

USER NOTES
for
HALL EFFECT IC DIFFERENTIAL AMPLIFIERS

Model: MLY-1010

The Model MLY-1010 differential amplifier is an accessory device for use with all models of MLY Torque Transducers. This amplifier provides a simple and economical means to offset and amplify the typically ± 50 -150 mV full range output signals of MLY transducers to values more suitable for use with common analog to digital data acquisition devices or for scaling to engineering units for use with analog or digital display instruments.

Model MLY-1010 circuitry is mounted on a 2.1" square printed circuit board. The first stage of the circuit consists of a unity gain differential amplifier to buffer the signals from the Hall Effect sensors inside the torque transducer, and to provide means (a multiturn potentiometer indicated as, "ZERO") to adjust the zero torque output signal to 5.00 V. This allows ready compensation for initial offsets in the transducer output signal, both as manufactured, and as a consequence of ambient magnetic field gradients which may be present in the installed region, due e.g., from motors, etc. The second stage of the circuit is an adjustable gain (via a multiturn potentiometer indicated as, "SPAN") instrumentation amplifier. This provides means to obtain standardized high level output signals from specific torque transducer units.

Connections to Model MLY-1010 circuit boards are made via the strip of 8 screw terminals. Connections are indicated on the label cemented to the back of the terminal strip. If factory calibrated for use with a specific torque transducer, the serial number of that transducer is indicated on one end tab of the label. Connections are as follows (numbers indicate the left to right terminal position).

Power Supply - (13-30 VDC) Positive (+V IN) (1); Negative (-V IN) ((6)
Transducer Cable - Brown lead (2); White lead (3); Black lead (4); Blue lead (5)
Output Signal - Positive (+V OUT) (8); Negative (-V OUT) (7)

User adjustment of the ZERO pot is routine. Other than setting the zero torque output signal to 5.00 (or other desired reference level) this adjustment has no effect on the calibration. If the MLY -1010 has been calibrated at the factory for use with a specific torque transducer, and unless some means is available to provide known torques to the transducer, the user *should not* adjust the SPAN pot. Unless otherwise specified, during factory calibration, the SPAN pot is set to produce output signals which are the largest whole number multiplier of the torque transducer range and fit within the 0.7-9.3 VDC output signal range of the Model MLY-1010 amplifier. Typically this is set to near 5.00 ± 4.00 V to allow some headroom to observe torque overloads.

The undersides of Model MLY-1010 amplifiers are epoxy coated, or otherwise insulated, to allow installation on metal surfaces. They may be installed with velcro, clamped in place, or mounted using #4 (or 2.5 mm metric) filister or similar head screws in the two corner holes (0.110" diameter, 1.80" x 1.80" centers).