

# LVDT/RVDT READOUT CONTROLLER



## MODEL 9600A

### FEATURES:

- Eight software selectable sensitivity settings
- Splash proof bezel with panel gasket seal
- 1/8 DIN heavy duty aluminum case
- Programming and calibration from four front panel switches
- Optional analog output, 0 to  $\pm 5$ VDC
- 4 1/2 digits, .56" red LED readout with negative indication
- Two high speed setpoints with open collector outputs
- Optional RS232 or RS485 interface
- Optional parallel BCD output
- AC excitation for LVDT
- 100% Digital zero suppression
- Selectable excitation frequencies, 2.5Khz, 5Khz, 7.5Khz, or 10Khz
- Selectable filter, 250hz or 1000hz cutoff
- Phase adjustment

### Series 9600

The series 9600 is a versatile readout/controller designed to be used with AC excited LVDT type transducers. It combines a constant amplitude carrier generator, a stable carrier amplifier, and a full wave synchronous demodulator. The zero point can be offset by up to 100% of full scale and the full scale reading can be programmed to be virtually any number between 100 and 19999 counts. Optional analog outputs, parallel BCD, binary, and serial interfaces are available which make this unit a versatile low cost unit. Two limit points with open collector outputs are standard. Response time of the limits is dependent on filter selection and is 10msec. or 40msec. The series 9600 is housed in a rugged 1/8 DIN aluminum enclosure with front bezel and panel gasket seal that meet requirements of NEMA 4.

### SPECIFICATIONS

#### Power Requirements:

- AC: 105 VAC to 132VAC @ 50mA (47 to 500 Hz)
- AC: 198VAC to 254VAC @ 25mA (47 to 500 Hz) optional.

#### Display:

- Type: 4 1/2 digit, seven segment LED 0.56" (14.3 mm) high indicator
- Polarity Indication: "-" Displayed
- Overrange Indication: Display shows "OPEN"

#### Environmental:

- Operating Temperature Range:  $-20^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$
- Storage Temperature Range:  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- Relative Humidity: 0% to 90%, Non-condensing

#### Dimensions:

- Case size "D" Refer to page 39 of catalog.  
Case depth 4.0"
- Weight: 1 pound
- I/O Terminations: Fifteen quick disconnect terminals and optional 25 pin D for parallel BCD.

#### Analog to Digital Conversion:

- Technique: 16 Bit Sigma Delta
- Rate: 3 Conversions/Second

#### Analog Output: (optional)

- Voltage: 0 to  $\pm 5$ VDC. 0V and 5V points are programmable via front panel switches.  
Maximum drive capability  $\pm 2$ mA.
- Response time 4msec. or 1msec. dependent on filter selection.
- CMV: 1400V Peak (AC or DC) Peak Between Analog Output Ground and AC Power Line Ground.

#### Serial Interface: (optional)

- ASCII RS232 or RS485 compatible (optional); format: 1 start bit, 8 data bits, 1 stop bit, and no parity bits. Baud rates: 9600, 4800, 2400, 1200, 600, 300, 150 & 75 programmable from the front panel. Output compatible with Model 9100 remote readout.

- **Parallel BCD Output: (optional)** 8421, TTL compatible, full parallel with four data bits for each digit plus sign. I/O connector is DB25 (supplied).

#### Transducer Excitation:

- 1.0VRMS sine wave; 10mA maximum

#### Excitation Frequency: Software

- Selectable: 2.5Khz, 5Khz, 7.5Khz or 10Khz

#### Input Impedance:

- 100 kilohm

#### Sensitivity:

- Software Selectable: 200mV, 300mV, 400mV, 500mV, 600mV, 700mV, 800mV, or 900mV will produce full scale display

#### Non-linearity and Hysteresis:

- $\pm 0.1\%$  full scale  $\pm 1$  count

#### Stability:

- $\pm 0.05\%$  of full scale after 30-minute warm-up

#### Temperature Coefficient of Sensitivity:

- $\pm 0.03\%$  of reading per  $^{\circ}\text{F}$  ( $\pm 0.055$  of reading per  $^{\circ}\text{C}$ )

#### Filter Cutoff

- 25hz or 100hz
- Jumper selectable

**Zero Suppression:**

- ±100% of full scale output
- Limit Output:** Two open collector transistor outputs rated 35Vmax at 50mA.
- Response time 10msec. or 40msec. dependent on filter selection.
- Limit setpoints programmable via front panel switches.

