

OTS USB Coordinator / RS422 Merge PC Interface

Introduction

The Orienteering Telemetry System (OTS) provides a method of delivering punch data from remote controls wirelessly for safety or commentary purposes.

The USB Coordinator has been designed in response to customer requests, to remove the need for the host computer to have a serial interface. So the primary mode of operation is as a USB Coordinator for the OTS radio control system. In this mode the unit is designed to allow easy connection from the OTS system to a PC using a standard USB connector.

The second operational mode is as a RS422 to USB converter making it easy to connect OTS Merge units into a PC using the USB connector.



OTS-USB Interface Features

1. USB Coordinator functionality for connecting to OTS wireless radio control systems
2. USB RS422 line driver for connecting to OTS wired radio control links
3. USB communications device class, appears as a standard Com Port to PC software
4. Supports multiple timing systems hardware (including SportIdent & EMIT)
5. Bus powered from the PC over the USB connection

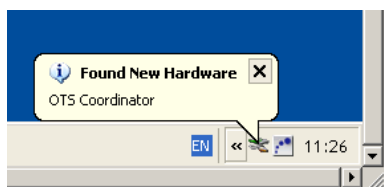
External Interfaces

- USB Type B Plug for easy connection to PC using standard USB TypeA ♂ Type B lead
- Waterproof Bulgin Buccaneer for connection to many different radios
- RJ45 connector for RS422 input
- Four Configuration DIP switches

Instructions For Installation

DOWNLOAD DRIVER SOFTWARE BEFORE TAKING THE EQUIPMENT ON SITE !

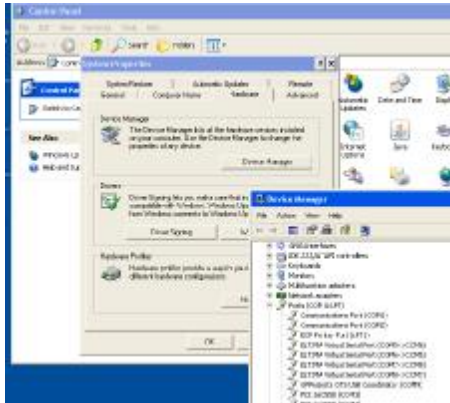
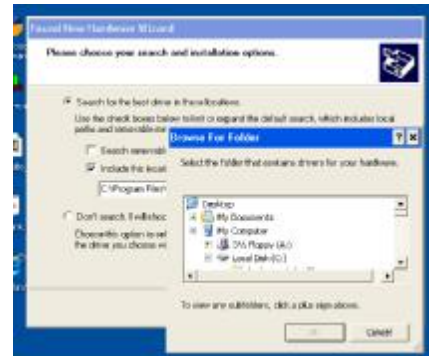
- 1) Visit the GPProjects website and from the support section, download the driver file as shown. Extract the GPP_OTS_USB.inf file from the zip archive, and save it somewhere convenient for use when installing the hardware for the first time.



- 2) Attach the USB Coordinator to the PC using a USB extension lead and observe the 'balloon' indicating that the OTS coordinator hardware has been detected.

3) When the 'New Hardware Wizard' starts, select 'No not this time' and 'Install from a specific location', now use the browse option to locate the file GPP_OTS_USB.inf that was downloaded earlier.

4) There may be a warning message that the driver has not passed Windows Logo testing. Select 'Continue Anyway' When the Wizard has completed, press 'Finish'



5) You can verify that the device was successfully installed by opening the Control Panel, System window, select 'Device Manager' and scroll down to the Ports section. Verify that the GPPProjects OTS USB Coordinator is listed, and note the COM port that it has been allocated. **NOTE!** The allocated port number may change if the USB OTS coordinator is reconnected to the PC using a different USB connector.

6) The USB Coordinator is now installed and ready for use.

System setup

- 1) Plan where the radio enabled controls are to be sited. Typically the radio link will transmit for up to 1km but this may be reduced by thick foliage.
- 2) Fit new batteries to the radio to be used at the coordinator. Typically a set of Duracell MN1500 batteries will last 24 hours.
- 3) Switch the radios on, and check that it is set to the same channel as the remote OTS units. Don't forget to set the privacy codes if these are used by the radios. If you hear other users using the radio channel for voice communication, it is wise to choose a different channel.



