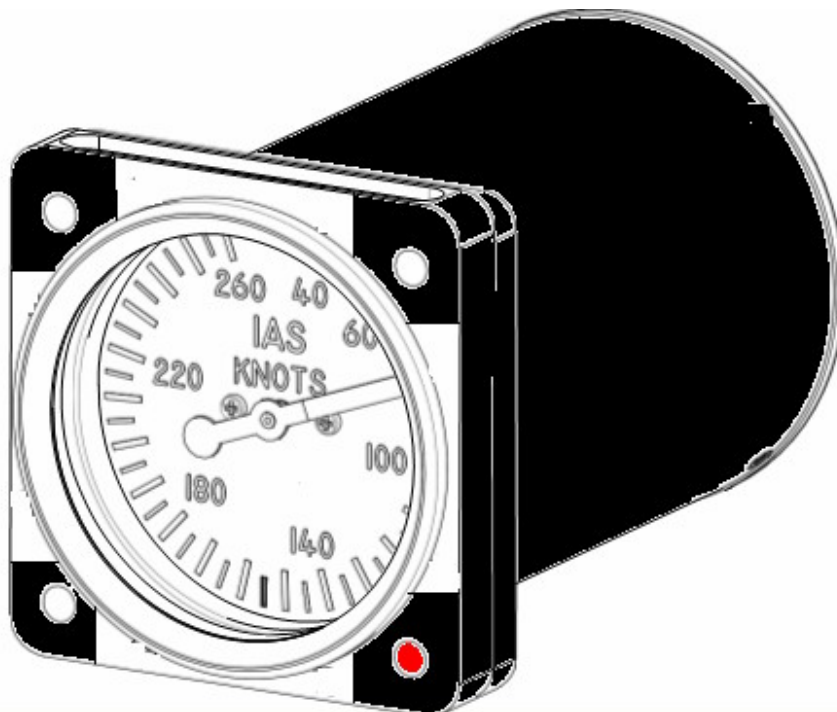


INSTALLATION MANUAL AND OPERATING INSTRUCTIONS

TA1500-() Series Airspeed Indicator



REV. C May, 2023 Manual Number 4000981
Tarlán Fly, Tarbiat modares technology park,
Tehran, Iran
phone + 989382880871 • web www.ToucanAvionics.com

FOREWORD

This manual provides information intended for use by persons who, in accordance with current regulatory requirements, are qualified to install this equipment. If further information is required, please contact:

Toucan Avionics
www.toucanavionics.com
market@toucanavionics.com
+989382880871

We welcome your comments concerning this manual. Although every effort has been made to keep it free of errors, some may occur. When reporting a specific problem, please describe it briefly and include the manual part number, the paragraph/figure/table number, and the page number. Send your comments to:

Toucan Avionics
www.toucanavionics.com
market@toucanavionics.com
+989382880871

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REVISION DETAIL

<u>Rev.</u>	<u>Date</u>	<u>Approved</u>	<u>Detail</u>
A	2021	HTM	Initial release.
B	2022	HLM	ARINC BASED COMBOX RELEASED
C	2023	HLK	Multi indicator is supported

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SECTION 1 GENERAL DESCRIPTION

1.1 INTRODUCTION

The model TA1500 series two-inch Airspeed Indicator is a Type A, air-driven, direct reading, self contained airspeed indicator built to meet or exceed SAE AS8019 standards as per FAA TSO-C2d.

