INSTALLATION MANUAL

Name: Pressure recorder
Type: MacR6
Variant: Z0 & Z0-P
Communication protocol: GAZMODEM2

RELATED TO FIRMWARE:
PROGRAM SERIE: MacR6-P S001.04

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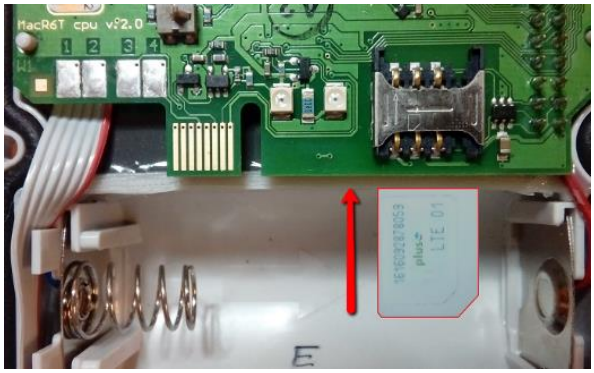
1. PREPARING THE DEVICE

- Remove six TORX T10 screws from back of the cover.
- Next place the Micro SIM card into the holder as shown in the picture. There is no need to remove the battery to insert the SIM card.
- In the next step put the device together and tighten the screws with 0,65-0,75Nm momentum.



SIM card and antenna assembly is allowed only out of the hazardous explosive zone.

- Delivered devices may have the display turned off. To wake it up close the magnet (i.e. OptoBTEx head to the OPTICAL INTERFACE window. SLEEP 3 sign will appear. Repeat closing magnet until START sign will appear. Procedure presented in the tutorial movie => red QR code.

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- Turn on the OptoBTEx interface, put it on the OPTICAL INTERFACE window. Turn on the DATA LOGGER CONFIGURATOR app on Android mobile device. Link to download the freeware application => green QR code.

2. WALL OR PIPE ASSEMBLY

MacR6-Z0 data logger is the device designed for installation in hazardous explosive zones 0, 1, 2. Ex marking Ex II 1G Ex ia IIA T4 Ga.

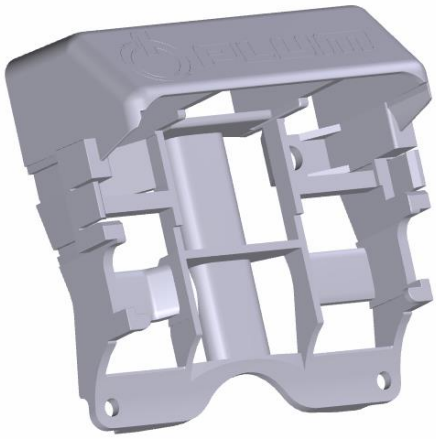
Connecting external antenna cable is allowed only out of the explosive zone.

Minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres are prescribed in Directive 1999/92/EC of the European Parliament and of the Council of 16 December 1999 (ATEX 137 'Worker Protection Directive').

Installation environment must guarantee the strong GSM network signal of the vendor whose SIM card is used in MacR6.

Data logger placement is utilized by using dedicated mounting kit.

- attach the holder to the wall using mounting pegs, or horizontally and vertically to the gas pipes using cable ties
- place the recorder inside the holder until it clicks



Protection level will be kept only with proper cables diameters usage, tightening cable glands, sealing ring arrangement and tightening the front cover with 0,65Nm momentum (maximum 0,75Nm).

In case of flooding the opened device immediately take off the battery. That device has to be examined by the manufacturer.

3. SENSORS CONNECTION

Connect the pressure sensor to the gas flow installation. (MacR6-Z0-P & MacR6-Z0-P/2P):
It is required to connect the sensor using the shut-off valve.

