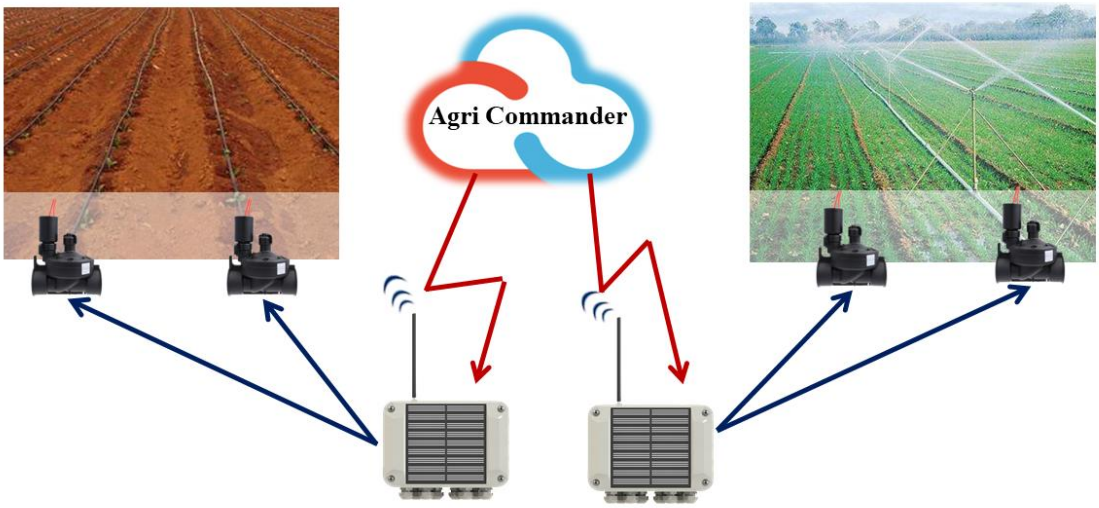
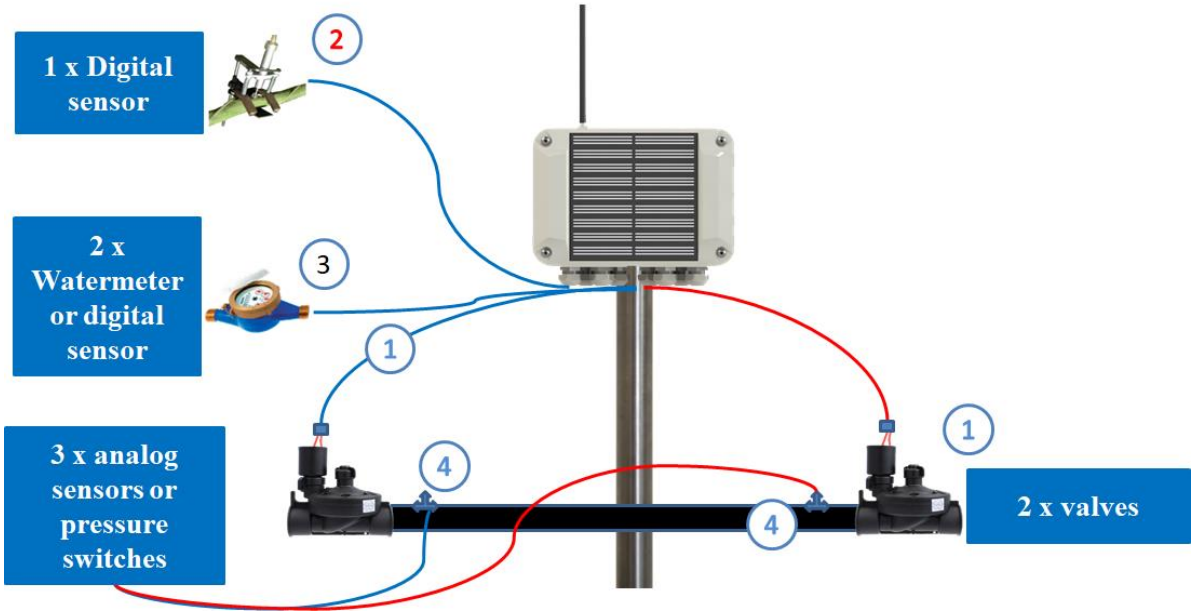
AgrioValve Manual

