EC - PWM - A1 - MPC1 - P  PWM Driver

Description
Microprocessor-based PWM electronic driver for remote control of a single proportional solenoid valve.

Operation
The EC-PWM-MPC1 Proportional Valve driver supplies a solenoid with a PWM (Pulse Width Modulated) current proportional to the input signal from a potentiometer, PLC or other control systems.

Adjustments of "Imin/Imax", "Ramp time", "Deadband" and "Dither" can be effected directly from a key-pad integrated on the front panel.

Mounting option: panel-mounting style with INPUT/OUTPUT multi-core sheathed cable

Features
- The current in the solenoid is independent from any change in the coil resistance or in the supply voltage.
- The inherent superimposed dither frequency helps to overcome friction and stiction effects in the controlled device.
- Supply line is protected against reversed polarity and load dump.
- Input is protected against short circuits to GND and supply.
- Output is protected against short circuits, reversed polarity, over-current and over-temperature.

Specifications
- Operating voltage: 8.5 - 30 Vdc
- Max current consumption: 100 mA (no load applied)
- Operating temperature: -25 / +85 °C
- Degree of protection: IP 67
- Analog input signals available: 0-5 V, 0-10 V, 0-20 mA
- Input impedance: 50 kOhm
- Typical ctrl pot resistance: 2 - 47 kOhm
- Current output range (PWM): 100-3000 mA
- PWM dither frequency: 55-200 Hz (adjustable)
- Adjustable ramp time: 0.05 - 5 s

Applications
- Primary applications are the control of pressure and flow proportional valves to attain smooth acceleration/deceleration and fine-metering control of linear and rotary actuators.

WARNING: The specifications/application data shown in our catalogs and data sheets are intended only as a general guide for the product described herein. Any specific application should not be undertaken without independent study, evaluation, and testing for suitability.

Dimensions

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**EC - PWM - A1 - MPC1 - P** PWM Driver

**Circuit board pinout - Wiring diagram**

**Wiring Colours**
- Blue: +Battery
- Brown: -Battery (GND)
- Red: Command signal supply (+5V)
- Yellow: Command signal in
- Gray: Command signal GND
- White: Proportional coil output
- Green: Proportional coil current feedback line
- Pink: Spare / Not used

**Note**
A 5A fuse must be inserted on the BLUE wire connecting the PWM driver to the power source.

**Adjustments**
The following adjustments can be made directly from the front key-pad by selecting the 3-pushpins in various combinations:
- Imin (minimum output current)
- Imax (maximum output current)
- Ramp-up time
- Ramp-down time
- Dither frequency

**Application example**
Remote operation of a proportional flow control valve from single axis / unidirectional control lever incorporating a rotary potentiometer and a center / power-off switch for the energization of an auxiliary solenoid-operated dump valve.

**Part numbers**

<table>
<thead>
<tr>
<th>Part numbers</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.0409.045</td>
<td>0-5 V</td>
</tr>
<tr>
<td>23.0409.087</td>
<td>0-10 V</td>
</tr>
<tr>
<td>23.0409.136</td>
<td>0-20 mA</td>
</tr>
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**Ordering Information**

A = Adjustable  
P = panel mounting

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**Description**

Microprocessor - based PWM electronic driver for remote control of a single proportional solenoid valve.

**Operation**

The EC-PWM-MPC1-D Proportional Valve driver supplies a solenoid with a PWM (Pulse Width Modulated) current proportional to the input signal from a potentiometer, PLC or other control systems.

Adjustments of "Imin/Imax", "Ramp time", "Deadband" and "Dither" can be affected directly from a key-pad integrated on the front panel.

**Mounting option:** Female DIN 43650 socket on valve’s side and sheathed exit cable to connect to power source and remote control devices.

**Features**

- The current in the solenoid is independent from any change in the coil resistance or in the supply voltage.
- The inherent superimposed dither frequency helps to overcome friction and stiction effects in the controlled device.
- Supply line is protected against reversed polarity and load dump.
- Input is protected against short circuits to GND and supply.
- Output is protected against short circuits, reversed polarity, over-current and over-temperature.

