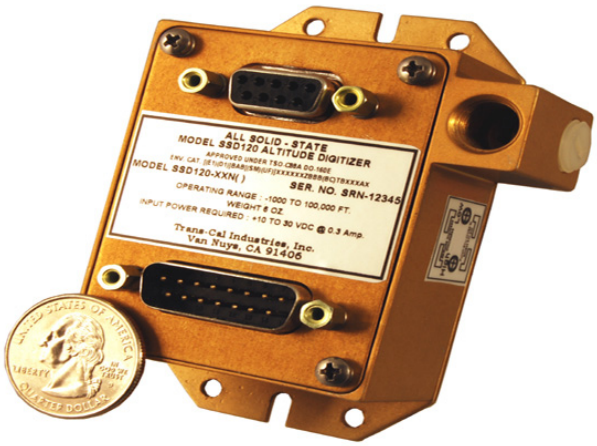
Serial Port Programming the “Nano” Using the ECP-100

20 October 2009

Hello and welcome to Trans-Cal’s training video for serial port programming.

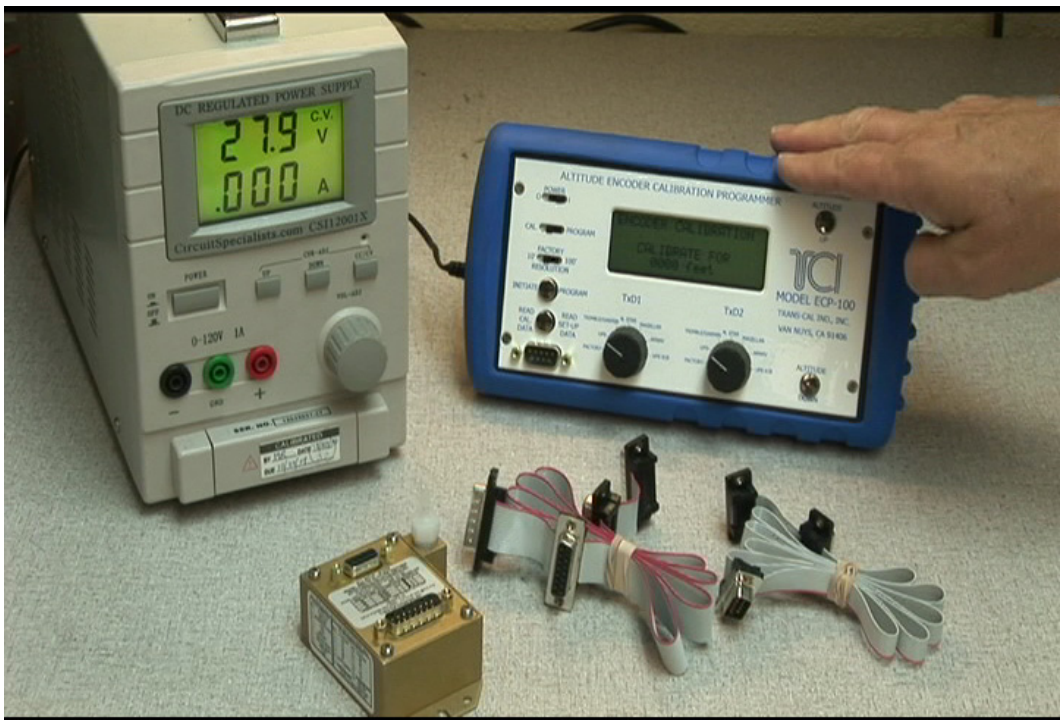
My name is John Ferrero and I will be demonstrating the serial port programming procedure for our Altitude Encoders with RS232 outputs using the ECP-100 Encoder Programmer.



Trans-Cal Altitude Encoders are the only encoders on the market that can transmit two different serial data messages and baud rates simultaneously.

The ECP-100 is an all solid-state programmer that will configure the Trans-Cal altitude encoder to transmit serial data in a predetermined baud rate and message protocol.

Even though we are performing this procedure on the bench, it could easily be done in the aircraft. The ECP-100 may be powered through its internal 9-volt battery, or as we are doing here, through an AC adapter.



Our set-up consists of:

An Altitude Encoder with a serial port

A DC power supply and

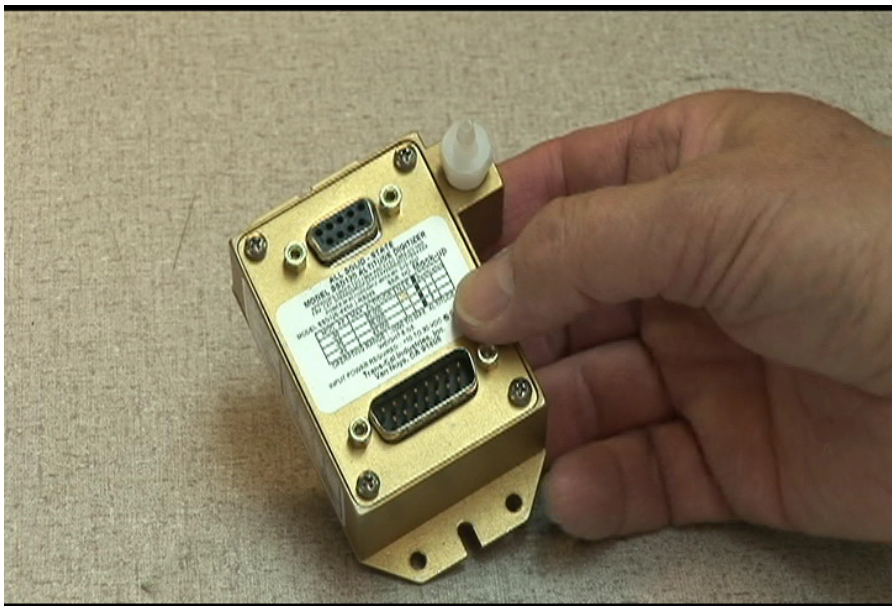
The ECP-100

We also need a wiring harness to provide power to the encoder and another to communicate with the ECP-100.

