM Type** and **Software Release**) are optional.

MACH1000 19" Ruggedized Rack-Mount Switch Configurations

Gigabit Ethernet Uplink Ports: MAR1030- | MAR1032- | MAR1130- | MAR1132

MAR1030-CC MMMMMMVVZZTTTTTTTTTTTTTT99 U C C H P H H XX.X

Design/Models
MAR1030 = Gigabit Ethernet Uplink
MAR1032 = Gigabit Ethernet Uplink with 4 Ports PoE
MAR1130 = Gigabit Ethernet Uplink with Ports at the back (20 Ports max. 100 Mbit/s)
MAR1132 = Gigabit Ethernet Uplink with Ports at the back and 4 Ports PoE (20 Ports max. 100 Mbit/s)

Gigabit Ethernet Ports
CC = 2 Ports Combo (2 x 10/100/1000 TX or 2 x GE SFP)
4O = 4 Ports GE SFP
4T = 4 Ports 10/100/1000TX
0T = 2 Ports GE SFP and 2 Ports 10/100/1000 TX

Fast Ethernet Ports (1 to 24 Ports)
MM = 2 x Multimode 100 Mbit/s SC   RR = 2 x Twisted Pair (TX) 10/100 Mbit/s M12
VV = 2 x Singlemode 100 Mbit/s SC   FF = 2 x Multimode 10 Mbit/s ST
ZZ = 2 x SFP Slots 100 Mbit/s SFP   JJ = 2 x Multimode 100 Mbit/s MTRJ
TT = 2 x Twisted Pair (TX)   UU = 2 x Singlemode 100 Mbit/s ST
10/100 Mbit/s RJ45   LL = 2 x Singlemode LH 100 Mbit/s SC
99 = None (not present)   GG = 2 x Singlemode LH+ 100 Mbit/s SC

Temperature Range
S = 0 °C to +60 °C
U = -40 °C to +85 °C
F = -40 °C to +85 °C inclusive Conformal Coating

Power Supply 1 (options)
C = 24/36/48 V DC (spring clip)
G = 110/250 V DC, 110/230 V AC (spring clip)
L = 24/36/48 V DC (plug-in connector)
M = 110/250 V DC, 110/230 V AC (plug-in connector)

Power Supply 2 (options)
C = 24/36/48 V DC (spring clip)
G = 110/250 V DC, 110/230 V AC (spring clip)
9 = None (not present)

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

Software Version (see page 12-15 for additional Management Software Functionality details)
P = Layer 2 Professional: extended diagnostics, redundancy and security features

Configuration
H = Standard
E = EtherNet/IP (pre-setting)
P = PROFINET (pre-setting)

OEM Type
H = Standard
X = Customer Specific

Software Release
XX.X = Current Software Release

NOTE: The last three part number categories (**Configuration, OEM Type** and **Software Release**) are optional.

MACH1000 19" Ruggedized Rack-Mount Switch Configurations

Full Gigabit Ethernet Switches: MAR1040- | MAR1042- | MAR1140- | MAR1142

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M A R 1 0 4 0 - 4 C 4 C 4 C 4 C 9 9 9   S   M   L   H   R   H   H   X X . X
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Design/Models

MAR1040 = Full Gigabit Ethernet Switch
MAR1042 = Full Gigabit Ethernet Switch with PoE
MAR1140 = Full Gigabit Ethernet Switch with Ports on the rear
MAR1142 = Full Gigabit Ethernet Switch with Ports on the rear, PoE

Gigabit Ethernet Ports

4C4C4C4C999 = 16 RJ45/SFP Combo Ports (support 100 and 1000 Mbit/s SFP)

Temperature Range

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

Power Supply 1

L = 24/36/48 V DC (plug-in connector)
M = 110/250 V DC, 110/230 V AC (plug-in connector)

Power Supply 2

L = 24/36/48 V DC (plug-in connector)
M = 110/250 V DC, 110/230 V AC (plug-in connector)
9 = None (not present)

Approvals

H = cUL508 (pending), cUL1604 Class 1 Div 2 (pending), Germanischer Lloyd (pending), EN 50121-4,
    EN 50155 (pending), NEMA TS2, IEC 61850-3, IEEE 1613

Software Version (see page 12-15 for additional Management Software Functionality details)

