











COMPREHENSIVE LEAK DETECTION SYSTEM



RATMON



www.ratmon.co.uk

Product		District		System		Function		Pipe		Working modes		Page
		Heating	Cooling	Impulse	Resistance	Detection	Location	Steel	Plastic/Pex	Remote	Portable	
	RAT-2	X		X	X	X		X		X		2
	RAT-2b	X			X	X	X	X		X		4
	RAT-Combo	X	X	X		X	X	X	X	X		6
	ILA 1.0	X	X	X		X	X	X	X	X		8
	MEGALOC-1/1b	X	X	X	X	X	X	X	X		X	10
	SMARTLOC-2	X	X	X	X	X	X	X	X		X	12
	SMARTBOX-1	X	X	X			X	X	X		X	14
	SAM-1	X	X	X	X	X				X		15
	SAM-2	X	X	X	X	X				X		16
	MSC-1 sensor cable	X	X	X		X	X	X	X			18

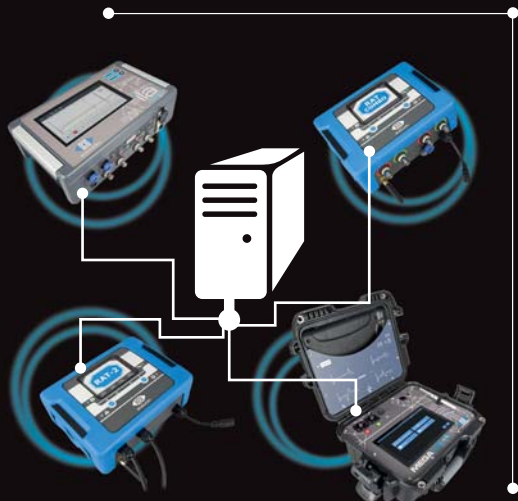


www.RATMON.co.uk

RATMON

Remote monitoring.

RATMON is the leak detection system, that carries out 24/7 remote supervision over pre-insulated pipe network. Installed detectors send automatically to the server all measuring data, thanks to which the operator is kept informed about the state of the network and about the possible occurrence of an alarm. The operator has access to the system from any place with internet access. In the event of detecting the leak system sends automatically alarm notification to network supervisor.



SYSTEM DETAILS:

- Automated data transfer from detector to the server
- Full data analysis for selected pipe loop
- Automated analysis of TDR curve
- Alarm notifications by SMS, e-mail
- Configuration of alarm thresholds and notifications
- Data visualisation by chart or table
- History of measurements
- Drawing of pipe loops on the google.maps
- Printing of documentation and reports
- Inventory of network elements
- Access to the system from any place
- Access to the system regardless the operating system
- Monitoring and configuration of detectors



RAT-2



RAT-2

Leak detector for remote monitoring of district heating network.

Leak detection by insulation and loop resistance measurements.

General information:

Leak detection in impulse and resistance networks

Application:

District heating

Technical specification:

Main functions:

Type of measurement

Insulation resistance
Loop resistance
Galvanic voltage
Continuous loop control

Control of connection to the pipe

Specification

0 - 200 M Ω

0 - 100 k Ω

0 - 2000 mV

Triggering of detector
by breaking of loop

Resistance measurement
between supply and return pipe

Insulation resistance measurement:

Test range
Test voltage
Test current
Accuracy up to 1 M Ω
Accuracy over 1 M Ω
Measurement in both polarities

0 - 200 M Ω

24 V

max. 100 mA

+/- (2% of m. + 8 digits)

+/- (5% of m. + 8 digits)

Loop resistance measurement:

Test range
Test voltage
Test current
Accuracy
Measurement in both polarities

0 - 100 k Ω

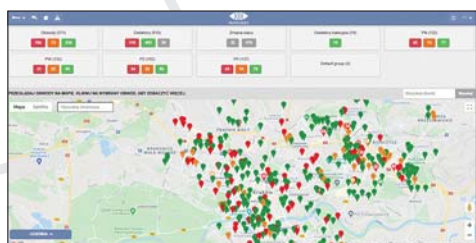
24 V

max. 100 mA

+/- (2% of m. + 8 digits)

Galvanic voltage:	Test range Accuracy	0 - 2000 mV +/- 5%
Communication:	2g/CAT-M/NB-IoT/LAN/MODBUS (RS485)/MODBUS TCP/IP (LAN)/RELAY	
Number of channels:	2 or 4	
Power supply:	12 V DC / 120 - 240 V AC	
Housing:	IP65	
Dimensions:	200 x 150 x 75 mm	
Weight:	0,64 kg	

Software:



RATMON - web application for remote data acquisition and analysis of test results as well as configuration and operation of detectors.



FUSION APP - Android and iOS application for wireless communication with the device, as well as management of results and generation of reports.



RATMANAGER - PC software for configuration and operation of detectors.

Scope of delivery:

- RAT-2 device with DIN mounting bracket
- 12 V AC/DC power adapter
- GSM antenna (for devices with GSM module)

Optional accessories:

DESCRIPTION

- Battery module
- External GSM antenna
- Basic connection box, two loops
- Constant impedance connection box, one loop
- Five-core wire connection box, two loops
- BNC/UHF connection box, two loops
- Hermetic power adapter
- Grounding bracket
- External cabinet with NEMA certificate

INDEX

- BAT-1
- ANT-1
- BOX-1
- BOX-3
- BOX-4
- BOX-5
- ZH-1
- GND-1
- SK-1

RAT-2b



RAT-2b

leak detector for remote monitoring
of district heating network.

Leak detection and location in resistance network.



General information:

Application:

Leak detection and location in resistance network

District heating

Technical specification:

Main functions:

Type of measurement

Insulation resistance
Loop resistance
Galvanic voltage
Continuous loop control

Control of connection to the pipe

Specification

0 - 200 MΩ

0 - 100 kΩ

0 - 2000 mV

Triggering of detector
by breaking of loop

Resistance measurement
between supply and return pipe

Insulation resistance measurement:

Test range
Test voltage
Test current
Accuracy up to 1 MΩ
Accuracy over MΩ
Measurement in both polarities

0 - 200 MΩ

24 V

max. 100 mA

+/- (2% of m. + 8 digits)

+/- (5% of m. + 8 digits)

Loop resistance measurement:

Test range
Test voltage
Test current
Accuracy
Measurement in both polarities

0 - 100 kΩ

24 V

max. 100 mA

+/- (2% of m. + 8 digits)

Galvanic voltage:

Test range
Accuracy

0 - 2000 mV
+/- 5%

Leak location in resistance pipe network:

Accuracy
Location threshold
Test results displayed in **RATMON** system
Test results displayed in % or meters

+/- 2 m +/- 0,2% of measured length
< 2 MΩ

Communication:

2g/CAT-M/NB-IoT/LAN/MODBUS (RS485)/MODBUS TCP/IP (LAN)/RELAY

Number of channels:

2 or 4

Power supply:

12 V DC / 120 - 240 V AC

Housing:

IP65

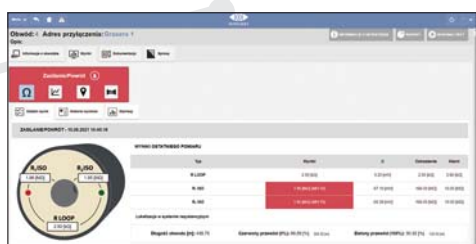
Dimensions:

200 x 150 x 75 mm

Weight:

0,64 kg

Software:



RATMON - web application for remote data acquisition and analysis of test results as well as configuration and operation of detectors.



