

INSTALLATION MANUAL
Multi-function Digital Bus Reader
Model IND-5000, P/N 50-5090-(XX)
DUAL DME

Skylight Avionics
38629 6th st. East
Palmdale, CA. 93550
(661) 265-0497

INDEX

Section	Title	Page
i.	Operation Instructions	1
ii.	Equipment Limitations	1
iii.	Installation Procedures	2
iv.	Installation Specifications: Physical	3
v.	Installation Specifications: Electrical	4 & 5
vi.	Specifications	6
vii.	Major Components	7
viii.	Environmental Qualification Form	8 & 9

Illustrations

Illustration	Title	Page
iv-1	Mechanical Drawing of IND-5000	3
v-1	IND-5000 P/N 50-5090-(XX) Pinout	4
vi-1	Interconnect Block Diagram	7

1. General

The IND-5000, P/N 50-5090-(XX) operation is independent of the Aircraft system to which it is interfaced, operating instructions for that system will need to be followed. The indicator should become operational upon application of aircraft avionics power and provides the following information on a two line display.

Display	Condition	Display
	DME 1 Valid	# 1 23.5
	DME 2 Valid	# 2 23.5

2. Controls

The 50-5090-(XX) Indicator has one control on the front panel. The "DIM" control located on the lower right adjusts the LED display brightness. indicator. (NOTE: The panel back lighting is controlled by the aircraft instrument panel dimming).

3. Flags and Warnings

The 50-5090-(XX) Indicator will detect the following failures from the data bus:

Failure	Indication
DME 1 Invalid	# 1 - - - -
DME 2 Invalid	# 2 - - - -
No data Bus	Receiver Idle
Power or unit failure	Display Blank

ii. Equipment Limitations

The IND-5000 indicator is only a display of ARINC digital data received from other on-board flight or navigation system outputs. The update speed, accuracy, and data available for display is directly limited to the output of the system to which it is interfaced. In effect, it is a display component of that flight or navigation system and therefore subject to all inherent limitations of those systems.

The IND-5000 operates at 18 to 36VDC power.

1. Introduction

This section contains information relative to the installation of the IND-5000 indicator to assure satisfactory performance of the unit. (See sections iv. and v. for detailed mechanical and wiring diagrams.)

2. Unpacking and Inspecting Equipment

After unpacking the IND-5000, make a visual inspection of the unit for evidence of damage incurred during shipment. If a claim for damage is to be made, save the shipping container to substantiate the claim.

3. Pre-Installation Check

The IND-5000 should be bench checked for proper system operation prior to being installed in the aircraft.

4. Power Requirements

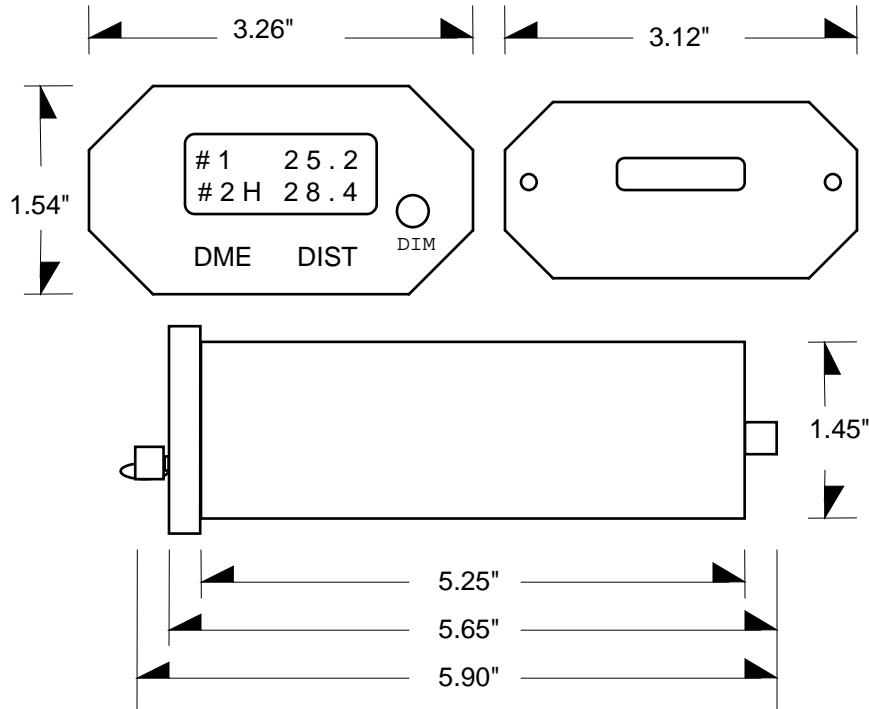
The IND-5000 has been designed to accept from 18 to 36 VDC power with no special modification or wiring considerations. The IND-5000 operates from a standard +28 VDC aircraft power source. Circuit protection should be provided with an in-line 0.5 Amp breaker. Panel dimming for the unit can be either +5 or +28 VDC, depending on aircraft requirements.

