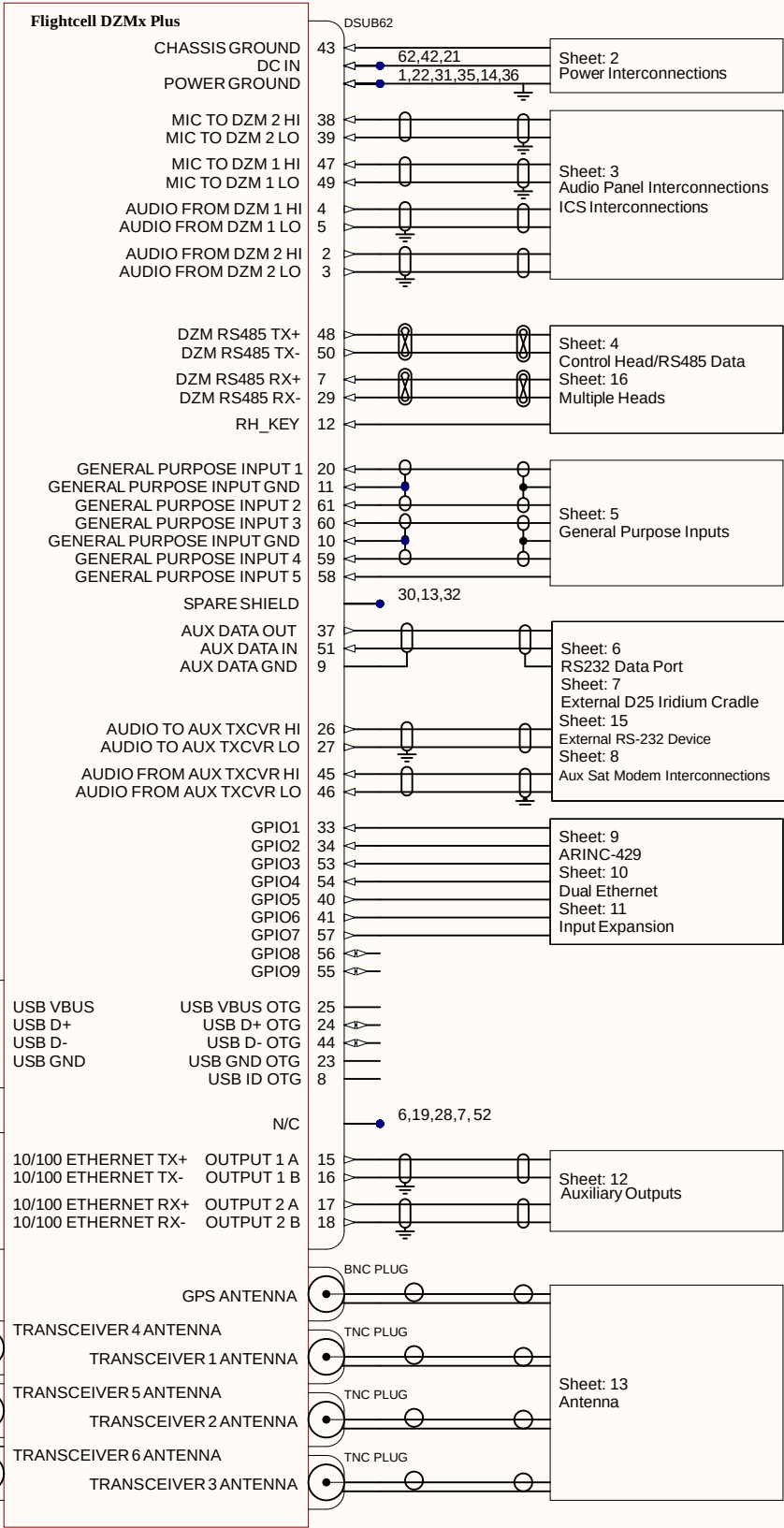


DZMx Plus Interconnect Drawings
Sheet 1 - DZMx Plus



- NOTES:
1. ALL POWER CABLES SHOULD BE 22AWG STRANDED UNLESS OTHERWISE NOTED e.g. M22759/34-22-9
OTHER CABLES SHOULD BE 22AWG STRANDED, SCREENED WHERE INDICATED e.g. M27500/-22SB2T14.
2. UNIT GROUND IS INTERNALLY CONNECTED TO UNIT CHASSIS
3. SYMBOL DESIGNATIONS

Revisions older than 4.0 - SMA PLUG

SHIELDED PAIR
SHIELD TERMINATED TO DC GROUND

SHIELDED PAIR
SHIELD TERMINATED TO DESIGNATED PIN

SHIELDED PAIR
SHIELD FLOATING

TWISTED PAIR

UNIT GROUND

COAXIAL CABLE

WIRE SPLICE CONNECTION

1.6	HW-2454	21/11/23
1.5	HW-2437	18/09/23
1.4	HW-2398	31/08/23
1.3	HW-2252	17/11/22
1.2	Remote Head changed to Control Head HW-1574	12/04/21
1.1	Reference to Civilian Removed	23/09/20
1.0	Initial Version DZMx Plus Interconnect Drawings	13/02/20
DATE	DESCRIPTION	DATE

APPROVALS		DATE
DESIGN	Richard Benfield	21/11/2023
APP'D	James Glasgow	21/11/2023

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Product: Flightcell DZMx Plus
Sheet: DZMx Plus ICD 1 of 16
Revision: 1.6
Drawn By: Richard Benfield
Filename: Top Level.SchDoc
Date: 21/11/2023 Drawing No: 114-00018

DZMx Plus Interconnect Drawings

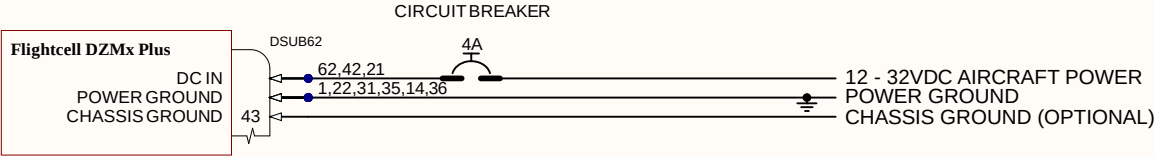
Sheet 2 - Power Interconnections

NOTES:

In order to minimise ground loops, it is recommended that the ground connections from the DZM, external satphone or cell modem (if fitted) are run separately to a single grounding point, ideally the same point as used by the ICS.

