

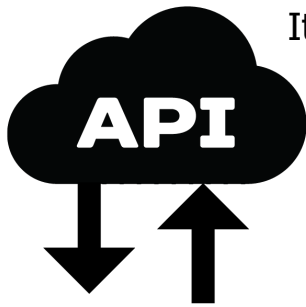
# MINI SAPIR 2

*A professional enabled  
controller for single irrigation head*



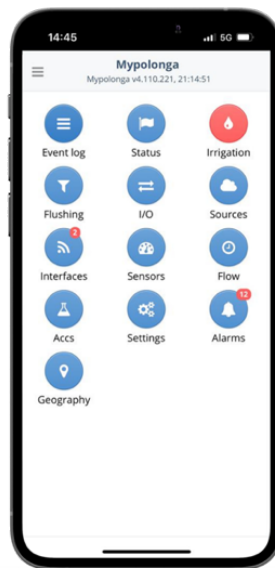
The **MINI SAPIR 2** is a compact professional central irrigation control.

It allows combining various technologies to suit each projects specific needs. It is an **internet enabled controller** so the user can control everything from their **PC or Smartphone**.



The **MINI SAPIR 2** is the perfect cost-effective solution to suit small to medium irrigation projects and can be used in various other applications that require monitoring, remote controlling and alarms.

Remote access via PC  
or smartphone/ tablet



**SPOT APP** with direct  
**WIFI** connection [when  
internet is not available]



## MINI Sapir 2 General Features

### Modular & Flexible Hardware:

- **Maximum 32 outputs** – Can be divided between local and radio RTU
- **Local on-board:**
  - 6 Outputs – 12V DC Latch
  - 4 Digital inputs – Water meter, fertilizer meters, DP, water level float and etc.
  - 2 Analog inputs – Pressure sensor, ultrasonic water meter, tensiometer and etc.
- **G5 Radio ready:** –
  - Master transceiver can be added directly to the main board
  - License free, up to 2.5 km (25 km with repeaters)
- **Weather station** – Supplying data for irrigation by ET, Frost protection and Rain shutdown

### Irrigation:

- Up to 16 irrigation programs
- Water dosage by Time, Volume, Volume per area and ET
- Irrigation by days of the week or cycle of days
- Single cycle or pulse irrigation
- Start: by time, by condition, manually
- Flexible programming – Valve by valve, groups by group or combination of both
- Main valve operation delayed, advanced, or together with the irrigation valves

### Fertilization:

- Up to 4 fertilizers injectors and a booster
- Fertilization modes: Time (h:m:s), Volume (Litres), Concentration L/m<sup>3</sup>, Proportional volume and pH & EC level
- Three stage fertigation: pre- watering, injection, post watering

### Backflush:

- Flushing by time, by PD or by both
- Definable parameters: Flushing interval, Pre-dwell time, Dwell time, Flushing time, PD delay
- Endless looping detection and prevention
- Accumulation of flushing cycles by time and by PD

### Alarms:

- High flow, Low flow, Water leakage, Low pressure
- Fertilizer leakage, No pulses from fertilizer injector
- PD sensor failure
- Low battery, No AC

### Communication:

- NEW PC software, Java based - **CONSOLE**. Simple to use, powerful and modern
- NEW Smartphone application – **SPOT**. From any device on any operating system
- Possible communication channels: **Wi-Fi**, 4G modem
- Push alarm notifications to user phone
- Firmware upgrade via direct Wi-Fi

