Stauff Systec GmbH,
Helmholtzstr. 37,
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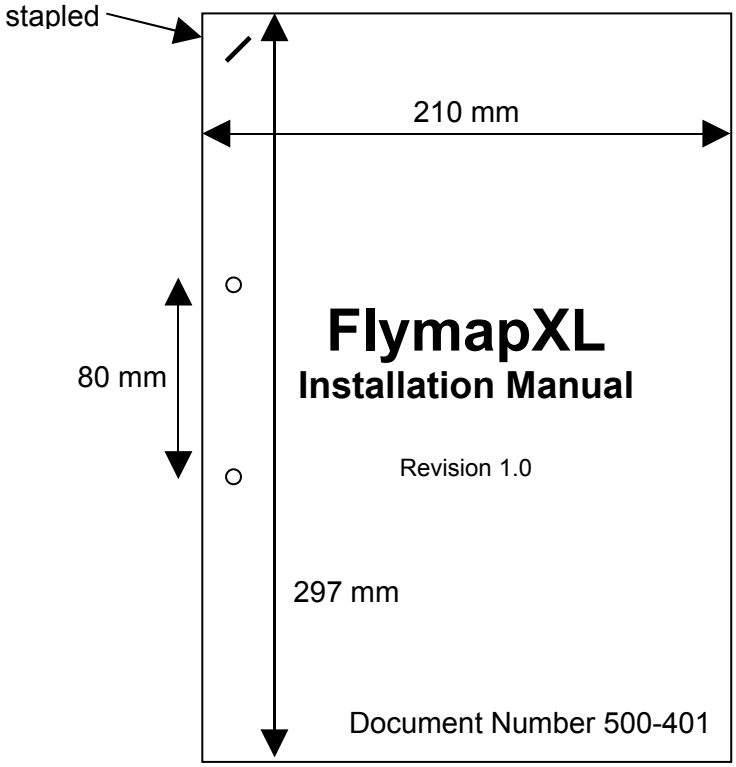
FlymapXL Installation Manual

CONTROL SHEET

FINISHED DIMENSIONS:



NOTES:
1. DESCRIPTION: Product Documentation - Installation Manual
2. SIZE: Width = 210 mm, Height = 297 mm (DIN A4)
3. PAGINATION: 16 sheets total. Page numbers 3 to 16.
4. MATERIAL: universal paper 90 g/m^2, white
5. COLOR: no, black on white paper, laser printing
6. BINDERY: Two-hole punch left side and stapled in upper left corner.
7. FOLDS: none.
8. DOCUMENT FILE: FlymapXL Installation Manual.pdf

Version	Created / Modified:		Checked:		Released:		Notes
	Datum	Name	Datum	Name	Datum	Name	
1.0	10/01/12						Initial version

FlymapXL

Multifunctional
Display System

Installation Manual

Stauff Systec GmbH
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Revision 1.0, Januar 10, 2012

Document Number 500-401

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Revision	Date	Description
1.0	10/01/12	Initial Release

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FlymapXL HARDWARE MOD LEVEL HISTORY

The following table identifies hardware modification (Mod) Levels for the FlymapXL Multifunctional Display System. Mod Levels are listed with the associated service bulletin number, service bulletin date, and the purpose of the modification. The table is current at the time of publication of this manual (see date on front cover) and is subject to change without notice. Authorized Flymap Sales and Service Centers are encouraged to access the most up-to-date bulletin and advisory information on the Flymap Dealer Resource web site at www.Flymap.net using their provided user name and password.

MOD LEVEL	SERVICE BULLETIN NUMBER	SERVICE BULLETIN DATE	PURPOSE OF MODIFICATION

1. GENERAL DESCRIPTION

1.1 Introduction

This manual describes the physical, mechanical, and electrical characteristics and the installation requirements for the FlymapXL Multifunctional Display System. After installation of the FlymapXL the necessary paperwork must be completed by an appropriately certificated agency befor returning the aircraft to service.