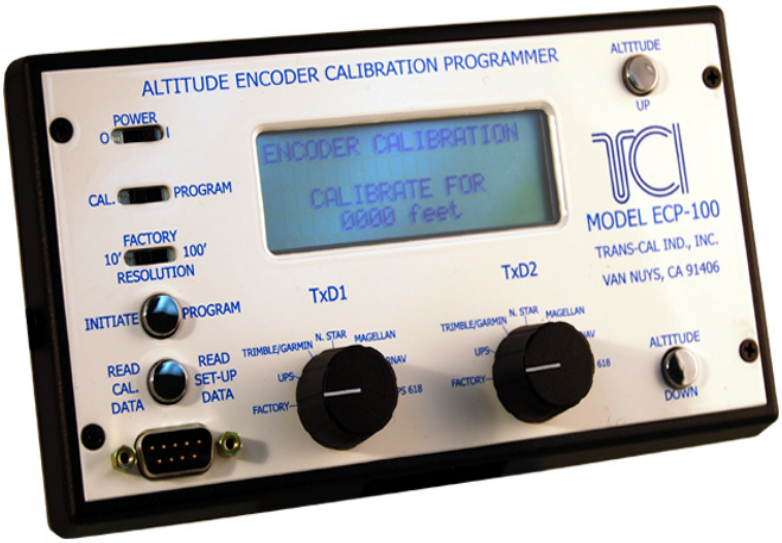
Pressure altitude data in the RS232 format is used for a variety of purposes within modern aircraft:

Here are just a few examples:

- Integrity monitoring in GPS
- Altitude hold for auto-pilots
- Terrain Awareness
- Mode S collision avoidance to name just a few.



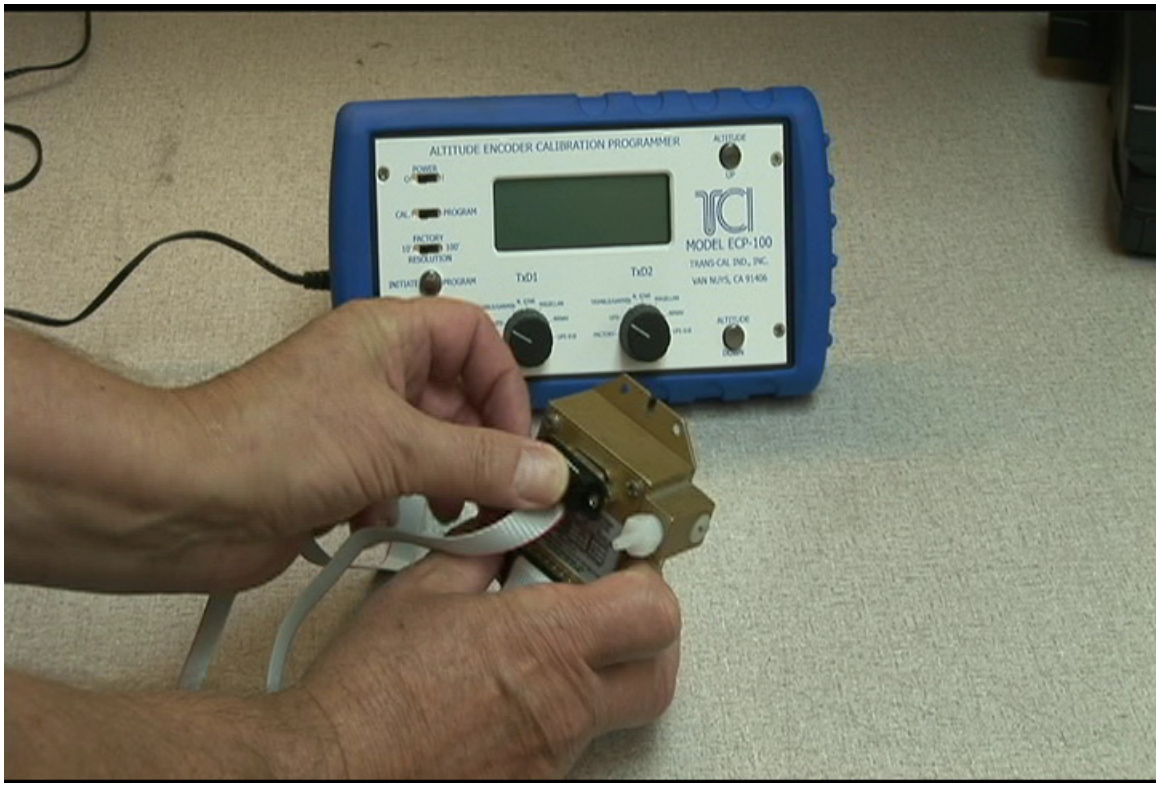
The Trans-Cal altitude encoders have two RS232 outputs and may be programmed to transmit separate messages and baud rates. In other words, Port 1 could transmit a message compatible with UPS AT devices at 1200 bits per second, and Port 2 may be programmed to transmit a message compatible with Garmin devices at 9600bps.



Let’s look at how we can digitally program the

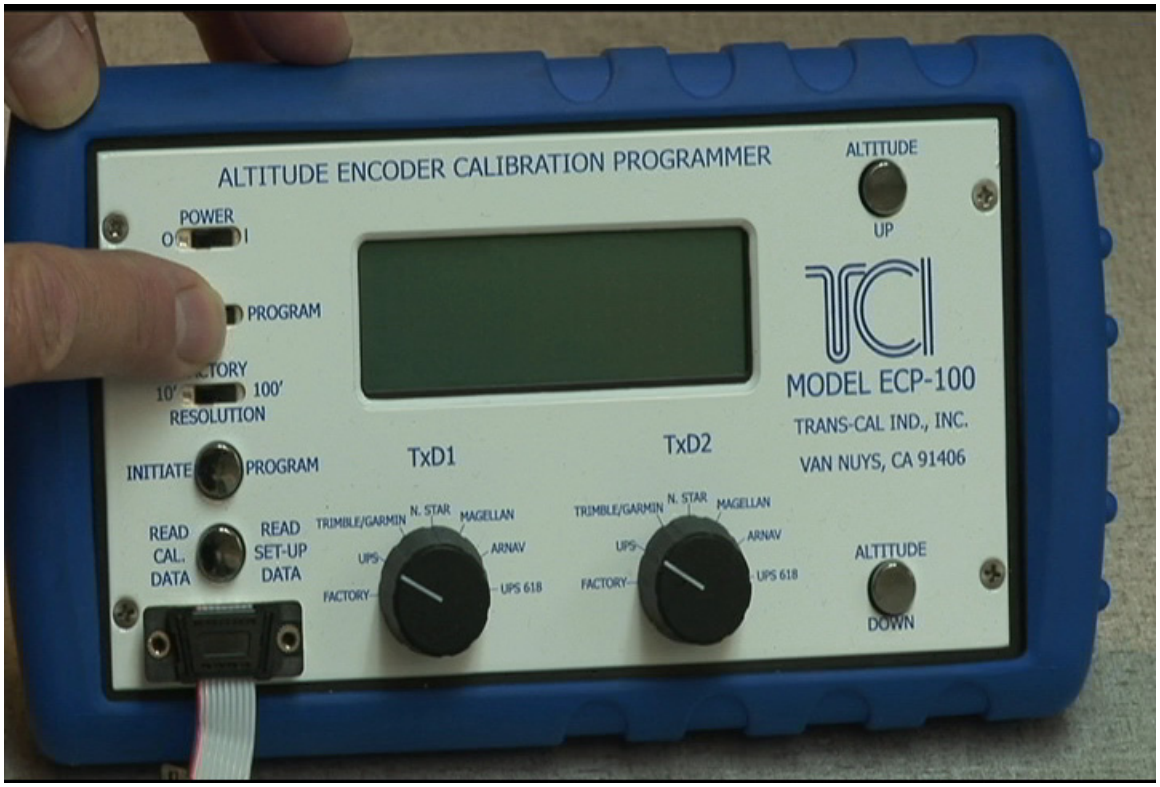
Altitude encoder serial outputs using the ECP-100.