Pressure sensor in MacR6-Z0-P device

Before assembly pressure sensor it is required to reset its indications (compensation of atmospheric pressure). It can be done via Android application (by option in menu Options/Pressure Zero/Make fixes and Save data) or via PlumCONF application (set „P offset st." parameter to value: 1 =>for 1-pressure sensor version of device). "P CAL" will be shown on LCD.
After pressure sensor assembly it is recommended to perform SEr 8 menu to begin pressure measurement test (measurement every 5 seconds for one minute). Value of pressure will be shown on LCD.

4. CONNECTION WITH SMARTPHONE

- OptoBTEx Bluetooth pairing code: 1234. Blue QR code contains the movie presenting proper connection between smartphone and MacR6 device.

LED diode must be on the right side looking on the front of the MacR6. During transmission its musts flash constantly.

Configuration using computer is more detailed in „Configuration using PC" section.

5. COMMUNICATION WITH THE DEVICE

- Through correct device readout on the main screen will be presented the device nameplate. It consists of devices name, variant, serial number, firmware version. After loading all the parameters, the application will proceed to main configuration window.

6. CONFIGURATION PARAMETERS

- Main application window presents parameters necessary for proper device operation.

  Additional parameters:
  - PIN code to SIM card
  - Device password (by default: 4096)
  - Localization parameters

⚠ ***NOTE: Application is designed for whole MacR6 product family. Types of presented parameters can be different for each product type.***

- Choosing "MORE PARAMETERS" presents options common for bigger amount of measuring sites.

  Values able to adjust:
  - diagnostic phone number (i.e. installers cell phone number which will get the SMS message with installation summary). Way of typing: XXYYYYYYYYYY where XX - country destination number without +, YYYYYYYYYY - phone number
  - data server address - way of typing: address:port, i.e. www.ewebtel.com:80
  - time synchronization option (winter/summer/auto change)

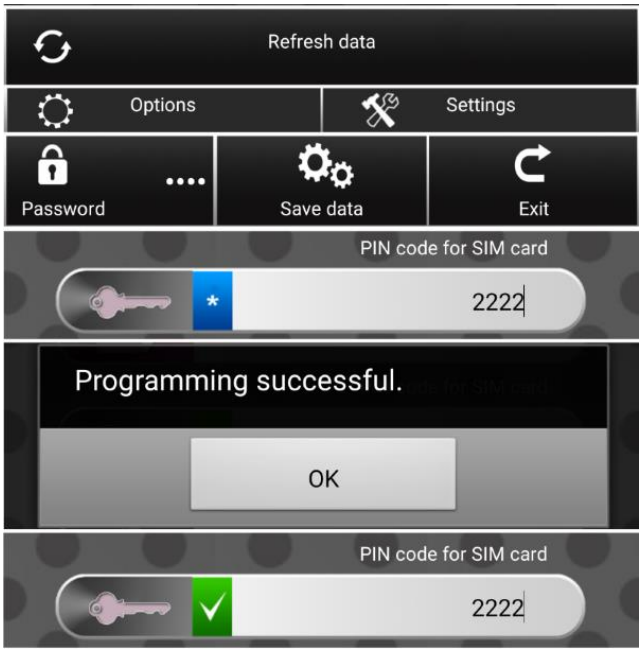
- Choosing "OPTIONS" presents additional parameters:

  - Info - device nameplate, information about last measured GSM range signal value - CSQ, device clock
  - Clock programming - synchronizing devices clock with the smartphone including time synchronization options (winter/summer/auto change)
  - Pressure limits - MacR6-P allows for setting four pressure limits - low limit warning and exceedance, high limit warning and exceedance. After exceeding the warning level user will get the information about exceedance risk.
  - Service APN - APN used for communication with FTP server.

⚠ ***NOTE: It is essential to ensure if the recorder clock is set correctly. If not, it is required to set it using menu OPTIONS and Clock programming.***

7. CONFIGURATION SAVING

- After setting all desired parameters use the "SAVE DATA" button on the bottom of the window. Wait for the confirmation notification on screen.



