Leak Detection for District Energy

Advanced reliable technology

Flexible and Well-proven technology. Worldwide supplier.

User friendly web based interface

Easy-to-use Technology
Support and Services

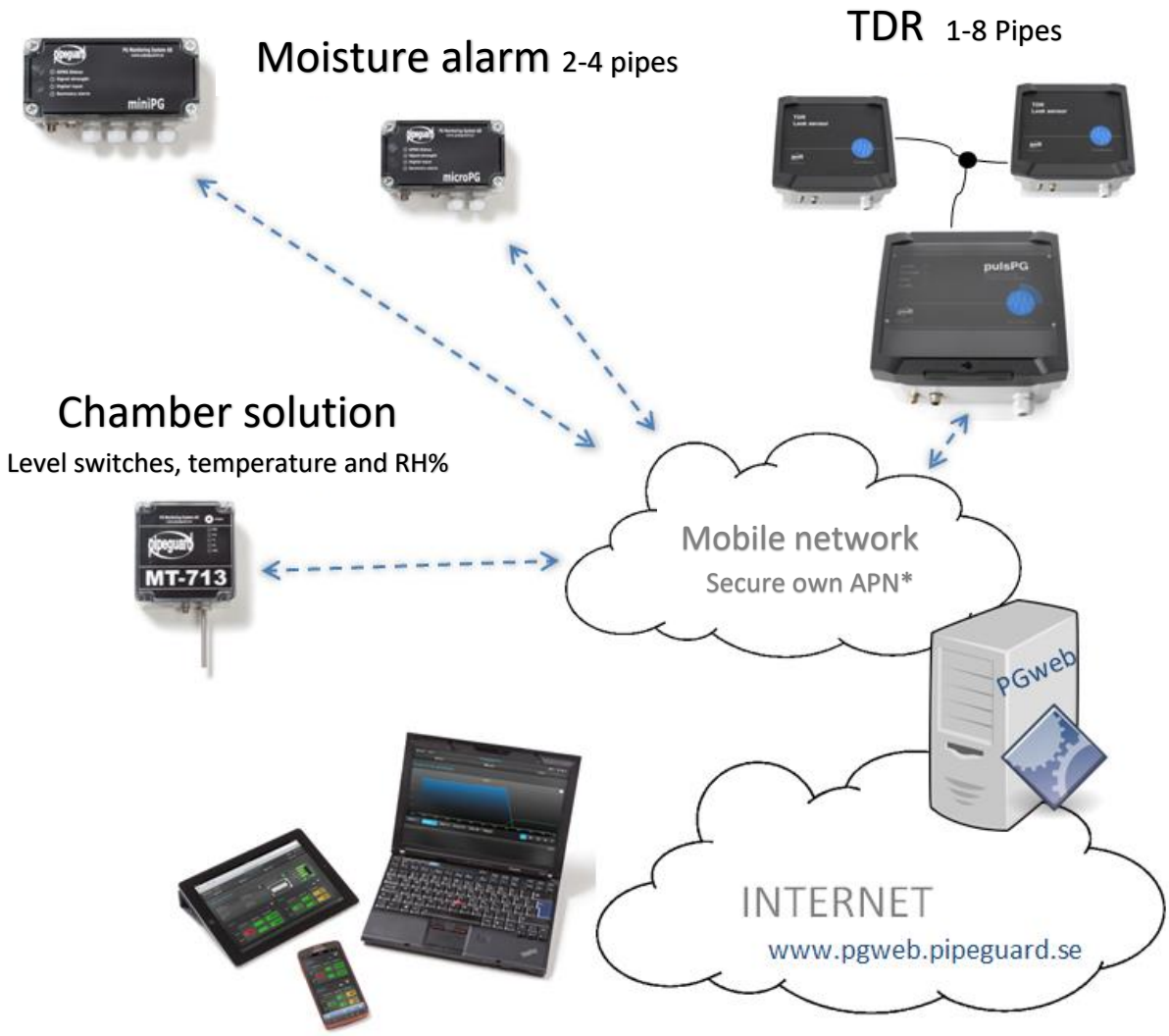
Monitor leaks, moisture, status, alarms in District Energy systems.

