

Bluetooth · Wi-Fi · TCP/IP Remote Application

User Guide



for **MAG X2**

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1. Introduction

This document provides the installation guide and setup of android application to monitor MAGX2 transmitter over TCP/IP, Wi-Fi and Bluetooth connection.

1.2 System requirements

The hardware and software requirements of your computer must be at least equal or better than those listed below to ensure that the software works correctly.

- MAGX2 Flowmeter with TCP/IP, Wi-fi or Bluetooth module
- All MAGX2 devices operating firmware version 21.22 and above
- Android 2.3.3 Phone, Android 4.1.1 Mini-computer, Android 4.2.2 Phone
- MODBUS Monitor or MODBUS Monitor Advanced application

2. Installation information

2.1 MAGX2 modules

Installation of the communication modules should only be performed by a qualified staff or person who meets safety requirements.

2.1.1 Wi-Fi module

Follow MAGX2_Wi-Fi Installation procedure.

2.1.2 TCP/IP module

Follow MAGX2_TCP-IP Installation procedure.

2.1.3 Bluetooth module

Follow MAGX2_Bluetooth installation procedure.

2.2 Monitoring applications

The listed Android Modbus applications for phones and tablets are recommended:

Modbus Monitor:

<https://play.google.com/store/apps/details?id=com.Bhavan.Hubble>

Modbus Monitor Advanced:

<https://play.google.com/store/apps/details?id=com.Bhavan.Galex>

Follow installation procedure specific for each device.

2.3 Modbus Monitor Advanced v5.0.0

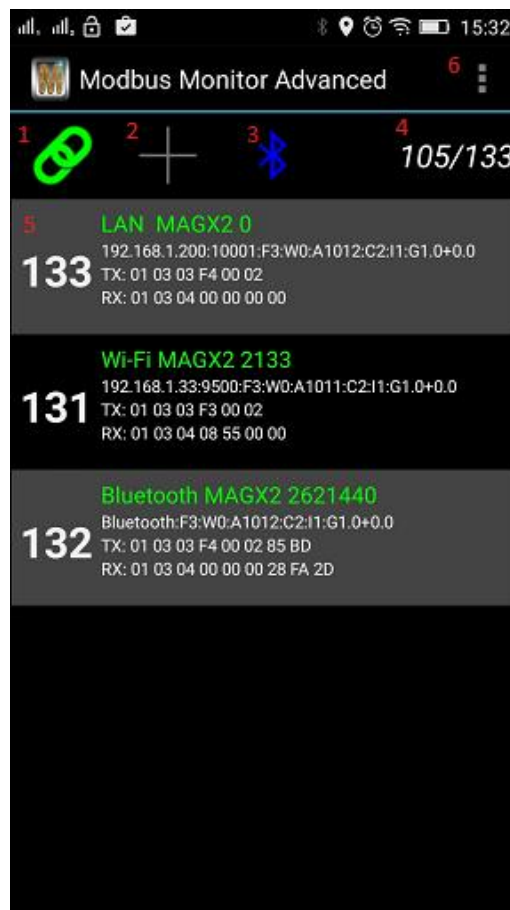
Application *Modbus Monitor Advanced* is able to communicate with the remote Modbus devices using

- Bluetooth,
- Ethernet,
- Wi-Fi or
- USB OTG Serial ports

It utilizes Modbus RTU over TCP protocol for TCP/IP and Wi-Fi connection and Modbus RTU for Bluetooth connection.

2.3.1 Main Window

The Modbus Monitor user interface is shown on Picture 1. Most commands are available by single or long tapping the Monitor Point Entry list.



Picture 1. Main window layout

The legend below explains the meaning of main controls on the mobile screen:

1. Start Modbus Master Polling
2. Add New Monitor Point
3. Bluetooth interface control (On/Off)
4. Packets counter – Good Packets Received (Rx)/Packets Sent (Tx)
5. Monitor Point(s) or Register Entry
6. Application settings

2.3.2 Preferences

Settings menu can be accessed by tapping preference icon. See Picture 2.



Picture 2. Application preferences menu

In Table 1 find description of items under Preferences menu.

