



Low Power RF

MultiBand | 37-950Mhz ISM modules



Generation 4

2014



Language



www.dmd.es



Low Power RF

Radiomodems 4G



Description:

Radio modem USB with protocol network Unibus12W and 25mW in the ISM bands from 866 to 960Mhz.

Compatible with the new generation of DMD wireless products Unibus12W (4G y 5G).

With one WlinkUSB4G and other dispo device 4 or 5G, can be achieved links up to 8 kilometers depending on weather conditions, environment and antennas.

To reach more, you can use repeaters or compatible devices 5G with 500mW power, higher sensitivity and according antennas, ranges up to 180Km.





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Description:

Very powerful system of ALPHA commands in text mode, that has resolves in a simple way and elegant a safe environment for network with IP address 32 bit configurable, Broadcast and unique MAC.

Example sending message: SMS 124.078 "TEST MENSSAGE"

GPS NMEA compatible, optional.

Sending and receiving data packet text and binary. Max 128Bytes per packet.

DES and AES encryption optional.



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Descriptionn:

Quality control and measurement of the received signal level (RSSI) in dBm with precision ± 1 dBm per packet, measurement of RF noise background for test network without the need specialized equipment.

Programmable RF power and xxx the level signal reception in dBm.

The network can be 2 to several mollion devices, with sub networks, IP filtering and repeaters.

Network topologies: P2P, Star, tree, mesh, ring and combinations.



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Highliths:

Unibus12W network protocol: P2P, Estrella...

Addressing IP32. MAC.

Network Test. Control quality links.

Short messages SMS, PING, etc.

Remote commands CMD.

Encryption AES, DES Optional.



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Utilization:

RadioLinks industrial networks.

Fixed or mobile or flight systems (UAV, drones).

Robots. Special Vehicles.

Indoor up to 500-1000m according conditions.

External up to 35Km according conditions.



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Utilization:

You can use repeaters 4G and 5G.

Compatible with radios 5G.

NMEA compatible. Models with GPS.

Ultra low power system with battery.

Metering. Transponders active/passive.



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Applications:

Syst. narrowband and ultra low power 12.5khz.
169,315,433,868,915,920,950Mhz ISM/SRD Band.
Wireless Metering Smart GRID (AMR y AMI).
System IEE 802.15.4g.
Wireless automation homes and buildings.
Wireless alarms and security systems.
Monitoring and industrial control.
Wireless sensor networks. RFID active.
Private digital radios mobiles.
Safe RF remote control bidirectionals.



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MultiBand. Operational limits.

164-192Mhz

274-320Mhz

410-480Mhz

820-960Mhz

ISM Bands (Industrial, Scientific and Medical)
RDS (Short Range Device)

Ranges up to 35Km@25mW



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Standar Bands:

164Mhz

205Mhz

273Mhz

433Mhz

866Mhz

868Mhz

902Mhz

950Mhz

One equipment can act in several bands.



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Basic RF characteristics:

Programmable RF power -9 to +14dBm.

Sensitivity -106 to -108dBm@50Kb.

CAF,CAG, LNA and ATT auto preamble.

Modulation GFSK, 50kb.

Channels selectivity: 64dB to 12.5khz offset.

Blocking Band: 91dBm to 10Mhz.

Adjust Frequency: 2ppm.

Frequency Stability: 10ppm.



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Standards:

Europe: ETSI EN 300 220, ETSI EN 54-25

USA: FCC CFR47 part15, 90, 24 and 101

Japan: ARIB RCR STD-T30, T67 and T108



Low Power RF

Base product, RF modules

WMX41



WMX5H





Low Power RF

Protocolo Unibus I 2W

Configurable IP Addressing 32bits.

MAC unique. 128bytes max per package.

LEA. List of equipment authorized. Password.

SMS. Short messages, Ping, Traces, etc.

CMD. Remote commands.

Halftimes 3 to 15mseg per package.



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Security Unibus I 2W



Shooting reception with filter 32bits + IP.

CRC32. Click Redundance Check 32bits.

Whitening. Balanced data "0101...".

Encryption: AES or DES optional.

Password.