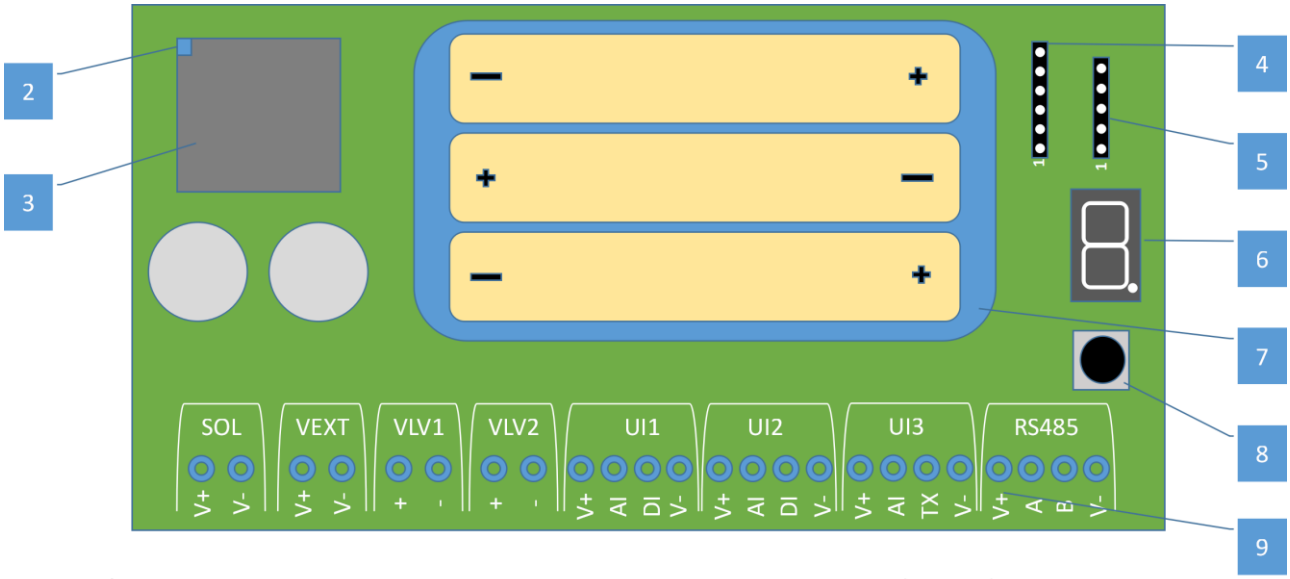


CONTENT

1. Introduction

AgrioValve





1 433/ 470 MHz antenna
2 868 MHz antenna
3 LoRa module
4 Programming cable
5 USB cable

6 Display
7 Battery
8 Test button
9 Cable connectors

V+ Sensor power
AI Analog input
DI Digital input
V- Ground
TX One wire input
A,B - RS485

