ROLINE L12S/L13S

Digital Transmitter for humidity & temperature

Operating Instructions

We congratulate you on the purchase of your new ROTRONIC L12S/L13S transmitter. You have thus acquired a device corresponding to the latest state of the art. Please read these short instructions carefully before you install the device.

General description:

The L12S/L13S instruments are universal transmitters for humidity and temperature values. This short operating instruction manual is restricted to the description of the main functions of the device. A complete version of the operation manual may be downloaded from the internet under

www.rotronic.ch

Factory default programming

The basic settings of the devices were made in the factory according to your order. For more information refer to the main manual or contact your **ROTRONIC** dealer.

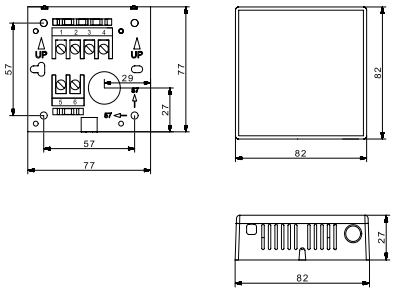
Power supply

The instruments must be supplied with 10(15*)...35 VDC or 12...24 VAC
*For output signal-types of 0...10 V and 0(4)...20 mA, a minimum of 15 VDC is required.
L12S is a loop powered 2x2 wire transmitter.

Caution:
Wrong supply voltage as well as too big loads may damage the transmitter.

Model versions and dimensions:

The L12S/L13S transmitters are available as wall mount type.



Mounting and setting to work:

The instruments consist of a base plate and the cover of the housing, which contains the electronics. The base plate may be mounted without the cover. The advantage is that the electronics may be stowed away in a safe place during the time of construction work. Six holes are available for fixing on an even surface.

Power supply

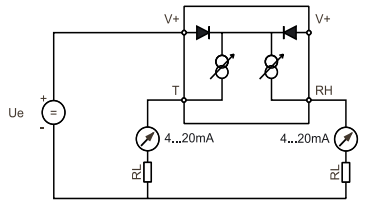
Depending on the circuit type, transmitters of the L12S/L13S series require the following supply voltage:

2-wire type (L12S): 10..28 VDC (depending on the load connected to the output). The minimum supply voltage can be determined as follows: V min = 10 V + 0.02 x load (Ohm). For the maximum load of 250 Ohms, the minimum supply voltage is 10 + 0.02 x 250 = 15 VDC. With both output circuits closed, the maximum current consumption is 40 mA.

Terminal		Signal/Term
V+	1	10...28 VDC (+)
T	2	Temperature output
V+	3	10...28 VDC (+)
RH	4	Humidity output

Schematics 2 x 2 wire type L12S

Current-Outputs

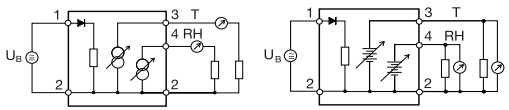


3-wire type (L13S): 10 to 35 VDC (minimum 15 V for current outputs) or 12 to 24 VAC. With both output circuits closed, the maximum current consumption is 50 mA.

Terminal		Signal/Term
1	+ ~	Supply 10/15...35 VDC/12...24 VAC
2	– ~	Supply and common ground
3	+	Out 2 (Temperature value)
4	+	Out 1(Humidity value)

Schematics 3- wire type L13S

Current-Outputs **Voltage-Outputs**



Caution:
Connect the instrument only to the supply-tension indicated on the label. The transmitter may be destroyed when connected to the mains!

When the connections to the baseplate terminals are made correctly, plug in the top cover containing the electronics and secure it with the screw.

Note:
The transmitter has been configured in our works according to your order. Therefore, there is usually no need for any change of configuration. The configuration is indicated on the instrument label. If necessary, the configuration may be altered by your Rotronic dealer.

