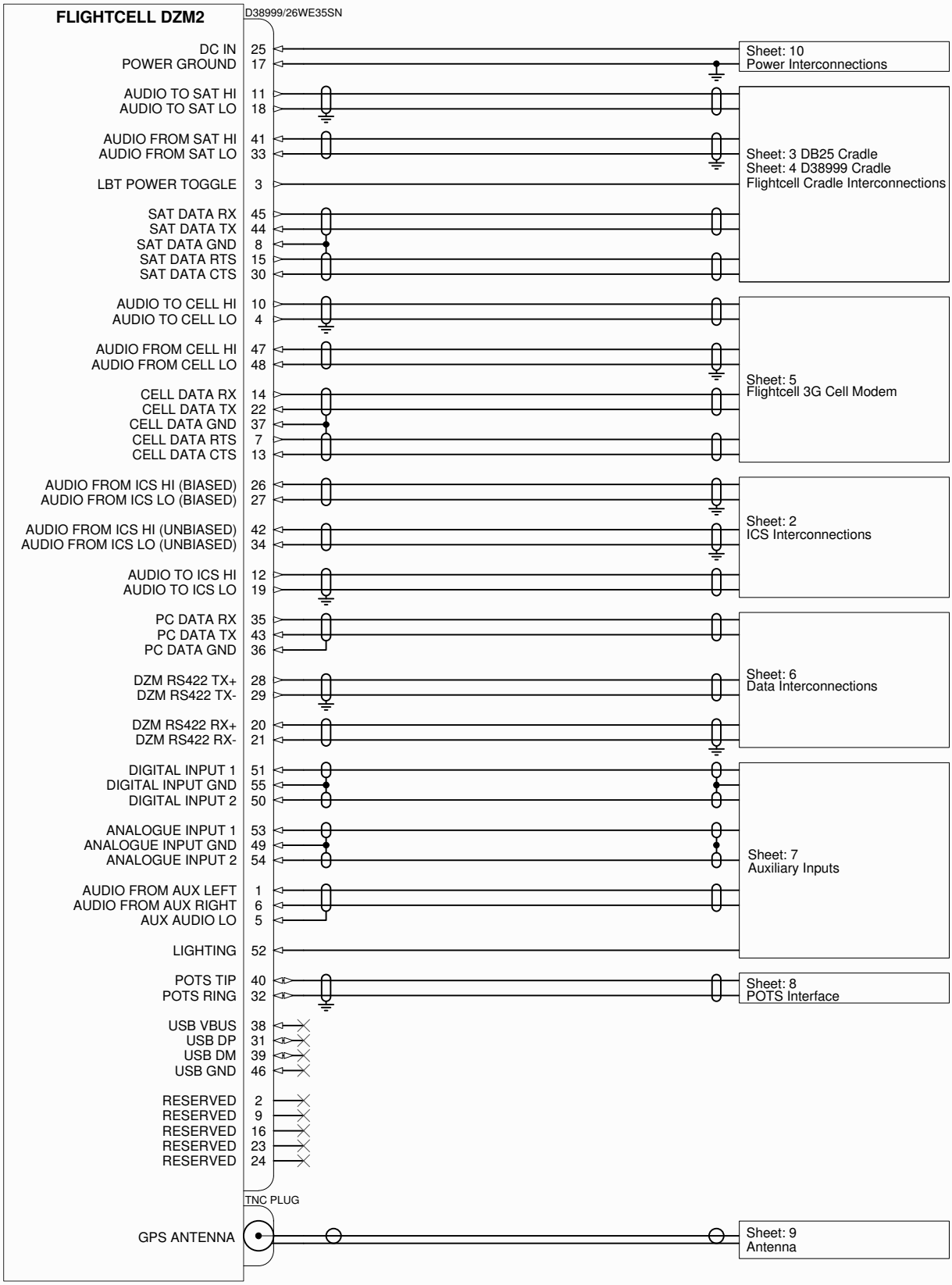
DZM2 Interconnect Wiring Diagrams
Sheet 1 - DZM



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/-24SB2T14.
2. UNIT GROUND IS INTERNALLY CONNECTED TO UNIT CHASSIS
3. SYMBOL DESIGNATIONS

SHIELDED PAIR
SHIELD TERMINATED TO DC GROUND

SHIELDED PAIR
SHIELD TERMINATED TO DESIGNATED PIN

SHIELDED PAIR
SHIELD FLOATING

UNIT GROUND

COAXIAL CABLE

WIRE SPLICE CONNECTION

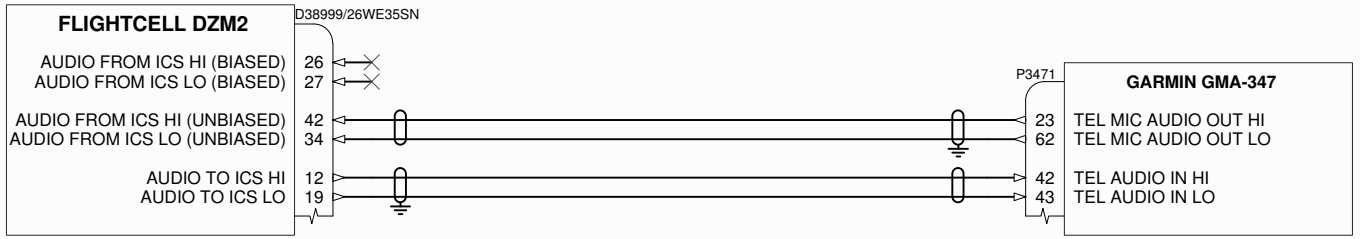
Flightcell International Limited
PO Box 1481, Nelson, New Zealand
Ph:+64 3 545 8652 www.flightcell.com

