

# ReeR MOSAIC-MI804 Input/Output Expansion Unit



The ReeR MOSAIC (MODular Safety Integrated Controller) MI804 input/output expansion unit provides a variety of inputs and outputs.

## Features

- Eight digital safety inputs programmable with the MOSAIC Safety Designer Software
- Four configurable I/O for start/restart interlock, external device monitoring (EDM) and output status monitoring
- Four individual or two pair OSSD outputs
- Four test outputs
- Removable terminal block plus screw contacts
- Connection to M1S via MSC 5-way ReeR proprietary bus. Bus connector included.



MOSAIC-MI804

This expansion unit works only with the M1S controller.

## Safety Data per EN 13849-1

Category	4
Performance level	e
MTTF <sub>d</sub> (years)	30-100
DC <sub>avg</sub>	High

## Safety Data per IEC/EN 62061, IEC/EN 61508

SIL CL	3
SIL	3
HFT	1
DC <sub>avg</sub>	High
SFF	99.8%
PFH <sub>d</sub> (t-20a)	1.32e <sup>-8</sup>

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

## MOSAIC-MI804 Expansion Unit

Part Number	Price	Voltage	Description	Connection
<u>MOSAIC-MI804</u>	\$351.00	24VDC	Input/output expansion unit providing 8 digital safety inputs and 4 single or 2 pair OSSD outputs, and 4 configurable I/O	Removable terminal block, screw contacts



## MOSAIC-MI804 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	8 PNP active high
Test Outputs	4 test outputs to monitor short circuits
OSSD Outputs	4 individual or 2 pair solid state safety outputs PNP active high 400mA@24VDC max
Configurable I/O	4 terminals to be used for I/O Input: EDM, feedback, reset, restart Output: status monitoring

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.

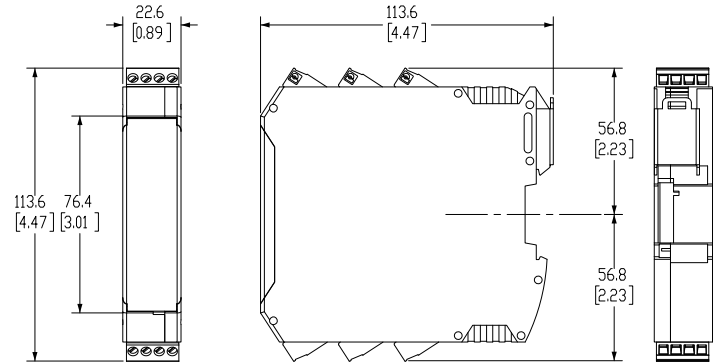
# Electrical Connections To MOSAIC-MI804



- 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  $\pm$  20% (PELV, in compliance with the standard EN 60204-1 (Chapter 6.4).
- Do not use the MOSAIC to supply power to external devices.
- The same ground connection (0VDC) must be used for all system components.
- Separate power supplies are recommended for the safety module 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<sup>2</sup> (AWG16).

**This expansion unit works only with the M1S controller.**

## Dimensions mm [inches]



### MI804 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	OSSD1	Output	Static safety output 1
6	OSSD2	Output	Static safety output 2
7	RESTART_FBK1 or STATUS1	Input	Feedback/Restart 1
		Output	SIL 1 / PLc
8	RESTART_FBK2 or STATUS2	Input	Feedback/Restart 2
		Output	SIL 1 / PLc
9	OSSD3	Output	Static safety output 3
10	OSSD4	Output	Static safety output 4
11	RESTART_FBK3 or STATUS3	Input	Feedback/Restart 3
		Output	SIL 1 / PLc
12	RESTART_FBK4 or STATUS4	Input	Feedback/Restart 4
		Output	SIL 1 / PLc
13	OUT_TEST1	Output	Short circuit detected output
14	OUT_TEST2	Output	Short circuit detected output
15	OUT_TEST3	Output	Short circuit detected output
16	OUT_TEST4	Output	Short circuit detected output
17	INPUT1	Input	Digital input 1
18	INPUT2	Input	Digital input 2
19	INPUT3	Input	Digital input 3
20	INPUT4	Input	Digital input 4
21	INPUT5	Input	Digital input 5
22	INPUT6	Input	Digital input 6
23	INPUT7	Input	Digital input 7
24	INPUT8	Input	Digital input 8

Please see the ReeR MOSAIC supplemental manual for basic wiring.

# MOSAIC



## MODULAR SAFETY INTEGRATED CONTROLLER

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-MI12T2**

12 digital inputs, 8 test outputs.

### I/O EXPANSION UNIT



#### **MOSAIC-MI802**

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

#### **MOSAIC-MI804**

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-M1**

**MOSAIC-M1S-USBC**

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**

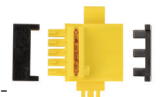
16 status outputs.



### 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.*

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