



Flightcell DZMx

Global satellite and cellular communications

Users' Guide for Flightcell DZMx and Flightcell DZMx Remote Head



Flightcell DZMx Users' Guide

MAN_DZ4_002

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1 Introduction

This manual provides users with instructions on operation of the Flightcell DZMx and, if installed, the Flightcell DZMx Remote Head.

1.1 Overview

The Flightcell DZMx is a powerful communications system that uses the Iridium satellite and/or 3G cellular networks to provide:

Global phone calling

- The DZMx provides a global phone service, enabling calls to virtually any phone in the world
- The DZMx is connected to the aircraft audio system, providing all crew with access to the installed phone options
- Calls are dialed from the DZMx keypad, or using the phone directory and speed dial keys to retrieve and call stored phone numbers
- Other parties can call the aircraft by dialing the aircraft's satellite or cellphone numbers.

Two-way messaging

- SMS text messages can be sent to the DZMx over either the satellite or cellular network, from any SMS-capable phone (a cellphone or another satellite phone)
- SMS messages can also be sent over the Iridium network from an Iridium web application or any email program
- Messages can be sent from the aircraft from the DZMx's message library, either to another satellite phone or cellphone, or to your mapping client.

Aircraft tracking

- The DZMx can send regular or manual position reports to one of a number of tracking service providers. As well, the DZMx can be configured to send position reports that mark specific events, including:
 - Startup
 - Engine start and stop
 - Takeoff and landing
 - Course change
 - Emergency (mayday)
 - Other special purpose events.

1.2 DZMx configurations

The DZMx installation may be configured differently on different aircraft, depending on the type of aircraft and user's requirements.

1.3 Transceivers

The DZMx has a modular design which allows installation of different transceivers, enabling use of the Iridium satellite and/or cellular phone networks.

Any one or two of the following transceivers can be installed in the DZMx's internal transceiver slots:

- A Flightcell Iridium transceiver card
- A Flightcell cellular transceiver card.

The following external transceiver options may also be installed:

- A Flightcell Iridium module
- A Flightcell cellular module
- An Iridium phone in a Flightcell Iridium phone cradle; cradles are available for the following Iridium handsets:
 - 9505 and 9505A
 - 9555
 - 9575 Extreme.

1.4 Options to enable calling from the cabin

The DZMx is usually installed in the cockpit, where it can be operated by the pilot(s).

The DZMx may also be connected to additional equipment to enable other crew members to make and receive calls and messages. These are:

- A Flightcell DZMx Remote Head. Installation of one or more remote heads allows crew in the cabin of the aircraft to access all the functions of the DZMx
- A cabin phone. Installation of a cordless or corded phone allows passengers to make and receive calls without use of a headset.

2 Using the DZMx

The DZMx has a range of functions which are automated (such as sending position reports), while others are executed manually.

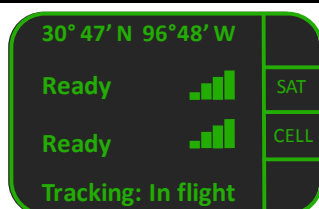
The DZMx keypad is used to dial calls and carry out some other commonly used functions. Other functions are executed via the menu system, which is accessed from the keypad.

If a DZMx Remote Head is fitted, either DZMx or remote head can be used to dial calls and carry out other functions, and the two screens will show the same information.

2.1 The DZMx display

The DZMx LCD display can show several different views.

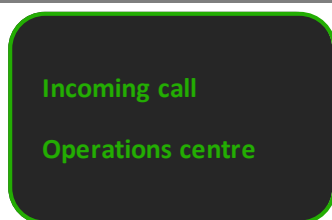
The home view



This is the default view shown when the DZMx is on idle. It normally shows:

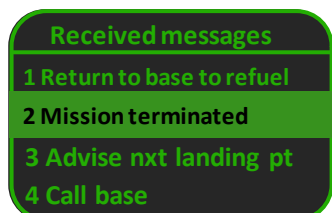
- GPS information (at the top of the screen)
- Designation of the two soft keys
- Network connection status and signal strength for the installed transceiver(s)
- Other status messages (on the bottom of the screen)

Pop-up view



Pop-up screens are used to announce events such as incoming calls and messages.

