

Specification  
Multi-Function Digital Bus Reader  
Model IND-5000, P/N 50-5071-(XX)  
Distance / Ground Speed  
Bearing / WAYPOINT ID

Skylight Avionics  
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Skylight Avionics  
Design & Installation Specification  
Model IND-5000, P/N 50-5071-XX

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
vi.	General Specifications	5
vii.	Major Components	6
viii.	Environmental Qualification Form	7 & 8

Illustrations

Illustration	Title	Page
iv-1	Mechanical Drawing of IND-5000	3
v-1	IND-5000, P/N 50-5071-XX Pinout	5
vi-1	Interconnect Block Diagram	7

Skylight Avionics  
 Design & Installation Specification  
 Model IND-5000, P/N 50-5071-XX

i. Operating Instructions

1. General

The IND-5000, P/N 50-5071-(XX) operation is dependent on the Aircraft Navigation 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.

Condition	Display
Data Valid Distance <100	DIST 23.5 235 G/S BRG 45 VNY WPT
Data Valid Distance >100	1567 450 135 LAX

2. Controls

The 50-5071-XX Indicator has one control on the front panel. The "DIM" control located on the lower right and adjusts the LED display brightness. (NOTE: The panel back lighting is controlled by the aircraft instrument panel dimming).

3. Flags and Warnings

The 50-5071-XX Indicator will detect the following failures from the serial data bus:

Failure	Indication
No data Bus	DIST ----- BRG ----- G/S WPT
Bearing Invalid Others Valid	1567 450 ----- LAX
Ground Speed Invalid Others Valid	1567 ----- 135 LAX
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 22 to 29.5 VDC power. It cannot be used for emergency 18 VDC operation.

### iii. Installation Procedures

#### 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 22 to 29.5 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

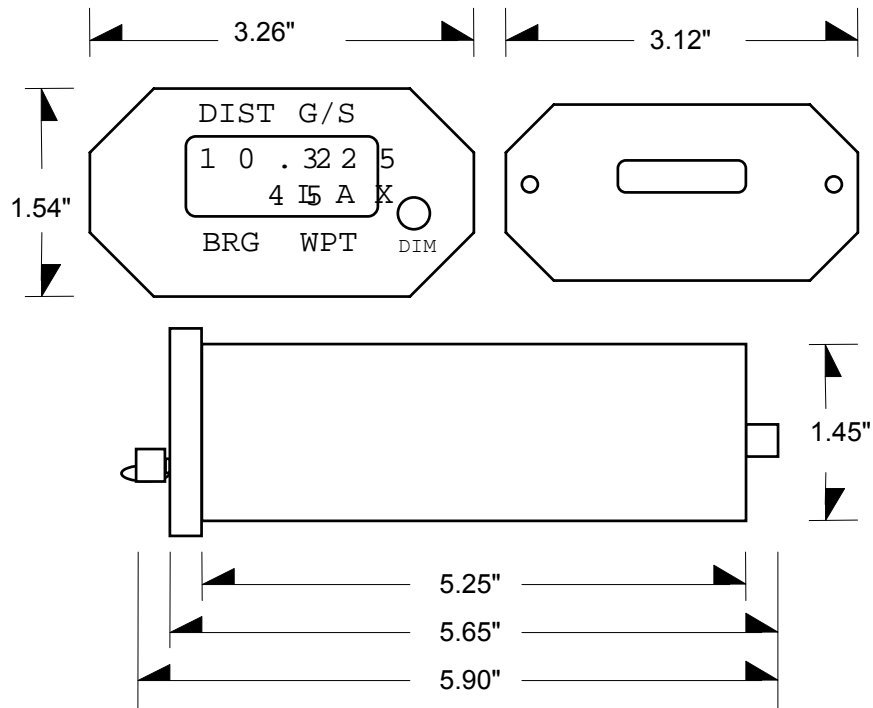
Power: Upon application of the aircraft 28 VDC power verify the IND-5000 alphanumeric LED displays. System Check: After the system to which the IND-5000 has been interfaced has been verified and is operating properly, verify that each data format function is operational. Verify numerical data to other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

Skylight Avionics  
Design & Installation Specification  
Model IND-5000, P/N 50-5071-XX

iv. Installation Specifications: Physical

1. Mechanical

The IND-5000 is designed for rigid mounting in a aircraft instrument panel with a standard 1/2 3AT1 cutout and mounting clamp.