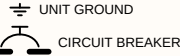
It is recommended that DC power be taken from the emergency (primary) power bus, particularly if engine stop/start events need to be captured.

Not all ground connections are required on the POWER GROUND, a minimum of 3 connections must be made.



NOTES:

1. POWER CABLES SHOULD BE 22AWG STRANDED UNLESS OTHERWISE NOTED e.g. M22759/34-22-9
OTHER CABLES SHOULD BE 22AWG STRANDED, SCREENED WHERE INDICATED e.g. M27500/-22SB2T14.
2. SYMBOL DESIGNATIONS



APPROVALS		DATE
DESIGN	Richard Benfield	21/11/2023
APP'D	Hannes Booyse	21/11/2023

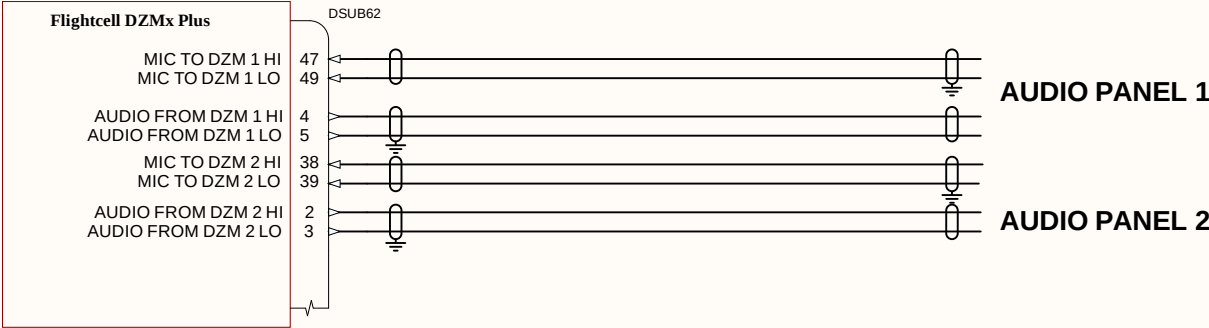
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Product:	Flightcell DZMx Plus	
Sheet:	Power Interconnections	2 of 16
Revision:	1.6	
Drawn By:	Richard Benfield	
Filename:	Power Interconnections.SchDoc	
Date:	21/11/2023	Drawing No: 114-00018

DZMx Plus Drawings

Sheet 3 - Audio Panel Interconnections



- NOTES:
1. ALL POWER CABLES SHOULD BE 22AWG STRANDED UNLESS OTHERWISE NOTED e.g. M22759/34-22-9
OTHER CABLES SHOULD BE 22AWG STRANDED, SCREENED WHERE INDICATED e.g. M27500/-22SB2T14.
 2. IT IS RECOMMENDED THAT THE POWER GROUND CONNECTIONS BE RUN
SEPARATELY TO A SINGLE EARTHING POINT, SO AS TO MINIMISE GROUND LOOPS
 3. SYMBOL DESIGNATIONS

-  SHIELDED PAIR
SHIELD TERMINATED TO DC GROUND
-  SHIELDED PAIR
SHIELD FLOATING
-  UNIT GROUND

Notes on connection to Aircraft Audio System:

The preferred method of connection is where the Aircraft Audio System provides a Cellphone port or similar. In this case the audio input should be configured as unbiased.

Alternatively, connection may be made to an unused radio port. For some systems it may be necessary to use the bias voltage on the DZM input (if the system expects mic bias from the radio); otherwise the input should be configured as unbiased.

The DZM may otherwise be connected to a headset port - in this case the input bias voltage should be enabled.

APPROVALS		DATE
DESIGN	Richard Benfield	21/11/2023
APP'D	Hannes Booyse	21/11/2023

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Product:	Flightcell DZMx Plus		
Sheet:	Audio Panel Interconnections 3 of 16		
Revision:	1.6		
Drawn By:	Richard Benfield		
Filename:	ICS Interconnections.SchDoc		
Date:	21/11/2023	Drawing No:	114-00018

NOTES:

1. ALL POWER CABLES SHOULD BE 22AWG STRANDED UNLESS OTHERWISE NOTED e.g. M22759/34-22-9
OTHER CABLES SHOULD BE 22AWG STRANDED, SCREENED WHERE INDICATED e.g. M27500/-22SB2T14.
2. IT IS RECOMMENDED THAT THE POWER GROUND CONNECTIONS BE RUN
SEPARATELY TO A SINGLE EARTHING POINT, SO AS TO MINIMISE GROUND LOOPS
3. SYMBOL DESIGNATIONS

