

**U1713 DIGITAL INTERFACE ADAPTER
-1-02 GARMIN G1000 GMA ADAPTER
INSTALLATION MANUAL**


U1713-1-02-D01 Revision: B

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Canaan Avionics, LLC | 115 4th Ave N Suite B | Edmonds, WA 98020
www.canaanavionics.com

	Name	Released
Prepared By:	Matthew Richardson	
Approved By:	Matthew Richardson	

Log of Revisions:

Revision	Date	Originator	Change Description
A	1.17.2018	M. Richardson	Initial Release
B	3.25.2018	M. Richardson	Added port descriptions for dual marker beacon inputs. Updated operational tests to reflect new part numbering and manifest scheme. Implements changes under software version v1.1.0.

Description:

The Digital Interface Unit (U1713) is multi-purpose adapter that can be programmed to perform protocol management of several signal types. The U1713 is powered by an isolated power supply and a dual core, Power PC processor running at 120MHz. All inputs and outputs are protected for EMI/RFI, and transient voltages. The base U1713 part hosts application-specific software, and sometimes daughter boards with additional ports, which changes the part dash-number (see Application).

-1-02 Application:

The **U1713-1-02** application interfaces Garmin G1000 Flight Displays to 3rd party analog audio systems. When the Garmin GMA-1347D audio panels are removed, there are nuisance messages on the G1000 displays that the U1713 unit extinguishes. Also, the GMA audio panels had integral marker beacon transceivers and a 3rd party marker beacon receiver assumed that function. The U1713-1 unit adapts ground-open marker beacon signals from the 3rd party receiver, such as a PS Engineering MB10, to RS-232 so that marker beacon annunciations can appear on the G1000 Flight Displays. The U1713 also reports part numbers and software versions required to satisfy the System Status displays for peripheral avionics connected to G1000.

Specifications:

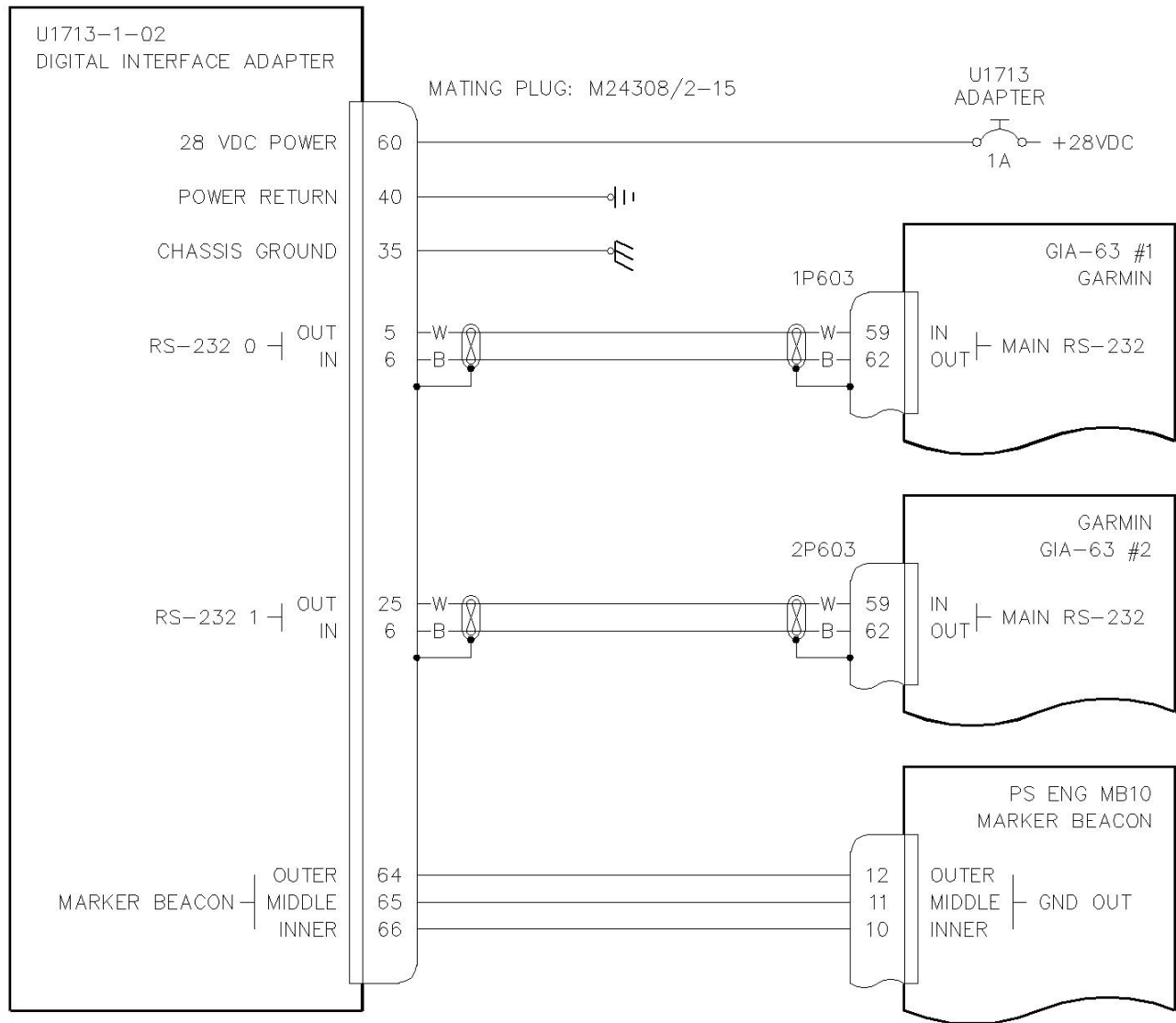
DO-160 Qualification	Not Performed
DO-178 Qualification	Level E (No Effect)
Operating Temperature Range	-55°C to 80°C
Weight	0.9 lbs
Dimensions	5.67" x 3.94" x 1.10"
Power Requirements	10-36VDC (28VDC nominal)
Power Consumption	0.2 Amps at 28VDC
Mating Connector	M24308/2-15