1.2 TECHNICAL SPECIFICATIONS

1.2.1 PHYSICAL ATTRIBUTES

Characteristics:	
Weight:	0.6 kg max
Dimensions:	See outline drawing
Colors:	Dial background is black Markings are white Pointer is white with black hub and counterweight Case and bezel are black Range markings per customer specifications
Connections:	1/8-27 NPT (for direct airspeed reading) 3 PIN circular iron pin for data reading 2 wire DC power line
Mounting:	Rear mount, see panel cutout
Lighting:	Customer optional, LED 12 V DC Yellow and white

Table 1.1

1.2.2 QUALIFICATIONS

Specifications:	
Qualification:	NON TSO series
Environmental Qualification: (meet)	RTCA DO-160F Env. Cat. (D1)CAB[(SM)(UG)]XWXSFSYXXXXXXXXXX
Altitude:	-1000 ft to +20,000 ft
Operating Temperature:	-10°C to +45°C
Storage Temperature:	-15°C to +50°C

Table 1.2

SECTION 2 INSTALLATION PROCEDURE

2.1 GENERAL INFORMATION

This section contains mounting dimensions and other information pertaining to the installation of the TA1500 series Airspeed Indicator.

2.2 UNPACKING AND INSPECTING EQUIPMENT

When unpacking this equipment, make a visual inspection for evidence of any damage that may have incurred during shipment. The following parts should be included:

- a. Knt/H Airspeed Indicator – P/N TA15201E
- b. AirSpeed digital combobox – P/N TA1502E
- c. **Optional** Km/h aux guage P/N TA1501
- d. Dynamic pitot tube P/N TA1502
- e. Pipes and connection
- f. Standard harness with US-TTL convertor

Required equipment not provided:

- a. Mounting Hardware – four (4) #6-32 screws
#6 lock washers (optional)
- b. Air fittings – two (2): 1/8-27 NPT x 1/8" tube fitting
AN816-4D or similar
- c. Data screw for wiring connection
- d. Cablesaw
- e. Varnish

Optional equipment available:

- a. Light tray (LED) – 12 V DC
- b. 9~36 V DC to DC convertor

2.3 INSTALLATION

Install the TA1500 Airspeed Indicator within the aircraft in accordance with the aircraft manufacturer's instructions and the following steps:

- A. Ensure the available instrument panel cutout meets the requirements of the indicator. See Fig 3.2 for details.
- B. Secure the indicator to the instrument panel using the screw sizes called out in the mounting instructions. Length of screws will be determined by aircraft instrument panel thickness. The aircraft manufacturer or the installation facility is responsible for supplying appropriate installation hardware.

- C. Connect pitot line tube to the differential pressure port (designated "P") on the back of the indicator. (Based on version you have, the combox TA1502E has one dynamic pitot input and two static ports, based on your aircraft design connect them)

CAUTION: INSTALL FITTINGS IN PORTS WITH NO MORE THAN 20 KG-CM OF TORQUE. IF TORQUE IS NOT SUFFICIENT TO MAINTAIN A SEAL THREAD SEALANT MUST BE USED.

- D. The remaining port (designated "S") should be connected to the static line vented to atmospheric pressure. See Fig 3.3 for details.
- E. For units with light tray, connect wires to the appropriate voltage designated on the tray itself. (you may use optional DC to DC convertor available in package)