5. Post-installation Check

Upon application of the aircraft 28 VDC power verify the IND-5000 alphanumeric LED displays. After the system to which the IND-5000 has been interfaced has been verified and is operating properly, verify that each data format function is operational. Verify numerical data to other system displays where applicable (i.e. FMS, EFIS, etc.).

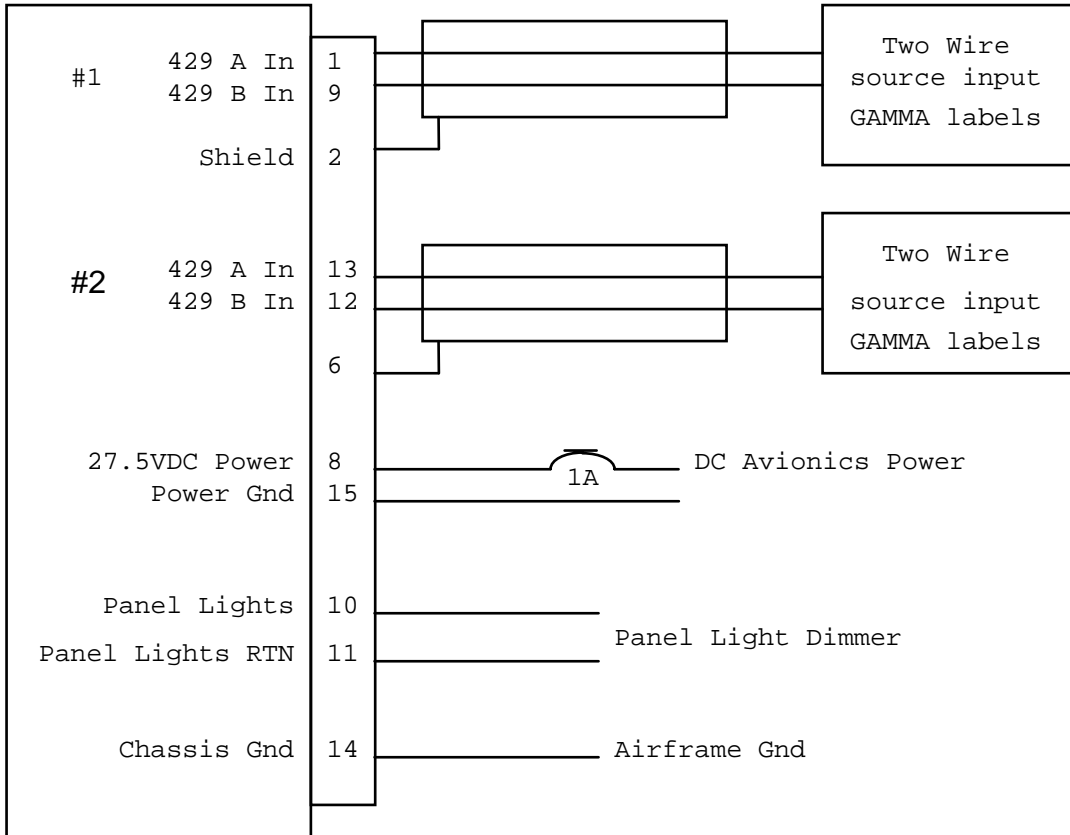
1. Mechanical

The IND-5000 is designed for rigid mounting in a aircraft instrument panel with a standard 1/2 3ATI cutout and mounting clamp.



IND-5000, P/N 50-5090-(XX) Mechanical Drawing
(Illustration iv-1)

1. Pinout Diagram



Connector: DA 15P (AMP P/N 745093-1)
 Mate: DA 15S (Standard 15 pin with male screw retainer)

IND-5000, P/N 50-5090-(XX) Pinout
 (illustration v-1)

2. Data Format

Input Labels must conform to the ARINC /GAMMA - 429 formatted standards. Data labels required for the proper operation of the IND-5000, P/N 50-5090-(XX) are as follows,

DME 1, DISTANCE: Label 202

Bit	3		332		2222222221111111		11		10		00000000	
	2		109		8765432109876543		21		09		87654321	
P		SSM		BNR DATA FIELD				PAD		01		01000001
					RANGE 512.0							