1.2 Equipment Description

The FlymapXL Multifunctional Display System consists of a single box containing a big and bright screen. It presents Jeppesen® aeronautical and standard ICAO cartographic mapping and GPS navigation information. The FlymapXL shows everything necessary to plan and operate a VFR flight successfully.

The software of the Flymap Multifunctional Display System is produced with the greatest of care, however, the possibility of a software error occurring cannot be excluded. Therefore you must examine the plausibility of information displayed.

Note:	The FlymapXL Multifunctional Display System is approved for VFR only and should not be relied upon as the sole means of navigation.

The FlymapXL Multifunctional Display System offers the following features:

- Airspace Warning
- Display of the Terrain
- Moving Map with ICAO and/or Jeppesen VFR GPS Charts
- VFR Approach Charts available
- Positioning the Map: “North Up” or “Course Up”
- GoTo Navigation
- Function: Nearest Airport
- Route Planning with Route Points directly in the System
- NOTAMS and METAR/TAF information available
- Overlay of weather radar information
- Automatic Flightlog
- Printable company flightlog and ICAO flight plan forms

The FlymapXL needs an external source for GPS information. Either an external GPS antenna must be connected or GPS data in NMEA-0183 format must be provided to one of the serial communications interfaces in order to position the map data according to the current location.

1.2.1 Housing Construction

The housing is constructed from machined aluminium. This construction improves EMC and the resistance to the ingress of moisture.

Warning:	Do not open the housing. There are no user serviceable parts or batteries inside and the warranty becomes void if the housing is opened.

1.2.2 Optical Window

The FlymapXL window consists of the Touch-Sensor used for system control. It is constructed of a sheet of optical material covered with a anti-reflective clear polycarbonate foil. The inner face of the optical material has a low resistance coating for RFI suppression. The assembly of the window in the front of the housing is achieved with High-grade fungal and insect resistant silicone sealant.

1.2.3 LCD Display panel and Backlight Construction

The internal LCD and backlight assembly is constructed from machined aluminium. The light is provided using high intensity LED´s mounted and supported around the LCD display. A diffusing panel to give an even light output is fitted to the front of the backlight.

1.2.4 Component retention

All major components and assemblies are secured to the chassis using metal screws. Components that may become loosened by vibration, such as plug in components and links are secured.

1.3 Interface Summary

The FlymapXL provides the following interface connections via the rear connector:

- Aircraft power input (11 to 33 volts).
- Four general purpose serial communication interfaces (RS232)
- GPS antenna input

The FlymapXL provides the following interface connections via the front connector:

- Universal Serial Bus V1.1 (USB).

1.4 Technical Specifications

The following table presents general mechanical and electrical specifications. For details of environmental specifications, see the Environmental Qualification form in Appendix A.

1.4.1 Mechanical Specifications

PHYSICAL DIMENSIONS:	
Height (unit only):	183 mm
Width	243 mm
Depth	52 mm
Depth (including connector):	95 mm
DISPLAY:	
Size	300 mm diagonal
Visible area	210 x 160 mm

WEIGHT:

1835 g

TEMPERATURE RANGE:

Operation	-20° C to +60° C
Storage	-55° C to +85° C

ALTITUDE:

7´315 m (24´000 ft)

1.4.2 Electrical Specifications

DC POWER REQUIRMENTS:

Supply Voltage	12 to 30 V ± 10%
Power consumption	50 W (max display brightness), 20 W (low display brightness)

CONTROLS:

Display	Switches and buttons for brightness adjustment up to > 1kcd/m^2
Functions	Touch screen

INTERFACES:

Rear	Power Input and 4 x RS232 connector
	GPS antenna input connector
Front	USB 1.1

DESIGN:

All solid state in SMD technology. Printed circuit board, flat ribbon cable, printed circuit board connectors

1.5 Equipment Available

Item	Part number	Note
Installation Kit	500-101	Contains P/N 500-102, 500-103 and 500-104
Installation Rack	500-102	
Short Connector	500-103	Binder Serie 682, P/N 09-0164-72-19
Long Connector	500-104	Binder Serie 581, P/N 99-2042-20-19
Mounting Bracket	500-105	

Note:	A GPS antenna or another GPS data source as NMEA-0183 talker approved to ETSO C129a that has been installed to meet the requirements of this manual may be approved for use with the FlymapXL.

