

K6-Team

Bluetooth Adapter

K6 Bt

**Duplex Bluetooth Serial Adapter
for multiple baudrates**

(HW 01, FW 01e)



The K6 Bt provides a connection between a device with a serial RS232 port (GPS device, e.g. flight recorder, flarm, variometer) and a bluetooth enabled device (Pocket PC or PC).

It is possible to send data in both directions using several baud rates. The baud rate can be configured automatically, manually by DIP switches or with a compatible software. To prevent unauthorized access, the connection is password protected.

1 Wiring

The K6 Bt sends and receives data as well as getting its power supply on both connecting ports. Both ports are internally connected in parallel. This way, the K6 Bt can be easily embedded into an existing cockpit installation as shown in Image 3: Using the existing GPS cable with IGC configuration the K6 Bt gets its power supply. The power supply is passed on via the second port to the GPS device. Both connectors can be interchanged.

The pinout of the connectors is IGC conform (see Image 2). Thus devices with IGC configuration can be directly connected with an 1:1 patch cabel.



Image 1: Connectors and DIP switches

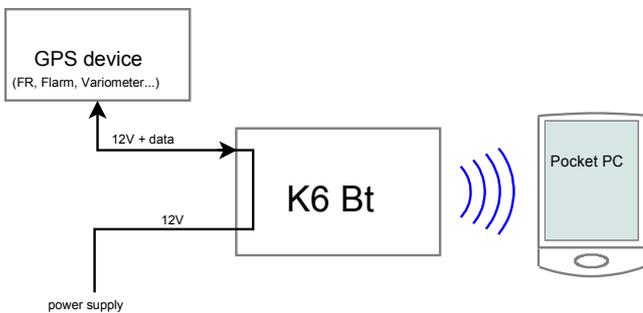


Image 3: connection of the K6 Bt with a GPS device and power supply with an 1:1 patch cable

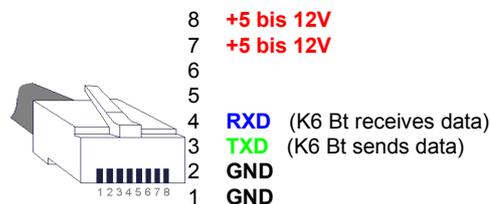


Image 2: Pinout of the RJ45 connectors (IGC conform)

Notice: the enumeration of the pins, published by the IGC, is mirrored.

2 DIP-Switch

The K6 Bt is configured by DIP switches. The following table outlines the switch assignments.

Switch 1	on	TX on connectors enabled(K6 Bt is able to send data to the GPS device)
	off	TX on connectors disabled (K6 Bt is <u>not</u> able to send data to the GPS device)
Switch 2	configuration of baud rate (see chapter 3)	
Switch 3		
Switch 4		
Switch 5	on	Proprietary K6-Team protocol for baudrate switching by bluetooth enabled (see chapter 3.3)
	off	Proprietary K6-Team protocol for baudrate switching by bluetooth disabled
Switch 6	reserved for future use	

3 Baudrate

Following baud rates are supported: 2400 baud, 4800 baud, 9600 baud, 19200 baud, 38400 baud, 57600 baud, 115200 baud. The baudrate of the K6 Bt has to be selected to match the connected GPS device. The baudrate of the K6 Bt can be configured in the following way:

3.1 Constant baudrate

With the DIP switches different baudrates can be selected.

Baudrate	2400	4800	9600	19200	38400	57600	115200	Auto
Switch 2	off	on	off	on	off	on	off	on
Switch 3	off	off	on	on	off	off	on	on
Switch 4	off	off	off	off	on	on	on	on

3.2 Automatic baudrate identification

If the DIP switches 2, 3 and 4 are in position „on“, the K6 Bt tries to automatically detect the baudrate of the connected device. Detection of the baud rate is only possible when the connected device sends NMEA-0183 conforming data with at least one sentence per second. After power on the K6 Bt searches for the correct baud rate indicated by double blinking of the red LED. If the correct baud rate is found, the LED stays off. The baud rate found ist used until the K6 Bt is switched off.

3.3 Setting of the baudrate via bluetooth

To download flights from flight recorder it is possible to set the baudrate of the K6 Bt using a proprietary K6-Team protocol over the bluetooth link. The software on the Pocket PC or PC has to support the proprietary K6-Team protocol.

To enable the proprietary protocol DIP switch 5 has to be switched to „on“.

4 Voltage supply

The K6 Bt requires a supply voltage between 5 and 14V at ca. 40mA. This must be supplied at least at one of the connectors. A combined fuse with the connected device is sufficient. Then the prescribed fuse for the connected device is to be applied. Without a connected device a fuse rated at 1 A has to be used for the K6 Bt.

5 Bluetooth connection with a Pocket PC or a PC

The K6 Bt has to be connected to the GPS device and the voltage supply first. Afterwards bluetooth has to be activated at the Pocket PC and a search for bluetooth devices can be started. After some moments the K6 Bt shows up.

The identification of the K6 Bt always begins with „K6BT“. The pre-set identification and is printed on the label on the K6 Bt's housing. Establish a connection and enter the password.

On most computers these steps have to be taken only once and the Pocket PC automatically connects to the K6 Bt from now on.

After connecting a serial port (COM port) is available at the Pocket PC. The COM port number differs from computer to computer and can may be changeable. Consult the manual of your Pocket PC. You may find some usual assigned ports in the appendix on page 7.

Start the program which should receive data from the K6 Bt and choose the serial port assigned to the bluetooth connection in the settings dialog.