P = Layer 2 Professional: extended diagnostics, redundancy and security features
R = Layer 3 Professional: routing capabilities

Configuration

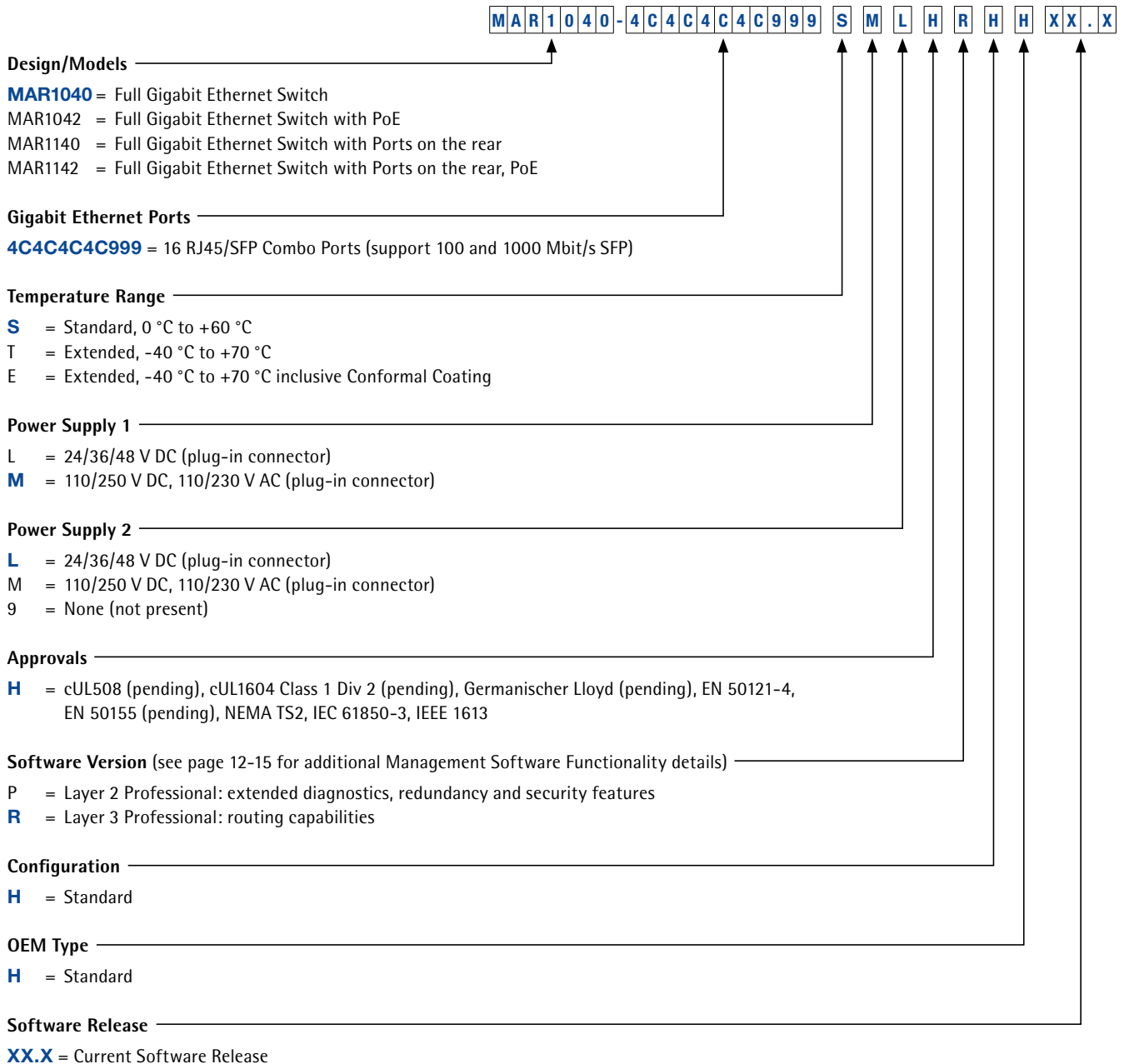**H** = Standard

OEM Type

H = Standard

Software Release

XX.X = Current Software Release

NOTE: The last three part number categories (**Configuration, OEM Type** and **Software Release**) are optional.