**Specifications**

- Operating voltage: 8.5 - 30 Vdc
- Max current consumption: 100 mA (no load applied)
- Operating temperature: -25 / +85 °C
- Degree of protection: IP 67
- Analog input signal: 0-5 V, 0-10 V, 0-20 mA
- Input impedance: 50 kOhm
- Typical ctrl pot resistance: 2 - 47 kOhm
- Current output range (PWM): 100-3000 mA
- PWM dither frequency: 55 - 200 Hz (adjustable)
- Adjustable ramp time: 0.05 - 5 s

**Applications**

Primary applications are the control of pressure and flow proportional valves to attain smooth acceleration/deceleration and fine-metering control of linear and rotary actuators.

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**Power Supply Wiring Colours**
- Blue (+) Positive from Power Source
- Yell./Green (-) Negative from (GND)

**Remote Potentiometer Wiring Colours**
- Black Command signal supply (+5V)
- Brown Command signal in

**Proportional Valves Wiring Colours**
- 1 Proportional coil output
- 2 Proportional coil current feedback line

**Note**
A 5A fuse must be inserted on the BLUE wire connecting the PWM driver to the power source.

**Adjustments**
- Proportional flow regulator
- Imin (minimum output current) type EE P2G
- Imax (maximum output current)
- Ramp-up time
- Ramp-down time
- Dither frequency

**Application example**
Remote operation of a proportional flow control valve from single axis / unidirectional control lever incorporating a rotary potentiometer and a center / power-off switch

**Ordering Information**
- EC - PWM - A1 - MPC1 - D
- Part numbers:
  - 23.0409.046 0-5 V
  - 23.0409.065 0-10 V
  - 23.0409.077 0-20 mA
- Version:
  - 0.5 V
- A = Adjustable

**Part numbers and Version**
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- Part numbers:
  - 23.0409.046 0-5 V
  - 23.0409.065 0-10 V
  - 23.0409.077 0-20 mA
- Version:
  - 0.5 V
- A = Adjustable
EC - PWM - A1 - MPC1 - E  PWM Driver

**Description**

Microprocessor - based PWM electronic driver for remote control of a single proportional solenoid valve.

**Operation**

The EC-PWM-MPC1-E Proportional Valve driver supplies a solenoid with a PWM (Pulse width Modulated) current proportional to the input signal from a potentiometer, PLC or other control systems. Adjustments of "Inv/Inv", "Ramp Time", "Deadband" and "Dither" can be effected directly from a key-pad integrated on the front panel.

**Mounting option:** Female DIN 43650 socket on valve's side and Male DIN 43650 plug to connect to power source and remote control devices.

**Features**

- The current in the solenoid is independent from any change in the coil resistance or in the supply voltage.
- The inherent superimposed dither frequency helps to overcome friction and stiction effects in the controlled device.
- Supply line is protected against reversed polarity and load dump.
- Input is protected against short circuits to GND and supply.
- Output is protected against short circuits, reversed polarity, over-current and over-temperature.

**Specifications**

- Operating voltage: 8.5 - 30 Vdc
- Max current consumption: 100 mA (no load applied)
- Operating temperature: -25 / +85 °C
- Degree of protection: IP 67
- Analog input signal: 0.5 - 10 V
- 0-20 mA
- Input impedance: 50 kOhm
- Typical ctrl pot resistance: 2 - 47 kOhm.
- Current output range (PWM): 50 - 3000 mA
- PWM dither frequency: 55 - 200 Hz (adjustable)
- Adjustable ramp time: 0.05 - 5 s

**Applications**

- Primary applications are the control pressure and flow proportional valves to attain smooth acceleration/deceleration and fine-metering control of linear and rotary actuators.

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**EC - PWM - A1 - MPC1 - E  PWM Driver**

Circuit board pinout - Wiring diagram

**Adjustments**

The following adjustments can be made directly from the front keypad by selecting the 3-pushpins in various combinations:

- Imin (minimum output current)
- Imax (maximum output current)
- Ramp-up time
- Ramp-down time
- Dither frequency

**Application example**

Remote operation of a proportional flow control valve from a single axis / unidirectional control lever incorporating a rotary potentiometer

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**EC - PWM - A1 - MPC1 - E  PWM Driver**

Circuit board pinout - Wiring diagram

**Adjustments**

The following adjustments can be made directly from the front keypad by selecting the 3-pushpins in various combinations:

- Imin (minimum output current)
- Imax (maximum output current)
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**Application example**

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