How to Construct a Cable for the Garmin eTrex or eMap

Thank you for obtaining a "Purple Computing" GPS connector for the Garmin eTrex or eMap receiver from us. This document will provide you with the information you need to construct virtually any type of cable you may require, whether you want to connect your GPS to a computer, or to provide power to your GPS. Technically, a GPS to GPS cable could also be constructed, but it appears as though the eTrex/eMap receivers do not have the capability to initiate a data transfer.

Please remember that this information is provided without warranty of any kind. Though every effort is being made to ensure that the information is accurate, we cannot be held responsible for any errors or omissions. If you construct a cable that doesn't work (or even worse, damages your GPS, computer, or yourself) as a result of a mistake in these instructions, we would appreciate learning about the error so that it can be fixed, but we cannot be held liable for any damages.

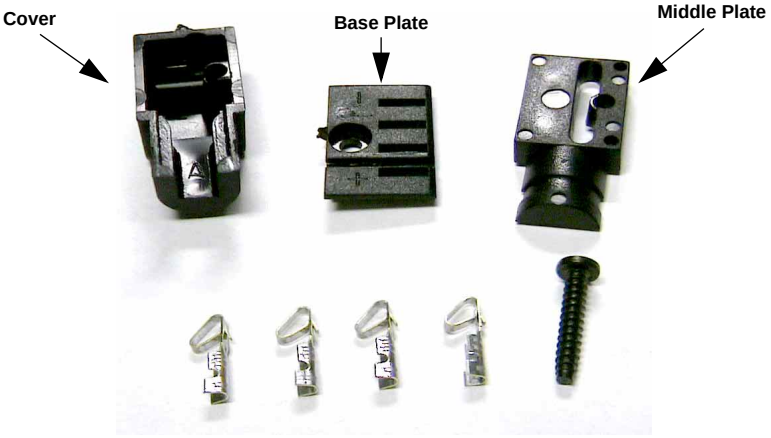
A note about supplying power to your GPS

The eTrex and eMap GPS receivers operate from two 1.5 volt batteries, and expect a similar voltage when external power is applied. You can use the connectors to supply power to your GPS (in addition to data, if required), but please ensure that no more than 3.3 volts DC is applied. A voltage higher than this will almost certainly damage your GPS.

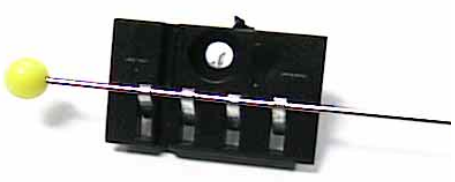
This means that you cannot power your GPS directly from a 12 VDC lighter adapter plug unless you provide some sort of voltage regulation circuit to bring down the voltage to somewhere in the range of 3–3.3 volts. For sample schematics, please visit http://www.nomad.ee/micros/etrex.shtml

Assembling the Connector

The separate parts making up the connector are depicted below.



The first step in assembling the connector is to bend the four spring clips at right angles as indicated in the picture to the left. If you want, you can use needle-nose pliers, but be careful that you do not accidentally compress either the end of the pins that the wires will be soldered to, or the spring clips themselves.

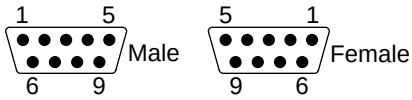


Next, push the spring end of the clips through the base plate, so that the tips of the springs protrude through the bottom. They should be visible on the same side of the plate on which the + and - signs are indicated. While constructing the connector, it is helpful to pass a pin through the spring tips temporarily, to hold them all in place.

Connector Pinouts and Signals

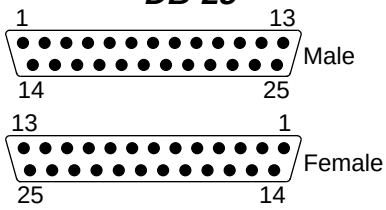
Diagrams represent the view of the connector as seen from the side that plugs into the computer or GPS. In other words, this is the side of the connector that you do NOT attach wires to. Keep this in mind when constructing your cable.

