HIRSCHMANN

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Description and Operating Instructions Modular Industrial Communication Equipment

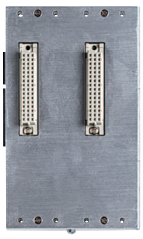
MICE Media modules



MM2-2FXM3/2TX1 MM2-4TX1 MM4-4TX/SFP MM2-2FLM4 MM2-2FXM2 MM2-2FXS2



MM3-2AUI MM3-2FXM4/2TX1 MM3-2FXS2/2TX1 MM3-2FXM2/2TX1 MM3-1FXM2/3TX1 MM3-1FXL2/3TX1 MM3-1FXS2/3TX1 MM2-4FXM3 MM3-4FXM2 MM3-4FXS2 MM3-4FXM4 MM3-4FLM4



MB20 (former designation: MB-2T expansion module

The **M**odular **I**ndustrial **C**ommunication **E**quipment, MICE, is a modular network component. It was developed particularly for use in an industrial environment.

The media modules described in this instructions are the interface of the device to the LAN and can be plugged onto the following basic modules of the MICE switch:
– MS2108-2 (MICE 2000)
– MS3124-4 (MICE 3000)
– MS20-… and MS30-…

The MB20 expansion module allows you to add 2 slots to the MS20-1600, MS30-1602, MS3124-4 MICE switch basic module for installing media modules.

The media modules are exclusively intended for use with Hirschmann MS... modular switches.

MICE allows you to construct switched Industrial ETHERNET networks that conform to the IEEE 802.3 standard.

In the
– User manual “Installation“
– User manual “Basic configuration“
– User manual “Redundancy configuration“
– Reference manual “Web-based Interface“
– Reference manual “Command Line Interface“
you will find a detailled description of the MICE and further information.

Hirschmann. Simply a good Connection.

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1. MICE Hardware

1.1 SWITCH BASIC MODULES

The documentation enclosed to the switch basic module gives you a detailed description of the switch basic modules:

– “User Manual Installation Industrial ETHERNET Switch MICE MS20/MS30” for MS20-… and MS30-…
– “User Manual Installation Industrial ETHERNET Switch Power MICE”
– “Description and Operating Instructions Industrial ETHERNET Modular Industrial Communication Equipment MICE/Power MICE” for
  – MS2108-2 (MICE 2000)
  – MS3124-4 (MICE 3000)

1.2 MEDIA MODULES

– MICE 2000: See Table 1.
– MICE 3000: See Table 2.
– MICE 4000: See Table 3.
– MICE media modules open variant: See Table 4.

1.3 MB20 (OLD DESIGNATION: MB-2T) EXPANSION MODULE

The MB20 expansion module allows you to add 2 slots to the MS20-1600, MS30-1602, MS3124-4 MICE switch basic module for installing media modules.

1.4 SFP MODULES

SFP modules are optical transceivers (Fast ETHERNET and Gigabit ETHERNET SFP modules see chapter 7 Technical Data). The SFP modules are plugged into the SFP slots of the Fast ETHERNET media module MM3-4SFP (MM20-Z6Z6Z6Z6) or of the Gigabit ETHERNET media modules MM4-4TX/SFP / MM4-2TX/SFP to provide a F/O port.

The MM3-4SFP (MM20-Z6Z6Z6Z6) has four slots for SFP modules (100 Mbit/s).

The MM4-4TX/SFP / MM4-2TX/SFP has four/two TP interfaces and four/two slots for SFP modules (1000 Mbit/s). Inserting the SFP module deactivates the corresponding TP interface.

1.5 MM22-T1T1T1T1 POE MEDIA MODULE

The MM22-T1T1T1T1 PoE media module (deeper module style) supports Power over ETHERNET (PoE) in compliance with IEEE 802.3af. It enables the connection and the remote supply of e. g. IP telephones (voice over IP), webcams, sensors, print servers and WLAN access points via 10BASE-T/100BASE-TX. With PoE, the power supply of these data terminal equipments is served via the twisted pair cable.

The MM22-T1T1T1T1 media module offers four 10BASE-T/100BASE-TX ports (RJ45 connectors) for connecting network segments or PoE data terminal equipments (PD, Powered Device) up to class 0 (respectively class 3) maximum.

The current is supplied on the idle wire pairs (spare pairs); the ports are not electrically isolated against each other.
In compliance with IEEE 802.3af, each port has the attributes:
– Endpoint PSE
– Alternative B.

1.6 MM24 -T1T1T1T1 DIGITAL I/O MODULE

The Digital I/O Module MM24 allows the control of different actuators of the system via 4 digital inputs and outputs. For further information, see the user manual MICE digital I/O module MM24.

