



# SatPal Controller

5415 IDLU-SPAL03-000BT-OPP

Item: 5415

Quick Guide



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English



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# NOTICES

## Copyright

No part of this manual may be copied, reproduced, used or translated in part or whole without FTA Communication Technologies S.à.r.l (hereinafter "FTA") prior consent in writing.

## CE Declaration of Conformity

Hereby, FTA Communication Technologies S.à.r.l declares that the SatPal™ Controller is in compliance with the essential requirements of Directives 2014/30/EU (EMC), 2014/35/EU (LVD), Eco-Design Directive (2009/125/EC), Radio Equipment Directive (2014/53/EU) and Radio and Telecommunication Terminal Equipment (R&TTE 1999/5/EG).

## WEEE

The product you have purchased is subject to Directive 2012/19/EU of the European Parliament and the Council of the European Union on Waste Electrical and Electronic Equipment (WEEE) and, in jurisdictions adopting that Directive, should not be disposed of as unsorted municipal waste.

The disposal of worn out products, the unit shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. For more detailed information about recycling of this product, please contact your local Civic Office, your household waste disposal service, or the shop where you purchased the product.

## Safety instructions

- Avoid short circuits at the input and output ports of the device.
- Do not connect the power bank or the ac/dc adapter to the PC data micro USB port.
- Make sure that your satellite installation (i.e. dish, LNB/Multiswitch and interconnecting cables) is grounded.
- Do not leave the SatPal Controller exposed to direct sun as it may heat up beyond its operational temperature, shut down until cooled and may damage the device.
- Do not expose the SatPal Controller to rain otherwise it may damage the device.
- Never open the device under any circumstances. This may result in electrical hazard. Liability is not accepted for damage caused by faulty connections or inappropriate handling of the device.
- Never work with the product, TV set or other powered devices during or before a storm. A lightning strike into the antenna may cause dangerous over-voltage over the product's metallic/conductive parts.
- Power supply: Any usage with voltage level outside of the specified voltage range is at your own risk. If you use a power bank or ac/dc adapter to power the SatPal™ Controller, make sure to read and follow carefully the safety instructions of the respective suppliers.
- Do not hang the device over its connected cables (DC or coax).
- The product shall be serviced by qualified experts only.

## Warranty

FTA warrants the product as being free from defects in material and workmanship for a period of 24 months starting from the date of production indicated on it (encoded into the serial number printed on the unit). This product is designed for the reception and measurement of satellite television and radio signals in satellite TV installations. The warranty does not apply for products used for other purposes than those specified herein. The user/installer shall be responsible for any damage incurred as a result of not using the product according to the instructions in this manual. This warranty does not cover parts



which may become defective due to misuse of the product, use of non-suitable accessories or installation in a defective or faulty system (e.g. power supply, switches,...) or external cause beyond FTA's control such as drops, accidents, lightning, fire, etc.. If during the warranty period, the product proves defective, under normal use, due to defective materials or workmanship, FTA, at its sole discretion, will repair or replace the product. For warranty claim, return the product to your local dealer for reparation. Please retain the original packaging, should it be necessary at some stage to return the unit.

### Product support

For any further product support and inquiries, please contact us at any of the following options:

FTA Communication Technologies S.à.r.l  
18 Duchscherstrooss  
Wecker 6868  
Luxembourg

Tel.: +352 264 367 1  
Fax: +352 264313 68  
Mail: [info@inverto.tv](mailto:info@inverto.tv)  
[www.inverto.tv](http://www.inverto.tv)

# QUICK USER GUIDE

## Install the application

Download and install the application on your smartphone from the Apple iTunes store or android Google Play Store by searching for SatPal™ from Inverto Digital Labs.

Note: Layouts and usage of the SatPal™ application are slightly different between iOS and android OS, moreover appearance depend on your screen size. You may need to scroll with your finger to see items. This quick guide is based on iOS.

## SatPal™ Controller

Short overview of the SatPal™ Controller with its connections and LED displays. Please refer to **Figure 1 SatPal™ Controller**.

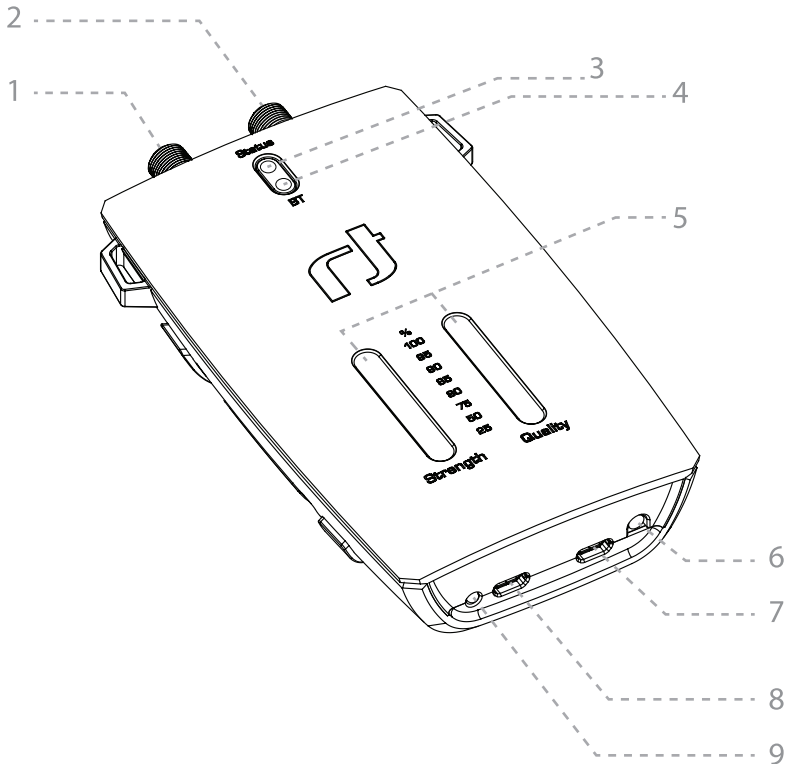


Figure 1 SatPal™ Controller

**1. LNB/Switch (DC Out) – F-type**

Connect to the LNB/ Multiswitch to be setup/programmed.

**2. Receiver (DC IN, RF Loop) – F-type**

RF signal loop-through and power supply (10-20V/13W max.) from receiver or power inserter.

**3. Status LED**

Blinking yellow: communication with LNB/Multiswitch.

Steady green: configuration of connected dCSS device is same as configuration stored in SatPal™ Controller (standalone mode).

**4. Bluetooth connection status LED:**

Blinking blue: not connected.

Steady blue: connected.

**5. Signal Strength and Quality LED bars**

Indicate signal strength and quality in standalone mode see, see Figure 2 Signal Strength:

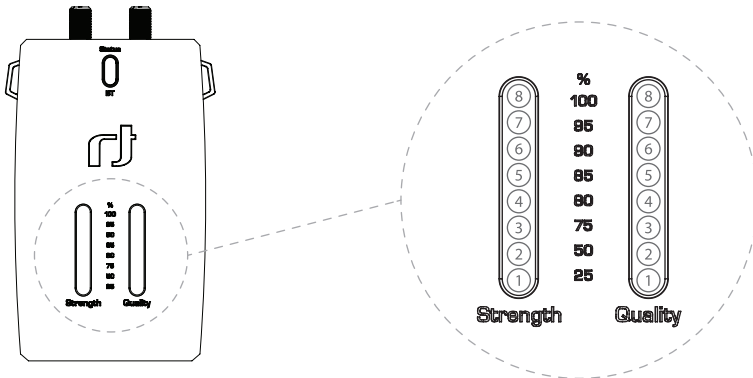


Figure 2 Signal Strength

**6. User Button**

User button function can be setup in the SatPal™ application.

**7. PC (Data only) – micro USB**

Connect to a PC to use SatPal™ Controller with PC application (power supply for the SatPal™ Controller only, not powering the connected LNB/Multiswitch).

**8. DC in – micro USB**

Power supply (5-6V/13W max.) from battery pack or AC/DC adapter.

**9. Power Status LED**

red: Power supply not sufficient for connected device.

yellow: Power supply sufficient to power connected device.