DB-9



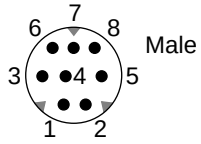
Pin 1	DCD	Carrier Detect
Pin 2	RxD	Receive Data
Pin 3	TxD	Transmit Data
Pin 4	DTR	Data Terminal Ready
Pin 5	GND	Signal Ground
Pin 7	RTS	Ready to Send
Pin 8	CTS	Clear to Send

DB-25



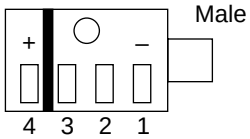
Pin 1	Shield	EMI Shield
Pin 2	TxD	Transmit Data
Pin 3	RxD	Receive Data
Pin 4	RTS	Ready to Send
Pin 5	CTS	Clear to Send
Pin 7	GND	Signal Ground
Pin 8	DCD	Carrier Detect
Pin 20	DTR	Data Terminal Ready

Mini Din-8

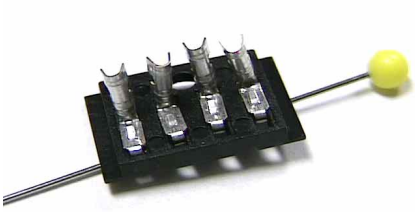


Pin 1	HSKo	Handshake Output
Pin 2	HSKi	Handshake Input
Pin 3	TxD-	Transmit Data -
Pin 4	SG	Signal Ground
Pin 5	RxD-	Receive Data -
Pin 6	TxD+	Transmit Data +
Pin 7	GPi	General purpose Input
Pin 8	RxD+	Receive Data +

eTrex/eMap Connector



1	Gnd	Signal/Power Ground
2	TxD	Transmit Data
3	RxD	Receive Data
4	V+	Power



When done, the "inside" portion should appear as in the picture to the left.

Now, you can pass wires in your cable through the slot in the middle plate, and solder them to the appropriate clips. Refer to the "Connector Pinouts and Signals" diagrams on the reverse side as this page, as well as the following electrical construction guidelines to wire your connector appropriately.

Depending on your soldering abilities, you may find it easier to solder wires to the clips before placing them in the base plate, to avoid melting the base plate when the clips are heated.

If you do wish to provide power to your GPS, the power ground is shared with the signal ground. Ensure that the power you provide the unit with is limited to 3.3 volts DC, as mentioned, and provide an inline fuse so that if something shorts out, your cable or GPS is not damaged.

When completed, sandwich the middle plate between the base plate and cover, and hold everything together with the screw provided.

Constructing a Data Cable for the IBM with a DB-9 Serial Connector

First, determine whether or not you need a male or female DB-9 to plug into the serial port of your computer. Use the pinout diagrams on the preceding page for the DB-9 and GPS connectors, and connect the following pins:

GPS	DB-9
Pin 3 (RxD)	Pin 3 (TxD)
Pin 2 (TxD)	Pin 2 (RxD)
Pin 1 (Gnd)	Pin 5 (Gnd)

Constructing a Data Cable for the IBM with a DB-25 Serial Connector

First, determine whether or not you need a male or female DB-25 to plug into the serial port of your computer. Use the pinout diagrams on the preceding page for the DB-25 and GPS connectors, and connect the following pins:

GPS	DB-25
Pin 3 (RxD)	Pin 2 (TxD)
Pin 2 (TxD)	Pin 3 (RxD)
Pin 1 (Gnd)	Pin 7 (Gnd)

Constructing a Data Cable to connect two Garmin GPS receivers

Obtain 2 GPS connectors and wire them as follows:

GPS 1	GPS 2
Pin 3 (RxD)	Pin 2 (TxD)
Pin 2 (TxD)	Pin 3 (RxD)
Pin 1 (Gnd)	Pin 1 (Gnd)

Constructing a Data Cable for the Macintosh

The Macintosh serial port can deal with either RS-232 or RS-422 signals, and uses the Mini DIN-8 connector. Wire the cable as follows:

GPS	Mini DIN-8
Pin 3 (RxD)	Pin 3 (TxD-)
Pin 2 (TxD)	Pin 5 (RxD-)
Pin 1 (Gnd)	Pin 4 (Gnd)

If your GPS emits a true RS-232 signal (most don't), tie Pin 8 on the Mini DIN-8 to Pin 4 to ground it.

Sending in Your Pledge

If you ordered GPS connectors from Syzygy Research & Technology for a pledge, you can honour that pledge by using the self-addressed envelope provided. Please make sure that your name is clearly marked on the return address of the envelope, as well as the cheque, so that we are sure who the pledge payment has come from. If you are sending in a cheque, please make it payable to "Syzygy Research & Technology".

If you would rather honour your pledge by credit card, you can visit our web site (http://www.syz.com/gps/) to use our secure server, telephone us, or send in the information by mail. If sending credit card information by mail, please include the following details. Of course, we are always anxious to hear any comments and experiences you may have! Thank you once again for your interest in GPS connectors and the pledge concept.

Name: _____

Card number: _____

Expiry Date: _____

Pledge Amount: _____

Signature: _____

SYZYGY
Research & Technology Ltd.

Box 83
Legal, AB
T0G 1L0
Canada

780-961-2213
sales@syz.com
www.syz.com/gps/