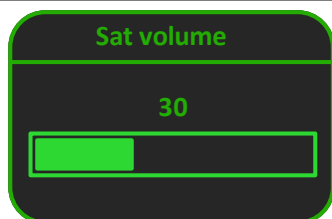
Menu or list views



This shows either:

- Available menu options, or
- A list of items, e.g. messages, phone book entries.

Settings views



This is used to show levels for settings such as audio volumes or backlighting.

The slider bar shows the setting as a percentage of the maximum available value.

2.2 The DZMx keypad


The keys on the DZMx 16-key keypad are used for dialing calls, and as quick keys to access a number of other functions.






The DZMx keys have different functions depending on when they are used.

The following describes the functions of the different keys. The “Key Name” lists the names used in the text when referring to this key.



2.3 Keypad functions

Key	Key name	Quick key function in home screen	Function in menus	Function when call is in progress
	CALL	Answer an incoming call Call a displayed number Call a cabin phone (if installed) Transfer an active call to a cabin phone.		
	SOFT KEY A SELECT A	Select option shown on display Select transceiver shown on display		
	SOFT KEY A SELECT B	Select option shown on display Select transceiver shown on display		
	END	Reject incoming call	Exit menus and return to home screen	End call
	1 MARK	Send a manual position report Send a manual position report with attached message		Enter number 1
	2 A.R.M. UP	Initiate and terminate Automated Rescue Monitoring (if enabled) – pending	Scroll up	Enter number 2
	3 EMERGENCY	Initiate and terminate an emergency (distress) call		Enter number 3
	4 SPEED DIAL 1 LEFT	Select speed dial number 1	Scroll to the left	Enter number 4
	5 SPEED DIAL 2	Select speed dial number 2		Enter number 5
	6 SPEED DIAL 3 RIGHT	Select speed dial number 3	Scroll to the right	Enter number 6
	7 MSG	Display list of preconfigured messages Press and hold to open saved message list – pending		Enter number 7

	8 DIR DOWN	Open phone directory	Scroll down	Enter number 8
	9 MODE	Change mode		Enter number 9
	* UNDO		Exit from menu item without saving changes	Press star key when accessing phone menus
	0 MENU	Open top level menu		Enter 0 Press and hold to enter + (when entering phone number)
	POWER # KEY ENTER	Press and hold to power off DZMx	Select a highlighted menu option Save a setting	Press hash or pound key when accessing phone menus

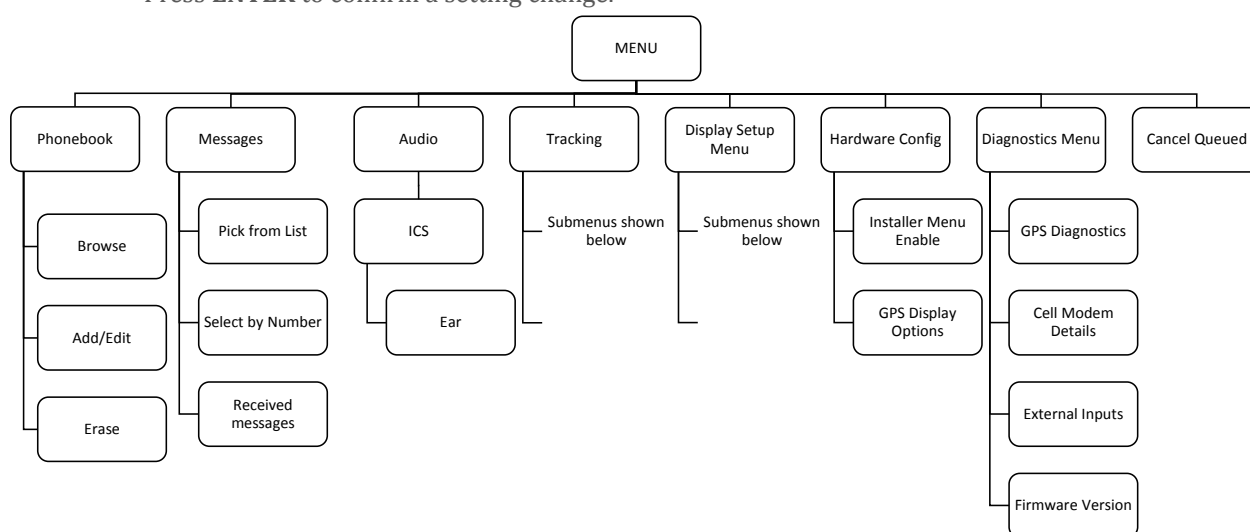
2.4 Using the DZMx keypad to navigate DZMx menus

