



Your future's safe!



MOSAIC

MODular SAFETY Integrated Controller

short form

A unique safety controller: modular, expandable and configurable

Key features

Mosaic is a safety hub able to manage all safety functions of machinery. Configurable and scalable, Mosaic provides cost reductions and minimal wiring. The new Mosaic M1S COM master unit integrates 2 RJ45 network connectors for connections to the field bus and / or to the network for remote control.

Mosaic can manage safety sensors and signals such as

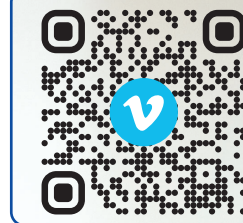
Light curtains, photocells, laser scanners, emergency stops, electromechanical switches, guard-lock safety door switches, magnetic switches, RFID switches, safety mats and edges, two-hands controls, hand grip switches, encoders, proximities for safety speed control and analogue sensors (i.e. loading cells, pressure switches, temperature measurement, flow and level measurement, etc.).

Advantages

- Reduces the number of devices and wiring used to minimize the overall size of the project
- Accelerates control panel construction
- Provides logic configurations via a quick and easy-to-use software (MSD, Mosaic Safety Designer) provided with each Master Unit at no additional cost. Machine designers are always able to change the configuration logic through a graphic interface. No more tedious wiring is needed as with traditional solutions
- Possibility of remote control with the new Mosaic M1S COM master unit
- Adding or removing safety function blocks at any stage of the machine design process
- Ability to check the logic configuration of the application at any point from the design phase through the Simulation and Monitor functionalities
- Allows tamper-proof system configurations
- Better performance and safety level through the use of fewer electromechanical components
- The project report provides the actual values of PFHD, DCavg, and MTTFd according to EN 13849-1 and EN 62061



Watch the video!



MOSAIC
MODular SAFETY Integrated Controller



SAFETY LEVEL
SIL 3
SIL 3 - SILCL 3
PL e - Cat. 4

Communication

Speed Monitoring

Safety



MBx MCT



MV0 MV1 MV2



MR2 MR4 MR8

MBx

Field-bus units

- MBP Profibus DP
- MBD DeviceNET
- MBC CANopen
- MBEI EthernetIP
- MBEC EtherCAT
- MBEPL Ethernet Powerlink
- MBEP Profinet
- MBMR Modbus RTU
- MBEM Modbus TCP
- MBU USB
- MBCCL CC-Link

MV0/MV1/MV2

Speed monitoring units

Safety speed monitoring (up to PL e) for:
Zero speed control, Maximum speed control, Speed range control, Direction

MV0

Input for 2 proximity switches

MV1

Input for 1 incremental encoder (TTL, HTL or SIN/COS) and 2 proximity switches

MV2

Input for 2 incremental encoders (TTL, HTL or SIN/COS) and 2 proximity switches

MCT

Interface connection units

Interface module allowing the connection of remote expansions via the proprietary MSC bus

MCT1

1 connection interface (1 I/O cable)

MCT2

2 connection interface (2 I/O cables)

MR2/MR4/MR8

Safety relay outputs

Safety relays with guided contacts:
2 (MR2), 4 (MR4), 8 (MR8)

NO contacts: 2 (MR2),
NC contacts: 1 (MR2),
(250 VAC 6 A)

NC contacts for EDM:
1 (MR2), 2 (MR4), 4 (MR8)

MOR4/MOR4S8

Safety relay output units

MOR4

4 safety relays with guided contacts:
4 NO contacts (250 VAC 6 A)

4 inputs for Start/Restart interlock.
It is possible to select two different configurations via MSD:

4 independent single channel outputs
2 dual channel outputs

MOR4S8

As MOR4, with 8 status outputs (PNP)

Connect up to 14 expansion units to the Master U

Relays



MOR4 MOR4S8

Master Units



Additional I/O



MI802 MI804

Mosaic M1

Mosaic M1S

Mosaic M1S COM



	Standard	Enhanced	Enhanced interface fieldbus
Digital inputs	8	8	8
Inputs for Start/Restart interlock and EDM	2	4	4
Safety outputs (PNP 400 mA)	2 pairs OSSD	4 single OSSD or 2 double	4 single OSSD or 2 double
Status outputs (PNP 100 mA)	2 (SIL 1, PL c)	4 (SIL 1, PL c)*	4 (SIL 1, PL c)*
Test Outputs	4	4	4
Fieldbus interfaces	With MBx	With MBx	Integrated. Protocols: Ethernet IP, EtherCAT, PROFINET, Modbus TCP

Features of the system (Master + 14 expansion unit)

	Mosaic M1	Mosaic M1S Mosaic M1S COM
MSD Operators	64	128
Fieldbus inputs	8	32
Safety outputs	16	32
Status outputs	32	48
Timer	32	48
Muting	4	8
Safety guard lock	4	8
Probes	16	32
New footprint map for fieldbus modules	-	Si

New operators

- Timer and delay with longer limits.
- 2 steps restart.
- Multi-level thresholds for speed monitor, timers, etc. (comparators).
- New restart including signal for the push button light (flashing for restart request, off for other conditions).