## Connect the SatPal™ Controller

Connect the SatPal™ Controller to power (e.g. to a portable power bank or AC/DC adapter).

A portable power bank can be fixed with a rubber ring at the back of the SatPal™ Controller, see Figure 3 SatPal Controller with power bank.

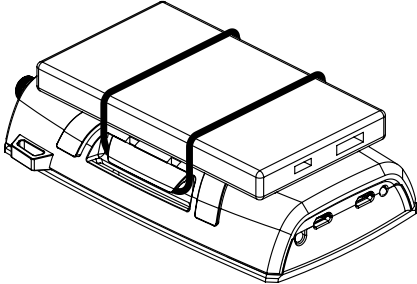


Figure 3 SatPal Controller with power bank

Plug in the Micro USB connector into the “DC in” socket at the SatPal™ Controller and the USB Type A connector into the “5V” socket at the power bank as shown at Figure 4 Connection with power bank.

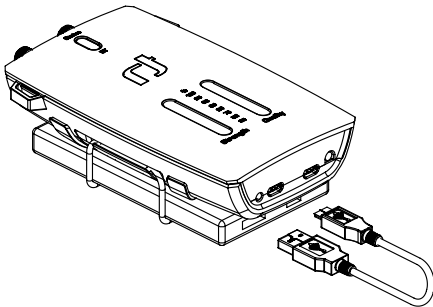


Figure 4 Connection with power bank

Use a coax cable to connect the F-type port marked “LNB/Switch” to the output of your LNB or Multiswitch.

You may also connect the F-type port marked “Receiver” to a STB.

## Start the application

After installation start the application by tapping on the application icon as shown in Figure 5 app Icon.



Figure 5 app Icon

The application will start and give a warning that no SatPal™ Controller is connected yet.

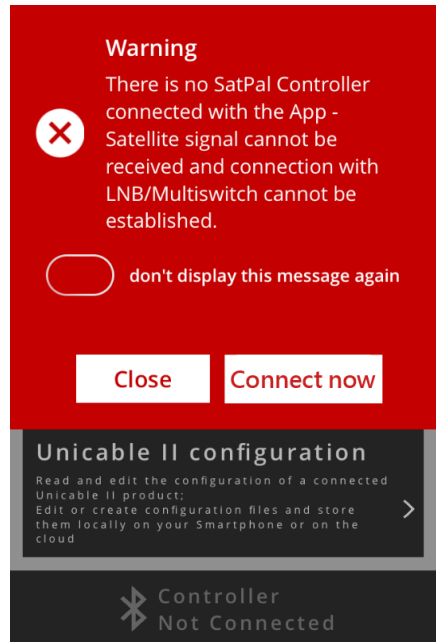


Figure 6 SatPal™ Controller not connected

## Connect the application with the SatPal™ Controller

Tap on “Connect Now” to connect the application to the SatPal™ Controller; see Figure 6 SatPal™ Controller not connected.



**!Attention!** Connecting over Bluetooth is only possible via the application and not from the generic iOS/Android Bluetooth settings.

## Home screen

After successful connected the Bluetooth LED at the SatPal™ Controller will stop flashing and the Bluetooth icon at the phone will show up.

The home screen as per **Figure 7 Home screen** appears. At the bottom you will see the notice "SatPal™ Controller Connected".



Figure 7 Home screen

Notice: Every time the SatPal™ application is moved into the background, Bluetooth connection will be disconnected. In order to exchange data with the SatPal™ Controller a Bluetooth connection is mandatory, consequently the SatPal™ application needs to be always in front to communicate with the SatPal™ Controller.

If you tap on the menu icon as shown in **Figure 8 Menu**, a list with all available options will be shown as in **Figure 9 Home menu**.

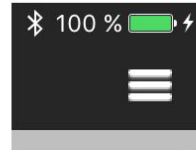


Figure 8 Menu icon

At any time the Menu field is visible you can tap on it to see the list of available main sections.

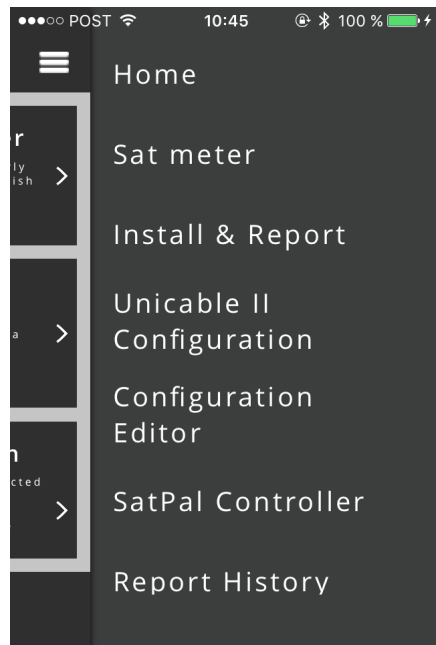


Figure 9 Home menu



## Sat meter

Home » Sat meter

The Sat meter function allows to measure satellite signals and to optimize the reception quality if needed. See Figure 10 Sat meter menu.

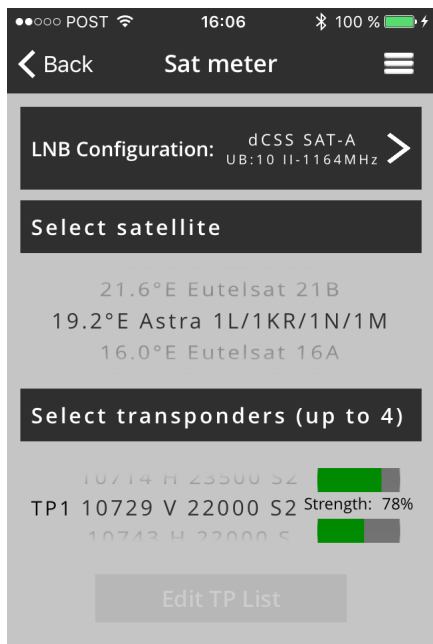


Figure 10 Sat meter menu

Use the wheel below section “Select satellite” to scroll and select the satellite you want to receive and below section “Select transponders (up to 4)” to select up to four transponders by scrolling the respective wheels.

**Hint:** If your satellite is not available on the list, you can select ‘Custom’ at the end of the list and then click on ‘Edit TP List’ at the bottom of the screen to freely customize its transponders’ parameters.

Two signal bars, one for the signal strength and one for the signal quality, are displayed next to each of the four transponders.

## Setup of LNB for Sat meter

Home » Sat meter » LNB Configuration

Tap on “LNB Configuration” to select the right type and set the parameters of your connected LNB device.

For Unicable and dCSS types, the desired Intermediate Frequency (IF) must be typed in by keyboard. See Figure 11 LNB Configuration.

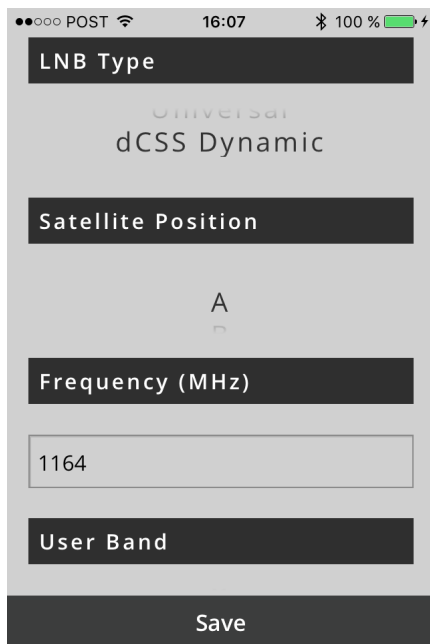


Figure 11 LNB Configuration

Tap on “Save” at the bottom to save the data and to go one screen backwards.

## Sat meter signal meters

Home » Sat meter » 'signal bars'

Tapping on the "signal bars" at **Figure 10 Sat meter menu** will display detailed signal meters as seen on **Figure 12 Signal meter**.

At the top there is a sliding bar for all transponders available over the selected satellite.

