LANCIER Monitoring

Operating Instructions

PipeMonitor-System

Complete system

BA 075155.020/11.16

Contents

Important!
It is imperative to read and observe all safety instructions prior to initial operation!

General Information

These operating instructions should make it easier for you to become acquainted with the product. They contain important information to ensure safe, appropriate and cost-effective use of the equipment.

The operating instructions endorse the directives of national regulations for the prevention of accidents and the protection of the environment.

These operating instructions shall be read and adopted by anyone assigned to work with/on the equipment, e. g. during operation to include setting-up, maintenance trouble-shooting.

In addition to the operating instructions and the mandatory regulations for the prevention of accidents, applicable in the operator's country and at the place of use, the recognized technical regulations for safe and professional operation shall also be observed.

Designated Use

The PipeMonitoring System is intended for the measurement of insulation and loop resistance for the detection of leaks in piping systems.

Any other use is considered improper. The manufacturer is not liable for any resulting damage. The user alone bears the risk!

Technical Data

Supply voltage	100 .. 240 V AC, 50.. 60 Hz
Power consumption	max. 24 W (depending on the configuration)
Interfaces	Ethernet 10/100 Mbit/s RS485
Operating temperature	-20 °C .. +50 °C
Areas of application	Interior spaces and protected outdoor installations according to DIN VDE 0100 Part 737.
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 186 x 440 mm (B x T x H, incl. cable screw glands)

For detailed technical information about our built-in modules, please refer to the included instruction manuals!

Ordering Data

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

Type „NiCr“ incl. length measurement and fault localisation

PipeMonitor-2C fix for 1 track (flow + return line)
length up to 1500 m, not modularly extendable **Order-No. 075051.202**

PipeMonitor-2C short for 1 track (flow + return line)
length up to 750 m **Order-No. 075050.102**

PipeMonitor-2C for 1 track (flow + return line)
length up to 1.500 m **Order-No. 075050.202**

PipeMonitor-4C for 2 tracks (flow + return line)
length up to 1.500 m **Order-No. 075050.204**

PipeMonitor-6C for 3 tracks (flow + return line)
length up to 1.500 m **Order-No. 075050.206**

PipeMonitor-8C for 4 tracks (flow + return line)
length up to 1.500 m **Order-No. 075050.208**

PipeMonitor-10C for 5 tracks (flow + return line)
length up to 1.500 m **Order-No. 075050.210**

Type „Cu“ without length measurement and fault localisation

PipeMonitor-2C Cu for 1 track (flow + return line)
length up to 4.000 m **Order-No. 075050.002**

PipeMonitor-4C Cu for 2 tracks (flow + return line)
length up to 4.000 m **Order-No. 075050.004**

PipeMonitor-6C Cu for 3 tracks (flow + return line)
length up to 4.000 m **Order-No. 075050.006**

PipeMonitor-8C Cu for 4 tracks (flow + return line)
length up to 4.000 m **Order-No. 075050.008**

PipeMonitor-10C Cu for 5 tracks (flow + return line)
length up to 4.000 m **Order-No. 075050.010**

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**

RM-Mx Measuring module for the
readout of M-bus devices **Order-No. 074701.000**

Product description

The PipeMonitor is a system designed to locate leaks in district heating pipes by continuously monitoring the insulation and loop resistance of line pairs in the insulation layer of district heating pipes (both of "Nordic" and "NiCr" systems), in accordance with EN 14419.

Simultaneous monitoring of flow and return pipes ensures the early detection of pipe leaks, interruptions in the measuring loop or pipe connections. Alarms are triggered instantly, and thereby help to prevent major damage and losses.

When used as part of a NiCr system the PipeMonitor also detects the occurrence of secondary leakage points and triggers the appropriate alarms.

Threshold values for both the loop and insulation resistance can be adjusted locally via the built-in keys and shown on the display. Current measured values are displayed as well as the settings.

Every PipeMonitor module is equipped with a pipe connection surveillance feature, which continuously checks the measuring loop's integrity and, in the event of an interruption, triggers an alarm.

All important data, e.g. measured values, dates/times and failure locations (in the case of NiCr systems), are stored daily in the PipeMonitor's internal memory and are available in CSV file format.

