

# E7800 Motorized Potentiometer

- Direct access to manual operation of potentiometer.
- Low speed synchronous motor for accurate control with no coast time.
- 2 LEDs indicating “increase” and “decrease”.
- Any potentiometer with 6 mm or 1/4” shaft can be fitted.
- Adjustable potentiometer speed on DC versions
- Optional with DC voltage output
- Sealed wire wound potentiometer
- Dust sealed
- 50 hours burn-in before test
- Operating temperature range: -15°C to +70°C
- Flush mounted unit



## Application

The E7800 Motorized Potentiometer is typically used as an interface between increase/decrease contacts and a device requiring control/adjustments by an external potentiometer.

In generator control applications with generator sets, the E7800 Motorized Potentiometer can be used as speed trim of an electronic speed governor, interfacing the synchronizer or the load sharer. To obtain the speed setting, the potentiometer supplied with the governor can be built into the E7800, and via this unit the frequency and load of the governor are controlled. It is important in this situation that the governor can operate with droop.

The Motorized Potentiometer can also be used alone for full range speed adjustment or speed trim of electronic governors. Another application is control of generator voltage, power factor and reactive load via the potentiometer for generator voltage adjustment. These are only some examples of many other industrial applications.

The E7800 Motorized Potentiometer houses a high quality wire wound potentiometer. The use of a wire wound potentiometer provides an extraordinary drive capability, not available on “simulated” motor potentiometers (electronic potentiometers). Wire wound potentiometers are superior to traditional carbon-based potentiometers, which wear quickly and are sensitive to “spark burns”. A dust tight seal ensures

proper electrical contact at all times. The use of a real potentiometer also provides the additional feature of manual control.

Potentiometer resistance and number of turns (gearing) must be specified upon ordering. Optional RPM adjustment is also available. Potentiometer and output ramp time is defined by number of turns and the optional RPM setting. RPM setting is only available on the DC versions.

## Function

The Motorized Potentiometer is a combination of a potentiometer and an electric motor, connected with a coupling. There is a direct mechanical link between the potentiometer and the knob, which gives access to adjusting the potentiometer in situations where manual control is necessary.

The E7800 motorized potentiometer is available for DC as well as AC voltage supply. The unit features a large size knob for manual control plus LED-based indication of turn direction.

On DC versions the potentiometer speed is adjustable by a built-in trim potentiometer, which is an advantage for stabilising control circuits. The speed can be adjusted from 0.8 to 6 revolutions per minute (RPM), equal to 75 to 10 seconds per revolution.

The three potentiometer wires as well as the three motor connections are directly accessible on external connection terminals.

## Changing Potentiometer

To fit into the assembly, the potentiometer to be attached must have a 6mm or 1/4” shaft diameter and a shaft length of 20.6mm, measured from the part of the potentiometer that touches the outside of the back plate to the end of the shaft. Unscrew the back plate and remove the supplied potentiometer. Remove the clutch and fit to new potentiometer. Fasten it firmly with an 0.05” Allen Key. Replace the back plate and fasten it with four screws, checking that the clutch has a firm connection. Adjust the knob for symmetrical turning angle using the centre screws on the knob under the cap.

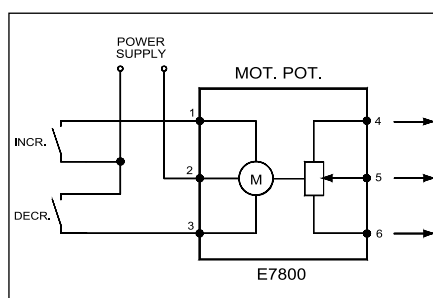


Fig. 1. Connections for E7800.

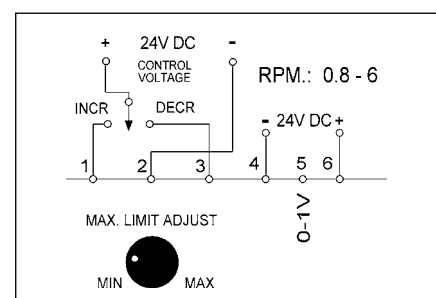


Fig. 2. Connections for E7800-90.