The DZMx has an extensive menu system providing access to a range of commonly used functions.

The menu system can also be used to configure the DZMx. However, a password is required to access and change configuration settings. See the Flightcell DZMx Installation and Configuration Manual for further information on configuration of the DZMx.

To access the menu system

- Press **MENU** on the keypad. If the DZMx is on a phone call, press and hold **MENU** for 1.5 seconds to access the menus
- Use the **UP** and **DOWN** keys to navigate between menu options
- Press **ENTER** to select the highlighted item
- Press **UNDO** to cancel a setting change or to move back up a menu level
- Press **ENTER** to confirm a setting change.



3 Using the DZMx to make and receive calls

The DZMx may have an Iridium and/or a cellular transceiver. These enable calls to be made to virtually any phone number in the world.

The DZMx phonebook can store up to 50 numbers. Numbers can be dialed manually or recalled from the phonebook. The speed dial feature recalls the first three numbers in the phonebook.

The DZMx supports caller ID on the Iridium network and on most cellular networks.

3.1 Making and answering calls from the DZMx or remote head

The installed transceivers will be shown on the right hand side of the DZMx display, along with signal strength.

3.1.1 Dialing a call

To manually dial a call:

- Select the transceiver to be used for the call by pressing **A** or **B**
- Enter the number
 - Enter the number using the 0 to 9 keys; to enter the international dialling prefix “+” (on cellular and Iridium networks), press and hold the **0** key
 - Press **Undo** to backspace if necessary
- Press **CALL** to complete the call
- Press **END** to terminate the call at any time.

3.1.2 Calling a number in the phonebook

To call a number stored in the DZMx phonebook:

- Press **DIR**
- Scroll through the phonebook to the required contact using **UP** and **DOWN** keys
- Press **A** or **B** to select the transceiver to be used for the call; the contact name and number will be displayed
- Press **CALL** to complete the call
- Press **END** to terminate the call at any time.

3.1.3 Calling using Speed Dial keys

The first three numbers in the phonebook can be called using the speed dial keys:

- Press **SPD1**, **SPD2** or **SPD3** as appropriate; the contact name and number will be displayed
- Press **A** or **B** to select the transceiver to be used and to initiate the call
- Press **END** to terminate the call at any time.

3.1.4 Answering an incoming call

When the DZMx detects an incoming call, *Incoming call* flashes on the DZMx display and a ringtone sounds over the audio system.

If caller ID is supported by the network, the caller’s phone number will be displayed. If the number is in the DZMx phonebook, the contact name will be displayed.

To answer an incoming call, press **CALL**.

3.1.5 Using touch tone dialing (DTMF) during a call – pending

When calling through a switchboard or call center, you may be asked to press a number or the star (*) or hash/pound (#) key to select an option or call a phone extension. This is called touch-tone or DTMF dialing.

Touch tone dialing when in a call will be implemented in a later firmware release.

3.1.6 Using other DZMx keypad functions when on a call

To use the **MARK**, **A.R.M.**, **EMER**, **MSG**, or **MENU** keys during a call, press and hold the applicable key for 1.5 seconds to override DTMF dialling on that key.

