

TELEMETRY SENSOR SERIES
TLS1-ROT
DUAL MODULATION SPECTRUM SYSTEM

Magnetic Detection Type Rotation Sensor

Thank you for purchasing this JR product.

To allow correct and safe use of this product, be certain to read this operation manual.

This product is exclusively for use with products that incorporate the TL logo.



Features

- Uses a non-contact rotation detection system that detects magnetism.
- Utilizes powerful samarium-cobalt magnets, which allow rotation to be detected even when the magnets are separated by a distance from the sensor unit to enable easy installation.
- The sensor unit has a small-sized design that is independent from the signal processing unit.
- Incorporates an LED that allows operation to be confirmed during rotation detection.

Items Included

- TLS1-ROT Main Unit and Sensor
- Samarium-cobalt Magnets (two)
- Operation Manual (this document)

For your safety, be sure to observe the following points.

In order to protect against injury to users or third parties, or damage to property, please observe the following.

The information is divided and explained using the following symbols.

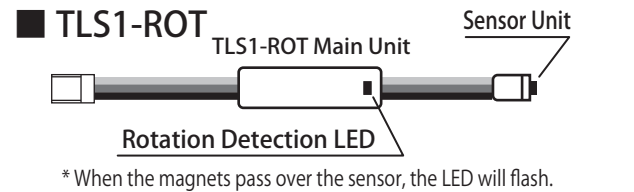
⚠	“Caution Items” are explained using this indication.
❗	“Obligatory Items” are explained using this indication.
🚫	“Prohibited Items” are explained using this indication.

- ⚠ Usage at a voltage other than the rated voltage will cause mistaken detection or damage to the rotation sensor.
- ⚠ Securely fix the magnets and sensor. In the situation where the sensor and magnets come into contact due to the influence of vibration, damage will be caused.
- ⚠ Also securely fix the harness coming from the sensor. It is possible that the harness will become caught, causing accidents.
- ⚠ Pay adequate attention to the remaining battery amount during flights. When the remaining battery amount becomes low, there may be cases where mistaken detection occurs.
- 🔋 Only use the magnets included with this product.
- 🔧 Do not disassemble or modify the product.
- 💧 Do not get the product wet with water. Do not use the product in environments where condensation occurs.
- 🔌 Do not use any component which has been damaged, included wires or connectors.

Specifications

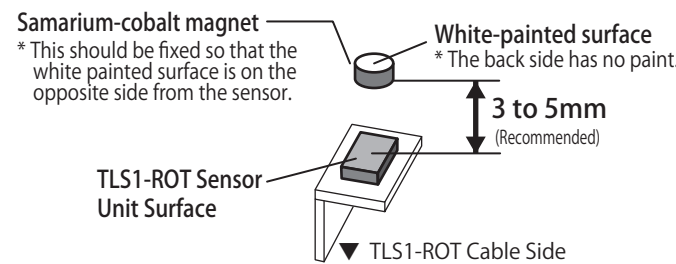
Product Number: TLS1-ROT
Detection System: **Magnetic Detection System** (Hall IC)
Detection Range: 300rpm ~ 40,000rpm
Magnet Dimensions: $\Phi 4\text{mm} \times 2\text{mm}$ (Samarium-cobalt magnets)
Rated voltage: 4.8V
Operating Voltage: 4.0V ~ 8.5V

Configuration



[Recommended range of distance between the sensor and magnets] **3 to 5mm**
* To carry out reliable detection, it is recommended to install the items within the range described above.

TLS1-ROT Magnet (with polarity display)



Operation Confirmation and Cautions

- 1 Connect the TLS1-ROT referring to the diagram on the right.
- 2 Switch on the receiver power. The TLS1-ROT will start communicating.
- 3 Manually rotate the propeller or main gear that the magnets are mounted on and confirm that the LED switches on and off.

The LED will light only at the moment when the magnets pass the sensor. If the magnets are kept stationary above the sensor, the LED will not light. Rotate the parts that the magnets have been attached to a number of times and confirm that the LED lights.

Be sure to remove the bind plug before using the product.

In the situation of receivers that require bind plugs during the binding procedure, it will only be possible to carry out two-way communications with the sensor if the bind plug is removed after completing the binding procedure. Be certain to remove the bind plug before use.

In the situation where the transmitter's [TELEMETRY] function has a PROPELLER setting, match the PROPELLER setting value with the number of magnets installed.