- Blue markers near modified parameters will change to green.
- Setting the configuration will cause automatic installation mode SEr 5 start. If not, SEr 5 must be performed manually.
- Diagnostic phone number used for summary SMS message can be programmed only while SEr 5 is displayed on the device.

8. CONFIGURATION USING PC

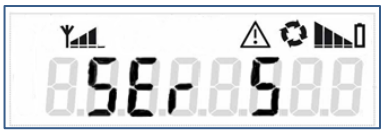
MacR6-P can be configured using PlumCONF freeware PC software. Software is available to download using purple QR code.

Key parameters:

Parameter name	Description
Update Schedule Type	FTP connection schedule: 1 – once a day; 2 – once a week; 3 – once a month
Schedule Type	Data sending schedule: 1 – once a day; 2 – once a week; 3 – once a month
Report Hour	Hour of sending report to the server
Report Day	Day of sending report to the server – parameter ignored if Schedule Type = 1
Registration Report Hours	Decimal value of additional report hours binary vector – extended info in user manual
Report Delay	Delay of sending report according to Report Hour. 0 - no delay, 1 - delay from 0-10 minutes, 2 - delay from 10-20 minutes, 30 - delay from 20-30 minutes
Registration period	Registration period; possible to set total dividers of 60
PIN	PIN to SIM card
APN	APN used for data sending
Update APN	APN used for FTP connection
Data Server Address	Data server address, i.e. www.ewebtel.com:80
Time Auto Change	0 - auto time change winter/summer; 1 - only winter time; 2 - only summer time
P Min Alarm	Lower pressure limit, exceeding will cause the alarm
P Max Alarm	Upper pressure limit, exceeding will cause the alarm
P Min Warning	Lower pressure limit warning about possible pressure drop **P Min Warning > P Min Alarm**
P Max Warning	Upper pressure limit warning about possible pressure increase **P Max Warning < P Max Alarm**
P offset st.	Clearing pressure sensors indication; necessary to be done before the installation • set to: 1 => for 1-pressure sensor version of device

9. INSTLLATION MODE

- Manual SEr 5 option turning on can be done using strong magnet or OptoBTEx head by closing it to the OPTICAL INTERFACE window. Repeat that step until SEr 5 sign will appear. Installation process will start when all ◀ indicators disappear.
- Installation process startup is marked by blinking antenna symbol on display. This means that the internal modem is turned on.
- After few seconds the GSM range indicator will flash constantly. Number of bars determines the GSM range.



- Antenna symbol will be blinking for about minute, then it will flash constantly. Blinking G icon will appear, which means connecting with APN.
- In the next step together with G icon the blinking ↑ data sending icon will appear.
- In the end, the device will proceed to normal work showing periodically date, hour and registered parameters value. All of mentioned icons should flash constantly, which determines the correctness of sending data.

10. DEVICE DISPLAY

On display there are presented periodically registered values, date and hour.

During normal device state following indicators can be visible:

	Battery level indicator
↑	Sending data to the server / data sent.
G	APN connection indicator – visible together with indicator above

- "SEr 7" menu allows for connection with server examination. During this mode registered data from last billing day is sent. On display the "rEPort" sign will appear. When finished - the ↑ symbol will appear.
- "SEr 6" menu allows for GSM signal range and antenna efficiency examination. This test lasts for about 1 minute, where on display current CSQ level is presented. Mostly CSQ ≥ 9 is sufficient.

Variants

Analog inputs		Digital inputs	Digital outputs	Modem type
AI1	AI2	DI	DO	GSM
P-X	0	0	0	2G
	P-X	1	1	3G
		2	2	

Description:
0 – not installed
P – pressure sensor
X measurement range, i.e.;
0.1G – 0÷10 kPa
6G – 0÷600kPa
6A - 80÷600kPa abs
DI/DO – 0, 1 lub 2 – digital inputs or outputs amount
2G – modem 2G
3G – modem 3G
Sample marking:

AI1	AI2	DI	DO	GSM
P-6G	0	2	2	3G

TECHNICAL SUPPORT

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