REV	DESCRIPTION	DATE	APPD
2.0	Corrected aux audio Pinout. (FCN0667)	02/03/15	JG
1.4	Corrected D38999 Cradle RX/TX Pinout. (FCN0404)	25/09/12	JG
1.3	Added FC3GM Drawing, removed Wavecom drawing. (FCN0362)	19/06/12	JG
1.2	C/N FCN0312 - Drawing no added, Shielding scheme updated.	07/03/12	JG
1.1	C/N FCN0264 - Analog input wiring corrected.	25/08/11	JG

Product: Flightcell DZM2
Sheet: Interconnect Wiring Diagram 1 of 10
Issue: 2.0
Drawn By: James Glasgow
Filename: Top Level.SchDoc
Date: 2/03/2015 Drawing No: WRL_DZ2_001

DZM2 Interconnect Wiring Diagrams

Sheet 2 - ICS Interconnections with GMA-347



Notes on connection to Aircraft Audio System:

The preferred method of connection is where the Aircraft Audio System provides a Cellphone port or similar (as shown in this diagram with the Garmin GMA-347). In this case the unbiased input should be used.

Alternatively, connection may be made to an unused radio port. For high-impedance systems it may be neccessary to use the biased DZM input (where the system expects mic bias from the radio); otherwise the unbiased input should be used.

The DZM may otherwise be connected to a headset port - in this case the biased input should be used for high-impedance systems and the unbiased input for low-impedance systems. In either case it is advisable to set the headset port to be "hot mic".

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/-24SB2T14.
2. IT IS RECOMMENDED THAT THE POWER GROUND CONNECTIONS BE RUN
3. SYMBOL DESIGNATIONS

SHIELDED PAIR
SHIELD TERMINATED TO DC GROUND

SHIELDED PAIR
SHIELD FLOATING

UNIT GROUND

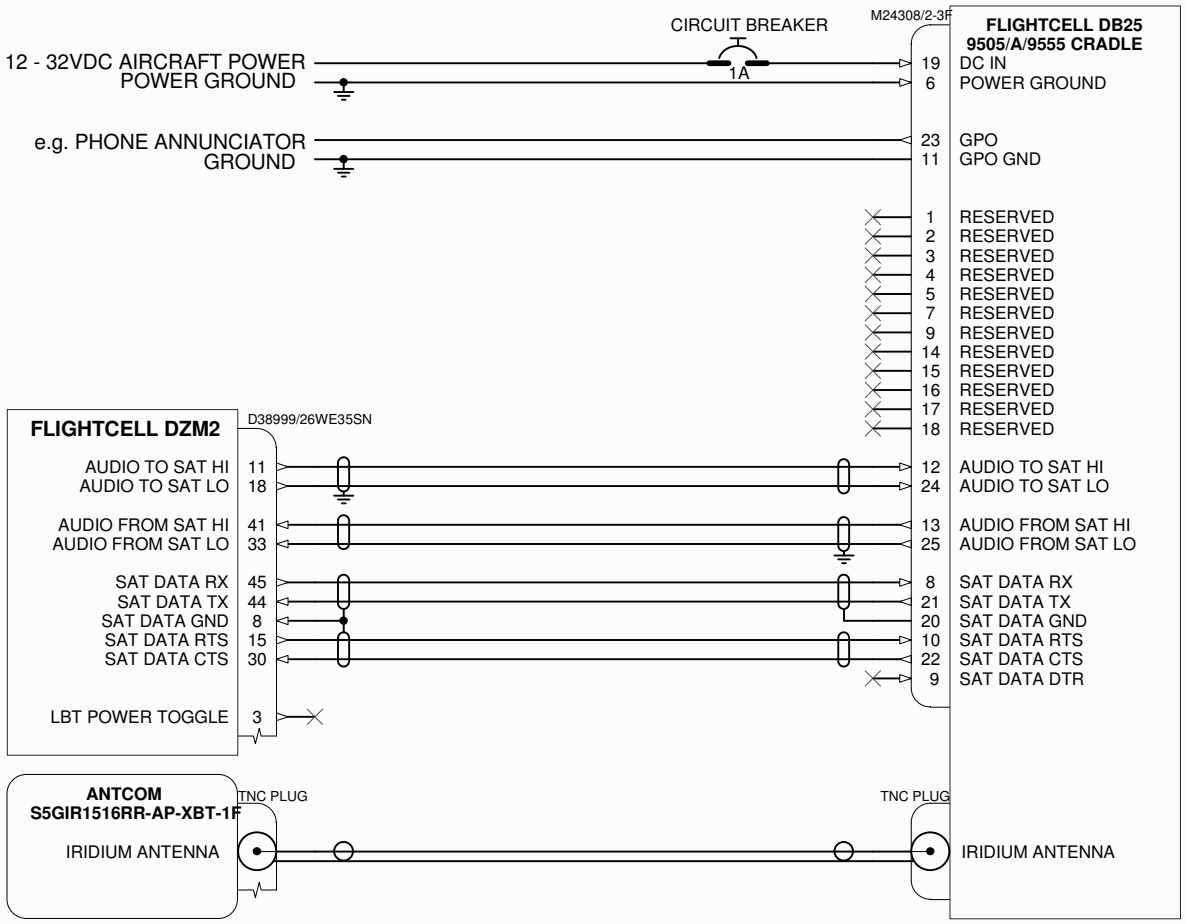
REV	DESCRIPTION	DATE	APPD
2.0	Corrected aux audio Pinout. (FCN0667)	02/03/15	JG
1.4	Corrected D38999 Cradle RX/TX Pinout. (FCN0404)	25/09/12	JG
1.3	Added FC3GM Drawing, removed Wavecom drawing. (FCN0362)	19/06/12	JG
1.2	C/N FCN0312 - Drawing no added, Shielding scheme updated.	07/03/12	JG
1.1	C/N FCN0264 - Analog input wiring corrected.	25/08/11	JG

