


# LDM-1000

## LVDT/RVDT Signal Conditioning Module

## SPECIFICATIONS

- **10 to 30VDC operation**
- **Standard DIN rail form factor**
- **4 to 20mA and VDC outputs**
- **Zero, span and phase adjustable**
- **2.5, 5 and 10kHz excitation frequencies**
- **Low noise, 3-pole Butterworth filter**
- **Master/slave capability**
- **Compatible with 4, 5 & 6-wire LVDTs/RVDTs**
- **Works with very low input impedance LVDTs and RVDTs**

The **LDM-1000** is an extremely versatile and popular LVDT/RVDT signal conditioning module and the perfect choice for industrial applications requiring the DIN standard rail mount. The LDM-1000 provides everything you will need for accurately interfacing an AC operated Linear or Rotary Variable Differential Transformer to your industrial position control system.

The LDM-1000 was designed with maximum sensor/system compatibility in mind. A wide range of gains, excitation voltages and frequencies ensure compatibility with virtually all LVDT and RVDT type transducers. A full-wave synchronous demodulator eliminates quadrature and harmonics to maximize external noise rejection.

The LDM-1000 also provides several different input/output options to accommodate varying PLC and analog I/O requirements:

- ✓ Single-ended voltage outputs with the use of 100% zero suppression to maximize the sensor stroke utilization while simplifying programming (no need to deal with sign)
- ✓ Bipolar voltage output to maximize A/D bit usage with most PLC analog input modules, for applications requiring high resolution
- ✓ 4-20mA current output for applications requiring long signal runs or where noise immunity may be an issue. The 4-20mA loop is driven by an internal power supply, provided by the LDM-1000.

Finally, the frequency response is internally selectable and so is the master/slave function which allows synchronization of multiple LDM-1000 modules to prevent beat frequencies and cross talk between transducers.

## FEATURES

- Standard DIN rail form factor
- Voltage and current output signals
- Phase correction
- Status LED's for power and loop integrity
- Multiple LVDT master/slave capability

## APPLICATIONS

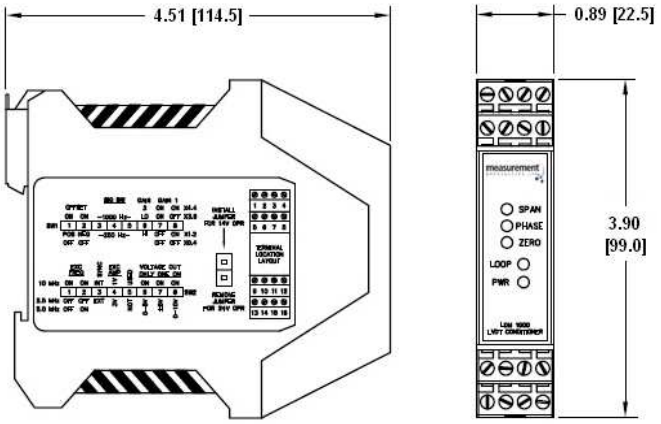
- Gas and steam turbine control systems
- Process control systems
- Reeler/dereeler control systems
- Automotive test track instrumentation
- Paper head box control

## PERFORMANCE SPECIFICATIONS

| ELECTRICAL SPECIFICATIONS | |
|---|---|
| Supply voltage | 18 to 30VDC or 10 to 18VDC *(jumper selectable, 18 to 30VDC as shipped)* |
| Supply current | 65mA maximum |
| Output types and ranges | ±5VDC, 0 to 5VDC, 0 to 10VDC, and 4 to 20mA *(DIP switch selectable, ±5VDC as shipped)* |
| Temp. coefficient of output | ±0.02% of FSO per °F [±0.036% of FSO per °C] over the operating temperature range |
| Voltage output noise & ripple | 5mV RMS maximum |
| Current output noise & ripple | 25µA RMS maximum |
| Current loop resistance | 700Ω maximum *(with 18 to 30VDC supply voltage)* |
| Frequency response | 250 or 1000Hz @ -3 dB *(3-pole Butterworth, DIP switch selectable, 250Hz as shipped)* |
| Non-linearity | ±0.02% of FSO |
| Input sensitivity range | 0.05 to 2.50 VRMS |
| **Transducer excitation** | |
| Voltage | 1 or 3 VRMS *(DIP switch selectable; 3VRMS as shipped, with 18 to 30VDC supply voltage only)* |
| Current | 25mA RMS |
| Frequency | 2.5, 5 or 10kHz *(DIP switch selectable, 2.5kHz as shipped)* |
| **Transducer requirements** | |
| Transducer type | LVDT or RVDT with 4, 5 or 6 electrical connections |
| LVDT/RVDT input impedance | 50Ω minimum @ 1 VRMS excitation ; 150Ω minimum @ 3 VRMS |
| LVDT/RVDT full scale output | 0.05 to 2.50 VRMS |
| **ENVIRONMENTAL AND MECHANICAL SPECIFICATIONS** | |
| Operating temperature range | -13°F to +185°F [-25°C to 85°C] |
| Storage temperature range | -67°F to +257°F [-55°C to 125°C] |
| Mounting | Standard DIN-3 rail mount |
| Size | 3.90 [99.0] high x 0.89 [22.5] wide x 4.51 [114.5] Deep |
| Wire terminal size | 24 to 12 AWG [0.2 to 2.5mm] |
| IEC 60529 rating | IP60 |

*Notes:*
*All values are nominal unless otherwise noted*
*Dimensions are in inch [mm]*
*FSO (Full Scale Output) is the largest absolute value of the outputs measured at the range ends*

## DIMENSIONS AND INTERNAL VIEW




*Dimensions are in inch [mm]*

## ORDERING INFORMATION

| Description | Part Number |
|---|---|
| LDM-1000 Signal Conditioning Module | 02291333-000 |
| DC power supply (15VDC), Model PSD 40-15 | 02291339-000 |
| Cable to connect HCA/HCI/GCA/R36AS to LDM-1000, **200°C [392°F]** *(PTO6A-10-6S to Stripped/Tinned) (1)* | 04290595-000 |
| Extension cable to connect LBB (option -001) to LDM-1000 *(PTO6A-10-6S to Stripped & Tinned) (1)* | 04290596-000 |

*(1) All cables are shielded, 10 foot long, and rated 80°C [176°F] operating unless otherwise noted. Consult factory for other lengths.*

### ABOUT MACRO SENSORS

Macro Sensors, founded by Howard A. Schaevitz, has more than three hundred man-years of experience in just one thing: the design and manufacture of LVDTs. We believe that you need solutions, not simply products. When you call us, you get the benefit of our experience and our commitment.

Most products listed are in stock for immediate delivery, and we strive to offer the finest customer service in the industry: technical support from people who understand LVDTs and how to apply them to your benefit, and a commitment to excellent pricing, quality products, and deliveries that you can truly rely on. Macro Sensors also has a comprehensive network of representatives and distributors in the U.S. and around the world to provide you with local support.

We manufacture an enormous array of LVDTs, from modified standards to complete custom designs. Our customers consistently tell us it is Macro Sensors? quality and service that keeps them coming back. Let our experience go to work for you.

Macro Sensors · 7300 U.S. Route 130 North, Bldg. 22, Pennsauken, NJ 08110-1541 USA
© Macro Sensors. All Rights Reserved.