For remote alarms the PipeMonitor is equipped with potential-free alarm contacts. Furthermore, it can be incorporated into telecontrol systems or the LANCIER UMS monitoring system via a variety of interfaces

Interface options for alarm reports:

- Potential-free alarm contacts
- Ethernet
- RS 485
- GSM/GPRS (with add-on module)

Insulation and loop resistance alarms can also be acknowledged locally via the device keys.

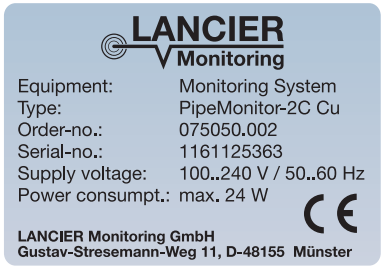
Scope of delivery

- 1 PipeMonitoring system consisting of a base unit and up to two expansion units, each equipped with 1-2 RM-PL modules
- 1 screw/wall plug set for wall installation
- 1 operation instructions for the system as a whole and 1 operation instruction for each built-in RM-PL module type

Marking

The PipeMonitoring System is clearly marked by the content of the name plate including technical specifications and manufacturer's instructions. The name plate is found at the lower front of the housing.

Accordance with the applicable regulations is validated with the enclosed CE Declaration of Conformity (see the back of this operating instruction).



Operating conditions

Temperatures

- Permissible ambient temperature: -20 °C ... +50 °C

The system's proper functioning is guaranteed within this temperature range.

- Where temperatures fall outside of this range the monitoring station's proper functioning cannot be guaranteed.

Environmental specifications

- Ambient media, in particular chemically aggressive media, may corrode seals, cables, and plastics.

Set-up conditions

- The system is suitable for wall installation in interior spaces and for protected outdoor installations.

Storage

General information on storage

- If the system is not installed and put into operation immediately, it must be stored under appropriate storing conditions, i.e. in a dry, dust- and frost-free as well as sunlight-protected indoor location.
- For storage purposes it should be covered in plastic or foil packaging.

Safety Instructions

Important!
Read and observe safety instructions prior to initial operation!

- Keep the operating instructions ready to hand!

Accident prevention!
All circuit lines must be dead before mountig or demounting the system and the opening of its housing!!

- The unit should only be operated in technically-sound condition, for its designated use, with safety and risk awareness in mind, taking into account the operating instructions. In particular, operational faults, which can compromise safety, should be rectified immediately!
- Do not make any modifications to the equipment!
- Mounting, maintenance and repair work should only be performed by trained personnel!
- Only use original LANCIER Monitoring replacement parts!

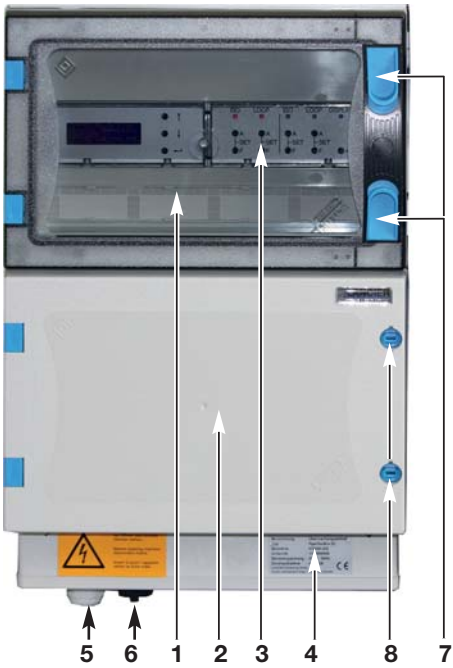
Important!
Obey handling instructions. Electrostatic discharge (ESD) damage.

WARNING!
The place of installation of the PipeMonitor System should have a complete lightning protection plan that covers power supply cables as well as data and telecommunications cables.

Installation

The PipeMonitor system

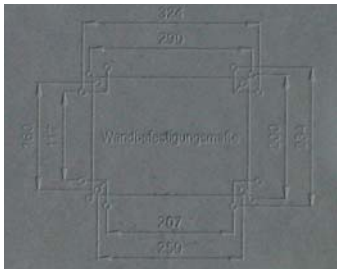
The PipeMonitor system is housed in a plastic case with 2 hinged doors. Depending on the system's size up to 3 units can be firmly connected to each other and positioned side by side.