Moisture | TDR | Impedance | Resistance | Water level | Vaults | Temperature | Pressure | Pumps | Boiler | Noise | Oil tank

www.pipeguard.se

pipeguard

1. Overview System Pipeguard



System Pipeguard

Alarm Systems, Alarm Modules, Monitoring modules for district heating and district cooling networks.
Easily to work with and flexibly setup and cost-effectively.
Provides facility owners, plant managers and technical staff with easy access to the important data and causes alarms due to damage or deviation.
Pipeguard develops and delivers monitoring modules and alarm systems, provides support and continuously works with the system and development and function in focus.
Contact us for more information. www.pipeguard.se

PG Monitoring System AB
Industrivägen 22, 901 30 UMEÅ

2. General about Pipeguard

System Pipeguard

Pipeguard gives the maintenance staff a current picture of the state of the distribution system. The system fits facilities where data from many different sensors needs to be stored and presented in a clear way.
Pipeguard' main benefits are:

- Being a proven system of reliable technology that can handle the stressful challenges of alarm modules may occur when mounted in a field.
- Handles alarms, history and settings from a variety of sensors in a single system.
- That it is accessible with access from computer, tablets or smartphones.
- Easily adapt the system to your needs because it has a flexible range of modules for collecting several different types of measurement values, in addition to moisture monitoring, there are also chamber monitoring, pressure, temperature, boiler monitoring, pump monitoring, etc.
- It is easy to manage the system because the modules are updated and configured from the remote.
- There is an open system with the ability to connect to the centralist GIS / NIS system.

Surveillance makes it easy to detect leaks!

Measure moister and
Logging for trends

Alarming!

Surveillance of chambers

Flow, pressure, temperatures readings

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3. Modules microPG/miniPG

microPG (Pipeguard Micro)

The microPG is a compact alarm unit with built in GPRS modem. A unique way of measuring the wires in a loop make sure that the length doesn't influence the readings. This will make it easier to analyse the alarms and trend curves because the module will give the same data regardless of where it is, and the same amount of water will give the same result. The microPG can send SMS or deliver data to the System Pipeguard through GPRS communication. This web service we provide make it easy to check data, trends, alarms and status. This web interface is very user friendly and popular among our customers worldwide. The module is constructed to be configured and updated from distance for convenience and efficiency handling of new functions. This module handles two pipes or two loops.

Module Info	**Range/Description**	**General Info**
Isolations resistance	0-10000 Kohm	Type: Nordic System (Wire, loop)
Loop resistance	0–100 ohm	**Section length**
Galvanic voltage	0-1000 mV@1Mohm	microPG (2 x 4000m / 2 x 8000m)
Communication	GSM, GPRS and SMS	pipe / wire
Power supply	Net, battery	**I/O**
Voltage	10-30 Volt (14,4 Volt)	Digital input (2): Open/close
Current	15 mA (Max 500 mA)	Alarm output: 48 V / 200 mA
Protection	IP 67	LED indication: Yes

miniPG (Pipeguard Mini)

This is big brother of microPG. The differences are the channels or pipes it handles. This one can manage four pipes or loops. This module also has a 3G modem for better coverage in the mobile network. This module also is the solution for US market where 2G isn't available. Furthermore, with this module is the possibility to order it with Ethernet connection*.

Module Info	**Range/Description**	**General Info**
Isolations resistance	0-10000 Kohm	Type: Nordic System (Wire, loop)
Loop resistance	0–100 ohm	**Section length**
Galvanic voltage	0-1000 mV@1Mohm	miniPG (4 x 4000m / 4 x 8000m)
Communication	GSM, GPRS and SMS	pipe / wire
Power supply	Net, battery	**I/O**
Voltage	10-30 Volt (14,4 Volt)	Digital input (2): Open/close
Current	15 mA (Max 500 mA)	Alarm output: 48 V / 200 mA
Protection	IP 67	LED indication: Yes

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pulsPG (Puls Pipeguard)

Moister surveillance with TDR

pulsPG is a locating alarm unit with TDR (Time-domain reflectometry) technology, also called pulse oximeter. Used to monitor district heating pipes, district cooling pipes and wiring with e.g. oil pipes. The unit consists of a modular system with a main unit, the gateway and 1-8 satellite measuring modules.