1.6 Additional Equipment Required

- GPS Antenna or NMEA-0183 GPS equipment - Use manufacturer's instructions and install it according to standard practice.
- Cables - The installer will supply all system cables including circuit breakers. Cable requirements and fabrication is detailed in Section 2 of this manual.
- Hardware - Hardware required to mount the installation rack is not provided.

1.7 Installation Approval

The conditions and tests required for ETSO approval of this article are minimum performance standards. It is the responsibility of those installing this article either on or within a specific type or class of aircraft to determine that the aircraft installation conditions are within the ETSO standards. ETSO articles must have separate approval for installation in an aircraft. The article may be installed only if performed under the applicable airworthiness requirements. For FlymapXL ETSO compliance, see Appendix A. For GPS antenna or NMEA-1083 talker ETSO compliance, refer to manufacturer's literature.

2. INSTALLATION OVERVIEW

2.1 Introduction

This section provides the necessary information for installing the FlymapXL Multifunctional Display System. Installation of the FlymapXL Multifunctional Display System will differ according to equipment location and other factors. In addition to the available Cable Assembly Kit other cabling will be fabricated by the installing agency to fit these various requirements. Appendic B and C contain interconnect wiring diagrams, mounting dimensions, and information pertaining to installation.

2.2 Unpacking and Inspecting Equipment

Carefully unpack the equipment and make a visual inspection of the unit for evidence of damage incurred during shipment. If the unit is damaged, notify the carrier and file a claim. To justify a claim, save the original shipping container and all packing materials. Do not return the unit to Stauff Systec GmbH until the carrier has authorized the claim.

Retain the original shipping containers for storage. If the original containers are not available, a separate cardboard container should be prepared that is large enough to accommodate sufficient packing material to prevent movement.

2.3 Cabling and Wiring

Use MIL-W-22759/34 normal weight wire or equivalent for all connections unless otherwise specified by the aircraft manufacturer or by Stauff Systec GmbH. AWG #24 may be used for all signal connections. A larger gauge wire such as AWG #18 or #20 may be needed for power connections.

Use shielded cables for RS232 connections where shield is only connected on either side in order to avoid unexpected EMI effects.

Ensure that routing of the wiring does not come in contact with sources of heat, RF or EMI interference.

Check that there is ample space for the cabling and mating connectors. Avoid sharp bends in cabling and routing near aircraft control cables.

2.4 Cooling Air

The FlymapXL Multifunctional Display System meets all applicable ETSO requirements without forced air cooling. The application of cool air to the rear of the device is highly recommended to provide beneficial cooling to the unit.

3. INSTALLATION PROCEDURE

3.1 Rack Considerations

Plan a location in the radio rack which gives the pilot complete and comfortable access to the touch screen and which is plainly visible from the pilot's perspective. Do not align the front of the device with the instrument panel. Moreover let the FlymapXL stand out of the instrument panel for about 1 cm in order to support the fingers of the hand touching the screen with the thumb while flying in turbulent air.

3.2 Pannel Cutout

If the FlymapXL should be installed in a flat instrument panel, the cutout must be 243 x 183 mm. Use the two assembly angle to mount the installation rack behind the panel.

3.3 Electrical Connections

All electrical connections, except for the GPS antenna, are made through a single, 19 pin connector (see Figure 4-1). The connector of the cable harness must by of type BINDER. Either the straight versions female cable connector with shielding ring (P/N 99-5652-15-14) or female cable connector with cable clamp (P/N 99-5652-00-14) may be used. The available cable assembly is equipped with the female angled connector of type BINDER (P/N 99-5652-75-14) which cannot be used with the installation rack.

