MDR-8

Technical Documentation
Digital Output Relay Submodule

Please keep for further use !

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"< >" refers to keys on your computer keyboard (e.g. <RETURN>).

Note

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MDR 8 Digital Output Relay Submodule

8-Bit 110 V AC, 220 V AC, 24 V DC

1 General

The MDR8 output module is a submodule, which is galvanically decoupled by means of optocouplers, for the FOX-10 basic module. The submodule provides eight digital outputs. For operation in the II/O system, you can install up to four MDR8s in the four slots of a FOX-10 basic module. This makes possible a maximum of 32 outputs per FOX-10. In addition, you can combine MDR8s with different modules, e.g. digital inputs. Every MDR8 occupies eight of the 32 bits of user information in the message. Depending on the slot (1 to 4), the module occupies one of the data bytes D0, D1, D2 or D3.

Per output, there are available on the connectors a normally closed contact, a mid-position contact and a normally open contact.

To protect the relay contacts, the system short-circuits the voltage peaks, which occur at the NO or NC contact when inductive loads switch, via varistors to the front connectors designated N. The MDR8 is provided for a 220 V switching voltage. The breakdown voltage of the varistors mentioned above is matched to the switching voltage. For reasons of interference protection, it is, however, sensible to directly suppress the interference of inductive consumers.

If the MDR8 is used to switch 220 V, you must connect the protective earth to the appropriate connection.

The relays used have a rated test voltage of 3000 V AC and a surge withstand capability of 5000 V between the contact and the coil, i.e. between the load current circuit and the 24 V system voltage. If this dielectric strength is insufficient with 220 V applications, relays with greater dielectric strength are available on request.

Note:
Since the relay needs a coil voltage of at least 20 V to pick up, the FOX-10 operating voltage range is limited to 24 V -15%/+20% when the MDR 8 is used.

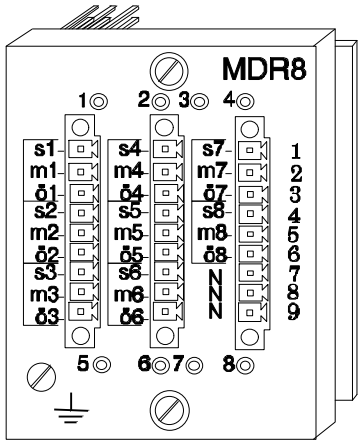

Figure: 8-Bit Digital Relay Output Module

2 Technical data

MDR8 Outputs	8 relay outputs, galvanically decoupled 8 LED output status indicators 1 LED voltage indicator
Outputs	NC contact, mid-position contact, NO contact
Relay Data Detailed relay data sheet on request	Switching voltage: 0.1 - 220 V Switching current: 1 A Switching cycle: 1*10^5 ...5*10^7 test voltage Contact/coil: 3000V AC impulse voltage Contact/coil: 5000V
Contact Protector	Varistor between NO or NC contact and corresponding N connections Varistor data: Wtm (10/1000 µs) 0.8 J Itm (8/20 µs) 100 A Um (ac) 110 V version 163 V 220 V version 253 V
Output Monitoring	Watchdog circuit
Supply Voltage	Internally via FOX-10
Current Consumption	5 V/0.02 A; 24 V / 140 mA (relay coil current)
Housing	Module with front panel is mounted in the FOX-10 using two screws.
Dimensions (W x H x D), Weight	58 x 72 x 50 mm, approx. 300 g
Temperature	Operation: ±0..+55° C Storage: -20..+70° C

3 Signal description and example of MDR8 connection

Pin	Signal	I/O	Description
L-1	s1	Out	NO contact, relay 1
L-2	m1	Out	Mid-position contact, relay 1
L-3	ö1	Out	NC contact, relay 1
L-4	s1	Out	NO contact, relay 2
L-5	m2	Out	Mid-position contact, relay 2
L-6	ö2	Out	NC contact, relay 2
L-7	s2	Out	NO contact, relay 3
L-8	m1	Out	Mid-position contact, relay 3
L-9	ö1	Out	NC contact, relay 3
Pin	**Signal**	**I/O**	**Description**
M-1	s4	Out	NO contact, relay 4
M-2	m4	Out	Mid-position contact, relay 4
M-3	ö4	Out	NC contact, relay 4
M-4	s5	Out	NO contact, relay 5
M-5	m5	Out	Mid-position contact, relay 5
M-6	ö5	Out	NC contact, relay 5
M-7	s6	Out	NO contact, relay 6
M-8	m6	Out	Mid-position relay6
M-9	ö6	Out	NC contact, relay 6
Pin	**Signal**	**I/O**	**Description**
R-1	s7	Out	NO contact, relay 7
R-2	m7	Out	Mid-position contact, relay 7
R-3	ö7	Out	NC contact, relay 7
R-4	s8	Out	NO contact, relay 8
R-5	m8	Out	Mid-position contact, relay 8
R-6	ö8	Out	NC contact, relay 8
R-7	N	Inp	Conductor for contact protection, relays 1..3
R-8	N	Inp	Conductor for contact protection, relays 4..6
R-9	N	Inp	Conductor for contact protection, relays 7..8

Pin designations:
L: left-hand row
M: middle row
R: right-hand row