

Leakmaster-System 01



Mobile Water Loss Management

- ZM - capacity and night flow measurement
- AZ - acoustic zone measurement
- DRULO II - pressure management
- LOKAL 200 PC - digital 3 point FFT correlation
- GPS supported data collection and archiving
- supports GIS based networks maps for display and archiving

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Technical Specifications

Technical changes reserved

ZM

The pattern Type conforms to the required maximum flow rate and is manufactured to customer specifications.

Standard version

Power supply	internal: battery external: 12 V
Data transfer	bluetooth
Software	data archiving online data export

DRULO II

Pressure range 0 to 100 / 160 / 250 / 400 / 600 mbar
0 to 1 / 1.6 / 2.5 / 4 / 6 / 10 / 16 / 25 bar

Temperature range - 25°C until + 70°C

Precision +/- 0.1 % FS

Resolution +/- 0.01 % FS

(1 mbar if 10 bar measure range)

Measure interval 0.1 sec. up to 24 Std.

Real time watch precise quartz clock

free choose of start and stop time

Capacity 240000 value's

Type of memory EEPROM

Data connection Infrared data communication

GSM optional

Identification each logger has his own serial number, and the user can give also his designation (3 numbers)

Display graphic LCD

Measure cell langzeitstabile, piezoresistive Messzelle temperaturkompensiert

Power supply Lithium-battery 3.6 V / 7.6 AH Type AA (standard) warranted live time 10 years (one measure per hour)

Material aluminium housing

medium contacted parts high-grade steel

Protection IP 68

Connection Standard thread 1/2 inches

AZ 100 Logger

Data transfer

periodically (12 times per minute, 24 hours)
statistical minimum level of last night
statistical level of past 14 days
measurement quality (rain, wind, etc.)
logger no.
logger position

Amplification 200000 fold

Lifetime 8 - 10 years (without battery change)
5 year warranty

Measurement time 2 am - 4 am

Transmitting power 10 mW

Frequency 433 Mhz

Protective classification IP 68

Sensor piezoceramics

Temperature range - 15°C until + 55°C

Dimensions 40/44 mm diameter/110 mm height with in built aerial (english version)

Gewicht other dimensions upon request
about 900 g

LOKAL 200 PC

Correlator with 4 Radio Frequencies

Central unit

Correlation

48 bit correlation
frequency dependent correlation coherence analysis
FFT technique
resolution up to 5 cm
correlationresolution: 50000 points
FFT function
3 Punktkorrelation (mit 3 Messboxen)
coherence
comp function to reduce influence noise
50 Hz filter

Filter (automatic filter search function)

automatic / manual analogue and digital filter for suppressing disturbing noises
The measurement routine automatically determines the optimum filter setting
800 digital filters
Chebyshev analog filters with 48 dB / octave slope

Input parameters

pipelines made of up of 5 different sections to be input:
pipeline material, pipeline dimension and the length of the pipeline section

steel, cast iron, az, pvc, pe, plumb ...

the device can store the data of up to more than 10000 measurements

- 25°C bis + 55°C

built in

4th frequency for to receive the acoustic loggers
easy and clear with pictures symbols

Transmitter

Power

500 mW with BTZ certificate

Display arrangement

actual acoustic signal (numeric)
minimum acoustic signal
battery status
recharge status
high/low filter
manual/automatic application

Operating time

about 8 -10 Std hours of permanent operation with fully charged accumulator.
The transmitter switches off automatically if a key has not been pressed for 60 minutes.

waterproof IP 65

- 10°C until + 60°C

rugged portable aluminium case; waterproof;
separate compartment for sensor, tools and earphone
dimension: mm
weight without accessories: about 2.5 kg

Sensors

Hydrophone (option)

piezoelectric ceramics hydrophones with about 100dB upon 1 V/uPa
max. Pressure 20 bar
Range of temperature: -10°C until + 80°C

Magnetic coupling

waterproof piezoelectric ceramics accelerometer;
damaged magnets and connecting cables can be replaced by the user himself
1 - 5000 Hz
sensitivity > 1000 pC/g