REVISED
REVISION HISTORY

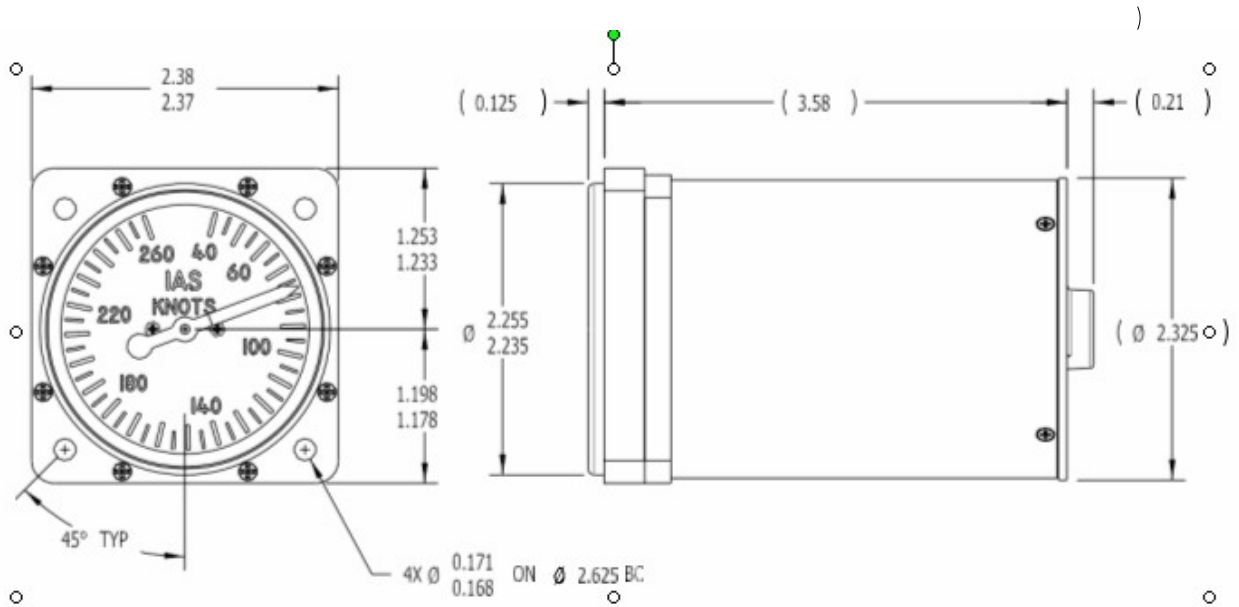
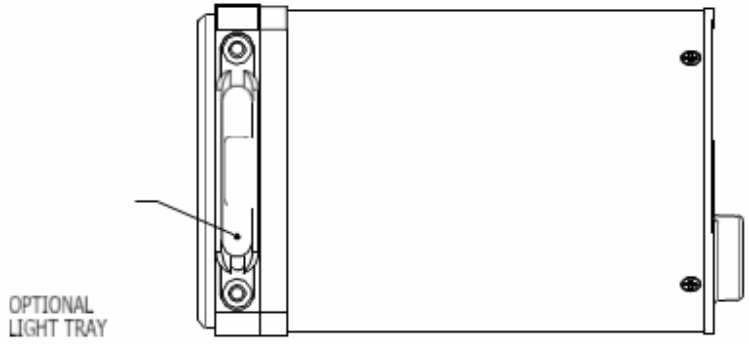


FIGURE 3.1
TA1500 OUTLINE DRAWING

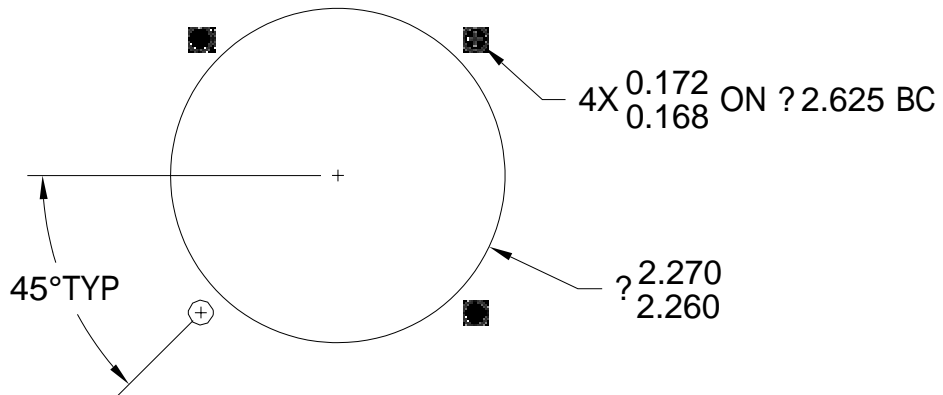
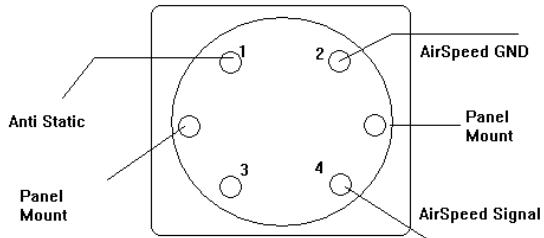
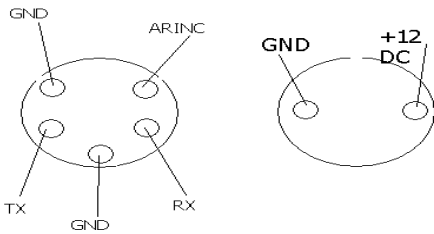