3.2 Making or answering calls using the optional cabin phone - pending

Software support for a cabin phone will be available in a software release in the beginning of 2014.

An installed cabin phone can be used to:

- Make a call to any local or international phone number
- Talk to the pilots
- Hold a three way call between a passenger, pilots and any phone number.

3.2.1 Making a call from the cabin phone

- Pick up the phone; if the phone is cordless, press **Phone** or **Talk** to activate the phone
- Dial **9** to select the Iridium connection or **8** to select the cellular connection (if installed)
- Make the call in the normal manner:
 - For a satellite phone call, use the dialling prefix “00” followed by the phone number (e.g. to call a number in the United States, dial *00 1 – area code – phone number*).
 - For a cellphone call, dial the call in the same way as you would from a normal telephone in the country in which you are flying (e.g. *0011* for an international call).
- Hang up the phone or press **END** to terminate the call.

3.2.2 Answering an incoming call on the cabin phone

The phone will ring if there is an incoming call

- Press **TALK** to answer
- Hang up the phone or press **END** to terminate the call

3.2.3 Transferring a call from the cabin phone to the cockpit

- Press the **FLASH** key on the phone handset (this is usually the same as the **TALK** key); the DZMx on the cockpit will flash **Three-party Call** at the bottom of the screen and ring to announce the incoming call
- When the call is answered in the cockpit, all three parties are connected and can have a three-way call
- To hand over the call to the cockpit, hang up the phone or press **END**.

When answered on the cockpit, the cabin phone participant can either have a three-way conference call or hang up to complete transfer of the call.

3.2.4 Transferring a call from the cockpit to the cabin phone

To transfer an active call to the cabin phone:

- Press **CALL** on the DZMx. The cabin phone will ring
- Answer the cabin phone by pressing the **TALK** key; the pilot can either participate in a three-way conference call or hang up to complete transfer of the call.

3.2.5 Calling the cabin phone from the cockpit

- Press **CALL** on the DZMx. The cabin phone will ring and the DZMx display shows that an intercom call is in progress
- To answer on the cabin phone, pick up the phone or press the **TALK** key.

3.2.6 Calling the cockpit from the cabin phone

- Press **1** on the cabin phone handset. *Passenger Intercom* will flash along the bottom of the DZMx display and the DZMx will ring
- Press **CONNECT** on the DZMx to take the call
- To end the call, press **END** on the DZMx keypad **or** the **END** key on the cabin phone handset.

3.2.7 Terminating a call on the cabin phone in an emergency

If the pilots need to use the DZMx to make a call, but the cabin phone is in use, the cabin phone call may be terminated from the cockpit by pressing **END** on the DZMx.

3.3 Managing the DZMx phonebook

The DZMx phonebook can hold 50 numbers. Phonebook entries can be added, edited or deleted in one of two ways:

- Using the DZMx keypad
- Using DZMx Manager.

3.3.1 Adding a new entry to the phonebook on the DZMx

To add a number to the phonebook:

- Go to **MENU>Phonebook>Add/Edit**; the phonebook will be displayed
- Scroll down to an empty entry and press **ENTER**; the DZMx will display *Enter number*
- Enter the number using the full international dialing string including country code and area code (e.g. +6435458659); press and hold the “0” key to get the “+” prefix
- Press **ENTER**; the DZMx will display *Enter name*
- Use **UP** or **DOWN** to open the text editor, then to scroll through the letters of the alphabet to the required letter
- Press **RIGHT** to move to the next character or **UNDO** to backspace a character
- Repeat the previous two steps till the complete name has been entered, then press **ENTER** to save, and **END** to exit the phonebook.