Table 1. Preferences menu

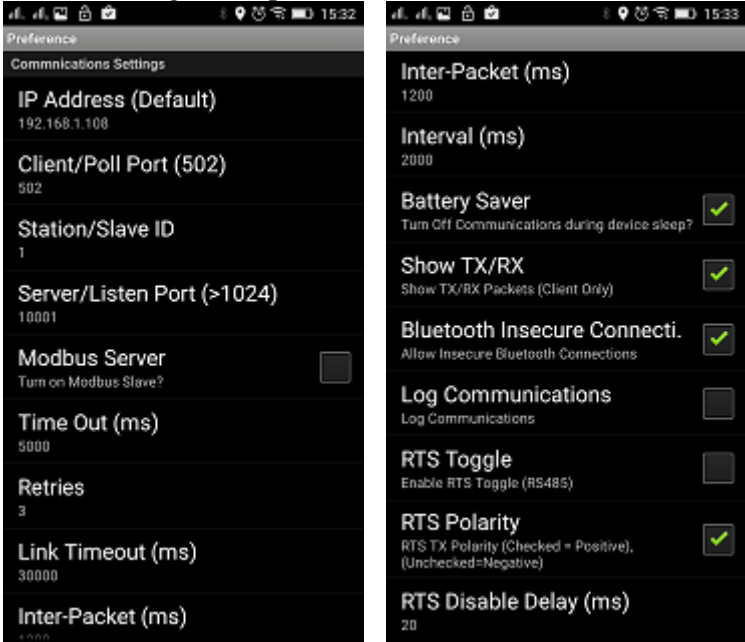
Menu item	Description
Connect	Start or stop communications
Add New Register	Add new monitor point to the list
Settings	Show settings or preference screen
Lock Rotation	Lock screen rotation
Exit	Exit the application
Import	Import monitor list from *.csv file
Export and email	Export monitor list to *.csv file and send to email
Factory Reset	Delete all points from list and reset all settings to default
Reset Tx/Rx counters	Reset transmit and receive counters to 0
Reset Statistic	Reset statistic values (Min, Max, Avg)
Help	Link to more information

For detailed description of each item in preference/setup menu follow the link under help item. Set-up parameters as described in Table 2.

Table 2: Recommended application settings

Menu Item	Recommended Value
IP Address	N/A
Client / Poll Port	N/A
Station / Slave ID	N/A
Server / Listen port	8888
Modbus Server	No
Time out (ms)	5000
Retries	3
Link Timeout (ms)	10000
Inter-packet (ms)	>500
Interval (ms)	> 2000
Battery Saver	Yes/No
Show Tx/Rx	Yes/No
Bluetooth Insecure Connection.	Yes
Log Communication	Yes/No
RTS Toggle	No
RTS Polarity	YES
RTS Disable Delay (ms)	20

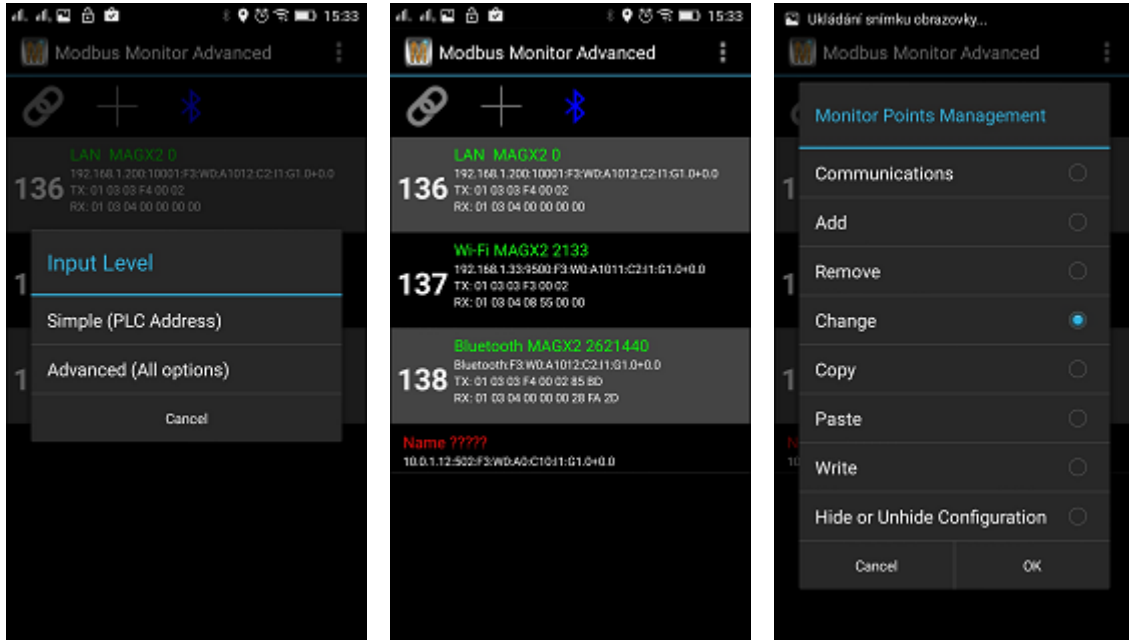
Example of recommended settings is on picture 3.