We begin by connecting the altitude encoder to the power supply.

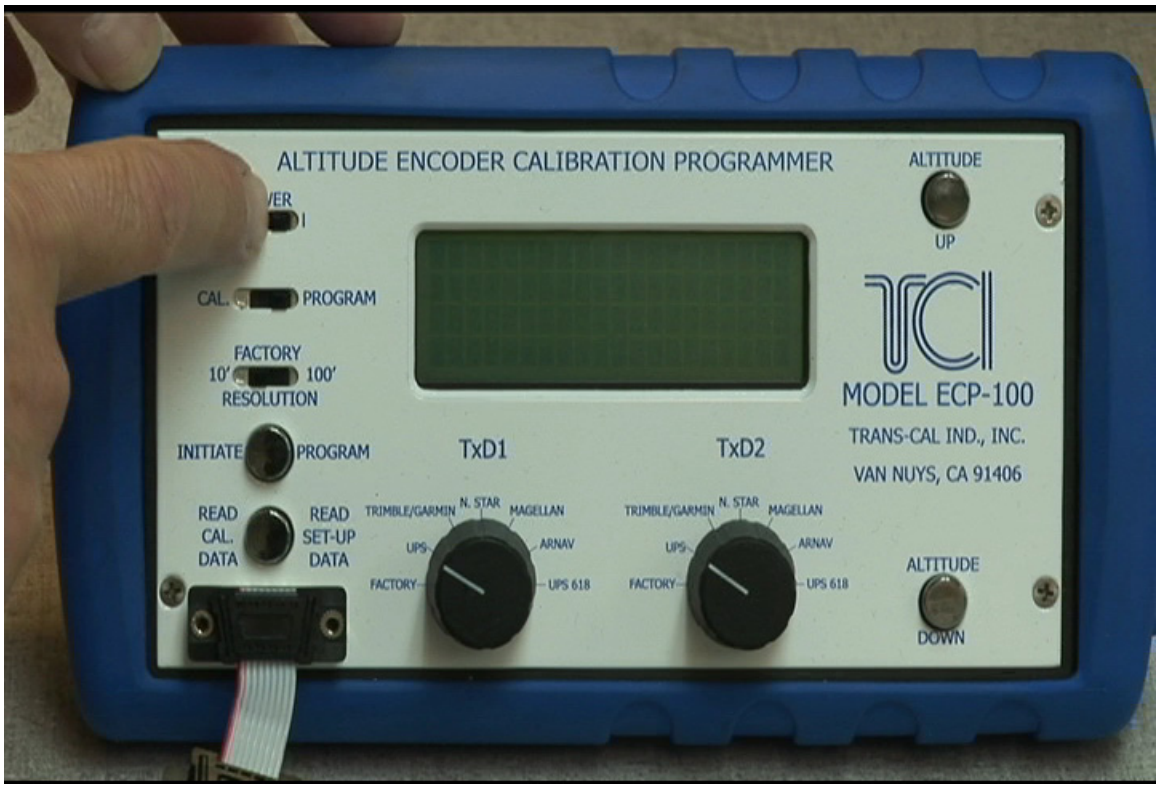


Next we connect the encoder serial port to the ECP-100 serial port.

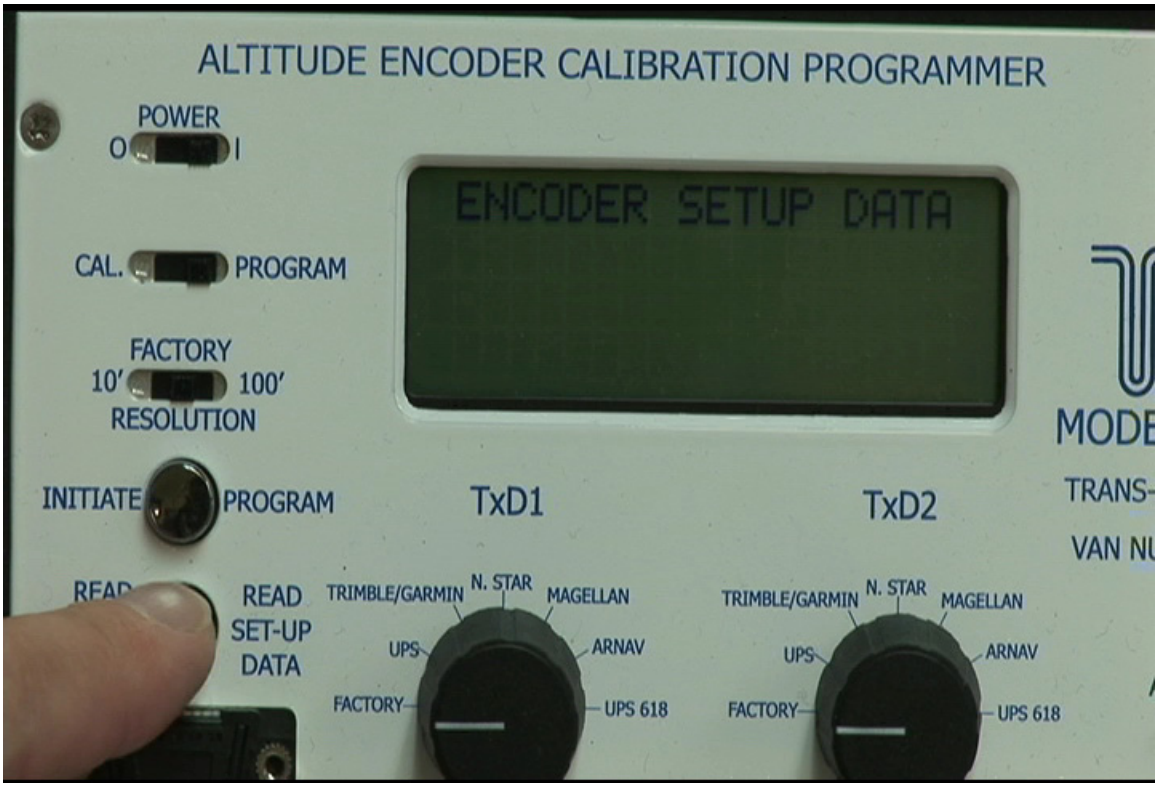
The owner/installation manuals have the pin out assignments listed so you may create your own wiring harnesses.