Home » Sat meter » 'signal bars' » 'loudspeaker symbol'

Tap on "'loudspeaker symbol'" to hear a sound, either for signal strength or MER (loudspeaker source is configurable under "Options"). Frequency or interval of sound will change according amplitude of chosen source and can be helpful when optimizing the dish alignment.

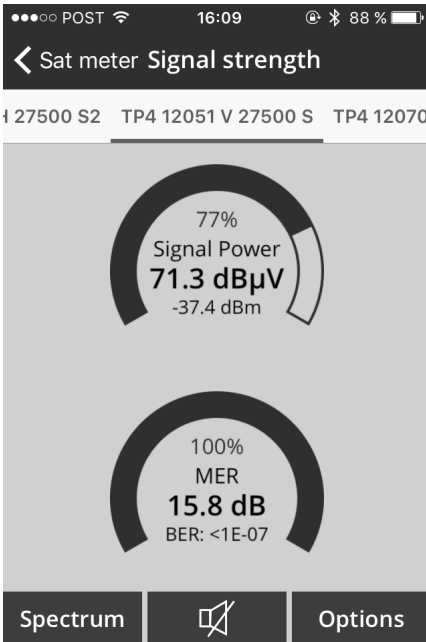


Figure 12 Signal meter

## Sat meter Options

Home » Sat meter » 'signal bars' » Options

Tap on "Options" as shown in **Figure 12 Signal meter** to change parameters for the Signal meters and buzzer. See **Figure 13 Signal meter settings**.



Figure 13 Signal meter settings

Signal Strength Smoothing: Use the "Slider" from 1 to 25 to set the level of responsiveness of the meter display for changes in signal strength per your preferences.

## Sat meter Spectrum

Home » Sat meter » 'signal bars' » Spectrum

Tap on "Spectrum" at screen Figure 12 **Sat meter** to see the spectrum of the selected transponder.

The frequency of the selected transponder will be taped almost always to the middle of the plot. Signal is displayed in dB $\mu$ V and the frequency span can be chosen. See Figure 14 Spectrum.

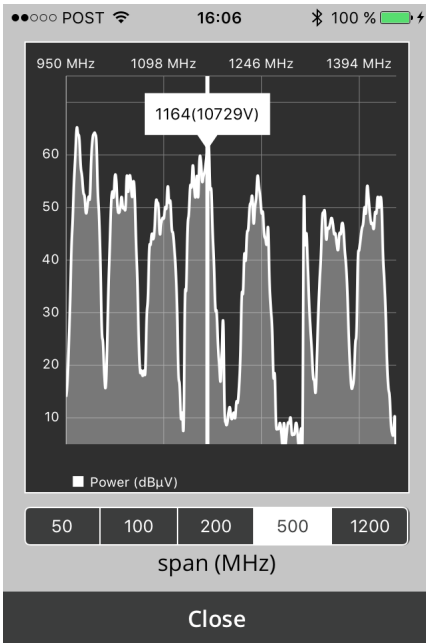


Figure 14 Spectrum

## Install & Report

Home » Install & report

The Install & Report function allows you to record the signal quality of your installation and generate an installation report including name of installer, TP signal parameters, location data, inventory list and photo of the installation.

After you tapped on "Home » Install & Report" you will see the same screen as described on Page 10: Sat meter, see Figure 10 Sat meter menu. If required same actions can be taken as described on Page 10: Sat meter.

Swipe the entire screen to the left, screen Figure 15 installation location will be shown.

Figure 15 installation location

Type in your location data like "Location name", "Street / House no." and "City" to be shown in the site installation report.

Tap on the respective field to insert your data.

Swipe again the screen to the left and you will see the input screen for the "Equipment list" as shown in Figure 16 Equipment list.



Figure 16 Equipment list

Tap on "+" to add a new equipment item. Figure 17 New equipment will appear.

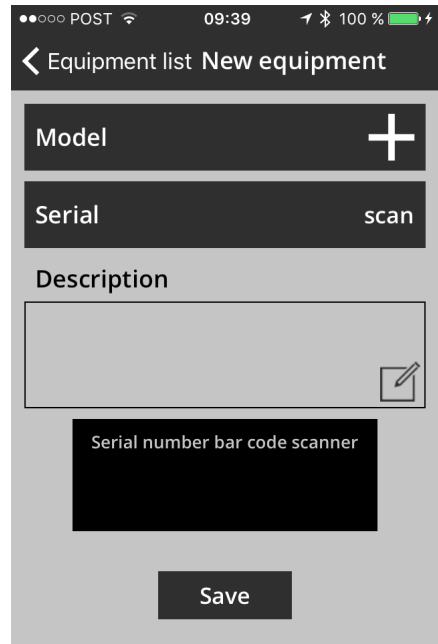


Figure 17 New equipment

If the device has a barcode sticker you can tap on "scan" and use your smartphone camera towards the barcode to scan it. A successful scan will be noticed by a sound or vibration of the smartphone. Moreover you can see then the serial number at the field "Serial", see Figure 19 After device scan.

**!Attention!** You have to allow the SatPal™ application to access the camera. Please refer to the related smartphone user manual for further instructions if the application has no access to the smartphone camera.



If you have an Inverto LNB or Multiswitch device tap on “+” for Model. Screen **Figure 18 New equipment Items#** appears.



Figure 18 New equipment Items#

Enter Inverto’s 4 digit item number by scrolling the wheels accordingly. Afterwards the right description and the respective model number will be displayed automatically.

Tap “Select” at the bottom to select the data and to go one screen backwards. See **Figure 19 After device scan** as example.

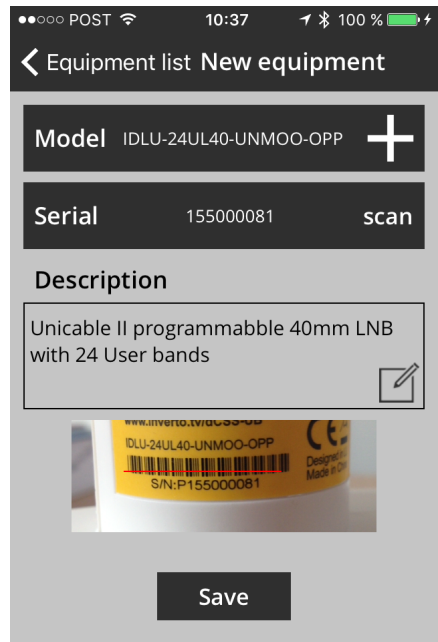


Figure 19 After device scan

**!Attention!** The “Description” field is mandatory. If not filled in automatically, information has to be typed in by keyboard.

Then tap on "Save" to save the equipment information. **Figure 20 Equipment list with items** shows an example with two items.



Figure 20 Equipment list with items

If you want to delete an item just slide the bar of the respective item to the right and tap on "Remove". See **Figure 21 Remove Equipment item**.

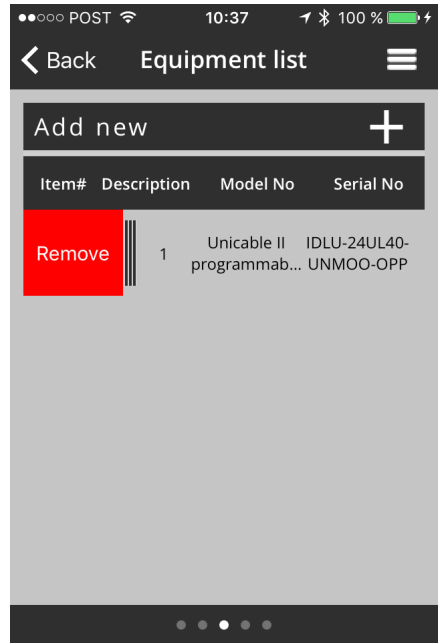


Figure 21 Remove Equipment item

Follow the same procedures to add more devices for the installation documentation if required.



Swipe again the screen to the left for the “Photo documentation” and take one or more pictures by tapping on “Take Photo”, see Figure 22 Photo documentation.

