

GPS L1-L2 ODUS Spoofing amplififer & antenna

Amplificateur & antenne de Leurage du GPS



User Manual

Includes installation and configuration information about the ODUS GPS L1-L2 4 watts amplififer & antenna transmitter

OutDoor Unit Spoofer

Version 1.0.1 April. 2015

WARNINGS



In order to comply with international radio frequency (RF) exposure limits, this ODUS antennas should be placed at a minimum of 200cm from the bodies of all persons.

⚡ Champ Radio électrique				
PAR (Watts)	→	Distance m	V/m	$\mu\text{W}/\text{m}^2$
16		0,025	876,36	2037135278,51
entrer ci-dessus la valeur		0,05	438,18	509283819,63
PAR en Watts		0,1	219,09	127320954,91
PAR= Puissance Apparente Rayonnée		0,25	87,64	20371352,79
Egalement nommée PIRE		0,5	43,82	5092838,20
		1	21,91	1273209,55
		2	10,95	318302,39
Distances m pour :		5	4,38	50928,38
< 0,6 V/m		10	2,19	12732,10
36,51		20	1,10	3183,02
< 0,2 V/m		40	0,55	795,76
109,54		100	0,22	127,32
< 0,06 V/m		200	0,11	31,83
365,15		400	0,05	7,96
< 0,02 V/m		800	0,03	1,99
1095,45		1600	0,01	0,50



Ultimate disposal of this product should be handled according to all national laws and regulations.



Do not locate the antenna near overhead power lines or other electric light or power circuits, or where it can come into contact with such circuits. When installing the antenna, take extreme care not to come into contact with such circuits, as they may cause serious injury or death. For proper installation and grounding of the antenna, please refer to national and local codes.



Only trained and qualified personnel should be allowed to install, replace, or service this equipment.



To meet regulatory restrictions, the PWS-M-AUnit and the external antenna must be professionally installed. The network administrator or other IT professional responsible for installing and configuring the PWS-M-AUnit is a suitable professional installer.



Follow the guidelines in this installation guide to ensure correct operation and safe use of the ODUS Unit.

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PACKAGE CONTENTS

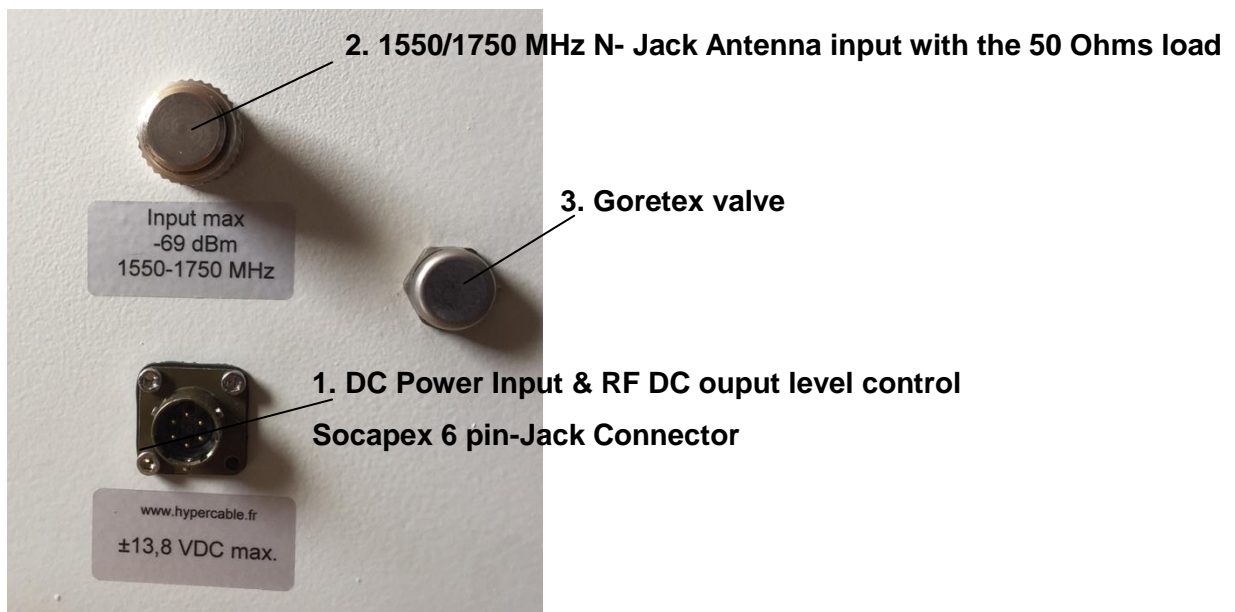
The package you have received should contain the following items:

