SAPIR 2
Central RF G5
Quick Installation Guide

Sapir 2 firmware version 0.198 and up.

RF Master G5 firmware version 4.3 and up.

Document version V0.4

The **RF G5 Master** unit, which is used for Dream 2 controller, is also supported by the Sapir 2 controller with some limits.

⚠️ The new RF G5 Master called **Sapir 2 central RF G5** unit is supported by the Sapir 2 only (It is not supported by the Dream 2 controller).

This quick manual includes installation instructions for adding a **Central RF G5** to the **Sapir 2** controller.

Please read on for detailed description and follow the instructions.

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1   RF G5 MCP – GENERAL FEATURES

The G5 radio RTU system of TALGIL offers a perfect solution for controlling distributed irrigation systems, when using cable is impossible or undesirable. 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 2.5 km, but the full coverage of the system is much bigger since the G5 RTUs can serve also as ROUTERs for other RTUs with up to 11 levels of repetition. The G5 radio RTUs are energized by standard Alkaline batteries and those serving as 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 assure information integrity, each communication gets a confirmation signal and failure is followed by retries. The G5 radio RTU has a modular structure with a maximum capacity of 8 outputs and 4 digital/analog inputs. A G5 radio RTU system channel may handle up to 32 RTUs.

General features

- The point-to-point distance of 2.5km 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 32 RTUs per channel.
- Automatic selection of the suitable frequency out of up to 16 optional channels.
- Automatic selection of most suitable routing option.
- License exempt.
- Asynchronous communication.
- I/O test mode.
- Automatic shutdown of outputs on communication loss and automatic recovery when communication regained.
- Visual and sound signaling of statuses by LED and buzzer
- Reporting RTU low battery
- Configurable wakeup signals.
- Existence of diagnostic RF sniffer tool.
- Modular structure (0,1,2,4,6,8 outputs. 0,1,2,4,8 digital inputs).
- Analog inputs (4-20mA or 0-5V).
- Monitoring water PH EC sensors.
- Supports SDI-12 Sensors.

Sapir 2 Central RF G5 Hardware definition
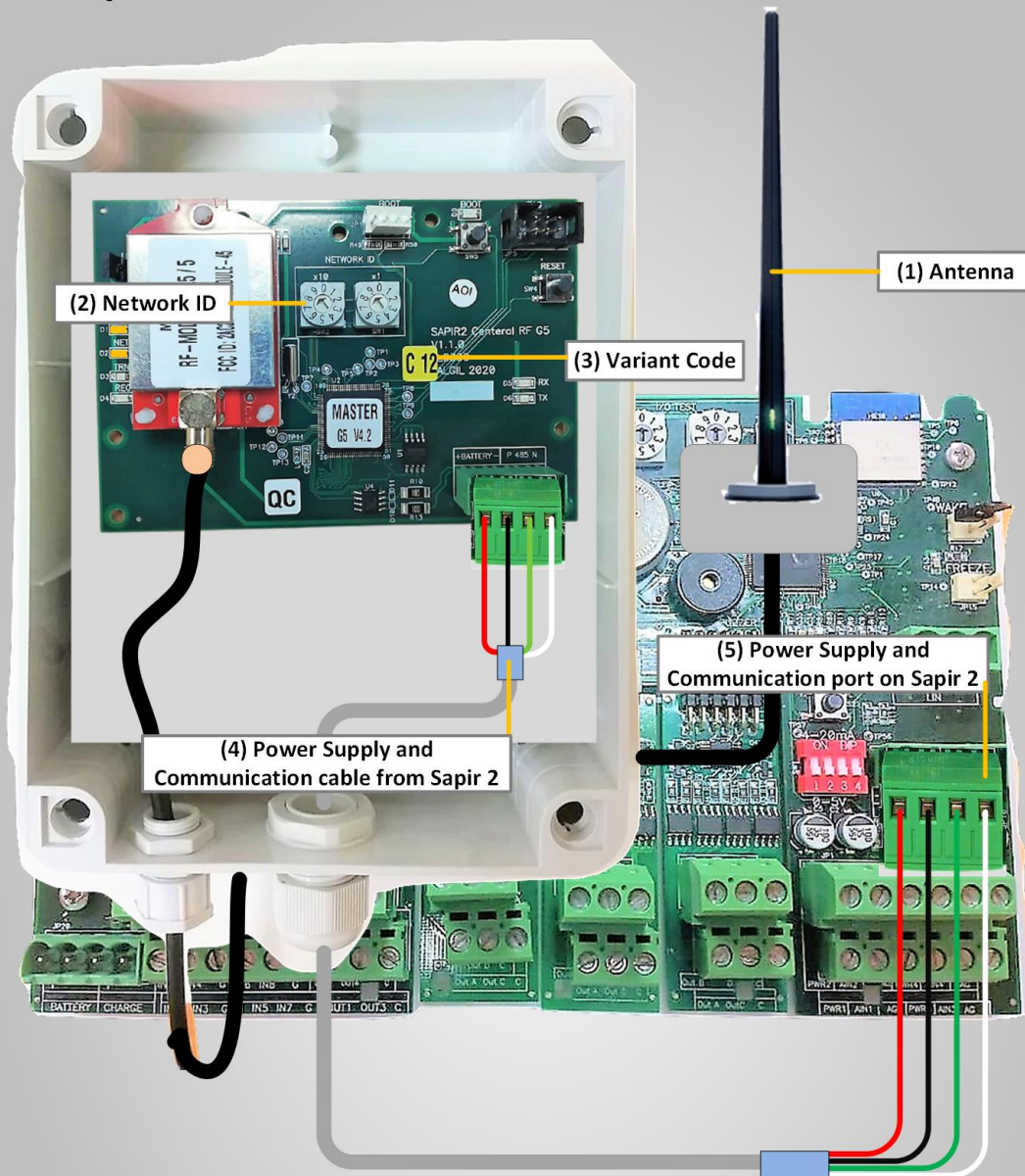