LPRF.Unibus I 2W

Communications, IP, SMS

- Every equipment has an one direction IP32 and MAC unique.
- It can address up 2.200Mill networked devices.
- Shipping messages (SMS) public to the entire network.
- Sending messages to group or sub-network.
- LEA. Authorized Equipment List. Ip Filter entry.
- All equipment can communicate with each other.
- With ADDON the equipment can operate as repeater.
- The communication is based on short message SMS.
- One SMS only takes 3 to 15mSeg arrive at destination @50kb.

- **SMS 102.058 "Hello World"**



LPRF.Unibus I 2W

ALPHA: Language, Communications and OS

- **Control:** The modules are controlled through simple sequences commands by serial port, ethernet, USB or other interfaces.
- **Input commands:** Manual (hyper terminal) or automatic from PC or uC to 115.200b.
- **Remote Commands CMD:** Syou can send remote commands from radiomodem to another device as if they were local commands.
- **Multitasking:** You can enter commands independently of the network traffic RF and several peripheral simultaneously.
- **Test:** With the PING command can verify the link quality the data of any remote equipment or across the network.
- **Configurable parameters:** You can change the powe, sensitivity, channel, presentation of SMS, etc.



LPRF.Unibus

Main Command



Generales:

- ID:** Shows the IP and product version.
- INITSYS:** Initializes system or hot start.
- RESTORE_SYS:** Restores system factory.
- RESET:** Reset the system by WD in 2 seconds.



LPRF.Unibus

Main Command



BIOS Commands:

NAME: Show or configured friendly name.

ADDON: Configure ADDON'S.

PASS: User Password.



LPRF.Unibus

Main Commands



Messages:

CMS: Configure output messages in console or serial port.

SMS: Send Text message.

SMB: Send binary message.

CMD: Send remote command. The instruction is executed at the destination.

PING: Quality control of the link. Returns PONG with reception level and ID.

SMQ: Send text message and wait answer ACK.

SMI: Message of petition identification of networked systems.

TRZ: Assignment Trace.

IDR: Send identification message to the network.



LPRF.Unibus

Main Commands



RF Configuration:

- RFC:** RF Channel.
- BAND:** Band Radio.
- PWR:** RF output power.
- NCD:** Level detection RF carrier (RSSI).
- LNA:** Enable/Disable LNA 5^aG. Assign and reajusts offset_RSSI.
- RX SMC:** Enable or disable receiving permission from SMC.



LPRF.Unibus

Main Commands



RF Commands :

- RSI:** Returns value RF carrier (Rssi digital in dBm) and the last SMS received.
- LQI:** Quality Control received message.
- FREQ:** Returns value frequency selected channel in Hz.
- BW:** Returns bandwidth RF channel in the current band.
- RFCMAX:** Returns the higher channel admitted in this band.
- IRF:** Initializes radio subsystem.



LPRF.Unibus

Main Commands



NETWORK Commands :

- LEA: List of Authorized Equipment.
- LINK: Link to equipment.
- REP: Repeater.
- IP: Show or configure IP32bits.
- MAC: Show MAC of the radiomodem.

LPRF.Unibus

SMS. Text Messaging



Send text message to the receiving equipment with the destination IP address.
One SMS in Unibus has nothing to do with SMS of mobile phones, in unibus the message arrives instantaneously from 3 and 15 miliseconds delay.



LPRF.Unibus

PING. Message + quality control



Send a text message + performs RF quality control.

One PING send the text and provokes an automatic response on the equipment that receives for sending the signal quality received the message.

In a new installation, quality control is necessary.



The SMS message you can configure send for the level signal reception in dBms.

Facilitates quality contro, adjustment and safety link RF in the system.



L PRF.Unibus

RFC. RF Channel

Consultation or change channels RF in radiomodem.

Channel 0 reserved for ID's automatics.

You can change channels and record or not, so that when make a reset or start the radiomodem this return to the channel recorded last time.





Low Power RF

New Product, Radiomodem USB

WLINKUSB4GME



Interface USB.

Dual Band 869-915Mhz

Two models: Internal antenna or external antenna.

DMD

Digital Micro Devices

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END

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