- ODUS unit with 45 mm mast mountx1
- Socapex 6 pin for VDC Power and Cable 15 meters Shielded for VDC output power control.x1



If any item on the above list is not included or damaged, please contact your local vendor for support.

MECHANICAL DESCRIPTION



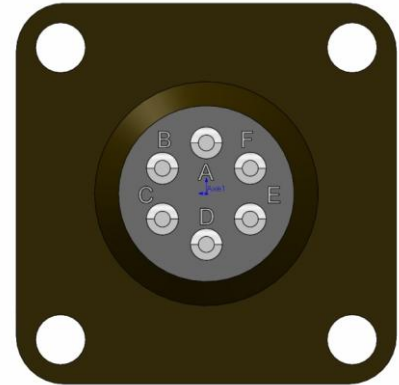
Portable ODUS Unit connectors Figure1

Please refer to the following table for the meaning of each feature

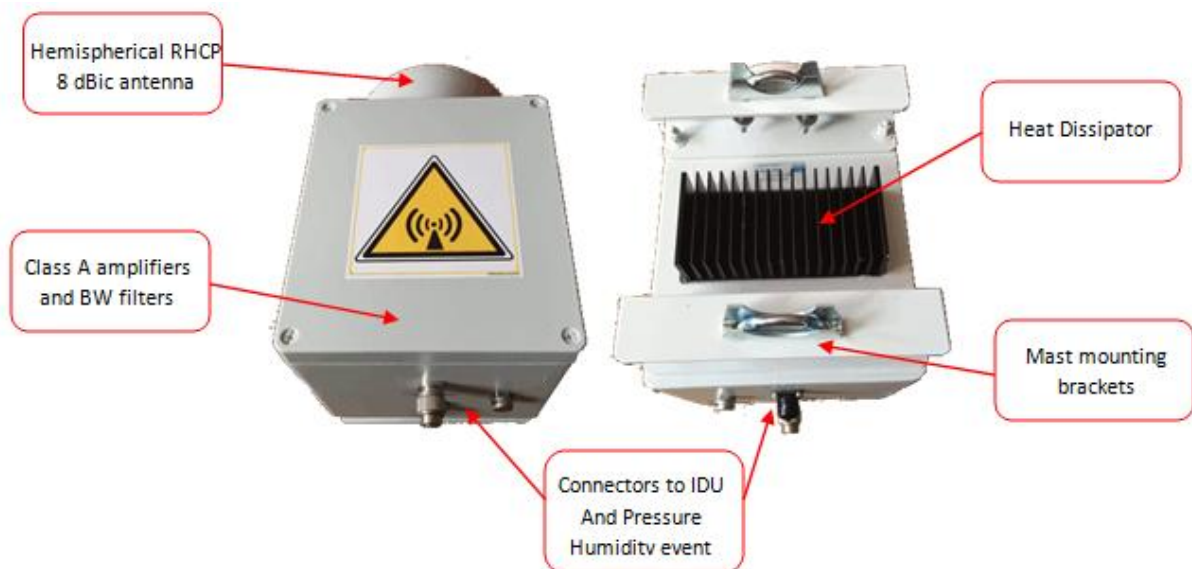
1	Power Input (Socapex 6 pins)	Feed up to 13.8 VDC power to the ODUS Unit via this power Jack, please follow the pin assignment for correct + / - polarity, but input is floating by a diode bridge and prevent any damage of the radio amplifier for reverse polarization. Use a regulated power supply. More of 13.8 VDC can damage the radio amplifiers
2	N RF input	Use coaxial cable 50 Ohms with 110 dB RF protection and connect to the RF generator for a maximum of -69 dBm RF input before to switch the Power supply "on"
2	50 Ohms Load	To prevent any amplifier damage the load can be removed to connect the coaxial cable only if the VDC power is "Off" to prevent the RF "Larsen effect"
3	Goretex Valve	For pressure equalization and Humidity protection

