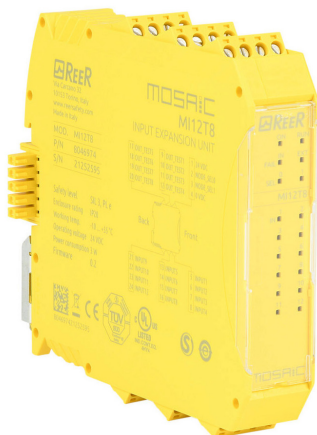# ReeR MOSAIC-MI12T8
Input/Output Expansion Unit

ReeR

The ReeR MOSAIC (MOdular SAfety Integrated Controller) MI12T8 input/output expansion unit provides a variety of inputs and outputs. This card has the ability to connect to multiple 4-wire safety mats.

Features

- Twelve digital safety inputs programmable with the MOSAIC Safety Designer Software
- Eight test outputs
- Two programmable digital signal outputs
- Removable terminal block plus screw contacts
- Connection to M1 or M1S via MSC 5-way ReeR proprietary bus. Bus connector included.

MOSAIC-MI12T8

Safety Data per EN 13849-1	
Category	4
Performance level	e
MTTF$_d$ (years)	30-100
DC$_{avg}$	High
Safety Data per IEC/EN 62061, IEC/EN 61508	
SIL CL	3
SIL	3
HFT	1
DC$_{avg}$	High
SFF	99.8%
PFH$_d$ (t-20a)	$5.60e^{-9}$

Safety data is dependent on circuit architecture. See manual for further details.

MOSAIC-MI12T8 Expansion Unit				
Part Number	**Price**	**Voltage**	**Description**	**Connection**
MOSAIC-MI12T8	$292.00	24VDC	Input expansion unit providing 12 digital safety inputs with 8 test outputs	Removable terminal block, screw contacts

CE   c(UL)us   TÜV SÜD

MOSAIC-MI12T8 Specifications	
General Specifications	
Operating Temperature	-10°C to +55°C [14°F to 131°F]
Storage Temperature	-20°C to +85°C [-4°F to 185°F]
Altitude	2000m (max)
Vibration Resistance	Tested to IEC 60068-2-6
Degree of Protection	IP 20
Housing	Polyamide
Weight	240g [8.47 oz]
Agency Approvals and Standard	cULus, CE, TÜV
Terminal Designation per EN 50 005	AWG 12-30 solid/stranded. Use 60/75°C copper (Cu) conductor only.
Wire Fixing	Screw pluggable terminal blocks. Terminal tightening torque 5-7 lb•in (0.6-0.7 N•m).
Specifications	
Nominal Voltage	24VDC
Voltage Range	± 20%
Maximum Consumption	3W
Digital Inputs	12 PNP active high
Input FBK / Reset	–
Test Outputs	8 test outputs to monitor short circuits
OSSD Outputs	–
Signaling Outputs	–

Note: See product manual for complete details.
Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

Electrical Connections to MOSAIC-MI12T8

- Wire size range: AWG 12-30 (solid/stranded) (UL).
- Use 60/75°C copper (Cu) conductor only.
- Turn off power before making connections.
- The supply voltage must be 24VDC ± 20% (PELV, in compliance with the standard EN 60204-1 (Chapter 6.4).
- Do not use the MOSAIC to supply external devices.
- The same ground connection (0VDC) must be used for all system components.
- Separate power supplies are recommended for the safety modules and for other electrical power equipment (electric motors, inverters, frequency converters) or other sources of disturbance.
- Cables used for connections of longer than 50m [164ft] must have a cross-section of at least 1mm^2 (AWG16).

Dimensions
mm [inches]

22.6 [0.89]
113.6 [4.47]
56.8 [2.23]
113.6 [4.47]
76.4 [3.01]
56.8 [2.23]
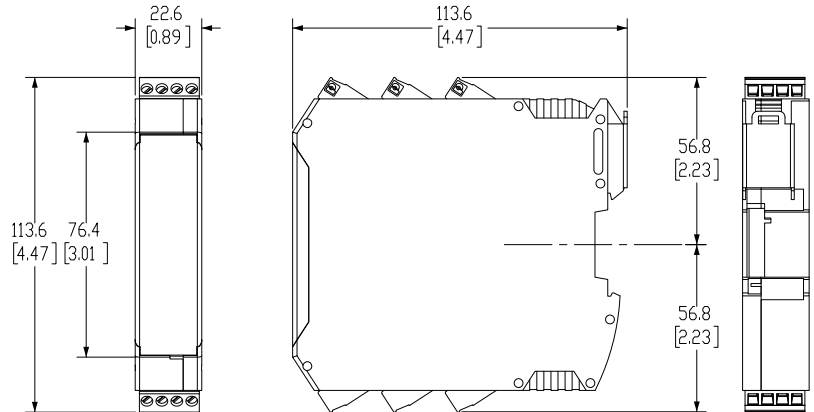
MI12T8 Module Connections			
Terminal	**Signal**	**Type**	**Description**
1	24VDC	–	24VDC power supply
2	NODE_SEL0	Input	Node selection
3	NODE_SEL1	Input	
4	0VDC	–	0VDC power supply
5	INPUT1	Input	Digital input 1
6	INPUT2	Input	Digital input 2
7	INPUT3	Input	Digital input 3
8	INPUT4	Input	Digital input 4
9	OUT_TEST1	Output	Short circuit detected output
10	OUT_TEST2	Output	Short circuit detected output
11	OUT_TEST3	Output	Short circuit detected output
12	OUT_TEST4	Output	Short circuit detected output
13	INPUT5	Input	Digital input 5
14	INPUT6	Input	Digital input 6
15	INPUT7	Input	Digital input 7
16	INPUT8	Input	Digital input 8
17	OUT_TEST5	Output	Short circuit detected output
18	OUT_TEST6	Output	Short circuit detected output
19	OUT_TEST7	Output	Short circuit detected output
20	OUT_TEST8	Output	Short circuit detected output
21	INPUT9	Input	Digital input 9
22	INPUT10	Input	Digital input 10
23	INPUT11	Input	Digital input 11
24	INPUT12	Input	Digital input 12

Please see the ReeR MOSAIC Supplemental Manual for basic wiring examples.