3.3.2 Editing a phonebook entry on the DZMx

To edit an existing number in the phonebook:

- Go to **MENU>Phonebook>Add/Edit**; the phonebook will be displayed
- Scroll down to the entry to be changed and press **ENTER**; the DZMx will display the phone number
- To backspace through the number, press **CANCEL**
- To add a digit, press the appropriate number key
- When the phone number has been edited, press **ENTER**; the DZMx will display the contact name
- Press **UNDO** to backspace a character
- Use **UP** or **DOWN** to scroll through the letters of the alphabet to the required letter
- Press **RIGHT** to move to the next character, and repeat the previous step
- When the name has been edited, press **ENTER** to save, and **END** to exit the phonebook.

3.3.3 Deleting a phonebook entry on the DZMx

- Go to **MENU>Phonebook>Edit contact>Delete**; the phonebook will be displayed
- Use **UP** or **DOWN** to scroll to the entry to be deleted
- Press **ENTER** to delete the selected entry.

3.4 Editing the DZMx phonebook using DZMx Manager

Instructions on use of the DZMx Manager utility are provided in the Installation and Configuration Manual, available on the Flightcell website or from Flightcell International.

4 Using DZMx messaging - pending

The DZMx messaging function will be provided by a firmware release scheduled for December 2013.

The DZMx has powerful messaging capabilities, providing for messages to be sent or received over cellular and satellite networks.

The messaging functions can be accessed either via the dedicated MSG key, or via the menu system.

4.1 Viewing received messages

4.1.1 Viewing an incoming message

When a message is received on the DZMx, a pop-up window announces *Message received*. To read the message, press **CALL**.

4.1.2 Viewing saved messages

Received messages are stored in the DZMx inbox. The inbox will hold 50 messages, once it is full, the oldest message is deleted each time a new message is received.

To read messages saved in the inbox:

- Press and hold **MSG** until the message list is displayed or go to **MENU>Messages>Received Messages**
- Use **UP** and **DOWN** to scroll to the message to be read
- Press **ENTER** to open the message, then **UP** and **DOWN** to scroll through the message
- Press **UNDO** to return to the message list or **END** to exit.

4.1.3 Acting on received and saved messages

4.1.3.1 Replying with a pre-configured message

To reply to a message:

- Open the message
- Press **MENU** then scroll to **Reply**; the DZMx message list will be displayed
- Press **ENTER** to review the message
- Press **A** or **B** for the network to be used to send the reply.

4.1.3.2 Forwarding a message

A message can be forwarded to a number in the DZMx phonebook:

- Open the message
- Press **ENTER**; the DZMx phonebook will be displayed
- Scroll to the destination number
- Press **A** or **B** for the network to be used to send the message.

4.1.3.3 Add a number to the DZMx phonebook

The phone number from which a message was sent can be added to the DZMx phonebook:

- Open the message
- Go to **MENU>Add to contacts**, then press **ENTER**; the DZMx will display **Enter name**
- Use **UP** or **DOWN** to open the text editor, then to scroll through the letters of the alphabet to the required letter
- Press **RIGHT** to move to the next character or **UNDO** to backspace a character
- Repeat the previous two steps till the complete name has been entered, then press **ENTER** to save, and **END** to exit the phonebook.

4.1.3.4 Deleting a saved message

To delete a message from the inbox:

- Open the message
- Go to **MENU>Delete** then press **ENTER** or press and hold **END** until the display reads *Delete message – are you sure?* and press **ENTER**

- Press **ENTER** to confirm.

4.2 Sending preconfigured plain text messages from the DZMx

The DZMx message library can hold up to 255 preconfigured messages. Messages are added to the library or edited using the DZMx Manager utility.

4.2.1 Sending messages to numbers in the DZMx phonebook

To send a message to a number in the DZMx phonebook:

- Press **MSG**
- Scroll down to the message to be sent
- Press **ENTER** to select and display the message
- Press **DIR** to open the phonebook
- Scroll down to the recipient number
- Press **A** or **B** to select the transceiver and send the message.

Note: Messages can only be sent to a cellphone or satellite phone number, not to a landline number.