■ Connector cabling

Pin	Cable color	Function
A	Marron-brown	+ 13,8 VDC
B	Blanc-white	+ 13,8 VDC
C	Jaune-yellow	- sonde RF probe or -RS485
D	Vert-green	+ sonde RF probe or +RS485
E	Bleu-blue	- 13,8 VDC
F	Gris-grey	- 13,8 VDC

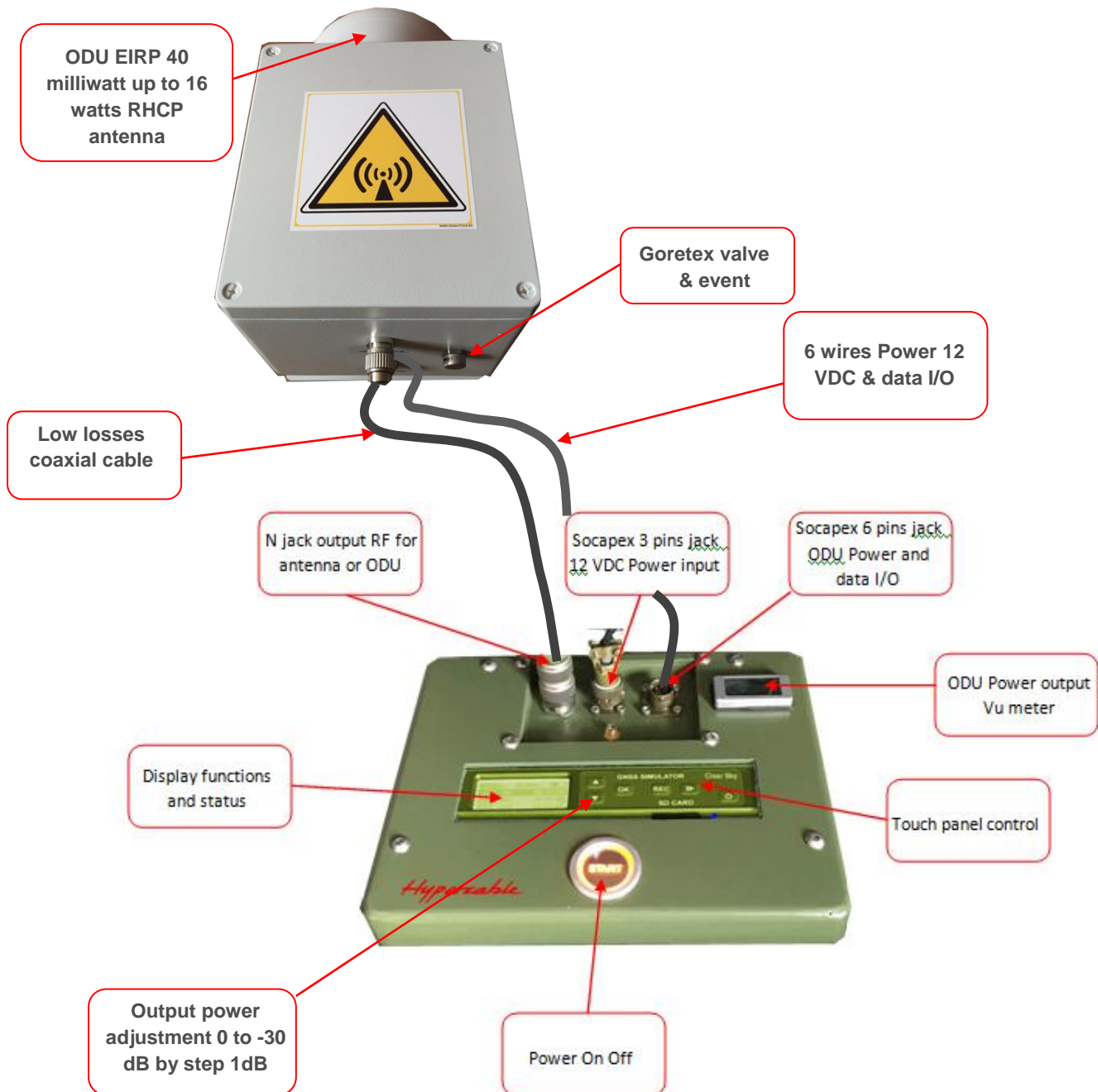


■ ODU Front & Rear Panel



