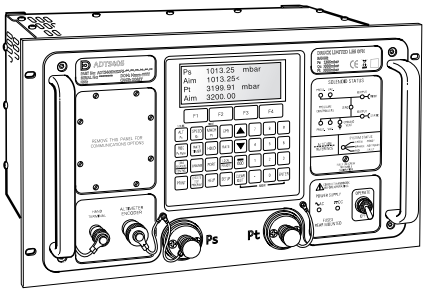
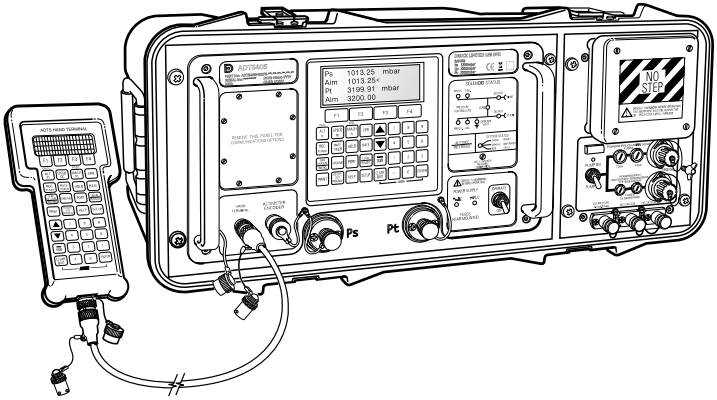
Druck

ADTS405MK2

Altimeter Encoder Option

Instruction Manual





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Safety

This publication contains information and warnings that must be followed to ensure the safe operation of the Air Data Test System. This manual describes the operation and use of the Altimeter Encoder option of the ADTS405MK2. Further information and warnings are contained in the main user manual for the ADTS405MK2.

Software Version

This publication is correct for software DK0127 issue No. 4.xx and above.

Associated Druck Publications

Document Number	Description
K0114	ADTS405 User Manual
K0572	ADTS405MK2 User Manual
K0157	ADTS405MK2 SCPI IEEE 488 Option User Manual
K0166	ADTS405 Test Program Option User Manual

Abbreviations

The following abbreviations are used in this publication.

Note: Abbreviations are the same in the singular and plural.

Abbreviation	Description
ADTS	Air Data Test System
CMOS	Complementary Metal Oxide Silicon
DC	Direct Current
ft	Feet
LSB	Least Significant Bit
mA	Milli ampere
MSB	Most Significant Bit
n/c	Not Connected
No.	Number
NSN	National Stock Number
SCPI	Standard Communications Protocol Interface
V	Voltage

1. Introduction

The ADTS405MK2 Altimeter Encoder Option allows the output from encoder altimeters to be displayed on either the hand-held terminal or display and key-pad of the unit. The displayed data includes the bit pattern and the equivalent altitude decoded from the bit pattern. The unit supplies 24 VDC to power the altimeter encoder electronics circuit and the altimeter vibrator circuit.

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1.1 Specification

Parameter	Value	
Input[a]	11 bits, D2 to C4 HC CMOS inputs with input protection. (internally “pulled up” to +5V)	
Output[b]	+24 V DC, 600 mA (maximum) to supply power to the altimeter encoder and vibrator.	
Connector	Rear panel (rack unit)	15-way D-type
	Front panel	Deutsch Ltd. Part No. AS612-35PN-903M

a. Driven by switches connecting each input to 0V or equivalent electronic circuit. The unused most significant bits can be left unconnected. The display shows an open circuit as “0”, a 0V shows as “1”.
b. The ADTS405MK2R rack mount connectors are located on the front and rear panels. For the ADTS405MK2F the connector is located on the front panel.

2. Connections



WARNING Comply with all local safety orders.

Observe all safety procedures in the Aircraft Maintenance Manuals.



CAUTION Do not connect to both front and rear panel altimeter encoder connectors at the same time.

The altimeter encoder can be connected to the rack mount unit at the rear or front connectors.

Note: To reduce power consumption during the power-up sequence, the unit should be switched on and selected to measure mode before connecting the cable to the altimeter.

