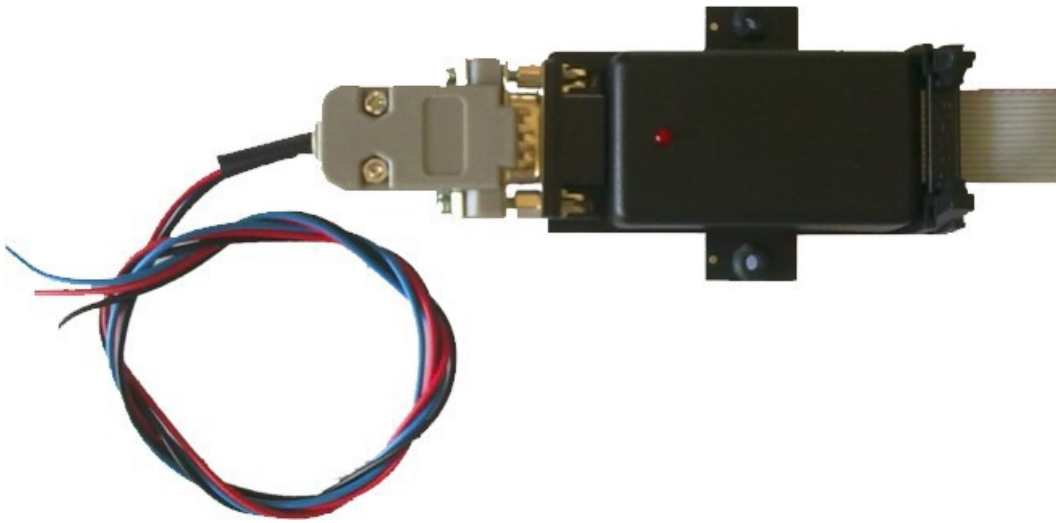


CNV-AT

Airtalk serial altitude to parallel
Gillham code for mode C transponders

Operating Manual – English 1.00



Introduction

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

The CNV-AT can be used with the following instruments:

Stratmaster Infinity ALT-1

Stratmaster Ultra models L, X, RL or H.

1 Features

- Airtalk input directly from a MGL Avionics Infinity ALT-1 or Stratmaster Ultra models L, X, RL or H
- Parallel Gillham output compatible with mode-C transponders.
- Red LED for status indication.
- Wide input supply voltage range of 8 to 30V DC with built in reverse voltage protection.
- Light weight design
- 1 year limited warranty

2 Installation

The CNV-AT produces inverted Gillham codes as required by virtually all transponders. The outputs are open collector types and will sink currents up to a few mA.

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 8 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 ALT-1 altimeter or Stratomaster Ultra. The red LED on the CNV-AT should be steady on.

Connect the Airtalk output from the Infinity ALT-1 or Stratomaster Ultra to the blue wire on the CNV-AT.

The LED on the CNV-AT should be flashing. If you have achieved this, you can move onto the installation of the parallel output to the transponder.

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.

It is recommended to use shielded cable for the connection between the CNV-AT and the transponder if a long cable needs to be used. The shield should be connected to ground at one point only (either on the encoding altimeter side or on the transponder side).

Installation of the wiring requires solder work. This needs to be done using electronic resin flux solder wire and proper temperature controlled soldering stations. Do not attempt this if you are unfamiliar with electronic soldering techniques. Please get professional assistance to do this. Bad connections can result in your transponder broadcasting incorrect altitude codes.

Attention:

Your country may have regulations that do not allow you to install a transponder or an encoding altimeter yourself. The installation may have to be performed by an authorized person or company. Please check your applicable regulations with your aviation authorities.

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 not certified equipment and may normally only be used in uncertified aircraft, home built 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 Gillham 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 offense in your country.

2.1 LED Status

Off – No power or unit is faulty.

Steady on – Unit is receiving a signal but cannot verify any valid data. This state may also be shown if the serial connector is disconnected.

