



# SYNCHRO HEADING INPUT TO A-429 CONVERTER

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**PRODUCT P/N: 933753-00**

**INSTALLATION MANUAL**

**REV C**

**Shadin Avionics  
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**MANUAL P/N: IM3753-00**

**INSTALLATION MANUAL  
SYNCHRO HEADING INPUT TO A-429 CONVERTER**

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**PAGE CONTROL CHART**

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4037-270	Installation, Synchro Heading Input to A-429 Converter	3-8-06	C
IK9339	Install Kit, 26 Pin D-Sub	3-3-06	A

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**REVISION LOG**

<b>REV.</b>	<b>DATE</b>	<b>APP'D</b>	<b>CHANGE</b>
–	07-23-02	ZK	Baseline Release
A	04-06-04	ZK	Updated ARINC Label format definition and electrical connections. Added MTBF
B	12-8-04	ZK	Changed company name, updated description to Arinc low speed, specifications, and Discrete Input Synchro Valid definition
C	3-8-06	CB	Updated company logo and IK9339

The information in this manual is subject to change without notification. To ensure complete and current updates, note the Revision Log above and call Technical Assistance for updated information.

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## 1. OVERVIEW

### 1.1 THE MANUAL

This manual is intended to facilitate the proper installation of the SYNCHRO HEADING INPUT to A-429 Converter. Installation instructions should be read and followed.

### 1.2 PRODUCT DESCRIPTION

The converter accepts the Magnetic Heading (ARINC 407 3-wire Synchro Data Inputs) and converts to A-429 low speed output label 320.

The block diagram below depicts the intended use of the converter in the aircraft installation.

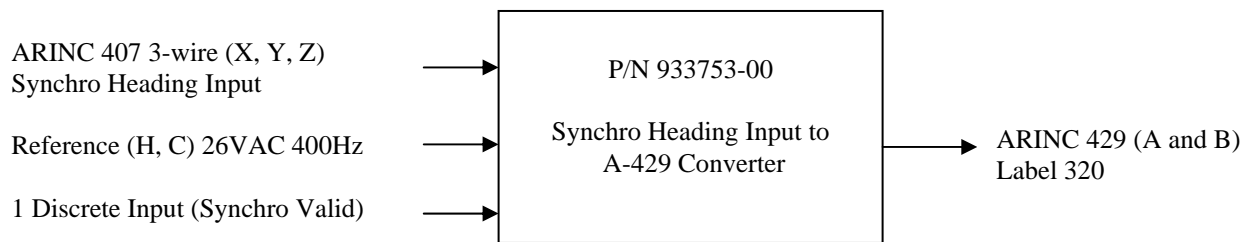


Figure 1. Block Diagram

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**1.3 SPECIFICATIONS****Physical**

Dimensions: 1.15H x 4.30L x 2.40W

Weight: 0.4 lbs.

**Electrical**

Input Voltage: +28VDC

Input Current: 150mA

**Input Data**Magnetic Heading, ARINC 407 3-wire Synchro (Reference 26VAC 400Hz Excitation 11.8V<sub>L-L</sub>)

1 Discrete Input: Synchro Valid

**Output Data**

ARINC 429 LS Data Magnetic Heading, Label 320

**Environmental**

Categories: Testing Pending

Operating Temperature: -55°C to +70°C

Storage Temperature: -55°C to +85°C

Altitude: Up to 55,000 ft.

In-Flight loss of Cooling: Equipment can run indefinitely with no cooling.

MIL-HDBK-217 MTBF 69,780 hours

Certification: Pending

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**1.4 INPUTS**

This section specifies the interfaces for the Shadin SYNCHRO HEADING INPUT to A-429 Converter.