INSTALL THE ODU Unit version with IDU ClearSky

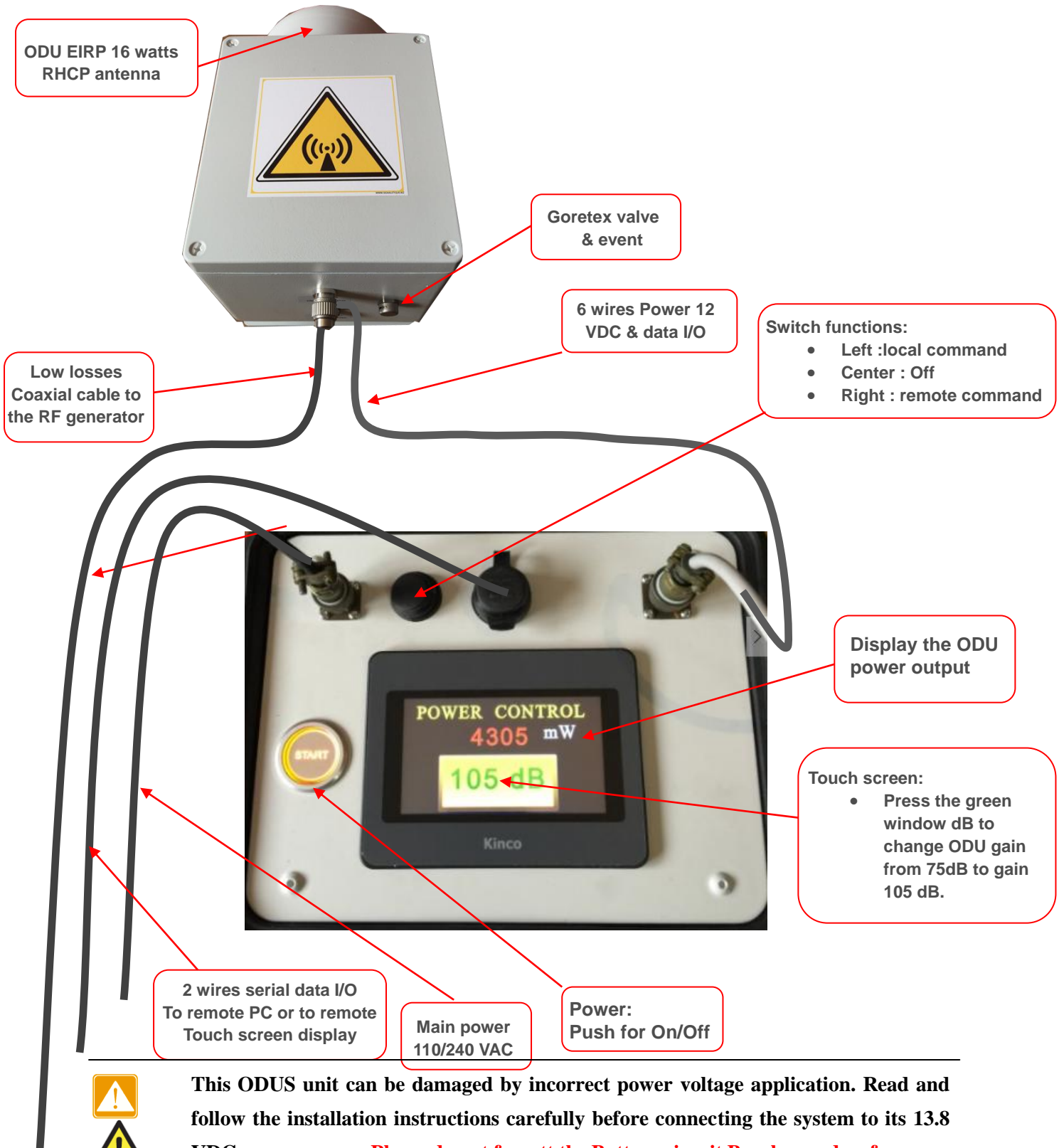
This section show you how to mount the ODUS unit, please read it carefully before you start to install the hardware. Be safe and step by step to finish the hardware installation.



