

Data Sheet

Talgil - RTU RF G5 - Modular



Description: RTU-RF G5 MODULAR
Product Code: TG-RTURFG5MOD



Product Description

The Generation 5 RADIO RTU system of TALGIL offers a perfect solution for controlling distributed irrigation systems, eliminating the need for costly and complex cabling and the potential for future cable integrity issues.

The G5 RADIO RTU system was launched in 2018; it is based on all the accumulated experience in TALGIL of thousands of wireless systems installed and supported during the past 20 years. The system utilizes low transmission energy, and therefore, no licensing is required.

Under good conditions, the distance between two units in the communication chain can reach a distance of 3 km, but the full coverage of the system is much larger since the G5 RTUs can serve as ROUTERS for other RTUs with up to 11 levels of repetition (total of 30km).

The G5 radio RTUs are energized by rechargeable batteries, ROUTERS are energized by solar cells with rechargeable batteries. For energy-saving purposes, the outputs activated by the system are pulse-latching. Therefore, they are suitable for use where no electric energy exists.

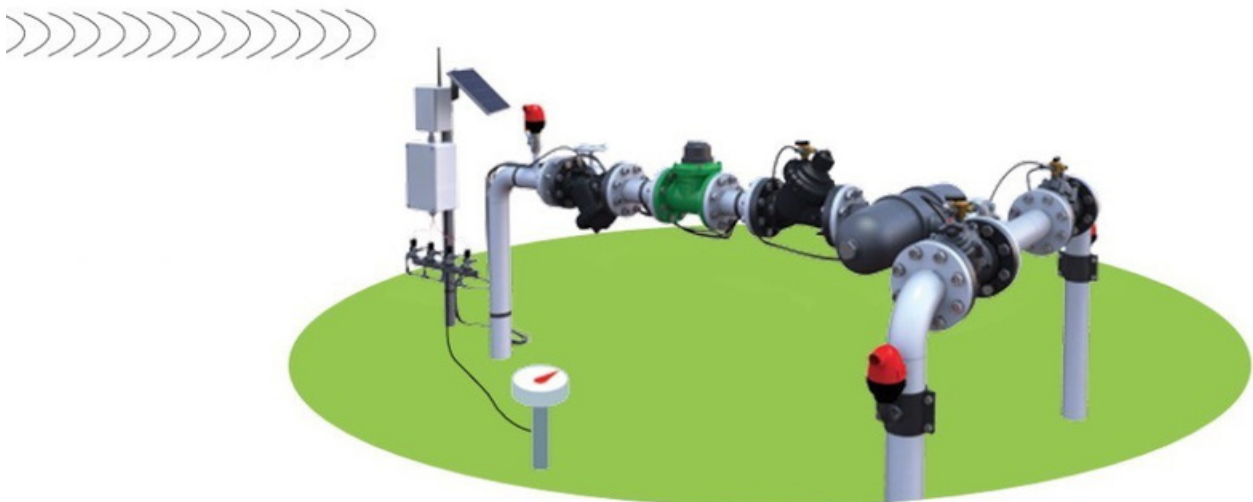
The bidirectional communication between the RTUs and the control unit enables not only activating remote outputs but also reading remote inputs, both digital and analog. To ensure information integrity, each communication gets a confirmation signal, and failure is followed by retries.

A G5 radio RTU system channel may handle up to 999 RTUs.

Features and Benefits

- The point-to-point distance of up to 3km can be multiplied up to 11 times by using the RTUs as routers for others.
- Bidirectional communication.
- Powered by battery or solar energy.
- Up to 999 RTUs per channel.
- Automatic selection of the suitable frequency out of 16 optional channels.
- Automatic selection of the most suitable routing option.
- License exempt.
- Asynchronous communication
- I/O test mode
- Automatic shutdown of outputs on communication loss and automatic recovery when communication is regained.
- Visual and sound signalling of statuses by LED and buzzer.
- Reporting RTU low battery
- Configurable wake-up signals.
- Existence of diagnostic RF sniffer tool.