FUSION APP - Android and iOS application for wireless communication with the device, as well as management of results and generation of reports.



RAT MANAGER - PC software for configuration and operation of detectors.



Scope of delivery:

- RAT-2 device with DIN mounting bracket
- 12 V AC/DC power adapter
- GSM antenna (for devices with GSM module)

Optional accessories:

DESCRIPTION

- Battery module
- External GSM antenna
- Basic connection box, two loops
- Five-core wire connection box, two loop
- M16 6pin connection box, two loops
- M16 6pin connection box, one loops
- Hermetic power adapter
- Grounding
- M16 6PIN measuring adapter
- External cabinet with NEMA certificate

INDEX

- BAT-1
- ANT-1
- BOX-1
- BOX-4
- BOX-6
- BOX-8
- ZH-1
- GND-1
- ZM-16
- SK-1

RAT-Combo



RAT-Combo

diagnostic device for leak detection and location in impulse pipe network.

Leak detection is done by resistance measurements and fault location by TDR technology.

General information:

Application:

Leak detection and location in impulse network

District heating and cooling

Technical specification:

Main functions:

Type of measurement

Insulation resistance
Loop resistance
Galvanic voltage
Continuous loop control

Control of connection to the pipe

Specification

0 - 200 MΩ

0 - 100 kΩ

0 - 2000 mV

Triggering of detector by breaking of loop

Resistance measurement between supply and return pipe

Insulation resistance measurement:

Test range
Test voltage
Test current
Accuracy up to 1 MΩ
Accuracy over 1 MΩ
Measurement in both polarities

0 - 200 MΩ

24 V

max. 100 mA

+/- (2% of m. + 8 digits)

+/- (5% of m. + 8 digits)

Loop resistance measurement:

Test range
Test voltage
Test current
Accuracy
Measurement in both polarities

0 - 100 kΩ

24 V

max. 100 mA

+/- (2% of m. + 8 digits)

Galvanic voltage:	Test range Accuracy	0 - 2000 mV +/- 5%
TDR (reflectometer) module:	Type of measurement Test range Pulse rate Gain adjustment Velocity of propagation (VoP) Possibility to select any part of the chart Accuracy Noise filtration Selectable output impedance	Specification up to 10 km (by VOP 100%) 1 - 70 ns x 30 40 - 100% 0 - 10 km +/- 0,01% of range +/- 1 px 50/60 Hz; 20 MHz, 100 MHz, 200 MHz, 350 MHz, 650 MHz, 750 MHz, 900 MHz 42 Ω, 50 Ω, 75 Ω, 100 Ω
Communication:	GSM / LAN / RELAY	
Number of channels:	2	
Power supply:	12 V DC / 120 - 240 V AC	
Housing:	IP65	
Dimensions:	200 x 150 x 75 mm	
Weight:	0,64 kg	

Software:



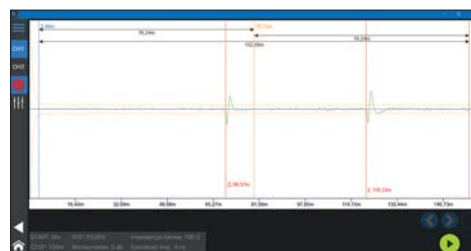
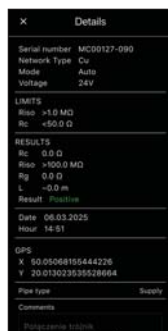
RATMON - web application for remote data acquisition and analysis of test results as well as configuration and operation of detectors.



FUSION APP - Android and iOS application for wireless communication with the device, as well as management of results and generation of reports.



RAT MANAGER - PC software for configuration and operation of detectors.



Scope of delivery:

- RAT-COMBO device with DIN mounting bracket, 2 BNC cable and boxes
- 12 V AC/DC power adapter
- GSM antenna (for devices with GSM module)

Optional accessories:

DESCRIPTION

- Battery module
- External GSM antenna
- Constant impedance connection box, one loop
- 3-wire sensor cable connection box, 2 alarm loops
- MSC-1 connection box, two loops
- Grounding
- External cabinet with NEMA certificate

INDEX

- BAT-1
- ANT-1
- BOX-3
- BOX-7
- BOX-9
- GND-1
- SK-1



ila^{1.0}

LEAK DETECTION



ILA 1.0

Leak detector and fault locator in pre-insulated pipes.

Detection and location is done by TDR technology.

General information:

Application:

Leak detection and location in pre-insulated pipes

District heating and cooling

Technical specification:

Measuring range:

6000 m sensor cable / 3000 m pipe (MSC-1)

2000 m sensor loop / 1000 m pipe (other manufacturers)

Channels:

2 - looped sections

4 - not looped sections

Accuracy:

+/- 0,1% of range, +/- 1 m

Display:

LCD touch screen

Alarm indication:

Visualisation on screen, buzzer, LED light

Multileak detection:

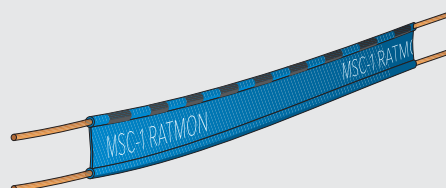
YES

Cable type and application:

District cooling - MSC-1 sensor cable

District heating, steel pipes - cooper wires

District heating, plastic pipes - MSC-1 sensor cable

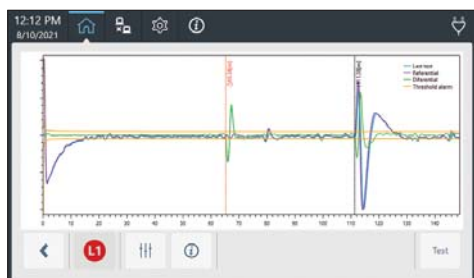


Leak identification:	Fault detection and location (leak/break/short)
BMS & SCADA:	Yes
Memory (fault & alarm date):	Yes
External communication:	Ethernet (RJ 45) GPRS Communication with PC by USB or wireless Relay (BMS, SCADA) Communication with external systems by MODBUS TCP/IP Detector positioning and status on Google Maps Communication with RATMON system
Power supply:	12 V DC / 120 - 240 V AC
Working temperature:	-20°C / +70°C
Battery back-up:	Accumulator
Housing:	IP54/IP65 (in external cabinet)
Dimensions:	300 x 170 x 90 mm
Weight:	3,2 kg

Software:



RATMON - web application for remote data acquisition and analysis of test results as well as configuration and operation of detectors.



FUSION APP - Android and iOS application for wireless communication with the device, as well as management of results and generation of reports.



ILA - integrated software.

