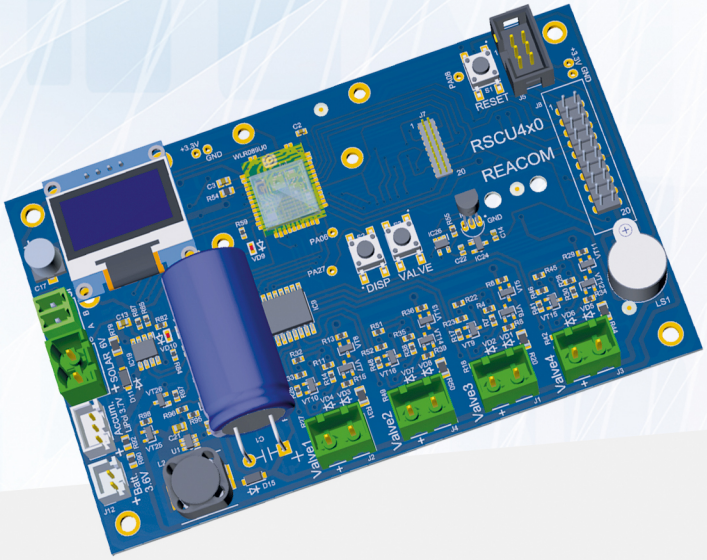
VALVE CONTROL MODULE



PRODUCT DESCRIPTION

RSCU4x0 is LoraWAN module, controls and monitors the status of up to four irrigation valves S-392T 3W, S-982-3W (BERMAD) or similar.

CONCEPT OF OPERATIONS

The module controls water and/or fertilizer valves using commands from a centralized management and monitoring system. The commands may be broadcasted to a group of up to 255 devices in the same control domain simultaneously, resembling multicast in IP networks, which dramatically reduces the number of commands required for a large population of devices executing repetitive operations.

EXPANSION CAPABILITIES

- an expansion daughter (mezzanine) board enables control of high current loads such as 3-phase motors or pumps, heaters, lighting, ventilation, etc.
- built-in digital and analogue ports may be connected to various sensors (pressure, light, humidity).

RSCU4xC may be installed in any suitable sealed enclosure.

RECOMMENDED POWERS SOURCES:

- single use battery Li-SOCI2 3.6B (13 000-19 000 mA*h)
- rechargeable battery Li-Ion 3.7B (5000-10 000 mA*h) + External PSU (DC 5V-6V)
- rechargeable battery Li-Ion 3.7B (5000-10 000 mA*h) + Solar Panel (6V, 3W-10W)
- external PSU (DC 4V-6V, 2A)

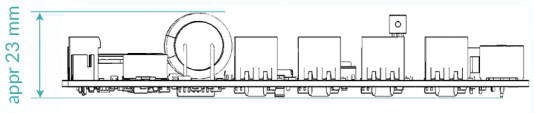
The module has a built-in Li-Ion 3.7V battery charging controller with LED indicators.

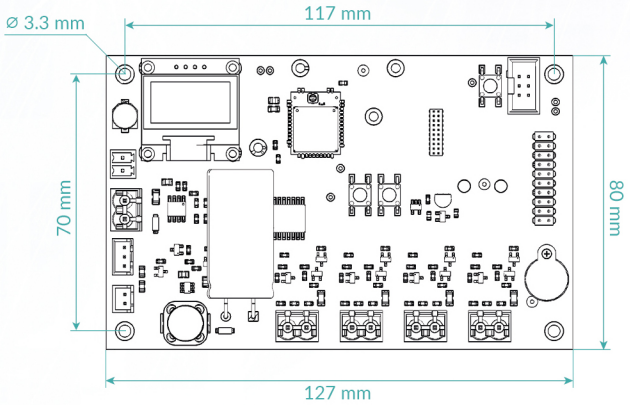
A robust and flexible configuration system allows it to meet all customer's requirements and integrate with the most of the irrigation systems and equipment layouts.

FEATURES HIGHLIGHTS

1. Up to four 12V solenoid valves with the toggle (switching) time 80-100 ms. The pulse duration may be adjusted.
2. Automatic valve test (operational, open circuit, short circuit). The test is performed before every valve position switch.
3. Remote control using LoRa protocol version 1.0.4
4. Four modes of operations, from maximum responsiveness (reaction time 2-3 sec) to the maximum power saving.
5. 128x64 OLED screen for displaying diagnostics and basic load information locally for the field installation and maintenance procedures.
6. A physical reset button on the board.
7. A physical button initiating connected valves test procedure.
8. Communication protocol implements reliable data transmission, including retransmits if possible.
9. 9.Custom expansion boards for connecting additional sensors and actuators.
10. Configuration storage in non-volatile memory.
11. RS485 interface.
12. Encrypted control and data connections.
13. Very low power consumption. 8-10 µA in Standby mode
14. Convenient layout of the connectors on the board.
15. Fully-featured API for IoTivity platform or third party integrations.

Main Body





TECHNICAL SPECIFICATIONS

ELECTRIC

Input power	1 x 3.6V Li-SOCl 2 battery (19000 mAh recom)
or	1 x 000 mAh Li-Ion accum + Solar panel 6V 3W
or	External power source 4V-6V, 2A
Standby current	8-10uA
Transmitting current	38 mA
Receiving current	14.8 mA
Battery voltage measurement accuracy	10mV

PHYSICAL

Main body dimension	80x127 mm
Weight	90 g
Operating temperature	0 °C to 50 °C
Storage temperature	-20 °C to 70 °C
Environment humidity range	depends on enclosure
Antenna connector	SMA

RADIO

TX power	2 dBm ± 14 dBm
Rx sensitivity	136 dBm
Antenna type	internal or external
Communication range	up to 10 km (depends on environment)
Frequency	EU863-870