GCSD4RRV2

Ground Control Station & Smart Antenna
Professional Ground Control Station FPV & UAV

Fly Beyond
To work from 200Km
Range max. 200Km

GCSD4R

Radio Control
Data Link
Mavlink Telemetry
PC Windows 10
Maps, navigation

Video
Monitor IPS LED 10" FULL HD
Analog Receiver 5.8Ghz
Digital Input HDMI

SMRBTS
Redundant system

Vehicles
DRONES, UAV, MULTIROTORS, RPAS, VANT, UAV,
AIRCRAFT, HELICOPTERS, UUV, UGV, ROV, USV, ASV,
CARS, BOATS, ROBOTS...

XLRS
eXtended
www.xlrs.eu

Manufactured by DMD. Digital Micro Devices. ©2019

GCSD4RRV2

Ground Control Station & Smart Antenna
Professional Ground Control Station FPV & UAV

Embedded PC

Features

Windows 10.
Processor: Intel Quad Core of 1.8GHz.
4GB RAM and 64GB flash.
1 Touch screen 7".
1 Keyboard.
1 USB 3.0.
1 USB 2.0.
1 Wifi.
1 Bluetooth.

Software included:

DMDStudio, XLRS devices configurator.

Mission Planner, Ground control station
for Plane, Copter and Rover.

Aerosim, FPV simulator (Demo).

*You can add Others softwares.

Mini Keyboard behind the screen

Tilt Control of the PC Screen from Button

XLRS
eXTended

www.xlrs.eu

GCSD4RRV2

Ground Control Station & Smart Antenna

Professional Ground Control Station FPV & UAV

FPV Video Screen

Size 10,1"

High Brigthness

Visible with sunlight

RX 5.8Ghz

HDMI Input for digital video RX

OSD Shows instrumental with Mavlink and XLRS Telemetry

Features

Receiver 5.8Ghz integrated.
Resolution: 1920 × 1080.
Aspect ratio: 16: 10
Brightness: 600cd / m2
Contrast: 1000: 1.
Controlled temperature.
Speakers.
1 Audio/Video input with jack connector.
1 RCBus Connector to update and configure 5.8Ghz receiver.
1 HDMI input to directly connect a digital video or PC of GCSD4V2.

SPECIFICATIONS VIDEO RECEIVER

Frequency	5.8Ghz.
Channels	8. 5705Mhz, 5685Mhz, 5665Mhz, 5645Mhz, 5885Mhz, 5905Mhz, 5925Mhz, 5945Mhz.
Sensitivity	-85dBm.
Antenna	Internal.
GCSD4V2	Ready for analog and digital video Systems.

IPS LED video screen 10.1" Full HD, high brightness, high contrast and anti-glare, makes it an excellent screen to see on indoors and outdoors.

XLRS

eXTENDED

www.xlrs.eu

GCSD4RRV2

Ground Control Station & Smart Antenna
Professional Ground Control Station FPV & UAV

Total Control

Features

RC Control independent of the PC.
3 Processors: RC Control and Joysticks.
2 Joysticks RC: proferssional and sensitive.
1 LCD screen easy-to-read, high contrast.
2 OLED screen Black/White for viewing data.
12 Configurable buttons.
3 Encoders with push button.
2 Micro Joysticks for trims and functions.
2 Potentionmeters.
2 Pushbuttons.
4 Switches with 2 positions.
2 Switches with 3 positions.
1 Buzzer: Alarms, low battery, fail safe, etc.
1 RCBUS: Connection to Video RX XLRS,
  second XLRS TX and future XLRS devices.

Start-up Key.

Digital Voltmeter.

Fuse 5A.

12V connector
for Vídeo Screen.

