

ReeR MZERO Stand-Alone Safety Controller



The ReeR MZERO makes it easy to manage safety systems and sensors. It is compact and configurable, allowing cost reductions and minimal wiring when compared to using several hardwired safety relays.

Features

- Sixteen digital inputs
- Four inputs for Start/Stop interlock and external device monitoring (EDM)
- Four OSSD pairs
- Four test outputs and four programmable digital signal outputs
- 35mm DIN rail mounting
- All functions are configured through the graphical MZERO Safety Designer software. Ships with USB 2.0 connector. Cable sold separately.



MZERO-16-4

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)	6.86e ⁻⁹

MZERO Stand-Alone Safety Controller

Part Number	Price	Voltage	Inputs	Outputs	Connection	Drawing
<u>MZERO-16-4</u>	\$586.00	24VDC	16 digital inputs 4 secondary inputs	4 pairs OSSD safety outputs 4 status outputs 4 test outputs	Pluggable screw terminals	<u>PDF</u>
<u>MZERO-16-4C</u>	\$586.00				Pluggable push-in cage clamp	<u>PDF</u>



MZERO 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	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 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
Input FBK / Reset	2 for EDM control / possible automatic or manual operation with RESTART button
Test Outputs	4 test outputs to monitor short circuits
OSSD Outputs	2 pairs solid state safety outputs PNP active high 400ma @ 24VDC max
Signaling Outputs	2 programmable – PNP high
Expansion	
Minimum Number of Modules	1 (MOSAIC M1 used as stand-alone module) (8 inputs, 2 ECM/RST, 2 Safety Outputs, 2 Status Outputs)
Maximum Number of Modules	15 (MOSAIC M1 plus 14 expansion modules) (128 inputs, 16 EDM/RST, 16 Safety Outputs, 32 Status Outputs) No more than 4 expansion modules of the same type

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 For MZERO



- 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 MZERO 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 1mm² (AWG16).

MZERO Module Connections				
Terminal	Signal	Type	Description	Operation
1	24VDC	–	24VDC power supply	–
2	24VDC	–	24VDC power supply	–
3	NC	–	–	–
4	0VDC	–	0VDC power supply	–
5	OSSD1_A	Output	Static output 1	PNP active high
6	OSSD1_B	Output		
7	RESTART_FBK1	Input	Feedback/Restart 1	Input (type 2) according to EN 61131-2
8	OUT_STATUS1	Output	SIL 1/PLC output	PNP active high
9	OSSD2_A	Output	Static output 2	PNP active high
10	OSSD2_B	Output		
11	RESTART_FBK2	Input	Feedback/Restart 2	Input (type 2) according to EN 61131-2
12	OUT_STATUS2	Output	SIL 1/PLC output	PNP active high
13	OSSD3_A	Output	Static output 3	PNP active high
14	OSSD3_B	Output		PNP active high
15	RESTART_FBK3	Input	Feedback/Restart 3	Input (type 2) according to EN 61131-2
16	OUT_STATUS3	Output	SIL 1/PLC output	PNP active high
17	OSSD4_A	Output	Static output 4	PNP active high
18	OSSD4_B	Output		PNP active high
19	RESTART_FBK4	Input	Feedback/Restart 4	Input (type 2) according to EN 61131-2
20	OUT_STATUS4	Output	SIL 1/PLC output	PNP active high
21	OUT_TEST1	Output	Short circuit detection output	PNP active high
22	OUT_TEST2	Output	Short circuit detection output	PNP active high
23	OUT_TEST3	Output	Short circuit detection output	PNP active high
24	OUT_TEST4	Output	Short circuit detection output	PNP active high
25	INPUT1	Input	Digital input 1	Input (type 3) according to EN 61131-2
26	INPUT2	Input	Digital input 2	Input (type 3) according to EN 61131-2
27	INPUT3	Input	Digital input 3	Input (type 3) according to EN 61131-2
28	INPUT4	Input	Digital input 4	Input (type 3) according to EN 61131-2
29	INPUT5	Input	Digital input 5	Input (type 3) according to EN 61131-2
30	INPUT6	Input	Digital input 6	Input (type 3) according to EN 61131-2
31	INPUT7	Input	Digital input 7	Input (type 3) according to EN 61131-2
32	INPUT8	Input	Digital input 8	Input (type 3) according to EN 61131-2
33	INPUT9	Input	Digital input 9	Input (type 3) according to EN 61131-2
34	INPUT10	Input	Digital input 10	Input (type 3) according to EN 61131-2
35	INPUT11	Input	Digital input 11	Input (type 3) according to EN 61131-2
36	INPUT12	Input	Digital input 12	Input (type 3) according to EN 61131-2
37	INPUT13	Input	Digital input 13	Input (type 3) according to EN 61131-2
38	INPUT14	Input	Digital input 14	Input (type 3) according to EN 61131-2
39	INPUT15	Input	Digital input 15	Input (type 3) according to EN 61131-2
40	INPUT16	Input	Digital input 16	Input (type 3) according to EN 61131-2

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

ReeR MOSAIC Accessories

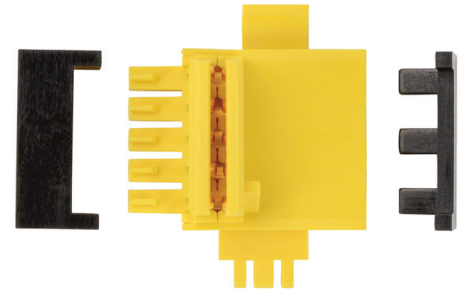


ReeR MOSAIC-MSC-C Connector

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](#), [MOSAIC-M1S](#), or [MOSAIC-M1S-USBC](#).

Features

- 5-way connector for communication among MOSAIC modules
- Comes in the box with all expansion modules and is only needed for the [MOSAIC-M1](#), [MOSAIC-M1S](#), or [MOSAIC-M1S-USBC](#) unit



MOSAIC-MSC-C

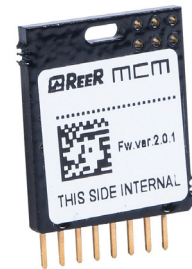
MOSAIC-MSC-C Connector		
Part Number	Price	Description
MOSAIC-MSC-C	\$16.00	Safety communication connector with terminal end caps (MSCPC). Permits communication between various system units.

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-MCMB

MOSAIC-MCM Memory Card			
Part Number	Price	For Use With	Description
MOSAIC-MCM	\$43.50	MOSAIC-M1 and M1S	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-MCMB	\$34.00	MOSAIC-M1S-USBC	

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 Programming Cable

The ReeR MOSAIC (MODular SAFety Integrated Controller) programming cable is an interconnection cable used to connect the [MOSAIC-M1](#), [MOSAIC-M1S](#), or [MOSAIC-M1S-USBC](#) to a PC for programming with the MSD configuration software.



MOSAIC-CSU

MOSAIC CSU Cable					
Part Number	Price	Connector A	Connector B	Cable Length (ft [m])	For Use With
MOSAIC-CSU	\$18.00	USB-A	USB-B Mini	5.91 [1.8]	MOSAIC-M1 and MOSAIC-M1S
USB-CBL-AC6	\$7.00		USB-C	6 [1.83]	MOSAIC-M1S-USBC

Note: See product manual for complete details.

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.