

Version IV Operating Guide

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Section 1 Introduction

Congratulations on your investment in the patented Flightcell Version 4 Multi-Function portable Cellular phone interface. Please read these instructions on its operation before attempting to use this product whilst in an operational aircraft.

Features

Flightcell V4 is a totally portable passive (emits no EMI) interface primarily but not exclusively for the connection of cellular phones to aviation headsets either in conjunction with or independent of aircraft systems.

As Flightcell is portable no certification is required.

Flightcell can be used with most brands and types of cellular phones without any modification required between models.

Flightcell V4 has facility to interface simultaneously cellular phones, audio input devices such as Discman/MP3 player, non aviation transceivers and output to devices such as to Video cameras or CVRs

Flightcell V4 can be powered directly from an aircraft or with its own internal batteries.

Flightcell V4 has a built in basic intercom that together with an optional headset lead allows connection of a second user of the unit.

Flightcell V4 can be remotely mounted and controlled using the optional remote keypad.

Flightcell V4 has LED indicators for quick identification of mode and battery states.

Limitations

Limitations. Due to the large array of cellular phones, headsets and aircraft radio/intercom systems it is impossible to guarantee a perfect hook-up of the Flightcell. If you experience problems it could be due to any of the connected components not operating within the ranges required.

Some cellular phone operating systems create electronic interference, which is picked up by the sensitive components within the Flightcell, it is possible to reduce or eliminate this in the majority of cases. It is important to understand that this interference is not transmitted to other users and can only be heard by the person plugged directly into the Flightcell.

Please check your local laws with regards to the use of Cellular Phones once airborne. Aviation laws in most countries allow the airborne use of cellular phones provided the pilot has approved its use and has deemed it to not be detrimental to the safe operation of the aircraft.

In some states it is against local communications laws to use a cellular phone when airborne however this is not to do with aircraft safety but concerns over multiple triggering of land based Cell towers.

In reality this has not proven to be a significant problem. If this should happen the worst result is a dropped call.

Section 2

Displays, Controls, Sockets

LED Lights

Flightcell V4 has 2 LED lights, one green and one red. These lights indicate the mode that has been selected through a series of either flashes or solid lights. The green LED indicates power related states and the red LED indicates mute or internal intercom related states. See section 9 for interpretation of these lights.

Audio Tones

Flightcell V4 will give an audible tone through the users headset in the following circumstances. The Flightcell switches are activated, the internal battery is low or the unit is turned off. When the unit is turned on a single tone will be heard after 1 second. When any of the keys on the keypad are operated correctly a single tone will be heard. When the internal battery is very low a single tone will be heard every 3 minutes. When the unit is switched off or automatically switches off due to flat battery a double tone will be heard 1 second prior to switching off.

Control Switches (Keypad)

Flightcell V4 is fitted with a membrane switch control pad (Keypad). This keypad consists of 6 switches (buttons). On/Off, Mute, Up, Down, Intercom, Function.

When these buttons are depressed a single audio tone is heard*. The button must be repressed each time an action is required, holding down a button will not activate it more than once. *To turn Flightcell on or off you must first hold down the function button and while still holding it down depress the ON/Off button and hold for 1.5 seconds. This stops the unit from being inadvertently turned of or on.

On/Off button	Turns Flightcell on or off when held down together with "Func" button for 1.5 secs.
Mute button	Activates the Mute feature.
Intcom button	Activates the Mute of the *internal intercom (*optional).
Func button	Depressed together with other buttons activates other features.
Up/Dn Buttons	Shift up or down volume in 40 single increments. With "Func" button held down shifts up or down auxiliary input volume level.

Sockets

Flightcell V4 is fitted with 3 3.5mm stereo sockets and 1 RJ45 multi pin connector. The 3.5mm sockets are in order starting from the RJ45 Multi connector. Auxiliary input, Auxiliary output, Cellular phone input/output.