2.1 Cables and Connectors

On earlier units the front panel connector is identified as BUS MONITORS. On later units the front panel connector is identified as ALTIMETER ENCODER with the pin and identification and function shown in Table 1.

A standard cable assembly is supplied with this option, the details of pin/cable identification and function are shown in Table 2. A 15-way, D-type connector is used for rear panel connection, the details of pin identification and function are shown in Table 3.

For connection to AAU-32 units an optional cable assembly can be supplied, the details of pin/cable identification and function are shown in Table 4.

2.2 Front Panel Connector

The front panel connector must be a MIL-C-38999 series 1½, size 12 shell receptacle with socket contacts in 12-35 pattern. The pin identification and function are as follows:

Table 1: Front Panel Connector

Pin No.	Function
1	C4 LSB
3	C2
5	C1
7	B4

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Table 1: Front Panel Connector (Continued)

Pin No.	Function
9	B2
11	B1
13	A4
22	A2
2	A1
4	D4
6	D2 MSB
8	Common (0V) signal
10	Common (0V) power
14	+24 V Vibrator
12	+24 V Encoder

Note: C4 is the least significant bit and D2 the most significant bit; unused most significant bits can be left open circuit.

2.3 Cable Assembly

A standard cable assembly is supplied as part of the altimeter encoder option. A Deutsch Ltd. AS612-35PN-903M connector is fitted to one end of this 6 meter, 15-core cable assembly.

Table 2: Altimeter Encoder Cable Assembly

Front Panel Connector AS612-35PN-903M Pin No.	Function	Cable Color Code
1	C4	LSB brown
3	C2	Red
5	C1	Orange
7	B4	Yellow
9	B2	Green
11	B1	Blue
13	A4	Violet
22	A2	White
2	A1	Grey
4	D4	Black
6	D2 MSB	Turquoise
8	Common (0V) signal	Pink
10	Common (0V) power	Yellow/red
14	+24 V Vibrator	Red/blue
12	+24 V Encoder	Green/red
Shell	Case/ground	Shell

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Note: Druck Part No. ADTS405-1728-35-M0

2.4 Rear Panel Connector

The rear panel connector is a 15-way, D-type, the pin identification and function are as follows:

Table 3: Rear Panel Connector

15-way,D-type Connector Pin No.	Function
1	C4 LSB
2	C2
3	C1
4	B4
5	B2
6	B1
7	A4
8	A2
9	A1
10	D4
11	D2 MSB
12	Common (0V) Signal
13	Common (0V) Power
14	+24 V Vibrator
15	+24 V Encoder
Shell	Case/ground

Note: C4 is the least significant bit and D2 the most significant bit; unused most significant bits can be left open circuit.

2.5 Optional Cable (AAU-32 Units)

The 15-core cable is supplied for the AAU-32 encoder unit:

Note: The D2 data line (turquoise cable) is not defined for the AAU-32, it is for above 62,000 ft and not connected.

Table 4: Optional Cable Connections

Front Panel Connector AS612-35PN-903M Pin No.	Function	Cable color code	AAU-32 connector pins
1	C4 LSB	Brown	B
3	C2	Red	C
5	C1	Orange	D
7	B4	Yellow	E
9	B2	Green	F
11	B1	Blue	G

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Table 4: Optional Cable Connections (Continued)

Front Panel Connector AS612-35PN-903M Pin No.	Function	Cable color code	AAU-32 connector pins
13	A4	Violet	H
22	A2	White	J
2	A1	Grey	K
4	D4	Black	L
n/c	D2 MSB	Turquoise	n/c
8	Common (0V) Signal	Pink	A
10	Common (0V) Power	Yellow/red	b + M
14	+24 V Vibrator	Red/blue	P
12	+24 V Encoder	Green/red	c
shell	case/ground	shell	a + shell

2.5.1 Cable Assembly Details

This optional 6 meter cable for AAU-32 encoder units (MIL-A-81852A) can be supplied as follows:

Table 5: Optional Cable Details for AAU-32 Units

Item	Part No.
Optional cable assembly for AAU-32 units	Druck Part No. ADTS405-1891-61-M0 NSN 6625-01-435-6341
Front panel connector	Deutsch Ltd. Part No. AS612-35PN-903M
AAU-32 connector	Deutsch Ltd. Part No. RR06E16-26SN-9737

3. Operation

The altimeter encoder option consists of a PCB located in an option connector on the motherboard providing a connector on the front and rear panels.