Details	
Serial number	MC00127-090
Network Type	Cu
Mode	Auto
Voltage	24V
LIMITS	
Rise	>1.0 MΩ
Rc	<50.0 Ω
RESULTS	
Rc	0.0 Ω
Rise	>100.0 MΩ
Rg	0.0 Ω
L	-0.0 m
Result	Positive
Date	06.03.2025
Hour	14:51
GPS	
X	50.0506815544226
Y	20.013023535528664
Pipe type	Supply
Comments	
Połączenie do bazy	

Scope of delivery:

- ILA device
- Power supply: 12 V DC / 120 - 240 V AC

Optional accessories:

DESCRIPTION	INDEX
External GSM antenna	ANT-1
3-wire sensor cable connection box, 2 alarm loops	BOX-7
MSC-1 connection box, two loops	BOX-9
Sensor cable	MSC-1
Mounting bracket	UM-1
External cabinet	SK-1



MEGALOC-1

**DIAGNOSTIC DEVICE
FOR LEAK DETECTION AND LOCATION
IN IMPULSE AND RESISTANCE
PIPE NETWORK**



MegaLoc- 1/1b

**Portable diagnostic tester for fault detection and location,
designed to work in difficult job site terrain.**

Device enables fault detection and location in various network, including impulse and resistance. Compatible with RATMON system.

Test results can be saved in internal memory or to be sent to RATMON system.

General information:

Fault location in impluse network by TDR technology
Leak location in resistance network
Foam insulation resistance test
Loop resistance test
Touch screen
Water and shock resistant housing
Battery powered
Data saving in internal memory or in RATMON system
Housing IP65

Technical specification:

Fault location by TDR technology:

Test range	up to 10 km (by VOP 100%)
Pulse rate	1 - 70 ns
Gain adjustment	x 30
Velocity of propagation (VoP)	40 - 100%
Possibility to select any part of the chart	0 - 10 km
Accuracy	+/- 0,01% range +/- 1 px
Noise filtration	50/60 Hz; 20 Hz; 100 MHz, 200 MHz, 350 MHz, 650 MHz, 750 MHz, 900 MHz
Selectable output impedance	42 Ω; 50 Ω; 75 Ω; 100 Ω

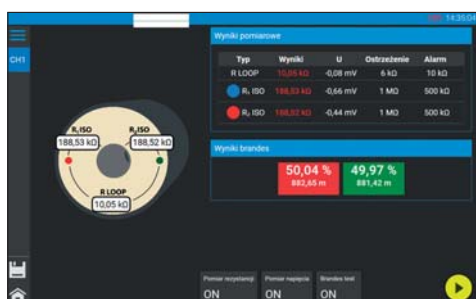
**Leak location in resistance pipe network:
(option - MegaLoc - 1b)**

 Measurement accuracy
 Location threshold
Test results displayed in % or meters
 $\pm 2 \text{ m}$ $\pm 0,2\%$ of the range
 $< 2 \text{ M}\Omega$
Insulation resistance measurement:

 Test range
 Test voltage
 Test current
 Accuracy up to $1 \text{ M}\Omega$
 Accuracy over $1 \text{ M}\Omega$
Measurement in both polarities
 $0 - 200 \text{ M}\Omega$
 24 V
 max. 100 mA
 $\pm (2\% \text{ of m.} + 8 \text{ digits})$
 $\pm (5\% \text{ of m.} + 8 \text{ digits})$
Loop resistance measurement:

 Test range
 Test voltage
 Test current
 Accuracy
Measurement in both polarities
 $0 - 100 \text{ k}\Omega$
 24 V
 max. 100 mA
 $\pm (2\% \text{ of m.} + 8 \text{ digits})$
Galvanic voltage::

 Test range
 Accuracy

 $0 - 2000 \text{ mV}$
 $\pm 5\%$
Abmessungen:
 $290 \times 280 \times 140 \text{ mm}$
Waage:
 $3,2 \text{ kg}$
Software:


RATMON - web application for remote data acquisition and analysis of test results as well as configuration and operation of detectors.



FUSION APP - Android and iOS application for wireless communication with the device, as well as management of results and generation of reports.



RAT MANAGER - PC software for configuration and operation of detectors.

Details	
Serial number	MC00127-090
Network Type	Cu
Mode	Auto
Voltage	24V
LIMITS	
Riso	>1.0 MΩ
Rc	<50.0 Ω
RESULTS	
Rc	0.0 Ω
Riso	>100.0 MΩ
Rg	0.0 Ω
L	~0.0 m
Result	Positive
Date	06.03.2025
Hour	14:51
GPS	
X	50.05068155444226
Y	20.013023535528664
Pipe type	Supply
Comments	

Standard equipment:

- MEGALOC-1 device
- Magnetic pipe connector
- Power supply: $12 \text{ V DC} / 120 - 240 \text{ V AC}$
- 2 test probes
- Pendrive
- 4 alligator clips
- Suitcase

Optional accessories:

- DESCRIPTION
- M16 6pin measuring adapter

INDEX

ZM-16



SMARTLOC-2

PORTABLE TESTER OF ALARM LOOPS IN PRE-INSULATED NETWORKS



Fusion APP

Smartloc-2

Dedicated diagnostic device for monitoring alarm systems in any type of pre-insulated networks including impulse and resistance.

Designed for harsh working conditions

It performs well during the construction of the network and during its operation.

Compatible with mobile application Fusion and RATMON system.

General Information:

Measurement of alarm loop continuity resistance
Loop length determination
Foam insulation resistance measurement
Moisture level given in Ω and degrees MH
Preset leakage localization in resistive networks
Battery power supply
Easy-to-read display
Intuitive operation with large keyboard buttons
Automatic measurement evaluation
Ergonomic housing
NFC communication
Protection class IP65
Exchanging data with smartphone software Fusion
GPS coordinates recording
Report for each measurement point (muffs)
Possibility to add photos and comments
Inspection of the connection of measuring wires to the pipe

Technical specification: Insulation resistance measurement:

Test voltage	24 V, optionally 250 V and 500 V
Test range	(24 V) 20 Ω - 100 M Ω
Test range	(250 V, 500 V) 20 Ω - 250 M Ω
Test current	max. 10 mA (2 mA at 500 V)
Accuracy	+/- (2% of m. + 4 digits)

Loop resistance measurement:

Test range	0,15 - 2k Ω
Test voltage	max. 24 V
Test current	max. 10 mA
Accuracy	+/- (2% of m. + 4 digits)
Measurement in both polarities	

Galvanic voltage:

Test range	0 - 2000 mV
Accuracy	+/- 5%

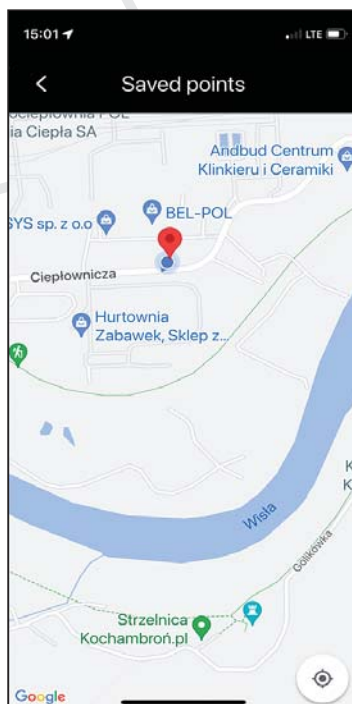
Dimensions:

200 x 100 x 60 mm

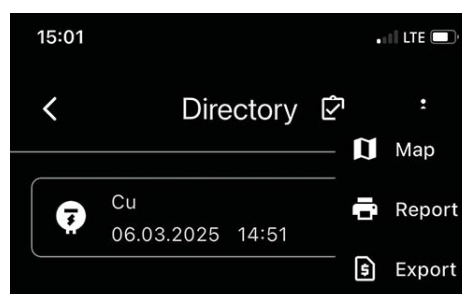
Weight:

0,6 kg

Software:



FUSION APP - Android and iOS application for wireless communication with the device, as well as management of results and generation of reports.