Flightcell International Limited
PO Box 1481, Nelson, New Zealand
Ph:+64 3 545 8652 www.flightcell.com

Product: Flightcell DZM2
Sheet: ICS Interconnections 2 of 10
Issue: 2.0
Drawn By: James Glasgow
Filename: ICS Interconnections.SchDoc
Date: 2/03/2015 Drawing No: WRL DZ2 001

DZM2 Interconnect Wiring Diagrams

Sheet 3 - DB25 9505/A/9555 Cradle Interconnections



NOTES:

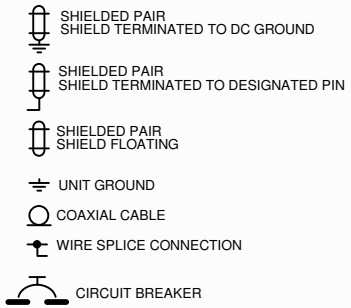
The GPO can be used to switch external loads, e.g. annunciator panel indicator.

The output is capable of sinking 100mA. The maximum voltage applied to the GPO terminal must not exceed 32VDC.

The functionality assigned to the GPO is setup in the DZM configuration.

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/-24SB2T14.
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



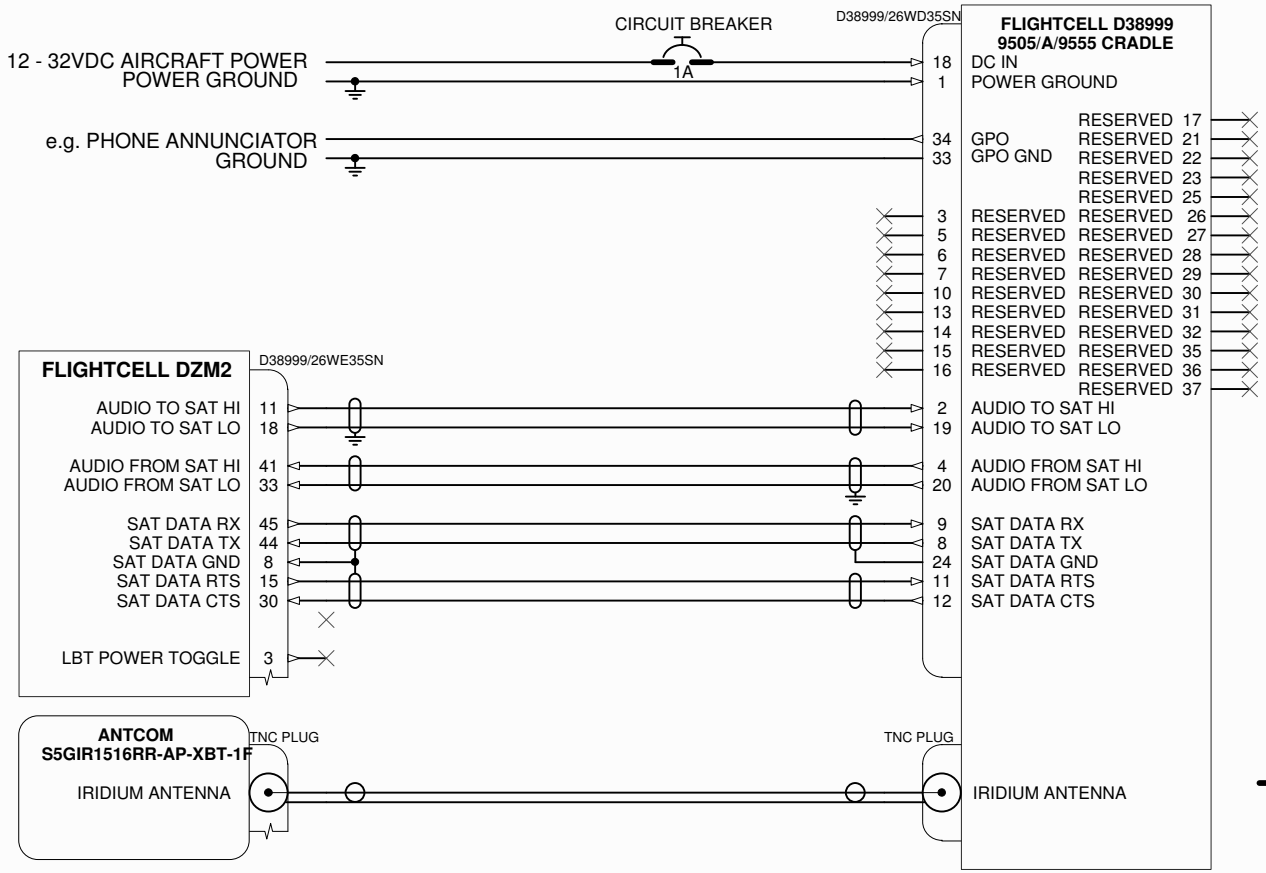
Flightcell International Limited
PO Box 1481, Nelson, New Zealand
Ph:+64 3 545 8652 www.flightcell.com