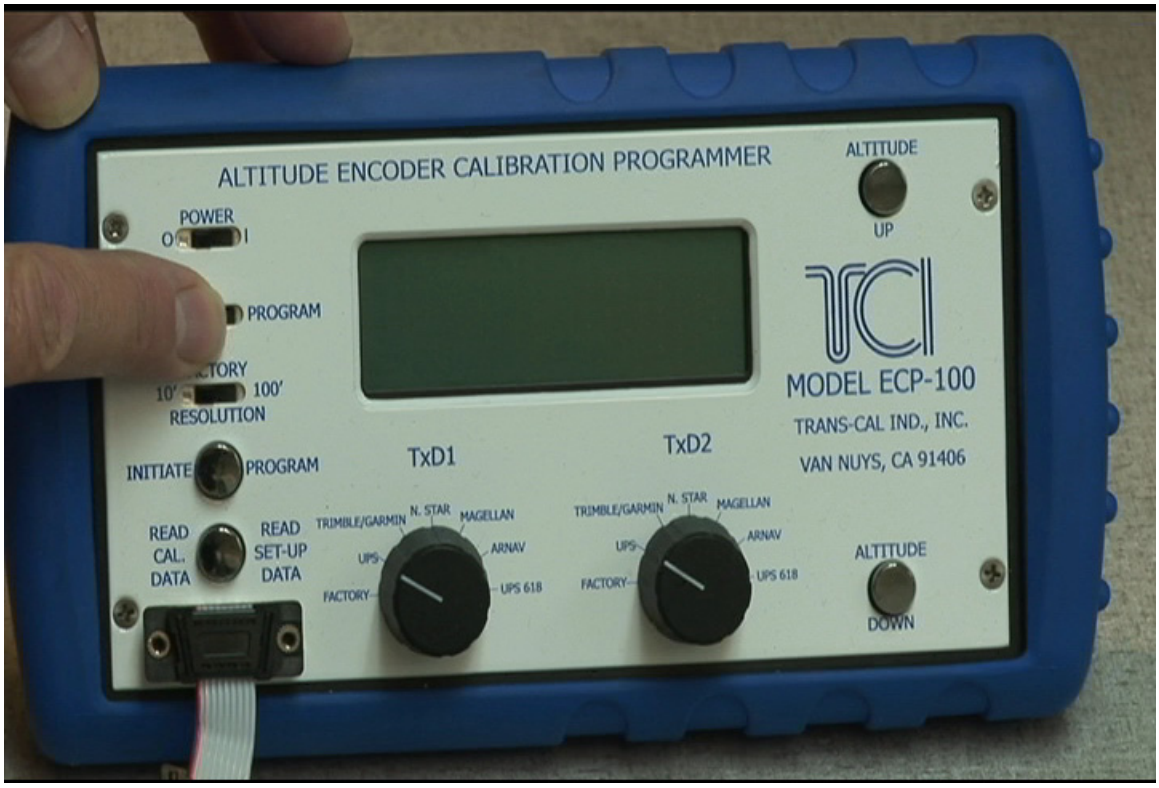
With the encoder power and the ECP-100 power OFF slide the ECP-100 switch to the PROGRAM position.



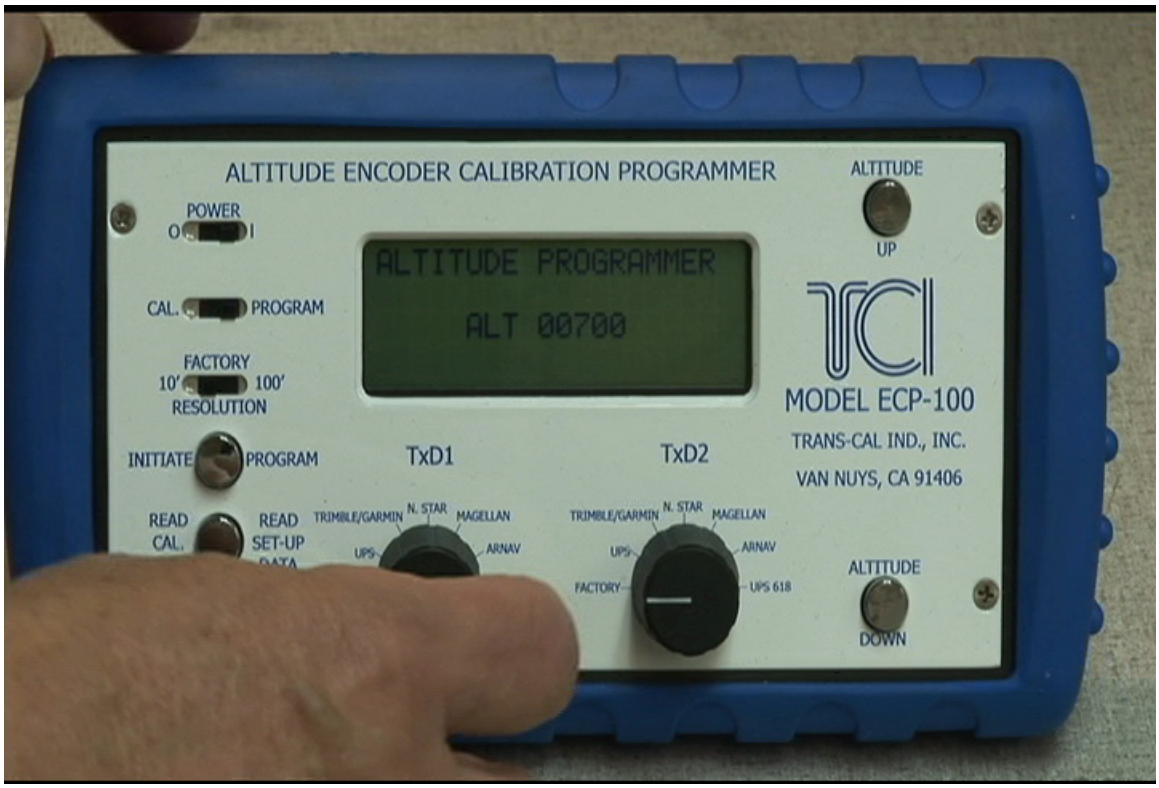
Apply power to the altitude encoder, and then slide the ECP-100 power switch to the on position. The ECP-100 will beep twice and display the current pressure altitude transmitted from the encoder.