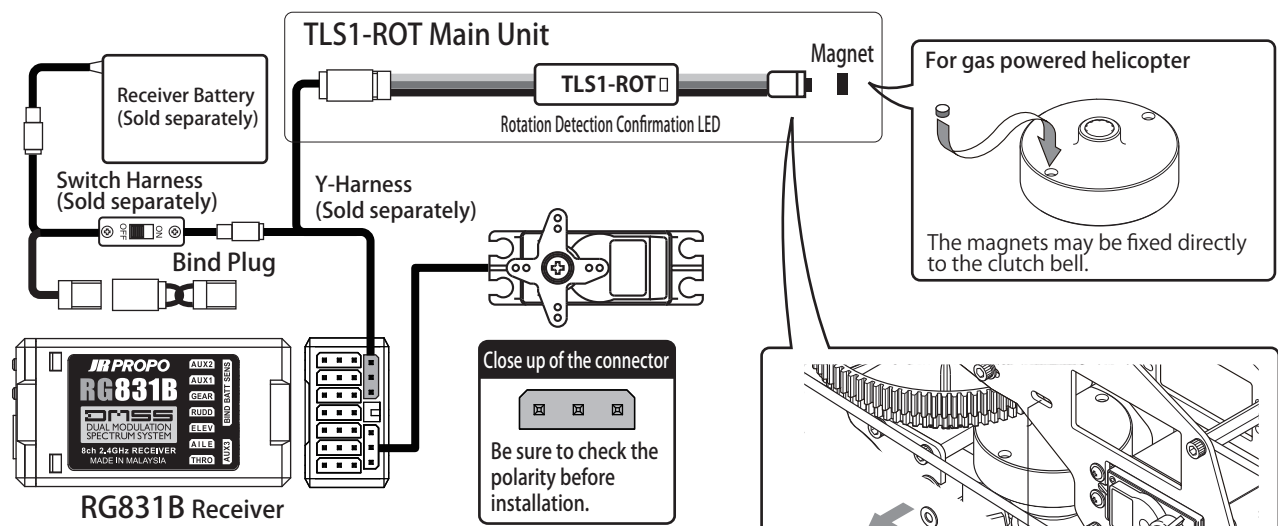
- In the case where one magnet has been affixed, then set **PROPELLER: 1**
- In the case where two magnets have been mounted, then set **PROPELLER: 2**

* In the situation where two magnets are to be installed, be sure to install them in opposing positions to achieve a balance.

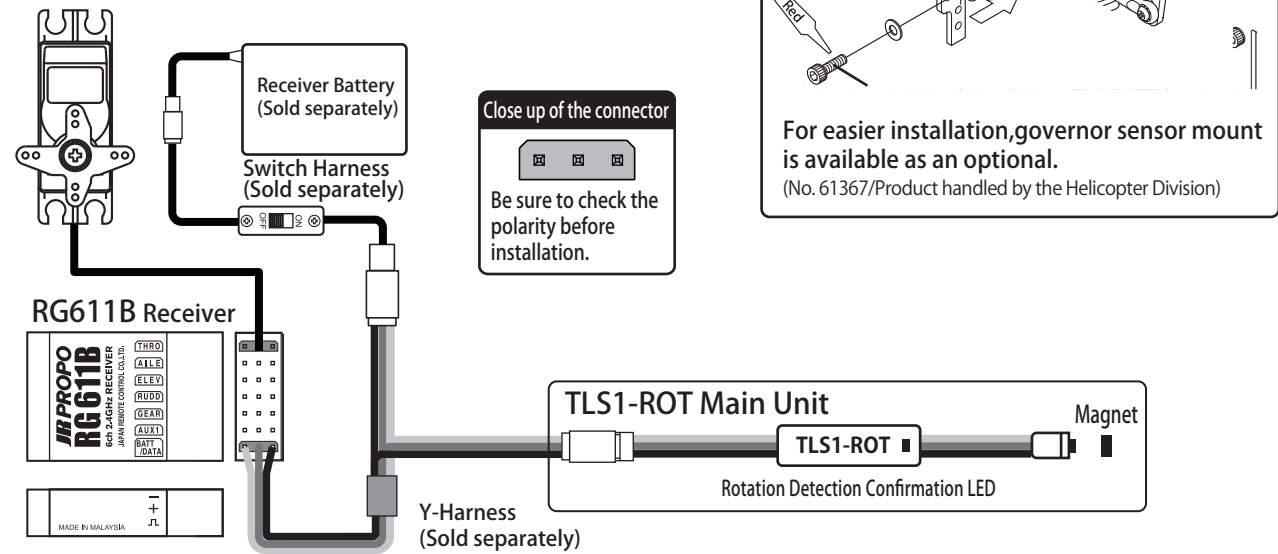
Installation Method

- 1 Securely fix the magnets to the aircraft using instant adhesive.
 - ▶ The magnets have polarity. Fix the magnets so that their white painted surface is located on the opposite side from the sensor.
 - ▶ Allow an adequate adhesive hardening time for fixing the magnets.
 - ▶ For gas powered helicopter, it may be possible to fix the magnets directly to the clutch bell. (Refer to the figure below.)
- 2 Fix the sensor IC perpendicular and close to the magnet (Recommended distance: 3mm to 5mm).
 - ▶ Securely fix the sensor so that it will not be displaced by vibration.
- 3 Also securely fix the TLS1-ROT main unit to the aircraft body.
 - ▶ Firmly fix the sensor IC and main unit harnesses so that they will not become caught up in the rotating parts.
- 4 After fixing to the main unit, connect the harness from the TLS1-ROT to the SENS terminal (or the DATA terminal) of the receiver.
 - ▶ Use a Y harness for making the connection.
 - ▶ In the situation where only one type of sensor is connected, communications will be possible by connecting the battery to a spare channel on the receiver. Be certain to directly connect the sensor main unit to the SENS terminal.

RG831B Connection Example ● Connect to the BIND/BATT/SENS terminals.



RG611B Example ● Connect to the BATT/DATA terminals.



For further questions or inquiries please contact your local dealer or JR distributor in your country.