

# B

## I/O Carrier-Modules MHST

### Technical Data

Terminals are at choice, see how to order.

#### Dimensions:

Height above the housing edge:	
without I/O-Elements:	30 mm / 1.18 in
with I/O-Elements:	45 mm / 1.77 in
(total height plus 30 mm)	
Length with 1 I/O-Elements:	47 mm / 1.85 in
with 2 I/O-Elements:	68 mm / 2.72 in
with 4 I/O-Elements:	137 mm / 5.40 in
Width:	76 mm / 3.00 in

### Description

The carrier modules are available optionally for 1, 2 or 4 input/ output modules. These modules are equipped with plug-in sockets for easy interchangeability of the optocoupler modules. The circuit also comprises fuse switches and an LED status indicator.

Screw terminals or tab receptacle connectors are available as standard for individual wiring.

The fuse holders with bayonet catch are protected against accidental contact.

The G-fuse themselves are not included in the scope of delivery.

For the I/O-modules see the following page.

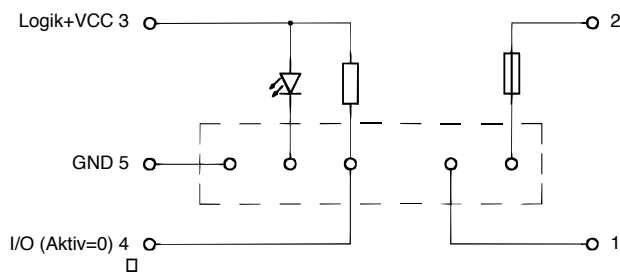
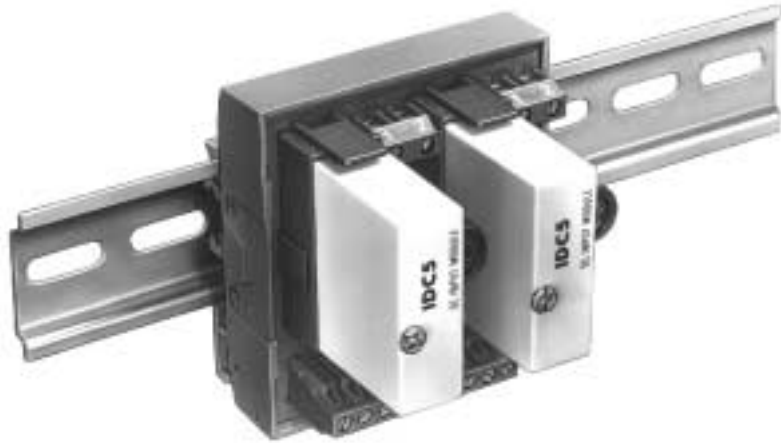
### Options

Carrier modules for eight or sixteen I/O-modules.

Pin blocks or subminiature terminals

can be used instead of screw terminals on the control side.

Customer specified designs.



For M-I/O  
Module-Elements  
see the following  
page.



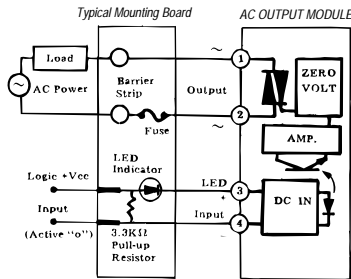
### Order Table

		Terminals Input: Type 150-A-111 with 2x2,5 mm <sup>2</sup> → <b>M</b> Optional available: (A,B,G,R,S)	Terminals Contact Side: Type 977-DS with 2,5 mm <sup>2</sup> → <b>C</b>									
Modul-Type: <b>MHST</b>	Number of possible I/O module elements: <b>01,02,04</b>	Housing: Module Housing M-512 <b>Z</b>										
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;"><b>M</b></td> <td style="padding: 5px;"><b>H</b></td> <td style="padding: 5px;"><b>S</b></td> <td style="padding: 5px;"><b>T</b></td> <td style="padding: 5px;"> </td> <td style="padding: 5px;">-</td> <td style="padding: 5px;"> </td> <td style="padding: 5px;"><b>C</b></td> <td style="padding: 5px;"><b>Z</b></td> </tr> </table>				<b>M</b>	<b>H</b>	<b>S</b>	<b>T</b>		-		<b>C</b>	<b>Z</b>
<b>M</b>	<b>H</b>	<b>S</b>	<b>T</b>		-		<b>C</b>	<b>Z</b>				
Type-Designation												

# I/O Carrier-Module-Elements M-I/O

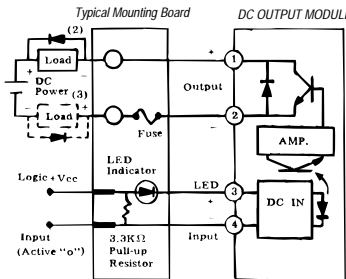


## AC Output, black case



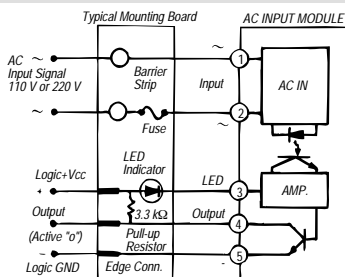
Type Designation $\partial$ for Ordering $\Sigma$	M-OAC5 M-OAC5A	M-OAC15 M-OAC15A	M-OAC24 M-OAC24A
Operating Voltage-Range	$\partial$ 12-140 VAC $\Sigma$ 24-280 VAC		
Current Rating	3 Aeff		
1-cycle Surge	40 A		
Control Resistance	220 $\Omega$	1 k $\Omega$	2,2 k $\Omega$
Contr. Voltage Range	3-8 VDC	9-16 VDC	18-32 VDC
Contr. Drop-Out Volt.	1 VDC		
Peak Repetitive Volt.	500 V		
Output Voltage Drop	1,6 V		
Off state leakage	5 mAeff		
Min. load current	50 mA		
Insul. Volt. In- to Output	2500 Veff		
Turn on/turn off time	max. 1/2 Zyklus		

