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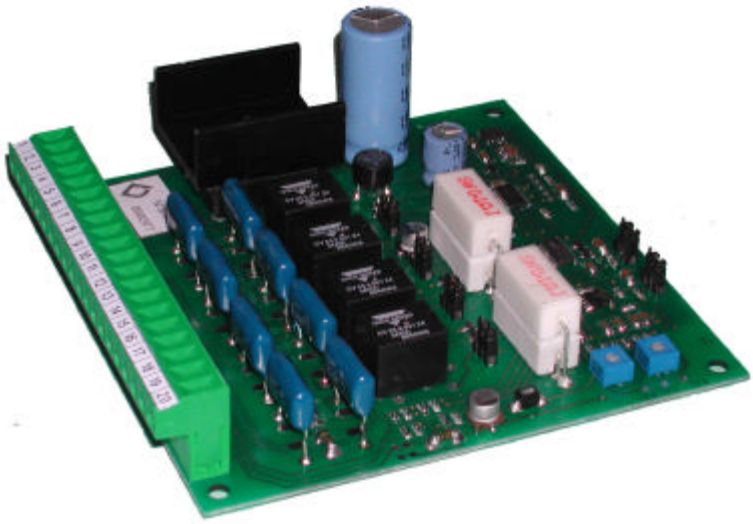
DRIVER FOR 2 LINEAR ACTUATORS WITH 24Vdc MOTOR

PF0026

MODEL: MDC2-24V-10A



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MODEL: **MDC2-24V-10A**

GENERAL SPECIFICATIONS

MDC2-24V-10A
allows controlling in both directions **two linear actuators** with a total current maximum absorption of **12A**.
Four inputs control the motion and the direction of the actuators.
Four limit-switches allow stopping the actuators in both directions.
Two Current Limitation Circuits, adjustable from **0,5A to 12A** by means of two trimmers placed on the board, allow stopping the movement of both actuators according to current absorption.
It's possible to cut out the Limit switch function and use only the Current Limitation.
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- **The exclusion of the Limit Switch and Current Limitation functions is programmable by means of 6 jumpers placed on the board**
- **Currents adjustment is programmable by means of 2 trimmers placed on the board**
- **The Limit Switch and Current Limitation functions can be activated simultaneously or 1 at a time**

TECHNICAL DATA AND AVAILABLE FUNCTIONS

Power supply voltage for Actuators	**2...40 Vdc** or **09...28 Vac**
Maximum admitted current absorption by each actuator	**12 A Max**
Power supply voltage for electronic board	**20...30Vdc** or **16...20Vac**
Max current drawn by the board	**0.4 A**

- Input for "Actuator 1" OPENING Control
- Input for "Actuator 1" CLOSING Control
- Input for "Actuator 2" OPENING Control
- Input for "Actuator 2" CLOSING Control

- Output for "Actuator 1" driving, **ON-OFF** type (inversion of polarity)
- Output for "Actuator 2" driving, **ON-OFF** type (inversion of polarity)

- Inputs for "Actuator 1" OPENING/CLOSING Limit switches
- Inputs for "Actuator 2" OPENING/CLOSING Limit switches

- Jumper cutting off limit switches OPENING/CLOSING "Actuator 1" (use of Current Limitation only)
- Jumper cutting off limit switches OPENING/CLOSING "Actuator 2" (use of Current Limitation only)

- Trimmer for current limitation adjustment on "Actuator 1" **(Trimming range 0,5…12A)**
- Trimmer for current limitation adjustment on "Actuator 2" **(Trimming range 0,5…12A)**

- Jumper cutting off current limitation on "Actuator 1" (use of limit switches only)
- Jumper cutting off current limitation on "Actuator 2" (use of limit switches only)