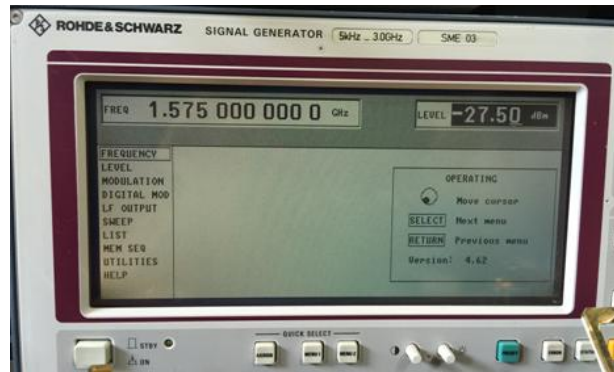
This ODUS unit can be damaged by incorrect power voltage application. Read and follow the installation instructions carefully before connecting the system to its 13.8 VDC power source. Please do not forgett the Battery circuit Breaker and or fuse

INSTALL THE ODU Unit version with IDU Power Supply only

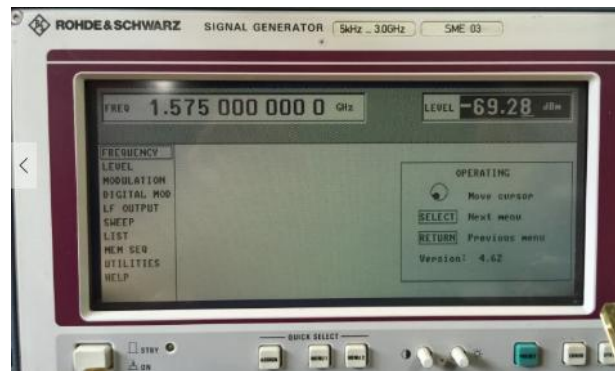
This section show you how to mount the ODUS unit, with a separate spoofing system, please read it carefully before you start to install the hardware. Be safe and step by step to finish the hardware installation.