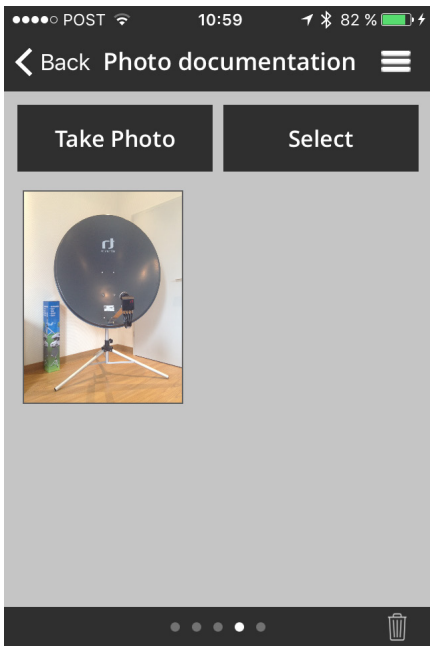


Figure 22 Photo documentation

Pictures can be deleted or re-taken at this section if needed.

Swipe again the screen to the left, see Figure 23 Installation summary.

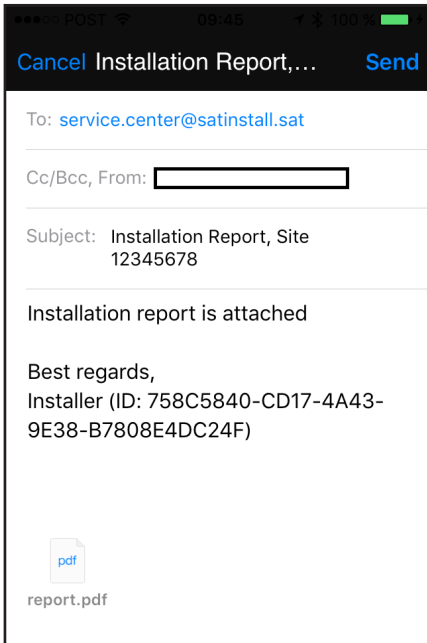


Figure 23 Installation summary

You can check again the “Signal Quality” of max. 4 TP’s and you will see the location data used for the report.



Tap on "Send" to send the report. Screen as shown in **Figure 24 Send Installation Report** will be shown.




**Figure 24 Send Installation Report**

The report will be sent to the email address set at 'target e-mail' under the section Settings (**Home** » **Settings**), or described on **Page 30: Settings**).



The report, in PDF format, will be attached and includes all prior inserted data. As example see an excerpt at **Figure 25 Installation Report** of a generated installation report.

# Installation Report




Sent: 2017-04-18  
At: 10:14

**Installer**  
Name: Martin  
e-mail: Martin.Muster@muster.sat  
Mobile: 00352123456789  
ID: 758C5840-CD17-4A43-9E38-B7808E4DC24F

**TP Signal Parameters**

10719 V 27500	<div style="width: 79%; background-color: #ccc; border: 1px solid #000; margin-bottom: 2px;"></div> Strength 79%	<div style="width: 76%; background-color: #ccc; border: 1px solid #000; margin-bottom: 2px;"></div> Quality 76%
10727 H 30000	<div style="width: 79%; background-color: #ccc; border: 1px solid #000; margin-bottom: 2px;"></div> Strength 79%	<div style="width: 51%; background-color: #ccc; border: 1px solid #000; margin-bottom: 2px;"></div> Quality 51%
12245 H 29900	<div style="width: 83%; background-color: #ccc; border: 1px solid #000; margin-bottom: 2px;"></div> Strength 83%	<div style="width: 72%; background-color: #ccc; border: 1px solid #000; margin-bottom: 2px;"></div> Quality 72%
12054 H 29900	<div style="width: 65%; background-color: #ccc; border: 1px solid #000; margin-bottom: 2px;"></div> Strength 65%	<div style="width: 78%; background-color: #ccc; border: 1px solid #000; margin-bottom: 2px;"></div> Quality 78%


**GPS Location**  
Location name: a  
Street house/no.: b  
City: c  
Coordinates: 49.6999° N 6.3889° E



**Equipment**

No.	Description	Model #	Serial #
1	Unicable II programmable	IDLU-24UL40-UNMOO-OPP	155000081
2	Unicable II Programmable	IDLU-UWT110-CUO10-32P	164001195

**Photo documentation:**



Page 1/1This report was generated by the SatPal app

Figure 25 Installation Report

## Report History

*Home » Report History*

At this section you will find a list of sent reports stamped with date, time and location. See **Figure 26 Report History**.

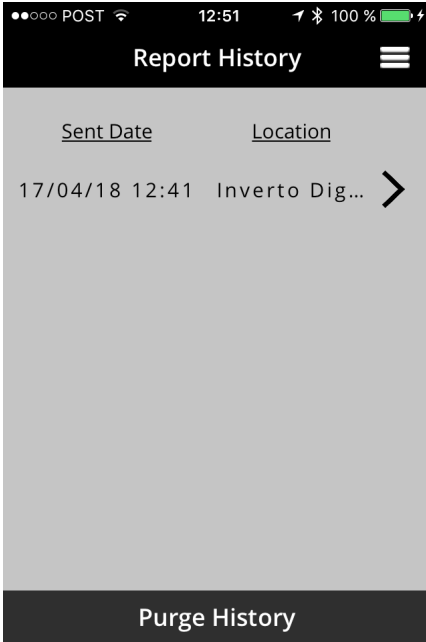


Figure 26 Report History

By tapping on "Purge History" at the bottom you can purge all sent reports. A window to confirm will pop up prior deletion.

Tapping on a particular record on the list will display the respective report. See **Figure 27 Sent report** as example.



Figure 27 Sent report

## Unicable II Configuration

Home » Unicable II Configuration

### Unicable II configuration with LNB

Home » Unicable II Configuration » upper rectangle

At this section you can read and edit the configuration of connected Unicable II LNB or MSW devices. Scope and possible changes depend on connected device. Further information on [Page 27: Unicable II Configuration Editor](#). You can see the entry screen at [Figure 28 Unicable II Configuration, LNB](#).



Figure 28 Unicable II Configuration, LNB

Tap on the product image in order to access the configuration, to get diagnosis information or to reset to factory defaults the connected LNB or Multiswitch device.

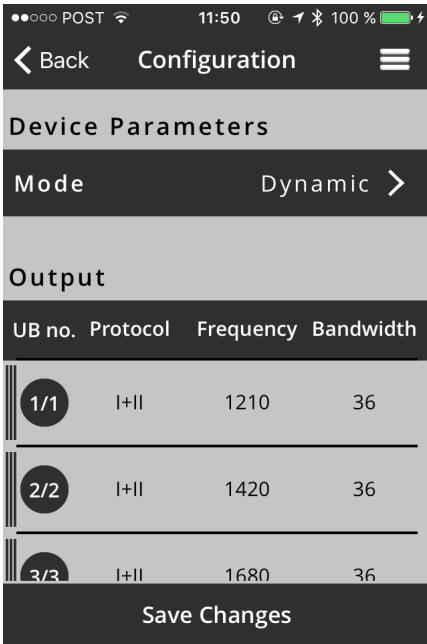
For example, a screen as shown in [Figure 29 Unicable II Connected Device, LNB](#) will be displayed.



Figure 29 Unicable II Connected Device, LNB

Tap on “Configuration” to read the configuration of the connected device.

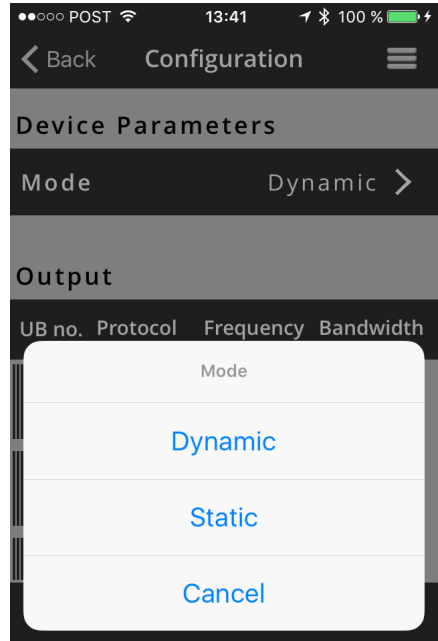
The configuration data will be displayed on the screen as at **Figure 30 Configuration, LNB**.