2 Safety Switch
with protective
cover for some
specific safety
functions.

XLRS
eXtended

www.xlrs.eu

GCSD4RRV2

Ground Control Station & Smart Antenna
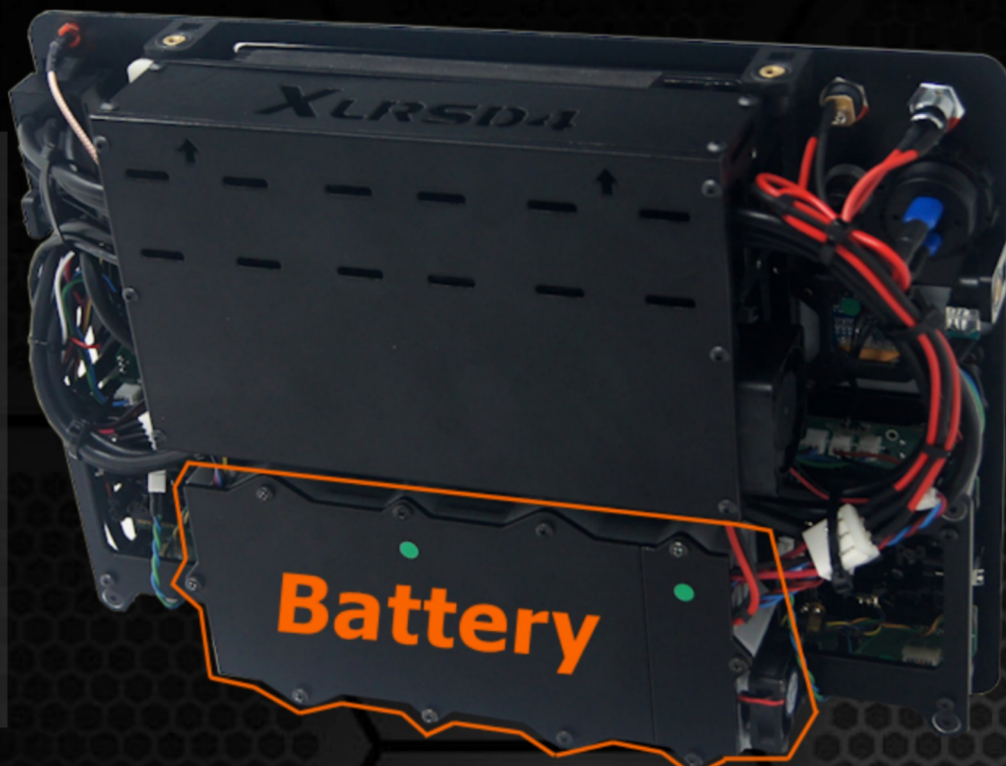### Professional Ground Control Station FPV & UAV

Battery

Features 🔋

Lipo 3S/11.1V/5Ah.

Duration approx: 2'5-3h.

Charger 1A.

Input 12-24V.

Shows battery status from
digital voltmeter or central screen

Charger included 110 / 220V AC 50Hz

It has a 5A fuse to protect the GCS

Suitcase

Robust

Dustproof

Water resistent

IP67 certified

Features

Temperature controlled with fans.
Certified with STANAG 4280, DEF STAN 81-41 and ATA 300 standards.
Automatic air pressure compensation valve.
Temperature resistant from -30 º to + 80 º C.

Rubber handle for easy transport.
2 eyelets for padlocks (Ø 7.62 millimeters).
Optional accessories: transport belt.
Dimensions: 36.5 x 29.4 x 17 centimeters.
Total Weight: 9Kg.

XLRS eXtended

GCSD4RRV2

Ground Control Station & Smart Antenna
Professional Ground Control Station FPV & UAV

Software - Mission Planner

Plan, save and load autonomous missions into you autopilot with simple point-and-click way-point entry on Google or other maps.

Compatible with autopilots that use Mavlink Protocol: Pixhawk, APM, Pixhawk Cube, Pix32 and more.

Features

Connect the autopilot telemetry to the XLRS systems.

Setup, configure, and tune your vehicle for optimum performance.

Download and analyze mission logs created by your autopilot.

Monitor your vehicle's status while in operation.

Record telemetry logs which contain much more information the the on-board autopilot logs.

View and analyze the telemetry logs.

XLRS
eXTended

www.xlrs.eu

Software - AEROSIM

Training Simulator

Learn to fly with the navigation instrumentation of the XLRS system

Integrated Plugin OSD644DMD

Realistic Drone Simulator for the beginner pilot who needs to practise many hours before flying the real thing.

Features

Training Program for the beginner.

Flight Modes: Manual, Attitude, GPS.

On-board Camera.

Stabilized Camera Gimbal.

All common Aircraft types: Trainer, Sport, Aerobatic, Glider, Delta Wing.

Power: Glow, Gas, Electric, Jet.

Functions: Flaps, Brakes, Retractable Landing Gear.

and much more...

XLRS
eXtended

www.xlrs.eu

GCSD4RRV2

Ground Control Station & Smart Antenna
Professional Ground Control Station FPV & UAV

Software - DMDStudio

Compact, you can use multiple instances.

Multiple simultaneous DMD devices.