Push the READ SET-UP DATA pushbutton once. The ECP-100 will display the current serial port protocol settings for 15 seconds, and then return to the altitude programmer display page. The default factory setting is shown here.

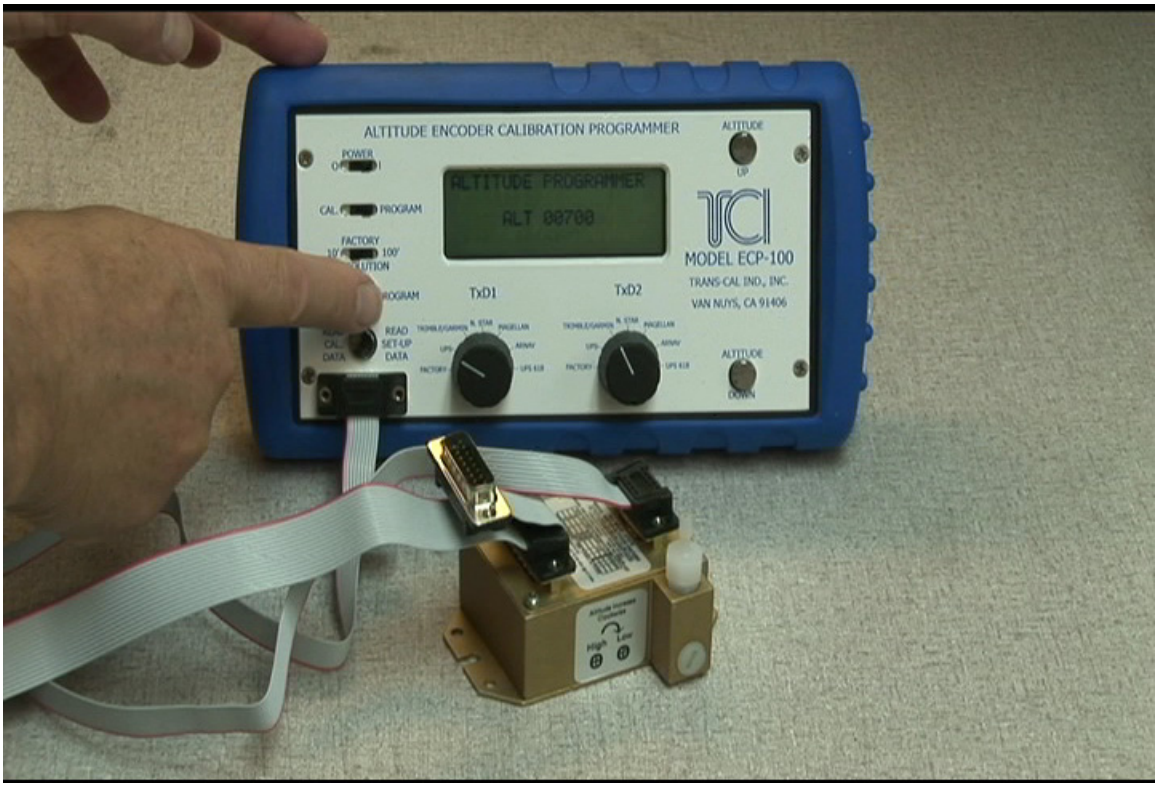


For the purposes of this video, we will set-up the encoder to transmit 10-foot resolution altitude data with the UPS AT message at 1200bps on port 1 and the Garmin message on port two at 9600bps. First, slide the resolution switch to the 10’ position.



Rotate the TxD1 selector knob to the UPS position.

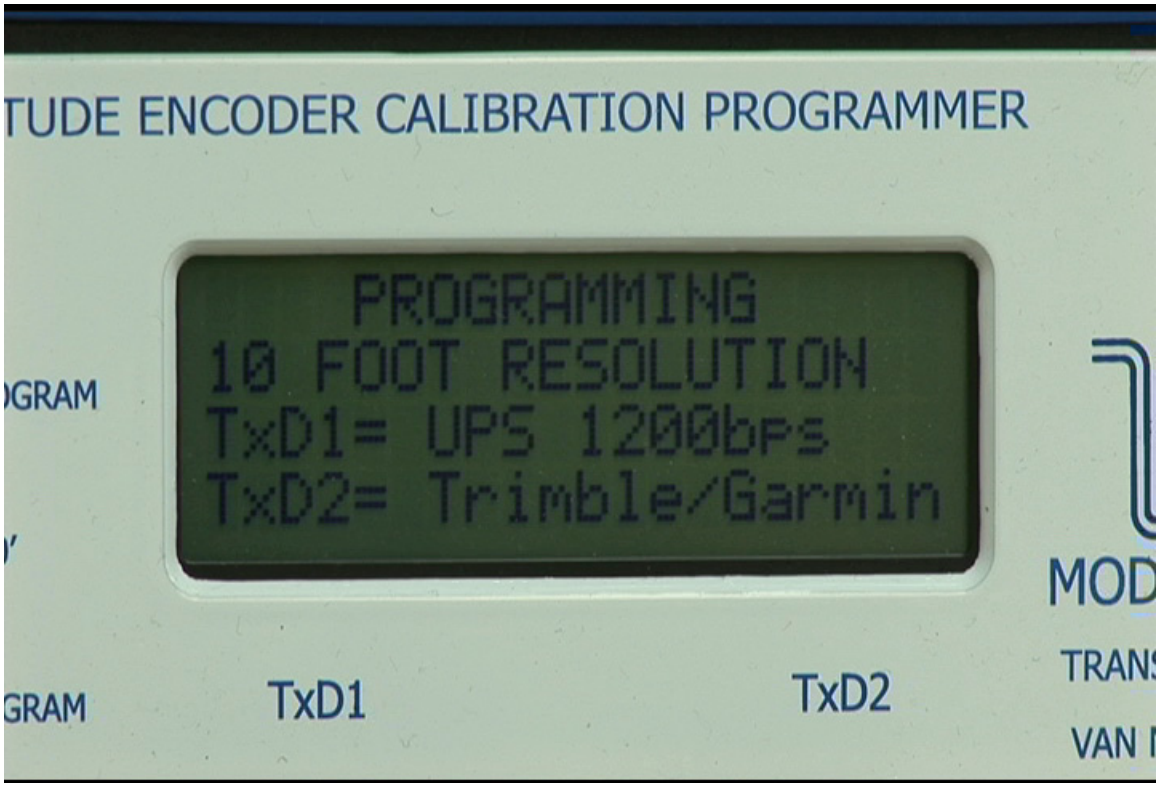
Next rotate the TxD2 knob to the Trimble/Garmin position.



