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HARTING

mCon 1000 Family

HARTING Pushing Performance

The mCon 1000 Product Family

HARTING mCon 1000 manageable Ethernet switches are suitable for use in industrial environments. They support Ethernet (10 MBit/s), Fast Ethernet (100 MBit/s) and Gigabit Ethernet (1000 MBit/s).

The switches are particularly well equipped for communications networks in power distribution stations, wind turbine facilities, or similar applications. In addition, some of the Ethernet switches in this product family comply with the requirements of IEC 61 850-3 and therefore intended for extreme EMC demands.

Up to ten Ethernet stations and various pluggable modules (SFPs) can be connected to the switch via shielded twisted-pair cable in order to individually customize the interface to the applications.

Their protection class, temperature range and mechanical stability ensure a high level of operational security and suitability for the most demanding industrial requirements.

Excellent performance and variety

The mCon 1000 Ethernet switches are designed specifically for high-performance, industrial and customized use. They support four alternative access methods for management: SNMP, V.24, Telnet and convenient web access, each with access privileges. In addition, the network management software mCon-Manager V3 is available for configuring the switch.

The management concept allows for simple, centralized configuration and administration. Just a few of the implemented features are: rapid spanning tree, security management with access control, comprehensive authentication with Radius and IEEE802.1X, IGMP snooping, VLAN, quality-of-service, prioritization and SNMP traps. Configurations can be backed-up or swapped by using the optional memory card (optionally including MAC address).

Features

- Protocol-transparent transmission
- Store-and-forward switching mode, self-learning
- Automatic back-pressure flow control in half-duplex mode (HDX)
- Flow control according to IEEE 802.3x in full-duplex mode (FDX)
- High-performance non-blocking switching fabric
- Ring-, star- or line-topologies can be implemented as needed

Management functions

- Access via Web, SNMP and Telnet with security as well as V.24 (RS232)
- Rapid Spanning Tree in compliance with IEEE802.1D
- IGMP snooping
- Access control, authentication
  - RADIUS authentication
  - Port authentication according to IEEE802.1x
- Port security
- VLAN support / trunking
- Prioritization according to IEEE802.1P, IPv4 and IPv6
- IEEE802.1Q tagging
- QoS
- Bandwidth limiting
- DHCP
- Mirroring
- Environmental monitoring
- 15 different trap types per trap receiver
- Up to 8 trap receivers
- Configuration and status memory in form of swappable Memory Card (MMC); enables automatic reconfiguration during system swapping (optional)

