



# ***FCV 5G***

## ***User Manual***



**Down  
Converter**



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UNAOHM S.r.l. reserves the right to make changes to the described product at any time, for technical or commercial reasons as well as for compliance with legal requirements in the various countries. For this reason the information contained in this manual may not be up to date.

## 1. WARNINGS

Marking 

This equipment complies with the following standards:

EMC: EN 50082-1 \* EN 55011 \* EN 61000-3-2 \* EN 61000-3-3 \* IEC 801-2 \* IEC801-3 \* IEC 801-4  
Safety: EN61010-1

The safety standards and precautions listed below must be applied scrupulously during all phases of use and maintenance of the unit in order to prevent damage to persons, animals and objects.

**UNAOHM S.r.l. assumes no liability for any incorrect use of the instrument or any use different than that specified.**

### 1.1. SAFETY STANDARDS

- Power the instrument with a voltage which falls within the limits specified in the characteristics section.
- Do not use the unit without the relative locks.
- The instrument is intended for use in covered areas. Therefore do not expose it to rain or dripping.
- Do not use the unit in an explosive atmosphere constituted by flammable gases, vapours, smoke and powders.
- The instrument can be used in overvoltage Category IIa and pollution grade 2.
- Do not switch on the unit immediately after moving it from a very cold room to a hot one, in order to prevent the formation of moisture condensate.
- Do not obstruct any cooling slots and do not place the unit close to heat sources.
- Do not apply DC voltage or RF signals greater than those prescribed to the input connectors.

 **This symbol indicates that the instructions manual must be consulted for additional information.**

 **This symbol indicates parts of circuit in which dangerous voltage may be present.**

## 1.2. PRECAUTIONS

- Do not place the unit near strong magnetic or electric fields (motors, transformers, solenoid valves, etc.)
- One of the most frequent causes for technical support intervention is due to internal short circuits due to foreign bodies, even very small ones, which enter the unit despite all of the precautions taken to prevent this from happening. It is therefore recommended, especially when joining coaxial cables, not to do this in the immediate vicinity of the unit because even very small pieces of the mesh shielding could penetrate the unit and cause occasional short circuits which are not easily detected by technical support engineers.

## 1.3. MAINTENANCE

The only interventions allowed concern battery replacement

Opening the instrument and any operations must be done exclusively by qualified personnel or by personnel with basic electro-technical and electrical safety knowledge.

- For the units equipped with a battery remember the notes included in section 1.1.
- Use suitable measures to prevent the accumulation of electrostatic charges. Do not touch circuits inside the unit without first applying the dedicated antistatic bracelet.
- To clean the external parts:  
Use soft cloths and dampen them if necessary. Do not use aggressive liquid detergents and avoid using hydrocarbon-based substances.

Do not allow liquids or other substances to penetrate inside the unit.

## 1.4. NOTES

- Do not drop the unit or subject it to strong shocks. If the instrument is transported in a vehicle, place it on a non-rigid support in order to avoid strong vibrations.
- Before using the unit carefully read the instructions contained in this user manual.
- It is strongly recommended to regularly perform (at least annually) a periodic operational test of the instrument, accompanied by any necessary calibration operations.

## 2.INTRODUCTION

The FCV300 frequency converter is an accessory that, when coupled with a Field Meter, allows displaying frequencies between 3000 MHz and 4000 MHz in "Spectrum Analyser" mode included the frequency range of 5G signal from 3600 MHz to 3800 MHz.

In the event of random signals (that is signals which are not present continuously), if the Field Meter is equipped with a Max Hold function, it is possible to observe these as well; these types of signals are otherwise impossible to measure given their temporal inconsistency.

The converted carrier will be displayed in IF SAT band, that is, in the frequency range between 1000 MHz and 2000 MHz.

The size and weight are very small while the power, between  $13 \pm 18$  Volt, is applied directly on the RF outlet connector through LNB remote power, supplied by the same Field Meter.





### 3. USING THE CONVERTER

In practical applications, it is necessary that the input band to the converter be limited as its Local Oscillator can create flutters that may cause unwanted "interferences" which, superimposed on the frequency spectrum, disrupt vision and substantially alter the measurements.

Therefore it is recommended that the RF cable, antenna or satellite dish dedicated to the band you wish to convert be carefully chosen and the use of band-stop filters is recommended to increase the rejection of unwanted signals that fall outside of the operating band.

For some signals which are discontinuous over time it is necessary to use the Max Hold function with which some of our Field Meters are equipped.

That said, the following is the sequence of operations for using the converter.