SHIELDED PAIR
SHIELD TERMINATED TO DC GROUND

COAXIAL CABLE

SHIELDED PAIR
SHIELD FLOATING

TWISTED PAIR

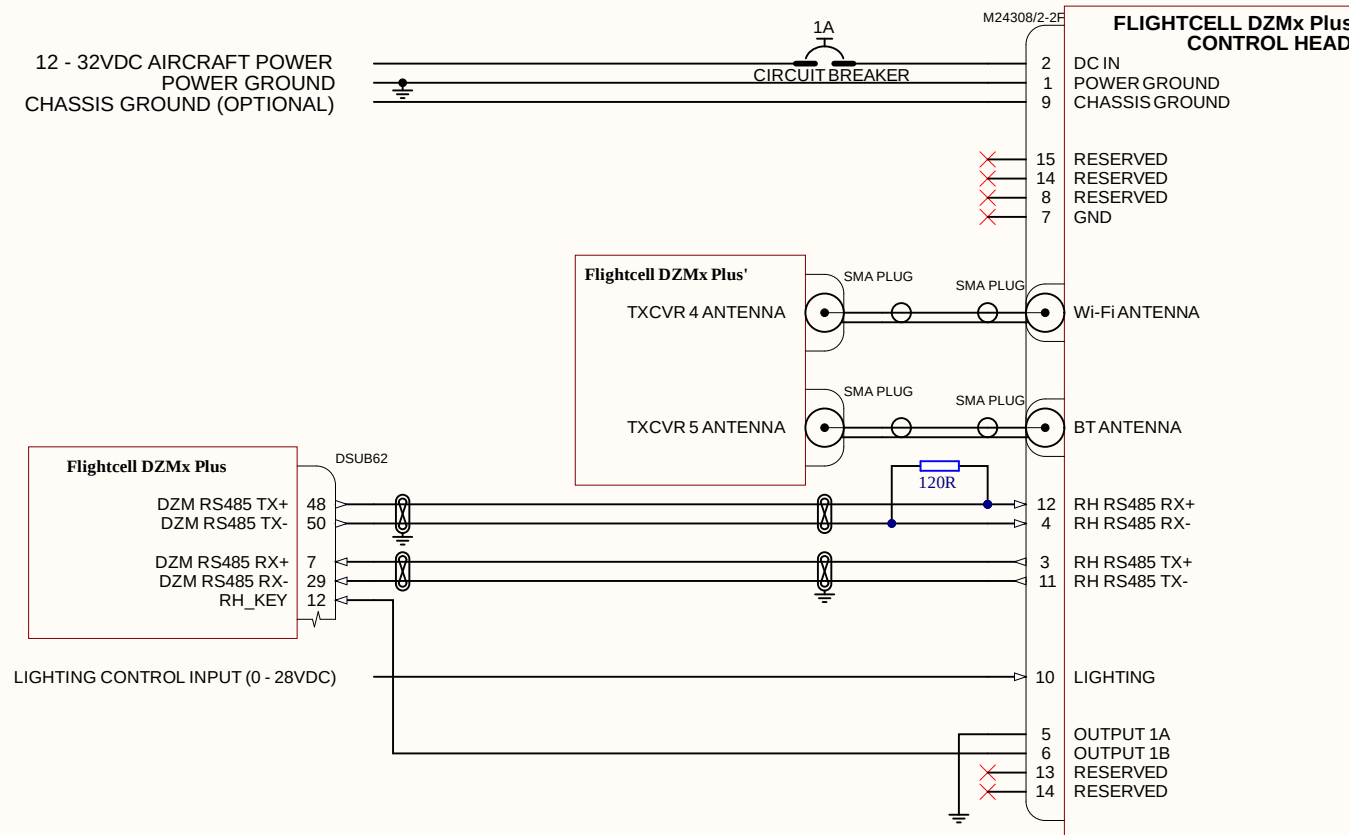


UNIT GROUND



WIRE SPLICE CONNECTION

12 - 32VDC AIRCRAFT POWER
POWER GROUND
CHASSIS GROUND (OPTIONAL)



NOTE:

The Control Head requires only the connections shown in this drawing.

The secondary lighting input need be fitted only if the display backlight brightness needs to be controlled externally. Otherwise the brightness can be set to a fixed level via the menus.

This drawing shows the DZMx Plus connected to a Flightcell Control Head.

TERMINATION RESISTOR NOTES:

A termination resistors (120ohm) should be placed across the receive pair at the end of the main RS485 cable run. Normally this would be as shown in this diagram - across the control head 1 pins 4 & 12.

Any additional remote heads connected as stub connections to the main RS485 run do not need additional termination resistors.

The Flightcell DZMx Plus has a termination resistor fitted as default internally.

APPROVALS		DATE
DESIGN	Richard Benfield	21/11/2023
APP'D	Hannes Booyse	21/11/2023

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Product:	Flightcell DZMx Plus	
Sheet:	Control Head/RS485	4 of 16
Revision:	1.6	
Drawn By:	Richard Benfield	
Filename:	Control Head Interconnections.SchDoc	
Date:	21/11/2023	Drawing No: 114-00018

DZMx Plus Interconnect Drawings

Sheet 5 - General Purpose Inputs

Inputs:

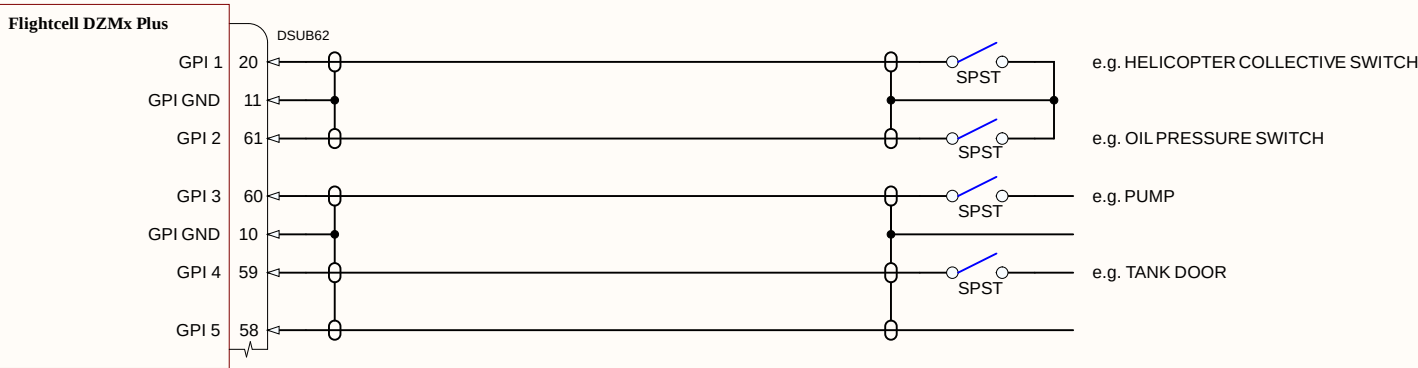
The input's are all configurable as either variable or switched with adjustable thresholds.

The inputs nominal operating range is 0-28VDC, but they will tolerate an input range of -32 to +32VDC.

If these inputs are used, they need to be enabled on the DZM.

