

Electrolytic Tilt Sensors – *L Series*

The *L Series* of **Electrolytic Tilt Sensors** are the sensor of choice for high accuracy / wide angular range measurements. Each handcrafted glass sensor is manufactured to exacting specifications and quality standards. Boasting impressive linear measurement ranges up to +/-80 degrees, the *L Series* also incorporates a specially designed dampening orifice, which attenuates output variations during rapid angular input changes. By combining the proper viscosity electrolyte with this unique feature, superior performance can be achieved in virtually any static or dynamic application. Other highlights include hermetic sealing, compact size, and are available in a variety of housing configurations, in both single and dual axis versions.



Applications

- **Industrial**
- **Aerospace**
- **Military**
- **Photonics**
- **Geotechnical**
- **Oceanographic**
- **Construction**

Specifications

| Characteristic | Model | | | | |
|--|----------------------------|--------|--------|-------|--------|
| | L-210 | L-211U | L211ND | L-212 | L-212T |
| Range (degrees) | +/-80 | +/-60 | +/-80 | +/-60 | +/-45 |
| Output (Vdc/degree) * | 0.1 | 0.1 | 0.1 | 0.1 | 0.15 |
| Resolution (arc seconds) | 30 | 30 | 30 | 30 | 20 |
| Null Repeatability (degrees) ** | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| Symmetry (1/2 Scale) | 5 | 5 | 5 | 5 | 5 |
| Linearity @ 1/2 Scale (degrees) ** | 0.4 | 0.3 | 0.3 | 0.4 | 0.4 |
| Linearity @ Full Scale (degrees) ** | 1 | 2 | 2 | 1 | 1 |
| Cross Coupling (null shift in degrees) | 0.8 | 0.2 | 0.2 | 0.08 | 0.08 |
| Time constant vs. Temperature (mSec) | | | | | |
| +20 degC | 20 | 40 | 20 | 100 | 40 |
| +80 degC | 10 | 20 | 10 | 50 | 20 |
| -54 degC | 160 | 320 | 160 | 800 | 320 |
| Null Impedance (Kohms) +/-20% | 22 | 6.0 | 4.7 | 3.2 | 3.0 |
| Electrolyte | C5 | C4 | C5 | U42 | C5 |
| Vibration Performance (null shift in degrees) 4.2g (RMS) 5 to 150 Hz, 3.0g (RMS) 150 to 500Hz | 0.1 | 0.1 | 0.1 | 0.08 | 0.08 |
| Temperature Range (Operating / Storage)*** | -54 to +124 C ^U | | | | |

* = Output levels derived using MUPI-3 Signal Conditioner.

** = Higher accuracy models available. Consult factory for details.

*** = Extended ranges available. Consult factory for details.

Note; The electrolyte used in these sensors is an Alcohol based fluid, contains no heavy metals, and is non-corrosive. The conductivity and viscosity can be custom tailored to satisfy widely varied applications.



SPECTRON GLASS AND ELECTRONICS INC.

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Specifications are subject to change without notice!

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Electrical Connections

| Wire Color | Function | L-210 | L-211U | L211ND | L-212 | L-212T |
|-------------|----------|-------|--------|--------|-------|--------|
| White | output | • | | | • | |
| Green | output | • | | | • | |
| Orange | output | | • | • | | |
| Yellow | output | | • | • | | |
| Brown | output | | | | | • |
| Gray | output | | | | | • |
| Black | neutral | • | • | • | • | |
| White | neutral | | | | | • |
| | | | | | | |
| Wire length | | 11" | 14" | 14" | 10" | 11" |
| Wire size | | 30awg | 28awg | 28awg | 30awg | 30awg |

Housings

The *L Series* sensors are available pre-mounted in a variety of precision machined aluminum housings. Available in both single and dual axis versions, these housings not only promote ease of handling, but provide protection for these highly sensitive sensors from potentially hostile environments. The sensing element is encased in silicon rubber, which seals the sensor from moisture ingress, and helps prevent null drift by insulating the sensor from steep temperature gradients. Sensors are pre-aligned within the housing thereby simplifying the installation process. In addition, the effects of cross coupling are virtually eliminated when mounted parallel to the sensitive axis of rotation. Sensors can also be mounted into customer supplied and/or designed housings. Consult factory for details.



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