1. Connect an antenna able to receive the desired frequencies to the **RF IN** converter input.
2. Connect a coaxial cable from the output of the **RF OUT** converter to the RF BNC input of the Field Meter.
3. Switch on the Field Meter to Spectrum mode and activate the Max Hold function, if present.
4. Power the converter via remote power supply (LNB)
5. Move to the " SAT " frequency. With the marker, go to a displayed carrier: to obtain the starting value of the original input frequency it is necessary to subtract 2000.00 MHz, which is the frequency of the Local Oscillator, from the frequency indicated by the marker.

#### 4. TECHNICAL DATA

<b>Input characteristics</b>	
<b>Frequency</b>	3000 ÷ 4000 MHz with conversion of the range
<b>Impedance</b> <sup>(1)</sup>	50 Ω
<b>Dynamic</b>	- 80 Mm ÷ - 10 Mm
<b>Input connector</b>	" N " female

<b>Output characteristics</b>	
<b>Frequency</b>	1000 ÷ 2000 MHz
<b>Impedance</b>	75 Ω
<b>Return loss</b>	≥ 10 dB
<b>Strength</b>	+ 5 dBm (@ 1 dB gain compression)
<b>Output connector</b>	BNC

<b>Transfer</b>	
<b>Type</b>	Conversion of single SAT bands (Down Converter)
<b>Gain</b>	0 dB ± 3 dB
<b>Gain Stability</b>	± 0.1 dB/°C (5 ÷ 40 °C)
<b>Noise figure</b>	≤ 15 dBm
<b>Rejection of interferences</b>	< 20dBμV without input < -39 dB Carrier with single input carrier of -10dBm
<b>Rejection of input filter</b>	-45 dB 3000 Mhz

<b>Characteristics of the oscillator</b>	
<b>Frequency</b>	2000 MHz
<b>Precision</b>	± 1 MHz

<b>Power supply characteristics</b>	
<b>With DC from the RF connector</b>	Via remote power (LNB) by RF output connector 13 ÷ 18 Volt/0.2A

<b>Environmental characteristics</b>	
<b>Calibration temp.</b>	Room temperature of 23 °C ± 5 °C
<b>Operating temp.</b>	From +5 °C to + 40 °C
<b>Rel. operating humidity</b>	80% for temperatures up to 31°C (with linear reduction up to 50% at 40°C)
<b>Max. operating altitude</b>	2000 m
<b>Non-operating temp.</b>	From -10 °C to +60 °C
<b>Non-operating humidity</b>	Max 95 %

<b>Mechanical characteristics</b>	
<b>Dimensions</b>	(H x L x T) 150 x 90 x 25 mm
<b>Weight</b>	0.25 kg with bag
<b>Finishing</b>	The unit is supplied in a nylon bag with an accessories compartment.

#### **4.1. SUPPLIED ACCESSORIES**

- "N" male adapter, female BNC
- 1 BNC/BNC cable 75 Ω
- 1 User manual



## 5. WARRANTY

The instruments manufactured by us are guaranteed for twelve months from any faults attributable to manufacturing defects or defects in the used materials.

Revision operations are carried out by Technical Support at our facility located at: **UNAOHM Service** Via G. Di Vittorio N° 49 20068 Peschiera Borromeo, Italy, Tel +39.02.36577787, where the units must be sent. Shipment must be freight paid with appropriate packing preferably in the original packaging in order to prevent damage during transportation.

In order to take advantage of the warranty a copy of the invoice or fiscal sales receipt relative to the purchase of the instrument must be produced.

The warranty will be considered void in case of tampering, modifications or repairs carried out by unauthorised personnel.

The power batteries and piles are not included in the warranty.

### SERVICE NOT COVERED UNDER WARRANTY

We are available for our esteemed customers for the repair of instruments manufactured by us, even after the warranty period, in order to restore equipment to its original condition (as long as it is economically convenient).

The availability of mechanical and electronic spare parts is guaranteed for up to 5 years when the circuits are manufactured with discreet components. In the event integrated circuits are used, the supply of spare parts is ensured while supplies last and subject to their availability on the global market. The repair of instruments which are no longer covered under warranty is normally carried out against payment. Quotes must be requested upon delivery of the instrument. In the event the quote is not accepted, the expenses sustained for its preparation shall be charged to the customer. To avoid wasting time, it is very important that the unit be returned with its accompanying documents complete with all data as required by law.

Use the dedicated forms in this manual or attach an accompanying letter, specifying the defect detected, the name and telephone number of the person to be contacted for any additional information or clarifications.
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### MISCELLANEOUS

The wiring diagram of the unit will not be provided (not even upon request). Any illustrations and diagrams inserted in the brochure are purely indicative. We reserve the right to make any change which may become necessary without updating the instruction manual.