MOSAIC

MOᴅᴜʟᴀʀ SAꜰᴇᴛʏ Iɴᴛᴇɢʀᴀᴛᴇᴅ Cᴏɴᴛʀᴏʟʟᴇʀ

REER

The MOSAIC system is a unique safety controller that's modular, expandable and configurable for managing all safety functions of a single machine or an entire plant. It offers cost reductions with minimal wiring.

COMMS

MOSAIC-MBEI
Industrial Fieldbus:
EtherNet/IP.

MOSAIC-MBEM
Industrial Fieldbus:
ModBus TCP/IP.

DIGITAL INPUTS

MOSAIC-MI8
8 digital inputs and four test outputs.

MOSAIC-MI16
16 digital inputs and 4 test outputs.

MOSAIC-MI12T8
12 digital inputs, 8 test outputs.

I/O EXPANSION UNIT

MOSAIC-MI8O2
8 digital inputs, 2 EDM/RST inputs, 4 test outputs, 2 OSSD pairs, and 2 status outputs.

MOSAIC-MI8O4
8 digital inputs, 4 test outputs, 4 individual or 2 pair OSSD outputs, and 4 configurable I/O.

SPEED MONITORING

MOSAIC-MV0
2 prox switch inputs.

MOSAIC-MV1T
1 TTL encoder and 2 prox switch inputs.

MOSAIC-MV1H
1 HTL encoder and 2 prox switch inputs.

MOSAIC-MV1S
1 SIN/COS encoder and 2 prox switch inputs.

MOSAIC-MV2T
2 TTL encoder and 2 prox switch inputs.

MOSAIC-MV2H
2 HTL encoder and 2 prox switch inputs.

MOSAIC-MV2S
2 SIN/COS encoder and 2 prox switch inputs.

MOSAIC SYSTEM

MOSAIC-M1S-USBC

MOSAIC-M1

MOSAIC M1, M1S, or M1S-USBC controller units are able to interface with up to 14 individual expansion modules (up to a maximum of 4 of any one module type).

Controller units can also be used in a stand-alone configuration.

Blue-highlighted modules work only with the **MOSAIC-M1S** or **MOSAIC-M1S-USBC** controller.

SAFETY RELAYS

MOSAIC-MR2
2 relays – 2 NO + 1 NC connectable to 1 OSSD pair + 1 NC contact for external device monitoring. 2 safety relays with guided contacts. Screw contacts.

MOSAIC-MR4
4 relays – 4 NO + 2 NC connectable to 2 OSSD pair + 2 NC contacts for external device monitoring. 4 safety relays with guided contacts. Screw contacts.

These extension relays can connect to the outputs on the MOSAIC M1, M1S, or to any of the output cards

DIGITAL OUTPUTS

MOSAIC-MO2
2 EDM/RST inputs, 2 OSSD pairs and 2 status outputs.

MOSAIC-MO4
4 EDM/RST inputs, 4 OSSD pairs and 4 status outputs.

MOSAIC-MOR4
4 single-channel outputs or 2 dual-channel outputs.

MOSAIC-MOR4S8
4 single-channel outputs or 2 dual-channel outputs with 8 status outputs.

MOSAIC-MO4L
4 individual or 2 pair OSSD outputs, and 4 configurable I/O.

ANALOG INPUTS

MOSAIC-MA4
4 analog inputs.

STATUS OUTPUTS

MOSAIC-MOS8
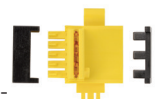8 status outputs.

MOSAIC-MOS16
16 status outputs.

ACCESSORIES

MOSAIC-MSC-C
Safety communication bus connector and terminal end caps. Required to connect additional module to MOSAIC-M1, MOSAIC-M1S, or MOSAIC-M1S-USBC.

MOSAIC-MCM, MOSAIC-MCMB
A proprietary removable memory card that can be used to save MOSAIC configuration data for subsequent transfer to a new device without using a PC.

Safety Products

Warning: Safety products sold by AutomationDirect are Safety components only. The purchaser/installer is solely responsible for the application of these components and ensuring all necessary steps have been taken to assure each application and use meets all performance and applicable safety requirements and/or local, national and/or international safety codes as required by the application. AutomationDirect cannot certify that our products, used solely or in conjunction with other AutomationDirect or other vendors' products, will assure safety for any application. Any person using or applying any products sold by AutomationDirect is responsible for learning the safety requirements for their individual application and applying them, and therefore assumes all risks, and accepts full and complete responsibility, for the selection and suitability of the product for their respective application.

AutomationDirect does not provide design or consulting services, and cannot advise whether any specific application or use of our products would ensure compliance with the safety requirements for any application.