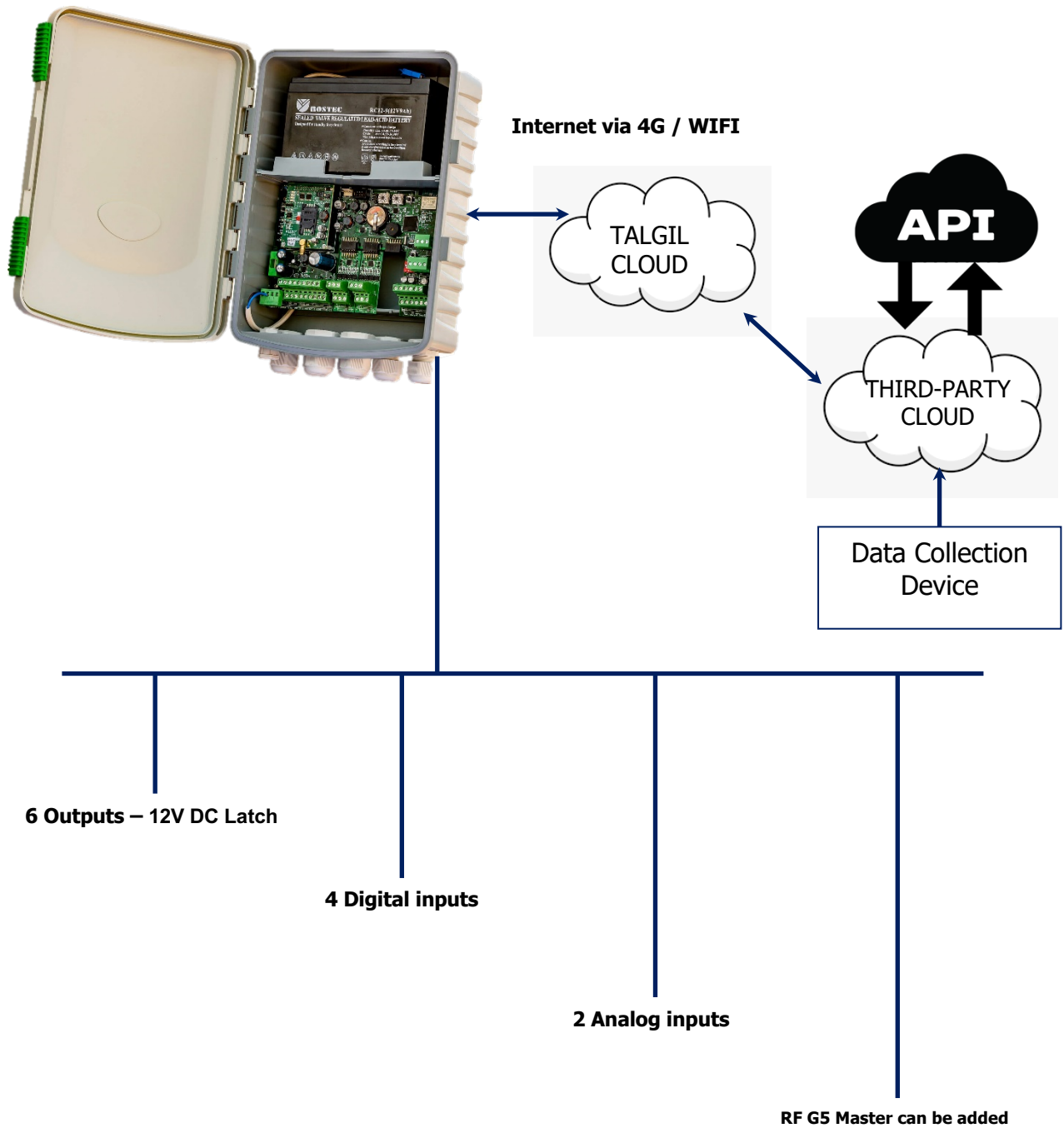
### General:

- Multi language controller
- Local programming via Wi-Fi direct from smartphone / Tablet (No internet required)
- Dealer definitions allows tailor fitting each controller to each user specific application
- Flexible condition systems allow starting, stopping, waiting and continuing of irrigation programs
- Detailed event log for all system events
- Controller configuration and irrigation programs are saved on non-volatile memory
- Modern power efficient charging mechanism, prolongs battery life and lowers consumption

### Energizing options:

- 12V DC from a solar panel and a rechargeable battery
- 240vAC to 18vDC plug pac

## HARDWARE OF THE MINI SAPIR 2



# Radio RTU System



## It has several major advantages over previous generations:

- Self-healing network – If an RTU loses communication to 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.

## The system is built from three main parts:

- Interface RF + Master antenna – Communicates with the controller unit on one side and with the G5 RTUs on the other side.
- RF RTU – The RF RTU (**R**emote **T**erminal **U**nit) is basically a small simple controller that performs whatever the Interface RF tells it to.