**Figure 30 Configuration, LNB**

You can see the operating mode of the device and further down a list of configured UB's with assigned Unicable protocol type(s), UB frequency and bandwidth.

Tap on “Mode” to change the operating mode of the LNB. For an Unicable II LNB either “Dynamic” or “Static” mode. See **Figure 31 Mode LNB**.



**Figure 31 Mode LNB**

Tap on the desired “Mode” and then tap on “Save Changes” to save changes.



Tap on a particular UB row below the section "Output" to change the particular UB configuration. See Figure 32 Configuration User Band, LNB.



Figure 32 Configuration User Band, LNB

At this section you can change via scrolling wheels the protocols supported by the UB (Unicable I (EN50494), Unicable II (EN50607) or both) as well as its frequency and bandwidth.

By tapping "Save" at the bottom the changes will be saved.

To disable a user band swipe the row of the required UB to the right and tap on "Disable", see Figure 33 Disable, Enable UB.

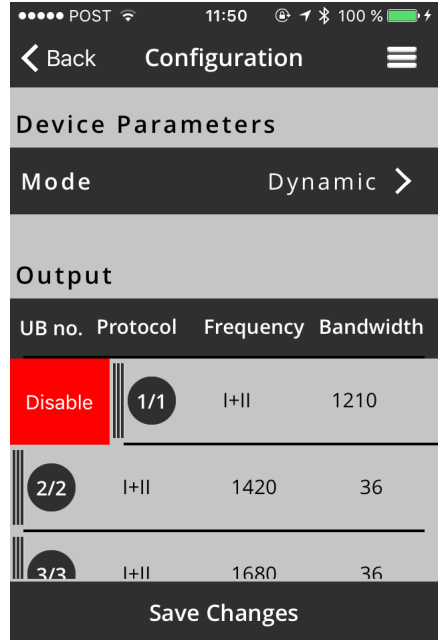


Figure 33 Disable, Enable UB

To enable a user band again do it vice versa by tapping on "Enable". Afterwards tap on "Save Changes" to save changes.

## Unicable II Configuration with Multiswitch

Home » Unicable II Configuration

When an Unicable II Multiswitch is connected to the SatPal™ Controller, the screen at **Figure 34 Unicable II Configuration**, MSW will be displayed.

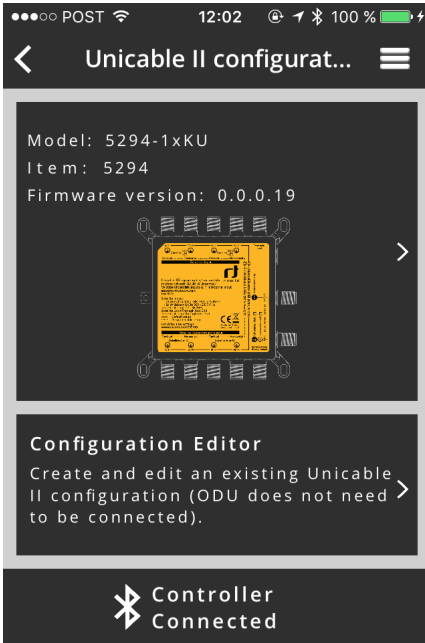


Figure 34 Unicable II Configuration, MSW

Tap on the product image in order to access the configuration or diagnosis information of the connected Multiswitch device.

A screen as shown at **Figure 35 Unicable II Connected Device, MSW** will be displayed.

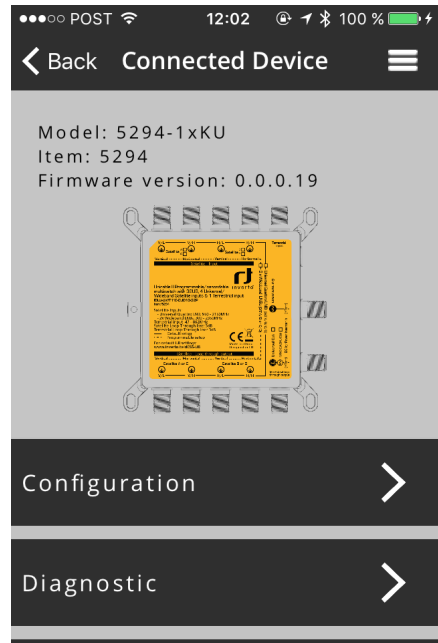


Figure 35 Unicable II Connected Device,MSW

Tap on "Configuration" in order to read the configuration from the connected Multiswitch device.



When reading the configuration data is completed, a screen as at **Figure 36 Configuration, MSW** will be displayed.

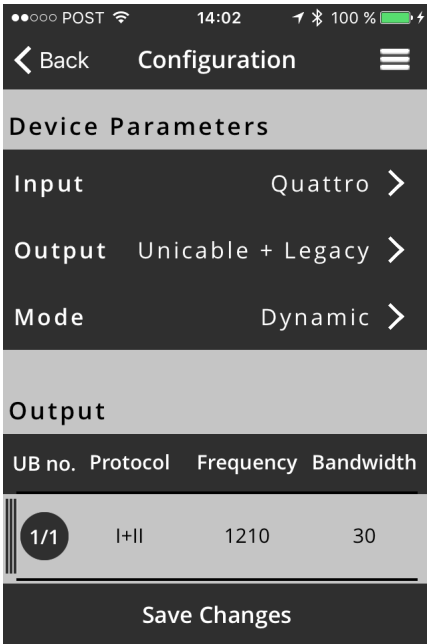


Figure 36 Configuration, MSW

On this screen, you can set the type of LNB that is connected to the Multiswitch (e.g. Quattro, Wideband), the functionality of the output ports (options depend on the specific Multiswitch model, e.g. dual independent Unicable, dual shared Unicable, Unicable + Legacy) and the operating mode of the Multiswitch (static or dynamic). You can see the configured mode of the device and further down a list of configured UB's with assigned Unicable protocol type(s), occupied IF of mapped UB and bandwidth.

Tap on a particular UB row in order to edit the settings of that UB. See **Figure 37 Configuration User Band, MSW**.

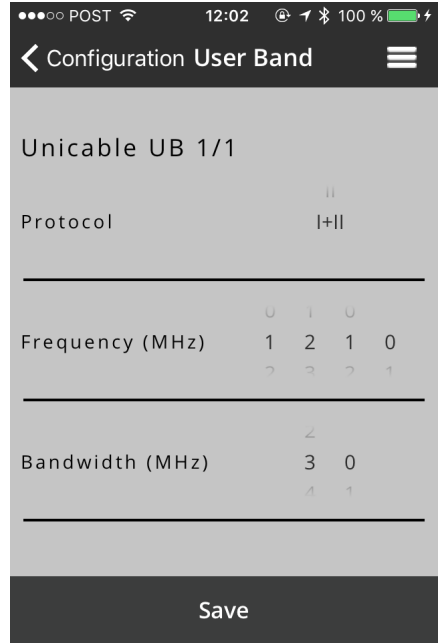
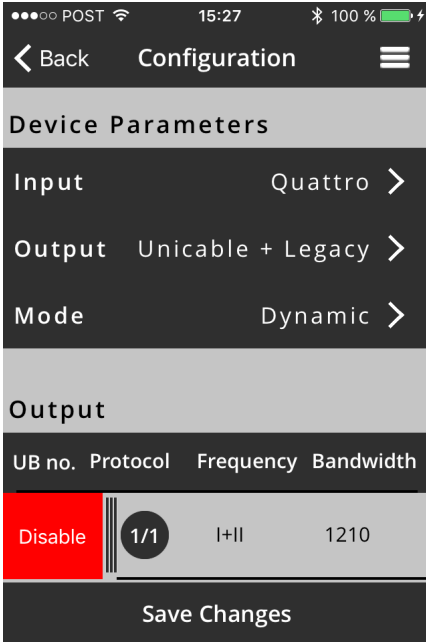


Figure 37 Configuration User Band, MSW

By tapping "Save" at the bottom the changes will be saved.



To disable a user band swipe the row of the required UB to the right and tap on "Disable", see **Figure 38 Disable, Enable UB, MSW**.



