

MSI-mi, MSI-mix

Modular Safety Interface Category 4



MSI-mi, MSI-mix

The modular safety interface MSI-mi from Leuze lumiflex serves as a control module for cyclical control and rear area monitoring at presses. The integrated muting function temporarily suspends the protective effect of the protective device during the non-hazardous phase of the production cycle.

Advantages

- Safety interface, Type 4, in accordance with EN/IEC 61496-1 or EN-954-1, Cat. .4.
- 30 s time monitoring during cyclical operation
- 2 normally open contacts, max. 6 A, or 2 failsafe pnp outputs, 0.5 A
- RS 232 interface for PC-supported diagnostics and simple start-up
- Status outputs “relay status” and “start/restart interlock locked”
- Plug-in connection terminals and plug-in output subassemblies
- Counting of relay operations with pre-failure message for preventive maintenance
- Status outputs for muting, sensor and switch status
- Warning output “relay life expectancy reached; recommend relay replacement”
- Housing width: 53 mm

MSI-mi, MSI-mix
Areas of application

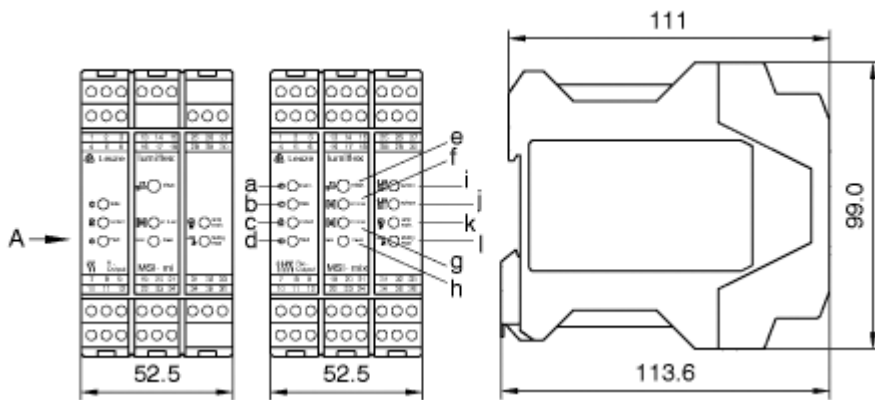
- Cyclical control and rear area monitoring at mechanical and hydraulic presses
- Cyclical control and rear area monitoring at bending presses
- Light curtain control, Type 4, and Emergency Stop disconnection, Stop category 0 (IEC 60204-1)

MSI-mi, MSI-mix

Function

| Features | MSI-m | MSI-mx |
|--|-------|--------|
| Maximum safety category (EN 954-1) | 4 | 4 |
| Stop category (IEC-, EN 60204-1) | 0 | 0 |
| Max. number of AOPDs, Type 2, or Emergency Stop command devices (Cat. 2) | 2 | 4 |
| Max. number of AOPDs, Type 4, or Emergency Stop command devices (Cat. 4) | 1 | 2 |
| Additional connectable safety switches, Cat.4 | 0 | 2 |
| Cross circuit monitoring | x | x |
| Start/restart interlock | x | x |
| Static relay monitoring | x | x |
| Dynamic relay monitoring | x | x |
| RS 232 diagnostics interface | x | x |
| Status output "system error" | x | x |
| Warning "relay replacement necessary" | | x |
| Cyclical control (single and double break) | x | x |
| 30 s time monitoring for cyclical operation | x | x |
| Parallel muting | x | x |
| Muting - time monitoring (can be turned on and off) | x | x |
| Warning "defective muting lamp" | x | x |
| Secondary switching device (SSD) output | | x |

