ReeR

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.

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

Compared to "traditional" electromechanical relay-based safety circuits, Mosaic offers the following 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

- 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

MOSAIC
MOdular SAfety Integrated Controller

Watch the video!
YouTube

EN 8120/50

RoHS Compliant

CE

TÜV SÜD

c UL us LISTED

SAFETY LEVEL

SIL 3

SIL 3 - SILCL 3
PL e - Cat. 4

Connect up to 14 expansion units to the Master Unit

Communication	Speed Monitoring	Safety Relays	Master Units	Additional I/O	Additional Inputs	Additional Outputs

MBx MCT | MV0 MV1 MV2 | MR2 MR4 MR8 MOR4 MOR4S8 | | MI8O2 MI8O4 MA2 MA4 MI8 MI16 MI12T8 | MO2 MO4 MO4L MO4L HC S8 POWER MOS8 MOS16

MBx
Field-bus units
MBP Profibus DP
MBD DeviceNET
MBC CANopen
MBEI EthernetIP
MBEC EtherCAT
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

MR2/MR4/MR8
Safety relay output units
Safety relays with guided contacts: 2 (MR2), 4 (MR4), 8 (MR8)

NO contacts: 2 (MR2), 4 (MR4), 8 (MR8)
NC contacts: 1 (MR2), 2 (MR4), 4(MR8) (250 VAC 6 A)

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

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)

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 and EDM
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 100 mA)

Mosaic M1S
Enhanced Master Unit
8 digital inputs

4 inputs for Start/Restart interlock and EDM

4 single (or 2 pairs) OSSD safety outputs (PNP 400 mA)

4 status outputs (PNP 100 mA)

4 test outputs (for short-circuits monitoring)

Mosaic M1
Standard Master Unit
8 digital inputs

2 inputs for Start/Restart interlock and EDM

2 pairs OSSD safety outputs (PNP 400 mA)

2 status outputs (PNP 100 mA)

4 test outputs (for short-circuits monitoring)

New operators ---------- I/O ----------

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).

I/O
4 single (or 2 double) safety outputs (PNP 400 mA).
Status outputs can be converted in feedback inputs (up to 4 feedback input for the 4 single-channel outputs).
New footprint map for fieldbus modules.

Features*	Mosaic M1	Mosaic M1S
Fieldbus inputs	8	32
Safety inputs	16	32
Status outputs	32	48
MSD Operators	64	128
Timer	32	48
Muting	4	8
Safety guard lock	4	8
Probes	16	32

*Features of the System composed by M1/M1S + 14 expansion units

MI8O2/MI8O4
Input/Output unit
MI8O2/MI8O4*
8 digital inputs
2 (*4) inputs for Start/Restart interlock and EDM
2 pairs (*4 single or 2 pairs) OSSD safety outputs (PNP 400 mA)
2 (*4) status outputs (PNP 100 mA)
4 test outputs (for short-circuits monitoring)

MA2/MA4
Analogue input unit
2 (MA2) or 4 (MA4) independent isolated analogue channels (500 V)
Each channel can supply 24 VDC up to 30 mA
Each channel can detect a 4-20 mA current or a 0-10 V voltage (selectable via software)
Individual channels can be paired-up to allow sensor reading 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)

POWER 2A

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

MOSAIC

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
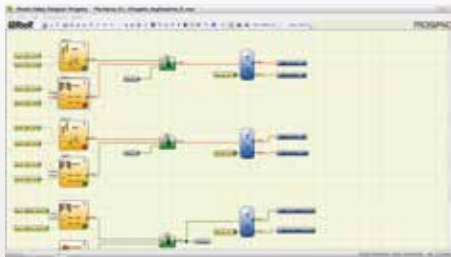
Built-in Simulator

Drag & Drop

User-frendly

Real-time monitor

Design validation

Simulation

Security password

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

ReeR

Your future's safe!

More than 60 years of quality and innovation

Founded in Turin (Italy) in 1959, ReeR distinguished itself for its strong commitment to innovation and technology.

A steady growth throughout the years allowed ReeR to become a point of reference in the safety automation in- dustry at a worldwide level.

The Safety Division is in fact today a world leader in the development and manufacturing of safety optoelectronic sensors and controllers.

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

Made in Italy
since 1959