



# Technical Specifications & Dimensions

## 4" & 5" Electronic Instruments

Operating Temperature	-4°F to +158 °F (-20 °C to +70 °C)
Storage Temperature	-22°F to +185 °F (-30 °C to +85 °C)
Lighting	See product line for specific information
Operating Voltage	11.5 to 16 volts
Nominal Voltage	14.2 volts
Current Consumption	< 100 mA, without illumination
Bezel	Stainless Steel or Aluminum - see product line for specific information
Lens	Glass or Polycarbonate - see product line for specific information
Connection	Studs, blade terminals, connectors - see product line for specific information
Mounting Bracket	Plastic mounting clamp. Clamping range 0 - .8" (0-20 mm)
Torque	5 to 7 inch pounds (.57 - .80 Nm)
Mounting Hole	3 3/8" (85 mm) for 4" Instrument - 4 3/8" (112 mm) for 5" Instrument

## 4" & 5" Mechanical Instruments

Operating Temperature	-22°F to +185 °F (-30 °C to +85 °C)
Storage Temperature	-40°F to +221 °F (-40 °C to +105 °C)
Lighting	See product line for specific information
Bezel	Stainless Steel or Aluminum - see product line for specific information
Lens	Glass or Polycarbonate - see product line for specific information
Connection	Studs, blade terminals - see product line for specific information
Mounting Bracket	Plastic mounting clamp. Clamping range 0 - .8" (0-20 mm)
Torque	5 to 7 inch pounds (.57 - .80 Nm)
Mounting Hole	3 3/8" (85 mm) for 4" Instrument - 4 3/8" (112 mm) for 5" Instrument

## 2" Electronic Instruments

Operating Temperature	-4°F to +158 °F (-20 °C to +70 °C)
Storage Temperature	-22°F to +185 °F (-30 °C to +85 °C)
Lighting	See product line for specific information
Operating Voltage	11.5 to 16 volts
Nominal Voltage	14.2 volts
Current Consumption	< 100 mA, without illumination
Bezel	Stainless Steel or Aluminum - see product line for specific information
Lens	Glass or Polycarbonate - see product line for specific information
Connection	Studs, blade terminals, connectors - see product line for specific information
Mounting Bracket	Plastic mounting clamp. Clamping range 0 - .8" (0-20 mm)
Torque	5 to 7 inch pounds (.57 - .80 Nm)
Mounting Hole	2 1/16" (53 mm) for 2" Instrument

## 2" Mechanical Instruments

Operating Temperature	-22°F to +185 °F (-30 °C to +85 °C)
Storage Temperature	-40°F to +221 °F (-40 °C to +105 °C)
Lighting	See product line for specific information
Bezel	Stainless Steel or Aluminum - see product line for specific information
Lens	Glass or Polycarbonate - see product line for specific information
Connection	Studs, blade terminals - see product line for specific information
Mounting Bracket	Plastic clamp, metal on water pressure. Clamping range 0 - .8" (0-20 mm)
Torque	5 to 7 inch pounds (.57 - .80 Nm)
Mounting Hole	2 1/16" (53 mm) for 2" Instrument

### The Instrument System:

Your Instrument System consists of individual gauges, wiring harnesses, senders, sensors and transducers. Each of these items has their own tolerances. If these tolerances "stack up" in opposite directions it can lead to what may be perceived as a larger difference in operating readings than actually exists. In twin engine applications it's not unusual for tachs and gauges to have slightly different readings between engines. As long as the readings are within the engine's specified operating band, the engines are operating properly.

### Tachometers:

Most Tachometers have a tolerance of ± 2% of full scale (±120 rpm on a 6000-rpm tach). In twin engine applications this could mean that there is a 240 rpm difference between tach readings when the engines are in synch. Tachometers will zero when the key is turned on; it doesn't matter what the tach reads with the key off.

### Synchronizer:

The Synchronizer is designed to provide an extremely accurate indication of when the Rpm's of both engines are the same – or when they are "synchronized". There are many reasons why it is desirable to operate dual engines "in synchronization" ranging from improved efficiency and reduced vibration to greater passenger comfort. Like a tachometer, the Synchronizer counts "pulses" from the ignition or tach signal source of each engine, compares them to each other and displays any difference as a pointer swing toward the engine running slower. When both engines are running at the same RPM, the pointer will be in the mid "synchronized" position. If one engine is running slower than the other is, the pointer will swing towards the engine. Adjusting the RPMs of either engine can then synchronize the engines.

### Trim gauges:

All trim gauges are calibrated to be the most accurate and useful in the engine down or "trim" range. The gauge may not read full "up" in some cases. This is not unusual nor does it indicate a problem with either the trim sender or the gauge.

### Fuel gauges:

Fuel gauges may at some times seem to "bounce". In most circumstances this is actually caused by the fuel sloshing in the tank and does not necessarily indicate a problem with the gauge or sender.

### Instrument Fogging:

All of your Instruments are not fog resistant – BUT - they do have small vents in their cases to allow a way out for moisture that finds its way in. Occasionally moist air maybe drawn into the vents when the air inside the gauge cools down after the instrument is turned off.

The morning sun can draw this moisture up against the lens, causing fogging. Turning on the instrument with the instrument light "on" will speed up moisture removal. Fogging will not harm your instrument, which is built to withstand the harsh marine environment.

### Radio Transmissions:

Some interference (erratic operation) may be noticed on tachometers or synchronizers during radio transmissions. This will neither damage the instrument nor affect its accuracy when not transmitting.

