EUROMAP 70	Electrical Interface between Injection Moulding Machines and Magnetic Clamping Systems

Version 1.5, May 2015
(8 pages)

This recommendation was prepared by the Technical Commission of EUROMAP.

Figures 1 and 2 corrected (v. 1.1).

A further supplier added (v. 1.2).

Figures 1+2 updated (1.3)

Supplier's data corrected (v. 1.3a).

A further supplier added (v. 1.4).

List of plug suppliers removed (v. 1.5).
Please visit www.euromap.org/technical-issues/technical-recommendations for the current list.

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1 Scope and Application

This EUROMAP recommendation defines the connection between the injection moulding machine (IMM) and the magnetic clamping system (MCS). This is intended to provide interchangeability. EUROMAP 70 shall generally be applied six month after publication. EUROMAP 70.0 covers the standard interface, EUROMAP 70.1 covers the partly integrated interface (see notes under 2.3).

In addition recommendations are given for signal voltage and current levels. The mains supply of the MCS is also specified.

2 Description

The signals in both the injection moulding machine and the magnetic clamping 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 magnetic clamping system (see Tables 1 and 2). All signals which are not optional shall be supported by all injection moulding machines and magnetic clamping systems.

2.1 Plug and socket outlet

The connection between the injection moulding machine and the magnetic clamping system is achieved by the plugs specified below. For the injection moulding machine (see Figure 2) and the magnetic clamping 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)

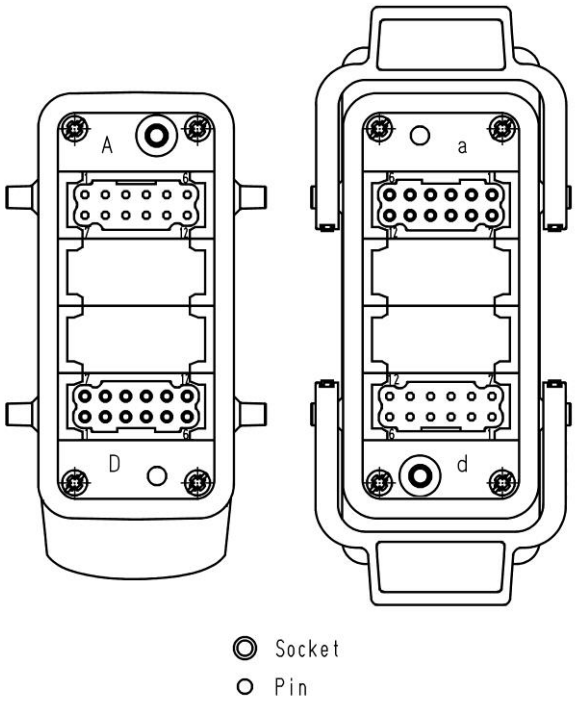


Figure 1 = Plug on the magnetic clamping system

Figure 2 = Plug on the injection moulding machine

2.2 Contact specification

2.2.1 Enable IMM, MCS ok (Pins a1/a7; a6/a12)

- 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

2.2.2 Enable MCS (Pins d1/d7; d6/d12)

- 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 1A

2.2.3 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

2.2.4 Reference potential (Table 1: Pin a2 and Table 2: Pin d2)

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

2.3 Plug contact assignment

Notes on the tables below:

- **Standard interface:** all command and status of MCS are on control panel of MCS.
- **Partly integrated interface:** command and some status of MCS are on control panel of IMM.
- Unless otherwise noted, the switch contacts are switching the reference potential plug contacts: Table1 / Pin a2 (IMM signal) and Table 2 / Pin d2 (MCS signal).
- All signals are continuous signals unless otherwise noted.
- The signals are conducted from the signal source to the respective pin.
- Apart from the MCS signals ”Enable IMM, MCS ok” (Table 1; Pins a1/a7; a6/a12) the signals can assume any status when the MCS is switched off.
- All signals except table 1: pins a1,a7,a6,a12 and table 2: pins d1,d7,d6,d12 are information signals only.

2.3.1 Table 1: Plug on the injection moulding machine (female). Signals from the MCS to the IMM

Contact No.(female), see fig. 2	Standard Interface **EUROMAP 70.0**	Partly integrated interface **EUROMAP 70.1**	Signal designation	Description
a1 a7	X	X	Enable IMM, MCS ok	Allow movements of IMM; normally open
a2		X	Supply from injection moulding machine	IMM reference potential 24V DC
a3		X	Moveable platen magnetised	Moveable platen magnetised; normally open
a4		X	Moveable platen demagnetised	Moveable platen demagnetised; normally open
a5			Spare	Reserved for future use of EUROMAP
a6 a12	X	X	Enable IMM, MCS ok	Allow movements of IMM; normally open
a8			Spare	Reserved for future use of EUROMAP
a9		X	Fixed platen magnetised	Fixed platen magnetised; normally open
a10		X	Fixed platen demagnetised	Fixed platen demagnetised; normally open
a11			Spare	Reserved for future use of EUROMAP