FIGURE 3.2
PANEL CUTOUT DIMENSIONS

TA1501 Km/H digital connection

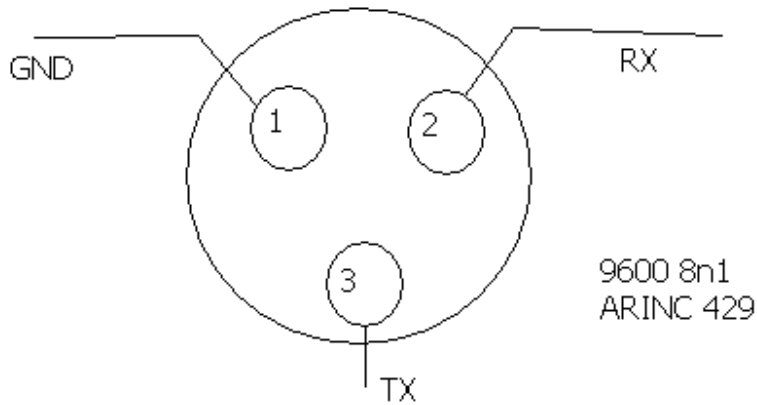


TA1502E airspeed combox digital connections



TA15020E digital connections

Supply voltage 10 ~ 12.5 VDC



SECTION 3 OPERATION

3.1 MINIMUM PERFORMANCE REQUIREMENTS

The TA1500 Airspeed Indicator shall meet these minimum performance requirements under standard test conditions.

3.1.1 SCALE ERROR

±5 from 40-80 Knots
±4 from 80-100 Knots
±3 from 100-160 Knots
±5 from 180-250 Knots

3.1.2 FRICTION/BALANCE ERROR

±3 from 40-180 Knots
±5 from 190-250 Knots

3.1.3 LEAKAGE

<0.05 In Hg in 1 min. under 15 In Hg Suction
<1 Knot in 1 min. at Full Scale Deflection