SOL Solar panel
VEXT External power 5-12V
VLV1 Valve 1
VLV2 Valve 2

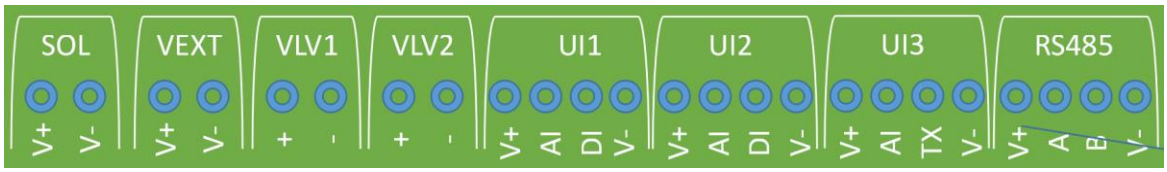
2. Technical parameters

Model	**ACSV12**
Valve outputs	
Number of valves	2
Type of valves	Latching valve 9 ~ 18V DC
Sensor inputs	
Analog inputs	3
Digital inputs total	3, can be used for any sensors with DGT-V protocol 2 can be used for counters like water, rain, wind 1 can be used for 1-Wire (RHT sensor)
RS485	1
Communication	
Communication standard	LoRa 433 MHz / 470 MHz
Communication interval	60 min *
Communication distance	5 ~ 10 km **
Power supply options	
- **Primary battery**	3 x Alkaline AA 1.5V batteries
- **Rechargeable battery**	3 x 1.2V Lithium / NICm AA 1.2 batteries
- **External power supply**	5V 1A
Environmental	
Temperature range	-20℃~ +80℃
Protection class	IP-65

*Communication interval depends on the distance between device and LoRa gateway.

** Communication distance depends on the environment and may be shorter than declared.

3. Sensor inputs



UI #	Input label	Functions	Supported sensors	Default Sensor
UI1	AI	Analog	Any analog sensor	Analog
	DI	TTL	Any DGT-V sensor, Decagon GS3	Counter normally open
		Counter	Rain gauge normally open	
			Wind speed normally open	
			water counter normally open	
UI2	AI	Analog	Any analog sensor	Analog
	DI	TTL	Any DGT-V sensor, Decagon GS3	Phytosensor
		Counter	Rain	
			Wind speed	
			water counter	
UI3	AI	Analog	Any analog sensor	Analog
	TX	One-wire	AM2303 RHT sensor	AM2303 RHT sensor
RS485	A/B	RS458	Any RS485 sensors	Not implemented

Notes

1. V+ is voltage from the battery. It is applied only during measurements. Excitation time (time between applying V+ and taking measurement) is configurable
2. V- is ground
3. If both sensors, analog and digital are connected to a single UIx, V+ and V- can be shared.

Supported digital sensors

In the above table, column default sensor shows what kind of sensor can be connected to a particular channel by default configuration. This can be changed from web interface. Customer can select any sensor listed in the column supported sensors. Please note, if you changed the type of sensor for an input, old data may be not visible on the web application because new sensor will use same logical channel as the old one in the database.

4. Installing LoRa Gateway

For Ethernet communication

1. Mount metal holder to the enclosure

2. Connect LoRa antenna. It can be connected directly or via extension cable.

3. Connect GPS antenna.

4. Connect Ethernet cable from Internet router to POI injector Data In

5. Connect Ethernet cable from POI injector to Lora Gateway Ethernet connector

6. Make sure that Internet router has DHCP service runnign to assign dynamic IP address to LoRa router

7. Mount Lora gateway on highest possible point to get longest communication distance and save the battery of LoRa nodes

8. Make sure that antenna is positioned vertically and has no metal parts or other conductive obstacles nearby

9. Connect power of POI injector to 220 V power socket

For mobile network (4G, 3G)

1. Send details of your internet provider with your order. Provider name, MCC, MNC, APN, user name and password. This will allow us to configure correct APN for your gateway. It can also be configured later remotely but will be more difficult and require payment of support work

2. Mount metal holder to the enclosure

3. Connect LoRa antenna. It can be connected directly or via extension cable.

4. Connect GPS antenna

5. Connect GSM antenna

6. Open the front panel of the enclosure and insert a SIM card. Make sure that POI injector is powered off before opening the front panel

7. Connect Ethernet cable from POI injector to Lora Gateway Ethernet connector. This is necessary to power up the gateway

8. Mount Lora gateway on highest possible point to get longest communication distance and save the battery of LoRa nodes

9. Make sure that antenna is positioned vertically and has no metal parts or other conductive obstacles nearby

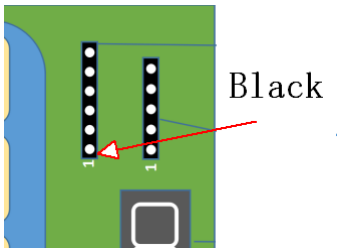
10. Connect power of POI injector to 100V - 240 V power socket

Make sure that POI injector is powered off before opening the front panel

5. Using USB interface

1. Connect FTDR USB - TTL cable to USB connector (5)

Black wire of USB adapter must be connected to the pin labeled 1.