Table 4-1 lists the electrical connections of all input and output signals. See Appendix C for interconnect wiring diagrams and cable requirements for each signal.

Caution:	Check wiring connections for errors before connecting the FlymapXL. Incorrect wiring could cause internal component damage.

3.4 Placard

A placard with one of the following text must be placed near the the FlymapXL Multifunctional Display System in full view of the pilot:

3.5 Post Installation Checkout

After the installation is complete, refer to Section 5 for system checkout.

4. SYSTEM INTERCONNECTS

4.1 Connectors

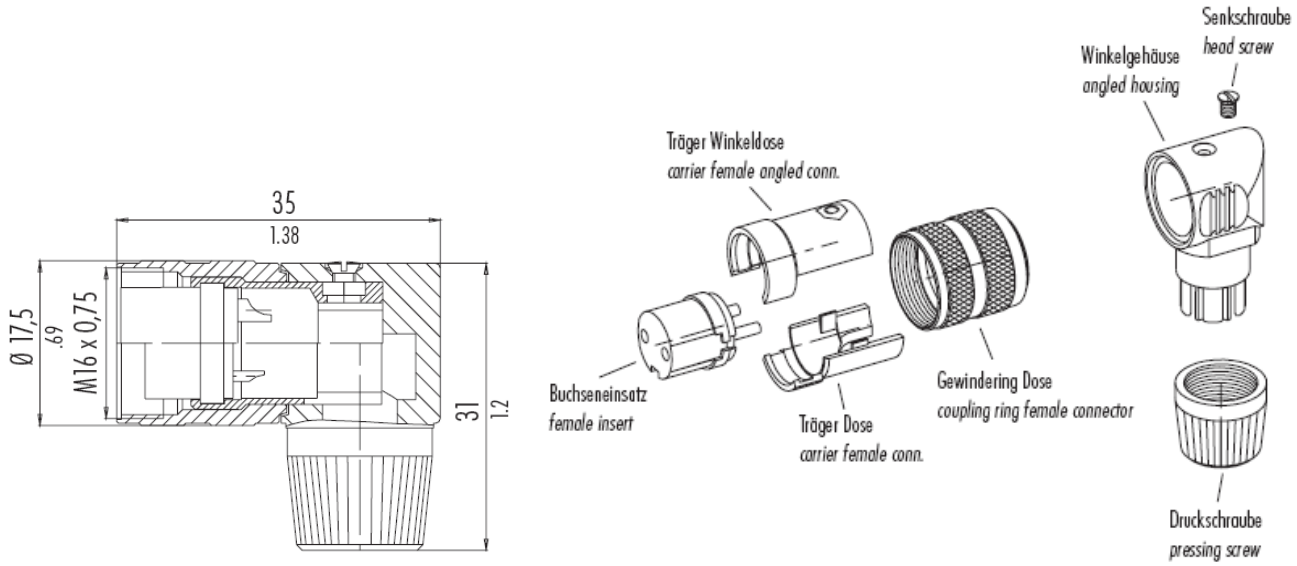


Figure 4-2, Cable Connector Short Version

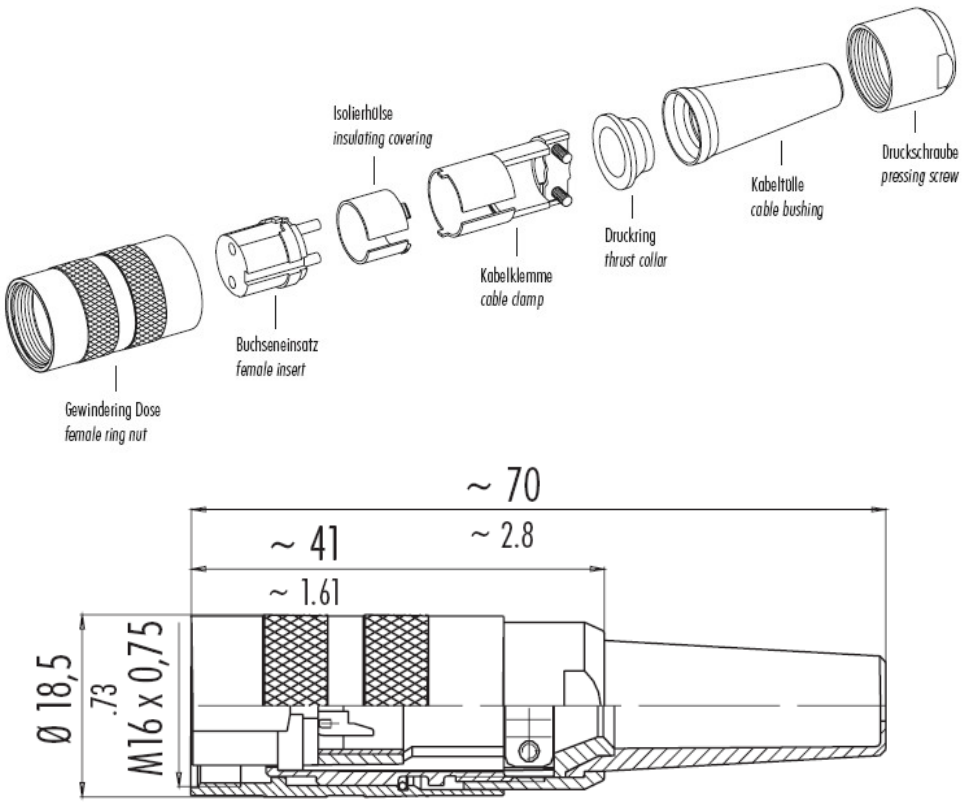


