

# ReeR MOSAIC MR2 Safety Relay

The ReeR MOSAIC (MOdular SAFETY Integrated Controller) MR2 safety relay module provides 2 relays with 2 N.O. safety contacts, plus 1 N.C. contact connectable to 1 OSSD pair, plus 1 N.C. contact for external device monitoring.

## Features

- Two relays (2 N.O.)
- One N.C. connectable to one OSSD pair
- One N.C. contact for external device monitoring
- Two safety relays with guided contacts
- Removable terminal block plus screw contacts
- MR2 is not on the MSC 5-way ReeR proprietary bus



MOSAIC-MR2



Safety Data per EN 13849-1	
Category	4
Performance level	e
MTTF <sub>d</sub> (years)	2335
DC <sub>avg</sub>	98.9%
Safety Data per IEC/EN 62061, IEC/EN 61508	
Sil CL	3
Sil	3
HFT	1
DC <sub>avg</sub>	98.9%
SFF	99.6%
PFH <sub>d</sub> (t-20a)	Please refer to product insert

MOSAIC MR2 Expansion Unit				
Part Number	Price	Voltage	Description	Connection
MOSAIC-MR2	\$112.00	24VDC	Safety relay module with two relays (2 N.O.) plus one N.C. connectable to one OSSD pair plus 1 N.C. contact for external device monitoring.	Removable terminal block, screw contacts



MOSAIC MR2 Specifications	
	<b>General Specifications</b>
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	260g [9.17 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 or clamp terminal blocks with 8, 16 or 24 terminals, plus rear panel plug-in connector. Terminal tightening torque 5-7 lb•in (0.6-0.7 N•m).
	<b>Input Specifications</b>
Nominal Voltage	24VDC
Voltage Range	± 20%
Maximum Consumption	3W
	<b>Output Specifications</b>
Electrical Contact Life	>10 <sup>5</sup> switching cycles
Mechanical Life	>20x10 <sup>6</sup>
Contact Type	2 N.O. positively driven / 1 N.C. auxiliary contact
Operate Delay	Typ. 10ms
Release Delay	Typ. 5ms
Nominal Output Voltage	240VAC
Thermal Current (I <sub>th</sub> )	Max 6A
Short Circuit Strength	Fuse: N.O. contacts 10 A gG/gL / N.C. contacts: 6A gG/gL IEC/EN 60269
Switching Capacity	AC15: 3A/250VAC – DC13:2A/24VDC
Switching Frequency	Max 20 switching cycles/min

Note: See product manual for complete details.

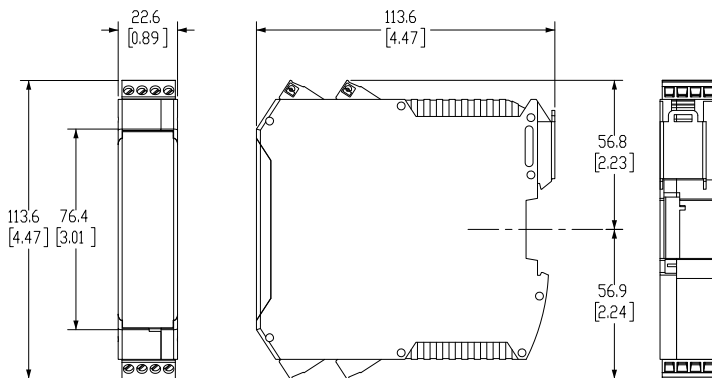
Note: To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

# Electrical connections to MOSAIC MR2



- 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 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 1 mm<sup>2</sup> (AWG16).

## Dimensions mm [inches]



MR2 Module Connections			
Terminal	Signal	Type	Description
1	24VDC	–	24VDC power supply
4	0VDC	–	0VDC power supply
5	OSSD1_A	Input	Control ZONE 1
6	OSSD1_B	Input	
7	FBK_K1_K2_1	Output	Feedback K1K2 ZONE 1
9	A_NC1	Output	NC contact ZONE 1
10	B_NC1	Output	
13	A_NO11	Output	NO1 contact ZONE 1
14	B_NO11	Output	
15	A_NO12	Output	NO2 contact ZONE 2
16	B_NO12	Output	

Please see the Mosaic manual for wiring examples.

# ReeR MOSAIC Accessories

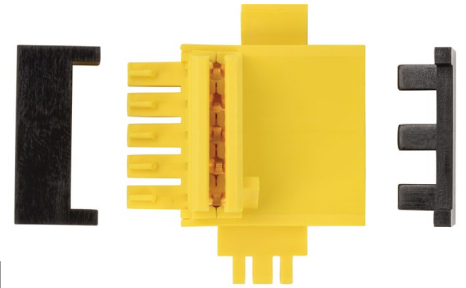


## ReeR MOSAIC MSC-C Connector

The ReeR MOSAIC (MODular SAfety Integrated Controller) MSC-C Safety Communication Connector with terminal end caps (MSCPC) permits communication between various system units. Required to connect any additional cards to the MOSAIC-M1.

### Features

- 5-way connector for communication among MOSAIC modules
- Comes in the box with all expansion modules and only needed for the M1 unit



MOSAIC-MSC-C



MOSAIC MSC-C Expansion Unit		
Part Number	Price	Description
MOSAIC-MSC-C	\$14.00	Safety communication connector with terminal end caps (MSCPC). Permits communication between various system units.