Press the INITIATE PROGRAM pushbutton once.

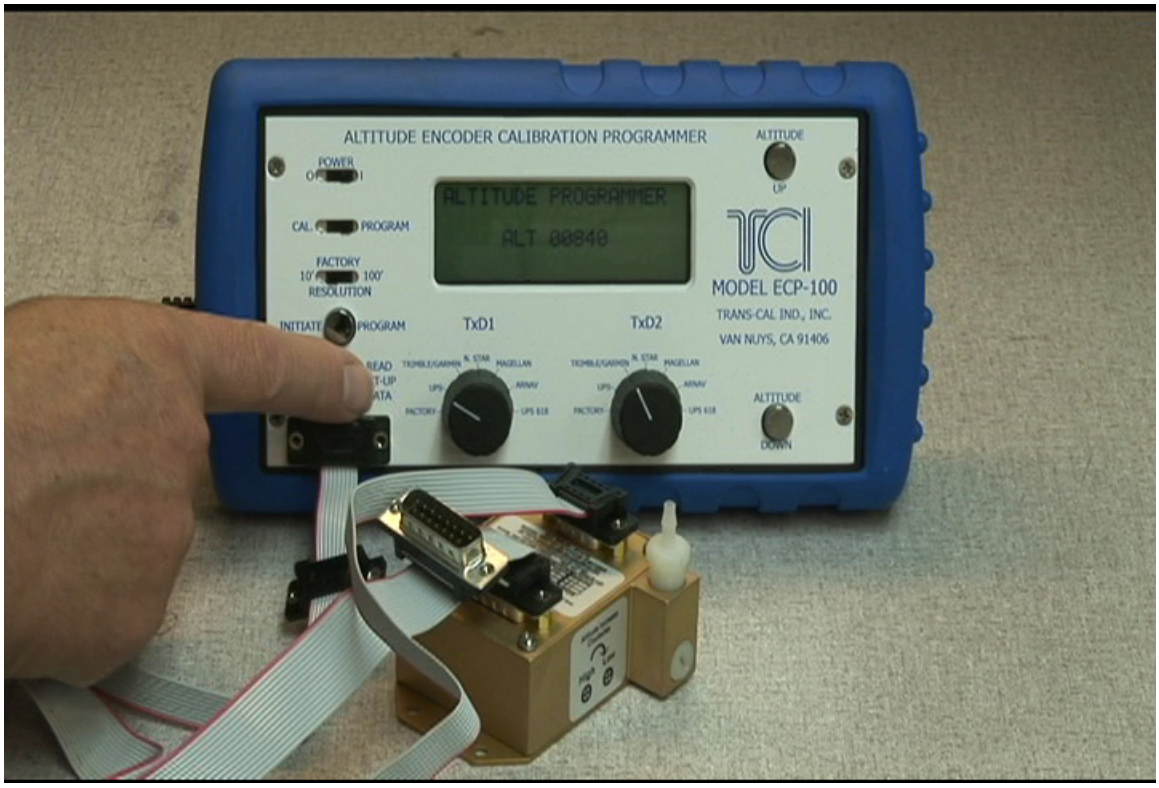
The display will beep then flash PROGRAMMING

and display the protocols to be programmed.

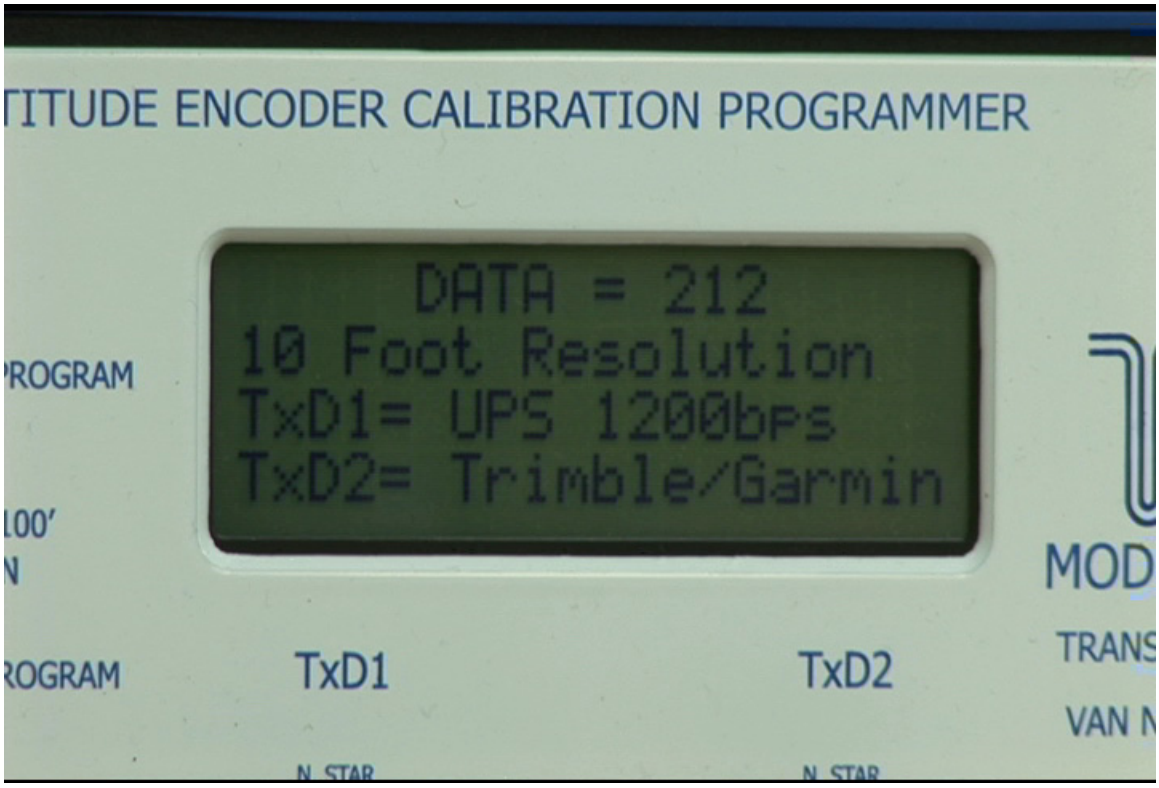


Wait until the ECP-100 emits a long beep and displays OPERATION Completed.