**Figure 38 Disable, Enable UB, MSW**

To enable a user band again do it vice versa by tapping on "Enable".

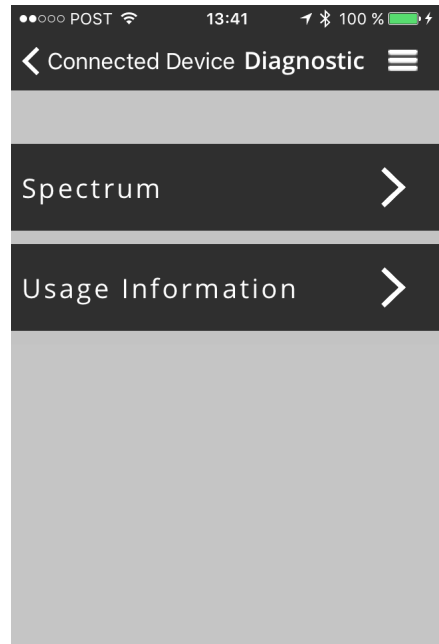
Afterwards tap on "Save Changes" to save changes.

## Unicable II Configuration Diagnostic

*Home » Unicable II Configuration » 'upper rectangle' » Diagnostic*

After tapping on "Unicable II Configuration" followed by tapping on the "upper rectangle" of connected device tap on "Diagnostic".

At this section you have diagnostic tools available to see the occupied spectrum and to get detailed graphical information about temperature, resets and occupied UB's of connected device. See **Figure 39 Diagnostic** for the Diagnostic entry screen.



**Figure 39 Diagnostic**



Unicable II Configuration  
 Diagnostic Spectrum  
 Home » Unicable II Configuration » 'upper  
 rectangle' » Diagnostic » Spectrum

Tap on "Spectrum" to display in real time the spectrum at the input of the connected LNB or Multiswitch **Figure 40 Spectrum diagnosis.**

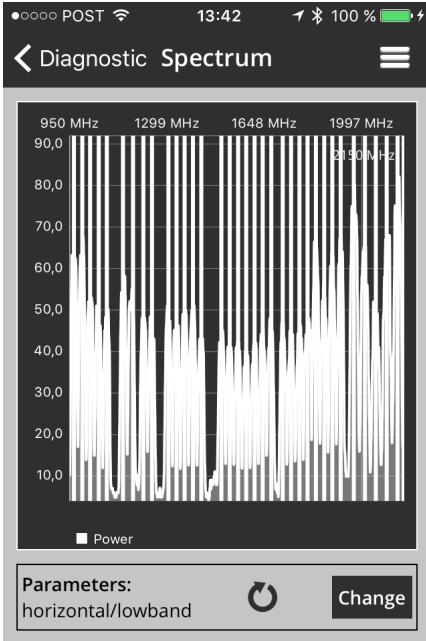


Figure 40 Spectrum diagnosis

To change the capture parameters tap on "Change" at Spectrum display. You will see changeable parameters as shown at **Figure 41 Spectrum Capture Parameter.**

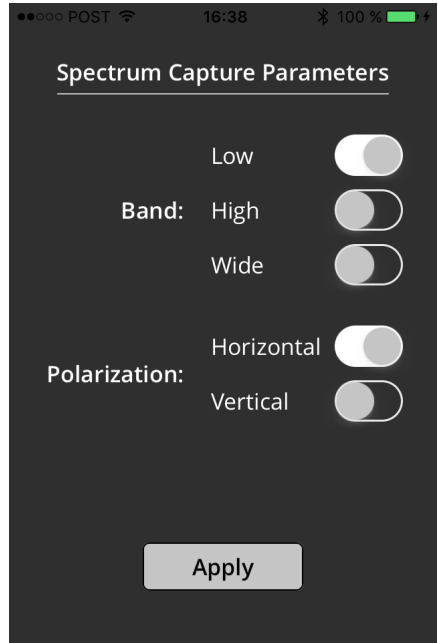


Figure 41 Spectrum Capture Parameter

Tap on "Apply" to apply settings.

## Unicable II Configuration Diagnostic Usage Information

*Home » Unicable II Configuration » 'upper rectangle' » Diagnostic » Usage Information*

Tap on "Usage information" to display information, depending on the connected model, about the device temperature, number of resets and activated UB's over a time axis.

## Unicable II Reset to Factory Defaults

*Home » Unicable II Configuration » 'upper rectangle' » Reset to Factory Defaults*

Tap on "Reset to Factory Defaults, bottom field, to reset the parameters of the connected device to their factory default values. Afterwards tap on "Yes" to confirm reset to factory default values.

## Unicable II Configuration Editor

*Home » Unicable II Configuration » 'lower rectangle' » Configuration Editor*

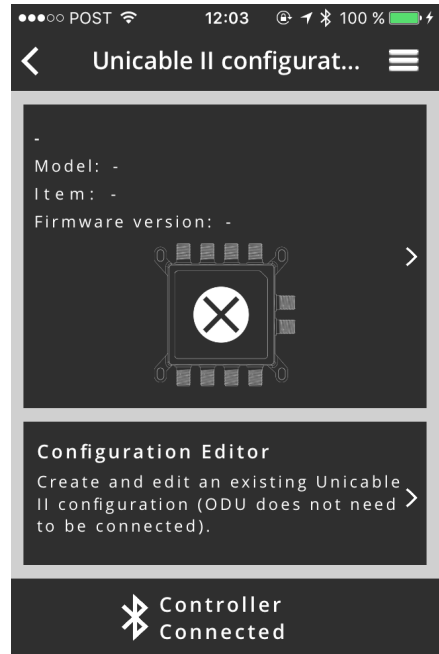
At this section you can create your own Unicable II configuration files for Unicable II capable devices. The configuration files can be stored locally or in the cloud at Dropbox, can be uploaded to the SatPal™ Controller or can be uploaded to an Unicable II device.

To create, or modify configuration files only neither a connection to the SatPal™ Controller, an Unicable II device or a network is required.

To upload configurations at least a Bluetooth connection to the SatPal™ Controller is required. For an upload to any Unicable II device, the device needs to have a connection to the application over the SatPal™ Controller.

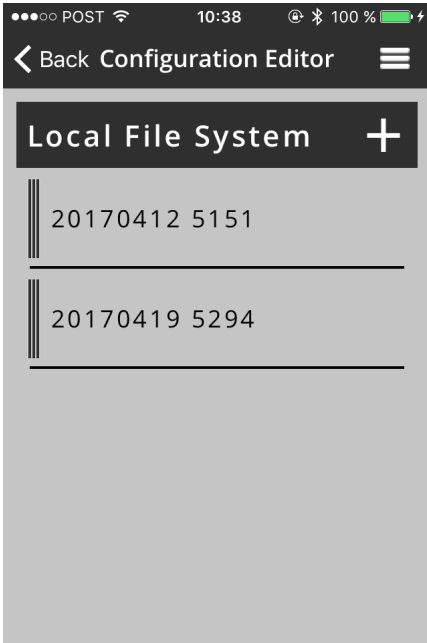
To upload configurations to Dropbox a network (Internet) connection and a Dropbox account is required.

In case of no device is connected and you tap on "Home » Unicable II Configuration »" screen as shown at **Figure 42 Unicable II Configuration Editor** will be displayed.



**Figure 42 Unicable II Configuration Editor**

Tap on “Home » Unicable II Configuration » Configuration Editor “lower rectangle”” to come to the section “Local File System” as shown at **Figure 43 Local File System**. As example two configuration files are stored locally.



**Figure 43 Local File System**

To create a new configuration file tap on “+” and screen as displayed at **Figure 44 New Configuration** will appear.



**Figure 44 New Configuration**

At this screen you can chose the Unicable II device for which a configuration should be generated and later maybe modified. Scroll the wheel under “Device:” until the desired 4 digit invertor item number is displayed.

Under field “File Name:” type in a filename. As hint: A filename should always include Inverto’s 4 digit item number a date, and or a brief hint about the configuration or location.

By choosing the item number the application will generate a standard configuration with factory default settings and will store it with the given filename.

