

MSI

Safety Interface Components



space-saving

intelligent

universal



The advantages

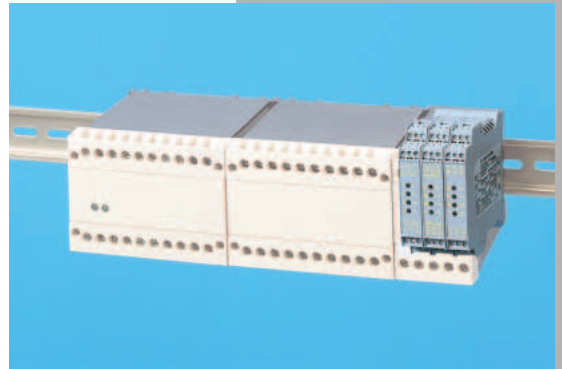
MSI – one for all!

MSI (Modular Safety Interface) is a product family of interface components for optoelectronic protective devices. Classified as safety Category 4 in accordance with EN 954-1, the modularly configured components expand the functional range of safety light curtains and light grids, adding the functions "restart interlock", "relay monitoring", "single break", "double break" and "muting".

The x-versions of the series allow not only the mixed connection of Type 4 and Type 2 sensors, but also the connection of safety switches or Emergency-Stop buttons in compliance with standards of safety. Separate Emergency-Stop switching units and protective door monitors are no longer necessary. In addition, less wiring needs to be done since just a single joint safety output (positive guided relay or failsafe semiconductor) has to be placed into the control's switch-off path. MSI – one for all!

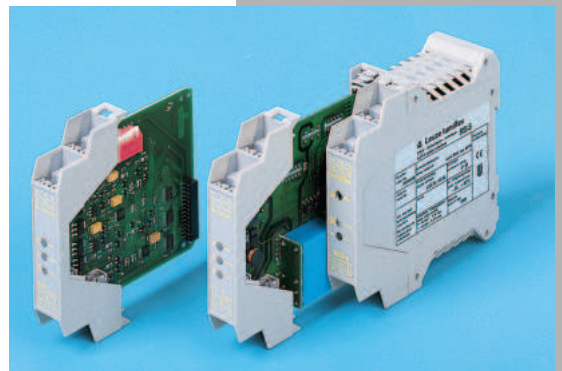
MSI saves space in the control cabinet!

Depending on their functional range, the MSI interface components are between 35 and 53 mm wide. A single component with a width of 53 mm, for example, provides for the integration of two Type 4 light grids, four muting sensors, two muting lamps and two Category 4 safety switches in compliance with standards of safety.



MSI has the right output subassembly for every purpose.

Two different plug-in output subassemblies are available: a relay subassembly for potential-free switching in AC control circuits, or a failsafe semiconductor subassembly for the wear-free switching of 24V DC loads.

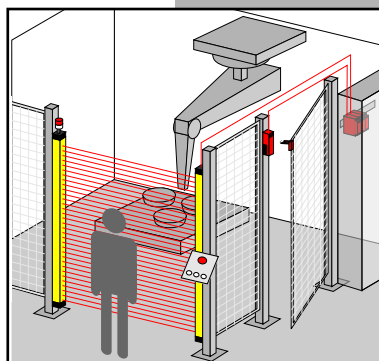




Application examples

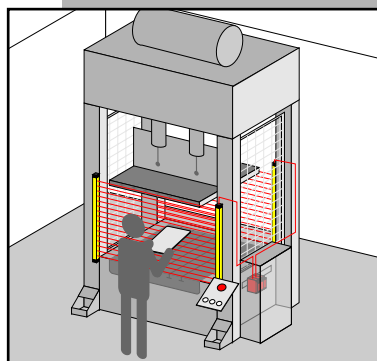
MSI-sx, light curtain interface and Emergency-Stop relay all in one!

In addition to an optoelectronic safety device, a Category 4 safety switch or an Emergency-Stop button can be connected to the MSI-sx.



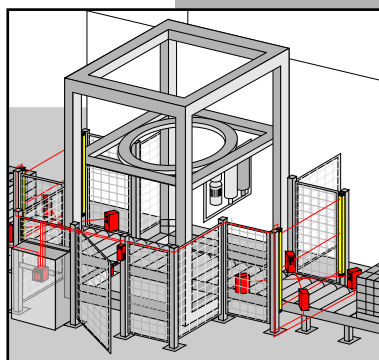
MSI-ix, machine initiation + back space monitoring at presses and punches

Two Type 4 Light curtains can be connected to the MSI-ix. While the machine is initiated by the front side light curtain in single break or double break mode, the rear side light curtain offers permanent protection. Instead of the second light curtain also a Category 4 switch can be connected.



MSI-mx, the muting system solution for automated production cells

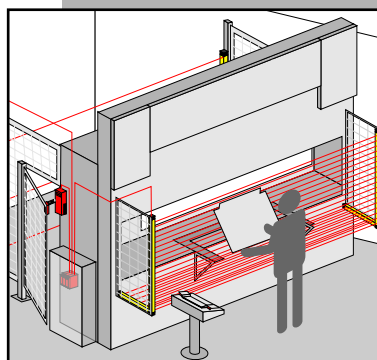
Muting allows material to be transported through the safety light grid without interrupting the production process. Yet the MSI-ms is more than just a muting controller. With the MSI-ms, one access can operate with muting and another can be monitored continuously. Or, muting can take place at two accesses to the production cell independently of one another. Plus, in addition to the muting sensors, two Category 4 safety switches can be connected for monitoring two maintenance doors or swing-open flaps.