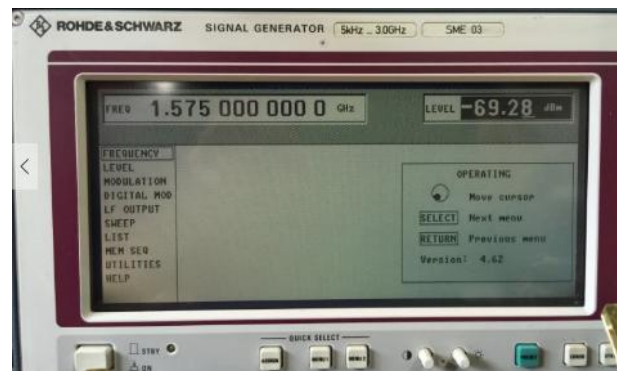
■ Calibration



75 dB gain provide 4228 Milli-Watts with -27.5 dBm RF input



105 dB gain provide 4228 MilliWatts with -69.28 dBm RF input



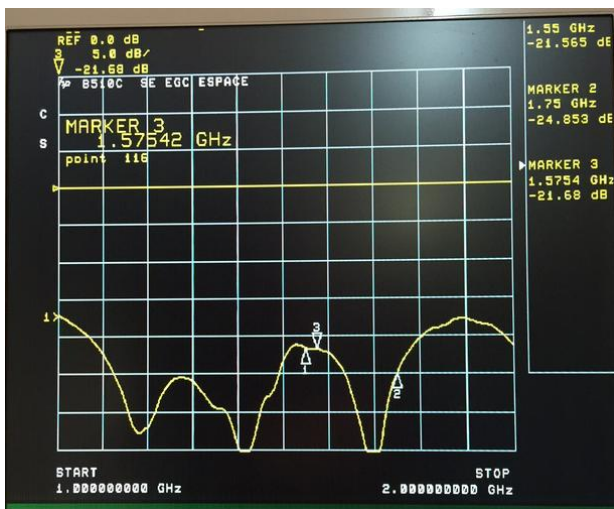
75 dB gain provide 20 milliwatts with -69.28 dBm RF input

■ Embedded antenna

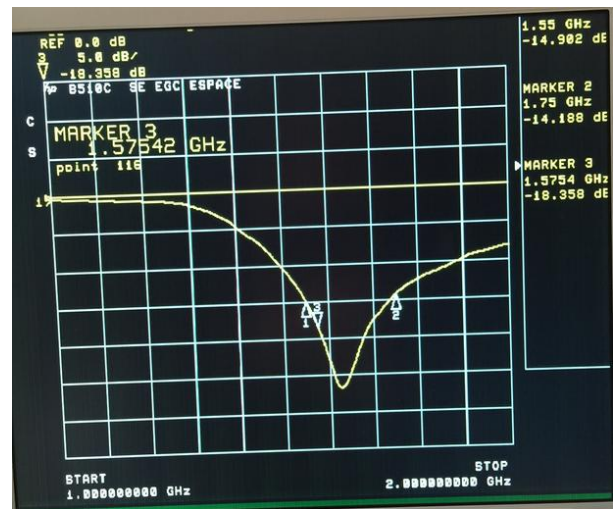
- RHCP 360° Omnidirectional antenna performances 1.575 MHz:
 - 6 dB to the zenith PAR 42 dBm RF Field – 70 dBm @ 6 km
 - 3 dB @+- 35° PAR 39 dBm RF Field – 70 dBm @ 4 km
 - 0 dB @+- 55° PAR 36 dBm RF Field – 70 dBm @ 3 km
 - -4 dB @+-75° PAR 32 dBm RF Field – 70 dBm @ 2 km



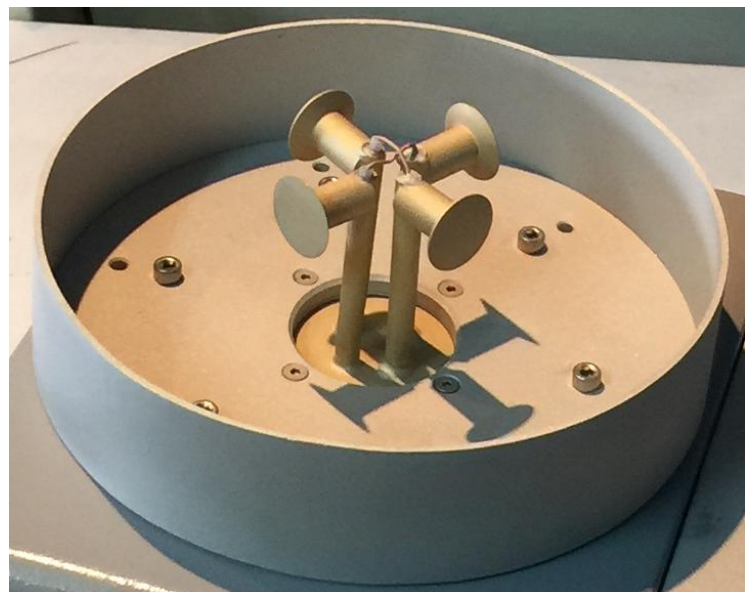
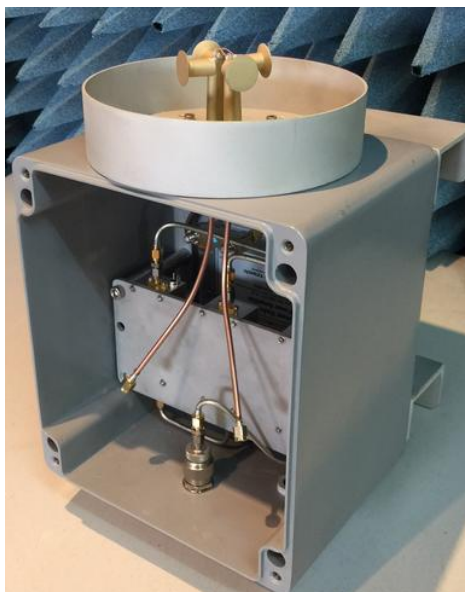
To meet regulatory restrictions, the ODUS unit and the external antenna must be professionally installed. (Grounded and with VSWR less than 1.5)