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Dimensional Drawings



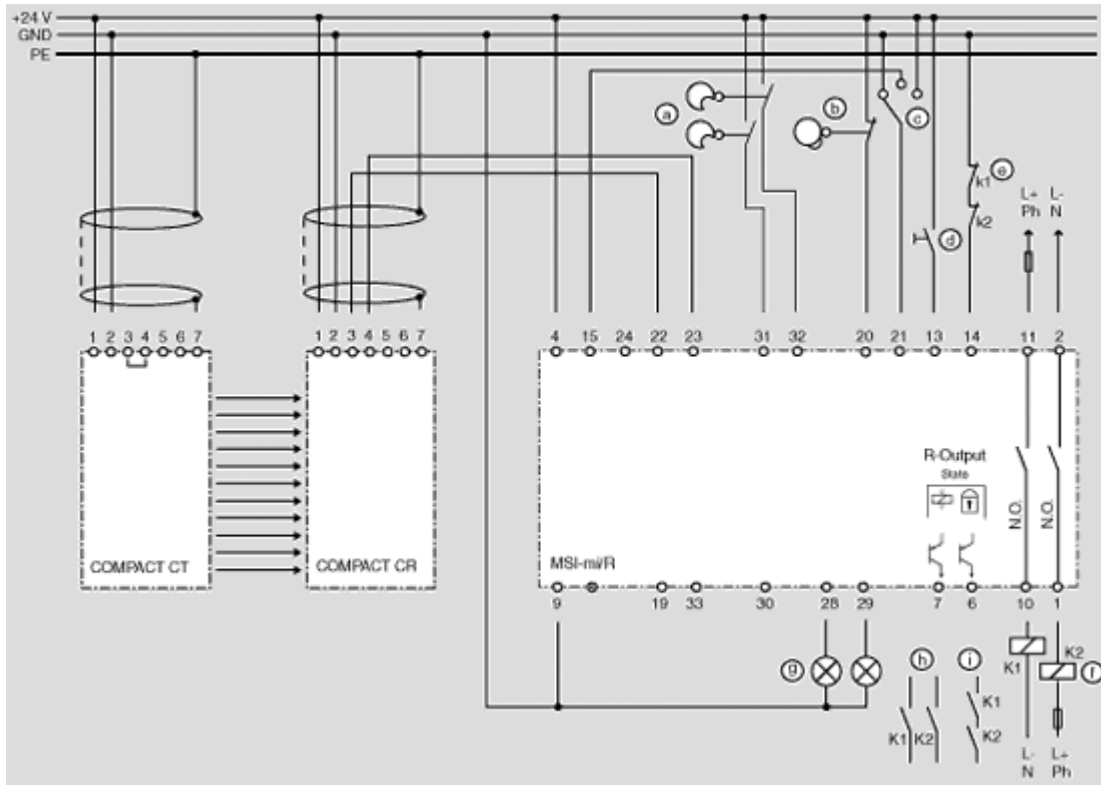
- a) Relay life expectancy reached (LED red)
- b) Safety output status (LED red/green)
- c) Start/restart interlock locked (LED yellow)
- d) Error in safety output module (LED red)
- e) RS 232 diagnostics output
- f) AOPDs 3 and 4 protected field free (LED green)
- g) AOPDs 1 and 2 protected field free (LED green)
- h) MSI error (LED red)
- i) Safety switch 1 "contacts closed" (LED green)
- j) Safety switch 2 "contacts closed" (LED green)
- k) Muting lamp 1 or 2 defective (LED red blinking)
- l) Muting error (LED red)

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Electrical Connection

Application drawing MSI-mi/R


Modular Safety Interface MSI-mi/R with COMPACT safety light curtain, Type 4.



- a) Muting position switch
- b) Cycle clearance/test
- c) Operationmode switch (GND=guard; PIN 15 = single break; +24V = double break)
- d) Start/restart button
- e) Feedback circuit for relay monitoring
- f) Positively guided relay or motor relay, provide suitable spark suppression
- g) Muting lamp 24V/5W
- h) Switching off path 2-channel*
- i) Switching off path 1-channel*

* always use both contacts in the switching off path

| | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|------|
| DIP-Switch-Settings: | | | | |
| MSI-m Modul | | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | up |
| DS1 | DS2 | DS3 | DS4 | down |
| I/O-m Modul | | | | |
| <input type="checkbox"/> | MU3 | <input type="checkbox"/> | <input type="checkbox"/> | up |
| VU4 | <input type="checkbox"/> | MU2 | VU1 | down |

 Pay attention to the operating manual of the components please.

MSI-mi, MSI-mix
Technical Data

| Modular Safety Interface | MSI-mi/R | MSI-mix/Rx | MSI-mi/T | MSI-mix/Tx |
|--|---|----------------------------------|-----------------|------------|
| Max. safety category (EN 954-1), Type in accordance with IEC-, EN 61496-1, | 4 | | | |
| Stop category (IEC-, EN 60204-1) | 0 | | | |
| Response time: AOPD Type 4 with semiconductor output | 18 ms | | 8 ms | |
| Response time: AOPD Type 4 with relay output, AOPD Type 2, safety switch | 54 ms | | 44 ms | |
| Reactivation time | 100 ms | | | |
| Supply voltage | 24 V DC \pm 15% (115 V/230V power supply as accessory) | | | |
| Max. Load of the safety outputs (2 normally open contacts, 2 pnp- semiconductor) | 60V DC, 250 V AC, 6 A max. | | 24 V DC, 500 mA | |
| Max. Load on the safety outputs (1 normally open contact) | - | 60V DC, 250 V AC, 6 A max. | - | - |
| Ambient temperature operation/storage | 0..+55°/ -25...+70° | | | |
| Dimensions (HxBxT) [mm] | 99 x 52,5 x 111,5 mm | | | |