

# SATPRO With Ground Stations XLRS

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It is a set composed of the ground base station ([GCSD4](#), [GCSD5](#), [GCSDual](#)), Tracker Antenna ([SATPRO](#)), Data Link (WMX481) and [RXLRS](#) receiver for Radio control and telemetry and Full HD video system ([XVHD\\_SAT](#)) or PAL analog video system ([XVID3V2](#)).



In XLRS systems, two radio links are normally used, one for radio control and telemetry and the other for video. This provides more security. Of course it can be used in other ways. [more info...](#)

### Composition

#### Base station / Human interface:

GCSD4 or GCSD5 base stations are commonly used, as well as dual GCS.

In this case a Windows computer is included.

In a base station we normally have several elements:



- A video monitor (direct or through the PC)
- A PC monitor for Maps and telemetry (Mission Planner) also to configure the system.
- More monitors can be used as in the GCS Dual.
- Several auxiliary displays for system control, battery level, etc.

- Two or more Joysticks for control or manual flight.
- Joysticks for co-pilot or observer (video camera control) depending on models.
- Multiple buttons to control the UAV or vehicle.
- The base station has several interfaces, USB, Wifi, Ethernet, RCBus, SPPM, etc.

Regarding connections with the SATPRO, the Base Station is connected in two ways:

- RCBus with a robust 7 meter cable
- Ethernet for video.

The base station can optionally be for fixed installations. In these cases it is usually made to measure.

### **Smart Antenna Tracker:**

SATPRO. It can be portable or fixed.



The Data Link, the video receiver and the antennas necessary for the application are installed in the SATPRO.

### **Data Link for Radio control and Telemetry:**

WMX481. It is a long-range bidirectional radio modem up to 250Km, normally at 433, 869, 915 or 950Mhz, depending on the country.



The connection to SATPRO is simple. A single specific cable will connect to the SAT for power and data via RCBus.

An SMA connector for the antenna. If it is redundant, it will use two SMA and two antennas.

Pairs with [RXLRS](#) receivers.

### **Video:**

You can use various video systems.

XVHD\_SAT long-distance Full HD video with ranges of up to 150Km in the 2.4Ghz band and powers of up to 8W.

PAL XVID3V2 analog video. Range up to 100Km in the 1.2, 2.4 or 5.8Ghz bands and power of 1W. It is very economical to get links at these distances, but it has less resolution than FULL HD.

Video with other Data Links adapted to XLRS systems.

**XVHD\_SAT. Full HD video system connects to SATPRO with:** 

- Power connector and control data
- ethernet
- SMA for antenna
- Optional HDMI wireless

**XVID3V2: PAL analog video.** It is usually already included in the 1dBi Patch antenna. It has its own battery and has a low-power 5.8Ghz transmitter to avoid wiring it. The GCS have a 5.8Ghz analog video receiver for this task. There are no connections to SATPRO.



**Other data links for HD video.** They need several connections to the SATPRO, they are customized.

- Power connector and control data
- Ethernet for video streaming
- SMA for antennas.



In the image the 5.8Ghz directional antennas have not been installed.