Scope of delivery:

- SMARTLOC-2 device
- Magnetic pipe connector
- Batteries
- Measuring wires 4 pcs
- Alligator clips 4 pcs
- Suitcase
- Calibration certificate



SMARTBOX-1

PORTABLE SIMULATOR OF ALARM NETWORK STATES



SMARTBOX-1

A device that allows remote simulation of network conditions for easier fault location. Thanks to the possibility of remote control, there is no need for an additional person at the place where the simulation is performed.

General Information:

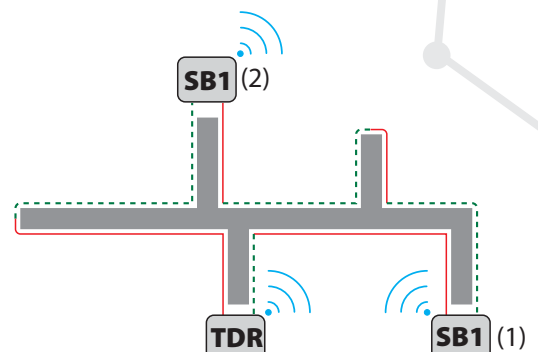
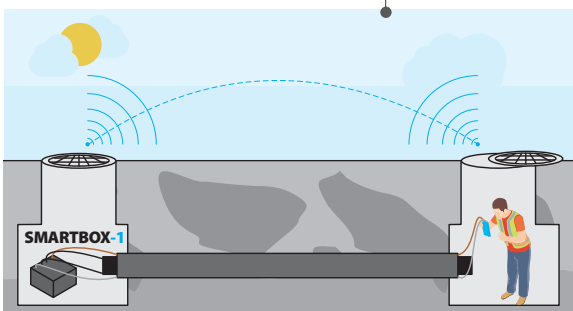
Remote control of the device using a smartphone
Simulations: wire-to-pipe short-circuit, loop break, looping,
check for correct wire connection
Network and battery power supply
Built-in GSM modem
Heavy-duty case

Standard equipment:

SMARTBOX-1
Two magnetic connectors for pipes
Case
Power supply
Smartphone app for remote control (Android, iOS)

8 probes 1,5 m
4 crocodiles
2 USB cables
SIM card (2 years included in the price of the device)

Software:





SAM-1 SMART MONITORING

SAM-1 is a standalone alarm unit to monitor remotely following chambers or tanks conditions: water levels, manhole opening, temperature, humidity etc.

General Information:

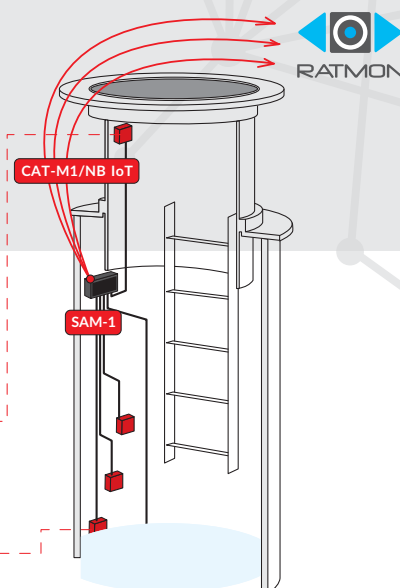
SAM-1 can be also utilized as potential leak detector for traditional/channel pipe network (non-pre-insulated pipe networks). All data collected by the device are sent via IoT technology to the RATMON system. Thanks to the opened MQTT protocol data can be also sent directly to any external system.

Specification:

- Up to 5 independent inputs/sensors
- 5 years of working on battery
- Temperature measurement: -55°C to +135°C
- Humidity measurement: 0 - 100% RH
- Opened MQTT protocol to communicate with any external systems
- Communication: IoT
- Compatible with RATMON system
- Housing: IP67
- Dimensions: 190 x 130 x 60 mm
- Weight: 0,25 kg

Sensors:

Manhole opening **S-2**
 Flooding sensor **S-1**
 Temperature sensor **TEMP-1**
 Additional **4-20 mA** input





SAM-2

Standalone, radar liquid level detector.

An excellent solution for remote monitoring of hard-to-reach locations. Equipped with its own power supply and modern IoT communication. Features a built-in radar sensor that monitors the increase and level of liquid in the tank.

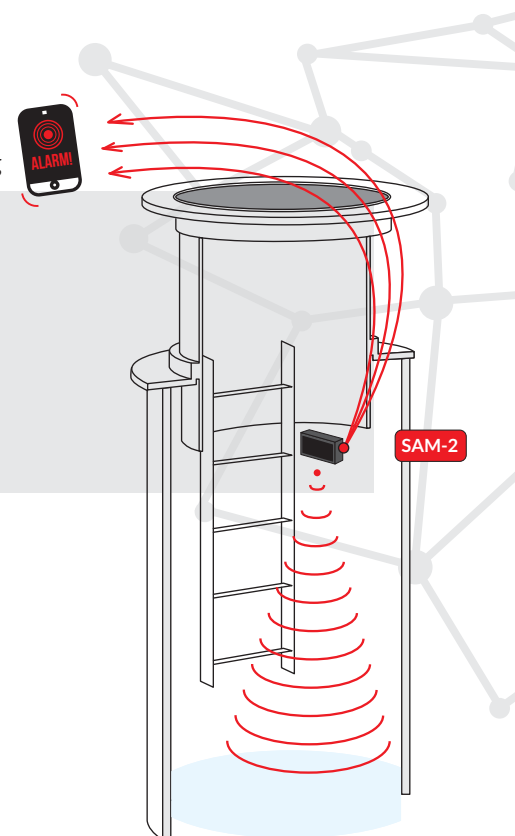
Application:

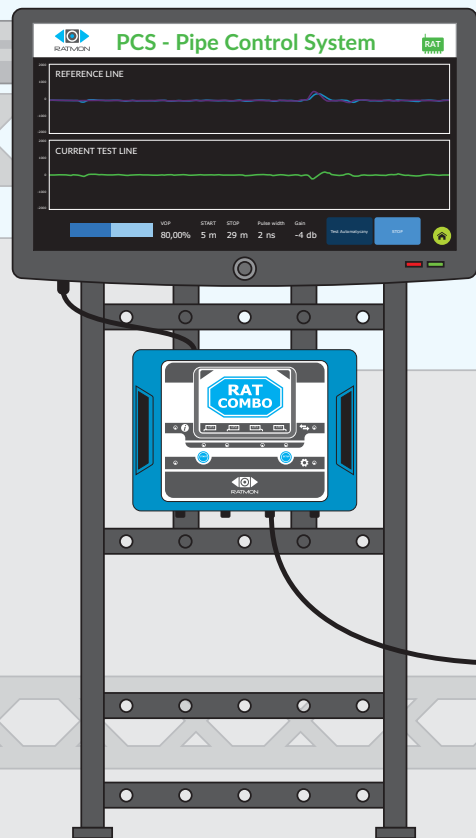
- Water tanks
- Septic tanks
- Manholes
- Monitoring of river level
- Monitoring of areas exposed to the flooding

Specification:

Radar detection
 Battery life up to 3 years
 Wireless IoT communication
 Measured temperature range: -55°C to +135°C
 Compatible with the FUSION system
 IP67-rated enclosure
 Dimensions: 190 x 130 x 80 mm
 Weight: 0.3 kg

Software:





PCS

Pipe Control System

PCS

Production test system for pre-insulated pipes

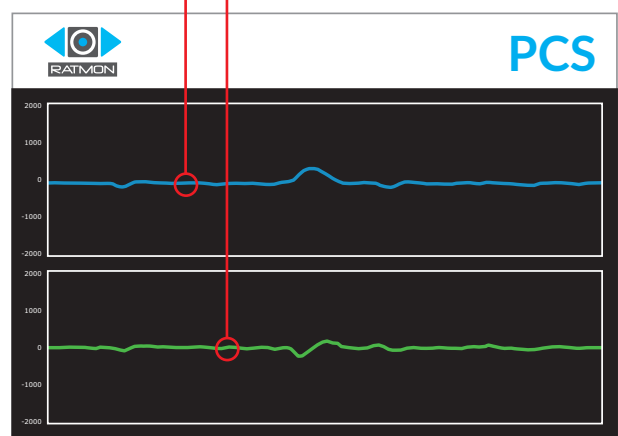
Quality control of pre-insulated pipes and fittings with TDR technology helps detect:

- incorrect position of the alarm wire
- quality of foam filling
- wire break

Inspection is done in seconds by comparing the image of the object being inspected to a reference curve.

○ reference reflectogram

○ differential graphs

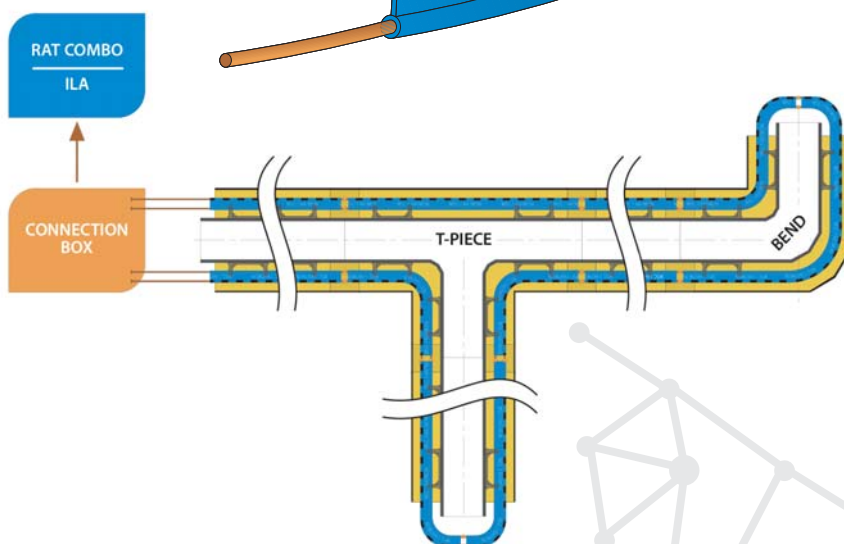




SENSOR CABLE MSC-1

MSC-1 Sensor cable

Our patented solution of two double-wire MSC-1 cables enables precise detection and location of faults in pre-insulated pipes, used in district cooling and heating. Fully insulated cables, mitigates the risk of false alarms, caused by condensation effect. It is also great solution for monitoring of pre-insulated plastic pipes, straight or PEX type, where using of conventional alarm wires is not efficient.



General information:

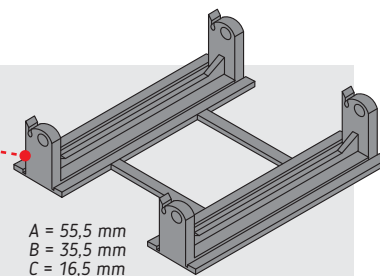
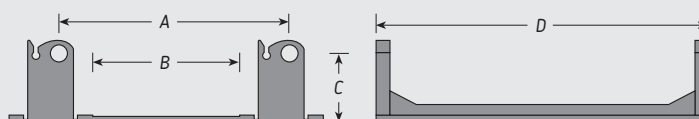
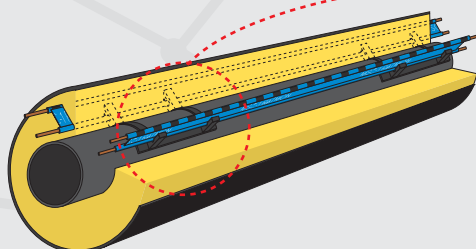
	Fault detection and location
Application:	District heating and cooling Pre-insulated pipes: steel and plastic
Leak location:	Relfectometer (TDR)

Technical data:

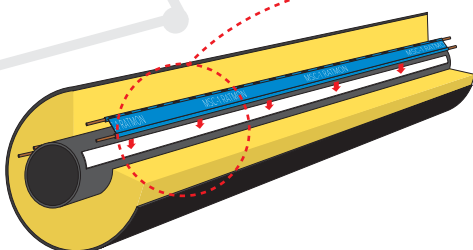
Cable insulation:	Insulation resistant to high temperature and oil
Cable wires:	2 parallel copper wire 2 x 0,98 mm
Dimensions:	8,3 x 2,2 mm
Working temperature:	-40°C to +120°C
Loop resistance:	30 Ω / 1 km of wire
VOP (velocity of propagation):	80% for polyurethane foam

Installation in pipes:

Double wire clip



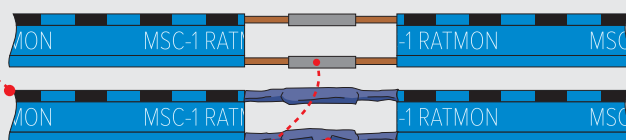
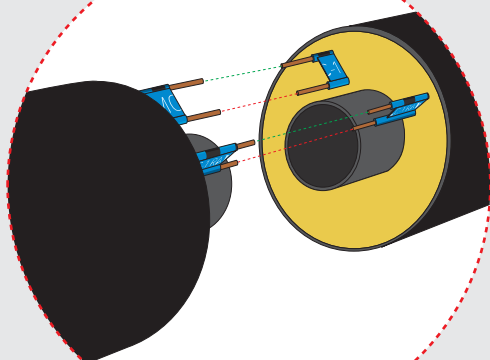
Self-adhesive foam tape