4.2.2 Replying to a message sent from a cellphone or satphone

To reply to a received or saved message with a preconfigured message:

- Highlight the message in the inbox or open the message
- Press **MSG**
- Scroll to the message to be sent in reply
- Press **ENTER** to select and display the message
- Press **A** or **B** to select the transceiver and send the message.

4.2.3 Replying to a tracking system message

Some tracking systems support two-way messaging to and from the DZMx. The message to the tracking system will be a position report with pre-configured message attached. A tracking system message will be identified by the prefix *msg@...* In the received message list and the text *Tracking system msg* in the message header when the message is open.

To send a message in reply to a tracking system message:

- Highlight the message in the inbox or open the message
- Press **MSG**; the message library will be displayed
- Scroll down to the message to be sent in reply
- Press **ENTER** to select
- Press **ENTER** to send the message.

4.3 Sending messages to the DZMx from the ground

SMS text messages can be sent to the DZMx in several ways:

- From a cellphone or satphone; send the message in the normal way
- Messages may be sent over the Iridium network from any email program; address the message to 8816xxxxxxx@msg.iridium.com (where 8816xxxxxxx is the Iridium phone number for the DZMx)
- From the Iridium website:
 - Go to the Iridium website at <http://www.iridium.com>.
 - On the top of the page, click on 'Send a Satellite Message'. Cancelling unsent messages

5 Using GPS tracking

The DZMx can send position reports to a tracking system using the Iridium and/or cellular network.

Position reports are usually sent automatically, but manual position reports may also be sent to mark a point of interest.

5.1 Sending a manual position report

Position reports can be manually triggered:

- Press and release **MARK**. The DZMx will display *Position marked*.

5.2 Sending a manual position report with message attached

The DZMx can send position reports with preconfigured message (from its message library) to your tracking system. To send a report with attached message:

- Press and hold **MARK** until the message library opens
- Scroll down to the message to be sent
- Press **ENTER** to display the message then press **ENTER** to transmit.

The position and timestamp is taken when **MARK** is pressed, so this feature can be used to mark a location of interest on your tracking system.

Note: To send messages attached to position reports, this feature must be enabled in the DZMx configuration menus.

5.3 Sending distress messages

Distress reports may be sent from the DZMx in emergency. Your tracking provider will have a system for raising an alert or alarm when a distress message is received.

To send a distress message:

- Press and hold **EMER** until the DZMx beeps and flashes *DISTRESS queued*.

Messages will be sent at pre-programmed intervals (usually 1 minute) until distress mode is disabled.

To terminate distress mode, press and hold **EMER** until the DZMx beeps and *Emergency Mode* is no longer displayed on the DZMx display.

5.4 Changing tracking settings

A number of tracking settings may be changed using the DZMx menu system.

5.4.1 Changing tracking timers

The time interval for sending tracking reports can be varied to suit operational requirements.

To vary the DZMx timers,

- Go to **MENU>Tracking>Main timer** or **...Heading timer** or **...Periodic timer**
- Use **LEFT** or **RIGHT** to decrease or increase messaging interval
- Press **ENTER** to save.

Note: the periodic timer should have a lower value than the main timer.

5.4.2 Suspending or disabling tracking

Tracking may be suspended temporarily, for example when an aircraft is working for a period at a known location, or disabled.

5.4.2.1 Suspending tracking

To suspend tracking:

- Go to **MENU>Tracking>Tracking mode**
- Scroll to **Suspend** and press **ENTER**.

Tracking is disabled for the current flight only, and will automatically be re-enabled when the DZM is next powered up.

