

Product Information

PipeSens

Network analysis of district heating pipes via LoRaWAN®

The **PipeSens** is LANCIER Monitoring's **district heating pipe monitoring system** that uses LoRaWAN® communication for fast and effective data transmission. It can be easily integrated into existing LoRaWAN® networks.



As a LoRa node, the **PipeSens** sensor measures the insulation and loop resistance of surveillance pairs in the insulation layer of district heating pipes on a daily basis, both in the Nordic, hierarchical and NiCr system, thus ensuring monitoring according to **EN 14419**.

The rapid detection of damage enables immediate reaction and thus prevents major damage and costs.

The **PipeSens plus** additionally records **contact conditions**, e.g. for access control or float switches, as well as **ambient or pipe temperature**.

The battery-powered **PipeSens** is independent of external power sources. It transmits measured values and device status information via LoRaWAN® to the control room. Here a meaningful route assessment and visualisation can be carried out.

The range of data transmission in the LoRaWAN® is up to 2 km in urban areas and up to 15 km in rural, less built-up areas, depending

on the local structural conditions. Data transmission is also possible through manhole covers, building walls and even out of cellars.

The **PipeSens** can also be used as a **replacement for manual measuring point control**. This saves the complex coordination of appointments with operators or residents as well as the time-consuming entry into manholes etc.

PipeSens is particularly suitable for:

- NiCr, Nordic (EMS) system and the hierarchical system.
- Small and large route sections.
- All routes whose previous monitoring system did not trigger a central alarm.
- Any operator of heating networks.

Technical Data

Supply voltage	Exchangeable lithium battery, 3.6 V
Battery lifetime	> 5 years at daily measurement
Measurement channels for pipes	2 (e. g. for flow and return line of a district heat pipe)
Measurement range insulation	0 .. 10 MΩ (fault: ±3 % of measured value ±10 kΩ absolute)
Measurement range loop	0 .. 5 kΩ (fault: ±3 % of measured value ±0.05 kΩ absolute)
Pipe length	NiCr: max. 750 m HDW / Cu (Nordic System): max. 2.500 m
Measuring voltage	≤ 12 V DC
Contacts	2 access ports for dry contacts, line length 10 m max., permanently monitored (<i>PipeSens plus</i>)
Measuring range temperature	-20 °C .. +140 °C (<i>PipeSens plus</i>)
Data transfer	LoRaWAN® standard
On-site display	5 LED: 3 x Status, 1 x USB-Power, 1 x USB-Detect
On-site operation	1 button for real-time measurement
Interface	USB 2.0 interface for configuration of device
Operating temperature	-20 .. +60 °C
Degree of protection by enclosure	IP 66/67
Dimensions	130 x 100 x 180 mm (W x D x H)

Ordering Data

PipeSens LoRaWAN® radio sensor for mobile measurement data readouts **Order-no. 076262.000**

PipeSens plus LoRaWAN® radio sensor for mobile measurement data readouts equipped with 2 contact inputs and temperature sensor **Order-no. 076262.100**

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System diagramme