ISO 9001:2000

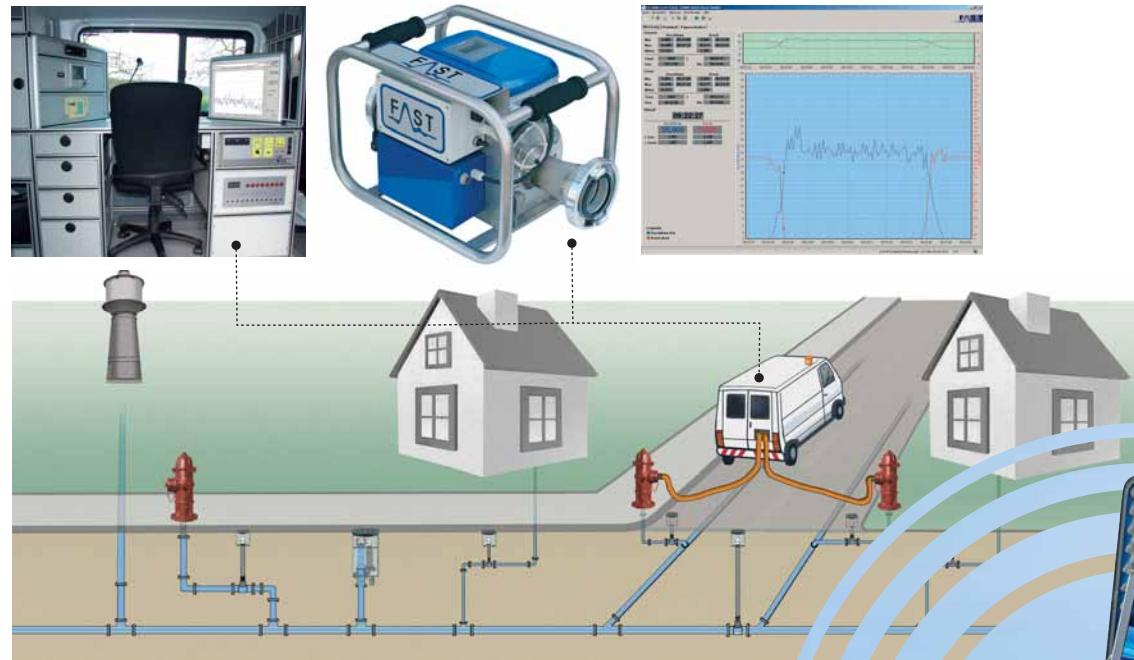
Leakmaster-System 01

ZM - Capacity and Night Flow Measurement

Mobile or built-in. Actual, flexible, exact and practical the remarks of our new ZM. Ideal for loss and consumption analysis in your pipeline network.

- USB interface
- Bluetooth
- 4 MB internal Memory
- Measurement Start and Stop directly from the ZM
- Battery powered 24 hours

Software for illustrate and documentation of the measurement. The data can be stored inside or transferred online via Bluetooth or USB interface to the PC.

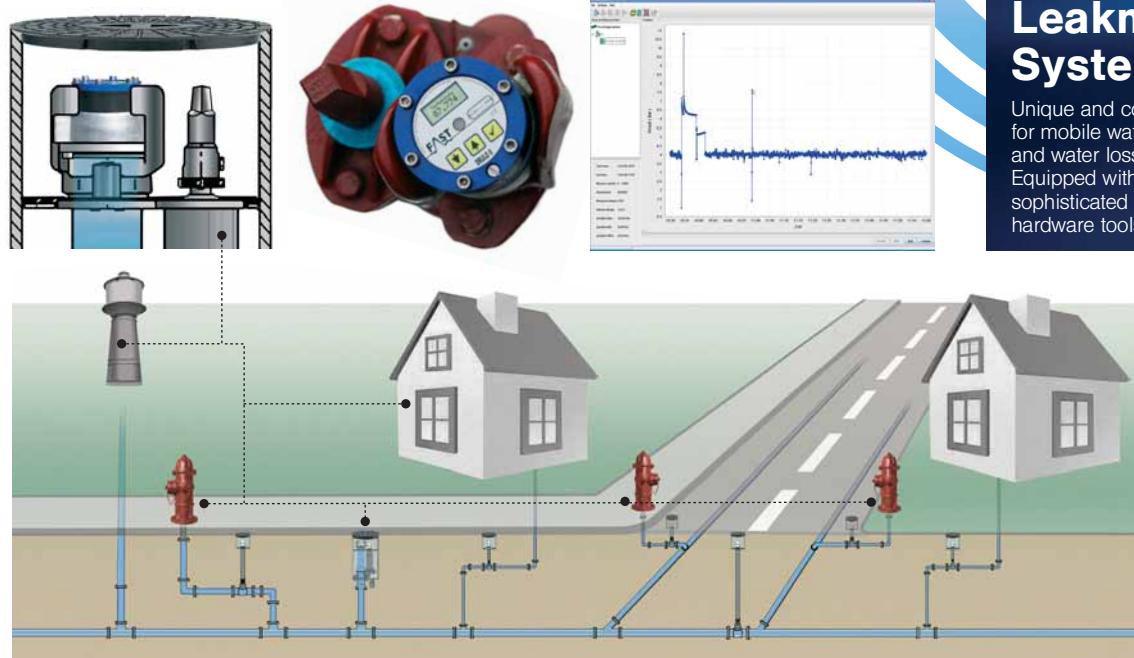


DRULO II - Pressure Management

Pressure measuring device achieving all technical and practical demands of the supply industries. Including a special function to the recognition and archiving of "Water Hammers".