Use FTDR adapter TTL-232R-3V3 with 3.3V level from
http://www.ftdichip.com/Products/Cables/USBTTLSerial.htm

2. Connect USB to PC

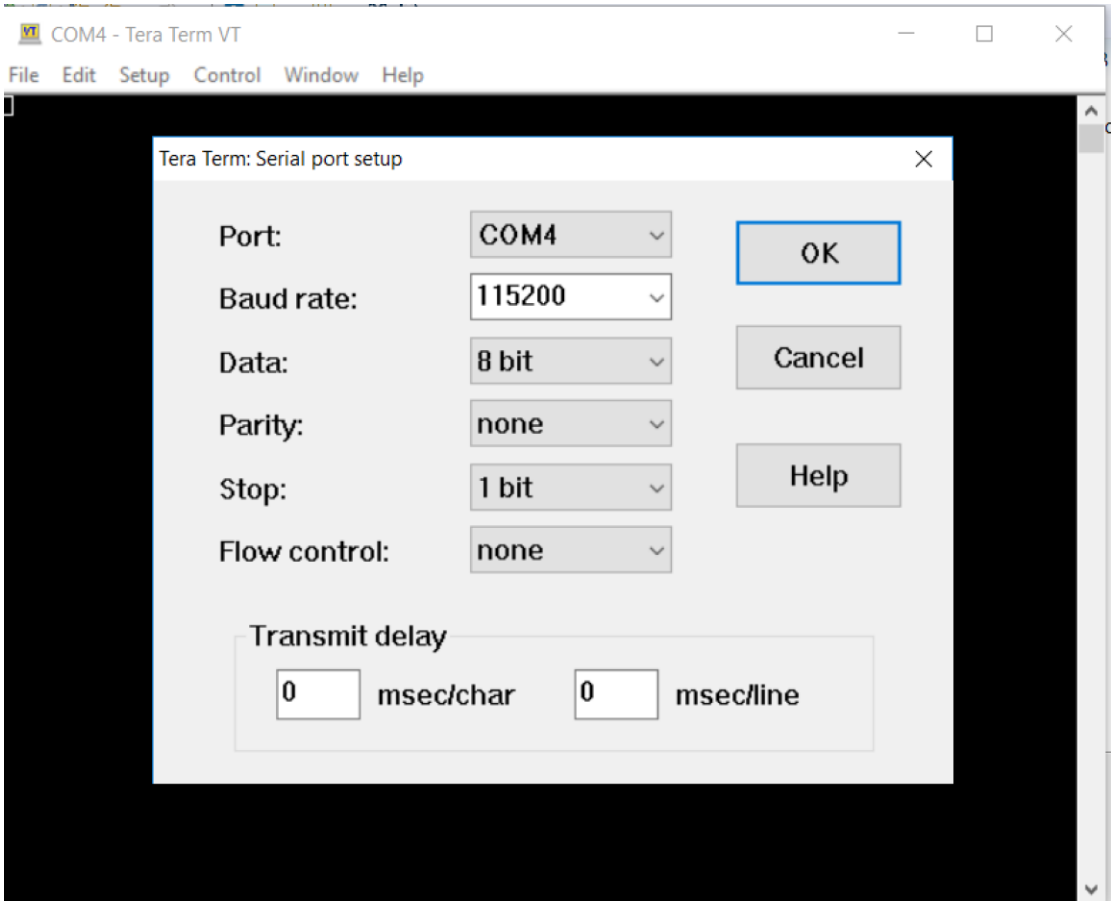
3. Make sure that you installed FTDI com port driver from
http://www.ftdichip.com/Drivers/VCP.htm