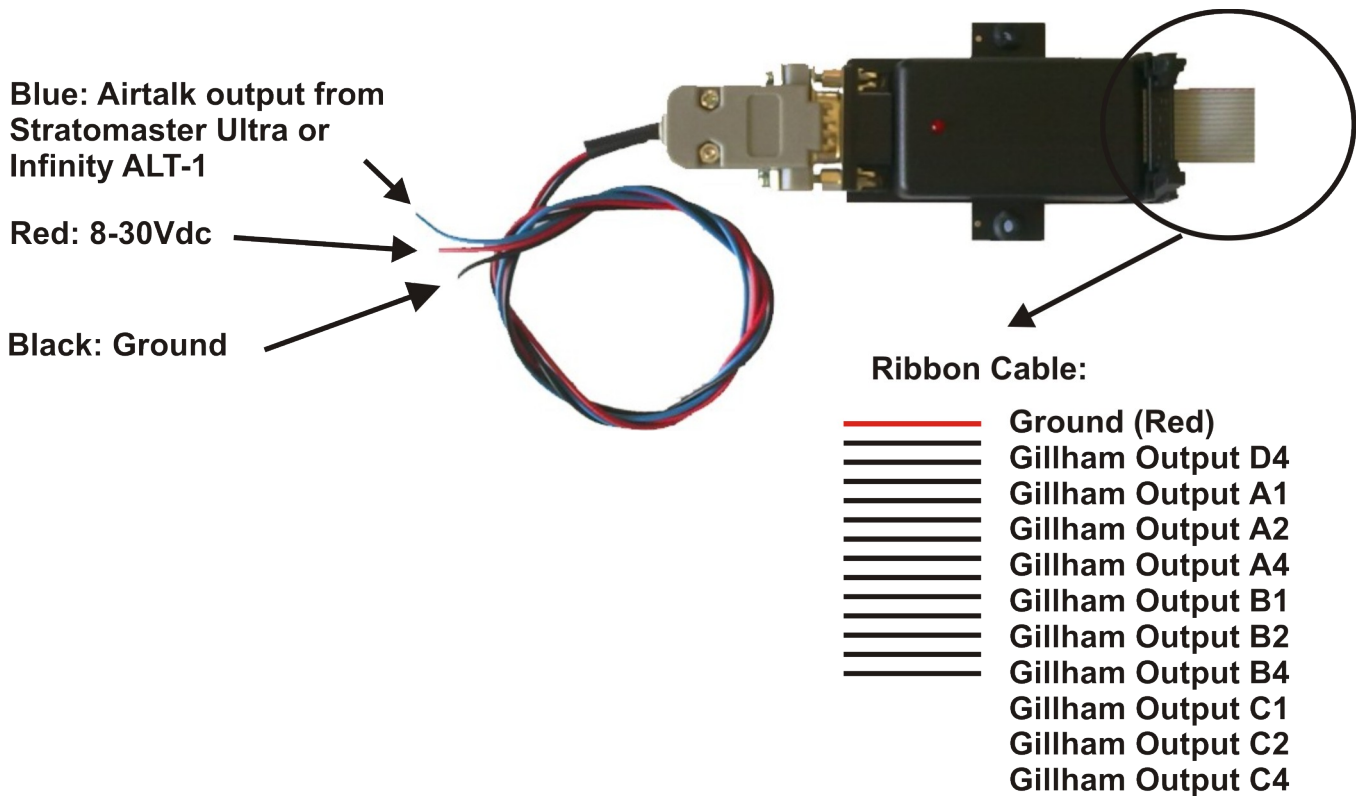
Flashing – Unit is receiving correct data and is producing codes.

2.2 Codes in case of a 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.

2.3 Connection Diagram

The Gillham code signals are on the grey flat ribbon cable. Note that one side on the cable is marked with a red line.



2.4 CNV-AT DB9 Cable connections

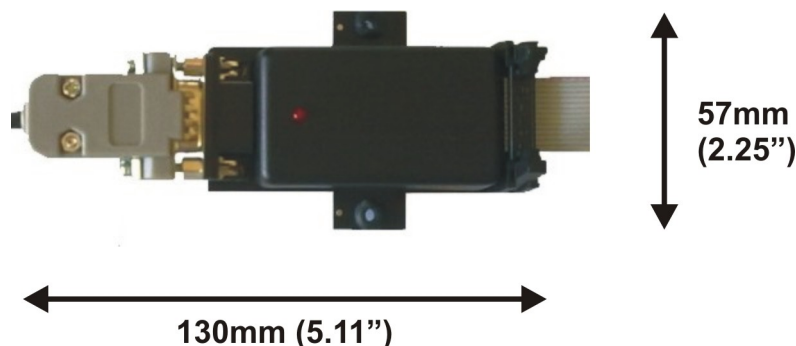
DB 9 Pin	Color	Function
1,2,3	Black	Ground
6,7	Red	8-30Vdc power
5	Blue	Airtalk Input

2.5 Pinouts for various transponders

The CNV-AT has a parallel output Gillham interface that can be directly connected to various parallel input transponders such as those from Garmin, Becker, King, Microair, etc. The output data contains the current pressure altitude with a fixed reference to 1013.25mB (29.92 inches mercury). The following table is of commonly used transponders and their Gillham code connections. Please consult your transponders installation manual on the physical position of every contact. Ensure that you wire the Gillham codes correctly and securely.