## Each RF RTU is capable of:

### Controlling:

- Pumps
- Valves
- Fertilizer injectors
- Filters

### Monitoring:

- Water meters
- Fertilizer meters
- Water floats (Reservoirs and tanks)
- Pressure sensor
- Differential pressure sensor
- Analog sensor – Temperature, humidity, tensiometers, radiation, CO<sub>2</sub>, water level and etc..

The maximum range between the controller and the furthest RTU is 3km (with line of sight). The G5 is capable of 10 levels of repetition, which means a single RF Interface can control & monitor elements in a 30km radius!

The communication with all the RTUs by default is updated every 10 seconds, this can be depending on the number of RTUs.

## Energy options:

- Modular RTUs: 4 X "D" type alkaline batteries [6vDC] OR 3.2Am/hr rechargeable battery [12vDC] and 5W solar panel.
- ECONOMICAL RTUs: 4 X "C" type alkaline batteries [6vDC] OR 1.3Am/hr rechargeable battery [12vDC] and 5W solar panel
- 240vAC-12vDC are available.

The RF system uses one out of eight channels in the band of 915-928MHz. It is a LICENSE FREE SYSTEM. The outputs can control 12V DC latch solenoids.

### There are several RTU RF models:

#### G5 RTU Radio- Economical

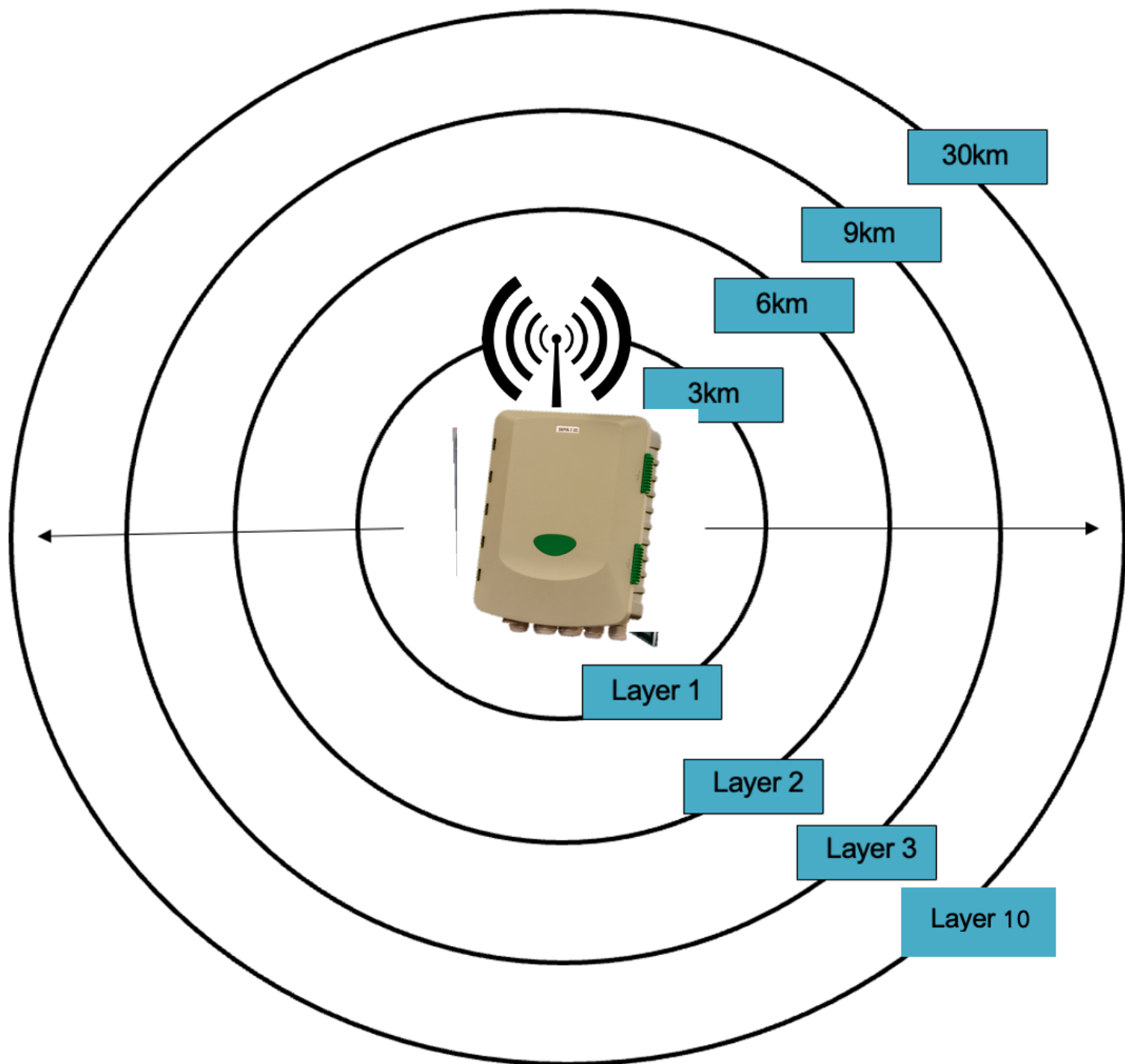
- An Economical non-modular solution, is to be used where devices in the field are far away one from another and future expansion is not likely.