Auto adaptable to DMD devices.

DMD Alpha command language.

Graphics and text console.

Free for DMD systems users.

Configuration software and utilities for all DMD products manufactured since 2014.

Features

For Windows 7 or higher.

Device firmware update (BOOT).

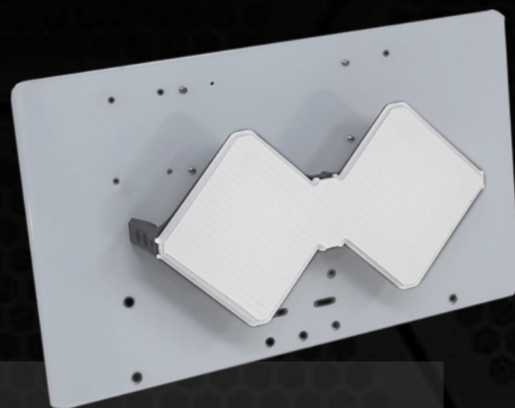**Connectivity Prepared for IOT devices. (Internet of things).**

Multiple communications ports: COM, USB, UDP, TCP.

Several TCP and TCP servers depending on the device.

Connection to the DMD Cellular software.

Configuration of the specific characteristics of each device.

XLRS eXTENDED

www.xlrs.eu

SMRBTS-89

Redundant Smart Antenna
Professional Ground Control Station FPV & UAV

CE 869Mhz
FCC 902Mhz
Custom...

SMRBTS-89. Redundant Smart Antenna

Is a redundant system that integrates two transmitters of Radio Control and Telemetry. Main transmitter is mounted on a biquad antenna of 9dBi (BQ89) and secondary transmitter is connected through the SMA-Female connector to a second biquad antenna of 9dBi (BQ89).

The redundant system greatly improves the performance, safety and range of GCSD4RV2, allowing the antennas to be placed further and without RF losses.

It allows to use two different frequencies in a single band for example: 902Mhz and 915Mhz or 866Mhz and 868Mhz.

To the whole (SMRBTS + BQ89 + BQ89) we call it Redundant Smart Antenna.

TECHNICAL SPECIFICATIONS XLRS RADIO

Range of Work	170-200Km.
Maximum Range	200Km.
TX Main Frequency	CE: 869,4-869,65Mhz. FCC: 902-927,5Mhz. CUSTOM: Others...
TX Secondary Frequency	CE: 869,4-869,65Mhz. FCC: 902-927,5Mhz. CUSTOM: Others...
Multi Band	SMRBTS-89: 866, 868, 902, 915, 950Mhz.
Max RF power	CE: +27dBm. FCC: +30dBm. CUSTOM: +30dBm.
Antennas	2- Biquad 9dBi 866-920Mhz.
Sensitivity max	-116dBm @50kb.
Modulation	50 or 100Kb. FHSS. 2-GFSK.
Stability	TXCO +-1ppm.
Encryption	AES 128 bits.
Connectivity	RJ45.
Upgradable & Configurable	DMDStudio Soft.

CONNECTION TO GCSD4RV2

The Redundant Smart Antenna SMRBTS is connected with a CAT5E ethernet cable or higher to GCSD4RV2, the cable can measure from 3 to 10m or more allowing a more comfortable installation of the antennas, especially in vehicles or for another type of application that needs to have the antennas away from GCSD4RV2.

ERROR CONNECTION IN REAL TIME

Correction of package errors in real time when using two RXLRS receivers on the plane or drone, packet reception errors are corrected immediately by the secondary receiver.

When the plane is far away and the radio signal is approaching the RF noise level, individual packet failures increase, reducing to maximum range, but if we use two receivers (And much better if we also use two redundant transmitters), packet failures are greatly reduced by increasing the working range from 50% of maximum range to 80-90% approximately.

In other words, if with a maximum range of 200Km the recommended working range was 100km with this solution the recommended working range can reach 170-200Km.

XLRS eXtended
www.xlrs.eu

SMRBTS-43. Redundant Smart Antenna

Is a redundant system that integrates two transmitters of Radio Control and Telemetry. Main transmitter is mounted on a rectangle moxon antenna of 5dBi (MX43) and secondary transmitter is connected through the SMA-Female connector to a second rectangle moxon antenna of 5dBi (MX43).

The redundant system greatly improves the performance, safety and range of GCSD4RV2, allowing the antennas to be placed further and without RF losses.

It allows to use two different frequencies in a single band for example: 433Mhz and 435Mhz.