REV	DESCRIPTION	DATE	APPD
2.0	Corrected aux audio Pinout. (FCN0667)	02/03/15	JG
1.4	Corrected D38999 Cradle RX/TX Pinout. (FCN0404)	25/09/12	JG
1.3	Added FC3GM Drawing, removed Wavecom drawing. (FCN0362)	19/06/12	JG
1.2	C/N FCN0312 - Drawing no added, Shielding scheme updated.	07/03/12	JG
1.1	C/N FCN0264 - Analog input wiring corrected.	25/08/11	JG

Product:	Flightcell DZM
Sheet:	9505/A/9555 Cradle 3 of 10
Issue:	2.0
Drawn By:	James Glasgow
Filename:	Iridium DB25 Cradle Interconnections.SchDoc
Date:	2/03/2015 Drawing No: WRL DZ2 001

DZM2 Interconnect Wiring Diagrams

Sheet 4 - D38999 9505/A/9555 Cradle Interconnections



NOTES:

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

The output is capable of sinking 100mA. The maximum voltage applied to the GPO terminal must not exceed 32VDC.

The functionality assigned to the GPO is setup in the DZM configuration.

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/-24SB2T14.
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 TERMINATED TO DESIGNATED PIN

SHIELDED PAIR
SHIELD FLOATING

UNIT GROUND

COAXIAL CABLE

WIRE SPLICE CONNECTION

CIRCUIT BREAKER

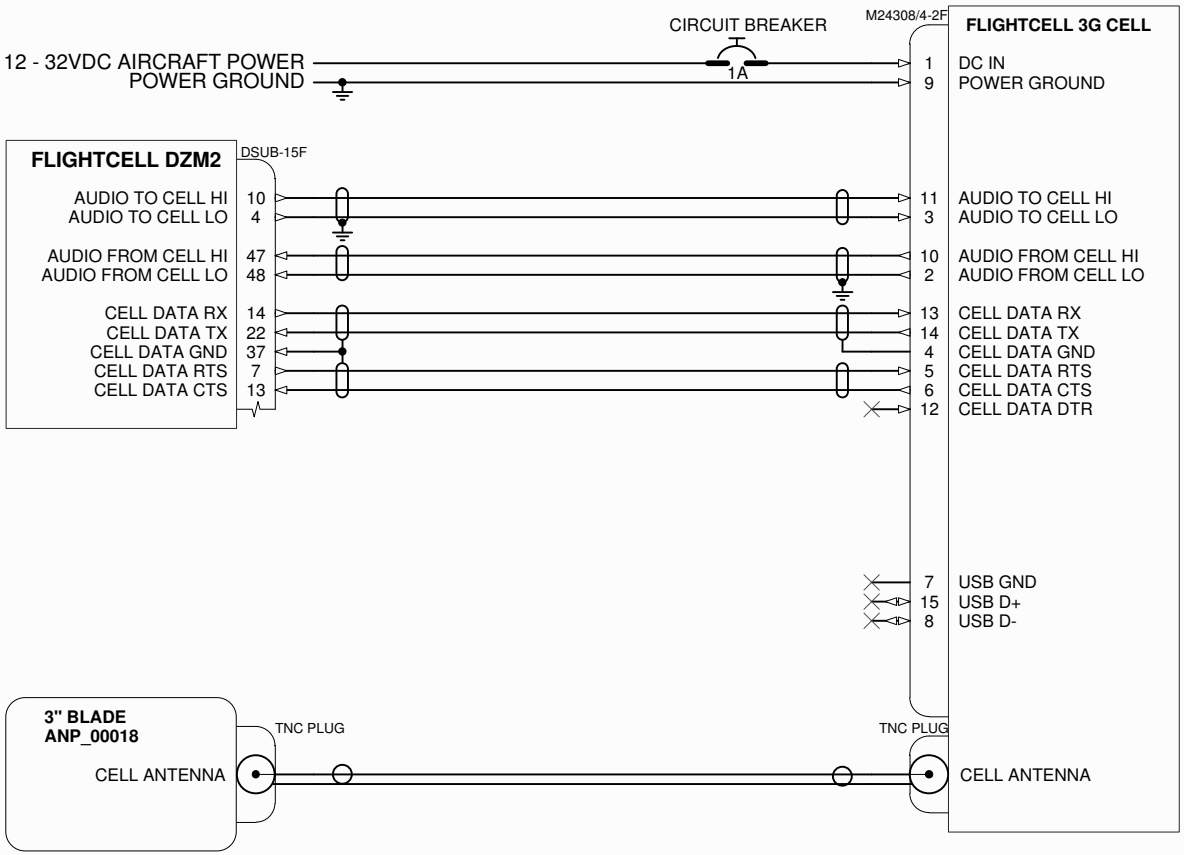
Flightcell International Limited
PO Box 1481, Nelson, New Zealand
Ph:+64 3 545 8652 www.flightcell.com

