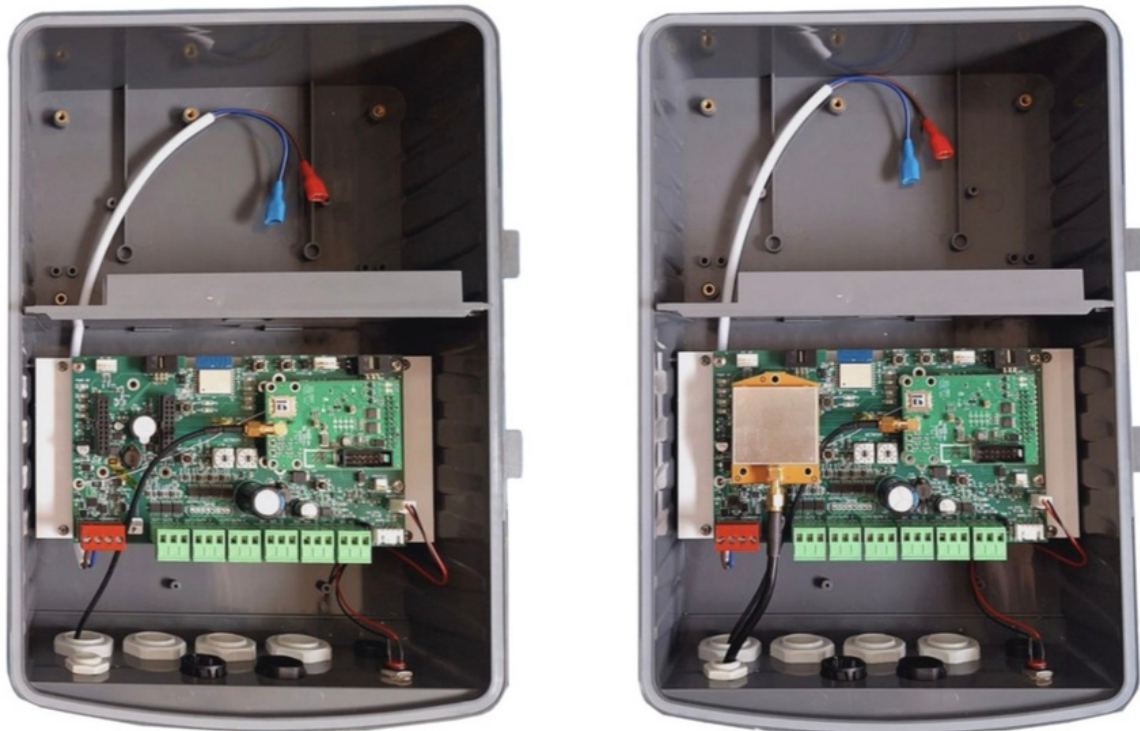


Data Sheet

Talgil - Sapir 2 MINI - Proficient Irrigation Controller



Description: Sapir 2 MINI - Advanced Irrigation Controller
Product Code: TG-SAPIR2MINI



Product Description

The SAPIR 2 MINI is a "lite" version of the popular SAPIR 2 Controller.

The SAPIR 2 Controllers are the next generation of central control irrigation systems. It allows combining various technologies to suit each project's specific needs.

It is an Internet-enabled controller so the user can control everything from his PC or Smartphone.

The SAPIR 2 MINI is the perfect solution for small irrigation projects with a single irrigation head, suitable for both simple and most demanding applications.



**SAPIR 2 MINI DC - 6 OUT / 4 IN / 2 ANA IN
+ 4G Cellular Modem**



**SAPIR 2 MINI DC - 6 OUT / 4 IN / 2 ANA IN
+ 4G Cellular Modem
+ RF G5 MASTER Interface**



**SAPIR 2 MINI DC - 6 OUT / 4 IN / 2 ANA IN
+ External Wi-Fi Modem**



**SAPIR 2 MINI
RF G5 INTERFACE MODEM**



**SAPIR 2 & SAPIR 2 MINI
External Wi-Fi Module**

Features and Benefits

On-Board Hardware

- 32 outputs - Can be divided between local and radio RTU
- Local on-board:
 - Modular 6 Outputs - 12V DC Latch (AC version is under Development)
 - 4 Digital Inputs - Water meter, fertilizer meters, DP, water level float etc.
 - 2 Analog Inputs - Pressure Sensor, ultrasonic water meter, soil moisture etc.
 - 48 Analog Inputs - On board and by RTU (4-20mA/0-5V)
- Radio RTU - License free, up to 3km (30km with repeaters)



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, condition, manually
- Flexible programming - Valve by valve, groups by group or a combination of both.
- Main valve operation delayed, advanced, or together with the irrigation valves.

