

Info code	Meaning
Drop	The pressure has dropped unexpectedly compared to the current average pressure. The limit changes based on pressure variations.
Surge	The pressure has increased unexpectedly compared to the current average pressure. The limit changes over time based on calculations based on the average pressure.
High	The current average pressure rises above a configurable pressure limit. If no changes have been made, the default limit is 15 bar.
Low	The current average pressure falls below a configurable pressure limit. If no changes have been made, the default limit is 1.5 bar.
Transient	The pressure variation has a high increase with a short duration. The limit changes over time based on calculations based on the average pressure.
Comm. error	The PressureSensor fails to communicate. Can be either faulty communication or faulty measurement.

2.5 Radio transmission

Kamstrup PressureSensor communicates via built-in Wireless M-Bus mode C1 868 MHz radio which gives access to quick and easy wireless reading of the meter.

The meter has an antenna optimized for long range transmission. Via Wireless M-Bus a data set is transmitted every 96 seconds.

The following details are transmitted:

- the minimum pressure (pmin)
- the maximum pressure (pmax)
- the average pressure (μ)
- the pressure standard deviation normalized by μ (normalized second moment, σ_2)
- the pressure skewness normalized by μ (normalized third moment, σ_3) calculated over the current set of samples
- the current infocode.

The pressure measurement data is based on high resolution sampling.

Wireless M-Bus is an open standard, Kamstrup Pressure Sensor can be configured with or without encryption of the Wireless M-Bus signal.

Encryption protects personal data against unauthorized monitoring. Furthermore, the encryption file provides easy access to import of meter data into reading programs.

Kamstrup A/S recommends encryption.



Do not dispose the appliance in the trashcan, but according to the regulations

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kamstrup

PressureSensor Installation guide

Kamstrup A/S · 55121722_BI_08_12.2015



1 General information

Kamstrup PressureSensor is used for pressure management in drinking water distribution systems. Read this guide before installing the PressureSensor.

2 Permissible operating conditions / measuring ranges

Pressure range:	0-16 bar
Over pressure:	50 bar
Burst pressure:	75 bar
Temperature drift:	+/- 0.01 bar/10° K
Accuracy:	+/- 0.1 bar
Long time drift:	+/- 0.05 bar
Protection class:	IP68
Storage temperature:	-20 to 55 °C
Operational conditions:	2 to 55 °C
Media temperature:	0 to 40 °C

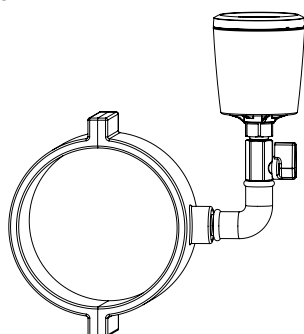
This equipment is designed for indoor and outdoor use. The device is designed to withstand flooding (submersible) and is installable directly on water pipes.

The device has the following drinking water approval(s):



2.1 Installation requirements

Prior to the installation of Kamstrup PressureSensor, you need to prepare the rest of the installation with a G½" connection. This could be with a tapping saddle. It is recommended to install a ball valve between the saddle and PressureSensor for easy replacement or service.



In order to avoid air in the system Kamstrup recommends the installation above with a "3 o'clock" connection. In all cases it is important to vent the system if possible. Otherwise the PressureSensor will be less precise until the air is absorbed by the water.

The PressureSensor must not be installed in environments with a temperature higher than 55 °C due to risk of battery defect. In order to obtain optimal radio performance, metallic enclosure should be avoided.

It is possible to improve the radio performance with accessories such as the external pit antenna to obtain a better link budget.

2.2 Maintenance

The PressureSensor must always be properly assembled when cleaning is carried out in order to protect the internal parts of the meter. Use only water when cleaning.

Activities including installation, adjustments, putting into service, use, assembly, disassembly and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Technical assistance may be obtained from:

Kamstrup A/S
Industrivej 28
DK-8660 Skanderborg

Please refer to Kamstrup website for the nearest local representative <https://www.kamstrup.com/en-en/contact>.

2.3 Battery replacement

When you need to replace the batteries you must always use the proper battery replacement kit supplied only from Kamstrup. See details for replacement in the manual delivered with the battery replacement kit.

⚠ Caution. Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

During battery replacement, keep battery dry at all time and dispose used batteries according to regulations.

The battery voltage is 3.67 V maximum, provided by 2 D-cell (Kamstrup part number 6699031).

Minimum operational battery voltage : 3.0V. A lower voltage is detected as battery low condition. Operation for 24 hours with a low battery condition will be reported by an alarm and is an indication that battery replacement is required within a week.

Below 2.7V the device will cease normal operation and be kept in power down.

2.4 Info codes and display



"bar":	pressure level shown with 2 decimals.
"hPa":	pressure level shown without decimals.
"psi":	pressure level shown without decimals.
"abs":	pressure shown in absolute value.
"rel":	pressure shown in relative value according to the atmospheric pressure. You need to state the atmospheric pressure in the area where the PressureSensor is installed. This is done manually with the optical eye (default 1013 hPa).
"INFO":	Flashes if a pressure related alarm is activated (drop, surge, high, low, transient, comm. Error).

	Flashes when radio communication is deactivated. This symbol indicates that the meter is still in transport mode with the built-in radio transmitter turned off. The transmitter turns on automatically when 1.5 bar is measured for the first time. The radio transmitter remains on, and the info code signal in the display switches off.
	Flashes if the batteries are out of power. The current pressure is no longer measured.
..	The 2 flashing dots indicates that the PressureSensor is active.
A	Turned off in normal mode. Flashes when the meter is unlocked.
AB	Activated in verification mode (test mode).