Magnetic Heading, ARINC 407 3-wire Synchro (Reference 26VAC 400Hz Excitation 11.8V<sub>L-L</sub>)

RX RS-232 Serial Data Input (Future use)

RX RS-422 Serial Data Input (Future use)

- 1 Discrete Input: Synchro Valid

SYNCHRO VALID	
+28VDC	VALID > 16VDC
OPEN or GND	INVALID

**1.5 OUTPUTS**

ARINC 429 Output Magnetic Heading Label 320:

LABEL	DESCRIPTION	FORMAT (BIT NO)	FUNCTION	BIT STATUS	
				ONE	ZERO
320	Magnetic Heading BNR Transmit Interval 50msec	01-08	LABEL		
		09	SDI		0
		10	SDI		0
		11-13	SPARES		PAD ZEROS
		14-28	BINARY ANGLE (*180/32768)		
		29	SIGN	180-360	0-180 DEG
		30-31	SM (11=Valid, 10=Invalid)		
32	PARITY (ODD)				

TX RS-232 Serial Data Output (Future use)

TX RS-422 Serial Data Output (Future use)

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**2. INSTALLATION PROCEDURE****2.1 MOUNTING**

The SYNCHRO HEADING INPUT to A-429 Converter (P/N 933753-00) should be mounted in a dry location and the equipment may be installed in a non-pressurized and non-controlled temperature locations.

Use installation drawing, Drawing No: 4037-270, to connect the SYNCHRO HEADING INPUT to A-429 Converter to the system. Use # 6-32 screws for mounting.

**2.2 ELECTRICAL CONNECTIONS**

Connection to Power Supply +28 VDC

933753-00		Description
J1:9	To	+14 to +28 VDC IN
J1:26	To	Power GND

Inputs

933753-00		Description
J1:1	To	H, Reference 26VAC 400Hz
J1:5	To	RX RS-232/RS-422 (-) (Future use)
J1:6	To	RX RS-422(+) (Future use)
J1:7	To	Synchro Valid
J1:10	To	X, Synchro Input
J1:11	To	Y, Synchro Input
J1:14	To	GROUND (Signal)
J1:16	To	RX RS-232 (Download). Program Loading. No field use.
J1:19	To	C, Reference 26VAC 400Hz
J1:20	To	Z, Synchro Input
J1:24	To	GROUND (Signal)

Outputs

933753-00		Description
J1:4	To	TX RS-232 (Future use)
J1:12	To	TX ARINC 429 (A)
J1:15	To	TX RS-232 (Download). Program Loading. No field use.
J1:21	To	TX ARINC 429 (B)
J1:22	To	TX RS-422 (+) (Future use)
J1:23	To	TX RS-422 (-) (Future use)

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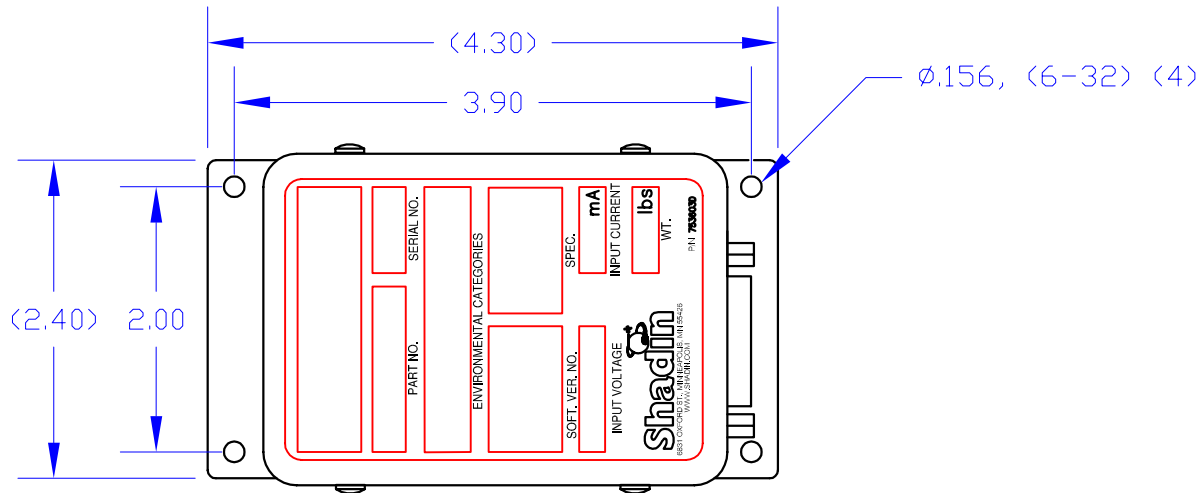
**SECTION 3.0**

**INSTALLATION DRAWINGS AND  
INSTALL KIT PARTS LISTS**

The following drawings are arranged in the sequence specified on page i of the Page Control Chart.