3.1 Displaying Encoder Data

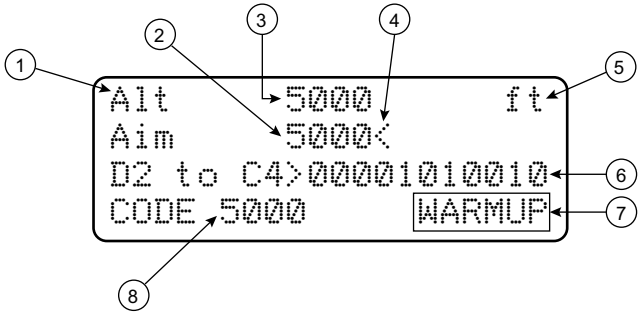
To display the encoder data, make sure that the units of pressure measurement are aeronautical (i.e., feet and knots) and the ADTS405MK2 is in measure mode.

To temporarily change the settings during operation use the set-up menu as follows:

[SETUP]
└— [MORE]
└ [DISPLAY OPTIONS]
└[DISPLAY TYPE]
use [NEXT] or [PREV]
to select
└— [ENCODER]

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Press SAVE, then repeatedly press QUIT until the display shows the following:



1	Controlled or measured parameter.	2	Aim (set-point or target) in control mode, or “Leak Measure” when the pressure controller is off.
3	Measured value.	4	“<” Pointer for parameter, i.e. aim that changes on data entry.
5	Units of measurement.	6	Altitude encoder bit code.
7	Special messages, e.g. warm-up period.	8	Altitude encoder decoded value.

Note: With an incorrect bit combination such as all zeros, the display shows “ENCODER ERROR” in the place of the decoded value.

All normal ADTS405MK2 functions remain active when using the encoder option with all the normal parameters available. The display shows all parameters except altitude as a single parameter in the upper half of the display.

To set power-up defaults for this option, enter the CONFIG menu, select options and then encoder as follows:

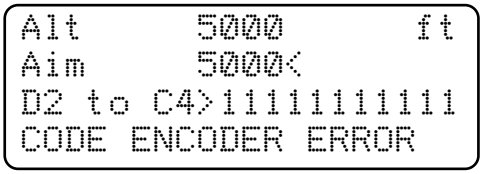
[SETUP + F1 (CONFIG)]
└— [MORE]
└— [DISPLAY OPTIONS]
└—[DISPLAY TYPE]
use [NEXT] or [PREV]
to select
└— [ENCODER]

Press the SAVE key, to store the selection, then repeatedly press QUIT until the display shows the normal encoder option data.

3.2 Errors

The display shows “ENCODER ERROR” in the place of a decoded altitude value when the bit pattern does not decode to an equivalent altitude.

3.2.1 Bit Pattern All Ones



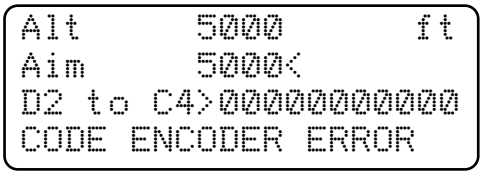
Possible causes:

1. Altimeter encoder option not fitted.

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2. Faulty altimeter.

3.2.2 Bit Pattern All Zeros



Possible causes:

1. Altimeter not connected.
2. Altimeter switched off.
3. Altimeter strobe (transponder) input not grounded.
4. Faulty altimeter.

3.2.3 Stuck Digit in Bit Pattern

If one digit remains unchanged with changing pressure the possible causes would be:

1. Cable fault - check continuity (refer to Table 2 or Table 4).
2. Faulty altimeter.

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