REV	DESCRIPTION	DATE	APPD
2.0	Corrected aux audio Pinout. (FCN0667)	02/03/15	JG
1.4	Corrected D38999 Cradle RX/TX Pinout. (FCN0404)	25/09/12	JG
1.3	Added FC3GM Drawing, removed Wavecom drawing. (FCN0362)	19/06/12	JG
1.2	C/N FCN0312 - Drawing no added, Shielding scheme updated.	07/03/12	JG
1.1	C/N FCN0264 - Analog input wiring corrected.	25/08/11	JG

Product:	Flightcell DZM
Sheet:	D38999 Cradle 4 of 10
Issue:	2.0
Drawn By:	James Glasgow
Filename:	Iridium D38999 Cradle Interconnections.SchDoc
Date:	2/03/2015 Drawing No: WRL DZ2 001

DZM2 Interconnect Wiring Diagrams

Sheet 5 - Flightcell 3G Cell Modem 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/-24SB2T14.
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 DESIGNATED PIN

SHIELDED PAIR
SHIELD FLOATING

SHIELDED SINGLE

UNIT GROUND

COAXIAL CABLE

WIRE SPLICE CONNECTION

CIRCUIT BREAKER

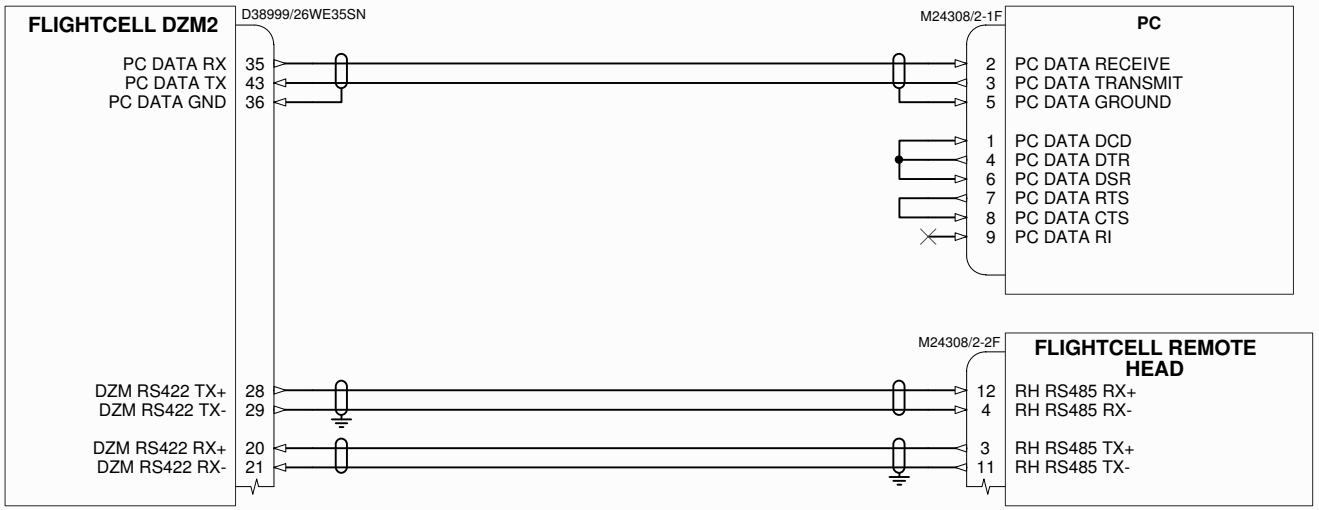
Flightcell International Limited
PO Box 1481, Nelson, New Zealand
Ph:+64 3 545 8652 www.flightcell.com

REV	DESCRIPTION	DATE	APPD
2.0	Corrected aux audio Pinout. (FCN0667)	02/03/15	JG
1.4	Corrected D38999 Cradle RX/TX Pinout. (FCN0404)	25/09/12	JG
1.3	Added FC3GM Drawing, removed Wavecom drawing. (FCN0362)	19/06/12	JG
1.2	C/N FCN0312 - Drawing no added, Shielding scheme updated.	07/03/12	JG
1.1	C/N FCN0264 - Analog input wiring corrected.	25/08/11	JG

Product: Flightcell 3G Modem
Sheet: Flightcell 3G Cell Modem 5 of 10
Issue: 2.0
Drawn By: James Glasgow
Filename: Flightcell Cell Modem Interconnections.SchDoc
Date: 2/03/2015 Drawing No: WRL_DZ2_001

DZM2 Interconnect Wiring Diagrams

Sheet 6 - Data Interconnections



Note: the Firmware/diagnostic port is required for in-situ firmware upgrade and maintenance purposes. It is highly advisable to locate this connector such that it is readily accessible.

Note: Example RS422 data device shown is a DZM Remote Head. For complete information on wiring up a DZM2 + Remote Head system also see document WRL_DZ5_001 Remote Head DZM2 ICD.