- 4) Set the volume level on each radio. Remove any headset and press the 'mon' button on the radio. The white noise should sound 'loud but not distorted'
- 5) Remove the lid of the coordinator unit. Release the 4 screws by turning them 90 degrees. The screws may be turned with either a cross point or straight screwdriver, or even a car key.
- 6) Identify the coordinator unit DIP switches as highlighted in the photo. Set the DIP switches in the coordinator unit according to the table below. (Note DIP switches are only used when the device is first connected to the PC, altering there state when connected will have no effect).

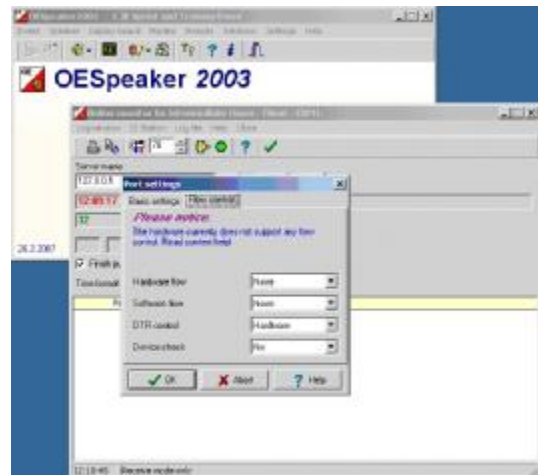


DIP switches				Mode of Operation
1	2	3	4	
ON	ON	ON	ON	OTS Coordinator - SportIdent
OFF	ON	ON	ON	OTS Coordinator - Emit
ON	ON	OFF†	ON	OTS Coordinator - SportIdent
OFF	ON	OFF†	ON	OTS Coordinator - Emit
ON	OFF	*	ON	Merge Interface - SportIdent
OFF	OFF	*	ON	Merge Interface - Emit
*	*	*	OFF	Bootload

* Switch setting does not matter

† Upon connection to the PC, the coordinator will assume that the first received packet from a remote radio control is the first packet of the event.

- 7) Refit the lids taking care that the screws are pushed down and rotated 90 degrees.
- 8) With the leads provided, connect the radios to the coordinator.
- 9) Connect the coordinator unit to a USB port of the PC that will be running the safety or commentary software using a standard USB A-B cable (Maximum 5m).
- 10) Verify the COM port number allocated to the USB Coordinator. This can be done by looking in the “Ports (COM & LPT)” section of “Windows Device Manager”. You will see “GPProjects OTS USB Coordinator (COMX)”
- 11) When configuring your commentary software and the serial ports, you must set the DTR line on the serial port for correct operation of the coordinator unit. The screenshot below shows how this can be done in OE Speaker by choosing “DTR Control” & “Hardware”. This allows the coordinator unit to know that the commentary software is connected and ready to receive data.
- 12) Verify that the green light is flashing and the red light (indicating the PC is connected and ready for data) is illuminated.



Connecting the radio handset

Connect the adaptor lead between into the headset socket of the radio and the buccaneer connector of the USB coordinator unit. Set the receive volume on the radio such that received packets are loud, but not distorting.



6 pole

Pin	Colour	Function
1	Red	Earpiece
2	Black	Ground
3	White	Microphone
4	Black	Ground
5	n/c	
6	Blue	PTT

OTS Ordering Information

Order Code	Description	RRP
GPP-OTS-USB-COORD	OTS USB Coordinator / RS422 Interface	£POA

Case Study 1 – Orienteering Radio Control

A course with OTS radio controls was to be monitored by a laptop PC for commentary purposes. The radio receiver at the commentary box was connected to the USB Coordinator and used to receive data from the wireless OTS system

Case Study 2 – Orienteering Finish Line

A Customer had been using the OTS Merge unit to connect finish line controls to a PC by way of long RJ45 cables. The new commentary computer no longer had the serial connector for the RS422 line drivers to be connected.

The USB RS422 PC interface was used to replace the serial port to RS422 line driver and allowed quicker and easier setup, and more reliable communication.