RJ45 (Multi Connect)	Used in conjunction with the optional accessories 1, Remote keypad 2, Second user headset jack/s (internal intercom) and 3, Additional radio connector.
Auxiliary input	For the connection of Walkman/Discman/Mini Disc or MP3 audio players.
Auxiliary output	For the connection to TV/Video Cameras or Cockpit voice recorders (CVRs)
Cellular Phone	For the connection of cellular phones via the cable/s Input/output provided. Differing cables may be available for various phone types.
Aviation socket/s	For the connection of the primary users aviation Headset or Helmet. (GA or Nato specific)
Aviation Plug/s	For the connection of Flightcell to the aircraft via the primary users normal position. (GA or Nato specific)

Section 3

Modes	
Normal Off	Headset is connected through Flightcell directly to the aircraft. Cellular phone is not online.
Normal On	Single flash of the green LED, all inputs/outputs from/to aircraft and cellular phone are connected at normal volume settings.
Mute On	Steady red LED, all input volume levels with the exception of the cellular phone are at 50% value. Cellular phone remains at normal volume. Microphone is disconnected from all outputs with the exception of the cellular phone.
Intercom Mute On	Single flash of red LED, Optional internal intercom is muted, second user microphone is disconnected.
Both Mutes On	Steady Red LED with flash. Both mute circuits are engaged.
Battery Low	Double flash of green LED. 25% charge remains in internal battery.
Recharge Battery	Triple flash of green LED. Audio tone every 3 minutes. Recharge battery. 1% charge remains.

Section 4

Power Supplies

Internal Power supply

Before using your Flightcell for the first time you will need to charge it for 15hrs with the charger provided. Flightcell is fitted with high quality NMHi batteries as these resist memory problems associated with NiCad type batteries.

Charging

The Green LED light on the top of the switch pad will illuminate constantly to let you know the battery is charging. When fully charged the light will Flash. Do not leave unit on charge more than 30hrs as this will overheat the internal batteries resulting in reduced performance. The internal NMHi battery has 50+ hrs of life if used continuously depending on volume settings.

Battery maintenance

It is a good idea to cycle the battery periodically. To do this just leave the unit switched on after use until flat. Then recharge as normal.

External Power Supplies

Flightcell can be powered directly from an aircraft supply and will run on any voltage from 9-32 volts.

But this should not exceed 32 volts as this could blow the internal protection and the unit will need to be returned for repair. If powering the unit from the aircraft you will need to obtain a power plug to fit the units power socket (2.1x5mm short shaft DC centre positive plug).

When powered from an aircraft supply the Green LED will illuminate constantly (if aircraft Batt switch is on) when the unit is turned off, when the unit is on the Green LED will Flash long on, long off.

Section 5

Basic Operation

It is important that you adjust all input volumes correctly to get the best performance.

- Start with the unit plugged in but turned off, then adjust the radio and then aircraft intercom volumes in the normal way.
- To turn the Flightcell V4 On or Off you must hold down the Function button and the on/off button simultaneously for 1.5 seconds.
- Turn the Flightcell on and adjust the volume on the unit using the up/down buttons so that when you turn it off, then on again, there is no discernible change in levels of the radio or intercom.
- The small fly-lead plugs from the Flightcell Cellular in/out socket into your cellphone. It must be plugged in correctly as failure to do so will lead to feedback or failure to hear or talk on calls. Please consult your cellphone instructions if you don't know where to plug it. Some cellphones have a built in 2.5mm personal Headset socket (Motorola, Samsung) others may need an adaptor to go on the bottom of the phone (Nokia, Erickson, some Qualcom) this adaptor has a 2.5mm socket. These adaptors are available your Flightcell supplier Cell-phone accessory or Radio Shack Stores.
- Now adjust the phone volumes on the phone to the desired levels, the easiest way to do this is to listen for the tones when touching the phone buttons.
- You may now turn all volumes up or down together using the master volume buttons on the unit. You are now ready to go flying. It is suggested that you do not use your phone during critical flight phases and turn it off during approach and landing except if needed for emergency communications. Remember a GSM/Digital phone could affect VHF/GPS Nav devices. If in doubt turn you phone off and see if you get any change in indication.

Just use your Radio and Intercom in the normal way. When a call comes in your phone will ring normally, or in the case of some models (Motorola & some later Nokia and Ericsson) through the headset. If your phone is one of the earlier models that does not ring through the headset, it may mean you need to set your phone up on "Auto answer mode" (Check your phone instructions). Also a "Vibralert" function may help to alert you to calls. Answer your phone in the normal way, there is no need to switch anything on the Flightcell (please read your cellphone instructions, as your phone may sense that the Headset jack is in use and there may be other ways of answering your phone, (eg: you can answer Motorola phones by touching either volume controls, on the completion of a call you will need to push the end button as closing the flap does nothing). You may if you wish and your phone has the capability, answer calls using the phone in "Auto answer" mode.