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/-24SB2T14.
3. SYMBOL DESIGNATIONS

SHIELDED PAIR
SHIELD TERMINATED TO DESIGNATED PIN

SHIELDED PAIR
SHIELD TERMINATED TO DC GROUND

SHIELDED PAIR
SHIELD FLOATING

UNIT GROUND

WIRE SPLICE CONNECTION

REV	DESCRIPTION	DATE	APPD
2.0	Corrected aux audio Pinout. (FCN0667)	02/03/15	JG
1.4	Corrected D38999 Cradle RX/TX Pinout. (FCN0404)	25/09/12	JG
1.3	Added FC3GM Drawing, removed Wavecom drawing. (FCN0362)	19/06/12	JG
1.2	C/N FCN0312 - Drawing no added, Shielding scheme updated.	07/03/12	JG
1.1	C/N FCN0264 - Analog input wiring corrected.	25/08/11	JG

Flightcell International Limited
PO Box 1481, Nelson, New Zealand
Ph:+64 3 545 8652 www.flightcell.com

Product: Flightcell DZM2
Sheet: Data Interconnections 6 of 10
Issue: 2.0
Drawn By: James Glasgow
Filename: Data Interconnections.SchDoc
Date: 2/03/2015 Drawing No: WRL_DZ2_001

DZM2 Interconnect Wiring Diagrams

Sheet 7 - Auxiliary Inputs

Auxiliary audio:
An audio source such as a CD or MP3 player can be connected. The stereo input is mixed into a monophonic signal and the level can be adjusted in the DZM, allowing it to accept audio from a wide range of equipment.

Lighting input:
If there is a requirement to dim the DZM display backlight along with other cockpit lighting, a reference voltage may be fed into this input. Different aircraft typically use either a 0-28VDC or a 0-5VAC range. The DZM is able to accept either of these depending on firmware configuration.

Collective and Oil Pressure Switches:

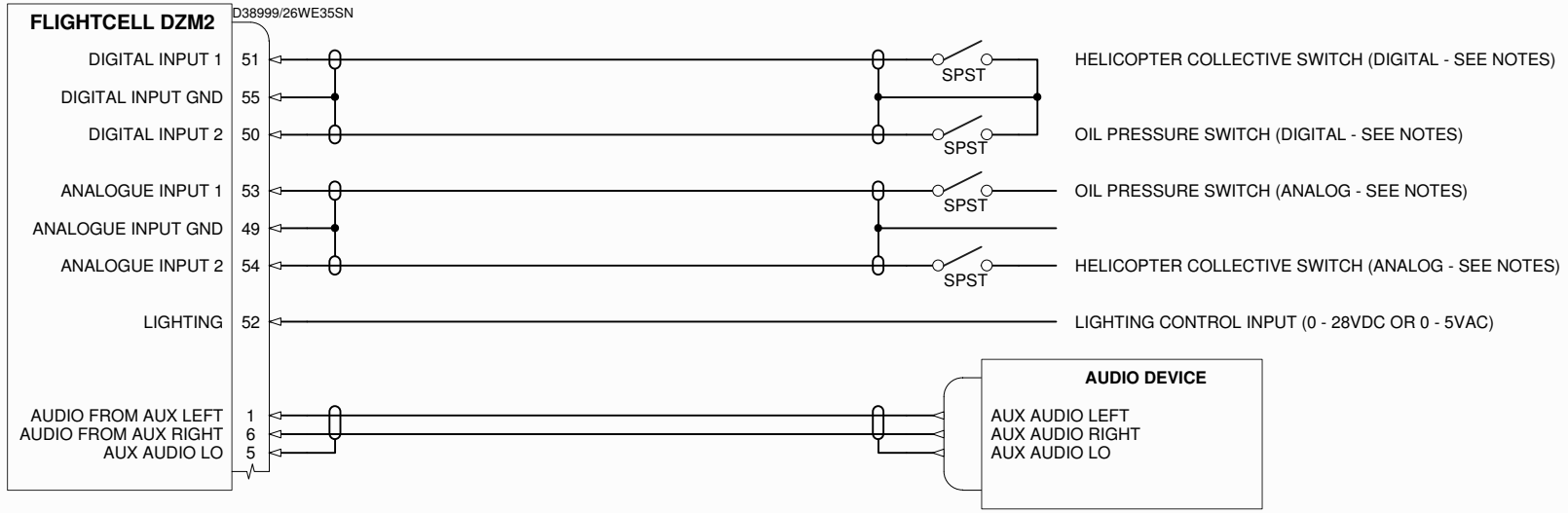
If these are not fitted then ensure that the functions are disabled in firmware, under the tracking setup menu.
The digital inputs have a voltage threshold of about 600mV. If this level can not reliably be achieved then the analog input can be used. The Analog inputs have a high and a low threshold which can be set to provide hysteresis to suit the installation.

Note, however, that the analogue inputs do not have an internal pull-up, so an external voltage is required.

The use of a collective switch is recommended for helicopters, so that the DZM can differentiate between hovering and landing.
If an accurate record of engine hours is needed, the oil pressure switch (or other suitable sensor) can be used - this generates 'engine start' and 'engine stop' tracking events.

If these inputs are used, they need to be enabled in the DZM firmware via the tracking setup menu.