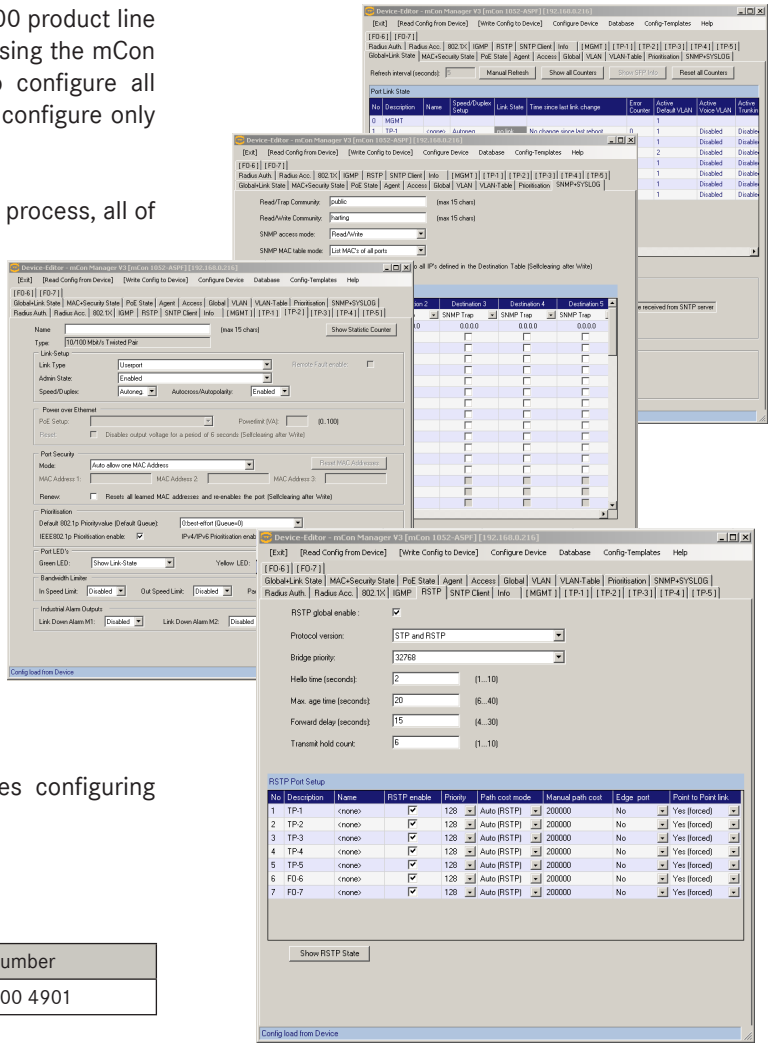
mCon Manager V3

All of the Ethernet switches in the mCon 1000 product line can be quickly and conveniently managed using the mCon Manager V3. This software allows you to configure all switches in a large complex network, or to configure only individual switches.

With its integrated and quick auto-discovery process, all of the mCon 1000 switches in a network can be detected and consolidated in individual switch lists.
These switch lists can be be used for running firmware updates on selected switches or for starting time-delayed firmware updates.

Individual switch configurations can be quickly and conveniently saved as master configurations. This shortens configuration time when replacing a switch or extending the network. Each master configuration can specify different parameters which can then be loaded onto selected switches based on the switch lists.

The user-friendly mCon Manager V3 makes configuring switches in a network much easier.