<b>Economical</b> (4-20mA / 0-5V)  1x 12v DC latch output 1x Digital input 2x Analog input	
<b>Economical</b> (4-20mA / 0-5V)  2x 12vDC latch output 2x Digital input 2x Analog input	
4ANA	4x Analog input
SDI	SDI-12 input

#### G5 RTU – Modular

– A modular solution, to be used where devices are grouped together, or a future expansion is possible.

2,4,6,8	12v DC latch output 24v AC
4,8	Digital input
4+1	4x Digital input 1x Analog input
LIN Expansion	4x Analog input
LIN Expansion	SDI-12 input
LIN Expansion	EC/pH monitor
THD [temperature, humidity, dewpoint]	Built in sensor



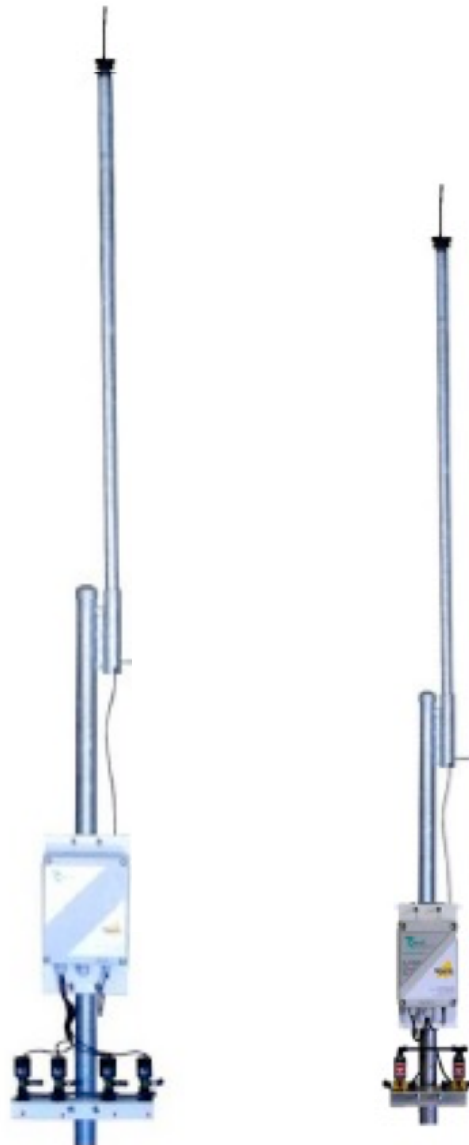
G5 Radio: Layers of Signal Repetitions

- **RTU RF ECO** – An Economical non-modular solution, to be used where devices in the field are far away one from another and future expansion is not likely.
  - 1 Output / 1 Input
  - 2 Outputs / 2 Inputs
- **RTU RF MODULAR** – A modular solution, to be used where devices are grouped together, or a future expansion is possible.
  - 2/4/6/8 outputs (12v Latch or 24vAC)
  - 0/4/8 digital input
  - 0/2/4 analogue inputs (4-20mA/ 0-5V, SDI-12)

### Economical RTU



### Modular RTU





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