Front view

Rear view

1 Transparent module cover with clip fastener
2 Electrical panel with 2 swing latches
3 RM-PL module
4 Nameplate
5 Knockouts for cable screw glands
6 Ethernet jack
7 Clip fasteners
8 Swing latches
9 Rear panel with fixing holes and drill template



Wall installation

The PipeMonitoring system is designed for wall installation. 4 of the 8 holes (**11**) on the rear panel of each housing are intended for this purpose.

The installation site should be dry and swept clean.

The minimum distance to adjacent walls and equipment = 100 mm

- Per housing drill 4 holes (Ø 6 mm) into a load-bearing wall:
  horizontal spacing: 250 mm
  vertical spacing: 340 mm
- For the installation use the supplied fixings (plugs and screws).
- Open the module cover (**1**) by pressing the two-part clip fasteners (**7**) together. Unscrew the four frame screws (**10**) with a screwdriver. These are integrated firmly into the frame and cannot be removed.
- Open the electrical cover (**2**) by turning the swing latches counterclockwise by a quarter turn (**8**) with a screwdriver. Unscrew the four frame screws (**10**) with a screwdriver. These are integrated firmly into the frame and cannot be removed.

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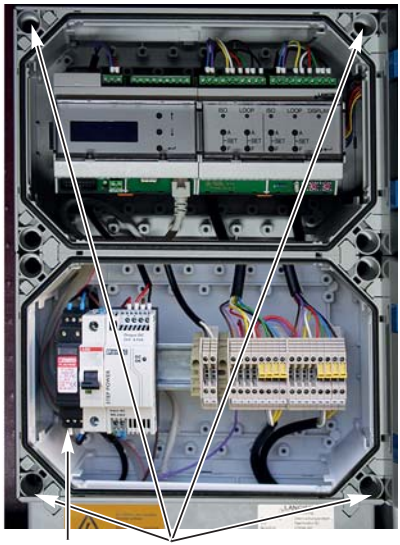
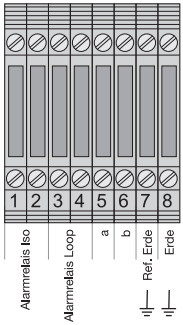


12 **11**

- Attach the PipeMonitor housing firmly to the wall using the 4 outer drill holes (**11**).

Cable connections

- Create the required number of cable penetrations at the bottom of the housing using the knockouts and fit with cable screw glands.
- Guide the required number of measuring cables through the cable screw glands and connect them to the terminal strip as per circuit diagram.
  The terminals are consecutively numbered.
  There are 8 terminals per measurement channel.
- Tighten the clamping nuts on the cable screw glands until the cables are strain-relieved.
- The cable for the 230 V AC power supply is already connected to the PipeMonitor. It is attached to the overload protection (**12**).



Assignment of the overload protection (**12**) (from left to right):
1. Phase (brown)
2. Earth (yellow/green)
3. Neutral (blue)

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- For maintenance purposes, e.g. the system's configuration or log file downloads, it is possible to connect it to a PC or laptop via the Ethernet socket (**6**) without any need to open the case.

Once the wall installation and wiring has been completed:

- Return the module cover (**1**) and electrical cover (**2**) to their original positions, close them and tighten the screws.

Commissioning

The PipeMonitoring system is now ready for use.

To commission the system switch on the power.

Function and operation

The function and operation of individual RM-PL basic and measuring modules is set out in detail in the relevant instruction manuals.

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CE

EC Declaration of Conformity

We declare under our sole responsibility, that the product

Make:	**LANCIER Monitoring**
Type:	**PipeMonitor**

to which this declaration refers, meets the relevant health and safety requirements of the following EC directives:

2014/35/EU	**Low voltage directive**
2014/30/EU	**Electromagnetic compatibility**
2011/65/EU	**RoHS-II**

For proper implementation of the health and safety requirements named in the EC directives the following standard(s) and/or technical specification(s) have been consulted:

EN 61010-1	**Safety requirements for electrical equipment for measurement, control and laboratory use**
EN 61326-1	**Electrical equipment for measurement, control and laboratory use - EMC requirements (class B)**

Münster, 07.11.2016

Research and Development

Managing Director