European Plastics and Rubber Machinery

EUROMAP 62	Electrical Interface between Injection Moulding Machine and Fluid Injector Systems

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7 pages

This recommendation was prepared by the Technical Commission of EUROMAP.

www.euromap.org

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History

Date	Version	Changes
August 2005	1.1	A further supplier added
October 2006	1.2	A further supplier added
August 2013	1.3	Supplier's data updated
July 2014	1.4	Contacts reserved for second channels for emergency stop and guards closed signals
February 2015	1.5	A further supplier added
May 2015	1.6	List of plug suppliers removed. Please visit www.euromap.org/technical-issues/technical-recommendations for the current list.
January 2016	1.7	Figures 1 and 2 corrected (numbering of pins)

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1 Scope and application

This EUROMAP recommendation defines the connection between the injection moulding machine and the fluid injector system. This is intended to provide interchangeability.

In addition recommendations are given for signal voltage and current levels.

2 Description

The signals in both the injection moulding machine and the fluid injector system are given by contacts, e.g. contacts of relays or switches, semiconductors, etc. The contact making is either potential-free or related to a reference potential supplied to a contact of the plug mounted on the injection moulding machine or the fluid injector system (see Tables 1 and 2) unless otherwise specified. All signals which are not optional shall be supported by all injection moulding machines and fluid injector systems.

2.1 Plug and socket outlet

The connection between the injection moulding machine and the fluid injector system is achieved by the plugs specified below. For the injection moulding machine (see Figure 2) and the fluid injector system (see Figure 1) the plug contacts should be capable of taking a minimum of 250 V and 10 A.

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

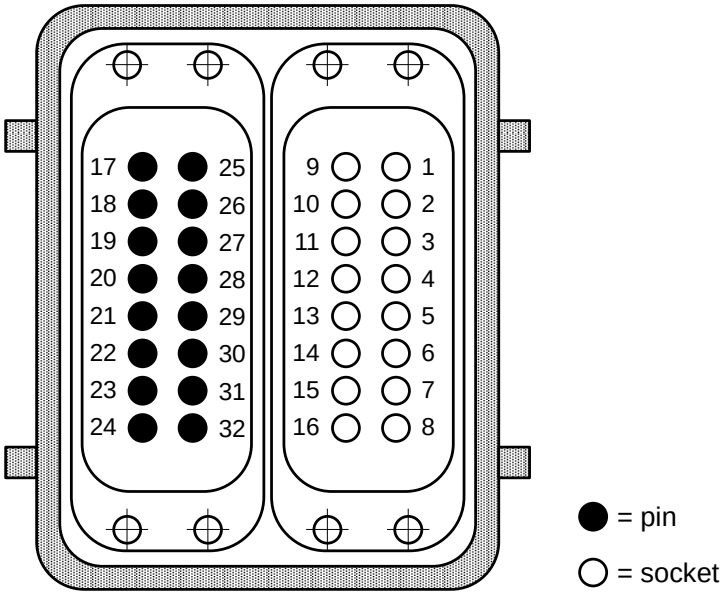

Figure 1 = Plug on the fluid injector system

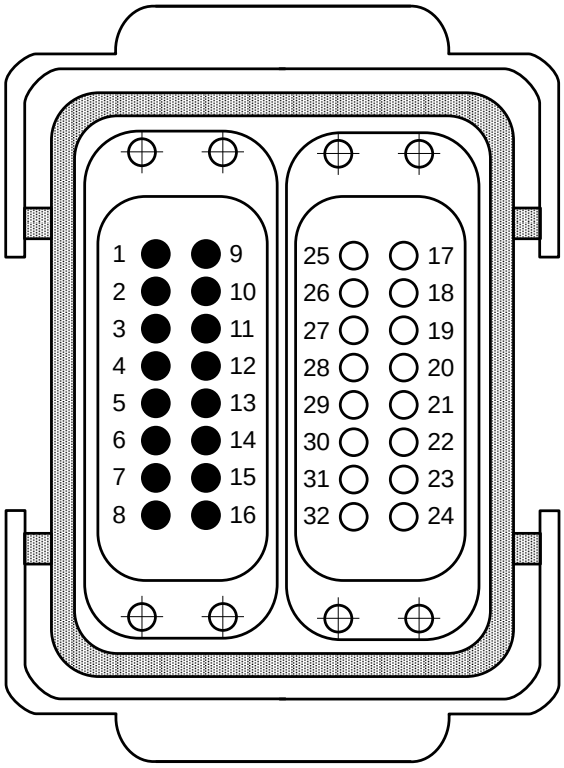

Figure 2 = Plug on the injection moulding machine

2.2 Contact specification

2.2.1 Emergency stop, guards closed (Table 1: 3, 4, 7, 8 and Table 2: 19, 20)

- The voltages of the signals must not exceed 50 V DC or 250 V AC.
- A current of at least 6 mA must be maintained during signalling.
- The maximum current is 6A.
- The contact making shall be potential-free.