Fertilization:

- Up to 4 fertilizers and booster control
- Fertilization modes: Time (hh:mm:ss), Volume (Litres), Concentration (L/m³) and Proportional volume.
- Three-stage fertigation: Pre-watering, injection, and post-watering

Backflush:

- Flushing by time, by DP or 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:

- Smartphone application – Dream Spot. From any device on any operating system.
- Wi-Fi, 4G Modem
- Push alarm notifications to user's phone
- Remote firmware upgrade (OTA).



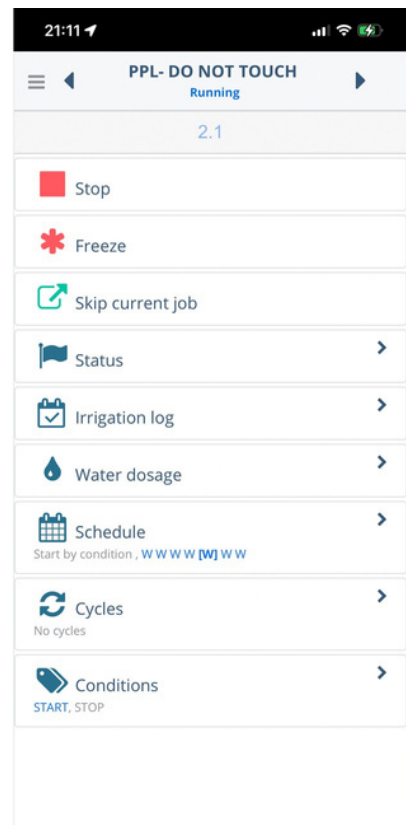
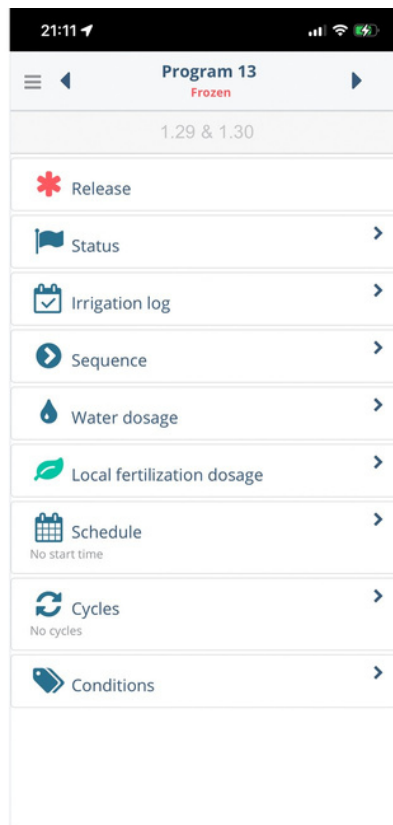
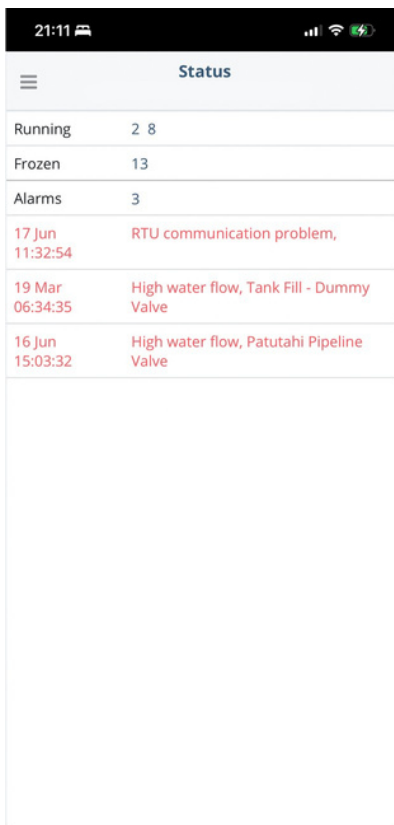
Full integration, monitoring, and command of:

- **Water Systems - Water sources – 1**
 - Pump - On/Off Control (Including duty selection), Mainline Pressure Monitoring, and Pump/System Faults.
 - Solenoid Field Valves - On/Off Control, High/Low Water Flow, Water Usage.
 - Flow Meter - High/Low Water Flow, Water Usage (per Zone/Meter/Specified Area), Leak/Burst Alerts.
 - Tank/Dam Level - Including automatic filling. With volume optimisation based on resource consent limitations.
 - Spray/Stock/Domestic Water - On/Off Control of Pump, High/Low Water Flow, Water Usage, Leak/Burst alerts.
- **Frost Systems**
 - Automated frost protection system triggered by temperature sensor or switch.
- **Filtration Systems**
 - Backwash Valve control, Pressure Differential monitoring.
- **Fertigation Systems**
 - pH / EC, fertiliser meters, proportional dosing, bulk/time injection.
- **Waste Water**
 - Waste Water disposal via irrigation based on tank/ pond level, Tank Level monitoring, and pH level monitoring.
- **4-20mA, 0-5V, SDI Sensors and Weather Stations**
 - Including soil moisture, air temperature, complete weather stations and many more.
 - Automated irrigation based on soil moisture sensor thresholds or ET