For instant, a configuration file for the LNB with the item number 5228 will be in dynamic mode with 24 UB’s. The first eight UB’s with the protocol type I+II, UB’s 9 until 24 with protocol type II.

Further details about configuration files and possible modifications on **Page 30: Configuration Editor examples with MSW**.

If you want to delete a configuration file swipe the “filename” to the right and tap on “Delete”, see **Figure 45 Delete configuration file**.

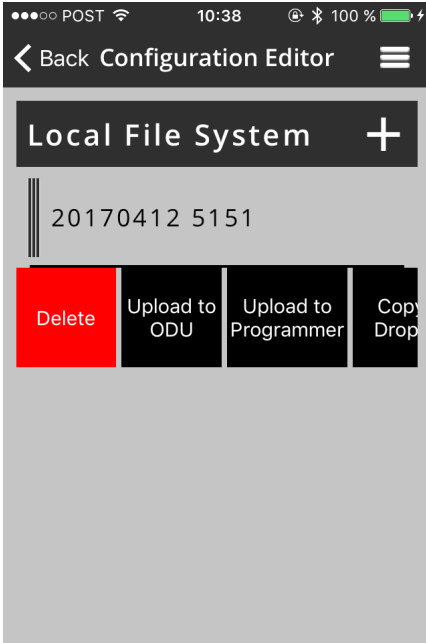


Figure 45 Delete configuration file

To upload the configuration file to the device (ODU) tap on “Upload to ODU”.

To upload the configuration file to the SatPal™ Controller tap on “Upload to SatPal Controller”.

To copy the configuration file to a prior linked Dropbox account tap on “Copy to Dropbox” (to link a Dropbox account refer to section “Home » Settings”).

If a Dropbox account has been linked you can see also a section for files stored at the Dropbox account.

If you swipe a filename of the Dropbox account to the right you can tap on “Delete” to delete the file at the Dropbox account or you can tap on “Copy to Local File System” to copy the file to the local file system. See **Figure 46 With Dropbox account linked**.



Figure 46 With Dropbox account linked



## Configuration Editor examples with MSW

Depending on the type of connected MSW device, the configuration options will be displayed.

**!Attention!** Creating/editing a product configuration requires a proper planning in advance to avoid a parameter overlapping which might cause misbehavior or loss of signals of the entire system and for the connected consumer devices.

**!Attention!** Each time you tap on “Save Changes” changed parameters will be stored to the file finally. An undo is not possible.

## Settings *Home » Settings*

At this section you can see connected SatPal™ Controller, enter personal details of the installer, set the e-mail address where to send the installation reports to, to link with a Dropbox account.

Tap “Home” to see the “Settings” menu item. See Figure 47 Home menu items.

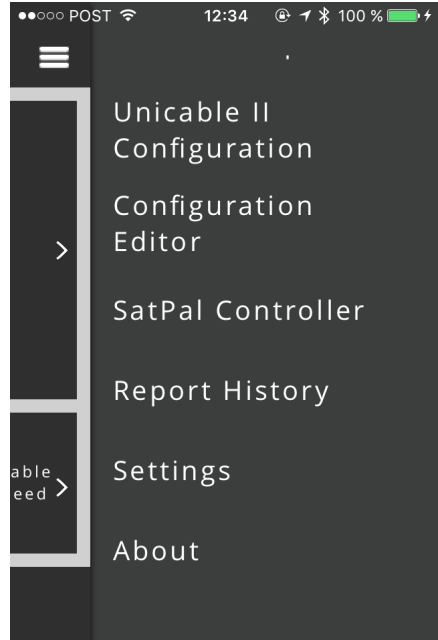


Figure 47 Home menu items

Tap on "Settings" to enter the setting section. See Figure 48 Setting section.



Figure 48 Setting section

At each section you can tap on each header to insert the required data accordingly. For instant, tap on "Target e-mail" below the section "Reporting" to enter the target e-mail where to send the reports to.

## SatPal™ Controller Home » SatPal Controller

At this section you can trigger a firmware upgrade of the SatPal™ Controller, to set a TP Configuration for standalone mode, to define the function of the "User button" at the SatPal™ Controller and to reset the SatPal™ Controller to factory defaults, see Figure 49 SatPal™ Controller Menu.

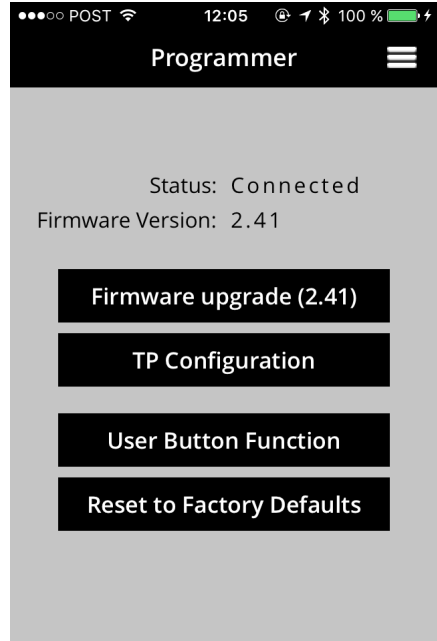


Figure 49 SatPal™ Controller Menu

## Firmware upgrade

*Home » SatPal Controller » Firmware upgrade*

Tap on "Firmware upgrade" at "Home » Controller" to change to the firmware upgrade section.

To start the firmware upgrade tap on "Start". The firmware upgrade will start. While the firmware is being uploaded you can see a progress bar starting from 1 until 1000. After successful upload the SatPal™ Controller will restart.

After successful upload the SatPal™ Controller will restart. Afterwards a pop up window will inform about the finished update, just tap on "OK" to confirm.

Firmware upgrades are provided over the SatPal™ application.

## TP Configuration

*Home » SatPal Controller » TP Configuration*

At this section you can configure four TP's for the toggling mode while the SatPal™ Controller is used in standalone mode as described on **Page 35: User Button Function**.

Each of the four configurable TP's can be either assigned to one LNB (dCSS capable or Universal LNB) or can be assigned to four different LNB's.

**!Attention!** Any configuration of these data requires a proper planning in advance to avoid a parameter overlapping which might cause misbehavior or loss of signals of the entire system and for the connected consumer devices in case of.

Tap on "TP Configuration" at "Home » SatPal Controller" and a configuration screen as shown at **Figure 50 TP Configuration** will be displayed.

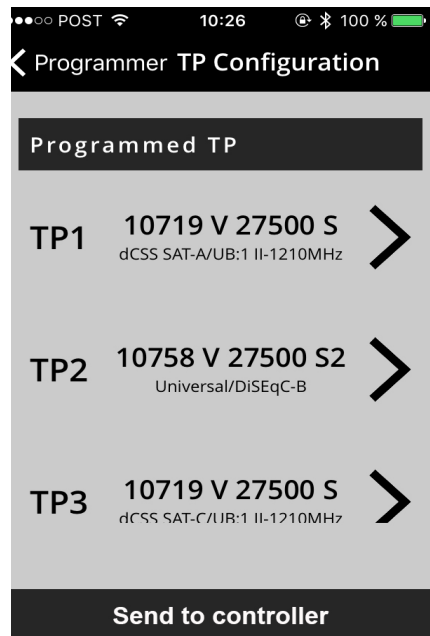
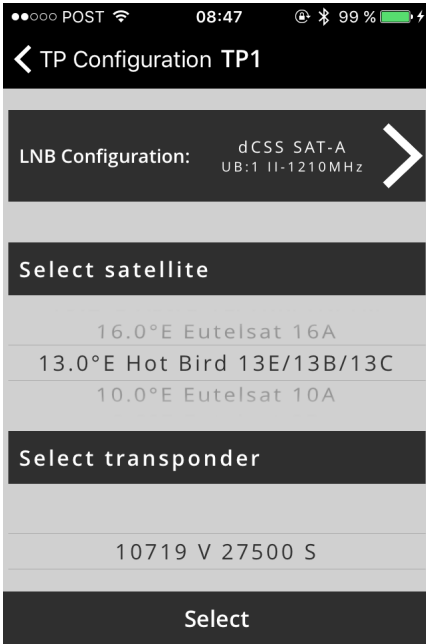


Figure 50 TP Configuration



For instance, to setup a configuration for TP1, tap on the "row of TP1". A screen as shown at **Figure 51 TP Configuration TP1** will be displayed.