Picture 3. Recommended application settings

2.3.1 Add MAGX2 flowmeter with TCP/IP, Wi-Fi module to monitor list

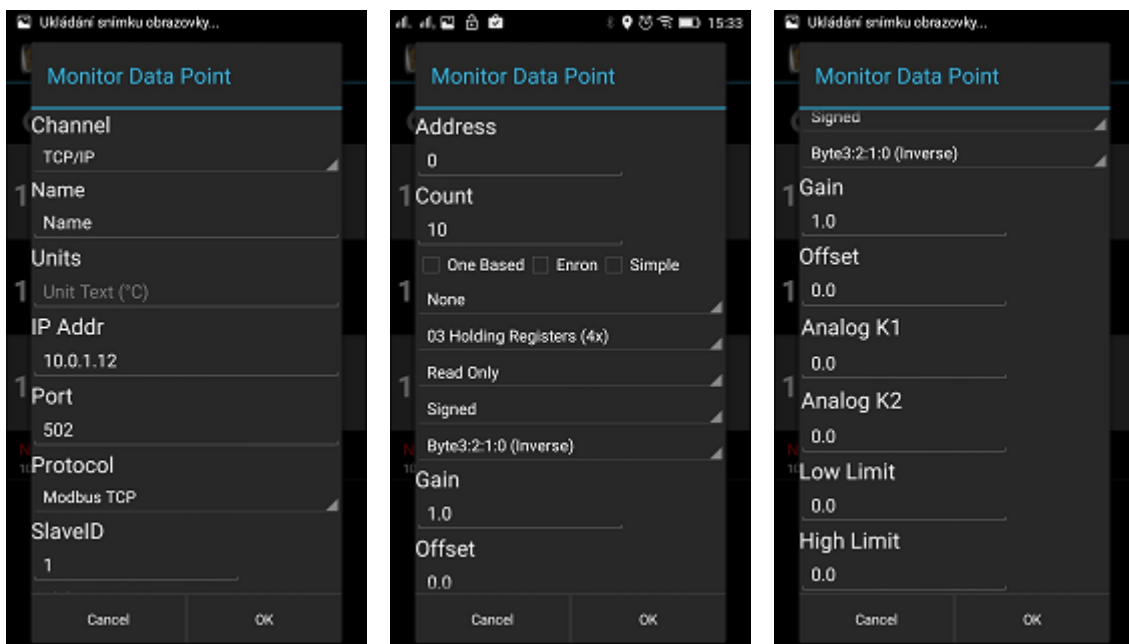
Tap control to add devices to monitor list (see chap 2.3.1 control 2), select advanced input level (Picture 3, left). New device will appear in monitor list (red item, Picture 3, centre)



Picture 4. Adding flowmeter to device list

Tap new item in monitor list to open monitor point's management menu and select change option (Picture 4, right).

For detailed description of each item in monitor data point menu (Picture 5) follow the link under help item. Set-up settings parameters as described in Table 3.