## DC Output, red case



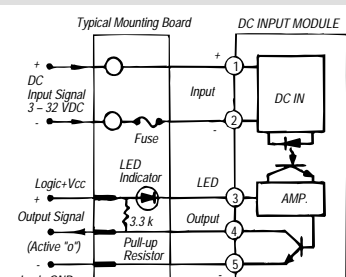
Type Designation $\partial$ for Ordering $\Sigma$	M-ODC5 M-ODC5A	M-ODC15 M-ODC15A	M-ODC24 —
Operating Voltage-Range	$\partial$ 5-60 VDC $\Sigma$ 5-200 VDC		
Load Current	$\partial$ 3 A		
Rating	$\Sigma$ 1 A		
1 Second Surge	5 A		
Control Resistance	220 $\Omega$	1 k $\Omega$	2,2 k $\Omega$
Contr. Voltage Range	3-8 VDC	9-18 VDC	18-28 VDC
Contr. input current	12 mA	15 mA	18 mA
Contr. Drop-Out Volt.	min. 1 VDC		
Off state leakage.	$\partial$ max. 1 mA $\Sigma$ max. 2 mA		
Insul Volt. In- to Output	2500 Veff		

## AC Input, yellow case



Type Designation $\partial$ for Ordering $\Sigma$	M-IAC5 M-IAC5A	M-IAC15 M-IAC15A	—
Input Voltage Range-	$\partial$ 90-140 VAC $\Sigma$ 180-280 VAC		
Max. input current	$\partial$ 10 mA/ $\Sigma$ 6,5 mA		
Control Resistance	220 $\Omega$	1 k $\Omega$	—
Logic supply Voltage	4,5-6 VDC	12-18 VDC	—
Output Transistor	30 VDC-Breakdown		
Output Current	25 mA DC		
Output Voltage Drop	0,4 V at 25 mA		
Off leakage Current	100 $\mu$ A at 30 VDC		
Logic supply Current	12 mA	15 mA	—
Insulation In- to Output	2500 Veff		
Turn on/turn off time	max. 20 ms		

## DC Input, white case



Type Designation $\partial$ for Ordering $\Sigma$	M-IDC5B M-IDC5	— M-IDC15	— M-IDC24
Input Voltage Range	$\partial$ 4-16 VDC $\Sigma$ 10-32 VDC		
Max. input current	$\partial$ 45 mA $\Sigma$ 25 mA		
Output Transistor	30 VDC-Breakdown		
Logic supply Voltage	4,5-6 VDC	12-18 VDC	20-30 VDC
Logic supply Current	12 mA	15 mA	18 mA
Output Current	25 mA		
Output Voltage Dry	0,4 V at 25 mA		
Output leakage	100 $\mu$ A bei 30 VDC		
Insulation In- to Output	2500 Veff		

## Description

The M-I/O module elements are used in connection with the M-I/O carrier modules described on the previous page.

They are pure semiconductor modules and have the following characteristics:

- No moving parts, thus providing bounce-free switching
- Isolation between control and switching circuit via optocoupler up to 2,5 kVeff r.m.s.
- Integrated RC-network for inductive loads
- Zero-crossing switch
- No electromagnetic interference
- Spark-free operation
- Logic-compatible control

### AC Output, OAC, color: Black

The "OAC"-output modules apply an AC voltage in the range 24VAC (12VAC) to 280VAC (140VAC) to a load, as the result of a computer command, at a continuous current of maximum 3 A. A zero-crossing switch guarantees trouble-free operation and ensures favorable starting conditions when switching on. The incorporated RC network, in parallel with the Triac, permits switching of inductive loads up to  $\cos \varphi = 0,5$ .

Typical loads: Transformers, motors, lamps and contactors etc.

### AC Input, IAC, color: Yellow

The "IAC"-input modules apply a corresponding logic signal to the computer, as the result of an AC voltage signal in the range 180VAC (90VAC) to 280VAC (140VAC). An internal protective circuit prevents destruction of the input as the result of voltage.

### DC Output, ODC, color: Red

The "ODC"-output modules apply a DC voltage of 5 VDC to 60VDC (200VDC) to a load, as the result of a computer command, at a continuous current of maximum 3 A (1 A).

Inductive loads present no switching problems if they are wired with a free-wheeling diode. Typical loads: Motors, contactors and final control elements etc.

### DC Input, IDC, color: White

The "IDC"-input modules apply a corresponding logic signal to the computer, as the result of a DC voltage signal in the range 4VDC (10 VDC) to 16 VDC (32 VDC). An internal circuit ensures very good noise suppression and clean switch-ing. Application: Monitoring voltages (DC).