Typical Installation



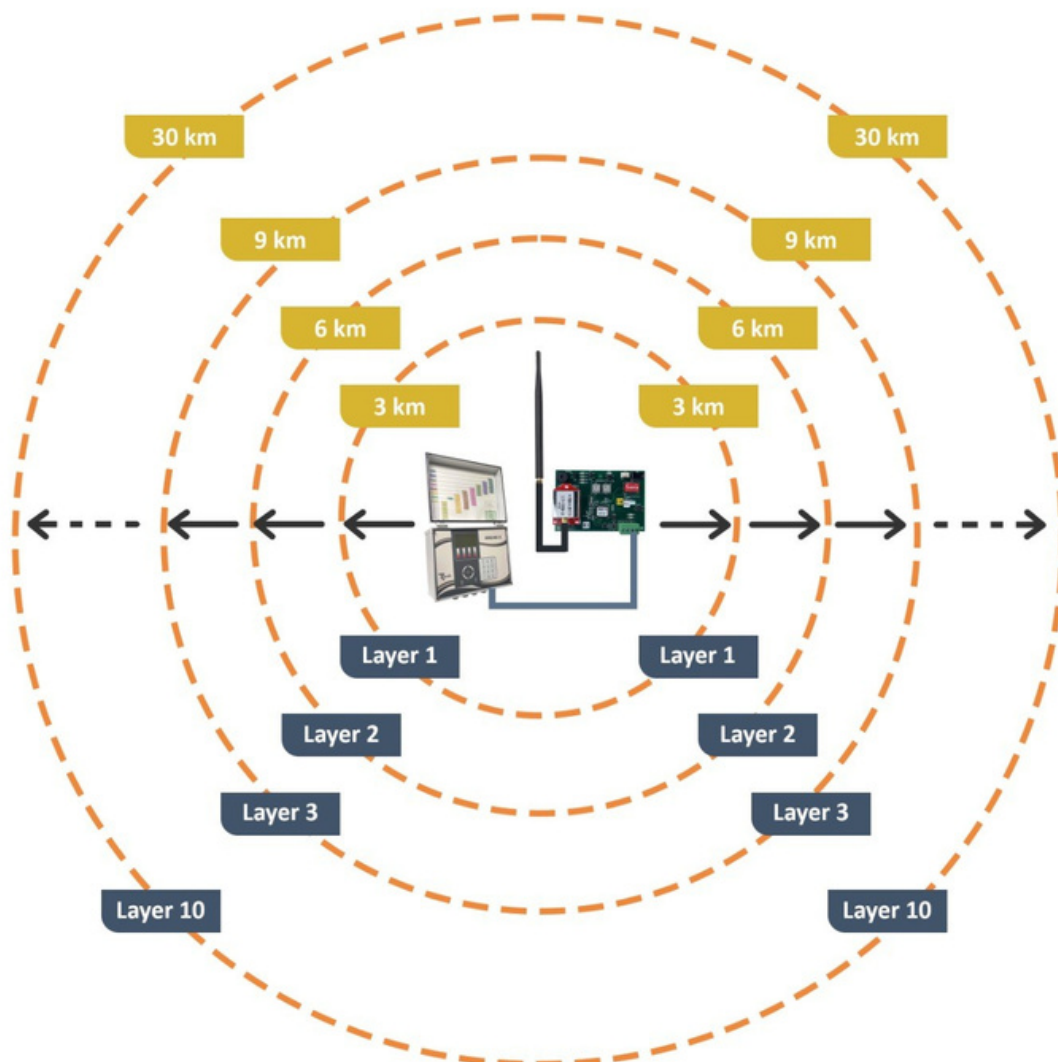
Typical Application

- Irrigation control and management of medium and large farms.
- Centralized irrigation control of multi-crop and multi-irrigation sections operation.
- Monitoring, analytical planning, and irrigation control tools.
- Climate and other environmental parameters monitoring and control
- Where sophisticated irrigation methods are required
- Central control of a large number of control valves grouped together and spread over separated and large geographical areas
- Farms in remote areas that require remote control over cellular communication
- Projects requiring control of multiple and various types of water sources
- Irrigation Schemes - Offtake/Turn-Out



Additional Features and Benefits

- Self-healing network – If an RTU loses communication with the master antenna, it will find an alternative route automatically.
- Automatic frequency selection – In case the frequency used by the system becomes too noisy due to interferences, the system will switch automatically to a different frequency.
- Communication retries – In case interference occurred exactly at a time an RTU was trying to communicate; the system will retry to send the message up to 3 times more.