Picture 5. Monitor data point setup

Table 3: Recommended monitor data point settings

Menu Item	Recommended Value
Channel	TCP/IP
Name	*Usr
Units	*Usr
IP Addr	IP address of MAGX2 TCP/IP or Wi-Fi module
Port	MAGX2 TCP/IP: 10001 MAGX2 Wi-Fi: 9500
Protocol	Modbus RTU over TCP
SlaveID	*1
Address	*999
Count	*2
None 03 Holding register (4x) Read Only Long (Count=2) Byte 1:0:3:2	Use these recommended settings
Gain	1
Offset	0
Analog K1	0.0
Analog K2	0.0
Low Limit	0.0
High Limit	0.0

*Usr - User defined

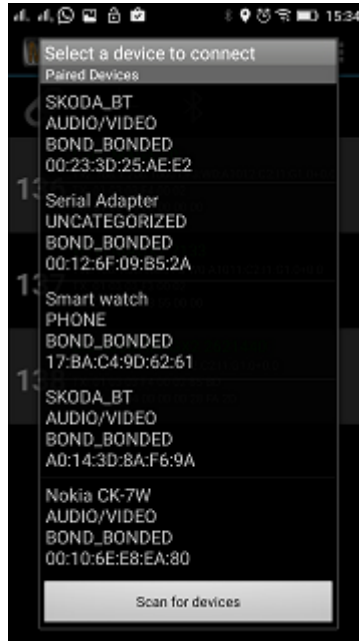
*1 - ensure same settings as on MAGX2 flowmeter

*999 - Unit No. Follow MAGX2Modbus User Guide to read registers

*2 - reading 1 register at specified modbus address

2.3.1.2 MAGX2 with Bluetooth module

Tap the Bluetooth icon (see chap 2.3.1 control 3) to add Bluetooth device. Select serial adapter and pair device. Open new item in monitor list, enter monitor points management menu and select change option (Picture 3, right). For detailed description of each item in monitor data point menu follow the link under help item. Set-up settings parameters as described in Table 4.



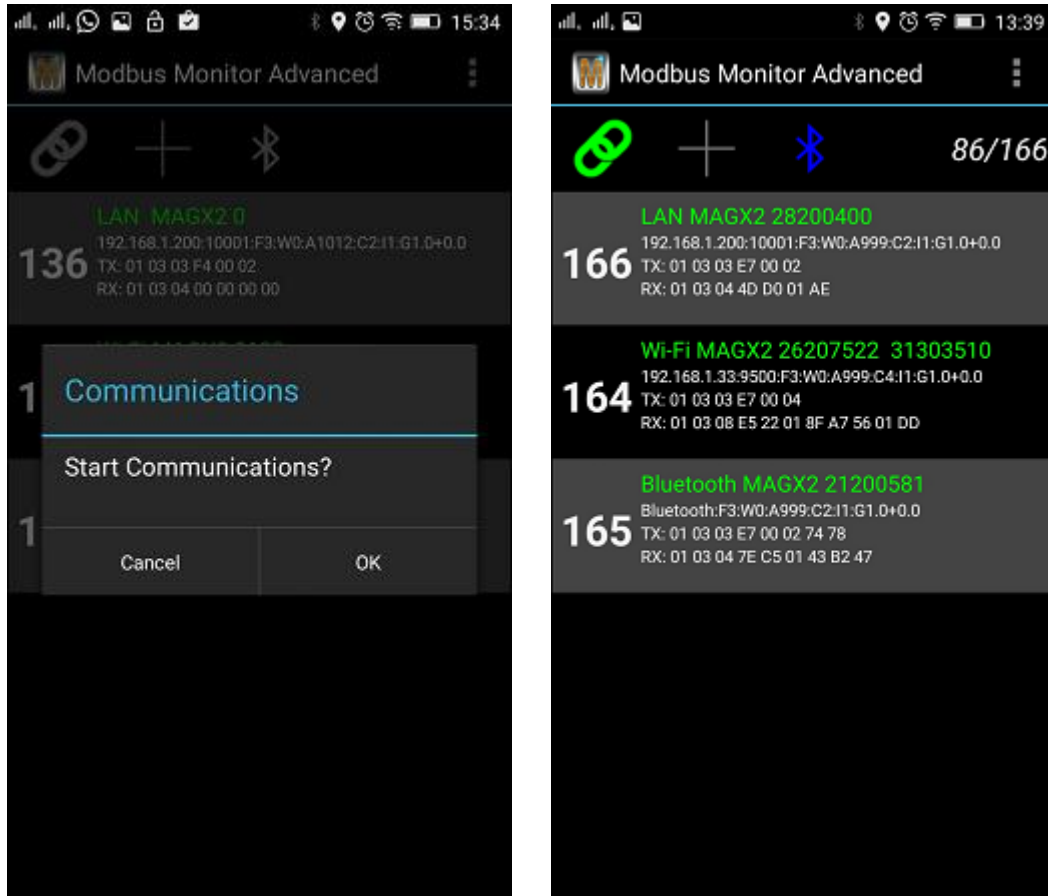
Picture 6. Connect to MAGX2 Bluetooth module