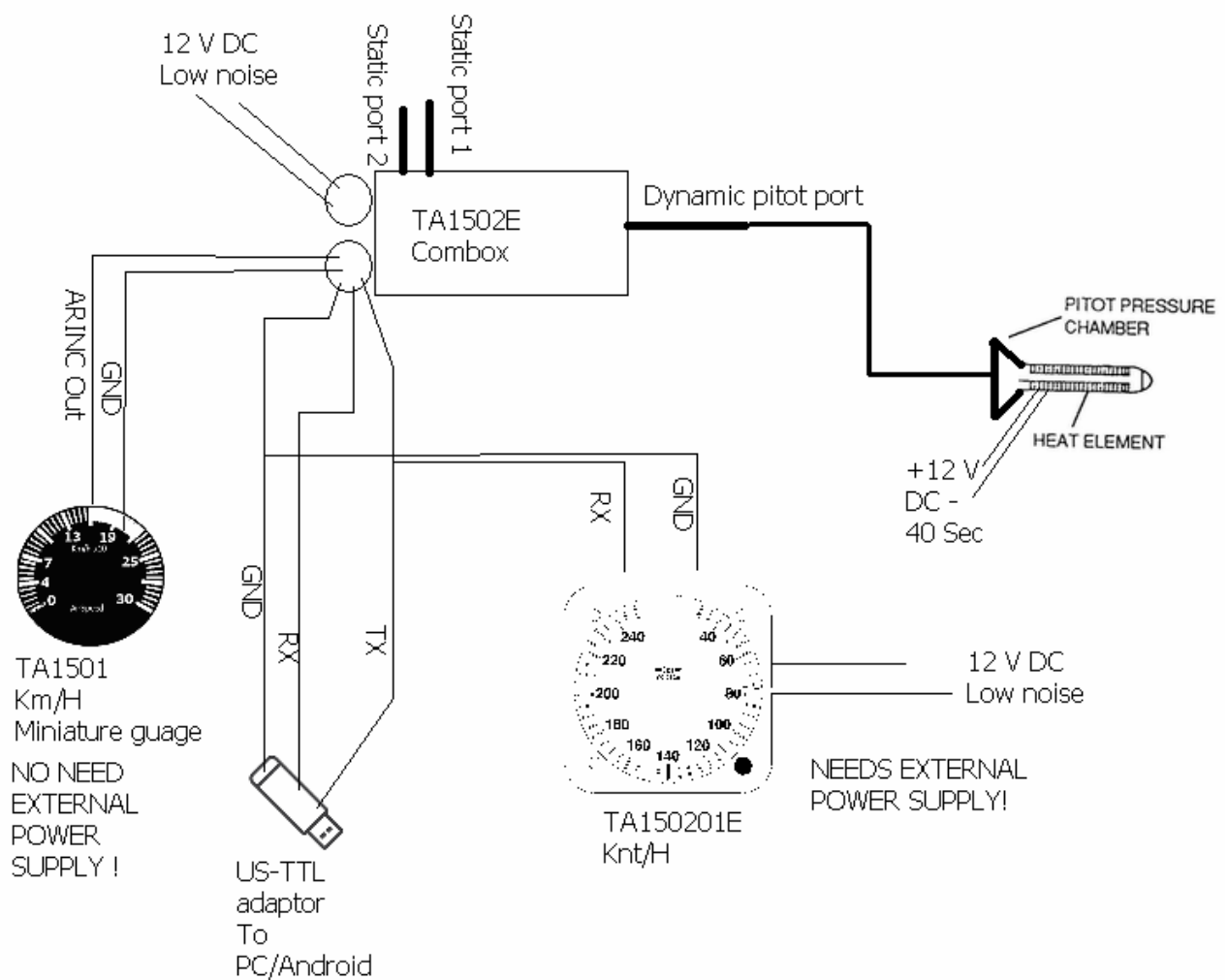
SECTION 4 CONFORMANCE

4.1 CONTINUED AIRWORTHINESS STATEMENT

No periodic scheduled maintenance or calibration is necessary for continued airworthiness of the TA1500 series Airspeed Indicator. If the unit fails to perform to specifications, it must be removed and serviced by a qualified service facility.

4.2 ENVIRONMENTAL QUALIFICATION STATEMENT

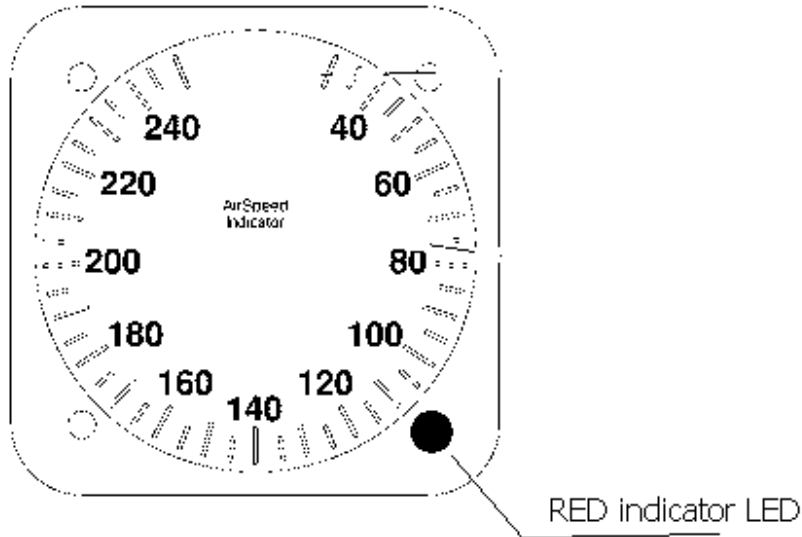
TA1500 airspeed indicator series does content a combox which follows the diagram below :



TA150201E :

As soon as power supply connect, the LED turns ON and the needle of indicator moves to 40 Knt for 1500 ms, then 200 Knt and then 120 Knt and finally parks on 40 Knt.