To the whole (SMRBTS-43 + MX43 + MX43) we call it Redundant Smart Antenna.

TECHNICAL SPECIFICATIONS XLRS RADIO

Range of Work	170-200Km.
Maximum Range	200Km.
TX Main	433Mhz CUSTOM: Others...
TX Secondary Frequency	433Mhz. CUSTOM: Others...
Multi Band	SMRBTS-43: 433Mhz.
Max RF power	+30dBm. CUSTOM: +30dBm.
Antennas	2- Rectangle Moxon 5dBi 400-480Mhz.
Sensitivity max	-116dBm @50kb.
Modulation	50 or 100Kb. FHSS. 2-GFSK.
Stability	TXCO +-1ppm.
Encryption	AES 128 bits.
Connectivity	RJ45.
Upgradable & Configurable	DMDStudio Soft.

CONNECTION TO GCSD4RV2

The Redundant Smart Antenna SMRBTS is connected with a CAT5E ethernet cable or higher to GCSD4RV2, the cable can measure from 3 to 10m or more allowing a more comfortable installation of the antennas, especially in vehicles or for another type of application that needs to have the antennas away from GCSD4RV2.

ERROR CONNECTION IN REAL TIME

Correction of package errors in real time when using two RXLRS receivers on the plane or drone, packet reception errors are corrected immediately by the secondary receiver.

When the plane is far away and the radio signal is approaching the RF noise level, individual packet failures increase, reducing to maximum range, but if we use two receivers (And much better if we also use two redundant transmitters), packet failures are greatly reduced by increasing the working range from 50% of maximum range to 80-90% approximately.

In other words, if with a maximum range of 200Km the recommended working range was 100km with this solution the recommended working range can reach 170-200Km.

SMRBTS-8943

Redundant Smart Antenna
Professional Ground Control Station FPV & UAV

SMRBTS-8943. Redundant Smart Antenna

Is a redundant system that integrates two transmitters of Radio Control and Telemetry. Main transmitter is mounted on a biquad antenna of 9dBi (BQ89) and secondary transmitter is connected through the SMA-Female connector to a second rectangle moxon antenna of 5dBi (MX43).

The redundant system greatly improves the performance, safety and range of GCSD4RV2, allowing the antennas to be placed further and without RF losses.

It allows to use two different RF bands simultaneously, for example: 868Mhz and 433Mhz.

To the whole (SMRBTS-8943 + BQ89 + MX43) we call it Redundant Smart Antenna.

TECHNICAL SPECIFICATIONS XLRS RADIO

Range of Work	170-200Km.
Maximum Range	200Km.
TX Main	CE: 869,4-869,65Mhz FCC: 902-927,5Mhz CUSTOM: Others...
TX Secondary Frequency	433Mhz. CUSTOM: Others...
Multi Band	SMRBTS-8943: 866, 868, 902, 915, 950, 433Mhz.
Max RF power	CE: +27dBm FCC: +30dBm. CUSTOM: +30dBm.
Antennas	1- Biquad 9dBi 866-920Mhz. 1- Rectangle Moxon 5dBi 400-480Mhz.
Sensitivity max	-116dBm @50kb.
Modulation	50 or 100Kb. FHSS. 2-GFSK.
Stability	TXCO +-1ppm.
Encryption	AES 128 bits.
Connectivity	RJ45.
Upgradable & Configurable	DMDStudio Soft.

CONNECTION TO GCSD4RV2

The Redundant Smart Antenna SMRBTS is connected with a CAT5E ethernet cable or higher to GCSD4RV2, the cable can measure from 3 to 10m or more allowing a more comfortable installation of the antennas, especially in vehicles or for another type of application that needs to have the antennas away from GCSD4RV2.

ERROR CONNECTION IN REAL TIME

Correction of package errors in real time when using two RXLRS receivers on the plane or drone, packet reception errors are corrected immediately by the secondary receiver.

When the plane is far away and the radio signal is approaching the RF noise level, individual packet failures increase, reducing to maximum range, but if we use two receivers (And much better if we also use two redundant transmitters), packet failures are greatly reduced by increasing the working range from 50% of maximum range to 80-90% approximately.

In other words, if with a maximum range of 200Km the recommended working range was 100km with this solution the recommended working range can reach 170-200Km.

XLRS
eXTENDED
www.xlrs.eu

RXLRS

Professional Receiver

Professional Receiver Ultra Long Range RC & Telemetry

CE 869Mhz
FCC 902Mhz
Custom...