The inputs can be used for various purposes depending on the firmware configuration; contact Flightcell for advice on any specific applications.

All inputs are referenced to a common ground which is connected internally to the DZMx Plus to Chassis ground. Therefore the aircraft chassis ground can be used for the input return signal if required.



NOTES:

- ALL POWER CABLES SHOULD BE 22AWG STRANDED UNLESS OTHERWISE NOTED e.g. M22759/34-22-9
OTHER CABLES SHOULD BE 22AWG STRANDED, SCREENED WHERE INDICATED e.g. M27500/-22SB2T14.
- SYMBOL DESIGNATIONS

- SHIELDED SINGLE CONDUCTOR
- SHIELD TERMINATED TO DESIGNATED PIN
- WIRE SPLICE CONNECTION

APPROVALS		DATE
DESIGN	Richard Benfield	21/11/2023
APP'D	Hannes Booyse	21/11/2023

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Product:	Flightcell DZMx Plus		
Sheet:	General Purpose Inputs	5	of 16
Revision:	1.6		
Drawn By:	Richard Benfield		
Filename:	General Purpose Inputs.SchDoc		
Date:	21/11/2023	Drawing No:	114-00018

DZMx Plus Interconnect Drawings

Sheet 6 - RS232 Data Port



Note: the RS232 port can be fitted for in-situ maintenance purposes. If fitted it is highly advisable to locate this connector such that it is readily accessible.

It is recommended that when connecting to a PC the loopback connections on RTS, CTS, DCD, DTR and DSR are made as shown.

This multipurpose port can be used for diagnostics, connection of an external transceiver, or connection of other serial devices such as a water tank controller.

- NOTES:
1. ALL POWER CABLES SHOULD BE 22AWG STRANDED UNLESS OTHERWISE NOTED e.g. M22759/34-22-9
OTHER CABLES SHOULD BE 22AWG STRANDED, SCREENED WHERE INDICATED e.g. M27500/-22SB2T14.
 2. SYMBOL DESIGNATIONS

- SHIELDED PAIR
SHIELD TERMINATED TO DESIGNATED PIN
- SHIELDED PAIR
SHIELD FLOATING
- WIRE SPLICE CONNECTION

APPROVALS		DATE
DESIGN	Richard Benfield	21/11/2023
APP'D	Hannes Booyse	21/11/2023

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Product:	Flightcell DZMx Plus		
Sheet:	Aux Data Interconnections	6	of 16
Revision:	1.6		
Drawn By:	Richard Benfield		
Filename:	Aux Data Interconnections.SchDoc		
Date:	21/11/2023	Drawing No:	114-00018

A



C

- D

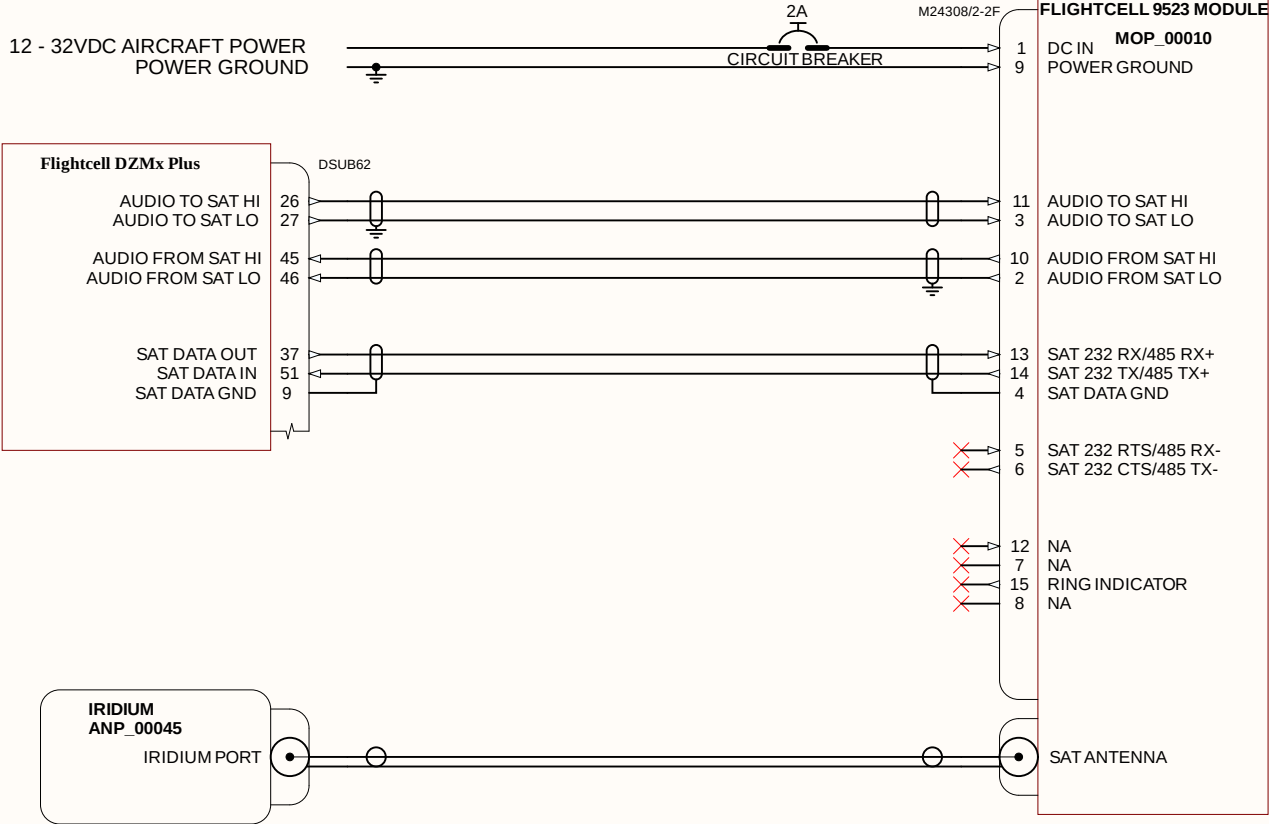
- | | | |
|-----------|------------------|------------|
| APPROVALS | | DATE |
| DESIGN | Richard Benfield | 21/11/2023 |
| APP'D | Hannes Booyse | 21/11/2023 |

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1

DZMx Plus Interconnect Drawings

Sheet 8 - Optional External Iridium Module Interconnections



NOTES:
The Iridium antenna should be placed horizontally on the upper surface of the airframe such that it has an unobstructed view of the sky.
The cell antenna should be placed on the underside of the aircraft; orientation is less critical.