DME 2, DISTANCE: Label 202

Bit	3		332		2222222221111111		11		10		00000000	
	2		109		8765432109876543		21		09		87654321	
P		SSM		BNR DATA FIELD				PAD		01		01000001
					RANGE 512.0							

DME, FREQUENCY: Label 035

Bit	3		33		222	2222	2221	1		1111111		10		00000000
	2		10		987	6543	2109	8		7654321		09		87654321
P		SSM		10	1	0.1	.00			0000				00100001
					MHZ	MHZ	MHZ	.05						

Invalid										0		0		X
Invalid										0		1		X

Specification	Characteristics
Compliance	TSO C-113
Display	2 Lines of 8, Dot Matrix LED Characters
Characters	English Font Alphanumeric
Character Size	0.20" X 0.112"
Contrast	Minimum 5 in 10K fc Direct Sunlight
Luminous Intensity	Minimum 2400 fc / Typical 3400 fc
Viewing Angle	Lateral 130o / Vertical 90o
Viewing Distance	10" to 100" (29" Nominal)
Physical Dimensions:	
Height	1.54"
Length	5.90"
Width	3.26"
Weight	18ozs.
Temperature Range	Operational: -20 to +70C
Altitude	Controlled equivalent to 15000 ft. nonpressurized.
Power Requirements	28VDC at 0.5 Amps Peak, 0.275 Amps nominal.
Digital Input	ARINC 429, : LABELS #1 202, #2 202 and 035
Displayed Parameters	#1 & #2 DME DISTANCE

1. Equipment Supplied

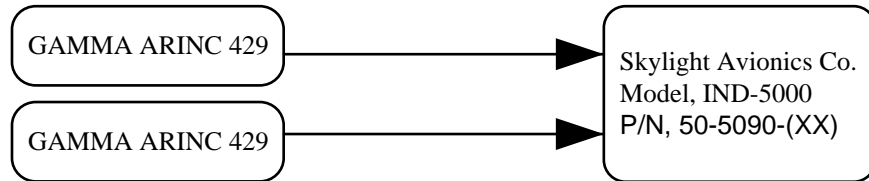
Model IND-5000, P/N 50-5090-(XX)

Dim voltage	Faceplate color	P/N
5V	Black	50-5090-01
5V	Gray	50-5090-11
28V	Black	50-5090-02
28V	Gray	50-5090-12

2. Equipment Required but not supplied

Standard 1/2 3ATI panel mounting clamp
 Connector kit : Standard DA 15S connector with screw retainers

3. Interconnection



Interconnect Block Diagram
 (Illustration vi-1)

(a) Connect to any GAMMA-429 general purpose bus which outputs correct labels. Interconnect varies by manufacturer. (See Section v.)

1. Nomenclature: IND-5000 Multi-function Digital Bus Reader
2. Part Number: 50-5090-(XX)
3. TSO Number: C113
4. Manufacture's Specification: None
5. Manufacturer: Skylight Avionics Company
 38629 6th Street East
 Palmdale, CA. 93550, USA

6. TEST:

Conditions	Section/ Paragraph	Test Conducted
Temperature & Altitude	4.0	Equipment tested to Category: A1
Low Temperature	4.5.1	
High Temperature	4.5.2/3	
Altitude Tests	4.6.1	Category B
Decompression Tests	4.6.2	
Overpressure Tests	4.6.3	
Temperature Variation	5.0	Category A
Humidity	6.0	Equipment tested per DO-160B Paragraph 7.1.1
Shock	7.0	
Operational	7.2	
Crash Safety	7.3	Categories K,P and S
Vibration	8.0	
Explosion	9.0	
Waterproofness	10.0	"X" No tests required
Fluids Susceptibility	11.0	"X" No tests required
Sand & Dust	12.0	"X" No tests required
Fungus	13.0	"X" No tests required
Salt Spray	14.0	"X" No tests required

Conditions	Section/ Paragraph	Test Conducted
Magnetic Effect	15.0	Tested as Class "A"
Power Input	16.0	Category A
Voltage Spike	17.0	Category A
Audio Frequency Conducted Susceptibility	18.0	Category A
Induced Signal Susceptibility	19.0	Category A
Radio Frequency	20.0	Category A
Radio Frequency Emission	21.0	Category A

Remarks:

Tests 4.0, 5.0, 6.0, 7.0 and 8.0 were conducted at:
A-BEC Environmental Testing Laboratories.

Tests 15.0, 16.0, 17.0, 18.0, 19.0, 20.0 and 21.0 were conducted at:
McPete Systems Company, EMC Science Center.

Compliance to FAR part 25 demonstrated by component parts and material analysis.