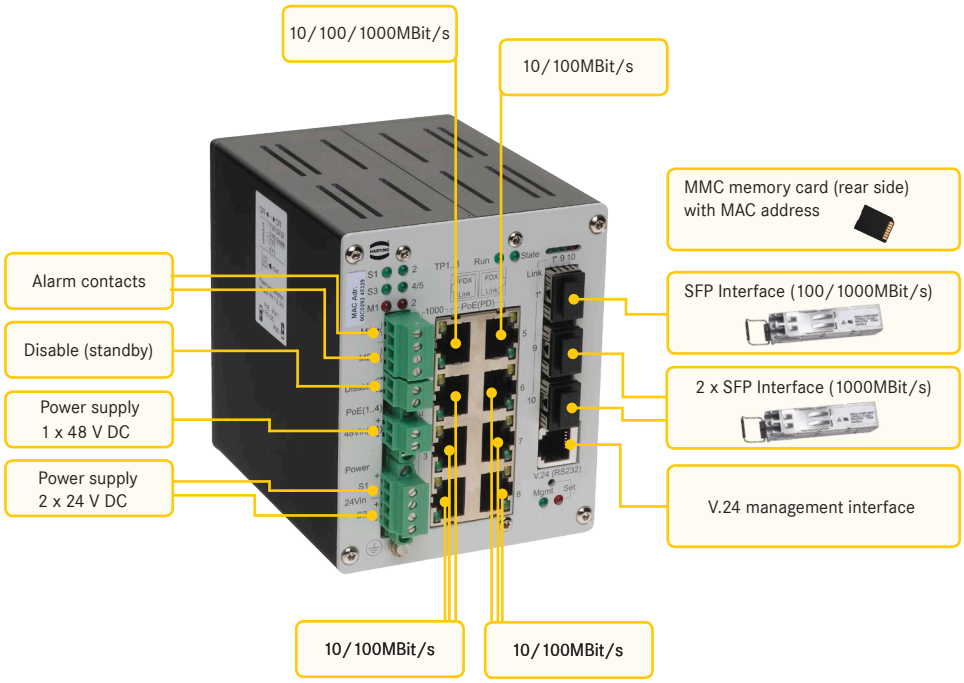


Designation	Part number
mCon Manager V3	20 89 900 4901

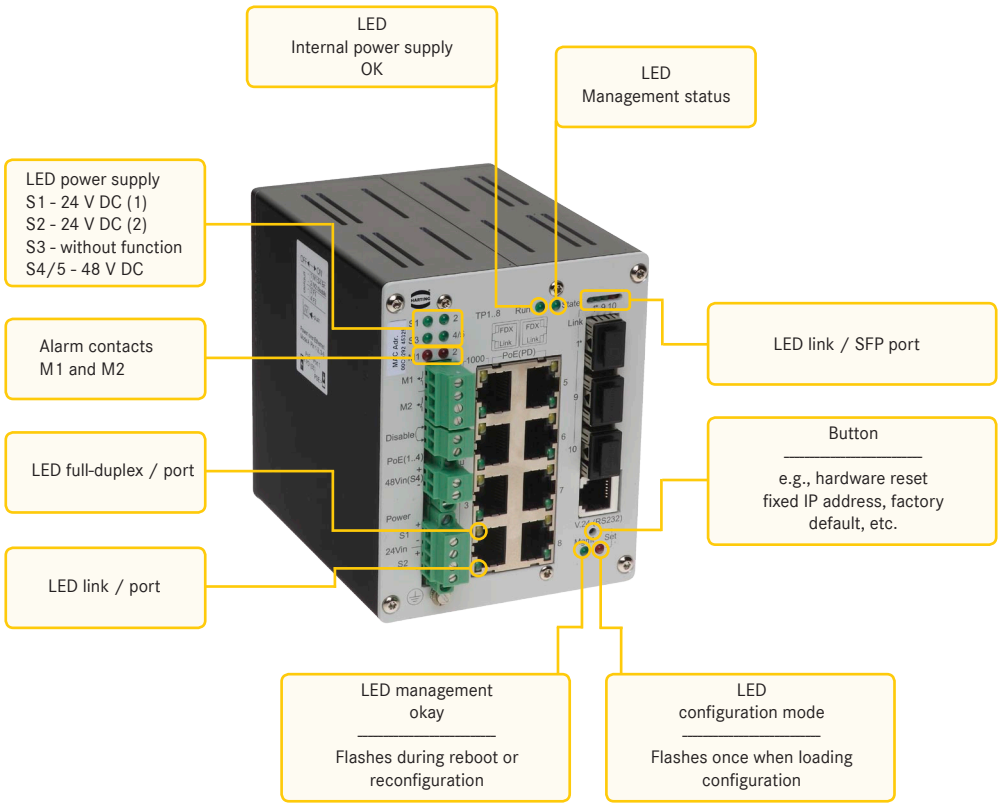
Technical features

	mCon 1070-A	mCon 1061-AD	mCon 1052-AD	mCon 1082-AD	mCon 1052-ASFP	mCon 1083-ASFP
						
Part number	**20 76 107 6000**	**20 76 107 6100**	**20 76 107 6101**	**20 76 110 6100**	**20 76 107 6300**	**20 76 111 6300**
Power supply						
Input voltage (redundant):	24/48 V DC	2 x 24 V DC	2 x 24 V DC	2 x 24 V DC	2 x 24 V DC	2 x 24 V DC
Input voltage range:	18 ... 36 V DC (min/max at 24 V) 44 ... 57 V DC (min/max at 48 V)	18 ... 36 V DC (min/max at 24 V) 44 ... 57 V DC (min/max at 48 V)	18 ... 36 V DC (min/max at 24 V) 44 ... 57 V DC (min/max at 48 V)	21 ... 57 V DC (min/max)	21 ... 57 V DC (min/max)	21 ... 57 V DC (min/max)
Current consumption:	0.29 A (at 24 V DC)	0.29 A (at 24 V DC)	0.29 A (at 24 V DC)	0.50 A (at 24 V DC)	0.29 A (at 24 V DC)	0.50 A (at 24 V DC)
Ethernet interface						
RJ45 ports	• 7 front-side RJ45 nodes • 10/100Base-T(X)	• 6 front-side RJ45 nodes • 10/100Base-T(X)	• 5 front-side RJ45 nodes • 10/100Base-T(X)	• 8 front-side RJ45 nodes • 1 x 10/100/1000Base-T(X) • 7 x 10/100Base-T(X)	• 5 front-side RJ45 nodes 10/100Base-T(X)	• 8 front-side RJ45 nodes • 1 x 10/100/1000Base-T(X) • 7 x 10/100Base-T(X)
Connection:	Shielded RJ45 (twisted pair)	Shielded RJ45 (twisted pair)	Shielded RJ45 (twisted pair)	Shielded RJ45 (twisted pair)	RJ45 shielded (twisted pair)	RJ45 shielded (twisted pair)
Max. cable length:	100 m	100 m	100 m	100 m	100 m	100 m
Fibre-optic uplink connection		1 full-/half-duplex fibre-optic uplink acc. to IEEE 802.3u 100Base-FX, Data rate 100 MBit/s	1 full-/half-duplex fibre-optic uplink acc. to IEEE 802.3u 100Base-FX, Data rate: 100 MBit/s	2 full-duplex fibre-optic uplinks, acc. to IEEE 802.3z 1000Base-FX, Data rate: 1000MBit/s	2 full-/half-duplex fibre-optic uplinks acc. to IEEE 802.3u 100Base-FX, Data rate: 100 MBit/s	2 full-duplex fibre-optic uplinks, acc. to IEEE 802.3z/ab 1000Base-FX, **Data rate: 1000MB.**
Connection:		SC duplex female socket	SC duplex female socket	SC duplex female socket		1 full-duplex fibre-optic/TP uplink Data rate: 100/1000 MBit/s
Fibre types:		Multi-mode fibre	Multi-mode fibre	Multi-mode fibre		
Operating wave length, multi-mode:		1300 nm	1300 nm	850 nm		
Dynamic with multi-mode (typical):		8 dB or 11 dB	8 dB or 11 dB	8 dB or 11 dB		