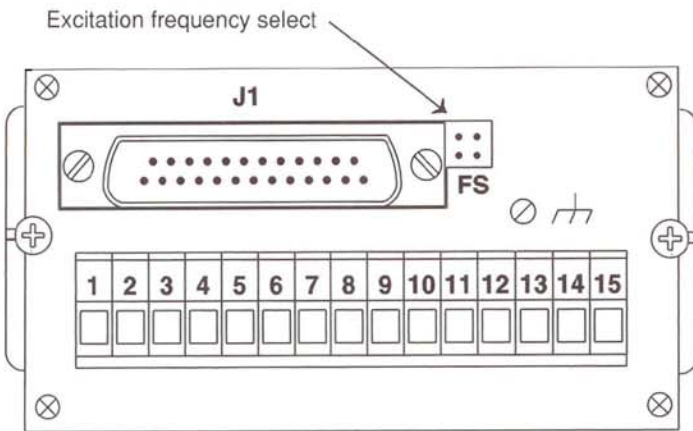
**OPTIONS**

- 01 RS232 Compatible Interface
- 02 RS485 Compatible Interface
- 05 +5VDC power 500mA max
- 09 Analog output 0 to ±5VDC
- 11 Parallel BCD with I/O connector
- 12 9-18VDC power 400mA max
- 13 Parallel binary with I/O connector
- 22 230VAC; 50-400 Hz input power
- 24 18-36VDC Power 300 mA max
- 50 Sunlight Readable Red LED

**MODELS**

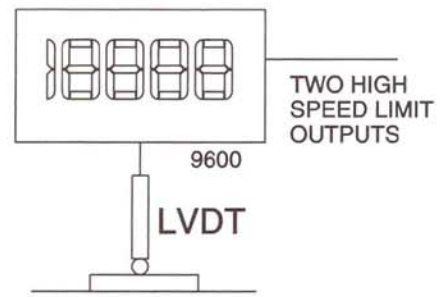
9600 LVDT READOUT/CONTROLLER

**BACK VIEW**

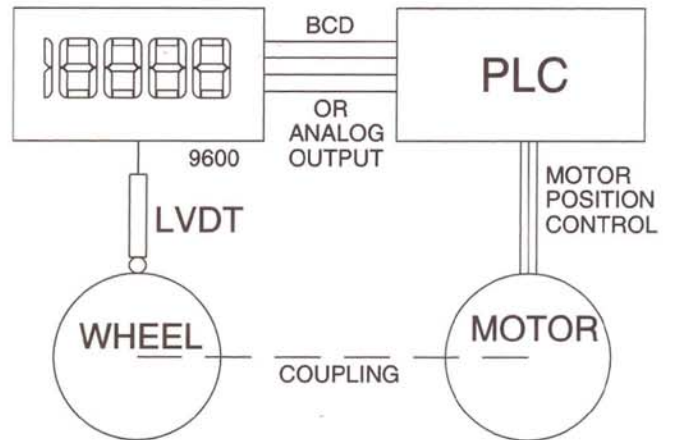


- 1 - POWER-
- 2 - POWER+
- 3 - SER485/RX232
- 4 - SER485/TX232
- 5 - DIGITAL GND
- 6 - LIMIT1
- 7 - COMMON1
- 8 - LIMIT2
- 9 - COMMON2
- 10 - LVDT Input +
- 11 - LVDT Input -
- 12 - OSC
- 13 - OSC
- 14 - Analog Out
- 15 - Analog Ground

NOTE: J1 Connector is for BCD or binary output option only.



TYPICAL APPLICATION FOR MEASURING MATERIAL THICKNESS  
9600 PROVIDES OUTPUT FOR ACCEPT AND REJECT STATUS



TYPICAL APPLICATION FOR MEASURING WHEEL ECCENTRICITY

