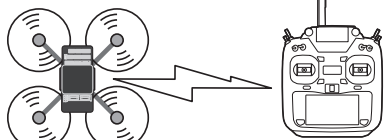# Futaba

1M23N39604

Telemetry adapter for Pixhawk®
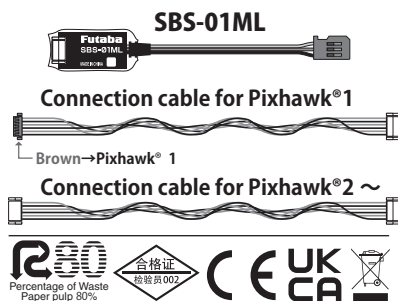# SBS-01ML
Instruction Manual

For drone flight controller Pixhawk®(Ardupilot)
*Doesn't work without Ardupilot

Can be monitored by transmitter

◆ Battery voltage
◆ Battery current
◆ Altitude
◆ Ground speed
◆ Air speed
◆ Number of GPS receiving satellites
◆ HDOP

●Corresponding product
T16IZ SUPER

SBS-01ML

Connection cable for Pixhawk®1

└ Brown→Pixhawk® 1
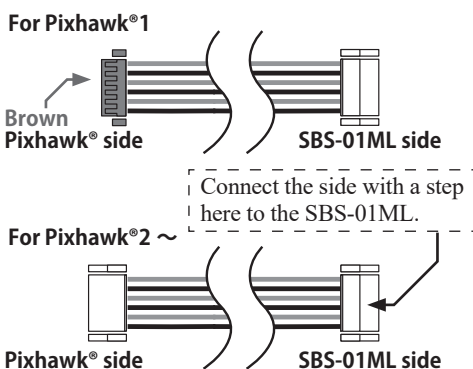
Connection cable for Pixhawk®2 〜

Thank you for purchasing Futaba's SBS-01ML Telemetry adapter. This item combines with drone flight controller Pixhawk® and Futaba telemetry system to display each information of the flying drone to the transmitter. To maximize your enjoyment, and to ensure proper sensing, please read through this manual thoroughly. We also encourage you to retain the manual for future reference should the need arise.

Use : Telemetry Adapter for Drone Flight Controller Pixhawk®
Measurement item：
◆ Battery voltage
◆ Battery current
◆ Altitude
◆ Ground speed
◆ Air speed
◆ Number of GPS receiving satellites
◆ HDOP
Length : 180 mm
Weight : 3.6 g
Voltage : DC 3.7 〜 7.4 V

Connection cable

For Pixhawk®1

Brown
Pixhawk® side   **SBS-01ML side**

Connect the side with a step here to the SBS-01ML.

For Pixhawk®2 〜

Pixhawk® side   **SBS-01ML side**

Telemetry Log

A log file for each sensor, as well as data acquired by the SBS-01ML, can be created when the transmitter has a telemetry function. The log file can be converted to a CSV file by using the "Telemetry log converter". The "Telemetry log converter" must be downloaded from the web. Check the Futaba website.
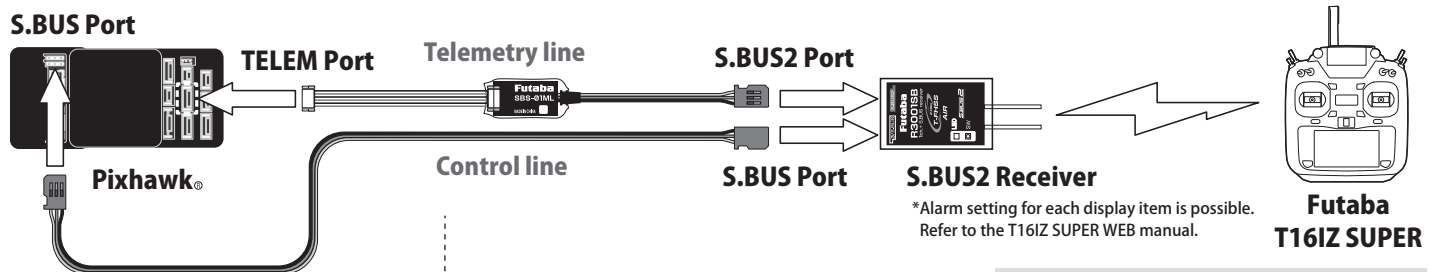
Slot number setup

Please note that the proper default slot for this accessory is number 16. This sensor uses 16 slots. Being made to a start slot are 8 and 16. Information on how to change the slot assignment is included in the transmitter's manual.

LED Indication

Green blink	Waiting for flight controller response
Green	Normal operation
Red	No signal reception
Green/Red	When setting up the slot
Green/Red Alternate blink	Unrecoverable error

Connection

S.BUS Port

TELEM Port   **Telemetry line**   **S.BUS2 Port**

Pixhawk®   **Control line**   **S.BUS Port**   **S.BUS2 Receiver**

*Alarm setting for each display item is possible. Refer to the T16IZ SUPER WEB manual.

Futaba T16IZ SUPER

How to use

1. Connect the SBS-01ML to the receiver's S.BUS2 port.

2. Connect the Connection cable to the SBS-01ML connector and connect it to the flight controller's telemetry port (TELEM1 or TELEM2).

*Before connecting, make sure that the telemetry terminal communication speed of the flight controller is set to 57600 bps. (Default is 57600 bps.)

*Pixhawk® 1 and Pixhawk® 2 and later have different connectors, so select a connection cable that matches the connector.

*The data in the table on the right is obtained and displayed using the MAVLink protocol from the flight controller. Devices that do not use these data are not supported.

Item	MAVLink	
	Message	**Field**
Number of GPS1	GPS_RAW_INT	satellites_visible
GPS1 HDOP	GPS_RAW_INT	eph
Number of GPS2	GPS2_RAW	satellites_visible
GPS2 HDOP	GPS2_RAW	eph
Altitude	GLOBAL_POSITION_INT	relative_alt
Ground speed	VFR_HUD	groundspeed
Air speed	VFR_HUD	airspeed
Voltage 1	BATTERY_STATUS	voltages[0] (id = 0)
Current 1	BATTERY_STATUS	current_battery (id = 0)
Voltage 2	BATTERY_STATUS	voltages[0] (id = 1)
Current 2	BATTERY_STATUS	current_battery (id = 1)

* Operation with all Pixhawk® flight controllers is not guaranteed.

* SBS-01ML supports software updates. Download the latest software manual from the Futaba website.

⚠WARNING

Failure to follow these safety precautions may result in severe injury to yourself and others.

⊖ To utilize the SBS-01ML connect it to the S.BUS2 port of the Futaba telemetry enabled receivers.
■ The SBS-01ML will not function properly if connected to an S.BUS port or other channel ports.

⊖ Ensure that the unit is connected properly to the receiver. Failure to do so could result in damage to the sensor.

⊖Ensure that the unit is mounted in an area that will eliminate exposure to fuel, water and vibration.
■ As with any electronic components, proper precautions are urged to prolong the life and increase the performance of the SBS-01ML.

⊖ To ensure that the SBS-01ML is functioning as desired, please test accordingly.
■ Do not fly until inspection is complete.

⊖ Allow a slight amount of slack in the SBS-01ML cables and fasten them at a suitable location to prevent any damage from vibration during flight.

⊘Do not use the SBS-01ML for purposes other than those described in this manual.