

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.

Areas of application

- Nordic (EMS) and hierarchical system, as well as NiCr
- 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 | HDW / Cu (Nordic System): max. 2.500 m NiCr: max. 750 m |
| Measuring voltage | ≤ 12 V DC |
| Contacts | 2 access ports for dry contacts, line length 10 m max., permanently monitored (PipeSens plus) |
| Messbereich Temperatur | -20 °C bis +140 °C (PipeSens plus) |
| 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 |
| Enclosure protection class | 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

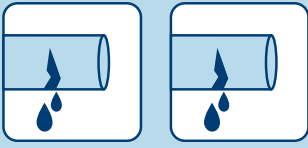
for mobile measurement data readouts equipped with 2 contact inputs and temperature sensor

Order-no. 076262.100

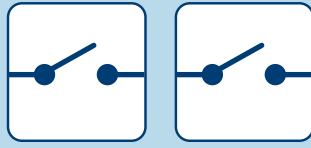
PipeSens

Network analysis of district heating pipes via **LoRaWAN**

System diagramme PipeSens



2x Pipe monitoring



2x Contact monitoring (PipeSens plus)



1x Contact monitoring (PipeSens plus)