-1-02 Port Configuration:

The following table identifies all ports on the U1713 and their configuration:

Hardware Port	Configuration	Hardware Port	Configuration	
1	-5VDC Signal Reference Out	40	Power Return	
2	+3.3VDC Signal Reference Out	41	Analog In 0 High	
3	28 Volt Discrete Out 1	42	Analog In 1 High	
4	28 Volt Discrete Out 0	43	Analog In 2 High	
5	RS-232 Data 0 Out	44	A429 RX 3 B	
6	RS-232 Data 0 In	45	A429 RX 3 A	
7	Ground Discrete Out 0	46	A429 RX 2 B	
8	Ground Discrete Out 1	47	A429 RX 2 A	
9	Ground Discrete Out 2	48	A429 RX 1 B	
10	Ground Discrete Out 3	49	A429 RX 1 A	
11	Ground Discrete Out 4	50	A429 RX 0 B	
12	Ground Discrete Out 5	51	A429 RX 0 A	
13	Ground Discrete Out 6	52	Honeywell ASCB/RSB 0 L	
14	Ground Discrete Out 7	53	Honeywell ASCB/RSB 0 H	
15	Ground Discrete Out 8	54	Honeywell ASCB/RSB 1 L	
16	Ground Discrete Out 9	55	Honeywell ASCB/RSB 1 H	
17	Ground Discrete Out 10	56	A429 TX 0 A	
18	Ground Discrete Out 11	57	A429 TX 0 B	
19	Ground Discrete Out 12	58	A429 TX 1 A	
20	Ground Discrete Out 13	59	A429 TX 1 B	
21	+5VDC Signal Reference Out	60	28VDC Power	
22	Analog In 0 Low	61	Ground Discrete In 0	Manifest Options Strap
23	Analog In 1 Low	62	Ground Discrete In 1	
24	Analog In 2 Low	63	Ground Discrete In 2	
25	RS-232 Data 1 Out	64	Ground Discrete In 3	Outer Marker Beacon 1
26	RS-232 Data 1 In	65	Ground Discrete In 4	Middle Marker Beacon 1
27	RS-422 [CSDB] TX 0 Low	66	Ground Discrete In 5	Inner Marker Beacon 1
28	RS-422 [CSDB] TX 0 High	67	Ground Discrete In 6	Outer Marker Beacon 2
29	RS-422 [CSDB] RX 0 Low	68	Ground Discrete In 7	Middle Marker Beacon 2
30	RS-422 [CSDB] RX 0 High	69	Ground Discrete In 8	Inner Marker Beacon 2
31	RS-422 [CSDB] TX 1 Low	70	Ground Discrete In 9	
32	RS-422 [CSDB] TX 1 High	71	Ground Discrete In 10	
33	RS-422 [CSDB] RX 1 Low	72	Ground Discrete In 11	
34	RS-422 [CSDB] RX 1 High	73	Ground Discrete In 12	
35	Chassis Ground	74	Ground Discrete In 13	
36	Analog Out 0	75	28 Volt Discrete In 0	
37	Analog Out 1	76	28 Volt Discrete In 1	
38	Analog Out 2	77	Chassis Ground	
39	Analog Out 3	78	Chassis Ground	

