

## PYROMETERS

### Model # GMPY Series (Single or Dual) Installation Instruction

#### NOTE:

**Livorsi** pyrometers require no power. **NEVER** apply vehicle voltage to pyrometer terminals, damage beyond repair will occur. Only the illuminating lamp requires voltage.

#### Instrument Installation:

The pyrometer instrument should be mounted securely to minimize vibration, flexible brackets are not advised. Locate in best viewing position. If lamp is removed during installation, lamp hole must be plugged or taped over to prevent dirt or metal particles from contaminating the movement.

#### Thermocouple Installation:

Various threaded mounting adapters are available, i.e. 1/8 N.P.T., 1/4 N.P.T., 3/8 N.P.T. and 1/2 N.P.T. If not specified, 1/8 N.P.T. will be supplied.

Location will vary depending on application and engine. On turbo charged engines, when possible, thermocouple should be installed in manifold before the turbocharger. This will give the highest temperature indication and the best response time. **Livorsi** thermo-couples are designed to tolerate this location safely. If mounting pre-turbo is not possible, a lower temperature of 150-200 F will result when mounting after the turbo.

For non-turbo engines, thermocouple may be installed in the manifold before, or just after, the exhaust pipe flange, as is convenient.

Connecting terminals have staggered lengths to insure correct polarity, plus color match to extension wire. A plastic heat shrinkable tube is supplied with the thermocouple and should be slid over the terminals, after the connection is made with the extension wire, and shrunk in place with heat for insulation purpose.

#### Extension Wire:

Standard available lengths are 25 ft. maximum. If longer length is required, 2 conductor 18 gauge copper may be added between extension wire and instrument, also available color coded from **Livorsi**. When installing the extension wire, care should be taken to stay clear of exhaust system and chafing areas. Secure with the tie wraps, etc. to eliminate wire movement. Terminal connections to pyrometer are designed to insure correct polarity.

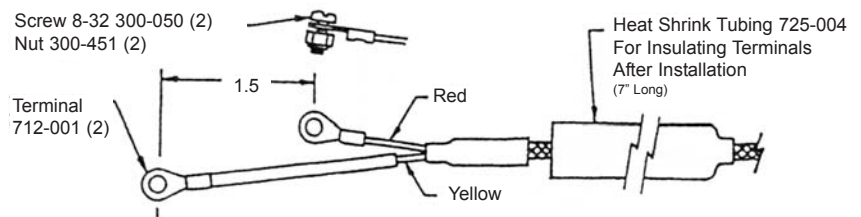
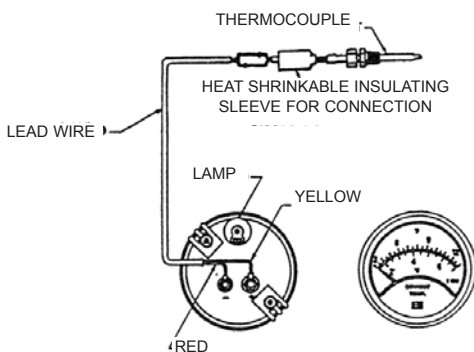
## PYROMETER

### 2.5 Mercury Outboard Installation Instructions

The pyrometer instrument should be mounted securely to minimize vibration, flexible brackets are not advised. Locate in best viewing position. If lamp is removed during installation, lamp hole must be plugged or taped over to prevent dirt or metal particles from contaminating the movement.

#### Important:

**Livorsi** pyrometers require no power. **Never** apply voltage to the pyrometer terminals. Damage beyond repair will occur. Only illuminating lamp requires voltage. See illustrations below.



**Thermocouple Installation:**

Rifle drilled bolt is 5/16" - 18 thread. Connecting terminals have staggered lengths to insure correct polarity, plus color match to extension wire. A plastic heat shrinkable tube is supplied with the thermocouple and should be slid over the terminals, after the connection is made with the extension wire, and shrunk in place with heat, for insulation purposes. See illustration below.

**Extension Wires:**

If longer length is requires, 2 conductor, 18 gauge copper may be added between extension wire and instrument (yellow) wire. Color coded wire is also available from Livorsi Marine. **Never cut brown wire!**

**Inserting Thermocouple in to Mercury Exhaust Divider Plate:**

On 2.4 and 2.5 liter, the bottom center bolt on the exhaust divider plate makes an ideal mounting location for the thermocouple. See illustration. Remove the bolt and install the rifle bolt. **Note:** In some cases, it may be necessary to lift, not not remove, the power head to install this bolt.

Insert ultra thin probe through rifle drilled bolt until it touches the back of exhaust chamber. Pull probe 1/2 way back so the tip of the probe lies in the exact center of the chamber. Approximately 2" of probe will be exposed between the compression nut and the end of the thermocouple tube. See illustration below. Remember that only the first 1/2" of the probe tip acts as the sensor.

**Important:**

When bending the probe tip to fit into the cowling, be sure to bend with a gentle radius. A sharp bend will damage the thermocouple. Probe may be inserted through the exhaust adapter into either one of the exhaust outlets, a hole could be drilled through the center of one of the lower exhaust divider screws which is located in the center of the exhaust outlets.

Engine timing is critical to maintain proper exahust gas temperatures. Retarding timing by a few degrees may raise the exhaust temperature by 200 F.