Selection of coax cable depends on the lengths of the cable runs.

Iridium specify that the maximum signal loss in the cable should be 3dB at 1645MHz, so maximum cable lengths are as follows:

RG174 - 2M
RG58C/U - 3M
LMR200 - 6.5M
RG58-9006 cellfoil - 6.5M
RG213 - 8M
LMR400 - 17M
LMR600 - 26M

Where practicable the antenna should be placed well clear (at least 500mm and preferably 1000mm) from any other antenna operating at similar frequencies.

The antenna shown is a Single port Iridium antenna.

Contact Flightcell for details on other antenna options.

The RING INDICATOR is OPTO Isolated to GND.

- NOTES:
1. ALL POWER CABLES SHOULD BE 22AWG STRANDED UNLESS OTHERWISE NOTED e.g. M22759/34-22-9
OTHER CABLES SHOULD BE 22AWG STRANDED, SCREENED WHERE INDICATED e.g. M27500/-22SB2T14.
 2. IT IS RECOMMENDED THAT THE POWER GROUND CONNECTIONS BE RUN SEPARATELY TO A SINGLE EARTHING POINT, SO AS TO MINIMISE GROUND LOOPS
 3. SYMBOL DESIGNATIONS

SHIELDED PAIR
SHIELD TERMINATED TO DC GROUND

SHIELDED PAIR
SHIELD FLOATING

UNIT GROUND

WIRE SPLICE CONNECTION

APPROVALS		DATE
DESIGN	Richard Benfield	21/11/2023
APP'D	Hannes Booyse	21/11/2023

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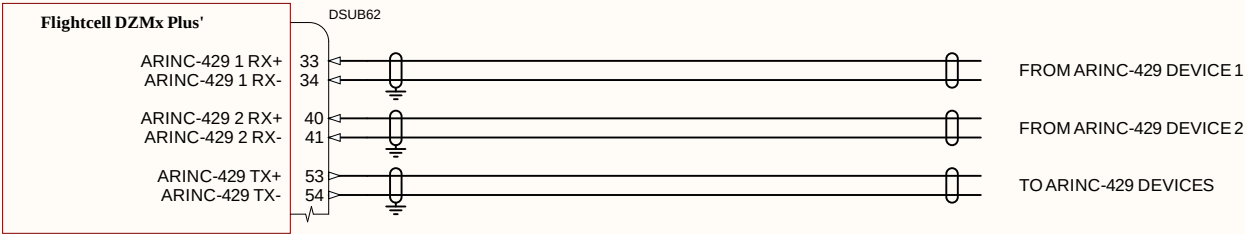
Product: Flightcell DZMx Plus
Sheet: External Iridium Module 8 of 16
Revision: 1.6
Drawn By: Richard Benfield
Filename: Aux Sat Modem Interconnections.SchDoc
Date: 21/11/2023 Drawing No: 114-00018

DZMx Plus Interconnect Drawings

Sheet 9 - ARINC-429 Data Interconnections

NOTES:

ARINC-429 functionality is only available if the ARINC-429 card is installed in the DZMx Plus.



NOTES:

1. ALL POWER CABLES SHOULD BE 22AWG STRANDED UNLESS OTHERWISE NOTED e.g. M22759/34-22-9
OTHER CABLES SHOULD BE 22AWG STRANDED, SCREENED WHERE INDICATED e.g. M27500/-22SB2T14.
2. SYMBOL DESIGNATIONS

- SHIELDED PAIR
SHIELD TERMINATED TO DC GROUND
- SHIELDED PAIR
SHIELD FLOATING
- UNIT GROUND
- WIRE SPLICE CONNECTION

APPROVALS		DATE
DESIGN	Richard Benfield	21/11/2023
APP'D	Hannes Booyse	21/11/2023

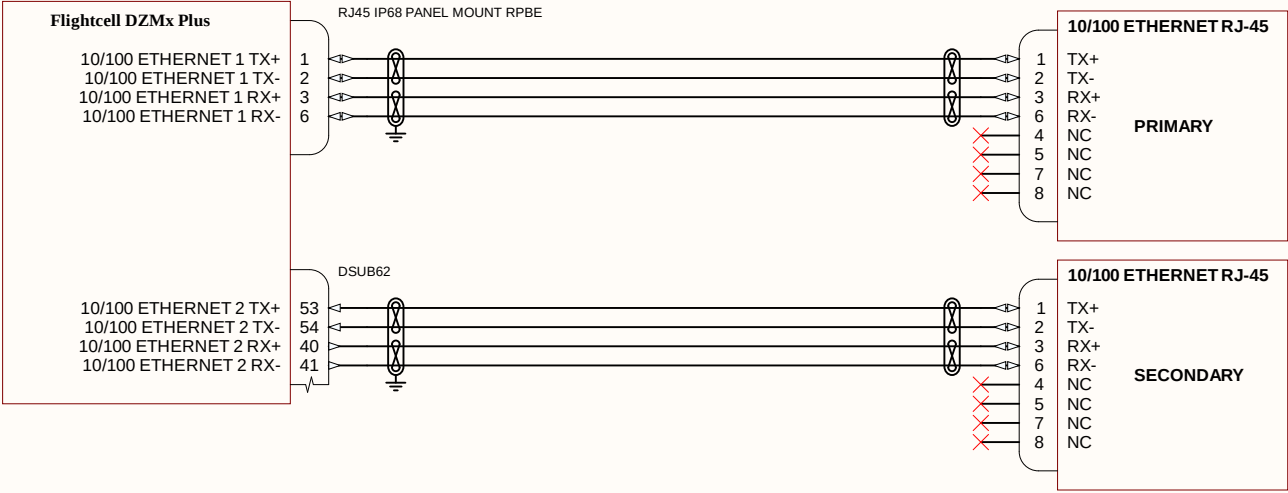
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Ph: +64 3 545 8652 www.flightcell.com

Product:	Flightcell DZMx Plus		
Sheet:	ARINC-429 Interconnections	9	of 16
Revision:	1.6		
Drawn By:	Richard Benfield		
Filename:	ARINC-429 Interconnections.SchDoc		
Date:	21/11/2023	Drawing No:	114-00018

DZMx Plus Interconnect Drawings

Sheet 10 - Dual Ethernet Interconnections



NOTES:

The second Ethernet port is only available if the secondary ethernet card is installed in the DZMx Plus.