2.2.2 Logical Signals

These signals shall be in accordance with clause 3.3.1 of EN 61131-2, Table 9, Type 2 or with clause 3.3.3 of EN 61131-2, Table 11, 0,1 A max.

2.2.3 Reference potential (Table 1: 1, 2 and Table 2: 17, 18)

- Voltage 18 – 36V DC
- Overlayed ripple max. 2,5Vpp
- Withstand against overvoltage up to 60V min. 10 ms
- Current max. 2A

2.3 Plug contact assignment

Notes on the tables below:

- Unless otherwise noted, the switch contacts are switching the reference potential on plug contacts: Table 1 / No. 1 (Injection moulding machine signal) and Table 2 / No. 17 (Fluid injector system signal).
- All signals are continuous signals unless otherwise noted.
- The signals are conducted from the signal source to the respective pin.

2.3.1 Table 1: Plug on the injection moulding machine
Signals from the injection moulding machine to the fluid injector system

Contact No (male), see fig. 2	Signal designation	Description
1	Supply from fluid injector system	24 V DC
2	Supply from fluid injector system	0 V
3 4	Emergency stop of machine	The switch contact must be open when the injection moulding machine emergency stop device is being actuated. Opening the switch contact shall cause emergency stop of the fluid injector system.
5 6		Reserved for future use by EUROMAP: Emergency stop of machine (second channel)
7 8	Guards closed	The switch contact is closed when front and rear guards of the mould area and the nozzle guard are closed. The signal is active in any operation mode.
9	Mould closed and clamping force applied	HIGH signal when the mould is closed and the clamping force is applied. The signal shall not be used to start fluid injection. The signal shall remain HIGH until "start mould opening".
10	Start fluid injection	Impulse signal starting fluid injection. The duration of the impuls signal shall be ≥100 ms and <1 s.
11	Mould open; ready to Close again	HIGH signal when the mould is open and the clamping unit is ready to close again. The signal shall remain HIGH until "start mould closing".
12	Failure of injection moulding machine	LOW signal when the production cycle of the injection moulding machine is interrupted. The signal shall remain LOW until the alarm is reset.
13	Automatic operation	HIGH signal when the injection moulding machine is in fully or semi-automatic operation (definition see EUROMAP 61).
14 15		Reserved for future use by EUROMAP: Guards closed (second channel)
16		Not fixed by EUROMAP, manufacturer dependent.

2.3.2 Table 2: Plug on the injection moulding machine Signals from the fluid injector system to the injection moulding machine

Contact No (female), see fig. 2	Signal designation	Description
17	Supply from injection moulding machine	24 V DC
18	Supply from injection moulding machine	0 V
19 20	Emergency stop of fluid injector system	The switch contact must be open when the fluid injector system emergency stop device is being actuated. Opening the switch contact causes immediate interruption of the production cycle of the injection moulding machine.
21 22		Reserved for future use by EUROMAP: Emergency stop of fluid injector system (second channel)
23		Reserved for future use by EUROMAP.
24		Reserved for future use by EUROMAP.
25	Enable mould opening	HIGH signal when fluid injection is terminated to enable mould opening by the injection moulding machine. The signal shall remain HIGH until LOW signal of contact no. 11 is received.
26	Enable mould closing	HIGH signal to enable mould closing.
27	Reject	HIGH signal when the moulding is a reject. HIGH signal when the mould is open and must remain HIGH at least until "Enable mould closing". It is recommended to have HIGH signal already when the mould opening starts.
28	Failure of the fluid injector system	LOW signal in case of a failure of the fluid injector system. The signal shall remain LOW until the alarm is reset.
29		Reserved for future use by EUROMAP.
30		Reserved for future use by EUROMAP.
31		Not fixed by EUROMAP, manufacturer dependent.
32		Not fixed by EUROMAP, manufacturer dependent.

3 Sources of supply

A list of plug suppliers is available for download on the EUROMAP website:
www.euromap.org/technical-issues/technical-recommendations