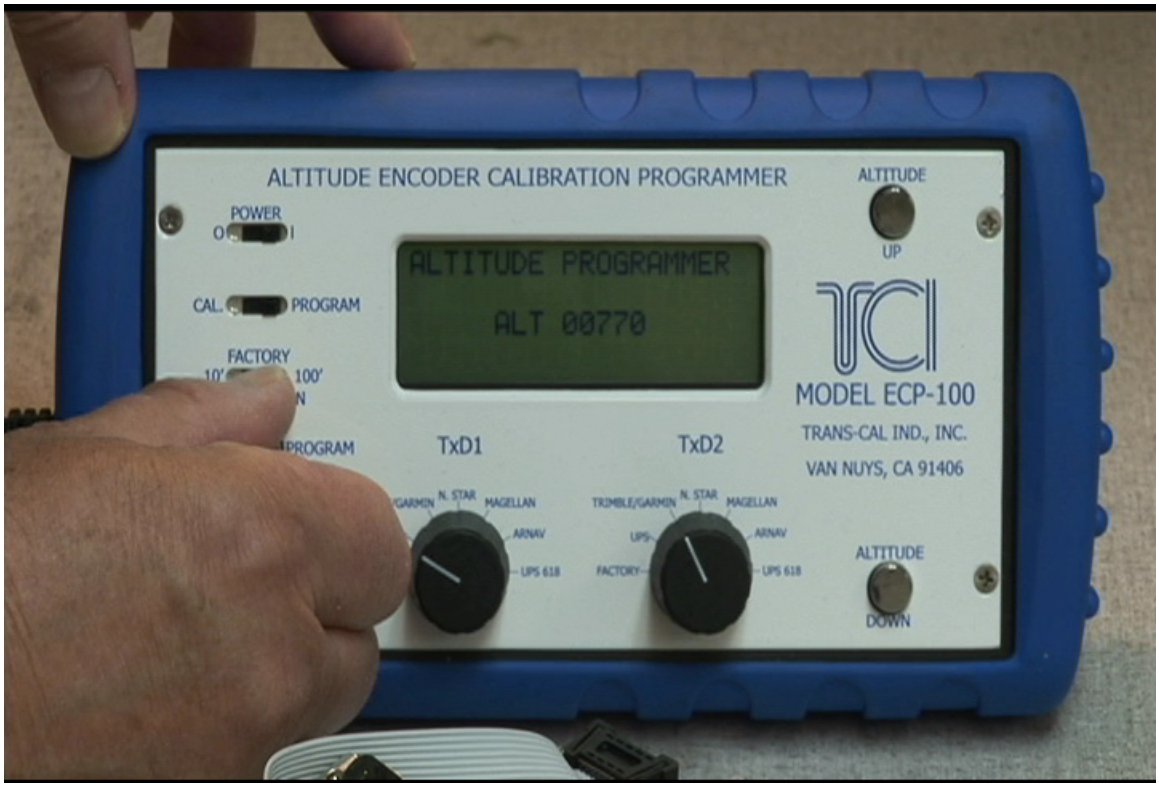
It will then return to the ALTITUDE PROGRAMMER page.



Now we can confirm the changes by pressing the READ SET-UP DATA pushbutton, and we should see UPS on Port One and Trimble/Garmin on Port Two.

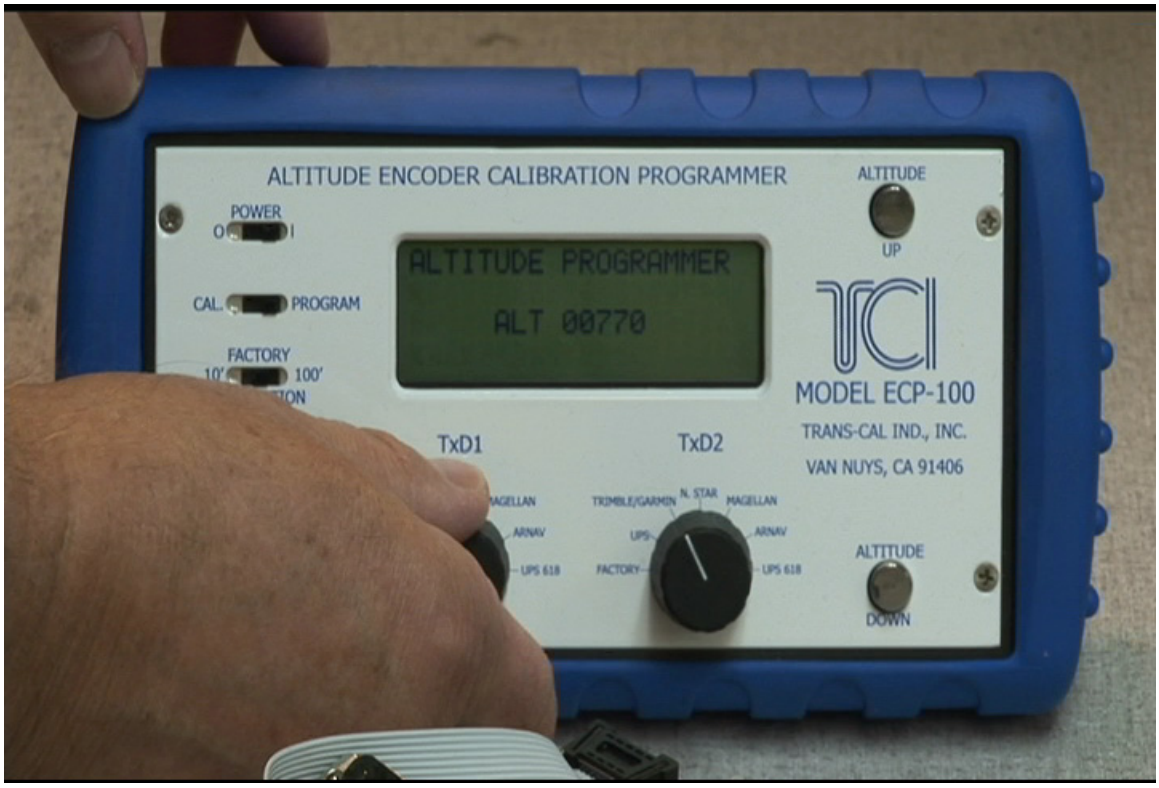


The encoder will now transmit the assigned messages on each output as we assigned.

