

# MGL Avionics

Serial to parallel Gillman code converter for Stratomaster Airtalk

## CNV-AT MKII



The CNV-AT converter accepts the altitude and local pressure setting information from the airtalk link and converts this information to Gillman code in a format compatible with mode-C transponders.

The CNV-AT can be used with the following instruments (as of date 7/5/2006):

Stratomaster Flight, FlightII

Stratomaster Extreme

Stratomaster Ultra, models L,X,RL,H, HXL

## Installation

Installation of the CNV-AT unit is quite simple. Follow these steps:

Connect the black and red wires to a suitable on-board power source. The voltage may be in the range from 7 to 30 volts DC. Connect the red wire to the positive supply (+) and the black wire to the negative supply (-). You can connect the two wires directly to the power supply terminals of the instrument.

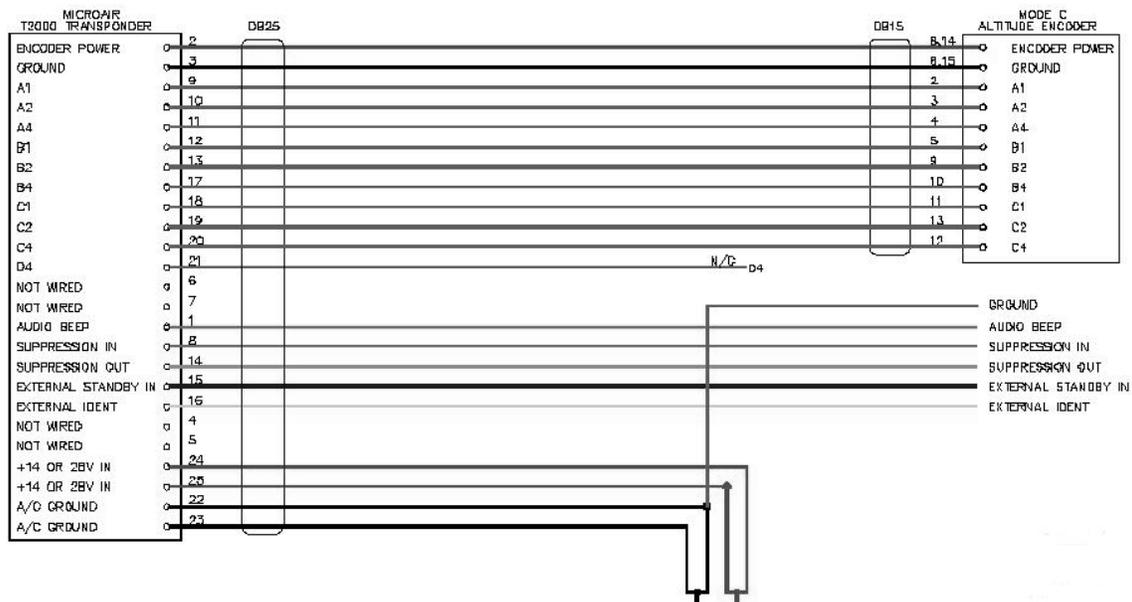
The red LED on the CNV-AT should be steady on.

Connect the airtalk cable to the airtalk link connector of the instrument.

If everything is connected correctly and power is applied, the led on the CNV-AT should flash once every three seconds. If you have achieved this, you can move onto the installation of the parallel output to the transponder. You have confirmation that the CNV-AT is receiving altitude data from your instrument.