- NOTES:
1. ALL POWER CABLES SHOULD BE 22AWG STRANDED UNLESS OTHERWISE NOTED e.g. M22759/34-22-9
OTHER CABLES SHOULD BE 22AWG STRANDED, SCREENED WHERE INDICATED e.g. M27500/-22SB2T14.
2. ETHERNET CABLE SHOULD BE TWISTED PAIR CAT-5E OR COMPATIBLE e.g. PIC E10424.
3. SYMBOL DESIGNATIONS

- SHIELDED PAIR
SHIELD TERMINATED TO DC GROUND
- SHIELDED PAIR
SHIELD FLOATING
- TWISTED PAIR
- UNIT GROUND
- WIRE SPLICE CONNECTION

DZMx Plus Interconnect

APPROVALS		DATE
DESIGN	Richard Benfield	21/11/2023
APP'D	Hannes Booyse	21/11/2023

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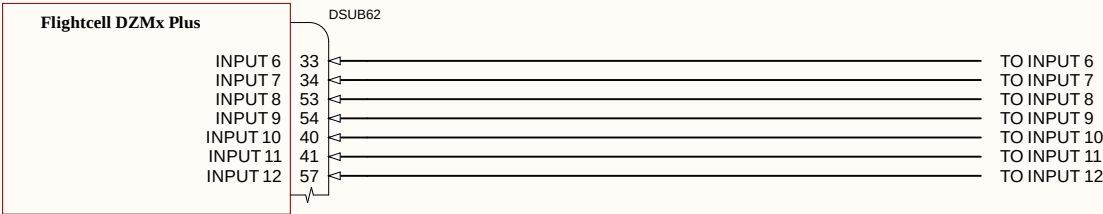
Product:	Flightcell DZMx Plus	
Sheet:	Dual Ethernet Interconnections 10 of 16	
Revision:	1.6	
Drawn By:	Richard Benfield	
Filename:	Dual Ethernet.SchDoc	
Date:	21/11/2023	Drawing No: 114-00018

DZMx Plus Interconnect Drawings

Sheet 11 - Input Expansion Interconnections

NOTES:

Extra inputs are only available if the input expansion card is installed in the DZMx Plus.



NOTES:

1. ALL POWER CABLES SHOULD BE 22AWG STRANDED UNLESS OTHERWISE NOTED e.g. M22759/34-22-9
OTHER CABLES SHOULD BE 22AWG STRANDED, SCREENED WHERE INDICATED e.g. M27500/-22SB2T14.
2. SYMBOL DESIGNATIONS

-  SHIELDED PAIR
SHIELD TERMINATED TO DC GROUND
-  SHIELDED PAIR
SHIELD FLOATING
-  UNIT GROUND
-  WIRE SPLICE CONNECTION

APPROVALS		DATE
DESIGN	Richard Benfield	21/11/2023
APP'D	Hannes Booyse	21/11/2023

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Product:	Flightcell DZMx Plus	
Sheet:	Input Expansion Connections	11 of 16
Revision:	1.6	
Drawn By:	Richard Benfield	
Filename:	Input Expansion Interconnections.SchDoc	
Date:	21/11/2023	Drawing No: 114-00018

DZMx Plus Interconnect Drawings

Sheet 12: Auxiliary Outputs

NOTES:

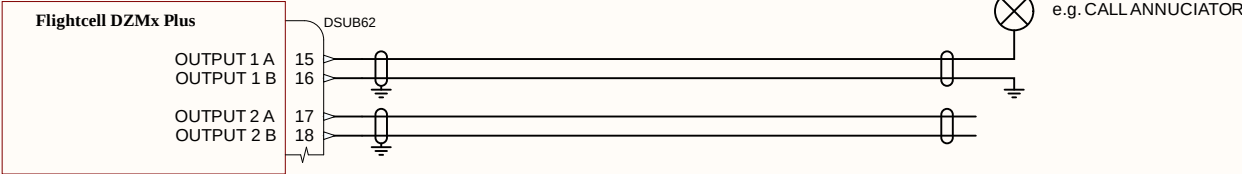
The auxiliary outputs can be used to switch external loads, e.g. annunciator panel indicator.

Each output is capable of switching a 500mA load. The voltage applied to either terminal must not exceed 60VDC.

Each output provides 1500Vrms isolation between the output terminals and the DZM internal circuitry.

When the output is on Terminal A is connected to Terminal B.

The outputs can be configured for a variety of purposes e.g. a call annunciator.



NOTES:

- ALL POWER CABLES SHOULD BE 22AWG STRANDED UNLESS OTHERWISE NOTED e.g. M22759/34-22-9
OTHER CABLES SHOULD BE 22AWG STRANDED, SCREENED WHERE INDICATED e.g. M27500/-22SB2T14.
- SYMBOL DESIGNATIONS

SHIELDED PAIR
SHIELD TERMINATED TO DESIGNATED PIN

UNIT GROUND

WIRE SPLICE CONNECTION

APPROVALS		DATE
DESIGN	Richard Benfield	21/11/2023
APP'D	Hannes Booyse	21/11/2023

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Product:	Flightcell DZMx Plus	
Sheet:	Auxiliary Outputs	12 of 16
Revision:	1.6	
Drawn By:	Richard Benfield	
Filename:	Auxiliary Outputs.SchDoc	
Date:	21/11/2023	Drawing No: 114-00018

DZMx Plus Interconnect Drawings

Sheet 13 - Antennas

NOTES:

The Iridium/GPS antenna should be placed horizontally on the upper surface of the airframe such that it has an unobstructed view of the sky. The cell antenna should be placed on the underside of the aircraft; orientation is less critical.