* Status outputs can be converted in feedback inputs (up to 4 feedback input for the 4 single-channel outputs).

ut units

ded contacts:
(MR8)

4 (MR4), 8 (MR8)
2 (MR4), 4 (MR8)

Feedback:
(MR8)

and EDM

uts

(PNP 100 mA)

MI802/I

Input/Out

MI802/MI8

8 digital inp
2 (*4) input
2 pairs (*4 s
(PNP 400 m
2 (*4) status
4 test outpu

MA2/MA

Analogue

2 (MA2) or 4
analogue ch
Each chann
Each chann
a 0-10 V vol
Individual c
sensor read

Additional Inputs

Additional Outputs



MI8O4
Output unit
 4 test outputs
 4 inputs for Start/Restart interlock and EDM
 (single or 2 pairs) OSSD safety outputs
 (PNP 400 mA)
 4 status outputs (PNP 100 mA)
 4 test outputs (for short-circuits monitoring)

MA4
Input unit
 4 (MA4) independent isolated
 channels (500 V)
 Channel can supply 24 VDC up to 30 mA
 Channel can detect a 4-20 mA current or
 voltage (selectable via software)
 Channels can be paired-up to allow
 monitoring redundancy

MO2/MO4

Output units

MO2

2 pairs OSSD safety outputs
 (PNP 400 mA)
 2 inputs for Start/Restart interlock and EDM
 2 status outputs (PNP 100 mA)

MO4

4 pairs OSSD safety outputs
 (PNP 400 mA)
 4 inputs for Start/Restart interlock and EDM
 4 status outputs (PNP 100 mA)

MI8/MI16/MI12T8

Input units

MI8

8 digital inputs
 4 test outputs (for short-circuits monitoring)

MI16

16 digital inputs
 4 test outputs (for short-circuits monitoring)

MI12T8*

12 digital inputs
 8 test outputs (for short-circuits monitoring)

* Can manage up to 4 independent safety mats/edges

MO4L

Output unit

4 single (or 2 pairs)
 OSSD safety outputs
 (PNP 400 mA)
 4 inputs for Start/Restart
 interlock and EDM
 4 status outputs (PNP 100 mA)

MO4L HC S8 POWER

High current output unit

4 single (or 2 pairs)
 OSSD safety outputs
 (PNP 2,0 A)
 4 inputs for Start/Restart
 interlock and EDM
 8 status outputs (PNP 100 mA)



MOS8/MOS16

Additional status output units*

MOS8

8 status outputs (PNP 100 mA)

MOS16

16 status outputs (PNP 100 mA)

* Safety level: SIL 1 - SILCL 1 - PL c



MCM

Mosaic Configuration Memory

Removable memory card. Ideal for saving Mosaic configuration data for subsequent transfer to a new device (without connecting to a PC) or for backup



MSC

Mosaic Safety Communication

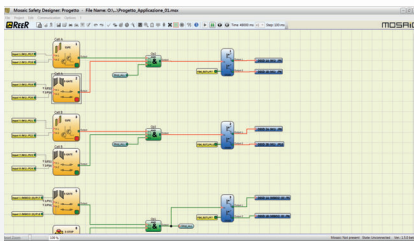
Allows communication between the various units through a proprietary high-speed safety bus

MSD

MOSAIC SAFETY DESIGNER

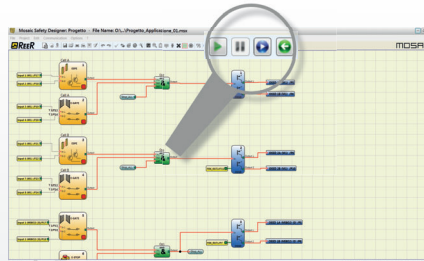
Easy-to-use designer software included with Mosaic M1 and Mosaic M1S Master Units. Drag & Drop functionality allows to easily create all logic scenarios in a machine directive compliant environment.

Built-in Monitor



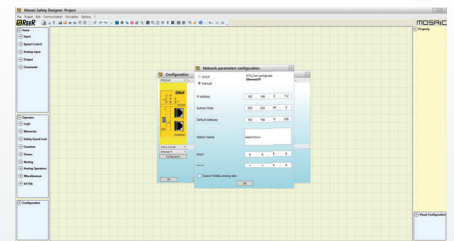
Drag & Drop
User-friendly
Real-time monitor

Built-in Simulator



Design validation
Simulation
Security password

Remote control



Reports and log files
Project information



MTB

Screw Terminal Blocks

Removable terminal blocks with screw contacts



MTBC

Clamp Terminal Blocks

Removable terminal blocks with clamp contacts



MCT

Remote Interface Units

Interface module allowing the connection of remote expansion units via the MSC safety bus





Your future's safe!

More than 60 years of quality and innovation

Founded in Turin, Italy in 1959, ReeR prides itself in its strong commitment to innovation and technology.

ReeR's steady growth since its inception is a result of being a leader in the global safety automation industry.

Today, the Safety Division is a world leader in the development and manufacturing of safety optoelectronic sensors and controllers.

ReeR is ISO 9001, ISO 14001 and ISO 45001 certified.



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