Range with multi-mode (max.):		2 km	2 km	550 m		
SFP slots					2 x 100 Mbit/s	• 2 x 1000 Mbit/s • 1 x 100/1000 MBit/s
Contacts and digital I/O						
Alarm contacts:	2 x independent relay outputs each with 1 A / 30 V DC NC (normally-closed) function can be masked using a DIL switch and management signal functions	2 x independent relay outputs each with 1 A / 30 V DC NC (normally-closed) function can be masked using a DIL switch and management signal functions	2 x independent relay outputs each with 1 A / 30 V DC NC (normally-closed) function can be masked using a DIL switch and management signal functions	2 x independent relay outputs each with 1 A / 30 V DC NC (normally-closed) function can be masked using a DIL switch and management signal functions	2 x independent relay outputs each with 1 A / 30 V DC NC (normally-closed) function can be masked using a DIL switch and management signal functions	2 x independent relay outputs each with 1 A / 30 V DC NC (normally-closed) function can be masked using a DIL switch and management signal functions
Set contacts:	1 x closing the switch contact = device standby	1 x closing the switch contact = device standby	1 x closing the switch contact = device standby	1 x closing the switch contact = functional input	1 x closing the switch contact = functional input	1 x closing the switch contact = functional input
Mechanics						
Weight	790 g	790 g	790 g	800 g	790 g	800 g
Protection degree acc. to DIN 60 529	IP 30	IP 30	IP 30	IP 30	IP 30	IP 30
Dimensions (W x H x D)	75 mm x 105 mm x 106 mm (without connectors)	75 mm x 105 mm x 106 mm (without connectors)	75 mm x 105 mm x 106 mm (without connectors)	85 mm x 105 mm x 106 mm (without connectors)	75 mm x 105 mm x 106 mm (without connectors)	85 mm x 105 mm x 106 mm (without connectors)
Environmental conditions						
Permitted ambient temperature:	-10 °C to +60 °C (operational) -20 °C to +80 °C (storage)	-10 °C to +60 °C (operational) -20 °C to +80 °C (storage)	-10 °C to +60 °C (operational) -20 °C to +80 °C (storage)	-40 °C to +70 °C (operational) -40 °C to +80 °C (storage)	-40 °C to +70 °C (operational) -40 °C to +80 °C (storage)	-40 °C to +70 °C (operational) -40 °C to +80 °C (storage)
Relative humidity	20% to 90% (non-condensing)	20% to 90% (non-condensing)	20% to 90% (non-condensing)	20% to 90% (non-condensing)	20% to 90% (non-condensing)	20% to 90% (non-condensing)