Unique Benefits with pulsPG:

- The measurement modules are connected directly to the pipe without signal cables.
- You can collect measurement data from measurement points in e.g. separate buildings.
- You only pay for the equipment you really need.
- You can easily customize the system when the pipe network changes.
- Available monitoring via PGweb alarm system.
- Proven TDR technology based on Stateview measurement technology.

The measuring modules contain a 2-channel pulse reflectometry and a measurement card e.g. one pipe per 2-channels. pulsPG collects and sends measurement values to System Pipeguard via GPRS or Ethernet. The system is fully compatible with Stateview System II.

Specifications pulsPG:

Reflectometry per loop or wire
Range (PVF 0.90) 8000 m
Measurements
Isolations resistance 0-10000 Kohm
Loop resistance 0–100 ohm
Galvanic voltage 0-1000 mV@1Mohm

Power supply Net / Battery
Voltage 110-230VAC / 15-30VDC
Power consumption 30w
Protection class IP 65
Communication GPRS, ethernet

Measurements, pulsPG in addition to resistance and galvanic voltage, also measures a status of the pipe, e.g. the curve's deviation from reference and in case of damage even the length to the error location. In case of error, a TDR curve is also stored for analysis of the damage.

Main module / Gateway:

Expansion module to use external TDR measuring cards:

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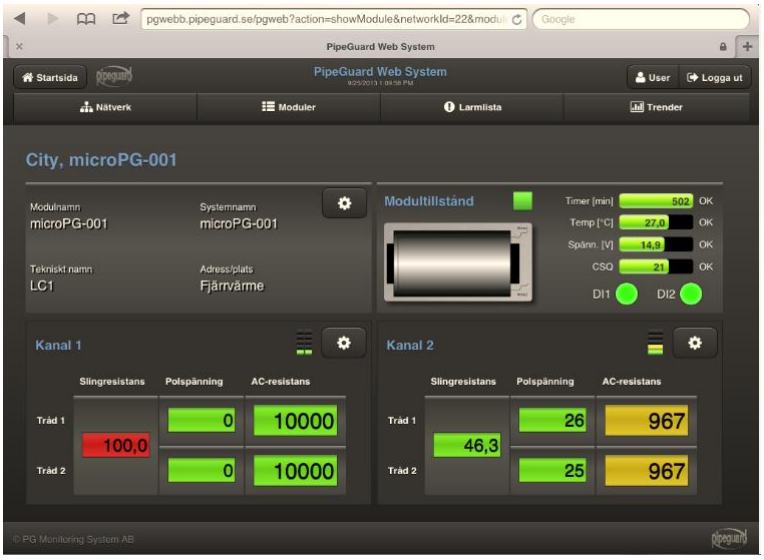
4. Moisture surveillance system, PGweb

System Pipeguard, surveillance system, PGweb

System Pipeguard is a web based monitoring system that collects measurement values from alarm devices and other sensors, and presents them in a way that allows you to get an overview and quickly make the right decision.
The program has a clear and well-thought-out interface, where all alarms, log values and settings are easy to find and work with. Alarms can be set to automatically send via mail or text message to optional recipients.
In the embedded map view, all modules with status indication are displayed, it is also possible to import own map information to PGweb, such as pipe systems, chambers, alarm wires etc.

The system is easily accessible, and connection is done via a web page that works in computers, tablets and smartphones.
If necessary, there is also the possibility to integrate information from System Pipeguard into the energy company's own GIS / NIS system, to make the information more accessible to its own organization.