Additional Features and Accessories

- Advanced Mobile Software - Spot App
- Powerful Analytical Tools
- Wi-Fi - Local connection
- Wi-Fi - External Modem
- API ready - communicates with all 3rd Decision-making systems
- and much more!

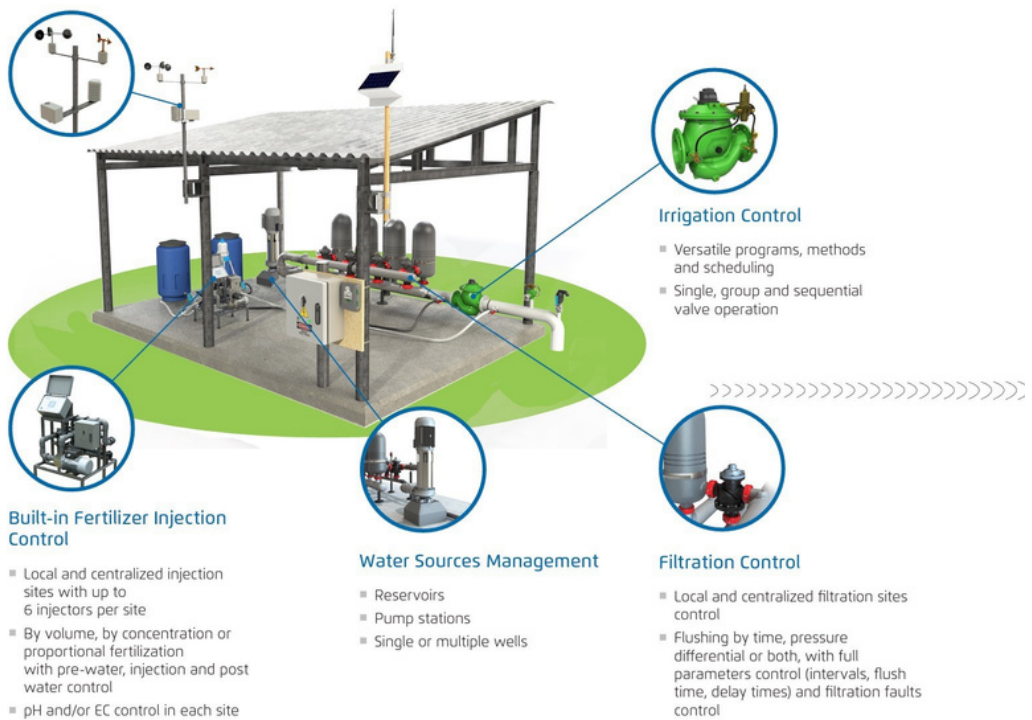




Typical Applications

- Monitoring, analytical planning, and irrigation control tools
- Monitoring/controlling climate and other environmental parameters
- Providing farms in remote areas with remote control over cellular communication





Built-in Monitoring Capabilities

- Monitoring a wide range of environmental parameters
- Logging and storing data in the Cloud and in the farmer's database



Technical Specifications

- Construction Materials: UV Resistant ABS
- Temperatures: Ambient: -17 to +60°C; Storage: -30 to +70°C
- Protection Rating: IP67, NEMA X4



Comparison Between SAPIR 2 & SAPIR 2 MINI

I/O - Inputs and Outputs

| I/O Specification | SAPIR 2 | SAPIR 2 MINI |
|--|---------|--------------|
| Outputs on Board | 16 | 6 |
| Outputs on Board and by RTU *1 | 32 | 32 |
| Digital Inputs on Board | 8 | 4 |
| Digital Inputs on Board and by RTU *2 | 32 | 32 |
| Analog Inputs on Board | 4 | 2 |
| Analog Inputs on Board and by RTU (4-20mA/0-5V) | 48 | 48 |



Comparison Between SAPIR 2 & SAPIR 2 MINI

I/O - Inputs and Outputs

*1 Maximum Number of Outputs on board and by RTU = 32

| Output Type | SAPIR 2 | SAPIR 2 MINI |
|---------------------------------|------------------|--------------|
| | Maximum per Case | |
| Main Valve | 1 | 1 |
| Irrigation Valves | 32 | 32 |
| Fertilizer Injectors | 4 | 4 |
| Fertilizer Booster | 1 | 1 |
| Agitators | 4 | 4 |
| Filters | 31 | 31 |
| Filters Downstream Valve | 1 | 1 |
| Satellites | 16 | 16 |