Technical Data

RTU RF Modular - Models

RTU RF G5 MODULAR is a modular solution is to be used where devices are grouped together, or a future expansion is possible.

- 2/4/6/8 - OUTPUTS
- 0/4/8 - DIGITAL INPUTS
- 0/2/4 - ANALOG INPUTS (4-20mA/0-5V, SDI-12)

Programming is done easily by using the mini rotary switches (RTU with analog inputs require programming via PC/Laptop & Programmer device)



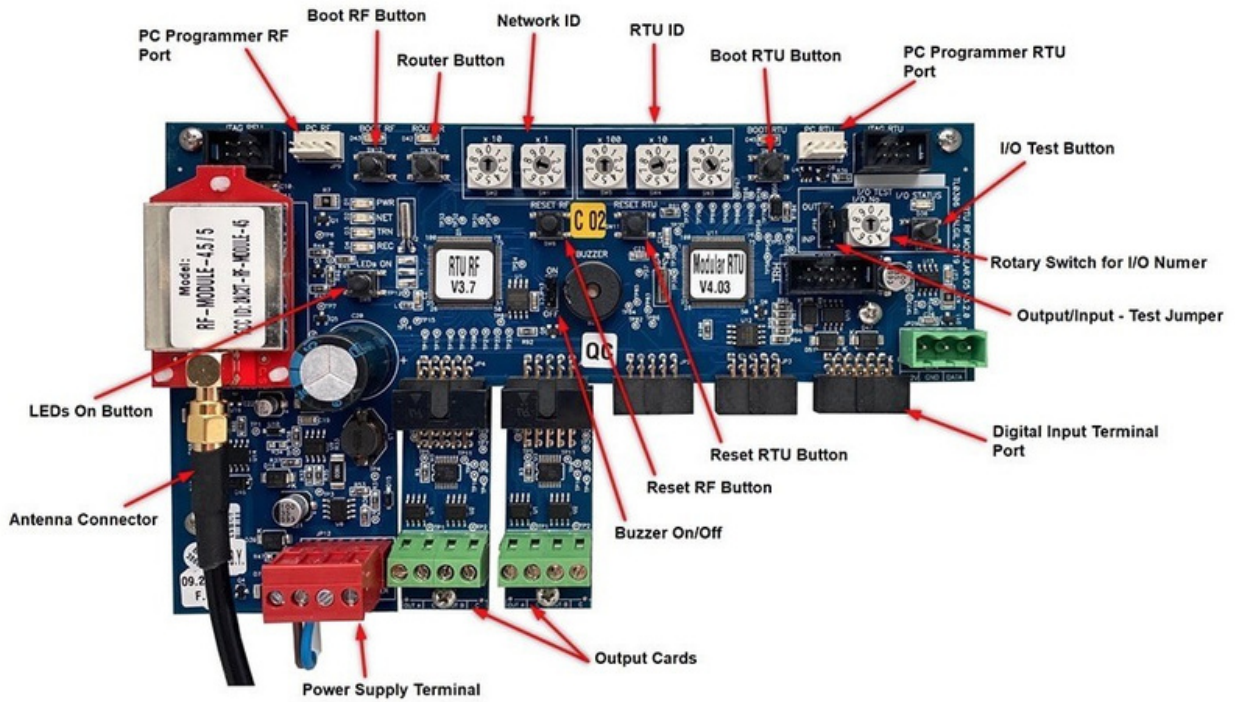
RTU RF G5 - MODULAR 841B
8 OUT / 4 IN / 1 ANA IN
+ 12V 3.2AH Battery



RTU RF G5 - MODULAR 840B
8 OUT / 4 IN / 0 ANA IN
+ 12V 3.2AH Battery



RTU RF G5 - MODULAR 280B
2 OUT / 8 IN / 0 ANA IN
+ 12V 3.2AH Battery



RTU RF G5 Modular - Expansion Options

FOR RTU RF G5 MODULAR ONLY

OUTPUTS	Code
2 OUTPUTS	2
4 OUTPUTS	4
6 OUTPUTS	6
8 OUTPUTS	8
DIGITAL INPUTS / ANALOG INPUTS	Code
0 INPUTS / 0 ANA IN	00
4 INPUTS / 1 ANA IN	41
4 INPUTS / 0 ANA IN	40
8 INPUTS / 0 ANA IN	80
EXTERNAL ANALOG INPUTS	Code
*4 ANALOG INPUTS	E4

