

# Product Information

## PipeMonitor

### District Heating Monitoring with Leak Localisation



The leak locating **District Heating Monitoring System PipeMonitor** monitors the insulation and loop resistance of the surveillance pair in the insulation layer of district heating pipes (both “Nordic System” and “NiCr-System”) according to EN 14419.

The simultaneous surveillance of flow and return line ensures the early detection of e. g. pipe leaks, measuring loop interruption or pipe connection rupture already in the initial stage. Immediately triggered alarms prevent from cost intensive larger damages due to subtle long-term leaks.

The **PipeMonitor** recognises occurring additional leakages as well and triggers an respective alarm while surveilling NiCr-Systems.

The thresholds for insulation and loop resistance are programmable via built-in buttons which are shown in the display of the **PipeMonitor** main module. In addition to the settings the display can also indicate the current measuring values.

Each **PipeMonitor** module continually checks the integrity of the measuring loop thus implementing a pipe connection control. It triggers an alarm in case of a rupture.

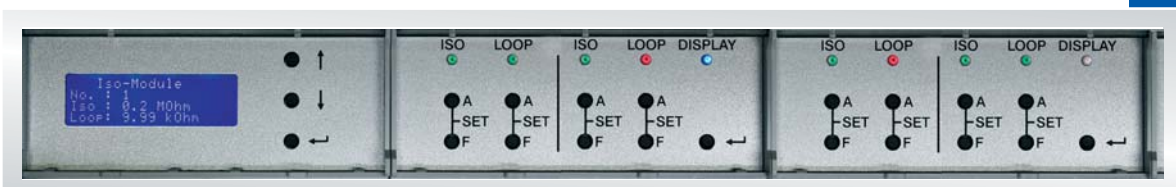
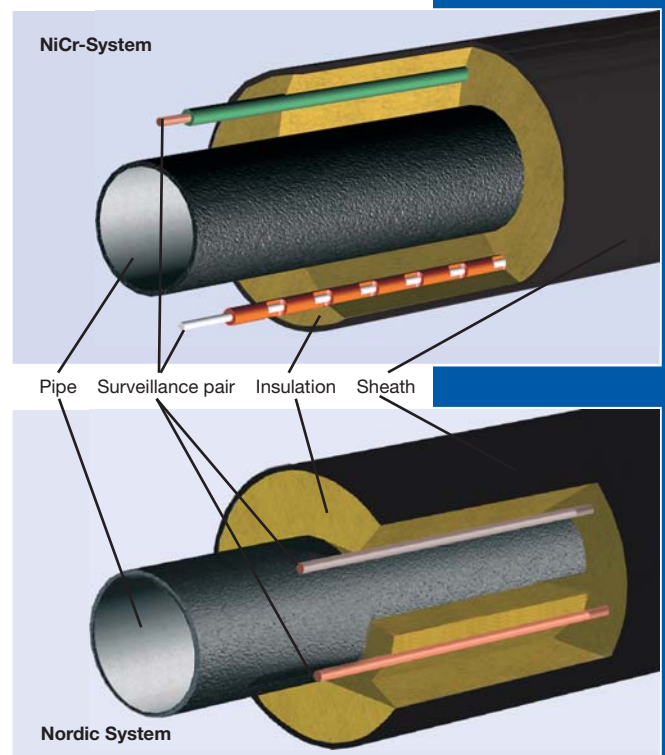
All important data like measuring values, date/time stamps and fault locations (NiCr-system only) are stored daily to the internal memory of the **PipeMonitor**. The datasheet can be retrieved as a csv file.

For the remote alarm system the **PipeMonitor** is equipped with built-in dry output contacts. Additionally it can be connected to telecontrol systems or the LANCIER UMS System via different interfaces.

Interface options for failure/alarm reports:

- Alarm contact output (dry contact)
- Ethernet
- RS 485
- LTE (with auxiliary module)

Insulation and loop resistance alarms may be acknowledged directly at the **PipeMonitor** by push-buttons.



Sample: **PipeMonitor-4C**

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#### System diagram



Network operator

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#### Communication alternatives

Data transmission and configuration

##### 1. UMS-Server

Comfortable measurement collection and administration with flexible alarming.



##### 2. Integrated Webserver

For configuration tasks and memory read-out by direct IP access.



##### 3. telecontrol centre/BMS by Mod-Bus

Measurement collection and administration.