- Combined use of limit switches and current limitation

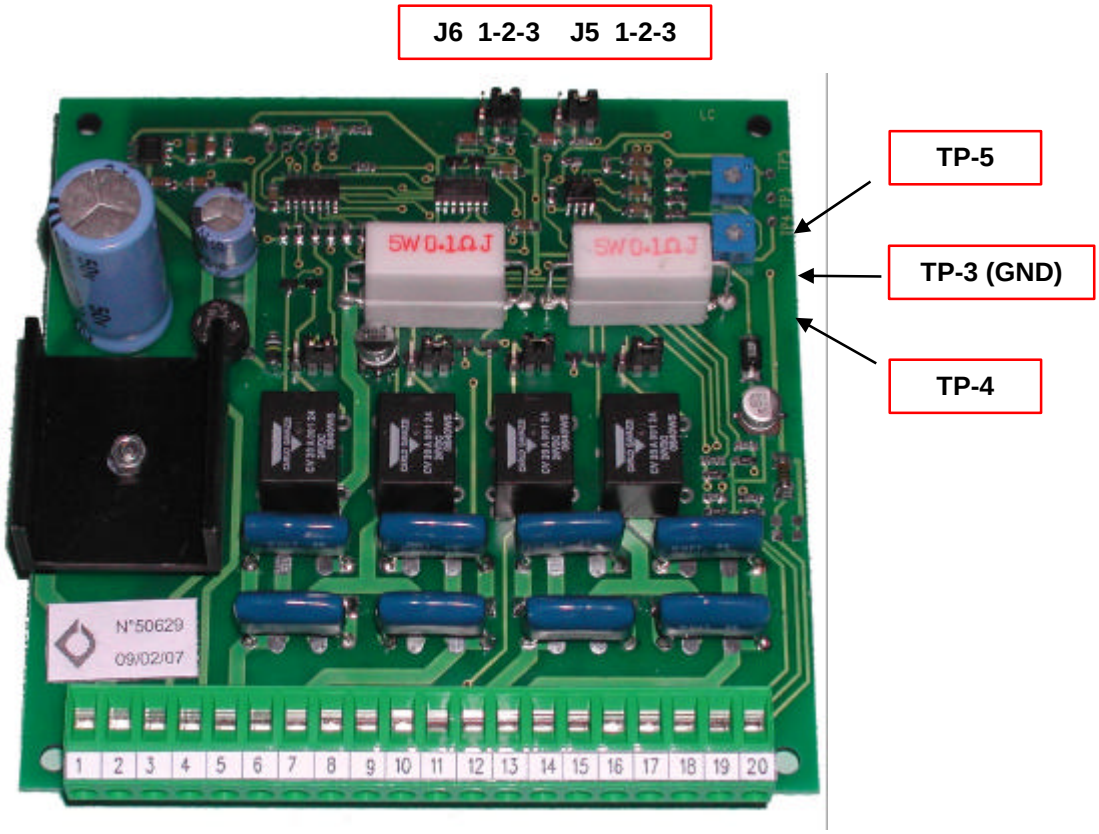
- Delay on every input control (**500 msec**) in order to prevent fast accidental direction reversals of Actuators

- Delay circuits for Current Limitation in order to avoid intervention at Actuators starting peak current

- Anti jamming systems with RC filters on the contacts of the Actuators driving relays

LAY-OUT OF BOARD PROGRAMMING ELEMENTS

- Dimensions: 120 x 130 x 40 mm



J1-J2	"Actuator 1" Limit switches jumpers	Position 1-2 OFF - Position 2-3 ON
J3-J4	"Actuator 2" Limit switches jumpers	Position 1-2 OFF - Position 2-3 ON
J5	"Actuator 1" Current Limitation jumper	Position 1-2 ON - Position 2-3 OFF
J6	"Actuator 2" Current Limitation jumper	Position 1-2 ON - Position 2-3 OFF
P1	Trimmer for "Actuator 1" current limitation adjustment	(0,5…12A)
P2	Trimmer for "Actuator 2" current limitation adjustment	(0,5…12A)

TP-4	Current adjustment Test-Point for "Actuator 1" Current Limitation
TP-5	Current adjustment Test-Point for "Actuator 2" Current Limitation
TP-3 (GND)	Ground Test-Point (GND)

CURRENT LIMITATION ADJUSTMENT

It's possible to verify / adjust the value of Current Limitation for "Actuator 1" and "Actuator 2" independently. To adjust the value of Current Limitation a **Digital Multimeter** is needed and must be set on **2Vdc bottom scale or on automatic range.**

ADJUSTMENT OF "ACTUATOR 1" CURRENT LIMITATION

1) Power-on the board without operating the Actuator
2) Connect the Negative ending of the digital Multimeter to Test-Point **TP-3 (GND)**.
3) Connect the Positive ending of the digital Multimeter to Test-Point **TP-4** (Actuator Current Limitation)
4) Adjust the Trimmer **PT1** so to obtain the voltage corresponding to the desired current limitation value

ADJUSTMENT OF "ACTUATOR 2" CURRENT LIMITATION

1) Power-on the board without operating the Actuator
2) Connect the Negative ending of the digital Multimeter to Test-Point **TP-3 (GND)**.
3) Connect the Positive ending of the digital Multimeter to Test-Point **TP-5** (Actuator Current Limitation)
4) Adjust the Trimmer **PT2** so to obtain the voltage corresponding to the desired current limitation value

N. B.
The value of tension, shown by the digital Multimeter, has a conversion ratio Voltage/Current of 1/20:
100mV = 2A

Below an example of **matching values between Voltage, measured in mV on TP3 and TP5, and Current Limitation measured in Amps:**

SHOWN VOLTAGE	LIMITATION CURRENT
50 mV	1.0 A
100 mV	2.0 A
150 mV	3.0 A
200 mV	4.0 A
300 mV	6.0 A
400 mV	8.0 A
500 mV	10.0 A
600 mV	12.0 A

Adjusting the trimmers you can get any value of current limitation between 0,5A and 12A