Image 1 – Hardware Definition of Sapir 2 Central RF G5

2   HARDWARE DEFINITIONS IN THE DREAM CONSOLE PC SOFTWARE

1. To add **the Sapir 2 Central RF G5** to the Sapir 2 Hardware Definitions, Start the **DreamConsole** PC software and connect or load the Sapir 2 controller **(See Image 1 pointer 1).**

2. Navigate to **TOOLS/Target Tools** and select the **Image Maker (Pointer 2).**

3. On step 7 called **Hardware Interfaces**, add one **RF Interface (Pointer 3).**

4.1 If you are using a **Dream RF Master** unit, you can define the preferred address for the **RF Interface.**

4.2 If you are using a **Sapir 2 Central RF G5 unit**, the **RF Interfaces** address must be **99 (Pointer 4)**.

5. Define the **Wiring of Outputs** of each output. The **Wiring of Outputs** includes **Interface** address, **RTU** number, and Output number for each output in the configuration **(Pointer 5)**.

6. Define the **Wiring of Inputs** of each Input. The **Wiring of Inputs** includes **Interface** address, **RTU** number, and Input number for each Input in the configuration **(Pointer 6)**.

Sapir 2 Central RF G5 – Installation instructions.

(1) Antenna

(2) Network ID

(3) Variant Code

(5) Power Supply and Communication port on Sapir 2

(4) Power Supply and Communication cable from Sapir 2

Wires Colors	
+ 12V DC (Red)	
- 12V DC (Black)	
RS485 Positive (Green)	
RS485 Negative (White)	

Image 2 – Installation of Sapir 2 Central RF G5 unit.

3   INSTALLSTION OF SAPIR 2 CENTRAL RF G5

1. **Antenna location**-In order to improve the **RF** reception, install the **Sapir 2 Central RF G5 Antenna** in a high place to make sure that there is **Line of sight** with the **RTU's (Pointer 1).**
    The top of the pipe that hold the **Antenna** should made of non-metallic material.
2. **RF G5 NETWORK ID** - Every **RF G5** system must use a unique **NETWORK ID**. Make sure that in your vicinity there are no **RF G5** systems using your **RF G5 NETWORK ID**. To set the **RF G5 NETWORK ID,** use the **NETWORK ID** rotary switches **(Pointer 2). The NETWORK ID** cannot be zero.
    Sapir 2Central RF G5 INTERFACE ID- By default, the **Sapir 2 Central RF G5** INTERFACE ID is **99.**
3. **Variant Code**-Make sure that the **Sapir 2 Central RF G5** unit is programmed to work in your country. Use the **Variant code** sticker to identify the programmed variant **(Pointer 3).**
4. Connect the **Power supply** and **Communication cable** to the **Sapir 2 Central RF G5 unit (Pointer 4).** This cable includes **+12V**, -**12V, Positive,** and **Negative** wires of **RS485** for communication.
5. Connect the **Power supply** and **Communication cable** to the **Sapir 2 controller** (Pointer 5).

4   Revisions

Version	Date	Author	Description of Change
V0.4	April 5, 2021	Shem Tov	Writing the Quick user manual

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