2. Functional description

The ports of a MICE represent a terminal connection for the connected LAN segment. You can connect single devices or complete network segments.

2.1 INTERFACES

TP/TX/FL/FX terminal devices or other TP/TX/FL/FX segments can be connected to the 10/100/1000 Mbit/s ports of the media modules.

The MICE and MS20 supports both ETHERNET 10 Mbit/s and Fast ETHERNET 100 Mbit/s, the Power MICE and MS30 supports additionally Gigabit ETHERNET 1000 Mbit/s.

The TP/TX ports support autocrossing, autonegotiation and autopolarity.

2.2 DIP SWITCH (MM3-AUI)

With the 3-pin DIP switch on the MM3-2AUI module

– you can switch on or off the SQE test function at port 1 with the SQE-Test Port 1 switch.
  State of delivery: switch in position 0 (Off), i. e. SQE test function not active.
– you can switch on or off the SQE test function at port 2 with the SQE-Test Port 2 switch.
  State of delivery: switch in position 0 (Off), i. e. SQE test function not active.
– you can switch on or off the monitoring of the DTE voltage, for both ports together, with the DTEPower-Monitor switch.
  – ON: monitoring of the DTE voltage active, data transmission only possible if DTE voltage available.
  – OFF: no monitoring of the DTE voltage, data transmission always possible.
  – State of delivery: switch in position 0 (OFF), i. e. no monitoring of DTE voltage.

3. Assembly, startup procedure and dismantling

3.1 UNPACKING, CHECKING

☐ Check whether the package was delivered completely (see scope of delivery).
☐ Check the individual parts for transport damage.

⚠ **Warning!**
Use only undamaged parts!

3.2 ASSEMBLING MEDIA MODULES

Media modules can be assembled and disassembled during running operation.

☐ To fasten a media module, first remove the protective cap over the plug of the MICE.
☐ Plug the media module onto the plug.
☐ Tighten the 4 screws on the corners of the media module.
☐ Check whether the switch pre-setting suits your requirements.
☐ Fit the signal lines.

3.3 ASSEMBLING SFP MODULES

☐ To fasten a SFP module, first remove the protective cap over the socket.
☐ Insert the SFP module with the closed lock into the socket until you hear it snap in.

Note: Use only Hirschmann SFP modules.

3.4 ASSEMBLING THE MB20 EXPANSION MODULE

The MB20 expansion module can be installed while in running operation.

☐ On the right side of the switch basic module, loosen the screw at the top and at the bottom (1 - 3 revolutions).
☐ Remove the side cover.
☐ If you have not yet done so, mount the switch basic module onto the top-hat rail.
☐ Slide the MB20 expansion module on the top-hat rail toward the switch basic module until the modules plug into each other.
☐ On the switch basic module, tighten the screws at the top and at the bottom.

3.5 STARTUP PROCEDURE

You start up the MICE by connecting the supply voltage via the terminal block(s) on the MICE basic module. Lock the terminal block(s).

3.6 CONNECTING THE MM22-T1T1T1T1 POE MEDIA MODULE

The MM22-T1T1T1T1 PoE media module is supplied with the PoE voltage (48 V DC safety extra-low voltage) via an external power supply unit. The PoE voltage is fed into the 3-pin terminal block of the PoE media module. The twisted pair cables are supplied with the PoE voltage on port 1 to 4 via the spare pairs (pins 4 & 5 and 7 & 8 of the RJ45 sockets).

Note: Only use the Hirschmann RPS60/48 V EEC power supply unit for providing the PoE voltage.

☐ Make sure that the external power supply unit being used for providing the PoE voltage meets, among other things, the following requirements:
  – Isolation requirements in compliance with IEEE 802.3af (electrical strength of the 48 V output to “rest of the world" 2250 V DC for 1 min.)
  – Output power <100 W.
  – Current limiting <2 A.
  – Power supply unit and PoE media module form a “Limited Power Source” in compliance with IEC60950-1.
  – The external PoE power supply unit has to be able to provide the power for the PDs being connected.
  All these conditions are met by the RPS60/48 V EEC power supply unit.

☐ Connect the PoE voltage to the 3-pin terminal block (included in the scope of delivery), as shown in the following figure.
  Make sure that your installation complies with the following conditions:
  – Length of the supply line <3 m.
  – Cross-section of the supply lines is dimensioned for 1.5 A

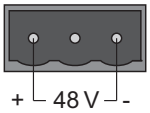


Fig. 3: 3-pin terminal block of the PoE media module

☐ Mount the terminal block for the PoE supply voltage on the bottom side of the PoE module via snap lock. Push it until it locks into position.

Note: Use 4-pair twisted pair cables for connecting the data terminal equipments. Only connect data terminal equipments which are conform to IEEE 802.3af.