Radio Control & Telemetry

Powerful and Safe with control

New Concept

Configuration of the mixes, button activation and assignment of encoders are performed in the RX and not in the TX XLRS as is usual in amateur RC systems.

TECHNICAL SPECIFICATIONS

Range of Work	150Km
Maximum Range	200Km
Frequency	CE: 869,4-869,65Mhz. FCC: 902-927,5Mhz. CUSTOM: 433Mhz, others...
Multi Band	RXLRS-89-200: 866, 868, 902, 915, 950Mhz. RXLRS-43-200: 433Mhz.
Max RF power	CE: +27dBm. FCC +30dBm. CUSTOM: +30dBm.
Sensitivity max	-116dBm @50kb.
Modulation	50 or 100Kb. FHSS. 2-GFSK.
Stability	TXCO +-1ppm.
Encryption	AES 128 bits.
Voltage	5V. Min 4.5V. Max 6Vcc.
Consumption	Standby 70mA. Max. TX(500mW) 540mA@12mS.
Connectivity:	RC, Telemetry, USB, RCBus, SPPM, COM5, MODEM.
Dimension:	70,78 x 35,75 x 14,78mm.
Weight:	30g (Without ant.) 47g (With ant. 5dBi).

FEATURES

Control max up to 16 CH RC. Using the 7CH physical and the autopilot CH through SPPM in CH7.
8 Multifunction outputs for RC servos.
1 SPPM / CPPM: 12 RC channels in CH7.
1 Micro USB: Update and configuration.
1 i2C: To connect future devices, Oled display, sensors.
1 RCBUS: Connect XOSD for serial communication.
1 MODEM port: MAVLINK Telemetry and transparent radio modem.
1 Red Led: TX RF or Transmit packets.
1 Blue Led: Link RF or Received packets.
1 Connector antenna RC: SMA-Female.

Compatible with XLRS devices:
TX: BTSD1, XPAD2-2017, XPAD2 V2, XPAD3, GCSD4, GCSD4V2...
OSD: XOSD, XOSDV2, XOSD3...

Hardware improvements:
Microcontroller with double memory FLASH, RAM and Eeprom.
Improved PCB, more protection in general.
Improved box, more robust, screws on inserts.
Internal protection against reverse polarity on + 5V servo connectors.
EDS protection and RF Filters in USB.
ESD protection (static) for all pins including servos.
Pins servos protection against short circuits and overloads.

MAVLINK protocol, compatible with autopilots:
APM, Pixhawk, PX4, etc.
No additional radiomodem is required.

Compatible with autopilots with S-BUS?
Yes, depending on the autopilot you can connect directly to CH7 (SPPM) or you can use a PPM to S-BUS converter.

Some product features are optional.

X LRS eXTENDED

www.xlrs.eu

Manufactured by DMD. Digital Micro Devices. ©2019

GCSD4RRV2-89

Ground Control Station & Smart Antenna

Professional Ground Control Station FPV & UAV

CONTENT

1- GCSD4RV2, Portable Ground Control Station R V2.

1- SMRBTS-89, Redundant Smart Antenna.

1- BQ89, Biquad antenna 866-920Mhz 9dBi.

1- BQ89, Biquad antenna 866-920Mhz 9dBi.

1- RXLRS-89-200, Professional receiver RC and Telemetry.

1- RXLRS-89-200, Professional receiver RC and Telemetry.

2- DCDC38/5VRC. DCDC adjustable step down module, INP 4-38V, OUT 1.25-32V(Adjustable), Out current 5A.

2- ANTGSM900, Omnidirectional antenna 868-928Mhz 5dBi.

ACCESSORIES

1- Mini bluetooth keyboard.

1- LI-PO Battery Balance Charger, 40W 3S/4S.

1- LAT54_SMAH/SMAM. Cable SMA-Female to SMA-Male, 540mm.

1- CABLE_SERVO_HH. Cable Servo RC Female to Female.

1- CABLE_EXT_SERVO_MH. Extensor Cable Servo RC Male to Female.

1- CABLE_PX4_RX. Adapted Cable for Pixhawk-RX.

1- CABLE_MJJ. Cable Audio Stereo MiniJack 3.5M/M 1m.

1- CABLE_USB/MICROUSB. Cable USB-A Male to Micro USB-B Male, 2m.

1- LAT1_SMAH/SMAM. Pigtail Cable SMA-Female to SMA-Male, low loss, 1m.