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.

## ReeR MOSAIC MCM Memory Card

The ReeR MOSAIC (MODular SAfety Integrated Controller) MCM Memory Card is 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.

MOSAIC-CSU		
Part Number	Price	Description
MOSAIC-MCM	\$29.00	Proprietary removable memory card that can be used to save MOSAIC configuration data for subsequent transfer to a new device without using a PC.

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.



## ReeR MOSAIC CSU Cable

The ReeR MOSAIC (MODular SAfety Integrated Controller) CSU cable is an interconnection cable used to connect the MOSAIC M1 to a PC for programming with the MSD configuration software.

### Features

- Type A USB connector on one end for connection to the PC
- Type B mini-USB connector on the other end for connection to the M1 module
- Cable length is 1.8 m (5.91 ft)



MOSAIC-CSU



MOSAIC-CSU		
Part Number	Price	Description
MOSAIC-CSU	\$14.00	Interconnection cable used to connect the MOSAIC M1 to a PC for programming with the MSD configuration software.

Note: See product manual for complete details.

# MOSAIC



## MODULAR SAFETY INTEGRATED CONTROLLER

A unique safety controller that's modular, expandable and configurable for managing all safety functions of a single machine or an entire plant. Offers cost reductions with minimal wiring.

### COMMS



**MOSAIC-MBEI**  
Expansion unit for connection to the industrial Fieldbus: EtherNet/IP.



**MOSAIC-MBEM**  
Expansion unit for connection to the industrial Fieldbus: ModBus TCP/IP.

### INPUTS



**MOSAIC-MI8**  
Input expansion unit. Eight digital inputs and four test outputs. Screw contacts.



**MOSAIC-MI16**  
Input expansion unit. Sixteen digital inputs and four test outputs. Screw contacts.

### I/O EXPANSION UNIT

#### MOSAIC-MI8O2

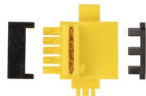
Eight digital inputs, two inputs for Start/Restart interlock and device monitoring (EDM), two OSSD pairs, four test outputs and two programmable digital signal outputs. Screw contacts.



### ACCESSORIES

#### MOSAIC-MSC-C

Safety communication bus connector and terminal end caps. Required to connect additional module to MOSAIC-M1.



#### MOSAIC-CSU

Type A USB to Mini-USB cable connects MOSAIC M1 to PC for configuration with MSD configuration software.



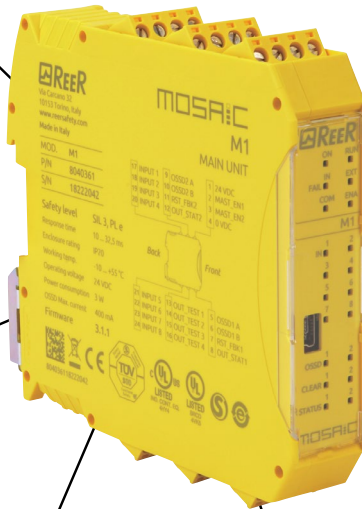
#### MOSAIC-MCM

Type A USB to Mini-USB cable connects MOSAIC M1 to PC for configuration with MSD configuration software.



## MOSAIC-M1

Main unit able to control any other expansion modules. Eight digital inputs, two inputs for Start/Stop interlock and device monitoring (EDM), two OSSD pairs, four test outputs and two programmable digital signal outputs. Screw contacts.



The M1 module may be used stand-alone...

- 8 Inputs
- 2 EDM/RST
- 2 Safety Outputs
- 2 Status Outputs

...or with up to 14 additional modules\*

- 128 Inputs
- 16 EDM/RST
- 16 Safety Outputs
- 32 Status Outputs

\*No more than four of any one type of module

### SAFETY RELAYS

#### MOSAIC-MR2

Two relays – two N.O. + one N.C. connectable to one OSSD pair + one N.C. contact for external device monitoring. Two safety relays with guided contacts. Screw contacts.



#### MOSAIC-MR4

Four relays – four N.O. + two N.C. connectable to two OSSD pair + two N.C. contacts for external device monitoring. Four safety relays with guided contacts. Screw contacts.



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

### OUTPUTS

#### MOSAIC-MO2

Output expansion unit. Two inputs for Start/Stop interlock and device monitoring (EDM), two OSSD pairs and two programmable digital signal outputs. Screw contacts.



#### MOSAIC-MO4

Output expansion unit. Four inputs for Start/Stop interlock and device monitoring (EDM), four OSSD pairs and four programmable digital signal outputs. Screw contacts.



#### MOSAIC-MOR4

Safety relay expansion unit with configurable outputs. Four single channel outputs (safety category 1 or 2) or two dual channel outputs (safety category 4). Screw contacts.



#### MOSAIC-MOR4-S8

Safety relay expansion unit with configurable outputs. Four single channel outputs (safety category 1 or 2) or two dual channel outputs (safety category 4). Eight programmable digital signal outputs. Screw contacts.



### STATUS OUTPUTS

#### MOSAIC-MOS8

Automation expansion module with eight programmable digital signal outputs. Screw contacts



#### MOSAIC-MOS16

Automation expansion module with 16 programmable digital signal outputs. Screw contacts.



# 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.***