MSI-mi, machine initiation + muting at presses and bending presses

MSI-mi was specially designed for presses to be controlled through the light curtain in single-break and double-break operation. It also enables the light curtain to be bridged during harmless machine movements.

An additional light curtain for continuous back space monitoring and two safety switches can also be connected to the MSI-mix.



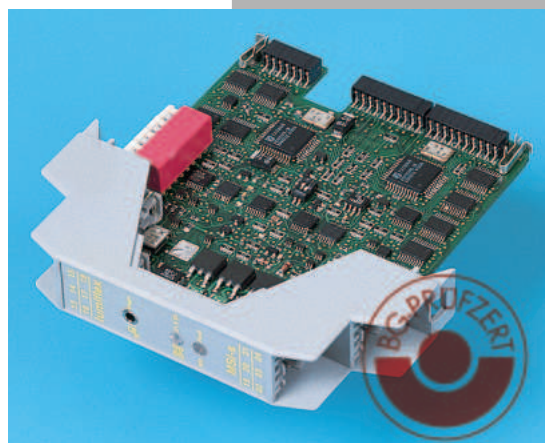


The solution

MSI, the system solution between Emergency-Stop relay and safety related PLC

MSI-interfaces are built up, as well as safety related PLCs, in a multichannel system structure to reach EN 954-1, Category 4.

In contrast to PLCs, the MSI-interfaces have not be programmed. The connectable safety sensors are effecting the common safety output in an AND function.



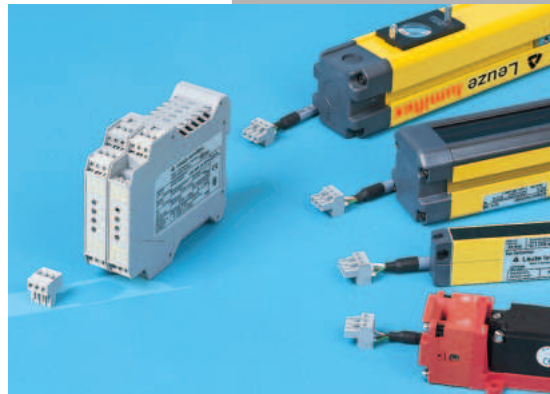
The most important technical data

Relevant norms, Safety classification	IEC-, EN-61496-1, Type 4 EN 954-1 (12/96), Category 4 IEC-, DIN EN 60204-1(11/98), Stop 0 and Stop 1 DIN V VDE 0801 and A1, Specification class 6
Connectable safety sensors	AOPD Type 4, Type 3 and Type 2 (also mixed) with relay or semiconductor outputs
Connectable safety switches and command devices	Safety switches in accordance with EN 1088 Emergency-Stop push-buttons in accordance with EN 418
Connectable muting sensors (MSI-m, MSI-mx, MSI-mi, MSI-mix)	Inductive proximity switches, opto-sensors (testable and non-testable), mechanical limit switches
Relay outputs	MSI- /R: 2 normally-open contacts, 6 A max MSI- x/Rx: 2 normally-open contacts, 1 normally-closed contact, 1 SSD, 6 A max
Failsafe semiconductor outputs	MSI- /T: 2 PNP 24V DC, 0.3 A max MSI- x/Tx: 2 PNP 24V DC, 0.3 A max + 1 SSD, 6 A
Functions	<ul style="list-style-type: none"> - relay monitoring, start/restart interlock - Guard only, single break or double break selectable, 30 s time monitoring - Serial or parallel muting mode - Combined fixed-cycle control and muting
Supply voltage	24V DC (115 or 230 V AC power supply available as an accessory)
Housing width	35 or 53 mm

The features

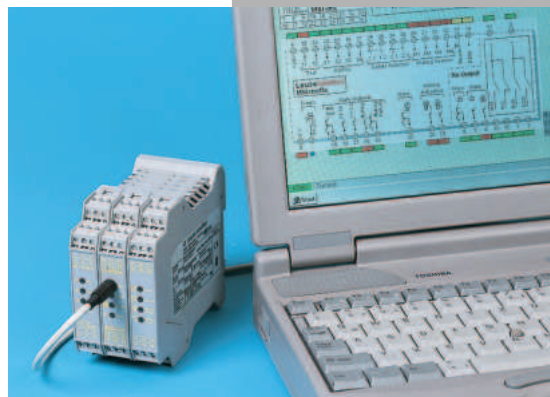
MSI automatically recognizes the types of sensors connected.

Regardless of whether a Type 2 or a Type 4 safety light curtain with a relay output or a semiconductor output or a Category 4 safety switch is connected, the automatic sensor type recognition detects the connected sensors without requiring a complicated parameterization. This makes start-ups and exchanges easy to do. Incidentally, it is also possible to combine Type 4 sensors with Type 2 sensors.



MSI, seeing what's what!

The MSI safety interface components are equipped with an RS 232 diagnostics interface for the PC-supported visualization of input and output statuses as well as internal system statuses. In this way, cabling and wiring problems, missing input information, and the system status can be recognized quickly and easily.



MSI warning outputs help to prevent unwanted production stops.

All of the MSI x-versions are equipped with a warning output that generates a warning message shortly before the expected electrical service life of the output relay has been reached. In the muting versions MSI-m and MSI-mx, a message is issued as soon as one of the two external muting lamps fails, without interrupting the muting operation. The faulty components can then be replaced during the next break in production.