To make an outgoing call, just dial out in the normal way.

Section 6

Cellular Phones

Common Cellular Phone Systems

Aviation is best suited to Analogue & CDMA type cell phones. Dual mode and GSM Digital phones will work however, but special care is required. To get the best from the phone and to eliminate as much interference created by the phone as possible to the headset and aircraft radios, the following suggestions are made.

If using a Dual mode (TDMA) phone. You should switch it to Analogue only using the phones menu, if this service is available in your area. See your phone user guide.

If using GSM Digital phones it will be necessary to keep the phone as far away as possible from all electronic equipment including your headset and the Flightcell unit itself.

The best position is to hold the phone cupped in you hand so as to shield the antenna. Against your chest also works as your body being mostly water soaks up unwanted noise very well. You may need to experiment with this until you find the best position for your situation and phone. The amount of interference noise will vary depending on phone Make & Model.

Headsets

Electric Noise cancelling type mics work best with cellular phones as they cut down background noise, however, you may use Dynamic mics as well. ANR headsets work just as any other. You may find differing volume levels exist with different headsets plugged in, this is unavoidable.

Section 7

Advanced Operations

Mute

Mute button. Your Flightcell is fitted with a mic (Aircraft Intercom) mute switch. This stops your outgoing telephone conversation being heard by others in the cockpit.

Note 1: They never hear the incoming phone conversation. This switch will also drop all Radio and Intercom volume levels by 50%. To stop your phone conversation triggering the intercom, turn this Mute On (Red LED steady on).

Note 2: Other aircraft and control are never able to hear your phone conversation.

Note 3: Be sure to turn mute back Off (No red LED) again before using the radio or intercom as your mic will only work for the phone until you do. This can result in some embarrassment when you finally realise why the tower cannot hear you.

Auxiliary Input/Output

On the side of the unit are the auxiliary input Walkman/Discman and auxiliary output (Video/TV camera) sockets. (A cable for Walkman/Discman is available from Dick Smith Electronics. NZ & Australia (3.5mm Male to Male) Part # C1158), Tandy and Radio Shack Stores also have these available.

To adjust the input volume on an auxiliary device plugged to the Flightcell you must hold down the function button while simultaneously pushing the up or down buttons.

The Intercom button can only be used in conjunction with the optional extra second user headset Jack

The On/Off switch can also be used as an isolate switch. If you are on a call and wish to temporarily disconnect from the caller but not lose the call, or mute the walkman while you talk to the tower then just switch the unit off, and when you turn it back on they will still be there. There is, however, no need in normal circumstances to turn the unit off as you can talk to the tower without doing so. You should not need to turn the unit off until you have shut down your aircraft. Should the unit fail for any reason turning the unit off will reconnect your headset to the radio. The On/Off switch also serves as a reset for the internal electronics.

Section 8

Optional Extras

The following accessories are available to expand the versatility of your Flightcell interface and use the RJ45 Multi connection port.

Second user Headset Jack GA

Allows a second headset to be used, second user can access all functions. Allows simple intercom to operate between 2 connected Headsets.

Second User Headset Jack Nato

Allows a second headset to be used, second user can access all functions. Allows simple intercom to operate between 2 connected Headsets.

Remote mount Switch Key-pad and LED display

Allows the Flightcell units to be located away from the reach of the user but giving access via a second Keypad to all functions.

Additional Non Aviation Transceiver Connector

Allows the connection of a second radio transceiver for simultaneous use of either Aviation or Non Aviation, CB, Fire/Police radios without the need for permanent installation.

Section 10

Specifications Nato plug wiring spec

Pin 1 = Blue wire, Microphone Positive (Yellow)

Pin 2 = Green wire, Headphones Positive (Green)

Pin 3 = Red wire, Microphone Earth (White)

Pin 4 = White wire, Headphone Earth (Black)

Section 11

Limited Warranty

Warranty. Your unit is warranted for 12 months from date dispatched.

The warranty is void if any labels are removed or if it is determined that more than 32 volts or reverse polarity has been put into the charge socket