5.1 LEDs

Both LEDs give information about the operating condition of the K6 Bt:

Red diode:

- permanent light after turning on: ready for configuration, changes after 4 seconds
- double blinking (.. ..): automatic baudrate identification is enabled and baudrate is not found yet

Green diode:

- double blinking (· · · ·): no bluetooth connection established
- single blinking (· · · ·): bluetooth connection established

6 Setting of bluetooth identification and password

The bluetooth identification as well as the password of the K6 Bt can be changed with the help of a PC.

DIP switch 1 has to be turned to „on“ and one of both connection ports has to be connected to the serial port of the PC. A **crossed** cable (TX and RX exchanged) is required (can be ordered at K6 team).

On the PC a terminal program must be installed (e.g. the program provided by MS WindowsHyperterminal or any other terminal program).

6.1 Connection with the terminal program

- baudrate: 19200 baud
- data bits: 8
- parity: none
- stop bits: 1
- flow control: none

After applying the power supply to the K6 Bt, the string 'ikkk' (+ one second pause) has to be entered in the terminal program within 4 seconds (while the red LED is continuously on).

The K6 Bt shows it's main menu:

```
ikkk
K6-Team Bt HW v.2 SW v.1d build Oct  1 2008
Configuration ID: ""
+-----+
| Main Setup |
+-----+
| I: Bluetooth ID | MyID |
| P: Bluetooth PIN | 1234 |
+-----+
| Baudrate (Info) | 38400 |
+-----+
```

To change the bluetooth identification or the password press the corresponding hot key:

Hot key	function	description
I	Bluetooth ID	Change the bluetooth ID (0..9, a..z, A..Z, -)
B	Bluetooth PIN	Change the password. Allowed are 1 to 8 digits (0..9) The password must contain at least one digit..

7 Support

K6-Team

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Please don't put old devices into the garbage, return it to us.

After the EU FAQ list the devices which are intended specially to the application in means of transportation are excluded from the range of application of the RoHS directive and with it from § 5 ElektroG.

Of course the K6 Bt is soldered lead-free.

Warning:

K6 Bt may loose NMEA data sets. Never rely entirely on the indication of your end device. Airspace observation is essential!



8 Appendix

8.1 Terminal programs for configuration

- **Teraterm** (Windows 98/2000/XP/Vista)
free, download at <http://sourceforge.jp/projects/ttssh2/>

- **Hyperterminal** (Windows 98/2000/XP)
provided with Windows OS
- **pockeTTy** (Windows Mobile / Windows CE)
shareware, download at <http://www.dejavusoftware.com/pocketty/>

8.2 FAQ

My Pocket PC receives no data

- Check if a bluetooth connection between Pocket PC and the K6 Bt exists
- Check if your software has chosen the right COM port. Some common COM ports can be found on page 7
- With constant baudrate: Check, if the same baudrate is used by both devices (GPS and K6 Bt)
- With automatic baudrate detection: Check, if the red LED stops after some time (baudrate identified) or if it's still double blinking (baudrate not identified). In case of doubt set baudrate manually.
- With activated K6-Team protocol (software controls baudrate): Note, that the K6-Team protocol only works with compatible software. In case the software is not compatible the K6 Bt uses the baudrate selected by the DIP switches

I can't download flights from the flight recorder

- Check if you use a compatible software to download flights (it must support the K6 Bt)
- Check the position of the DIP switches 1 and 5 (both must be turned „on“)

I can't control my e-variometer

- Check the position of the DIP switch 1 (must be turned „on“)

How can I connect two Pocket PCs via bluetooth with the GPS device?

- You need two K6 Bt which can be daisy chained using a RJ45 patch cable (1:1). At one of the K6 Bts the DIP switch 1 has to be turned „off“ so the Pocket PC which is connected on this K6 Bt is not able to send data to the GPS device.

8.3 Common COM ports for serial bluetooth connections*

- Asus A620: COM6
- Dell Axim X3 / X30 / X50: COM7
- Fujitsu-Siemens Pocket Loox 720: COM6
- HP/Compaq iPAQ 3870 / 3970: COM8
- HP iPAQ hx2110 / 2210 / 2215 / hx2450 / hx2750 / 4350 / hx4700 / 5xxx: COM 8
- HP iPAQ 1940/1945 (ROM version 1.00): COM5
- HP iPAQ 1940/1945 (ROM version 1.10): COM8
- HP iPAQ rx3715 / 4150 / 4155: COM6
- HP iPAQ 63xx: COM7
- O2 XDA II: COM6
- T-Mobile MDA II / MDA III / MDA compact: COM6
- Vodafone VPA III / VPA Compact: COM6

*: No guarantee. Please consult the manual of your Pocket PC.

8.4 Naviter ConnectMe and Seeyou Mobile configuration

The bluetooth support of Naviter is in test status

Set the COM port of Connect Me and Seeyou Mobile to „KBTx“ („x“ stands for the COM port of K6 Bt). The Naviter programs are able to control the K6 Bt via bluetooth.

Using the following settings we have downloaded flights with ConnectMe successfully.

Logger	Remarks	COM port	baudrate
LX Colibri		KBTx	AUTO
Volkslogger	Download needs a very long time (due to the Volkslogger)	KBTx	AUTO
Flarm		KBTx	AUTO

8.5 8Fox pocket*StrePla und pocket*StrePla Connect configuration

With Version 2.0 pocket*StrePla Connect supports the K6 Bt. To activate the support check at the options, tab „logger“ the „Bluetooth Adapter K6 Team“ and be sure to choose the correct COM port.