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



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/-24SB2T14.
2. SYMBOL DESIGNATIONS

SHIELDED PAIR
SHIELD TERMINATED TO DESIGNATED PIN

SHIELDED SINGLE CONDUCTOR
SHIELD TERMINATED TO DESIGNATED PIN

WIRE SPLICE CONNECTION

REV	DESCRIPTION	DATE	APPD
2.0	Corrected aux audio Pinout. (FCN0667)	02/03/15	JG
1.4	Corrected D38999 Cradle RX/TX Pinout. (FCN0404)	25/09/12	JG
1.3	Added FC3GM Drawing, removed Wavecom drawing. (FCN0362)	19/06/12	JG
1.2	C/N FCN0312 - Drawing no added, Shielding scheme updated.	07/03/12	JG
1.1	C/N FCN0264 - Analog input wiring corrected.	25/08/11	JG

Flightcell International Limited
PO Box 1481, Nelson, New Zealand
Ph:+64 3 545 8652 www.flightcell.com

Product: Flightcell DZM2
Sheet: Auxiliary Inputs 7 of 10
Issue: 2.0
Drawn By: James Glasgow
Filename: Auxiliary Inputs.SchDoc
Date: 2/03/2015 Drawing No: WRL DZ2 001

DZM2 Interconnect Wiring Diagrams

Sheet 8 - POTS Interface

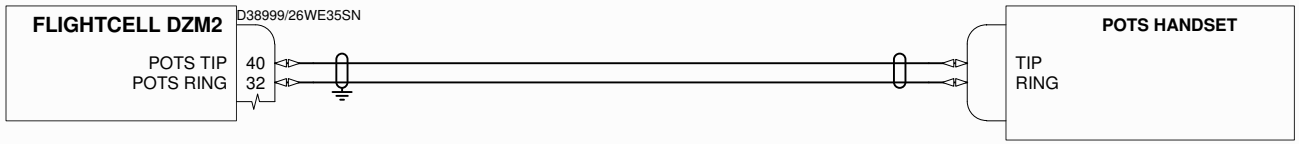
POTS Interface:

The POTS interface is designed so that a standard 2-wire telephone handset can be wired into the DZM and used to make calls via the Sat phone and Cell phone (if fitted).

It can also be used to communicate with the aircraft's flight crew.

Note:
It is important that the DZM is set to the appropriate 2-wire impedance setting for the phone handset that is connected. The DZM has several different impedance settings, designed to work with the impedance of most countries telephone handsets.

Failure to correctly set the 2-wire impedance can cause echo to be heard by the person at the remote end of the call from the DZM.



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/-24SB2T14.
2. SYMBOL DESIGNATIONS

SHIELDED PAIR
SHIELD TERMINATED TO DC GROUND

SHIELDED PAIR
SHIELD FLOATING

UNIT GROUND

REV	DESCRIPTION	DATE	APPD
2.0	Corrected aux audio Pinout. (FCN0667)	02/03/15	JG
1.4	Corrected D38999 Cradle RX/TX Pinout. (FCN0404)	25/09/12	JG
1.3	Added FC3GM Drawing, removed Wavecom drawing. (FCN0362)	19/06/12	JG
1.2	C/N FCN0312 - Drawing no added, Shielding scheme updated.	07/03/12	JG
1.1	C/N FCN0264 - Analog input wiring corrected.	25/08/11	JG

Flightcell International Limited
PO Box 1481, Nelson, New Zealand
Ph:+64 3 545 8652 www.flightcell.com

Product: Flightcell DZM2
Sheet: POTS Interface 8 of 10
Issue: 2.0
Drawn By: James Glasgow
Filename: POTS Interface.SchDoc
Date: 2/03/2015 Drawing No: WRL DZ2 001

DZM2 Interconnect Wiring Diagrams

Sheet 9 - Antenna

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.

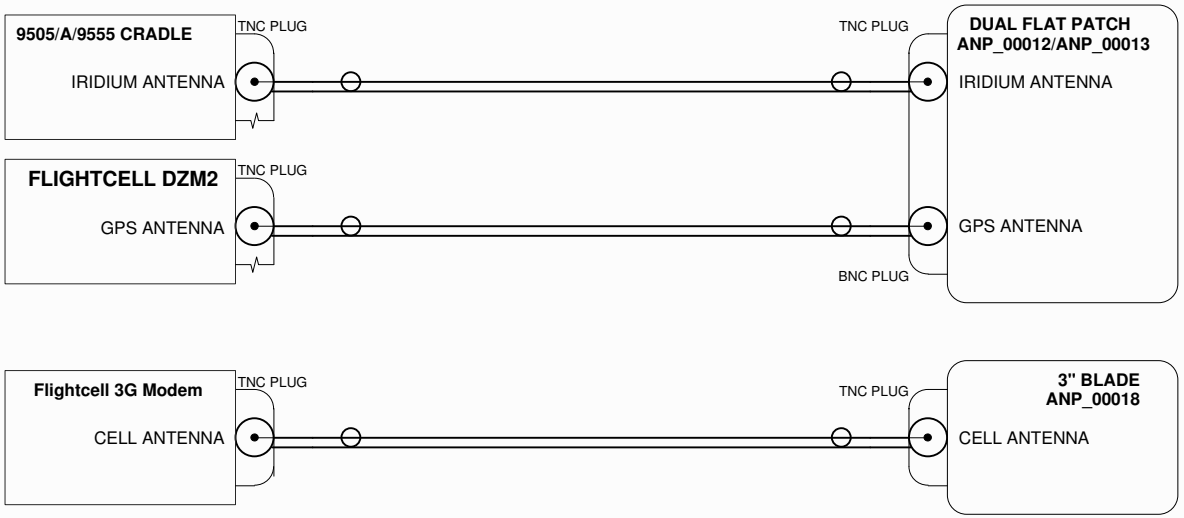
Iridium specify that the maximum signal loss in the cable should be 3dB at 1645MHz, so maximum cable lengths are as follows:

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

The GPS antenna and cell modem are more tolerant of cable losses, so the above lengths will give at least adequate performance.