Table 3: Recommended monitor data point settings

Menu Item	Recommended Value
Channel	Bluetooth
Name	*Usr
Units	*Usr
IP Addr	IP address of MAGX2 TCP/IP or Wi-Fi module
Port	MAGX2 TCP/IP: 10001 MAGX2 Wi-Fi: 9500
Protocol	Serial RTU
SlaveID	*1
Address	*999
Count	2
None 03 Holding register (4x) Read Only Long (Count=2) Byte 1:0:3:2	Use these recommended settings
Gain	1
Offset	0
Analog K1	0.0
Analog K2	0.0
Low Limit	0.0
High Limit	0.0

2.3.2 Data monitoring

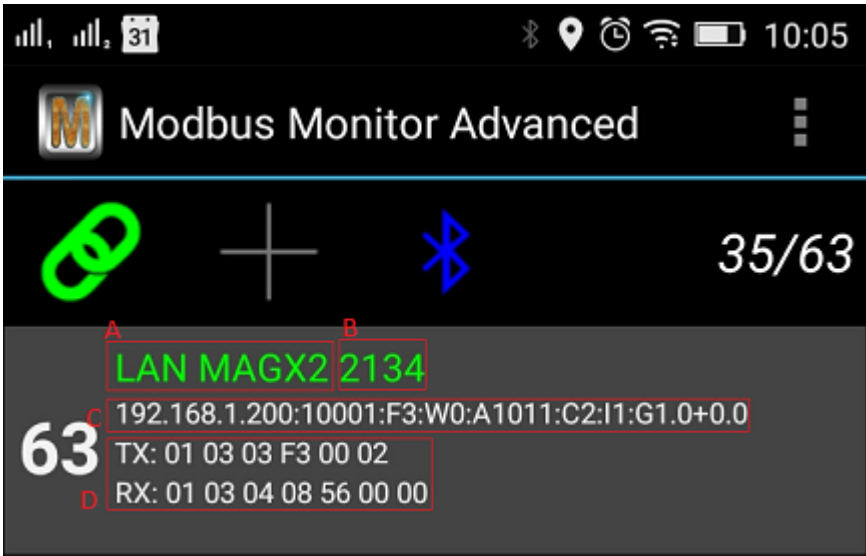
Tap the communication icon (see chap 2.3.1 control 1) to initialize monitoring of devices in list.



Picture 7. Start of communication and received data

2.3.3 Data representation

Table 4 describes displayed values of each item in monitor list (Picture 9) in details.



Picture 9. Received Data representation

Table 3: Data representation

Value	Description
A	Monitor Point Name
B	Polled data value
C	Monitor Point configuration
D	Modbus packet Tx = Transmitted Rx = Received

2.4 Modbus Monitor v1.0.2

Application *Modbus Monitor* is able to communicate to the remote Modbus devices using

- Ethernet or
- Wi-Fi

It utilizes Modbus RTU over TCP protocol to allow monitoring of multiple Modbus registers of a single device.