General recommendations

Relative humidity is extremely dependent on temperature. Proper measurement of relative humidity requires that the probe and its sensors are at exactly the temperature of the environment to be measured. Because of this, the location where you choose to install the probe can have a significant effect on the performance of the instrument. The following guidelines should guarantee good instrument performance:

a) **Select a representative location**: install the probe where humidity, temperature and pressure conditions are equal to the environment to be measured.

b) **Provide good air movement at the probe**: air velocity of at least 1 meter/second facilitates adaptation of the probe to changing temperature.

c) **Avoid the following:** (1) Close proximity of the probe to a heating element, a cooling coil, a cold or hot wall, direct exposure to sun rays, etc. (2) Close proximity of the probe to a steam injector, humidifier, direct exposure to precipitation, etc. (3) Unstable pressure conditions resulting from excessive air turbulence.

Sources of errors

Measured values may be affected by:

- **Temperature faults:**
  Too short adaptation time, cold walls, heating elements, sun radiation etc. Even the body-radiation of man may affect the measurement. When calibrating, keep as much distance as possible.
- **Humidity faults**
  Humidity errors due to sprayed steam / vapour or water, dripping water, attempts to measure non-hygroscopic substances.The reproducibility and long-term stability are not influenced even if the sensor was exposed to high humidity or saturation with water vapour/condensation.

Periodic probe calibration

The Pt 100 RTD temperature sensor as well as the electronics are very stable and normally do not have to be adjusted after the factory-calibration.

The long-term stability of the ROTRONIC Hygromer sensors is typically better than 1 %rh per year. For maximum accuracy, we recommend to calibrate the probes once or twice a year. In applications where the sensor is exposed to pollutants, it may be necessary to calibrate / adjust more often. The calibration may be done by the user on-site or in the laboratory/workshop.

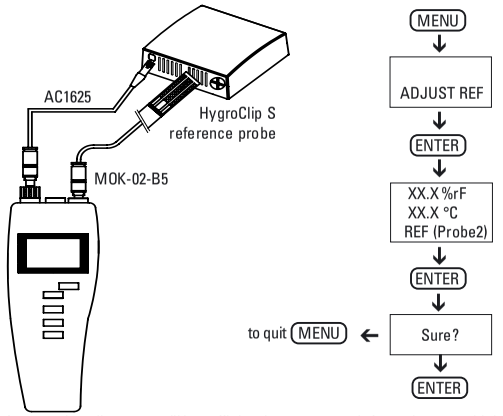
For routine calibrations, the probe should be ckecked at one point, preferably at the prevailing values. For applications in the ambient, this would normally be at 50 %rh

Note:
The electronics of the L12S/L13S transmitter usually does not require any field maintenance. However, the probe itself should be calibrated at least once per year, in order to maintain it's high quality. For details of calibration, see users manual (full version). It may be downloaded from the internet.

Reference adjustment by HygroPalm 3 handheld instrument

Calibration/ adjustment by reference is done best with a HygroPalm 3 handheld instrument and an SCS-certified reference probe.

For a one point adjustment against a reference probe, connect the service cable AC1625 to probe input 1 of the HygroPalm3 and to the service connector of the transmitter. (The5-pin connector is compatible with the HygroClip connector) Use an adaptor cable such as MOK-02-B5 to connect the reference probe to probe input 2 of the HygroPalm 3. Bring both probes next to each other. Allow sufficient time to acclimate. Be careful not to influence the measurement by body-radiation/humidity. When the equilibrium is reached (both arrows of the trend indicator visible), you're ready for adjustment. Press the „Menu" key, then one of the arrow keys until the function „ADJUST REF" is displayed. Now press ENTER. The display shows „REF = PALM". Press ENTER.
The display shows „SURE?" Press enter to confirm and adjust. Now the reference adjustment is finished.
For detailed information, see separate HygroPalm manual. (HygroPalm Function Menu, Adjust Ref.)



A one- point adjustment will be sufficient in most cases. Information on multiple-point adjustments may be found in the HygroPalm instruction manual.

Technical data of the L12S / L13 S transmitter:

Operating range electronics:

Humidity:	0...100 %rh
Temperature:	-40...60 °C
Measuring range humidity:	0...100 %rh
Measuring range temperature:	0...50 °C
Output signal types:	0...20 mA, 4...20 mA, 0...10 V, 0...5 V, 0...1 V
Power supply:	10(15)...35 VDC, 12...24 VAC or 2 x 2 wire loop power

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