Comparison Between SAPIR 2 & SAPIR 2 MINI

I/O - Inputs and Outputs

*2 Maximum Number of Digital Inputs on board and by RTU = 32

| Input Type | SAPIR 2 | SAPIR 2 MINI |
|--|---------|--------------|
| Water Meter | 1 | 1 |
| Virtual Water Meter: Network Protection, Irrigation by Virtual Water Meter | 1 | 1 |
| Free Water Meters: Shows Water Flow in Real-Time and Water Accumulation | 8 | 8 |
| Fertilizer Meters | 4 | 4 |
| Pressure Meters | 1 | 1 |
| Differential Pressure Switch - DP | 1 | 1 |
| Dry Contact: Can be combined with a program condition | 32 | 32 |
| Flow Switch: Receive an alarm from valve that has not been opened or closed | 32 | 32 |
| Rain Sensor: Amount of rain and definition of rain delay | 1 | 1 |



Comparison Between SAPIR 2 & SAPIR 2 MINI

I/O - Inputs and Outputs

Virtual Sensor - Calculated on sensors present in the system

| Virtual Sensor Type | SAPIR 2 | SAPIR 2 MINI |
|--|---------|--------------|
| Dew Point - Based on temperature and humidity sensors | 1 | 1 |
| Differential Pressure Meter - Based on two pressure meters | 1 | 1 |
| Average - Current value based on several sensors (maximum 8) of the same type | 1 | 1 |
| Daily Rain - Based on a rain sensor | 1 | 1 |

Currently, the CONSOLE and SPOT3 Software does not support virtual inputs by default. For more information and implementation - please get in touch with Deeco.



Comparison Between SAPIR 2 & SAPIR 2 MINI

Interface & Expansion Support

| Interface Type | SAPIR 2 | SAPIR 2 MINI |
|-------------------------------|---------|--------------|
| RF | YES | YES |
| 2 or 4 ANALOG INPUTS | YES | NO |
| DAVIS Weather Station | YES | NO |
| PESSL / METOS Weather Station | YES | YES |
| PH/EC Monitoring | YES | NO |
| PH/EC Control & Monitoring | YES | NO |
| SDI | YES | NO |
| Temp/RH/Dew Point | YES | NO |
| Expansion Unit | YES | NO |



Comparison Between SAPIR 2 & SAPIR 2 MINI

RTU RF Type Support

| RTU Type | SAPIR 2 | SAPIR 2 MINI |
|-------------------------|---------|--------------|
| RTU RF G5 ECO 112 & 222 | YES | YES |
| RTU RF G5 MODULAR | YES | YES |
| RTU RF G5 4 ANA IN | YES | YES |
| RTU RF G5 SDI | YES | YES |

Communication Type

| Modem Type | SAPIR 2 | SAPIR 2 MINI |
|----------------------|---------|--------------|
| 4G Cellular Modem | YES | YES |
| Wi-Fi - Local | YES | YES |
| External Wi-Fi Modem | YES | YES |



Comparison Between SAPIR 2 & SAPIR 2 MINI

Software & Smartphone Application Support

| Software & App | SAPIR 2 | SAPIR 2 MINI |
|-------------------------|---------|--------------|
| Talgil Console Software | YES | YES |
| Talgil SPOT3 App | YES | YES |
| Talgil ToolBox App | YES | YES |



Technical Data

Connectivity with the field's control components

- Connectivity with the field's control components:
 - Local AC or DC digital and analog I/Os
 - Radio RTU
 - RTUs with various digital, and analog I/Os

Connectivity with the Cloud

- 4G Cellular Modem
- Local Wi-Fi connection
- External Wi-Fi Module

SAPIR2 Versions & I/O

AC version:

Under Development

DC version:

Can be powered via a 20W Solar panel and a 1.3Ah rechargeable battery.



- **Outputs:**
 - The maximum number of outputs is 32
 - 6 Local Outputs

AC version – Under Development

DC version – 12V DC latch solenoids

- **Digital Inputs:**
 - The maximum number of digital inputs is 32.
 - 4 Local inputs
- **Analog inputs:**
 - The maximum number of analog inputs is 48
 - 2 ... Local analog inputs
 - 4-20 mA / 0-5V

Additional Outputs / Digital inputs / Analog inputs can be added using radio RTU.

Programming is done easily:

- Remotely via the internet using the SPOT App
- Remotely via the internet using the CONSOLE PC software.