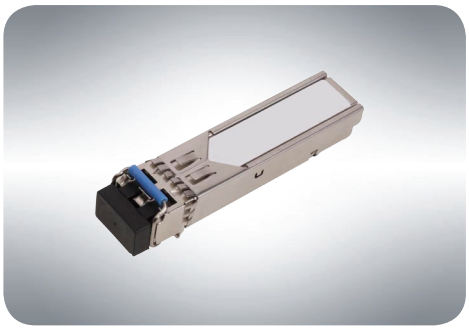
External interfaces

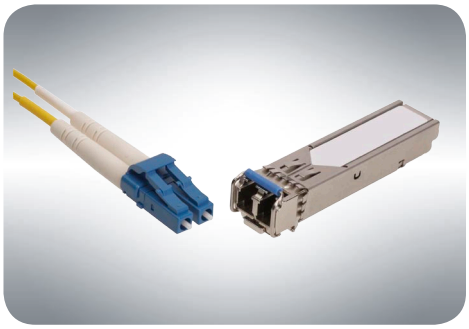


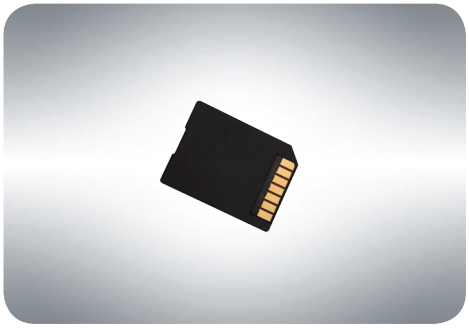
Diagnoses and signalling



SFP Interface Modules and Memory Card







General description

HARTING's mCon 1000 Ethernet switch product line is designed for data transmission via fibre-optic cables with SFP transceivers.

SFPs (small form-factor pluggables) are small standardized modules used for network connections.
These modules are a specification for a new generation of modular optical transceivers. These devices are constructed as connecting plugs for extremely quick network connections.

SFP modules fit in SFF (small form factor) plug-in slots and are simple and easy to replace (hot-swappable). Network devices can thus be modified for various media and can be quickly replaced in the event of a malfunction.

SFPs are closely related to GBICs and for this reason are also called Mini-GBICs. The SFP modules are, however, smaller and more compact.

The SFPs are available in a variety of models, depending on the cable type (multi-mode or single-mode), the wave length (850 nm, 1300 nm, 1550 nm or CWDM), data rate or range. Copper-based SFPs are also available.

The MMC memory cards increase flexibility for the operator and also serve for storing the switch's configuration data.
(Note: The MMC memory cards differ from and therefore not compatible with standard commercially-available memory cards.

Summarized technical details

Type	SFP 100 Transceiver GI(LC)	SFP 100 Transceiver SM(LC)	SFP 1000 Transceiver GI(LC)	SFP 1000 Transceiver SM(LC)	MMC memory card
Part number	20 76 000 0300	20 76 020 0300	20 76 010 0300	20 76 030 0300	20 89 900 4999
Wave length	1300 nm	1300 nm	850 nm	1300 nm	———
Fibre	50 / 125 µm or 62.5 / 125 µm	9 / 125 µm	50 / 125 µm or 62.5 / 125 µm	9 / 125 µm	———
Typical cable length	5000 m	8000 m	500 m (50 /125 µm) 300m (62.5 /125 µm)	3000 m	———
Connectors	LC connector, duplex	LC connector, duplex	LC connector, duplex	LC connector, duplex	———
Optical budget	min. 10 dB	min. 7 dB	min. 9 dB	min. 9.5 dB	———
Data transmission rate	100 Mbit/s	100 Mbit/s	1000 Mbit/s	1000 Mbit/s	———

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