Figure 4-2, Cable Connector Long Version with cable clamp

4.2 Pin Function List

Pin	Description	Function	I/O
A	11 - 33 VDC	PWR	In
B	RS232 #6	DTR	Out
C	RS232 #6	RTS	Out
D	RS232 #6	DSR	In
E	Ground RS232	GND	-
F	NC *	-	-
G	RS232 #5	RX	In
H	RS232 #3	RX	In
I	RS232 #4	TX	Out
K	RS232 #3	TX	Out
L	AC Ground	GND	-
M	11 - 33 VDC	PWR	In
N	RS232 #6	CTS	In
O	RS232 #6	RX	In
P	RS232 #5	TX	Out
R	NC *		-
S	RS232 #6	TX	Out
T	RS232 #4	RX	In
U	AC Ground	GND	-

Table 4-1, Electrical Signals

Note: Contact arrangements with view on the solder termination side of female insert.

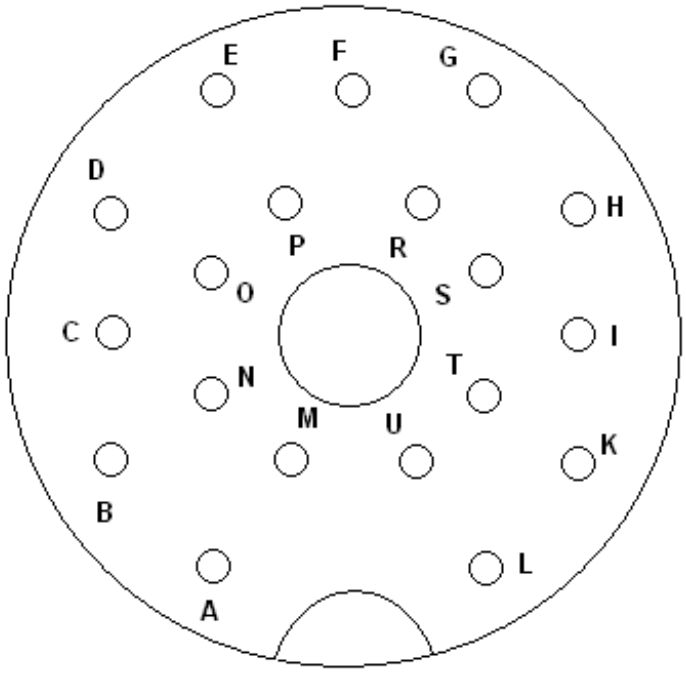


Figure 4-1, Rear Connector

* For future use only, do not connect any wire to this terminal.