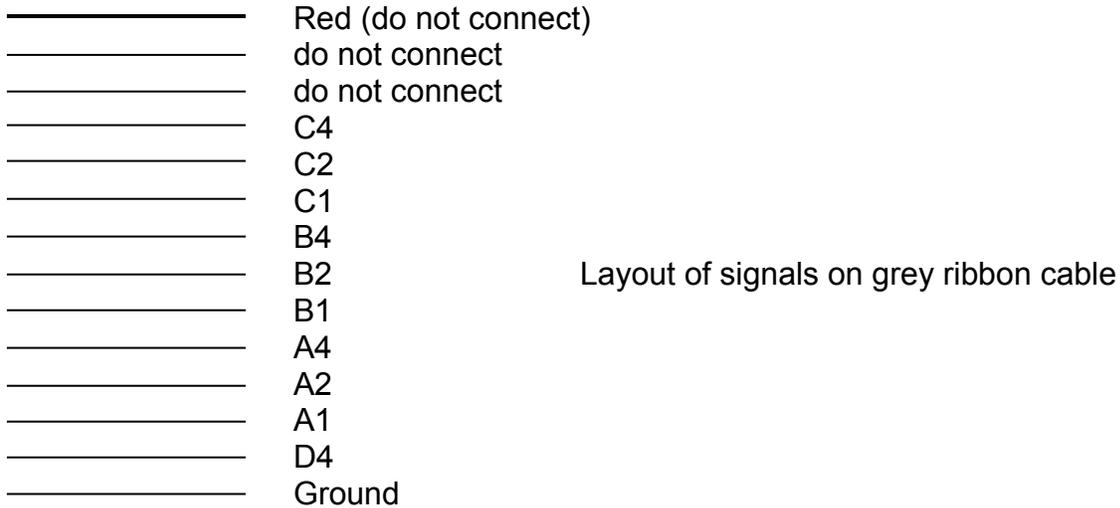
The connection to the transponder consists of 10 or 11 connections, many transponders accept only codes A1 to C4, in this case you will leave signal D4 unconnected.

Here is a typical wiring diagram, in this case the T2000 from Microair.



The Gillman code signals are on the grey flat ribbon cable. Note that one side on the cable is marked with a red line. This first connection is the ground connection which in the case of the T2000 is to be wired to pin 3 of the DB25 connector. The three wires red and the next two grey wires can be ignored.

Then follows signal C4 followed by C2, C1, B4, B2, B1, A4, A2, A1 and finally D4. The last wire is the ground connection to your transponder.



### Operation:

The CNV-AT decoder will produce Gillman codes for any positive altitude that the instrument can measure. Negative altitudes are not supported and will be broadcast as zero feet altitude to prevent problems with older transponders that may not correctly transmit negative altitudes. Most Stratomaster instruments will measure altitudes typically to around 42000 ft, however, this requires a transponder that uses signal D4. Transponders that do not have D4 can only transmit altitudes up to 35000 ft.

The CNV-AT produces inverted Gillman codes as required by virtually all transponders. The outputs are open collector types and will sink currents up to 0.5A but this is not recommended in praxis. Typical sink currents with transponders are only a few mA at the most.

### LED states:

Off – no power or unit is faulty.

Steady on – unit is powered but not receiving any valid data.

Three second Flash – Unit is receiving correct data and is producing codes.

Following is a table of commonly used transponders and their Gillman code connections.

Please consult your transponders installation manual on the physical position of every contact. Ensure that you wire the Gillman codes correctly and securely.



## **Codes in case of failed source:**

Should the CNV-AT not receive any valid altitude data, the unit will switch all output drivers off. This is the same state as if the unit is not connected to the transponder or if the CNV-AT is not operating due to not having been switched on.

## **Technical specifications:**

Absolute maximum ratings:

Supply voltage: 35V

Maximum current per output: 500mA

Maximum current all outputs: 1A

Maximum voltage output off state: 50V

Output "on" maximum voltage: 0.7V

Input: Airtalk compatible protocol.

Output type: Open collector using darlington bipolar transistors.

## **Important information:**

Depending on laws and regulations in your country you may not be allowed to install a transponder and associated equipment yourself. This work may have to be done by a certified AMO or instrument technician.

Please check with your relevant authorities.

The CNV-AT is uncertified equipment and may normally only be used in uncertified aircraft, homebuilt aircraft and microlights (ultralights). Special operations permits for other aircraft may be required.

Please be very aware that any wiring mistake related to the application of Gillman codes to your transponder will result in incorrect altitudes broadcast by your transponder.

Any installation involving the CNV-AT must be checked by a suitably equipped aircraft instrument maintenance outfit before operation. Failure to do this may be a criminal offence in your country.

**Cables and connectors for the CNV-AT:**