2.4.1 Main Window

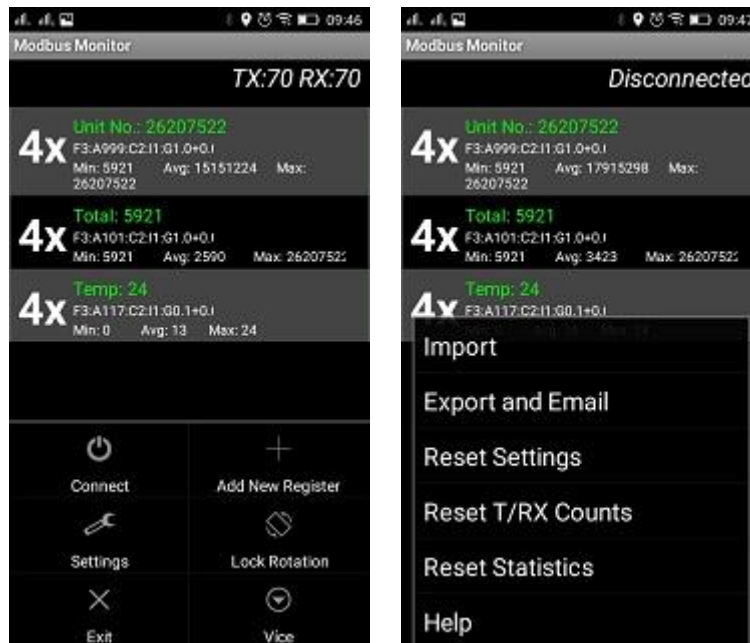
The Modbus Monitor user interface is shown on Picture 10. Status commands are available by single tapping the Monitor Point Entry.



Picture 10. Main window layout

2.4.2 Preferences

Settings menu can be accessed by tapping preferences button. See Picture 11.



Picture 11. Application preferences menu

Items in *Preferences* menu are listed in Table 4a and 4b.

Table 4a. Preferences menu

Menu item	Description
Connect	Start or stop communications
Add New Register	Add new monitor point to the list
Settings	Show settings or preference screen
Lock Rotation	Lock screen rotation
Exit	Exit the application

Table 4b. Preferences menu under more buttons

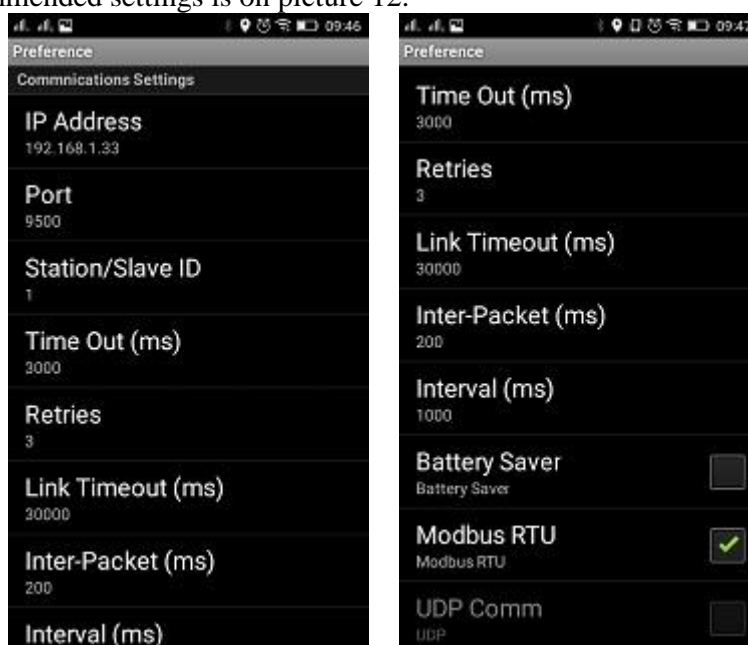
Import	Import monitor list from *.csv file
Export and email	Export monitor list to *.csv file and send to email
Reset Settings	Delete all points from list and reset all settings to default
Reset Tx/Rx counts	Reset transmit and receive counters to 0
Reset Statistic	Reset statistic values (Min, Max, Avg)
Help	Link to more information

For detailed description of each item in preference/setup see Table 5.