- *4 ANA IN COMES AS AN EXTERNAL MODULE**
-ONE EXPANSIONS PER RTU ONLY
-Connected to the RTU via LIN Connection
-Can be combined with OUTPUT & INPUT Expansion

RTU RF G5 Modular - Expansion cards & Modules



**RTU RF G5 - MODULAR
2 OUT - EXP CARD**



**RTU RF G5 - MODULAR
4 IN / 1 ANA IN - EXP CARD**



**RTU RF G5 - MODULAR
8 IN - EXP CARD**



**RTU RF G5 - MODULAR
4 IN - EXP CARD**



**RTU RF G5 - MODULAR
4 ANA IN - EXP MODULE**

Connection via 'LIN'
One Module per RTU ONLY

RTU RF G5 & Analog Sensor Options

G5 RTU has several options for reading analog inputs. Some of the options are embedded in the RTU card. Some are expansion cards installed inside the RTU box, and some are external expansions that arrive with their own box. In any case, using analog sensors requires a rechargeable battery and a solar panel. The analog sensor values are transmitted from the RTUs to the centre upon a change in the value or a time period (Defined by the user)

The values are stored in the database for future analysis and can also serve as triggers to start or stop irrigation.



List of options for RTU RF G5 & Analog IN:

- RTU RF G5 MODULAR + 4 Analog inputs LIN expansion
- RTU RF G5 MODULAR + pH / EC Monitor LIN expansion
- RTU RF G5 MODULAR + Temperature, Humidity & Dew point sensor
- RTU RF G5 MODULAR + 4 Digital & 1 Analog Internal Expansion
- RTU RF G5 MODULAR + SDI - 12 LIN expansion
- RTU RF G5 ECO + 2 Analog Inputs
- RTU RF G5 ECO + 4 ANA IN (Standalone RF G5 - 4 ANA RTU - 0/0/4)
- RTU RF G5 + SDI - 12

Analog Sensors can be 0-5V or 4-20mA.

Here are a few examples of Analog Sensors:

- Air Temperature Sensor
- Humidity & Temperature Sensor
- Pressure Hydrostatic - Submersible Sensor
- Pressure Transducer
- Soil Moisture Sensor

For a list of available sensors - please contact Deeco.

Technical Specifications

Specification	Description
RF Frequency Range	915 - 928 MHz
Channel Spacing	1.5MHz
Channel Bandwidth	500 KHz
Effective Radiation Power (ERP)	70/250 mW
Modulation	Spread Spectrum LoRa
Number of RF channels	9
Firmware Upgrade Options	RF or Local Connection (PC)
Ambient Temperature	-20C + 65C
Ambient Relative Humidity	0-90%
Low Battery	Below 11.2V
Dead Battery	Below 10.8V
Sleep Mode Delay	LEDs turn off after 120 seconds
Power Supply Options	Rechargeable Battery (12VDC) Solar Panel (2.5W. 5W or 20V) DC-AC Power Supply (12VDC - 220VAC)

Specification	Description
Current Consumption - LED On	End-Unit: 3mA Router/Repeater :12mA
Current Consumption - LED Off	End-Unit: -ECO RTU: 60 μ A -MODULAR RTU: 80 μ A Router: 9mA
Operation output	12VDC Latch
Operational Input	Dry Contact, 4-20mA, 0-5V,SDI-12
Minimum Pulse Width	Meter: 20 milli Seconds Contact: 20 milli Seconds
Maximum Number of Outputs	ECO RTU: 1 or 2 MODULAR RTU: 8 (Using expansion cards - 2 OUT per card)
Maximum Number of Digital Inputs	ECO RTU: 1 or 2 MODULAR RTU: 4 or 8 (Using expansion cards)
Maximum Number of Analog Inputs	ECO RTU: 2 MODULAR RTU: 0, 1 or 4 (Using expansion cards)
Scanning Rate	30 milli Seconds
Antenna	3m, 5m, or high Gain Antenna