

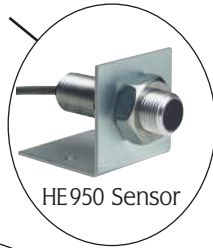
# ELECTRO•SENSORS

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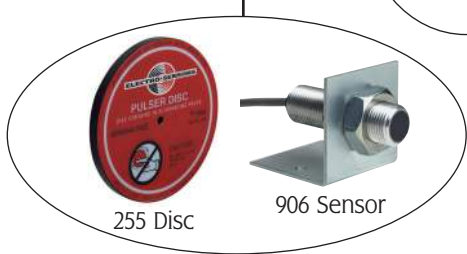
## Accu-Dial



## Accu-Tach



HE 950 Sensor



255 Disc

906 Sensor

## Accu-Dial

**Programmable potentiometer for control and accuracy with LCD display of set point in user units.**

## Accu-Tach

**Programmable potentiometer for control and accuracy with LCD display of feedback in user units.**

- Visual confirmation of set points—repeatability across operators.
- LCD display assures accuracy—reduces waste, saves money.
- Easy installation and calibration—minimal process downtime.
- EEPROM protection—programming and calibration retained.
- Robust turning knob—precision and strength with a solid smooth feel.
- Tough ABS plastic enclosure—NEMA 4 rated.

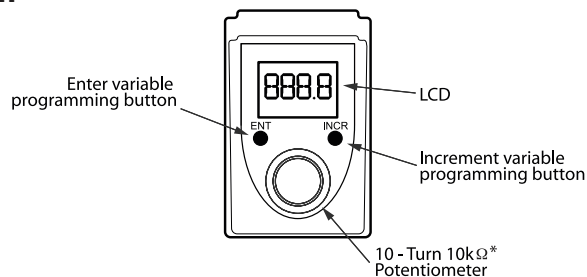
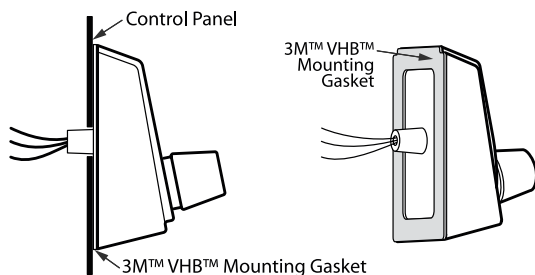
## Product Information

### Description

Electro-Sensors' Accu-Dial and Accu-Tach control devices allow you to economically and accurately monitor and control your processes. Accu-Series control potentiometers provide compact, versatile and precise process control with a programmable LCD set point display for accurate visual confirmation and feedback. Accu-Dial is a stand-alone product and is ideal for applications such as AC/DC variable speed motor drives, temperature control, hydraulic and pneumatic systems or any system currently using a traditional potentiometer. Accu-Tach is available as a 2 or 3 piece system and provides the same level of control as the Accu-Dial, but with feedback measurement.

Accu-Series control potentiometers are housed in a tough ABS plastic, NEMA 4 enclosure. Quick and easy to install, both potentiometers mount through the same 3/8" hole as a standard potentiometer – no additional machining is necessary for installation. Accu-Dial has the same three-wire connection as the single- and multi-turn potentiometers it replaces. Accu-Tach has some additional wiring to incorporate its feedback measurement and external power supply input. Accu-Series feature a precise 10-turn potentiometer to give the operator a solid, smooth feel with a robust turning knob to reduce mechanical set point movement in high-vibration environments. The LCD display has a range from 0.000 to 9,999 and can be calibrated in user units, including time in process (TIP). Programming the Accu-Series user variables is straightforward and easily accomplished via the two pushbuttons on the front panel.

### Design Layout • Accu-Dial • Accu-Tach



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## Electrical Connections

**Connect the Accu-Dial's two power wires and one wiper wire to the process driver's three pot supply terminals, as follows:**

- Red wire to the high voltage terminal.
- White wire to the wiper input terminal.
- Black wire to the low voltage terminal.

**Connect the Accu-Tach's eight wires as follows:**

- Orange wire to the process driver's pot supply high voltage terminal.
- White wire to the process driver's potentiometer wiper input terminal.
- Gray wire to the process driver's pot supply low voltage terminal.
- Blue wire to the feedback sensor's signal terminal.
- Brown wire to the feedback sensor's power terminal.
- Black wire to the feedback sensor's ground terminal.
- Red wire to the external power supply's positive terminal (+12 to +24 Vdc).
- Remaining Black wire to the external power supply's negative terminal (gnd).