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

The Antcom S5GIR1516RR-AP-XST-1 can be used in place of the S5GIR1516RR-AP-XBT-1F part shown. It is an equivalent part, with the exception of the GPS port which has an SMA socket rather than a BNC socket.



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/-24SB2T14.
2. SYMBOL DESIGNATIONS
   ◯ COAXIAL CABLE

REV	DESCRIPTION	DATE	APPD
2.0	Corrected aux audio Pinout. (FCN0667)	02/03/15	JG
1.4	Corrected D38999 Cradle RX/TX Pinout. (FCN0404)	25/09/12	JG
1.3	Added FC3GM Drawing, removed Wavecom drawing. (FCN0362)	19/06/12	JG
1.2	C/N FCN0312 - Drawing no added, Shielding scheme updated.	07/03/12	JG
1.1	C/N FCN0264 - Analog input wiring corrected.	25/08/11	JG

Flightcell International Limited
PO Box 1481, Nelson, New Zealand
Ph:+64 3 545 8652 www.flightcell.com

Product: Flightcell DZM2
Sheet: Antennae 9 of 10
Issue: 2.0
Drawn By: James Glasgow
Filename: Antenna.SchDoc
Date: 2/03/2015 Drawing No: WRL DZ2 001

DZM2 Interconnect Wiring Diagrams

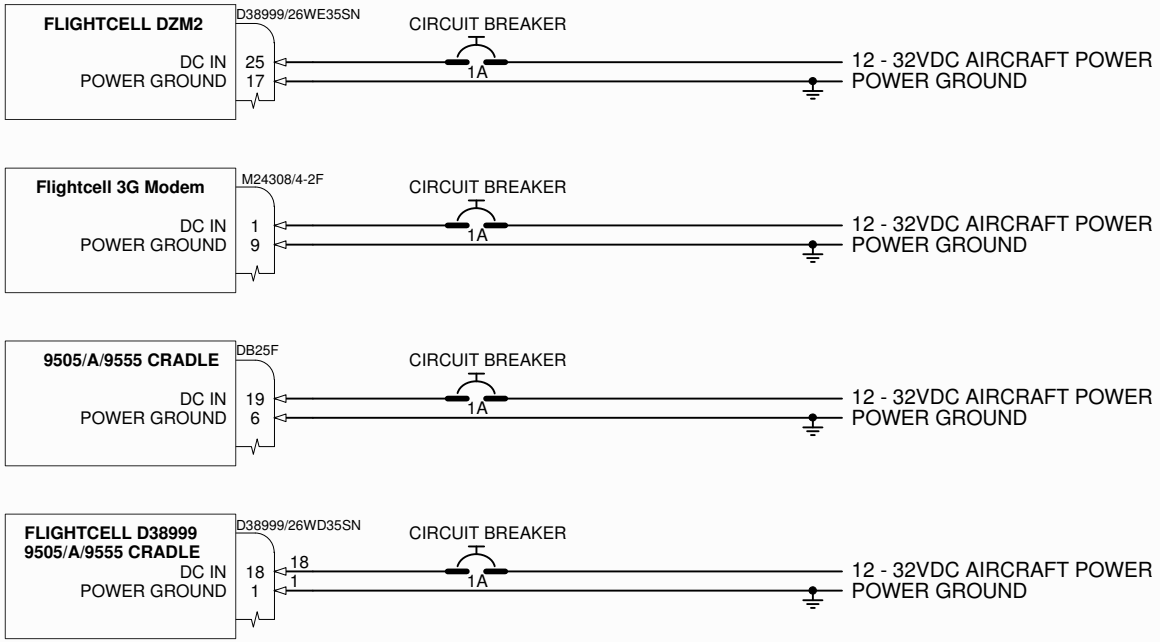
Sheet 10 - Power Interconnections

NOTES:

It is acceptable to use a single (3A) fuse for the DZM, satphone and cell modem (if fitted), although this would cause loss of power to all equipment if the fuse were to fail.

In order to minimise ground loops, it is recommended that the ground conections from the DZM, satphone and cell modem are run seperately to a single grounding point, ideally the same point as used by the ICS.

It is recommended that DC power be taken from the essential systems bus, particularly if engine stop/start events need to be captured.



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/-24SB2T14.
2. SYMBOL DESIGNATIONS

UNIT GROUND

CIRCUIT BREAKER

REV	DESCRIPTION	DATE	APPD
2.0	Corrected aux audio Pinout. (FCN0667)	02/03/15	JG
1.4	Corrected D38999 Cradle RX/TX Pinout. (FCN0404)	25/09/12	JG
1.3	Added FC3GM Drawing, removed Wavecom drawing. (FCN0362)	19/06/12	JG
1.2	C/N FCN0312 - Drawing no added, Shielding scheme updated.	07/03/12	JG
1.1	C/N FCN0264 - Analog input wiring corrected.	25/08/11	JG

Flightcell International Limited
PO Box 1481, Nelson, New Zealand
Ph:+64 3 545 8652 www.flightcell.com

Product: Flightcell DZM2
Sheet: Power Interconnections 10 of 10
Issue: 2.0
Drawn By: James Glasgow
Filename: Power Interconnections.SchDoc
Date: 2/03/2015 Drawing No: WRL DZ2 001