

EUROMAP 81

Electrical Interface for Safety Signals

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This recommendation was prepared by the Technical Commission of EUROMAP.



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1 Scope and Application

This EUROMAP recommendation defines the connection between plastics and rubber machines for the exchange of safety signals. This is intended to provide interchangeability.

This recommendation describes an interface used for safety signals only. This can be used, when non-safety relevant signals are exchanges via other interfaces (e.g. on the basis of OPC UA).

2 Description

The interface connects two machines A and B with the following requirements:

- Both machines are equipped with emergency stop devices.
- Actuation of the emergency stop device of one machine causes also emergency stop of the other.
- Machine A is equipped with one or more safety devices (e.g. safety guards, footboard safety, etc.) that allow dangerous movements of machine B.

Example: machine A: injection moulding machine, machine B: robot

2.1 Plug and socket outlets

The connection between the machines is achieved by the plugs specified below.

Arrangements of pins and sockets viewed from the mating side (opposite the wiring side)

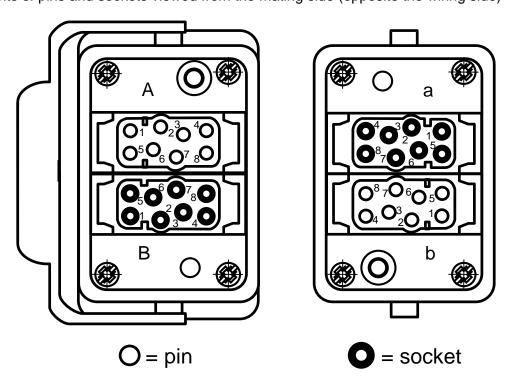


Figure 1: Plug on machine A

Figure 2: Plug on machine B

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2.2 Contact specification

- The voltages of the signals must not exceed 50 V DC.
- A current of at least 6 mA must be maintained during signalling.
- The maximum current is 2 A.

2.3 Plug contact assignment

Table 1: Plug on machine A Signals from machine A to machine B

Contact No. see fig. 1	Signal designation	Description
A1/A5	Emergency stop of machine A channel 1	The switch contact shall be open when emergency stop device of machine A is being actuated. Opening the switch contact causes emergency stop of machine B.
A2/A6	Safety devices of machine A channel 1	The switch contact is closed when safety devices (e.g. safety guards, footboard safety, etc.) on machine A are operative so that dangerous movements of machine B are possible. The signal is active in any operation mode.
A3/A7	Emergency stop of machine A channel 2	The switch contact shall be open when emergency stop device of machine A is being actuated. Opening the switch contact causes emergency stop of machine B.
A4/A8	Safety devices of machine A channel 2	The switch contact is closed when safety devices (e.g. safety guards, footboard safety, etc.) on machine A are operative so that dangerous movements of machine B are possible. The signal is active in any operation mode.

Table 2: Plug on machine A Signals from machine B to machine A

Contact No. see fig. 1	Signal designation	Description
B1/B5	Emergency stop of machine B channel 1	The switch contact shall be open when the emergency stop device of machine B is being actuated. The switch contact opening causes emergency stop of machine A. The switch contact shall be operative if machine B is switched off. It is recommended that the switch contact is operative when machine B is unselected.
B3/B7	Emergency stop of machine B channel 2	The switch contact shall be open when the emergency stop device of machine B is being actuated. The switch contact opening causes emergency stop of machine A. The switch contact shall be operative if machine B is switched off. It is recommended that the switch contact is operative when machine B is unselected.
B2/B6/B7/B8	Spare	Not used

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Figure 3 shows the schematic drawing of the interface.

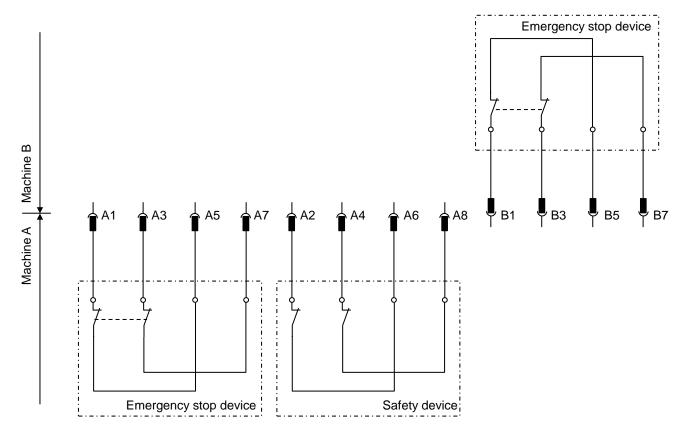


Figure 3: Schematic drawing of the interface

3 Sources of supply

A list of suppliers for the plugs described in clause 2 can be downloaded from the following website: http://www.euromap.org/technical-issues/technical-recommendations

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EUROMAP

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