# Specifications

## E7800 Motorized Potentiometer

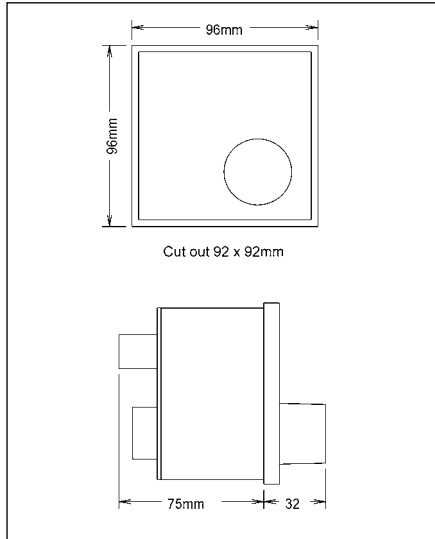


Fig. 3. Dimensions.

### Option

A special version of the E7800 with DC voltage output is available. This unit is specified E7800-9x. The DC output voltage follows the position of the potentiometer.

The output voltage (e.g. 0 - 1.0V, 0 - 100%) can be reduced with up to 60% (e.g. 0 - 0.4V, 0 - 100%) by adjusting the "Max. Limit Adjust" knob, placed on the rear side.

An advantage of the design of the E7800 is that the potentiometer will "remember" its position, even when the supply is lost.

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<b>Voltage range</b>	AC: 90 - 120% DC: 75 - 125%
<b>Consumption</b>	AC: 2.5VA DC: 2W
<b>Coast time</b>	Zero
<b>Operating temperature</b>	-15°C to +70°C
<b>Dielectric test</b>	2kV, 50Hz, 1 minute
<b>EMC</b>	CE according to EN50081-1, EN50082-1, EN50081-2, EN50082-2
<b>Approvals</b>	CSA, UL component recognition
<b>Burn-in</b>	50 hours before final test
<b>Weight</b>	0.35kg
<b>Dimensions</b>	96 x 96 x 80mm (H x W x D)
<b>Panel cut out</b>	92 X 92mm (H x W)

The specifications are subject to change without notice.

### Type Selection Table

Type	Supply	RPM	Potentiometer
E7800-00-xx	230V - 240V AC	1.0 (50Hz)	5kΩ - 1 turn
E7800-01-xx	220V - 240V AC	2.0 (50Hz)	5kΩ - 10 turn
E7800-02-xx	100V - 110V AC	1.0 (50Hz)	5kΩ - 1 turn
E7800-03-xx	24V AC	2.0 (50Hz)	5kΩ - 10 turn
E7800-04-xx	100V - 110V AC	2.0 (50Hz)	5kΩ - 10 turn
E7800-05-xx	220V - 240V AC	2.0 (50Hz)	5kΩ - 1 turn
E7800-09-xx	24V AC	1.0 (50Hz)	5kΩ - 1 turn
E7800-23-xx	24V DC	0.8-6 Adj.	5kΩ - 1 turn
E7800-24-xx	24V DC	0.8-6 Adj.	5kΩ - 10 turn
E7800-90-00	24V DC	0.8-6 Adj.	DC output voltage, 0-1.0V (0-100%)

Please note that the E7800 cannot be used for both AC and DC.  
 The unit must be specified to order.  
 Other voltages and combinations are available on request.

### Potentiometer Value

Please indicate potentiometer value by replacing "xx" letters with digits according to the table below.

Index "xx"	Potentiometer value
00	5kΩ (standard)
01	100Ω
02	200Ω
03	500Ω
04	1kΩ
05	2kΩ
06	10kΩ

Power rating @ 40°C: 3W (2W @ 70°C)