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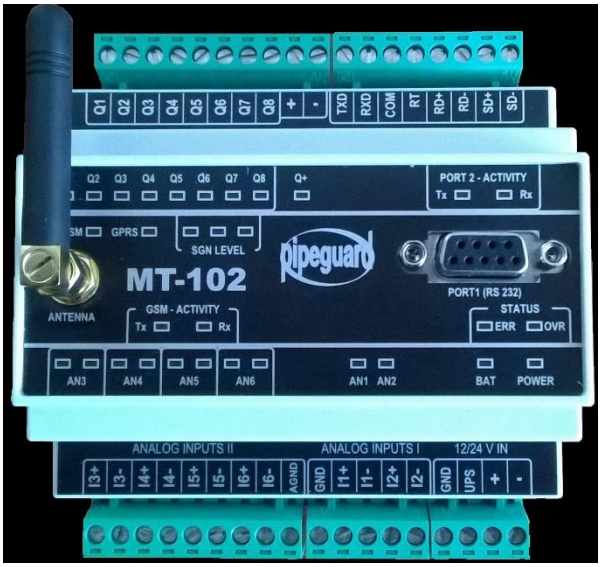
5. MT modules

Pipeguard Alarm & Measurements. Sensors data collection

With the help of the alarm modules you can, for example, collect values from sensors for humidity, pressure, flow, air and pipe temperature, lid alarm, tamper alarm. Modules have long life even in tough environments. They have an IP 67/68 protection class and, as an additional protection, the circuit boards are equipped with moisture and temperature alarms, which immediately alert System Pipeguard if the device is in danger.

The modules are available in several different types adapted to different situations.
For more information, contact PG Monitoring System AB or enter **www.pipeguard.se**.

nanoPG



MT102

MT713

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6. Module overview

Modules overview Moisture Alarm										
Module	Surveillance type	Quantity pipes	Max lenght pipe / wire	Resistance Galvanic volt.	Loop	Power supply	Indications	Communications	Inputs	Notes
microPG	Resistance, voltage	2	4000/8000 (meter)	0-10 Mohm 0-1000 mV	Yes/No	Net 110-230 VAC Battery 12V	LED on front, Summary alarm relay	GPRS	2 inputs for alarm e.g level switch	Compact
miniPG	Resistance, voltage	4	4000/8000 (meter)	0-10 Mohm 0-1000 mV	Yes/No	Net 110-230 VAC Battery 12V	LED on front, Summary alarm relay	GPRS, Ethernet	2 inputs for alarm e.g level switch. Analog in for temp, moisture, pressure, inputs (option)	Dual Sim, for redundancy
pulsPG	TDR, resistance, voltage	1-8	4000/8000 (meter)	0-65 Mohm -1000 mv till +1000 mV	Yes/No	Net 110-230 VAC Power supply 15-30VDC	LED on front, Summary alarm relay	GPRS, Ethernet	2 inputs for alarm e.g level switch	Configurable outputs for alarms. Integrerated in System Stateview

All modules indicats status and alarm via LED on the front panel and also alarm via relay output (option)

Module overview								
Module overview	Digital Inputs	Analogue In	Battery	IP class	Area of use	Features	Accessories	Notes
nanoPG	2	0	No	IP40	Alarm or status indication	Used for many different functions where external power supply is available	Level switch	
MT713	5	3 (0-5 v)	Yes	IP67	Chamber surveillance, Temperature readings, Pressure meassurements	Compact format with built-in batteries	Mounting plate, antennas, antenna cable, level switch, sensor for temp, pressure and moisture	
MT102	8 (Changeable to DO)	6 (4-20mA)	No	IP40	Alarms, Temperature and pressure measurements, Surveillance of Satellite boilers, Differential pressure, Surveillance of pumps and pump control, etc....	Built-in Function PLC for customized solutions.	Mounted in a enclosure, sensor for temp, moisture, pressure etc ..	

For all modules there is a standard accessory package with power charger, antenna, configuration etc.