2.3.2 Table 2: Plug on the injection moulding machine (male). Signals from the IMM to the MCS

Contact No (male), see fig. 2	Standard Interface **EUROMAP 70.0**	Partly integrated interface **EUROMAP 70.1**	Signal designation	Description
d1 d7	X	X	Enable MCS	Enable magnetise / demagnetise; normally open
d2	X	X	Supply from MCS	MCS reference potential 24V DC
d3		X	Moveable platen magnetise	Request from IMM: Magnetise moveable platen; normally open Momentary signal > 1 second
d4		X	Moveable platen demagnetise	Request from IMM: Demagnetise moveable platen; normally open Momentary signal > 1 second
d5	X	X	Mould Change Mode	Mould Change Mode signal must be independent from pins a1/a7 and a6/a12 IMM in Mould Change Mode; normally open
d6 d12	X	X	Enable MCS	Enable magnetise / demagnetise; normally open
d8			Spare	Reserved for future use of EUROMAP
d9		X	Fixed platen magnetise	Request from IMM: Magnetise fixed platen; normally open Momentary signal > 1 second
d10		X	Fixed platen demagnetise	Request from IMM: Demagnetise fixed platen; normally open Momentary signal > 1 second
d11			Spare	Reserved for future use of EUROMAP

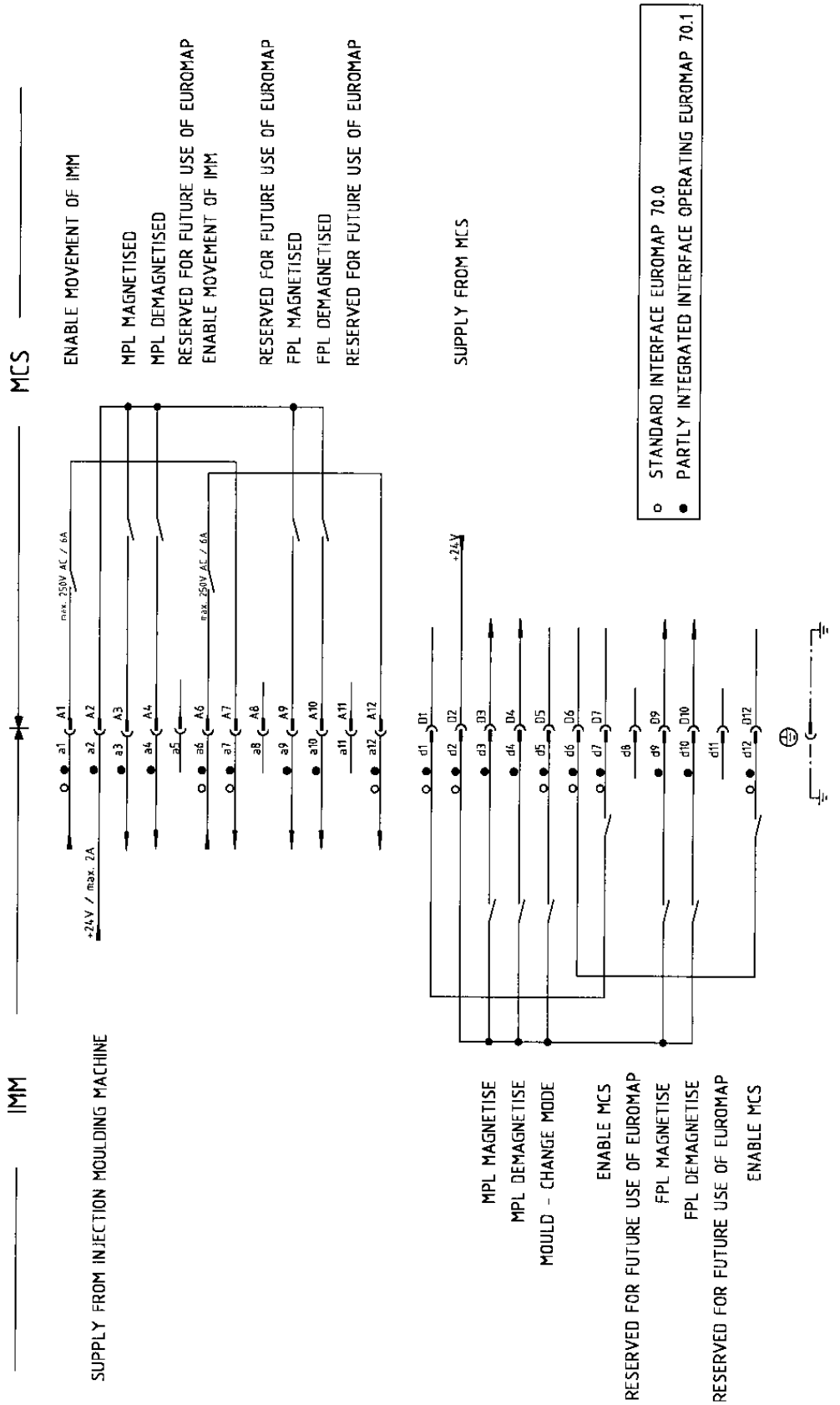
2.4 MCS power supply

Power is supplied through a terminal block or directly on the circuit-breaker at a voltage of 3 Phases/N/PE 400 V according to the specification of the MCS-supplier.

2.5 Sources of supply

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

2.6 Schematic drawing of the interface



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