5.4.2.2 Disabling tracking

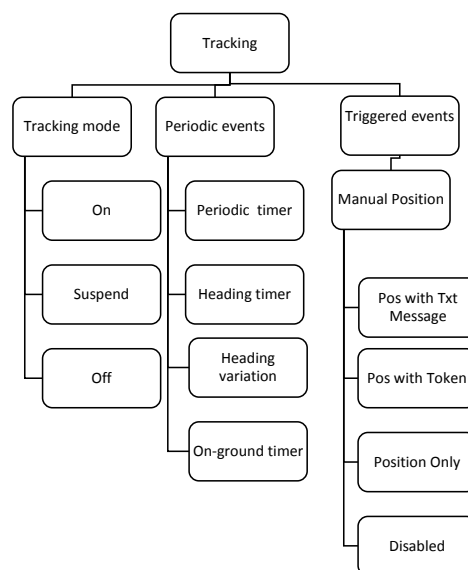
To disable tracking:

- Go to **MENU>Tracking>Tracking mode**
- Scroll to **Off** and press **ENTER**.

Tracking remains disabled for until manually re-enabled.

To re-enable tracking:

- Go to **MENU>Tracking>Tracking mode**
- Scroll to **On** and press **ENTER**.



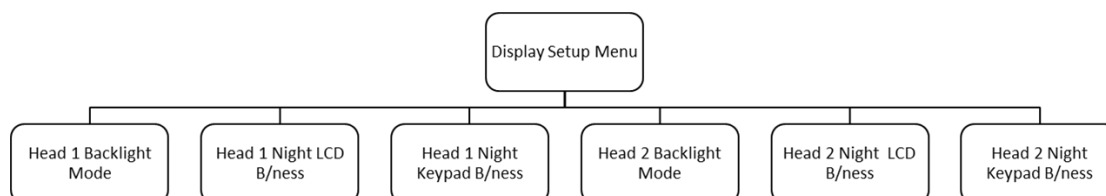
6 Adjusting DZMx backlighting

The DZMx and DZMx Remote Head have a backlit keypad and LCD display. Backlight levels can be adjusted separately for the DZMx and remote head.

The DZMx currently provides for two backlight levels, Day and Night.

Day backlight is set at maximum brightness on both keypad and display.

Night backlight can be adjusted separately for the keypad and LCD display.



6.1 Changing between Day and Night backlight level settings

- Press **MENU>Display>Head 1... or ...2 Backlight Mode>Day Mode** or **...>Night Mode** as applicable
- Press **ENTER** to select that mode
- Press **END** to close the menus.

6.2 Adjusting DZMx night backlight levels

- Set the DZMx to Night mode
- Go to **MENU>Display>Head...** to select the applicable head and the keypad or display setting; the DZMx will show the current lighting levels as a percent of the maximum
- Use **UP** or **DOWN** to increase or decrease backlight intensity
- Press **ENTER** to save the setting
- Press **END** to return to the main screen.

7 Warranty and contact details

7.1 Limited warranty for your Flightcell DZMx

Flightcell International Ltd's quality products are proudly designed and manufactured to the highest standards in New Zealand.

Your DZMx is warranted for two years from date of sale. This warranty covers Flightcell manufactured items only. Any ancillary items may be covered by individual manufacturer warranties.

The warranty is void if any labels are removed or if it is determined that your DZMx has been:

- Connected to a power supply delivering more than 32 Volts;
- Connected with reverse polarity;
- Installed in direct contravention to the guidelines outlined in the technical installation manual;
- Physically damaged, or a fault has occurred due to the product being used beyond what is considered normal use, causing unusual deterioration of the product.

If the product is deemed to be faulty or in need of repair, please download a Returned Materials Authorization form from <http://www.flightcell.com/support.aspx> or contact Flightcell International at the address below.

7.2 Flightcell International contact details

Flightcell International Ltd

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Nelson 7040

New Zealand

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Fax +64 3 5488091

Email admin@flightcell.com

Website <http://www.flightcell.com>

8 Version history

Version	Date	Author	Change note number	Description
V 1.0	5 th August 2013	J Mace	FCN506	First draft of manual
V 2.0	19 th November 2013	J Mace	FCN0554	Redrafted for firmware releases 0.3.08 and 0.3.09
V2.1	22 nd November 2013	J Mace	FCN0556	Updated for firmware release 0.3.10
V4.0	19 December 2013	J Mace	FCN0563	Updated for firmware releases 0.4.2 to 0.4.5