1- CCAT5E. Ethernet CAT5e with RJ45, 3m.

2- Clamp U Bolt & U Block for BQ89 antenna tripod.

XLRS eXtended

www.xlrs.eu

GCSD4RRV2-43

Ground Control Station & Smart Antenna
Professional Ground Control Station FPV & UAV

CONTENT

1- GCSD4RV2, Portable Ground Control Station R V2.

1- SMRBTS-43, Redundant Smart Antenna.

1- MX43, Moxon rectangle antenna 400-480Mhz 5dBi.

1- MX43, Moxon rectangle antenna 400-480Mhz 5dBi.

1- RXLRS-43-200, Professional receiver RC and Telemetry.

1- RXLRS-43-200, Professional receiver RC and Telemetry.

2- DCDC38/5VRC. DCDC adjustable step down module, INP 4-38V, OUT 1.25-32V(Adjustable), Out current 5A.

2- ANTGSM433, Omnidirectional antenna 433Mhz 5dBi.

ACCESSORIES

1- Mini bluetooth keyboard.

1- LI-PO Battery Balance Charger, 40W 3S/4S.

1- LAT54_SMAH/SMAM. Cable SMA-Female to SMA-Male, 540mm.

1- CABLE_SERVO_HH. Cable Servo RC Female to Female.

1- CABLE_EXT_SERVO_MH. Extensor Cable Servo RC Male to Female.

1- CABLE_PX4_RX. Adapted Cable for Pixhawk-RX.

1- CABLE_MJJ. Cable Audio Stereo MiniJack 3.5M/M 1m.

1- CABLE_USB/MICROUSB. Cable USB-A Male to Micro USB-B Male, 2m.

2- LAT1_SMAH/SMAM. Pigtail Cable SMA-Female to SMA-Male, low loss, 1m.

1- CCAT5E. Ethernet CAT5e with RJ45, 3m.

2- Plastic piece to place MX433 on tripod.

1- Support piece to place SMRBTS-43 on tripod.

XLRS
eXtended

www.xlrs.eu

GCSD4RRV2-8943

Ground Control Station & Smart Antenna
Professional Ground Control Station FPV & UAV

CONTENT

1- GCSD4RV2, Portable Ground Control Station R V2.

1- SMRBTS-8943, Redundant Smart Antenna.

1- BQ89, Biquad antenna 866-920Mhz 9dBi.

1- MX43, Moxon rectangle antenna 400-480Mhz 5dBi.

1- RXLRS-89-200, Professional receiver RC and Telemetry.

1- RXLRS-43-200, Professional receiver RC and Telemetry.

2- DCDC38/5VRC. DCDC adjustable step down module, INP 4-38V, OUT 1.25-32V(Adjustable), Out current 5A.

1- ANTGSM900, Omnidirectional antenna 868-928Mhz 5dBi.

1- ANTGSM433, Omnidirectional antenna 433Mhz 5dBi.

ACCESSORIES

1- Mini bluetooth keyboard.

1- LI-PO Battery Balance Charger, 40W 3S/4S.

1- LAT54_SMAH/SMAM. Cable SMA-Female to SMA-Male, 540mm.

1- CABLE_SERVO_HH. Cable Servo RC Female to Female.

1- CABLE_EXT_SERVO_MH. Extensor Cable Servo RC Male to Female.

1- CABLE_PX4_RX. Adapted Cable for Pixhawk-RX.

1- CABLE_MJJ. Cable Audio Stereo MiniJack 3.5M/M 1m.

1- CABLE_USB/MICROUSB. Cable USB-A Male to Micro USB-B Male, 2m.

1- LAT1_SMAH/SMAM. Pigtail Cable SMA-Female to SMA-Male, low loss, 1m.

1- CCAT5E. Ethernet CAT5e with RJ45, 3m.

1- Clamp U Bolt & U Block for BQ89 antenna tripod.

1- Plastic piece to place MX433 on tripod.

XLRS
eXtended

GCSD4V2 Manual:

Manual GCSD4RV2.

Manual RXLRS.

Redundant Receivers.

Default configuration D4 System.

First steps (Quick guide).

XLRS connection diagrams.

DMDStudio Manual:

Learn more about:

Servos XLRS.

XLRS objects.

XLRS Radio Links and Radio Control. Basics notions.

Range, RSSI, Noise in environments UAV – Drones.

Range Test XLRS.

RF Band ISM-ICM.