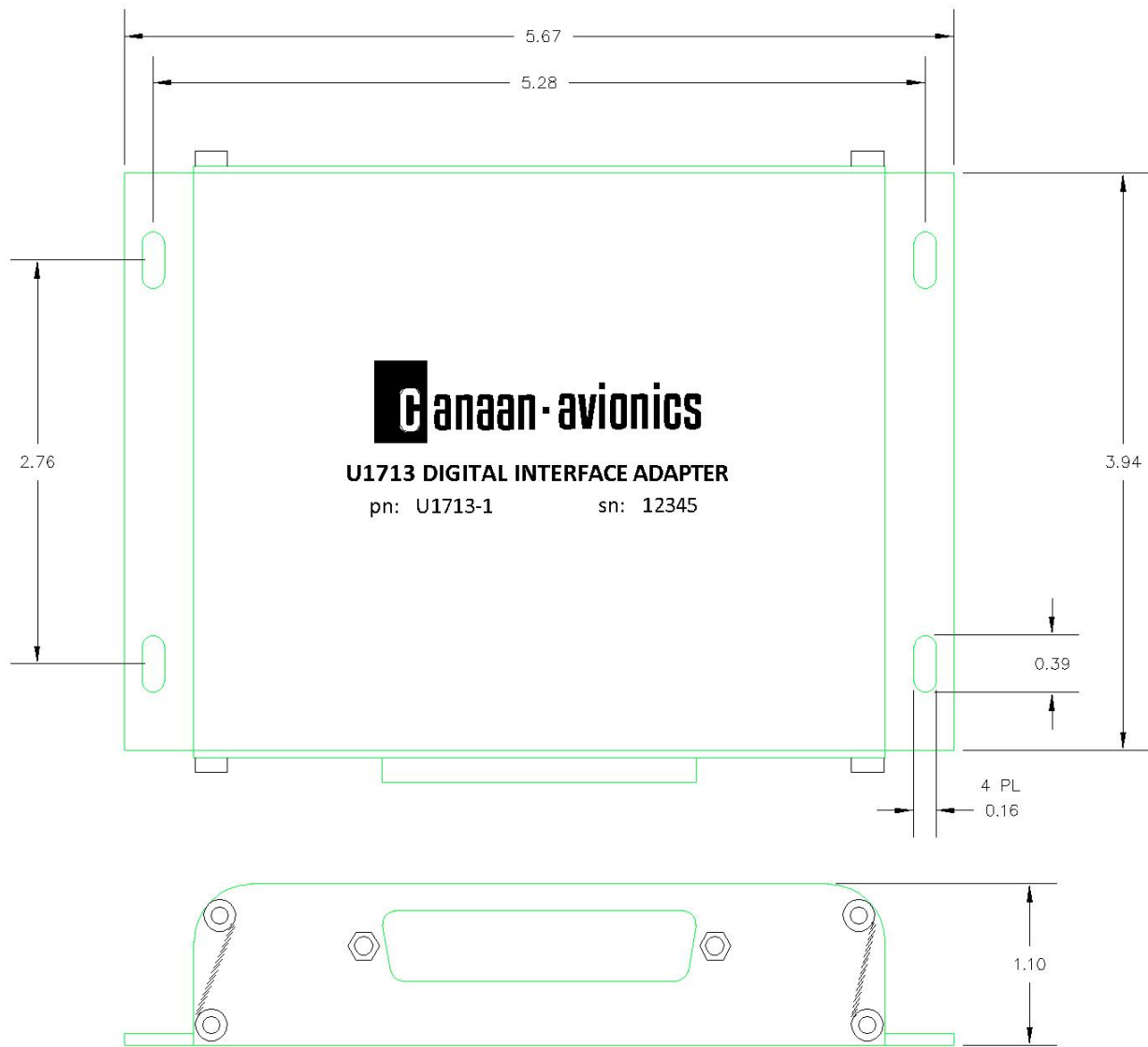
-1-02 Interconnect:



Note:

- 1) Circuit Protect the U1713 Adapter with a 1 Amp Circuit Breaker
- 2) Isolate the Power and Chassis Grounds
- 3) Pin-out for Garmin and PS Engineering Units are for recommendation only, and should be verified by installer.
- 4) Pins 67, 68 and 69 may be used for a second Marker Beacon input

Mechanical:



Note:

- 1) Drawing not to scale.

-1-02 Operational Checkout:

Tester Name:			
Date:		Serial Number Under Test:	

1) Verify that the electrical wiring is continuity-checked per the installation drawings.

PASS: FAIL:

2) Power on all of the avionics, including the G1000 flights displays and the PS-Engineering marker beacon transceiver. Verify that the U1713 powers and that the GREEN LED flashes, indicating that the built-in self-tests are passed and that the unit is processing.

PASS: FAIL:

3) Verify that the U1713 RED LED is not illuminated, which would indicate a failure condition.

PASS: FAIL:

4) Press the ADVISORY line select key on the G1000 flight displays and verify that no GMA induced fault message exists indicating that the U1713 is communicating to the flight displays.

PASS: FAIL:

5) Using a ramp test set, exercise each of the marker beacon signals and verify the following on both pilot and copilot displays:

a. A white “I” marker beacon indicator flashes when the Inner Marker is active.

PASS: FAIL:

b. An amber “M” marker beacon indicator flashes when the Middle Marker is active.

PASS: FAIL:

c. A blue “O” marker beacon indicator flashes when the Outer Marker is active.

PASS: FAIL:

6) Power down the flight displays by pulling the circuit breakers and reset them while holding the ENTER keys on the displays. This will enter the diagnostics menus. Use the control knob to select the GMA1 and GMA2 menus. Verify that the part numbers and the software versions of the U1713 are displayed in the description fields of the GMA diagnostics. (Note that the GMA manifest reports GMA part numbers and software versions to prevent a manifest mis-match, but the U1713 parts are reported in the description fields.)

Part Number	Version	Status

PASS: FAIL:

Limited Warranty:

The U1713 is covered by a one-year limited warranty. Contact Canaan Avionics, LLC for service and warranty information.