Selection of coax cable depends on the lengths of the cable runs. See the Installation and Configuration manual for cable recommendations.

Iridium specify that the maximum signal loss in the cable should be 3dB at 1645MHz, so maximum cable lengths are as follows:

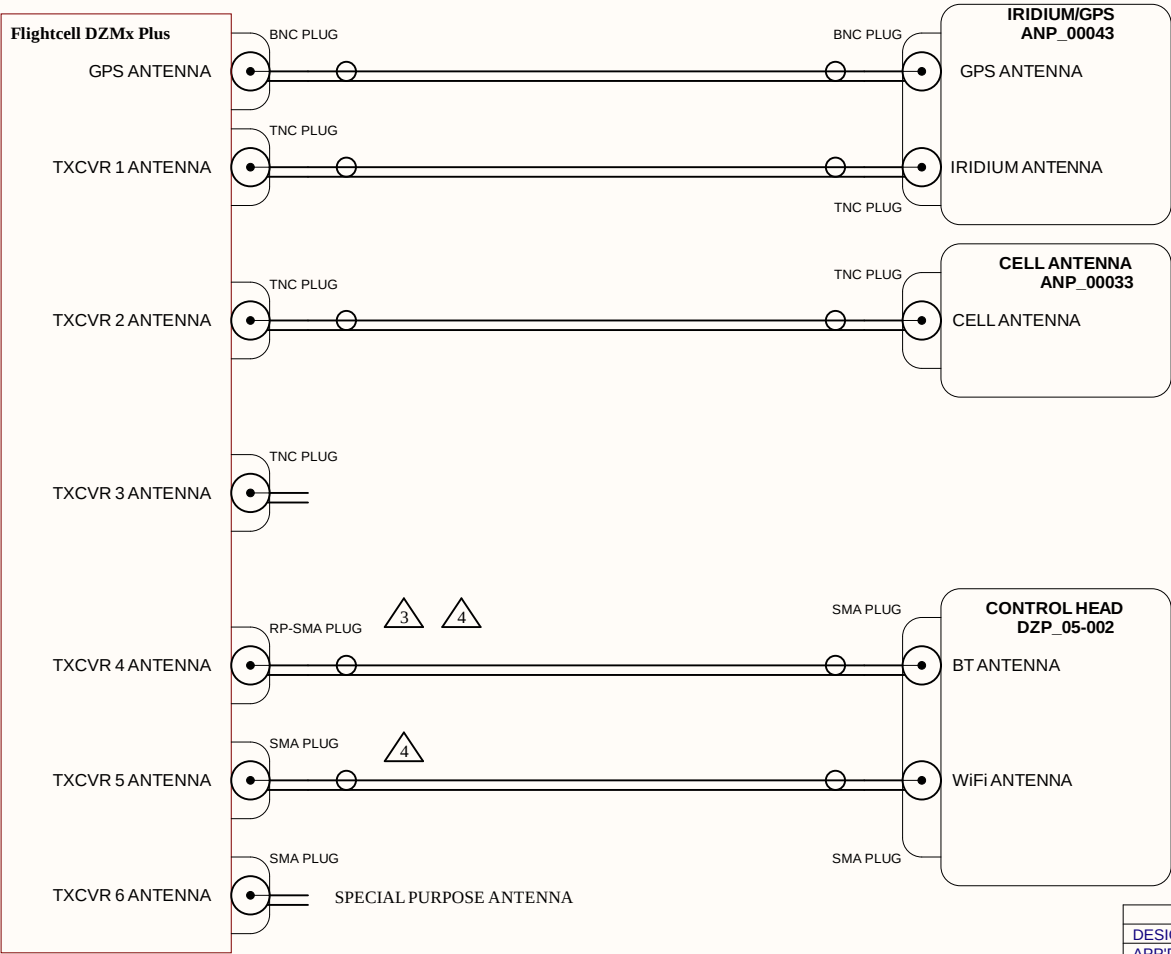
- RG174- 2M
- RG58C/U - 3M
- LMR200 - 6.5M
- RG58-9006 cellfoil - 6.5M
- RG213 - 8M
- LMR400 - 17M
- LMR600 - 26M

Where practicable the antenna should be placed well clear (at least 500mm and preferably 1000mm) from any other antenna operating at similar frequencies.

- Revisions older than 4.0 - SMA PLUG
- Alternatively, the Wi-Fi (TXCVR 4) and BT (TXCVR 5) antenna ports can be connected to external antennas.
- RF configuration shown is indicative of a standard installation, for other options refer to installation manual.

- NOTES:
- 1. ALL POWER CABLES SHOULD BE 22AWG STRANDED UNLESS OTHERWISE NOTED e.g. M22759/34-22-9
 - OTHER CABLES SHOULD BE 22AWG STRANDED, SCREENED WHERE INDICATED e.g. M27500/-22SB2T14.
 - 2. SYMBOL DESIGNATIONS

COAXIAL CABLE



APPROVALS		DATE
DESIGN	Richard Benfield	21/11/2023
APP'D	Hannes Booyse	21/11/2023