RHCP Antenna return loss with the Hybrid coupler



Antenna return loss before RHCP coupler



■ Connect the Power Cable

Use the Socapex 6 pins connector and supplied cable to connect the ODUS Unit to the 13.8 VDC power supply. And the output power meter controller



ATTENTION

Feed in proper voltage range DC (10~13.8VDC) to the ODUS Unit with correct voltage to make sure the ODUS Unit works well. Please refer to below pinouts assignment for correct + / - polarity, mix that cannot cause damage to the ODUS Unit protected for reverse polarity.

Do not switch "ON" the 13.8 VDC if the load is removed from the N female or if the coaxial cable is not well connected to the Spoofing generator.

Model (ODU)	DC input range	Power consumption
4 watts RF - Gain 105 dB	10~13.8 VDC	For RF 4 watts (Max. 31 W)

ODUS Unit	13.8 VDC
Tx mode CW 4 watts RF	2.2 A.

Noise factor typ : 0.6 dB max 0.7 dB

GAIN : 105 dB

Output power : 4 watt @-1 dB compression

Operating case temperature range : -20° + 55°



ATTENTION



You should read and follow the installation instructions carefully before connecting the system to its power source. This wireless ODUS Unit can be damaged by incorrect power supply. **Do not connect the power supply when the load is removed or the 50 Ohms coaxial cable not connected to the Spoofing generator**

■ Paramétrage de la liaison série RS 485

Parametrage liaison serie RS485 : 19200b 8bits 1 stop pas de parité ni contrôle de flux

La trame est du type MODBUS RTU a envoyer via un petit adaptateur usb>rs485

Contenu des trames a envoyer (SANS AUCUN SEPARATEUR) en rs485 et en HEXADECIMAL pour le pilotage de l'amplification

trame pour actionner 75DB d'amplification

N°Esclave 01 fonction 05 registre 00FF mise a « 1 » FF00 CRC BC0A soit > h
01.05.00FF.FF00.BC0A

Reponse automate retour même trame

trame pour 105 DB d'amplification

N°Esclave 01 fonction 05 registre 00FF mise a « 0 » 0000 CRC FDFA soit > h
01.05.00FF.0000.FDFA

Reponse automate retour même trame

trame pour connaitre l'état de l'amplification

N°Esclave 01 fonction 01 registre 00FF DATA 0001 CRC FDFA >soit h
01.05.00FF.0001.FDFA

REPONSE 01.01.01.01.90.48 le quatrieme octets « 01 » donne 75db

REPONSE 01.01.01.00.51.88 le quatrieme octets « 00 » donne 105db

trame pour connaitre le niveau de l'ADC

N°Esclave 01 fonction 03 registre 1031 DATA 0001 CRC D105 soit > h
01.03.10.31.00.01.D105

REPONSE 01.03.02.0000 b844 le quatrieme et cinquieme octets « 0000 » donne la valeur

de l'ADC DE 0 A 1023. (ICI ADC = 000) 1023 etant la valeur max de + 10 VOLTS soit 03FF.

trame pour connaitre le niveau de PUISSANCE vue sur l'écran tactile

N°Esclave 01 fonction 03 registre 1065 DATA 0001 CRC 90D5 soit > h
01.03.10.65.00.01.90D5

REPONSE 01.03.02XXXX ZZZZ le quatrieme et cinquieme octets « XXXX » donne la valeur de la puissance en mW et ZZZZ etant le CRC fonction de la valeur mesurée