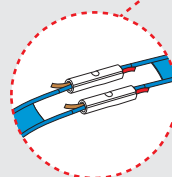
$A = 10,0 \text{ mm}$



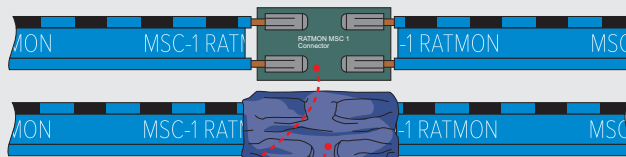
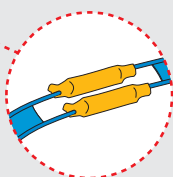
Connection between pipes



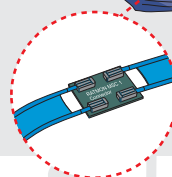
Crimp connector



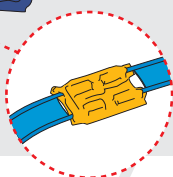
Heat shrink tube



Quick connector set



Heat shrink tube

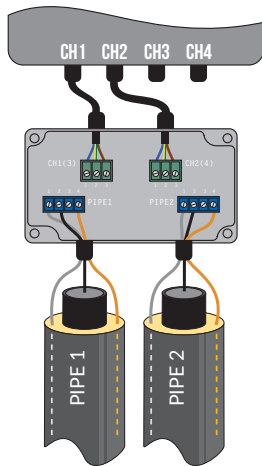


Optional accessories:

DESCRIPTION	PACKAGING	INDEX
Sensor cable	500 m	MSC-1
Cable clip	1500 pcs	CLIP-1
Adhesive tape	60 m	TAPE-1
Crimp connector	100 pcs	CON-1
Quick connector set	100 pcs	CON-2
Heat shrink tube	100 pcs	HST-1

BOX-1

Basic connection box, two loops



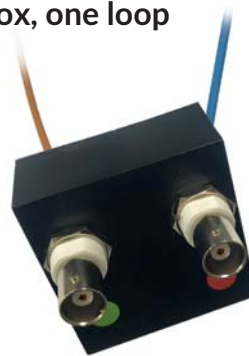
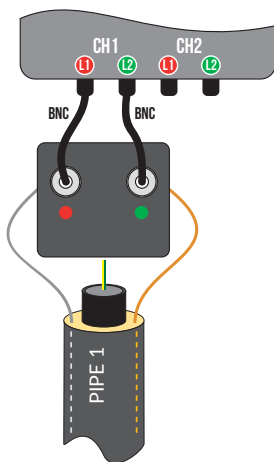
- Application in impulse and resistance network
- Connection of preinsulated pipes with RAT-2 and RAT-2B detectors
- Two channels (two alarm loops)
- Mechanical installation with mounting brackets
- Connection of cables by terminal block connectors
- Connection of detector by terminal block connectors
- Max wire diameter 7 mm
- Housing IP65
- Dimensions: 150 x 70 x 60 mm
- Weight: 0,2 kg

Compatible with:

RAT-2
RAT-2b

BOX-3

Constant impedance connection box, one loop



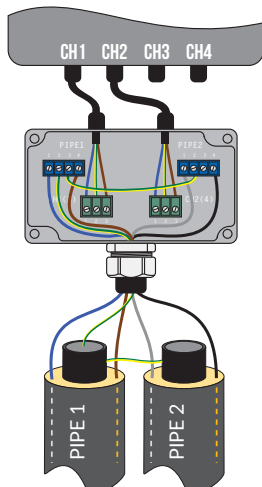
- Application in impulse network
- Stationary connection of RAT-Combo
- One channel (one alarm loop)
- Mechanical installation by pipe
- Connection of detector by BNC cables
- Housing IP65
- Dimensions: 50 x 50 x 50 mm
- Weight: 0,15 kg

Compatible with:

RAT-Combo

BOX-4

Five-core wire connection box, two loops



- Application in impulse and resistance network
- Connection of RAT-2 and RAT-2b
- Two channels (two alarm loops)
- Mechanical connection by mounting brackets
- Wires connection by terminal block connectors
- Detectors connection by terminal block connectors
- Max average diameter of wire 16 mm
- Application by 5-wire connection cables
- Housing IP65
- Dimensions: 150 x 70 x 60 mm
- Weight: 0,2 kg

Compatible with:

RAT-2
RAT-2b

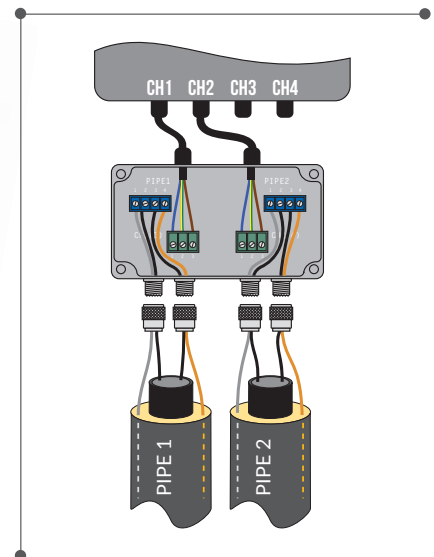
Compatible with:

RAT-2

- Application in impulse
- Connection of RAT-2 detectors
- Two channels (two alarm loops)
- Mechanical installation by two mounting brackets
- Alarm wires connected by UHF (concentric cables)
- Detectors connection by terminal block connectors
- Housing IP65
- Dimensions: 190 x 130 x 60 mm
- Weight: 0,3 kg



BOX-5 BNC/UHF connection box, two loops



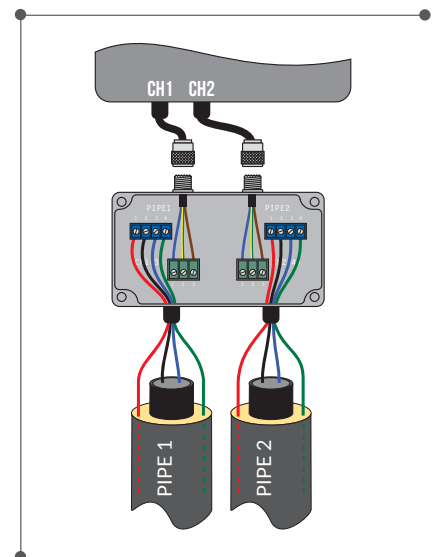
Compatible with:

RAT-2b

- Application in resistance network
- Connection of RAT-2b detectors
- Two channels (two alarm loops)
- Mechanical installation by two mounting brackets
- Alarm wires connected by terminal block connectors
- Detectors connection by industrial connectors M16 6PIN
- Housing IP65
- Dimensions: 190 x 130 x 90 mm
- Weight: 0,2 kg