**Figure 51 TP Configuration TP1**

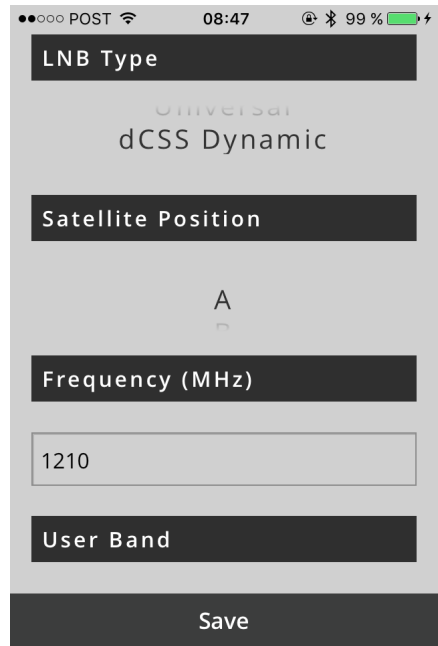
Tap on "LNB Configuration" to configure the LNB type and LNB related parameters. Almost all parameters can be chosen per scrolling wheel in this section.

LNB Type:

You can choose between dCSS Dynamic or Universal. If you choose Universal you can assign the satellite position, e.g. "A".

If you choose dCSS Dynamic you can assign the satellite position, UB frequency (by typing in the frequency value), UB number (1 to max. 32) and the Unicable protocol type (I or II).

See **Figure 52 TP Configuration LNB Type** as example for dCSS LNB setup.



**Figure 52 TP Configuration LNB Type**

Tap on "Save" at the bottom to save the configuration and to go back to **Figure 51 TP Configuration TP1** to set up desired satellite and transponder for TP1.

At the middle of the screen below the section "Select Satellite" you have a scrolling wheel whereby you can choose desired satellite. After the satellite is chosen you can choose below the section "Select transponder" the desired transponder.

Hint: Satellite data and related transponder data are provided by the SatPal™ application.



Tap on “Select” to apply your selection.

After all TP’s have been assigned and configured accordingly you have to tap on “Send to SatPal Controller” at **Figure 50 TP Configuration** to send the configuration to the SatPal™ Controller and to be able to toggle twhe TP’s as described on **Page 34: User Button Function**.

## User Button Function

*Home » SatPal Controller » User Button Function*

The SatPal™ Controller has a small button, right beside the Micro USB socket for “PC (Data Only)”. This button can be programmed to use it either for sending a prior uploaded configuration to an ODU device or to toggle between four TP’s when using the SatPal™ Controller in a stand-alone mode (i.e. not through the application). See **Figure 53 User Button Function**.

Setup of TP’s to be toggled are described on **Page 32: TP Configuration**.

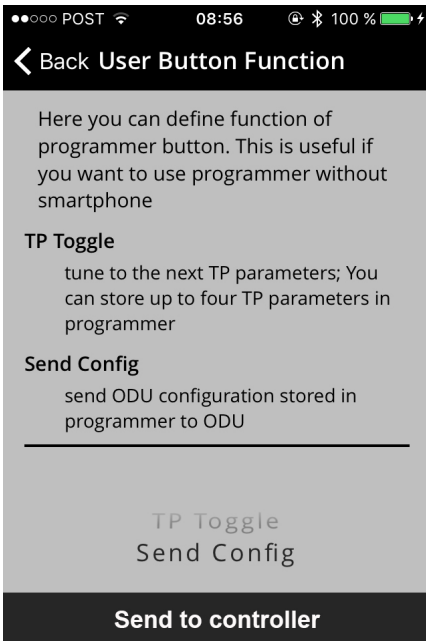


Figure 53 User Button Function

Chose with the scrolling wheel either “TP Tog-

gle” or “Send Config” and then tap on “Send to SatPal Controller” at the bottom to upload the setting to the SatPal™ Controller.

A window to confirm the upload will pop up. Tap on “Close” to close that window.

While toggling the TP’s as configured on **Page 32: TP Configuration**.

And without a smartphone connected you can see signal strength and signal quality at the front panel SatPal™ Controller, see **Figure 1 SatPal™ Controller**, item 5.

## Reset to Factory Defaults

*Home » SatPal Controller » Reset to Factory Defaults*

In some cases it might be required to reset the SatPal™ Controller to the factory default settings.

Tap on “Reset to Factory Defaults” at “Home » SatPal Controller”. A window with a warning will pop up. To trigger the “reset to factory defaults” tap on “Yes”. See **Figure 54 Reset to Factory Defaults**.

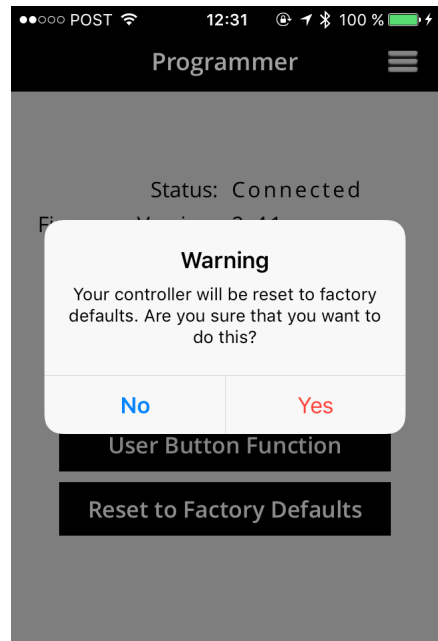


Figure 54 Reset to Factory Defaults

# SPECIFICATIONS



## Frequency range

Satellite (LNB/Multiswitch and Receiver ports)	950-2150MHz
Bluetooth	2.4GHz

## Interfaces

LNB/Multiswitch	1x Satellite IF + 13/18VDC out + 0/22kHz, F-type
Receiver	1x Satellite IF loop-through out + 13/18VDC in, F-type
PC (Data)	1x PC data communication, micro USB
Bluetooth (Wireless data)	1x Bluetooth low energy (IEEE 802.15.1 BT4.0)
DC In	1x DC input, micro USB

Loop-through loss (Satellite)	1dB max.
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LNB/Multiswitch control protocols	DiSEqC™ 2.0, EN50494 (Unicable/SatCR), EN50607 (Unicable II/dCSS)
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## Display and keys

Satellite signal strength bar (0-100%)  
Satellite signal quality bar (0-100%)  
Status LED  
Bluetooth LED  
Power LED  
Function button

## Power Supply

DC input	5-6VDC/13W max. (DC In, micro USB) 10-20VDC/13W max. (IF loop-through, F-type))
SatPal Controller (without power supply to LNB/ Multiswitch)	5VDC, 350mA (can be powered over the USB data interface)
Power supply to LNB/Multiswitch	14V-18V, 400mA max.
Operating temperature	-10°C ~ 40°C

Dimensions	150mm x 100mm x 30mm (W x D x H)
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## Certificates

Low Voltage Directive (2014/35/EU)  
Electromagnetic Compatibility Directive (2014/30/EU)  
Eco-Design Directive (2009/125/EC)  
Radio Equipment Directive (2014/53/EU)

# ABBREVIATIONS

BER	Bit Error Rate
C/N	Carrier to Noise ratio
dCSS	Digital Channel Stacking System
IF	Intermediate Frequency
LNB	Low Noise Block Converter
MER	Modulation Error Ratio
MSW	Multiswitch
ODU	Outdoor Unit: e.g. LNB, Multiswitch
STB	Set-Top-Box
TP	Transponder
UB	User Band





For purpose of brevity, some product descriptions in this sheet remain at platform level and may not be referred to as detailed datasheets of the products. Inverto Digital Labs reserves the right to amend, omit or add products, product-lines, and / or features without notice. As product specifications may change without notice, always contact Inverto to obtain the latest product specification sheets.

For further details contact: [sales@inverto.tv](mailto:sales@inverto.tv)

FTA Communication Technologies S.à.r.l | Tel. +352 264 367 1 – Fax. +352 264 313 68