Flightcell

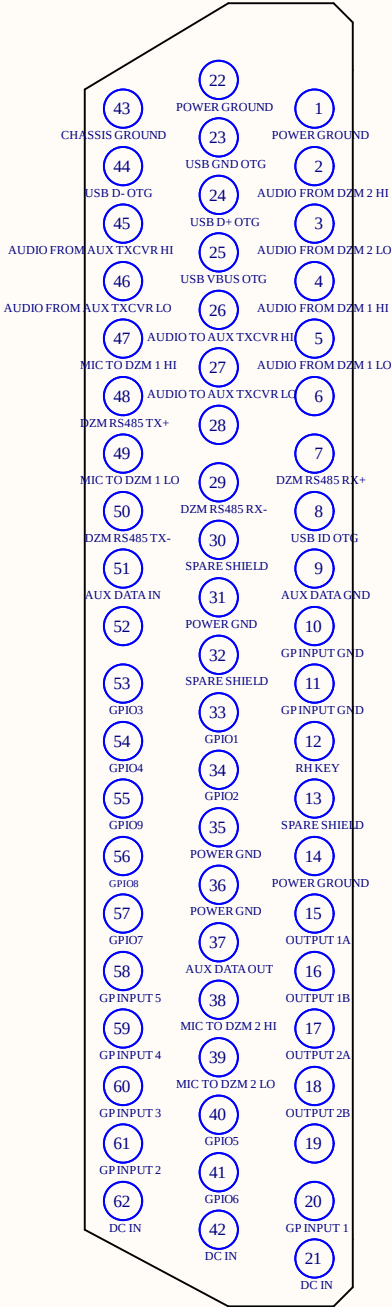
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Product:	Flightcell DZMx Plus	
Sheet:	Antennas	13 of 16
Revision:	1.6	
Drawn By:	Richard Benfield	
Filename:	Antenna.SchDoc	
Date:	21/11/2023	Drawing No: 114-00018

DZMx Plus Main Connector Pin out - Rear View HD SUB 62 F Connector

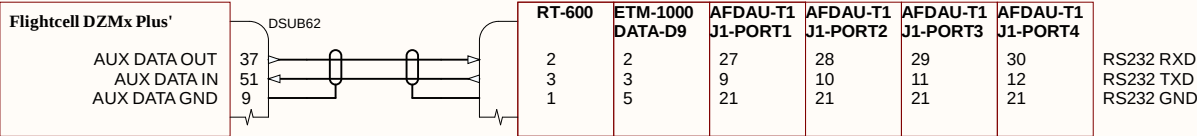
Sheet 14 - DZMx Plus



APPROVALS		DATE
DESIGN	Richard Benfield	21/11/2023
APP'D	Hannes Booyse	21/11/2023
 Flightcell International Limited PO Box 1481, Nelson, New Zealand Ph: +64 3 545 8652 www.flightcell.com		
Product:	Flightcell DZMx Plus	
Sheet:	Main Connector Pin Out	14 of 16
Revision:	1.6	
Drawn By:	Richard Benfield	
Filename:	Pin Out Main Connector.SchDoc	
Date:	21/11/2023	Drawing No: 114-00018

DZMx Plus Interconnect Drawings

Sheet 15 - External RS-232 Device



NOTES:
1. ALL POWER CABLES SHOULD BE 22AWG STRANDED UNLESS OTHERWISE NOTED e.g. M22759/34-22-9
OTHER CABLES SHOULD BE 22AWG STRANDED, SCREENED WHERE INDICATED e.g. M27500/-22SB2T14.
2. SYMBOL DESIGNATIONS

- SHIELDED PAIR
SHIELD TERMINATED TO DESIGNATED PIN
- SHIELDED PAIR
SHIELD FLOATING
- WIRE SPLICE CONNECTION

APPROVALS		DATE
DESIGN	Richard Benfield	21/11/2023
APP'D	Hannes Booyse	21/11/2023



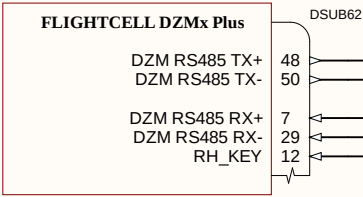
Flightcell International Limited
PO Box 1481, Nelson, New Zealand
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Product:	Flightcell DZMx Plus		
Sheet:	EXTERNAL RS-232 DEVICE	15 of	16
Revision:	1.6		
Drawn By:	Richard Benfield		
Filename:	EXTERNAL RS-232 DEVICE.SchDoc		
Date:	21/11/2023	Drawing No:	114-00018

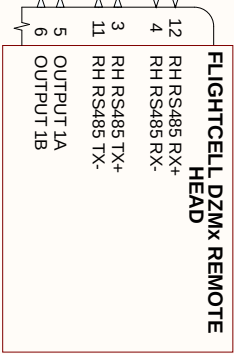
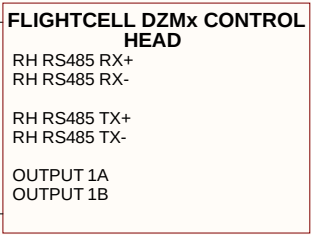
DZMx Plus Interconnect Drawings

Sheet 16 - Multiple Remote Head Interconnections

MASTER



HEAD A



TERMINATION RESISTOR NOTES:

A termination resistors (120ohm) should be placed across the receive pair at the end of the main RS485 cable run. Normally this would be as shown in this diagram - across Control Head A pins 4 & 12.

Any additional remote heads connected as stub connections to the main RS485 run do not need additional termination resistors.

WIRING NOTES:

RS485 wiring should be connected as a single run from the master (DZMx Plus) to the most physically distant remote head (Head A in this diagram).

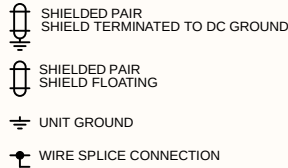
Additional remote heads (Head B in this diagram) should be wired with stub connections (as short as practically possible) off the main RS485 run.

Head C to be wired as Head B.

See main DZMx Plus ICD for complete wiring requirements for the remote heads (e.g. power, lighting).

NOTES:

- ALL CABLES SHOULD BE 22AWG STRANDED, SCREENED WHERE INDICATED e.g. M27500/-22SB2T14.
- IT IS RECOMMENDED THAT THE POWER GROUND CONNECTIONS BE RUN SEPARATELY TO A SINGLE EARTHING POINT, SO AS TO MINIMISE GROUND LOOPS
- SYMBOL DESIGNATIONS



APPROVALS		DATE
DESIGN	Richard Benfield	21/11/2023
APP'D	Hannes Booyse	21/11/2023

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ALWAYS CONNECTED

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Product:	FLIGHTCELL DZMx Plus	
Sheet:	Dual Remote Head ICD	16 of 16
Revision:	1.6	
Drawn By:	Richard Benfield	
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