

# **EFIS Horizon Display Unit Connector Definitions**

June 7,2004  
Rev D

Grand Rapids Technologies, Inc.

## Revision History

Rev C - Changed naming convention to +Left/+Right and +Up/+Down for loc/gps inputs. No changes were made to the wiring, just signal naming.

Rev D - Added ARINC 429 Expansion Module

## Connector A Description

Mating Connector: 25-pin Female D-sub (Instrument has 25-pin Male D-sub)

Pin	Function
1	Serial Out 6 – RS232 Altitude Encoder Output *
2	Serial Out 1 – Spare – Also connects to expansion port for ARINC 429 or internal GPS* (Available if expansion port not used.)
3	Serial Out 5 – RS232 Autopilot Serial Data Output (Emulates NMEA0183)*
4	Serial Out 2 – RS232 – Primary AHRS Output Data
5	Serial Out 4 – RS232 Out – Spare*
6	Localizer Deviation + Left Input
7	Localizer Deviation + Right Input
8	Glideslope Deviation + Down Input
9	Glideslope Deviation + Up Input
10	Localizer Valid – Input
11	Localizer Valid + Input
12	Glideslope Valid – Input
13	Glideslope Valid + Input
14	Primary Power Input
15	Secondary Power Input
16	Third Power Input
17	Ground
18	+12-40V Clock Power – Connect to aircraft power via a 0.1 amp inline fuse or 10k ohm resistor
19	Serial Input 2 – RS232 Primary AHRS Input*
20	Serial Input 1 – Spare – Also connects to expansion port for ARINC 429 or internal GPS* (Available if expansion port not used.)
21	Serial Input 4 – RS232 EIS Engine Monitor Serial Data Input*
22	Serial Input 5 – RS232 GPS Data In (NMEA0183 or UPS CNX80 Format) *
23	Serial Input 3 – RS232 Inter-Display Unit Input
24	Serial Input 6 – RS232 Input – Spare – Secondary AHRS Input (Future Growth for weather or traffic.)
25	Serial Out 3 –.RS232 Inter-Display Unit Output

\* Although specific assignments are shown for these RS-232 inputs and outputs, these are only recommended usage, as the functional assignment to these channels is user-configurable via menu selections. The main consideration is matching baud rate for the input and output for a given serial channel, as both the input and output for a given serial channel must be the same.

## Connector B Description

Mating Connector: 25-pin Male D-sub (Instrument has 25-pin Female D-sub)

## Display Unit 1 - Connector B Description

Mating Connector: 25-pin Male D-sub (Instrument has 25-pin Female D-sub)

Pin	Function
25	Future Growth – Discrete Output Open/Ground
24	Audio Output – Connect to Intercom Auxiliary Input
23	Reserved for future growth
22	Reserved for future growth
21	Analog Input 1 – Reserved for future growth/ILS Tuned Input
20	Analog Input 2 –NAV/GPS Flag In
19	Analog Input 3 – Reserved for future growth
18	Analog Input 4 – Reserved for future growth
17	Analog Input 5 – Reserved for future growth
16	Analog Input 6 – Reserved for future growth
15	Analog Input 7 – Reserved for future growth
14	Analog Input 8 – Reserved for future growth
13	A1 Alt Encoder Output/Future Growth Discrete Output Option**
12	A2 Alt Encoder Output/Future Growth Discrete Output Option**
11	A4 Alt Encoder Output/Future Growth Discrete Output Option**
10	B1 Alt Encoder Output/Future Growth Discrete Output Option**
9	B2 Alt Encoder Output/Future Growth Discrete Output Option**
8	B4 Alt Encoder Output/Future Growth Discrete Output Option**
7	C1 Alt Encoder Output/Future Growth Discrete Output Option**
6	C2 Alt Encoder Output/Future Growth Discrete Output Option**
5	C4 Alt Encoder Output/Future Growth Discrete Output Option**
4	D4 Alt Encoder Output/Future Growth Discrete Output Option**
3	Future Growth Discrete Output **

2	Future Growth Discrete Output**
1	Warning Light Output - Open/Ground – Ground = Warning Light On

\*\* These outputs are open/ground, max input voltage = 50V, max sink current per input = 0.5 amp for any one input, 2.0 amps total for all of these discrete inputs combined.

### Connector C Description

USB Connector – Instrument is USB Master

### ARINC 429 Expansion Module

This expansion module allow the display unit to read 2 ARINC 429 Inputs, and provide 1 ARINC 429 Output. This module is not required, but allows interfacing to the Garmin GNS 430/530 for VOR data, Garmin GTX330 for traffic, and TruTrak autopilots for GPS steering (GPSS).

### Connector Description

Mating Connector: 9-pin Male D-sub (Expansion Module has 9-pin Female D-sub)

Pin	Function	Notes:
1	EFIS ARINC 429 In 1 - A	
2	EFIS ARINC 429 In 1 - B	
3	EFIS ARINC 429 In 2 - A	
4	EFIS ARINC 429 In 2 - B	
5	EFIS ARINC 429 Out 1 - A	
6	Ground	May be used for shield ground
7	Ground	May be used for shield ground
8	Ground	May be used for shield ground
9	EFIS ARINC 429 Out 1 - B	