BOX-6 M16 6pin connection box, two loops



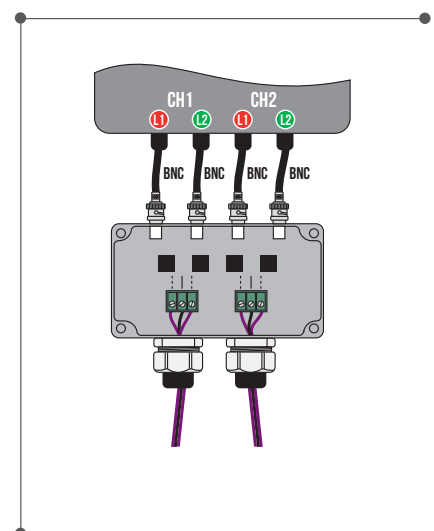
Compatible with:

RAT-Combo
ILA 1.0

- Application in impulse network
- Connection of RAT-Combo and ILA detectors
- Two channels (two alarm loops)
- Mechanical installation by two mounting brackets
- Alarm wires connection by terminal block connectors
- Detectors connection by BNC cables
- Housing IP65
- Dimensions: 190 x 130 x 60 mm
- Weight: 0,36 kg

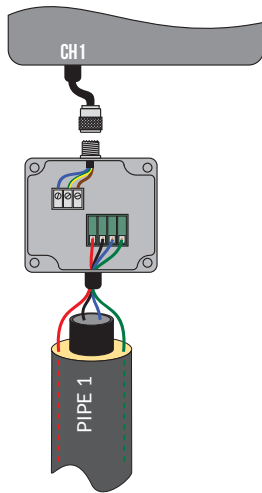


BOX-7 3-wire sensor cable connection box, 2 alarm loops



BOX-8

M16 6pin connection box, one loops

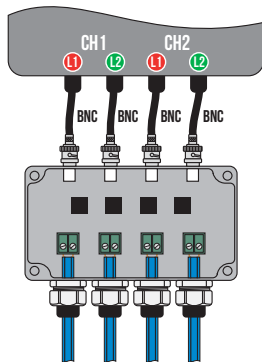


- Application in resistance network
- Connection of RAT-2b
- One channel (one alarm loop)
- Mechanical installation by two mounting holes
- Alarm wires connection by terminal block connectors
- Detectors connection by industrial connectors M16 6PIN
- Housing IP65
- Dimensions: 50 x 50 x 50 mm
- Weight: 0,15 kg

Compatible with:
RAT-2b

BOX-9

MSC-1 connection box, two loops

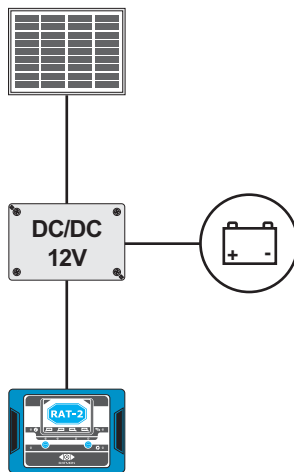


- Application in impulse network
- Connection of RAT-Combo and ILA detectors
- Two channels (two alarm loops)
- Mechanical installation by two mounting brackets
- Alarm wires connection by terminal block connectors
- Detectors connection by BNC cables
- Housing IP65
- Dimensions: 190 x 130 x 60 mm
- Weight: 0,36 kg

Compatible with:
RAT-Combo
ILA 1.0

SOL-1

Solar Power Kit



A complete solar kit that allows the installation of equipment for monitoring pre-insulated networks of the RAT series in a remote location, where access to power supply is difficult. The kit was selected so as to ensure stable operation of the equipment even during extended periods of cloudy days.

The complex includes:

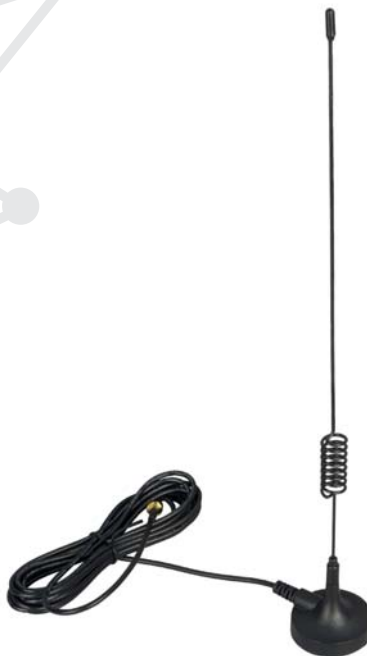
- Solar panel
- Charge controller
- Accumulator
- Airtight housing for the accumulator and charge regulator
- Dimensions: 251 x 186 x 107 mm
- Weight: 1,75 kg

Compatible with:
RAT-2
RAT-2b
RAT-Combo

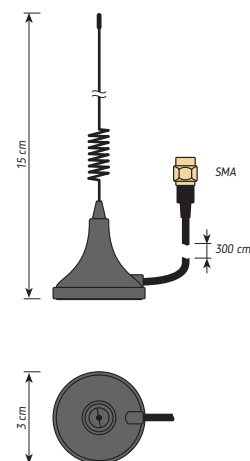
Compatible with:

RAT-2
RAT-2b
RAT-Combo
ILA 1.0

- Additional external GSM antenna
- Type: RF
- Antenna energy gain: 3dBi
- Linear polarization
- Impedance 50 Ω
- Frequency 470...862 Mhz
- Magnetic base for easy mounting
- 3 m cable with SMA connection
- Weight: 0,15 kg



ANT-1 External GSM antenna



Compatible with:

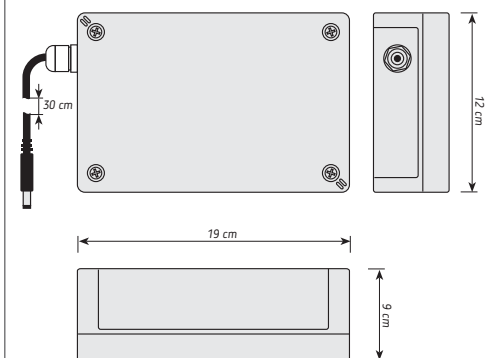
RAT-2
RAT-2b
RAT-Combo



- Output: 12 V DC
- 8 R20 batteries
- Housing IP65
- Installation by DIN rail
- Dimensions: 19 x 12 x 9 cm
- Weight: 1,55 kg

BAT-1

Battery module



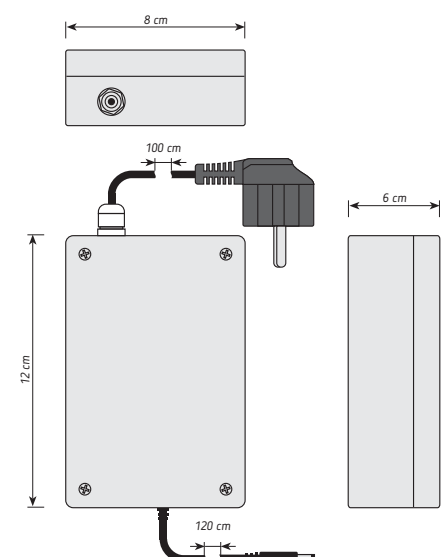
Compatible with:

RAT-2
RAT-2b
RAT-Combo
ILA 1.0



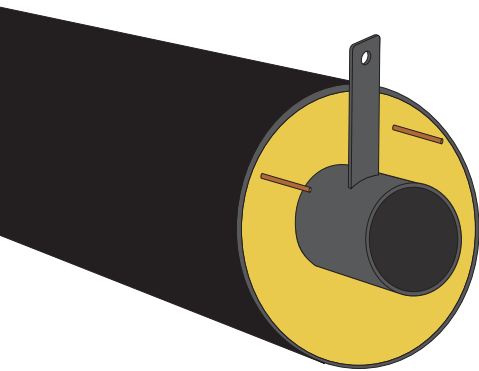
ZH-1

Hermetic power adapter



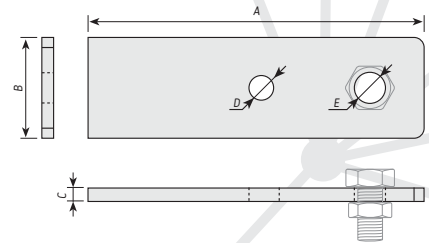
- Protection class: IP65
- Voltage: 230 V / 12 V
- Current: 500 mA
- Dimensions: 12 x 8 x 6 cm
- Weight: 0,42 kg

GND-1 Grounding bracket

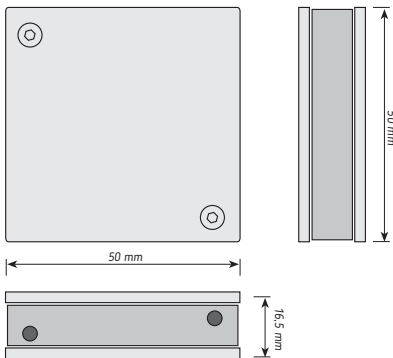


- M8 bolt with nut
- Dimensions: (A) 100 x (B) 30 x (C) 4 mm, (D) 6 mm, (E) 9 mm
- Weight: 0,08 kg

Compatible with:
steel,
pre-insulated pipes



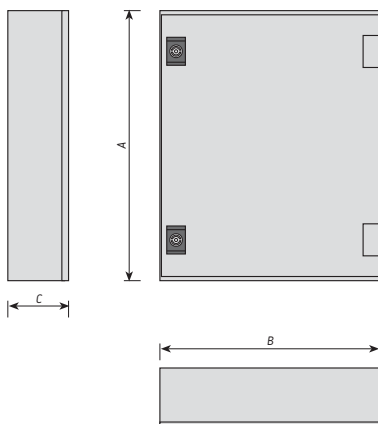
MZM-1 Magnetic pipe connector



- Reliable, stable connection with the pipe
- Designed to check the quality of the connection to the pipe
- Two independent banana sockets
- Made of high quality stainless steel
- Weight: 0,1 kg

Kompatybilne z:
RAT-Combo
MEGALOC-1/1b
SMARTLOC-1

SK-1 External, hermetic cabinet



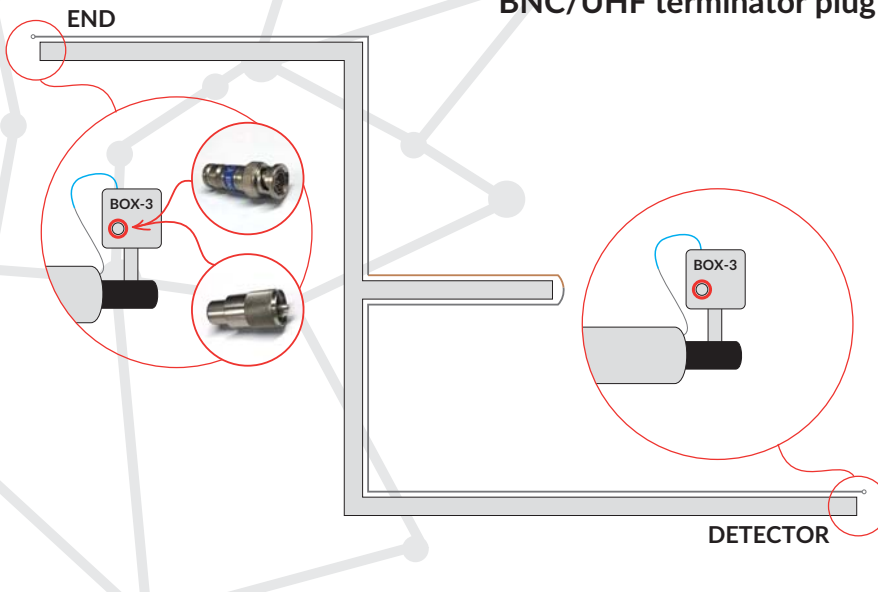
- Material poliester
- Lock with key
- Mounting plate
- Protection cable
- Protection class 1
- Housing IP66 (NEMA 4X)
- Dimensions: (A) 530 x (B) 430 x (C) 200 mm
- Weight: 5,5 kg

Compatible with:
RAT-2
RAT-2b
RAT-Combo
ILA 1.0



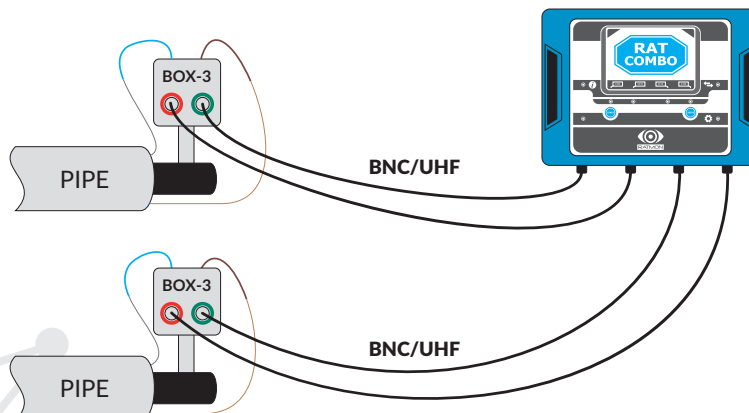
TB-1 • TU-1

BNC/UHF terminator plug for unlooped alarm systems

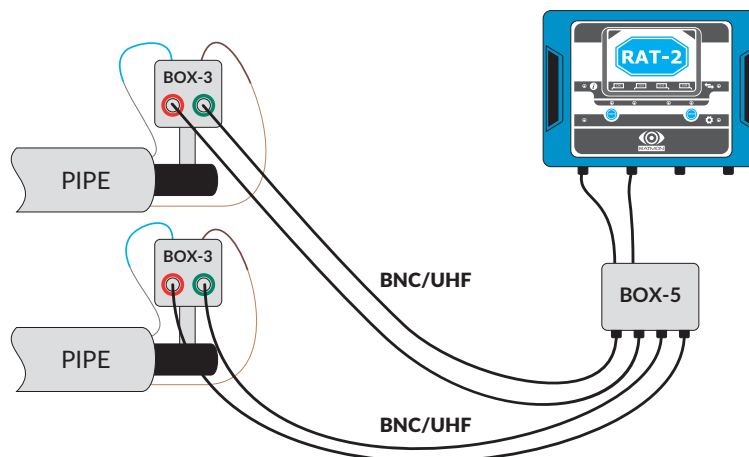


Exemplary methods of connecting devices with pipes

RAT-Combo



RAT-2



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