4.3 Power Function

Power Input requirements are 11-33 VDC and must be protected using a 5A circuit breaker.

4.4 Serial Data Electrical Characteristics

The serial communication interfaces conforms to the EIA Standard RS-232C with an output voltage swing of at least ±5 VDC. when driving a standard RS-232 load.

5. POST INSTALLATION CONFIGURATION AND CHECKOUT PROCEDURE

When the power is connected to the FlymapXL it will automatically switch on. After a short startup period the map will appear. If in the centre of the screen a red cross appears together with the word GPS, no GPS signal is detected. Check GPS antenna connection and make sure that the GPS antenna has full view to the open sky without any obstacles.

If an aircraft symbol is displayed on the screen at the current location and the map is automatically align either with the aircraft in the centre (for North Up display) or with the aircraft near to the bottom of the screen (for Course Up display), the system is working properly (refer to the Operating Manual for additional functions of the FlymapXL Display System).

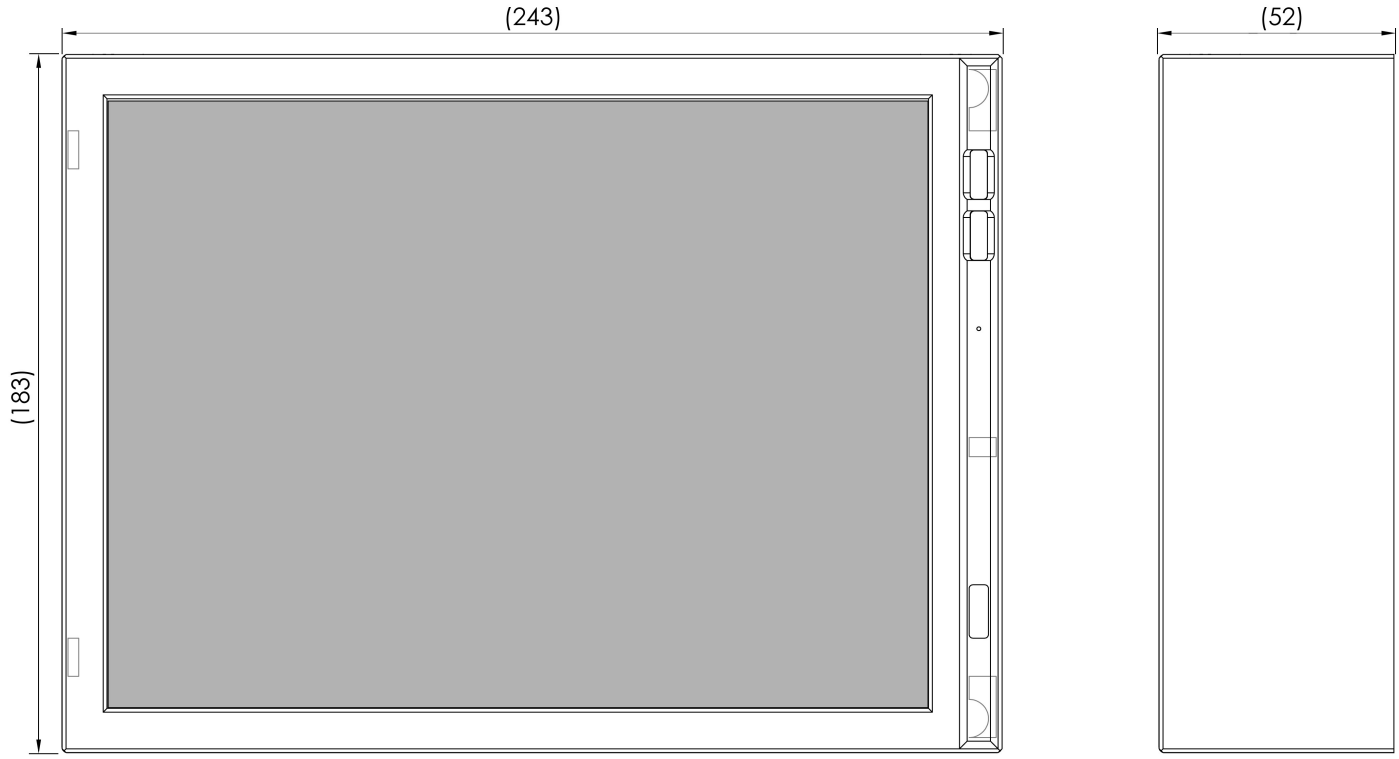
6. APPENDIX A ENVIRONMENTAL QUALIFICATION FORM

Nomenclature:	FlymapXL Multifunctional Display System
Type/Model/Part No:	FlymapXL-()-()/ 500-083