Table 5: Recommended application settings

Menu Item	Recommended Value
IP Address	
Port	
Station / Slave ID	
Server / Listen port	8888
Time out (ms)	5000
Retries	3
Link Timeout (ms)	10000
Inter-packet (ms)	>500
Interval (ms)	> 2000
Battery Saver	Yes/No
USP Com	No

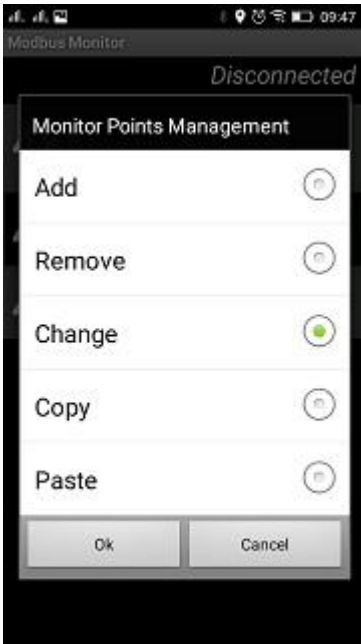
Example of recommended settings is on picture 12.



Picture 12. Recommended application settings

2.4.3 Add MAGX2 flowmeter with TCP/IP, Wi-Fi module to monitor list

Select add devices from preferences or tap monitor list to access monitor points management menu to access add command. New device will appear in monitor list. Tap new item in monitor list to open monitor point's management menu and select change command (Picture 13).



Picture 13. Adding MAGX2 flowmeter to device list

For description of each item in registry monitor definition (Picture 14) follow recommended set-up parameters as described in Table 6.



Picture 14. Registry monitor setup

Table 6: Recommended registry monitor settings

Menu Item	Recommended Value
IP Addr	N/A
Name	*Usr
Address	*999
SlaveID	*1
Count	*2
03 Holding register (4x) Long Byte 3:2:1:0	Use these recommended settings
Gain	1
Offset	0

*Usr - User defined

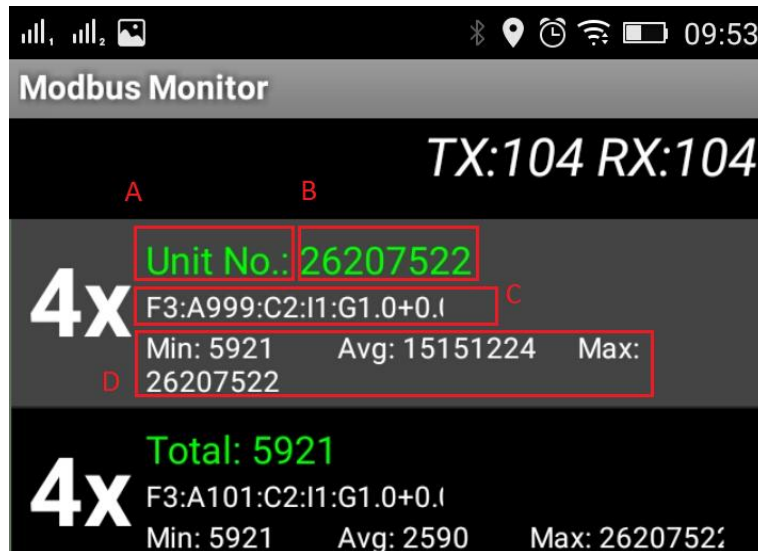
*1 - same settings as on MAGX2 flowmeter

*999 - Unit No. follow MAGX2Modbus User Guide to read registers

*2 - reading 1 register at specified modbus address

2.4.4 Data monitoring and representation

Select connect command from preferences to initialize monitoring of registers in list.



Picture 15. Start of communication and received data

Table 3: Data representation

Value	Description
A	Name of register
B	Polled data value
C	Configuration
D	Statistic values (Min, Max, Avg)

4 Appendix

4.1 Warranty

The warranty conditions are covered by Arkon Flow Systems, s.r.o. Terms & Conditions of Sale are by Arkon Flow Systems, s.r.o Return Regulations and Warranty Conditions. The Arkon Flow Systems, s.r.o. Terms & Conditions of Sale and the Arkon Flow Systems, s.r.o. Return Regulations and Warranty Conditions are an integral part of the Resellers contract and of any Order Confirmation. Please see your Resellers contract or the Support section at www.arkon.co.uk. The Warranty sheet is part of the Packing note of any new products sent. For the claim or return procedure, please consult our web site www.arkon.co.uk or call the Arkon Flow Systems, s.r.o. sales office.

4.2 Contact



Technical support: support@arkon.co.uk
Skype: support.arkon

Sales office: office@arkon.co.uk

Office hours:
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Direct technical support:
8:00 – 17:00 (GMT+1)