#### Alarm outputs

Communication:  
by cable or

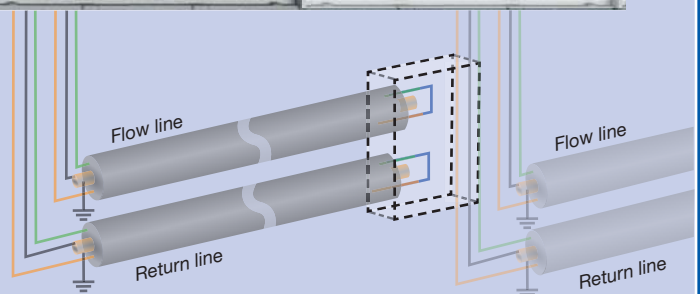
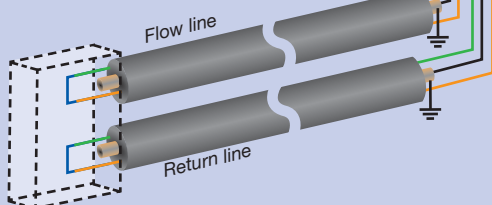
LTE

ISO LOOP ISO LOOP

Further modules for physical parameters like  
- contacts (floating switches, door contacts etc.)  
- temperature  
- humidity  
- pressure  
:  
:



#### PipeMonitor-2C up to 10C



# Product Information

## *PipeMonitor*

### District Heating Monitoring with Leak Localisation

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#### Technical Data

Supply voltage	100 .. 240 V AC, 50 .. 60 Hz
Display	Graphic display, blue back-lit
Interfaces	Ethernet 10/100 Mbit/s RS485
Measurement channels	2 .. 10 (for flow and return line of a district heat pipe)
Channel activation	on site or remotely
Measurement range insulation	0 .. 50 M $\Omega$ , fault $\pm 1$ % of measured value, $\pm 5$ digits
Resolution insulation	0.001 M $\Omega$
Measurement range loop	0 .. 9.999 k $\Omega$ , fault $\pm 1$ % of measured value, $\pm 5$ digits
Type „short“	0 .. 5 k $\Omega$ , fault $\pm 1$ % of measured value, $\pm 5$ digits
Resolution loop	0.001 k $\Omega$
Measurement intervals	freely configurable, as from 10 min.
Location tolerance (type „NiCr“ only)	$\pm 0.2$ %, $\pm 1$ m for insulation values < 1M $\Omega$ for sensor wire 5.7 $\Omega$ /m
Measuring voltage	$\leq 24$ V DC and < 100 mA (according to EN 14419)
Signal LEDs	red/green: insulation condition red/green: loop condition blue: display operation
Local User Interface	Set threshold insulation resistance and loop resistance Measurement deactivation, Fault location (type „NiCr“ only) 5.7 $\Omega$ /m
Signal outputs per measuring channel	2 dry change-over contacts for: insulation resistance, loop resistance
Communication protocols	http, SNMP, Modbus TCP + RTU, integrated web server
Max. switchable voltage / current	100 V DC / 0.1 A DC
Circuit breaker	integrated
Operating temperature	-20 °C .. +50 °C
Admissible air humidity	0 .. 50% at 40 °C, 0 .. 100% at 25 °C
Protection class	IP 66, dust tight and water protected
Dimensions of each unit	273 x 440 x 186 mm (W x H x D, incl. PG screw connections)



Sample:  
**PipeMonitor-4C**  
equipped with **LTE-Modul**

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#### PipeMonitor

multi-channel measuring system for district heating monitoring equipped with display, control panel and signal output via dry contacts

Order-no.

	Cu*	NiCr**	HDW***
2C <b>fix</b> not modularly extendable		075051.202	
2C <b>short</b> for 1 track (flow + return line), length up to 750 m		075050.102	
2C for 1 track (flow + return line)	075050.502	075050.202	075050.402
4C for 2 tracks (flow + return line)	075050.504	075050.204	075050.404
6C for 3 tracks (flow + return line)	075050.506	075050.206	075050.406
8C for 4 tracks (flow + return line)	075050.508	075050.208	075050.408
10C for 5 tracks (flow + return line)	075050.510	075050.210	075050.410

Measuring systems for Cu, NiCr and HDW can be mixed with each other.

\*) Type „Cu“ with measurement value storage, without length measurement and fault localisation measuring section length up to 4.000 m

\*\*) Type „NiCr“ incl. length measurement and fault localisation measuring section length up to 1.500 m

\*\*\*) Type „HDW“ without length measurement and fault localisation measuring section length up to 1.500 m

#### Optional modules

##### RM-T2

Measuring Module for 2 PT 1000 temperature sensors

Order-No. 074700.000

##### RM-Loop

Contact Monitoring Module for 2 contacts

Order-No. 074008.000

##### RM-Tx

Measuring Module for up to 127 Tx-bus sensors (e.g. float and contact switches)

Order-No. 074005.000



Sample: **PipeMonitor-2C**



Conveniently accessible connection box