## Installation Overview

The Accu-Dial or Accu-Tach mounts to the control panel surface using the mounting gasket supplied. Electrical wires exit the back of the housing through a mounting post that inserts into a 3/8" diameter hole in the control panel. Footprint of only 1.95" x 3.10". See Figure 1.

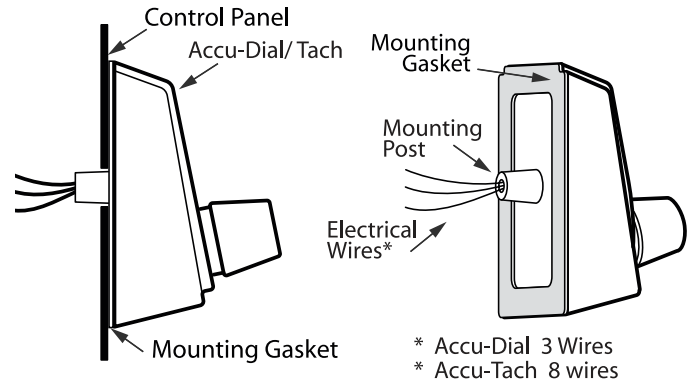


Figure 1. Control Potentiometer Mounting

## General Specifications • Accu-Dial • Accu-Tach

### Functionality

- Built-in 10k ohm potentiometer connects to device's set point adjustment potentiometer terminals.
- Sets the operating point voltage.
- Accu-Dial — LCD displays potentiometer position in User Units.
- Accu-Tach — LCD displays feedback in User Units.

### Performance

- LCD range of 0.000 to 9,999 for decimal-based User Units.
- LCD range of 59.59 to 00.00 for time-based units (ie. hours.minutes or minutes.seconds).
- Accu-Dial — potentiometer position measured with 12 bits of resolution.
- Accu-Tach — measures encoder frequencies from 0.500 Hz up to 9999 Hz to within 0.2% of actual frequency.
- EEPROM protects variable programming and calibration settings through power cycles.
- Lockout function prevents inadvertent changes to calibration settings.

### Electrical • Accu-Dial

- Compatible with devices having pot-supply voltages of 3.9 to 15 Vdc (as measured across potentiometer's high-end to low-end terminals).
- Compatible with devices using an external potentiometer of 10k ohms or less.
- Current draw of 2.5 mA or less.

### Electrical • Accu-Tach

- Compatible with process drivers having pot supply voltages up to +28 Vdc (as measured across the process driver's pot supply high-end to low-end terminals).
- Compatible with process drivers using an external control voltage potentiometer of 10k ohms.
- Accu-Tach's 10k pot is isolated from internal circuitry.
- Current draw of 60 mA or less (max draw of 10mA for the Accu-Tach internal circuitry, plus 50 mA for the sensor power supply output).
- Programmable sensor selection matches the Accu-Tach to the type of sensor used in the application. (This allows accurate LCD readouts, independent of the type of sensor used - NPN, PNP, 5V Logic-level-driver and magnetic pickup.)

### Mechanical/Packaging

- Mounts through control panel via single 3/8" diameter hole.
- Footprint of 1.95" x 3.10".
- Enclosure made of injection molded ABS plastic with a plastic backplate.

### Environmental

- NEMA 4 enclosure.
- Temperature range of 0° C to 60° C.
- Humidity of 0-90% non-condensing.

### Operator Interface

- Built-in 10k ohm potentiometer (sets operating point voltage).
- Two push-buttons (to access variable programming calibration mode).

### Operational Modes

- User Units display mode.
- Variable programming — calibration mode.

- User-selectable scaling used to calibrate the Accu-Dial to the process drivers' pot supply voltage level.

### I/O Requirements

- Input is a pot supply voltage of 3.9 to 15 Vdc.
- Outputs are a control signal voltage to device, and a potentiometer position readout to built-in LCD display.

### I/O Requirements

- Input: External power supply of +12 Vdc to +24 Vdc.
- Input: Potentiometer terminals accept pot supply voltages up to +28 Vdc.
- Input: Sensor frequency of 0.50 Hz to 9999 Hz (with NPN, PNP and 5V logic-level-line driver sensors). Sensor frequency of 50 Hz to 4000 Hz (with magnetic pickups).
- Output: Control voltage from potentiometer to process drive.
- Output: Sensor power supply 50 mA max, short-circuit protected (cycle power to reset). Output voltage level slightly less than external power supply input voltage.
- Output: Sensor speed readout to a built-in LCD display.

Specifications subject to change without notice.

ES-205 Rev D