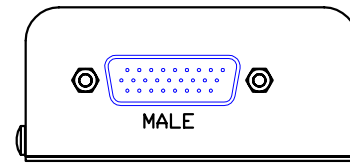
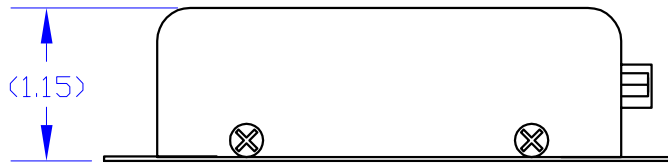


MATING CONNECTOR:  
 PHY 3100-26F  
 HOOD = CINCH # DA-24658



CONNECTOR WIRING

1. H, 26VAC 400 Hz REF
2. NC
3. NC
4. TX, RS-232 (FUTURE USE)
5. RX, RS-232/RS-422 (-) (FUTURE USE)
6. RX, RS-422 (+) (FUTURE USE)
7. SYNCHRO VALID
8. NC
9. +14 TO +28 VDC IN
10. X, SYNCHRO INPUT
11. Y, SYNCHRO INPUT
12. TX, ARINC 429 (A)
13. NC
14. GROUND (SIGNAL)
15. TX, RS-232 (DOWNLOAD) } PROGRAMMING ONLY,
16. RX, RS-232 (DOWNLOAD) } NO FIELD USE
17. NC
18. NC
19. C, 26VAC 400 Hz REF
20. Z, SYNCHRO INPUT
21. TX, ARINC 429 (B)
22. TX, RS-422(+) (FUTURE USE)
23. TX, RS-422(-) (FUTURE USE)
24. GROUND (SIGNAL)
25. NC
26. POWER GROUND



ECO #	REV.	DATE	BY	APP'D	DESCRIPTION
0602/030	C	3/8/06	PAB	CB	UPDATED LABEL & TITLE BLOCK
0412/011	B	12/8/04	PAB	ZK	UPDATED LABEL
0403/058	A	4/6/04	PAB	ZK	UPDATED CONNECTOR WIRING
0207/020	-	7/23/02	PAB	ZK	BASELINE RELEASE

UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES TOLERANCES: X.X = ±0.1 X.XX = ±0.01 X.XXX = ±0.005	DRAWING DATE 7/23/02
	DRAFTER PAB
FINISH: N/A	APPROVED ZK
	FILE NAME 933753-00C.JDWG
MATERIAL: N/A	DIRECTORY 933753-00
	DO NOT SCALE
	SHEET 1 OF 1

MINNEAPOLIS, MN 55426

DRAWING NO. 4037-270

SIZE A

INSTALLATION,  
 SYNCHRO HEADING  
 INPUT TO A-429  
 CONVERTER

P/N 933753-00

REV C

Report: 4037  
ECO Date: February 22, 2006  
Rev: A  
Sec.: IX  
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ECO # 0602/030  
Release date: 3-3-06  
Approved: CB

**PARTS LIST**

Part #: **IK9339**

Drawing #: N/A

Description: **INSTALL KIT, 26 PIN D-SUB**

<u>FN</u>	<u>P/N</u>	<u>QTY.</u>	<u>DESCRIPTION</u>	<u>MFG.</u>	<u>MFG.#</u>	<u>DESIGNATION</u>	<u>COMMENTS</u>
5	230038	1	CONN, Hood 15 Pin D Sub	CIN	DA-24658		
10	230126	1	CONN, 26 Pin Hi-Density D Sub Socket	PHY	3100-26F		
15	511002	2	SCREW, 4-40 x 1/4"L, Phil Pan HD SS	MCM	91772A106		
20	541001	2	WASHER, #4 Split Lock SS	MCM	92147A005		
22	753217	1	COMPUTER LABEL, 3.5"x 15/16"	AVR	4013		
25	PK1001	1	BAG, 2.5 x 3, 4 MIL Zip Lock				
30	PK1007	1	BAG, 6 x 8, 4 MIL				

9 items