- GSM module
- Internal pressure Sensor
- Integrated Altimeter
- Resolution 0.1 sec
- Battery powered for 1000000 measure values

Software for illustrate and documentation of the measurement. Alarm Events can be transferred to a PC or mobile phone via SMS.

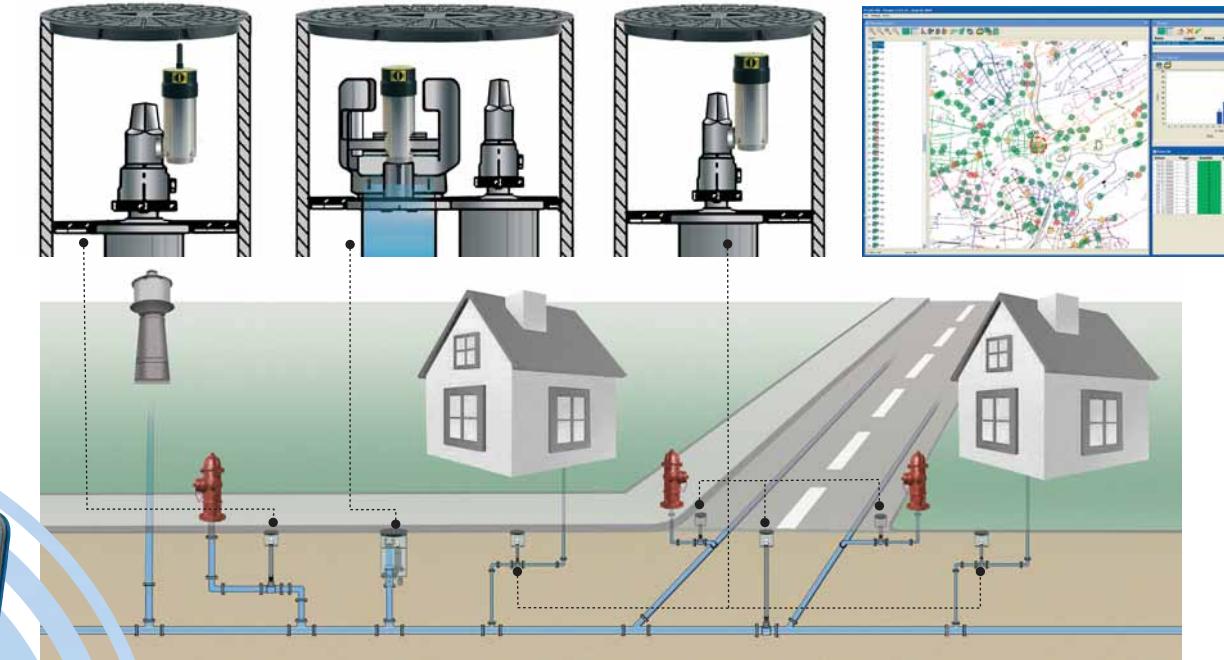


Leakmaster - Acoustic Zone Measurement

Our product line for the acoustic zone measurement allows the application of this effective technology in all situations. Especially for a current and actual data transfer the AZ loggers are equipped alternatively with radio or GSM module. The especially for transport or plastic pipelines, developed Hydrophone logger, allow a supervision of this part of the network too.

- Real 10 mW radio power
- Leak analyzing thru 24000 measured values
- GPS supported route tracking
- GIS compatible
- Battery powered up to 10 years

Software for illustrate and documentation of the measurement. The data can be transferred via Radio/USB or GSM. Alarm events can be transferred to a PC or mobile phone via SMS.



Leakmaster-System 01

Unique and complete system for mobile water loss analysis and water loss reduction. Equipped with the most sophisticated software and hardware tools.

LOKAL 200 PC - Digital 3 Point FFT Correlation

With our Lokal 200 PC we introduce the most modern and strongest Correlator available. Thanks to his precipitous analogous filters and the dissipations function developed by the renowned German Fraunhofer Institute it is possible to recognize disturb noises and to suppress straight. The especially for transport and plastic pipelines, developed Hydrophone sensors, allow excellent results on this part of the network too.

- real 500 mW Radio power
- FFT function
- Coherence function
- 3 point correlation
- GPS supported data collection and archiving

GPS supported Software for 3 point correlation. Automatic calculated filter settings and leak recognition