Transponder	A1	A2	A4	B1	B2	B4	C1	C2	C4
ARC RT359A/459A/859A	14	13	15	19	17	16	21	18	20
BECKER ATC 2000/3401	16	15	14	17	19	18	22	21	20
BECKER ATC 4401	1	2	3	14	15	16	17	18	19
BENDIX TRP- 2060/2061/660	4	6	8	9	10	11	3	5	7
BENDIX TR541A/641B	A	B	C	D	E	F	H	J	K
COLLINS TDR- 950/950L	12	10	7	6	5	4	8	11	9
EDO-AIRE RT-777	7	5	3	12	13	14	8	6	4
GARMIN 320/320A/327	3	5	6	9	11	12	10	4	7
GENAVE BETA 5000	4	5	6	7	8	9	10	11	12
KING KT76/78	6	7	9	4	1	2	3	8	10
KING KT76A/78A/76C/79	M	K	J	E	C	B	D	L	H
KING 750A	G	H	J	K	L	M	P	R	S
KING KT75	6	7	8	9	10	11	12	13	14
MICROAIR T2000	9	10	11	12	13	17	18	19	20
NARCO AT50/50A/150	7	6	8	12	10	9	14	11	13
NARCO AT5/6/6A	2	4	8	9	10	11	1	3	5
RADAIR 250	7	6	13	9	10	11	14	16	12
TERRA TRT250/250D	5	17	16	15	2	14	3	4	18
UPS/APPLLO SL70	13	31	12	33	14	32	16	34	15
WILCOX 1014A	K	C	W	T	L	D	P	F	Z

3 Dimensions



4 CNV-AT Specifications

Operating Temperature Range	-10°C to 50°C (14°F to 122°F)
Storage Temperature Range	-20°C to 80°C (-4°F to 176°F)
Humidity	<85% non-condensing
Power Supply	8 to 30Vdc with built in reverse voltage protection
Current Consumption	Approx. 20mA @ 13.8V (All output drivers off)
Dimensions	see dimensions above
Enclosure	ABS, black in color, D9 female connector, IDC14 way box header
Weight	Approx. 75 grams
Output contact current rating	Open collector transistor switch to ground. Maximum rating 0.5A DC

5 Warranty

This product carries a warranty for a period of one year from date of purchase against faulty workmanship or defective materials, provided there is no evidence that the unit has been mishandled or misused. Warranty is limited to the replacement of faulty components and includes the cost of labour. Shipping costs are for the account of the purchaser.

Note: Product warranty excludes damages caused by unprotected, unsuitable or incorrectly wired electrical supplies and or sensors, and damage caused by inductive loads.

6 Disclaimer

Operation of this instrument is the sole responsibility of the purchaser of the unit. The user must make themselves familiar with the operation of this instrument and the effect of any possible failure or malfunction.

This instrument is not certified by the FAA. Fitting of this instrument to certified aircraft is subject to the rules and conditions pertaining to such in your country. Please check with your local aviation authorities if in doubt. This instrument is intended for ultralight, microlight, home built and experimental aircraft. Operation of this instrument is the sole responsibility of the pilot in command (PIC) of the aircraft. This person must be proficient and carry a valid and relevant pilot's license. This person has to make themselves familiar with the operation of this instrument and the effect of any possible failure or malfunction. Under no circumstances does the manufacturer condone usage of this instrument for IFR flights.

The manufacturer reserves the right to alter any specification without notice.

Instruments in the *Stratomaster Infinity* series

ALT-1	Precision encoding altimeter and vertical speed indicator
ALT-2	Precision encoding altimeter and vertical speed indicator with a serial RS232 transponder output
ASI-1	Airspeed indicator (ASI) with automatic flight log
ASX-1	Encoding aviation altimeter with serial output and airspeed indicator (ASI)
AV-1	Artificial horizon and magnetic compass indicator
BAT-1	Battery voltage and current monitor
E-3	Universal engine monitor
FF-1	Fuel Computer (single or dual fuel tanks)
GF-1	+/-10G tilt compensated dual range G-force meter
MAP-1	Manifold pressure and RPM Indicator
RV-1	Universal engine RPM and rotor RPM Indicator
RV-2	Universal turbine RPM / RPM factor display
RTC-2	Aviation real time clock (RTC) and outside air temperature (OAT) display
TC-1	4-Channel thermocouple indicator
TP-1	Universal temperature and pressure gauge

Instruments in the *Stratomaster Velocity* series

ALT-3	Encoding aviation altimeter and Vertical speed indicator (VSI)
ALT-4	Encoding aviation altimeter with Serial RS232 & Parallel Gillham code output
ASI-3	Airspeed indicator (ASI) with automatic flight log
ASX-2	Encoding aviation altimeter and Airspeed indicator (ASI)
AV-2	Artificial horizon and magnetic compass indicator
E-1	Universal engine monitor
FLIGHT-2	Primary Flight instrument
FF-3	Fuel Computer (single or dual fuel tanks)
GF-2	+/-10G tilt compensated dual range G-force meter
MAP-2	Manifold pressure and RPM Indicator
ROTOR-1	Dual Rotor / Engine tachometer
RTC-1	Aviation real time clock (RTC), outside air temperature (OAT) and Voltage display
RV-3	Universal engine / Rotor RPM Indicator
TC-2	4-Channel thermocouple (EGT/CHT) indicator
TC-3	12-Channel thermocouple (EGT/CHT) indicator
TP-2	Universal temperature and pressure gauge

Instruments in the *Stratomaster XTreme* series

XTreme-EFIS	Electronic Flight information System
XTreme-EMS	Universal Engine Monitor