As soon as serial communication connect, the red LED keeps flashing.

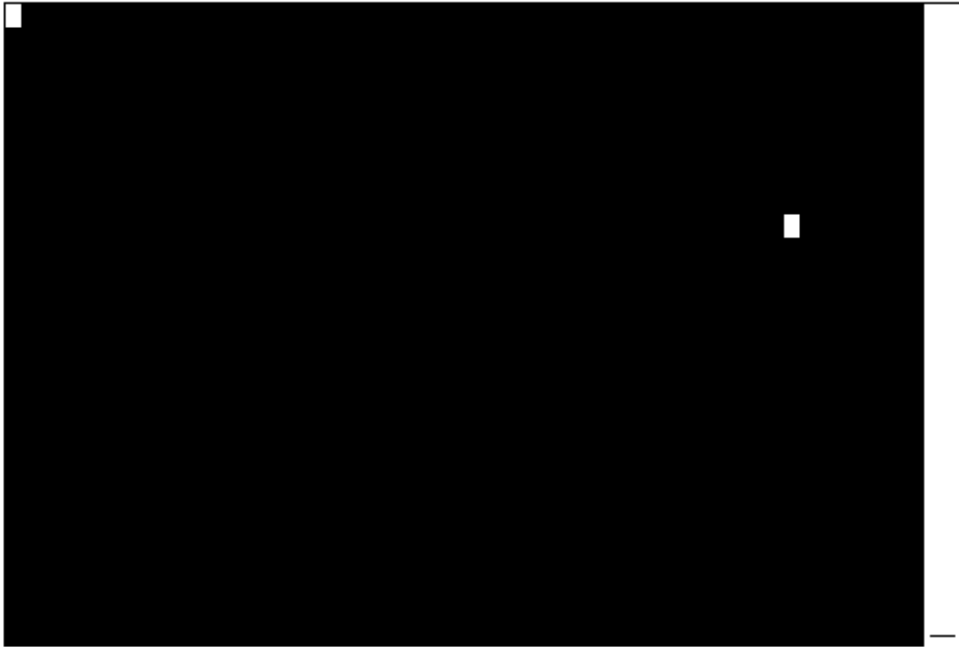


TA1502E Combox:

The TTL output as USART with 3.3V output, please use USB-TTL adapter as available in package.
We recommend you to use Serial Watch Application

Serial Input/Output Monitor

File Edit View Configuration Control lines Macro Manager



Hex

R 1 C 1

R 1 C 2

Combox connection settings :

ComPorts

Parity:

- None Mark
 Odd Space
 Even

Baud rates:

- 110 9600
 300 19200
 600 38400
 1200 57600
 2400 115200
 4800 Other

Data bits:

- 8 6
 7 5

Stop bits:

- 1 2

Please set connection to 8N1

Connection :

As soon as you turn on the combox you will have 3 seconds chance to enter 3 of + like : +++ while you see this message on screen : Enter +++ to input edit mode - after 3 secs it goes working

If you don't enter +++ during 3 seconds it will shows you the output as below :

\$#Raw sensor nnn AirSpeed(km/h): mmm

\$ and # are Arinc signs for protocol

nnn is raw sensor ADC

mmm is AirSpeed calibrated in Km/h

Note: ARINC out is Knt/h

To re-calibrate the combox :

Enter +++ first, you will see the current settings as below (Example) :

"Current settings:"

"LOW: nnn Km/h raw pressure is set to: xxx"

"HIGHT: mmm Km/h raw pressure is set to: yyy"

you will see the low calibration digit assigned to speed by nnn from raw sensor of xxx also the mmm for high calibration digit assigned to yyy of raw sensor.

You have to follow the instructions to re-calibrate again.

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