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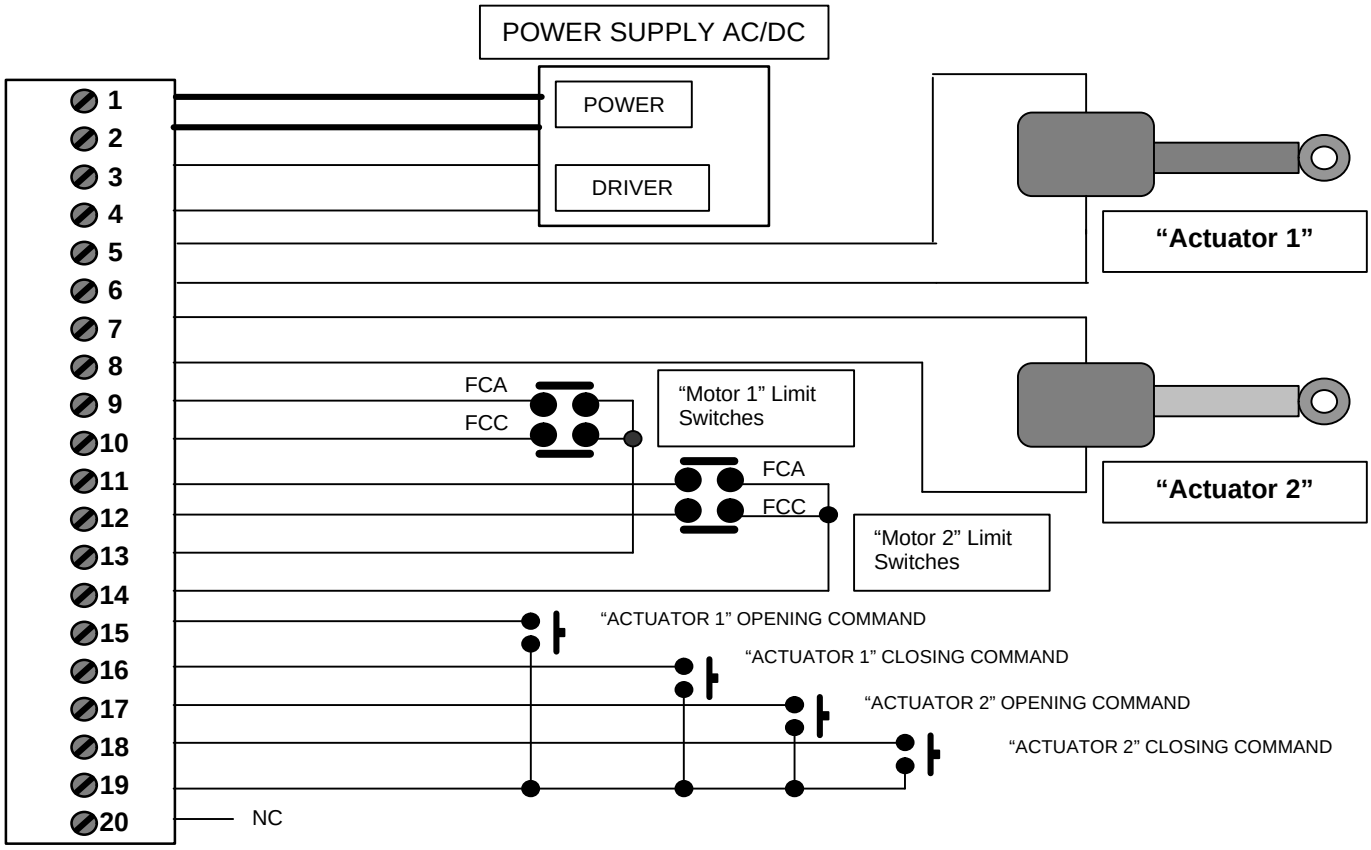
BOARD WIRING DIAGRAM



FCA = OPEN POSITION Limit switch
FCC = CLOSE POSITION Limit switch

POWER SUPPLY WIRING

Terminals 1 and 2 Power Supply for Actuator feeding — **12...40 Vdc / 9...28 Vac, 12 A Max**

Terminals 3 and 4 Power Supply for electronic board — **20...30 Vdc / 16...20 Vac, 0.4 A**

ACTUATOR WIRING

Terminal 5 for "Actuator 1" motor connection
Terminal 6 for "Actuator 1" motor connection
Terminal 7 for "Actuator 2" motor connection
Terminal 8 for "Actuator 2" motor connection

LIMIT SWITCHES WIRING

Terminal 9 Input for "Actuator 1" OPENING Limit switch
Terminal 10 Input for "Actuator 1" CLOSING Limit switch
Terminal 11 Input for "Actuator 2" OPENING Limit switch
Terminal 12 Input for "Actuator 2" CLOSING Limit switch
Terminal 13 Common terminal for "Actuator 1" Limit switches
Terminal 14 Common terminal for "Actuator 2" Limit switches

Important!!! The only limit switches that work with this electronic board are the **Normally Closed** ones

CONTROL INPUTS WIRING

Terminal 15 Input for "Actuator 1" OPENING Control
Terminal 16 Input for "Actuator 1" CLOSING Control
Terminal 17 Input for "Actuator 2" OPENING Control
Terminal 18 Input for "Actuator 2" CLOSING Control
Terminal 19 Common for Control inputs
Terminal 20 Not Connected