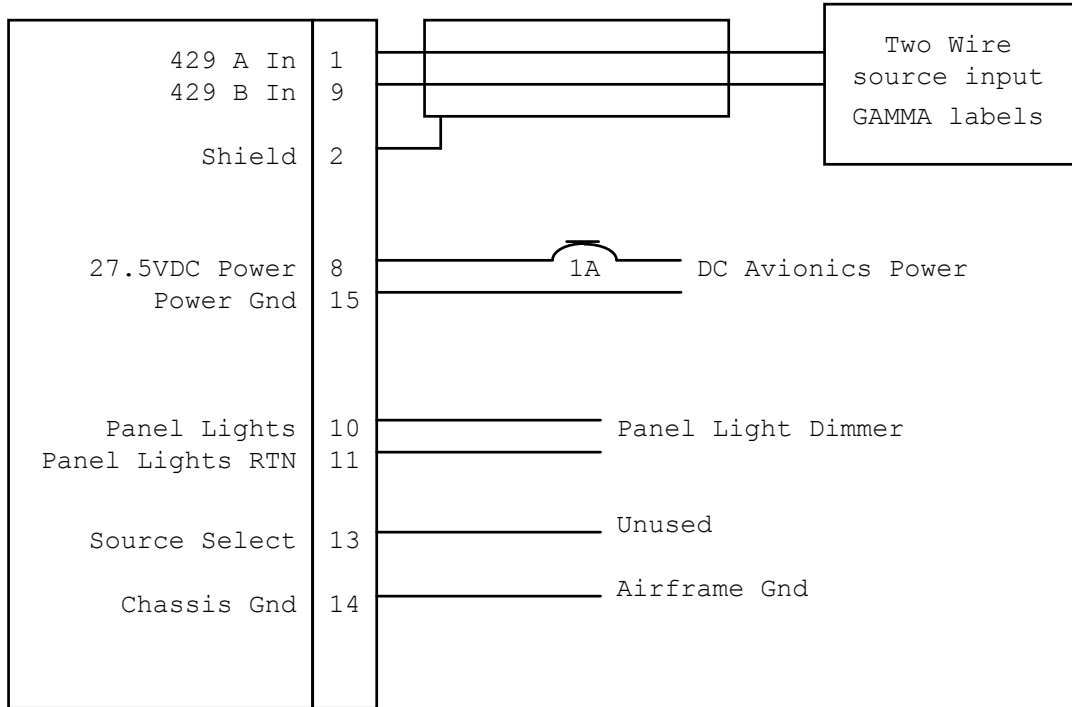


IND-5000, P/N 50-5071-(XX) Mechanical Drawing  
(Illustration iv-1)

Skylight Avionics  
 Design & Installation Specification  
 Model IND-5000, P/N 50-5071-XX

v. Installation Specifications: Electrical

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 50-5071-(XX) Pinout (illustration v-1)

Skylight Avionics  
 Design & Installation Specification  
 Model IND-5000, P/N 50-5071-XX

vi. General Specifications

Specification	Characteristics
Compliance	TSO C113 - SAE AS 8034, RTCA DO160B A1/B/A/KPS/XXXXXX/A/A/A/A/A/A
Display	5 X 7 Dot Matrix LED
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	1.52"
Length	5.90"
Width	3.25"
Weight	18ozs.
Temperature Range	Operational: -20oC to +70oC
Altitude	Controlled environment equivalent to 15000 ft. nonpressurized.
Power Requirements	28VDC at 0.5 Amps Peak, 0.275 Amps nominal.
Digital Input	ARINC/ GAMMA 429 : Label 001 (Distance to WAYPOINT) Label 312 (Ground Speed) Label 115 ( Bearing To WAYPOINT) Label 147 (Magnetic Variation) Label 074 (Flight Plan Header) Label 303 (WAYPOINT Number) Label 304 & 305 (WAYPOINT Ident.)
Range	DISTANCE < 100 NMI, = 0.0 - 99.9 NMI DISTANCE > 100 NMI, = 0 - 1023 NMI GROUND SPEED = 0 -1023 KTS Bearing To WAYPOINT. = 0 - 360 Degrees
Accuracy	DISTANCE < 100 NMI, = 0.125 NMI DISTANCE > 100 NMI, = 1 NMI GROND SPEED = 1 Kt Bearing To WAYPOINT = 1 Degree

Skylight Avionics  
 Design & Installation Specification  
 Model IND-5000, P/N 50-5071-XX

vii. Major Components

1. Equipment Supplied

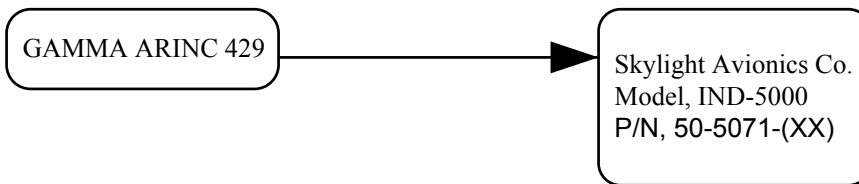
Model IND-5000 P/N 50-5071-(XX)

Back Lighting Voltage	Faceplate Color	P/N
5V	Black	50-5071-01
5V	Gray	50-5071-11
28V	Black	50-5071-02
28V	Gray	50-5071-12

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 vii-1)

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



Skylight Avionics  
 Design & Installation Specification  
 Model IND-5000, P/N 50-5071-XX

viii. Environmental Qualification Form

1. Nomenclature: IND-5000 Multi-Function Digital Bus Reader  
 2. Part Number: 50-5071-(XX)  
 3. TSO Number: C113  
 4. Manufacturer'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	
Decompression Tests	4.6.2	
Overpressure Tests	4.6.3	
Temperature Variation	5.0	Category B
Humidity	6.0	Category A
Shock	7.0	Equipment tested per DO-160B Paragraph 7.1.1
Operational	7.2	
Crash Safety	7.3	
Vibration	8.0	Equipment tested without shock mounts to Categories K,P and S (DO-160B, Table 8-1)
Explosion	9.0	"X" No tests required
Waterproofness	10.0	"X" No tests required
Fluids Susceptibility	11.0	"X" No tests required
Sand & Dust	12.0	"X" No tests required

Skylight Avionics  
Design & Installation Specification  
Model IND-5000, P/N 50-5071-XX

viii. Environmental Qualification Form (continued)

Conditions	Section/ Paragraph	Test Conducted
Fungus	13.0	"X" No tests required
Salt Spray	14.0	"X" No tests required
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.