

**EFIS Horizon HX
High-Resolution Display Unit
with Synthetic Vision
Connector Definitions**

July 11, 2008
Rev A

Grand Rapids Technologies, Inc.

Revision History

Rev A -Initial Release

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)

Pin	Function
25	Audio Ground
24	Audio Output – Connect to Intercom Auxiliary Input
23	Serial 7 Input
22	Serial 7 Output
21	Analog Input 1 – ILS Tuned Input
20	Analog Input 2 –NAV/GPS Flag In
19	Analog Input 3 – VOR/ILS Deviations Active
18	Analog Input 4 – GPS Hold/Sequence In
17	Analog Input 5
16	Analog Input 6
15	Analog Input 7
14	Analog Input 8
13	Discrete Output 6**
12	Discrete Output 5**
11	Discrete Output 4**
10	Discrete Output 3**
9	Discrete Output 2**
8	Discrete Output 1**
7	Serial 8 Input
6	Serial 8 Output
5	RS-422 Serial 1 Output - B
4	RS-422 Serial 1 Output - A
3	RS-422 Serial 1 Input - B
2	RS-422 Serial 1 Input - A
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.

USB Connector Description (Small rectangular opening)

Two USB Connectors are provided on the rear of the display unit. Both are USB Masters. Either may be connected to weather module or USB memory stick for data upload/download, and software and database updates. The two ports can supply a total of up to 0.5 Amps. This is enough to power the XM weather receiver and a USB memory stick at the same time.

Ethernet Connector (Small square opening)

ARINC 429 Connector

Two ARINC 429 Inputs, and one ARINC 429 Output is provided on the ARINC 429 connector. This allows interfacing to the Garmin GNS 430/530 for VOR/ILS and other data, Garmin GTX330 for traffic, and TruTrak autopilots for GPS steering (GPSS), and other systems.

ARINC 429 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	ARINC shield ground or extra power ground for display unit.
7	Ground	ARINC shield ground or extra power ground for display unit.
8	Ground	ARINC shield ground or extra power ground for display unit.
9	EFIS ARINC 429 Out 1 - B	