SENSING LABS

OUTDOOR
AMBIENT TEMPERATURE AND HUMIDITY MONITORING

SMART BUILDING

TEMPERATURE HUMIDITY

Ref : THY-LAB-14NS

MADE IN FRANCE

LoRaWAN CERTIFIED™

+ 20 years *
(replaceable battery)

15 km *

IP68
(Outdoor use)

Local or Public
Network compliant

* Depending on the
operating conditions

SENLAB™ H IS A SMART WIRELESS DEVICE, FEATURING THE LoRaWAN™ CONNECTIVITY PROTOCOL, EQUIPPED WITH A REMOTE HIGH-PRECISION TEMPERATURE AND RELATIVE HUMIDITY PROBE.

This sensor connected to a 0,5m probe can measure temperatures from -40°C to +125°C and air humidity from 0 to 80%, with accuracy of ±0,2°C and 2% RH. Designed for outdoor use, Senlab™ H offers a ruggedized IP68 casing which enables a reliable wireless connectivity for continuous monitoring in harsh environments.

This Senlab offers best in class features such as :
- **Battery life time more than 20 years**
- **Rich Data Content thanks to datalogging :**
  Up to 23 measures / radio transmission
- **Radio Performances**
- **Advanced set of functionalities**

TYPICAL APPLICATION

- Monitor temperature and humidity in greenhouses cultivation and indoor farm animal area
- Monitor HVAC

TECHNICAL SPECIFICATIONS

Physical specifications	Dimensions	56 x 102 x 35 mm
	Weight	170 gr
	Operating temperature	Device : -20°C to +70°C / Probe : -40°C to +125°C
RF specifications	RF sensitivity	-137 dBm
	RF power	+14dBm (25mW)
	Radio band	868 MHz
EC Conformity : Compliant with Directive 2014/53/UE (RED)	EMC	Final draft EN 301 489-3 v2.1.1 Draft EN 301 489-1 v2.2.0
	Radio	EN 300 220-2 v3.1.1
	Magnetic field exposure	EN 62479
	Safety	EN 60950-1, EN 60950-22

www.sensing-labs.com

TECHNICAL FEATURES FOCUS

102 mm
35 mm
56 mm
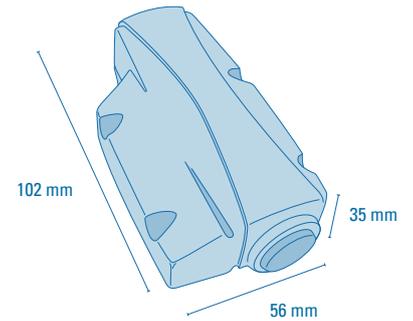
High configurability

- Temperature precision of ± 0.1°C [+20 ; +60°C], else ± 0,2°C
- Humidity precision of ± 1.5%RH range [0% - 80%]
- Temperature High and Low threshold overrun configuration
- Log and transmit mode for battery lifetime enhancement
(up to 23 compressed measures per transmission)
- Reconfiguration possible over the air

Network Configuration

- LoRaWAN parameters (OTAA or ABP activation mode, initial datarate,...)
- Encryption keys customizable by client
- Standard LoRaWAN retries support
- Radio collisions avoidance by pseudo-randomization of transmissions
- Advanced transmission reliability mechanisms (redundancy of data,
recovery of lost messages, ...)

BEST IN ADVANCED FEATURES

The temporal redundancy improves the reception's reliability of measures, at an optimized energetic cost. If the radio signal is weak, it allows the transmission of a reminder of the previous measures with the new physical measures in successive radio messages.

The flush mode allows to accumulate up to 10 days of temperature data recording, when the network is not available. The Senlab T will transmit them as quickly as possible when the network is available.

Advanced monitoring mode allows the data to be monitored up to every second. An alarm can be triggered if the temperature rises within a given time period. This mode can be activated in parallel with the classic operating mode.

BATTERY LIFE DURATION ESTIMATION

This following matrix provides the estimated battery lifetime depending on
the average spreading factor used by the Senlab and the transmission period.

Battery life (years)	10 min	15 min	30 min	1 h	2 h	4 h	6 h	8 h	12 h	24 h
SF7	18,2	>20	>20	>20	>20	>20	>20	>20	>20	>20
SF8	14,2	17,3	>20	>20	>20	>20	>20	>20	>20	>20
SF9	9,9	12,8	18,0	>20	>20	>20	>20	>20	>20	>20
SF10	6,3	8,5	13,3	18,6	>20	>20	>20	>20	>20	>20
SF11	3,8	5,3	9,0	14,0	19,2	>20	>20	>20	>20	>20
SF12	2,2	3,1	5,7	9,6	14,6	19,8	>20	>20	>20	>20

6 measures per frame.

For guidance and information purposes only.