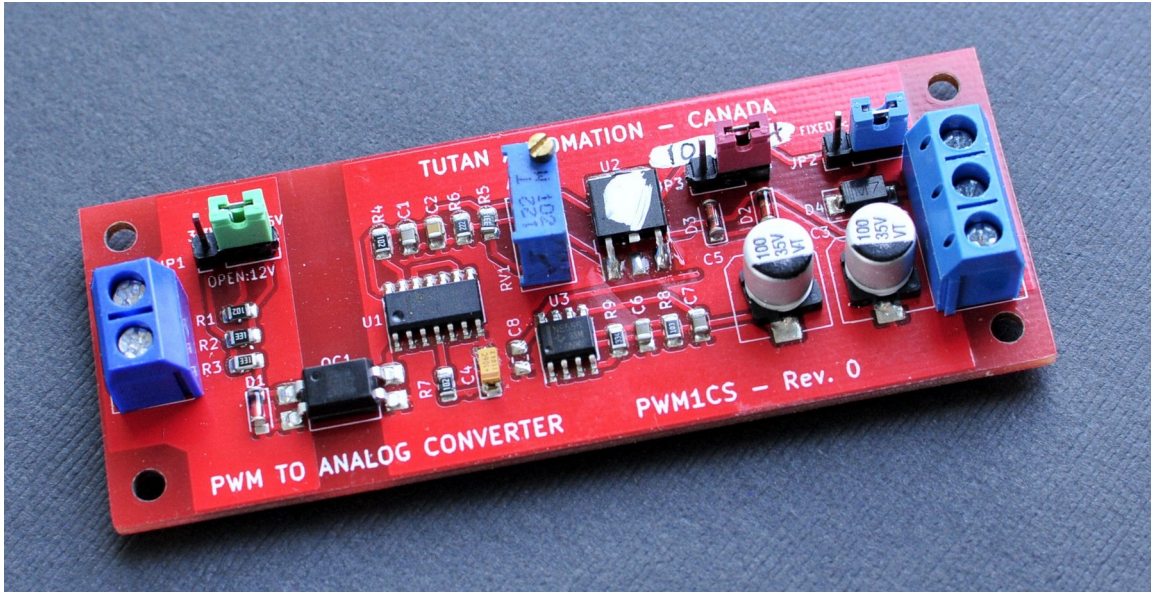


PWM1CS – Isolated PWM to Analog Converter



DESCRIPTION

This board contains one PWM to analog converter that provides a linear output proportional to the duty cycle of the input signal. Its intended application is to interface micro-controllers with PWM outputs to industrial devices that require linear analog signals, such as Variable Frequency Drives (VFD), direct flame burners, etc.

The output can be used in two modes: Fixed or Adjustable. In Fixed mode the output voltage range is 0 to V_a , where V_a is the power voltage. In Adjustable mode the output voltage range can be trimmed from 5V to 12V.

The power supply can be selected in two ranges: 10-15V or 15-24V. The output level can be 12V even when the power voltage is 10Vdc, thanks to a voltage doubler rectifier included in the board.

FEATURES

- Fixed or adjustable output level
- Optical isolation
- Surface mounted components (SMT)
- Sturdy construction
- Fits in standard DIN rail enclosure (optional)

SPECIFICATIONS

- Number of channels: 1
- Input level: 3.3, 5, 12V jumper selected
- Max PWM frequency: 1KHz (10Khz with degraded linearity)

- Input current: 5mA @ 5V
- Output: 2 modes selected by jumper
 - Fixed: Output 0 to Power Supply
 - Variable: 0 to 5-12V with trim-pot adjust
- Output impedance: 1KOhm
- Linearity: 2% FSD
- Isolation: Min. 500 Vac
- Power: 10-15V or 15-24V selected by jumper
- Dimensions: 3.400 x 1.950 in. (87 x 50 mm) 1.22 oz (0.025 Kg)

UTILIZATION

SELECT INPUT LEVEL

Use jumper JP1 to select the desired input level between 3.3V or 5V . Leave the jumper open for 12V.

POWER SUPPLY VOLTAGE

Use jumper JP3 to select the power supply range between 10-15V or 15-24V. This setting only affects the operation when ADJUSTABLE output mode is selected (see below).

SELECT OUTPUT MODE

Use jumper JP2 to select the mode of operation most suitable for your application: FIXED or ADJUSTABLE output MODE.

FIXED MODE:

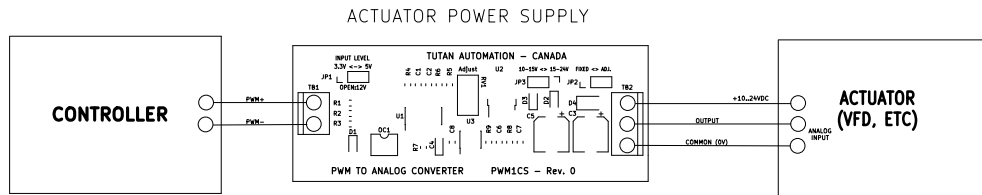
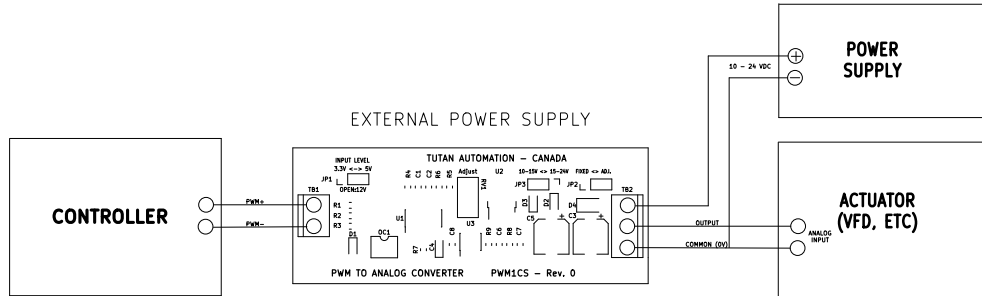
The output level will be from 0V to the actual power supply voltage used. This mode is used when the target device provides a “wetting” voltage that also corresponds with the Full Scale Input required. Most VFD provide this voltage. In this mode the jumper JP3 is not operative.

WARNING: Maximum voltage in this mode is 15Vdc.

ADJUSTABLE MODE:

The output level will be from 0V to the value adjusted with the trim-pot RV1, in the range 5 to 12V. The boards are factory adjusted to 10Vdc output.

WIRING



OUTPUT LEVEL ADJUST

Apply 3.3, 5 or 12V to input (PWM=100%) and adjust trim-pot RV1 to desired value. Verify that the output is 0-10mV with the input open (PWM=0%).

NOTE: It is recommended to adjust the output voltage with the board connected to the device in order to compensate for the voltage drop caused by the input resistance.

Open voltage calculation:

$$V_{open} = V_{in} (1 + 1K / R_{inp})$$