Manufacturer:	Stauff Systec GmbH
Address:	Gerberstrasse 132, D-41748 Viersen, Germany

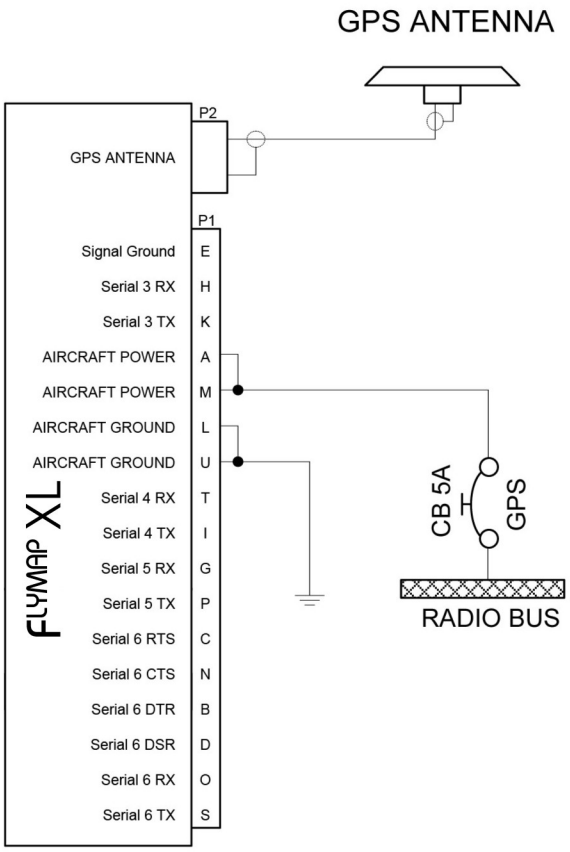
Temperature and Altitude:	Section 4, Category B1
Temperature Variation:	Section 5, Category B
Humidity:	Section 6, Category A
Operational Shocks and Crash Safety:	Section 7, Category B
Vibration:	Section 8, Category S, U2
Explosion:	Section 9, Category X
Waterproofness:	Section 10, Category X
Hydraulic Fluid:	Section 11, Category X
Sand and Dust:	Section 12, Category X
Fungus Resistance:	Section 13, Category X
Salt Spray:	Section 14, Category X
Magnetic Effect:	Section 15, Category Z
Power Input:	Section 16, Category B
Voltage Spike:	Section 17, Category B
Audio Frequency Conducted Susceptibility:	Section 18, Category B
Induces Signal Susceptibility:	Section 19, Category B
Radio Frequency Susceptibility	Section 20, Category B
Emission of Radio Frequency Energy Test:	Section 21, Category B
Lightning Induces Transients:	Section 22, Category X
Lightning Direct Effects:	Section 23, Category X
Icing	Section 24, Category X
Electrostatic Discharge	Section 25, Category X
Fire Flammability	Section 26, Category X

7. APPENDIX B ASSEMBLY AND INSTALLATION DRAWINGS

7.1 Flymap Dimensions



8. APPENDIX C INTERCONNECT DRAWINGS



Minimum System Interconnections