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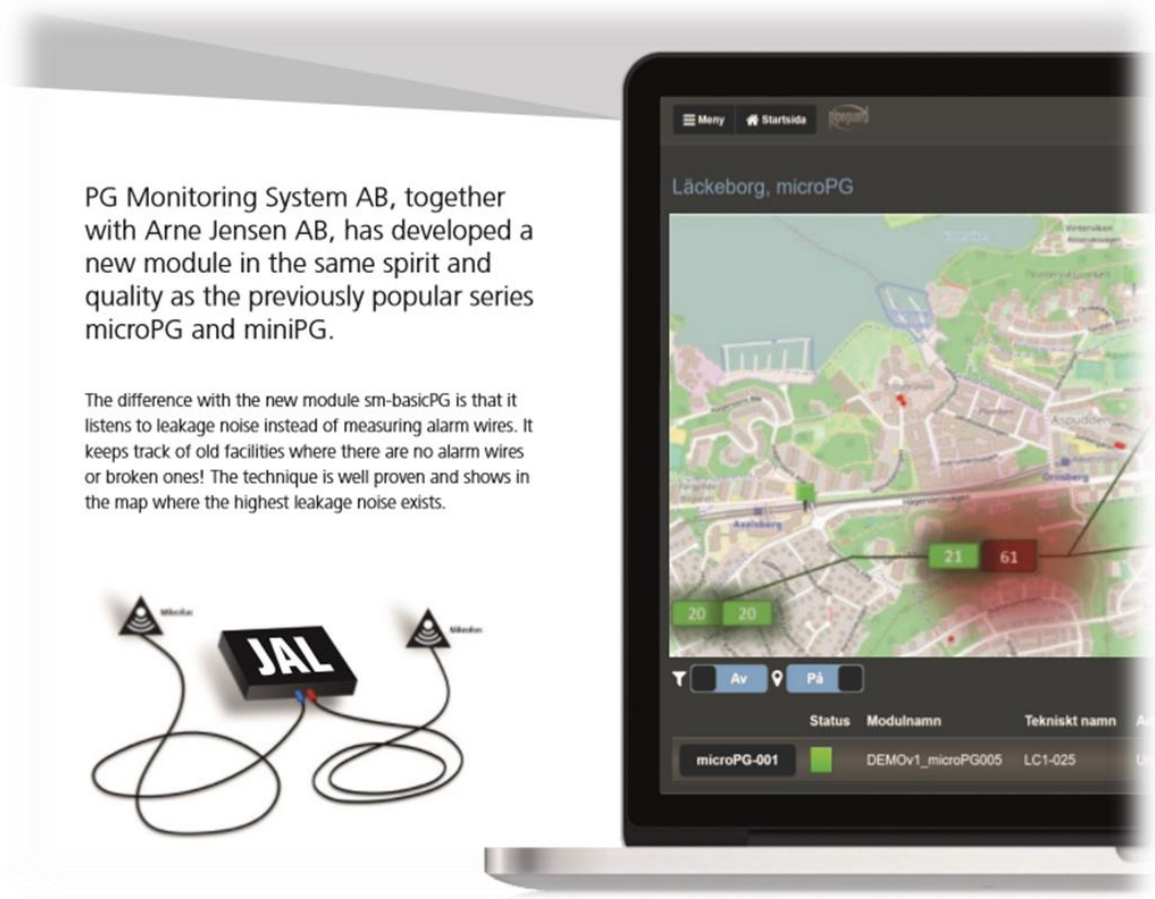
7. Old pipes without alarm wires or broken wires.

Sound detection system by PG Monitoring System

The sm-basicPG with the JAL card is a unique product for collecting acoustic signals for post processing and analysis. For this, an unaffected collection and transmission of the acoustic signal is required.

The JAL card consists of two parts, microphones that capture and send the sound to an amplifier that packs and prepares the acoustic signal for direct processing and analysis.

Thereafter, the sm-basicPG module sends the information further with GPRS. The microphones used are designed to capture sound naturally. The construction and design are unique and patented.



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Monitoring experts for district heating
and disctrict cooling systems.

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