4. Start Teraterm from http://ttssh2.osdn.jp/ or another terminal software and open com port with following parameters

Baud rate: 115200

Data bits: none 8

Data flow control: none



Note:

If you connect USB cable to device and computer but do not open terminal program, device will not work properly

5. Press button on device, then press space. Password prompt should appear on the terminal screen.

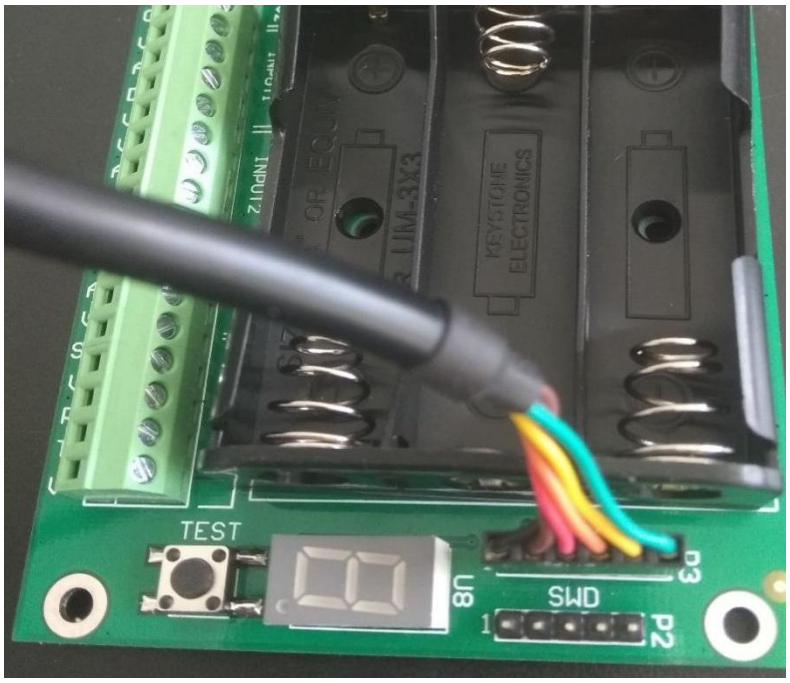
6. Input your password and menu will appear

6. Updating software

Sometimes you may need to update software of your device to have new functions, support new sensors or resolve problems.

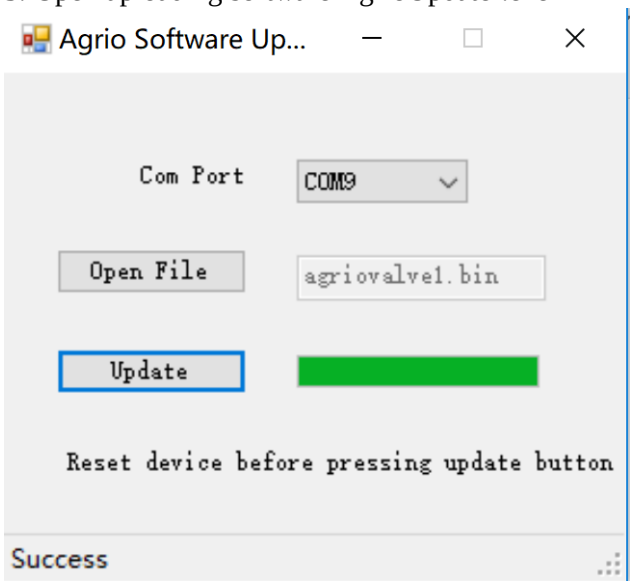
Please follow the steps described below.

1. Connect FTDI cable to FTDI connector and connect USB connector of the cable to PC



2. Make sure that you installed FTDI com port driver from http://www.ftdichip.com/Drivers/VCP.htm

3. Open uploading software AgrioUpdater.exe



4. Select com port created

5. Select .bin file
6. Reset device by disconnecting / connecting one battery
7. Press button “Update”
8. Remove FTDI USB cable
9. Reset device.
Don’t forget to reset the device after updating software, otherwise it may stay in unknown state and consume the battery.
10. Make sure that device is communicating with the web server

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