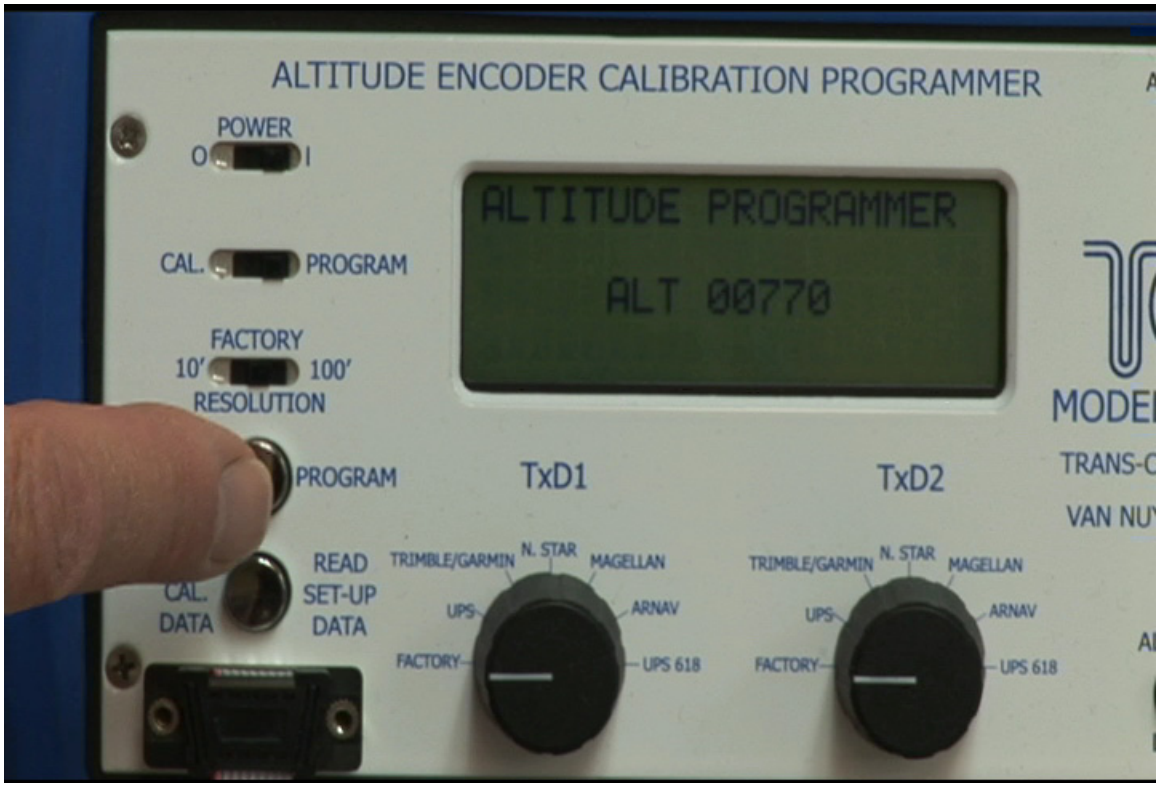


If you want to put the altitude encoder back to the factory settings.

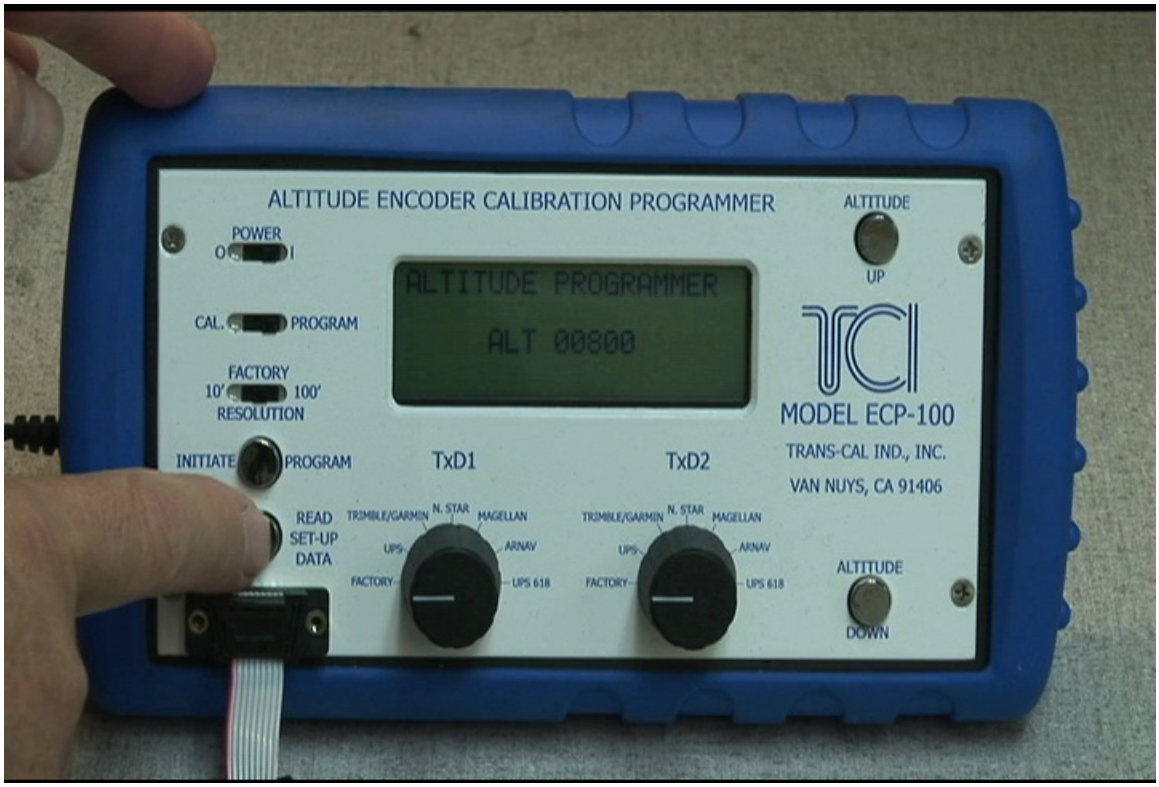
First push the resolution slide switch to the middle FACTORY setting.



Next rotate the TxD1 and TxD2 knobs to the factory position.



Finally push the INITIATE PROGRAM pushbutton.



When the ECP-100 completes the operation you can verify the port assignment by pushing the READ SET-UP DATA pushbutton once more.

And there you have it! That's all there is to it. I hope this helps you out.

If you have any questions drop us an e-mail or give us call.

Thanks for watching!