



IsatDock Docking Station BETA USER GUIDE

PRO & MARINE

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1. Overview

There are four main variants of the IsatDOCK docking stations:

1. IsatDock LITE

The IsatDock LITE docking station provides a high quality mechanism for docking the Inmarst IsatPhone Pro handset. The dock is targeted for an in-vehicle application that connects to an external vehicle-mount antenna. The IsatDock LITE allows the option of using an optional privacy mode handset mounted alongside the unit.

2. IsatDock DRIVE

The dock is design specifically for an in-vehicle handsfree application, connecting to an external vehicle-mount antenna. The IsatDock DRIVE allows for the use of an optional privacy mode handset mounted alongside the unit or an external speaker and microphone. The IsatDock DRIVE incorporates inbuilt GPS tracking and the following additional external interfaces: an alert loop, radio muting, and horn alerts.

3. IsatDock PRO

The IsatDock PRO allows the flexibility of using a privacy mode handset mounted to the unit or an RJ11/POTS handset connected directly to the rear. The user is also able to operate in a hands free mode with a microphone and speaker combination build into the dock. The installation options of the IsatDock PRO enable the user to mount the IsatDock PRO in either a vertical or horizontal position.

4. IsatDock MARINE

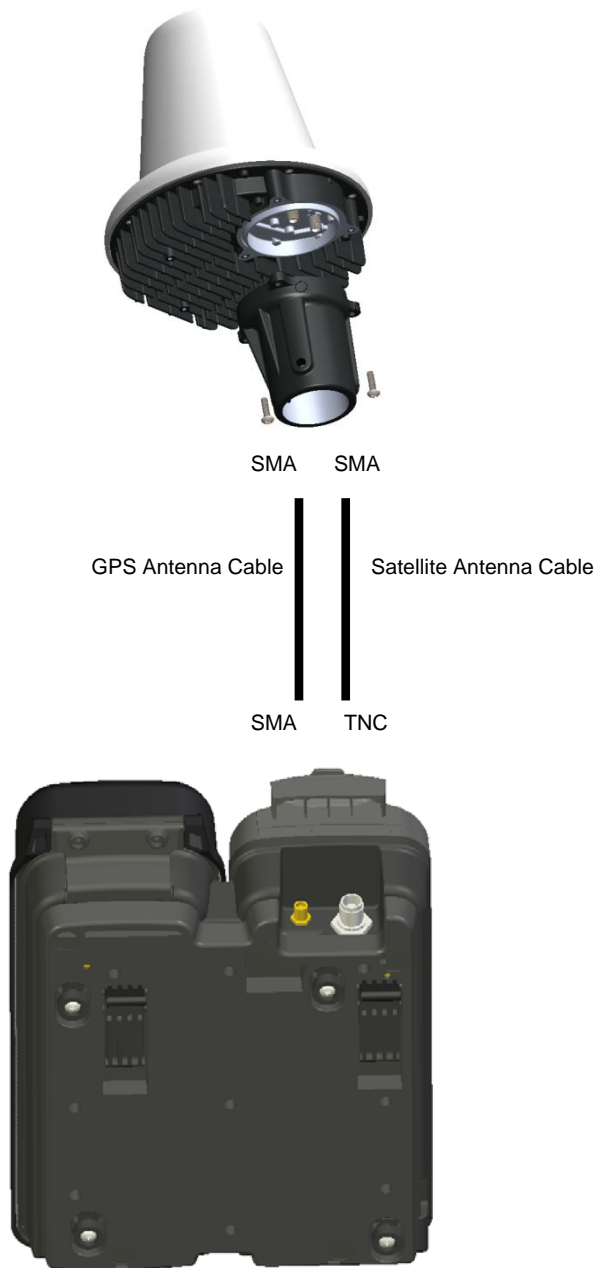
The IsatDock MARINE docking station allows the flexibility of using a privacy mode handset mounted to the unit or an RJ11/POTS handset connected directly to the unit. The terminal itself is designed with IP rating for use in harsh environments. The IsatDock MARINE incorporates inbuilt GPS tracking and an alert loop function.

1.1. PRO/MARINE – Key Features



Figure 1 - IsatDock PRO/MARINE

2. Antenna connection



3. Functionality

3.1. Docking Procedure

The following docking procedure is common across each of the docking station types

PREPARATION:

To place the IsatPro Phone into the docking unit, both the 'doors' on the external antenna connectors and the USB/Audio connectors need to be opened.

The antenna 'door' must be placed at 90 degrees to the antenna connector cavity and run parallel to the top edge of the phone

The 'door' in the base of the phone should be in the fully opened position.

ANTENNA
COVER

USB/AUDIO
COVER

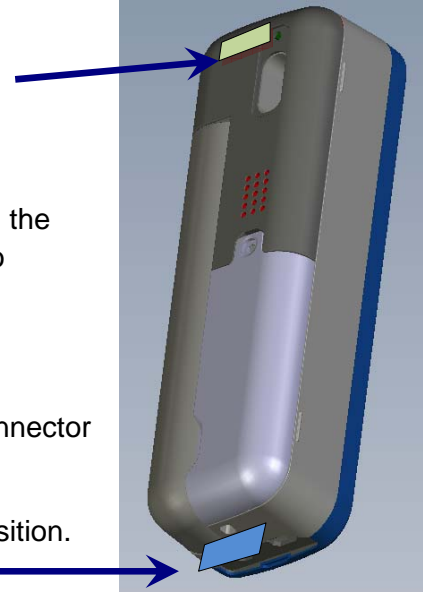


Figure 2 – Door Openings

DOCKING:

To dock the handset, align the IsatPhone with the phone tray and slide the handset down until it seats flush to the bottom of the tray

Swing the phone down into the cradle by applying pressure to the top of the handset. An audible 'click' is heard when the phone is in the docked position.



Figure 3 – Phone alignment



REMOVAL:

To remove the handset from the cradle, press the eject button at the top of the docking station. The dock will swing out and the handset can be removed.

3.2. PRO/MARINE Privacy Handset

The Privacy Handset resides to the left of the IsatPhone Pro when not in use. During a call the privacy handset can be hung on the top of the mounting cup when the docking station is mounted on the wall. The same retention cavity used to clamp the handset is placed on a mounting pip on top of the phone.



Figure 4 – Privacy Handset – 'Off Hook'



MOUNTING POINTS



Figure 5 – Privacy Handset – mounting points

3.3. PRO/MARINE - Access to Rear Connector Bay

For the PRO/MARINE IsatDocks, the external cable interfaces are at the rear of the docking station. The cover panel creates the IP rating for the electrical interface and retains the cables in their respective channels. The cover panel is fixed in place by 7 screws. The four screws around connector bay sealing gasket are located in threaded brass inserts in the plastic housing.

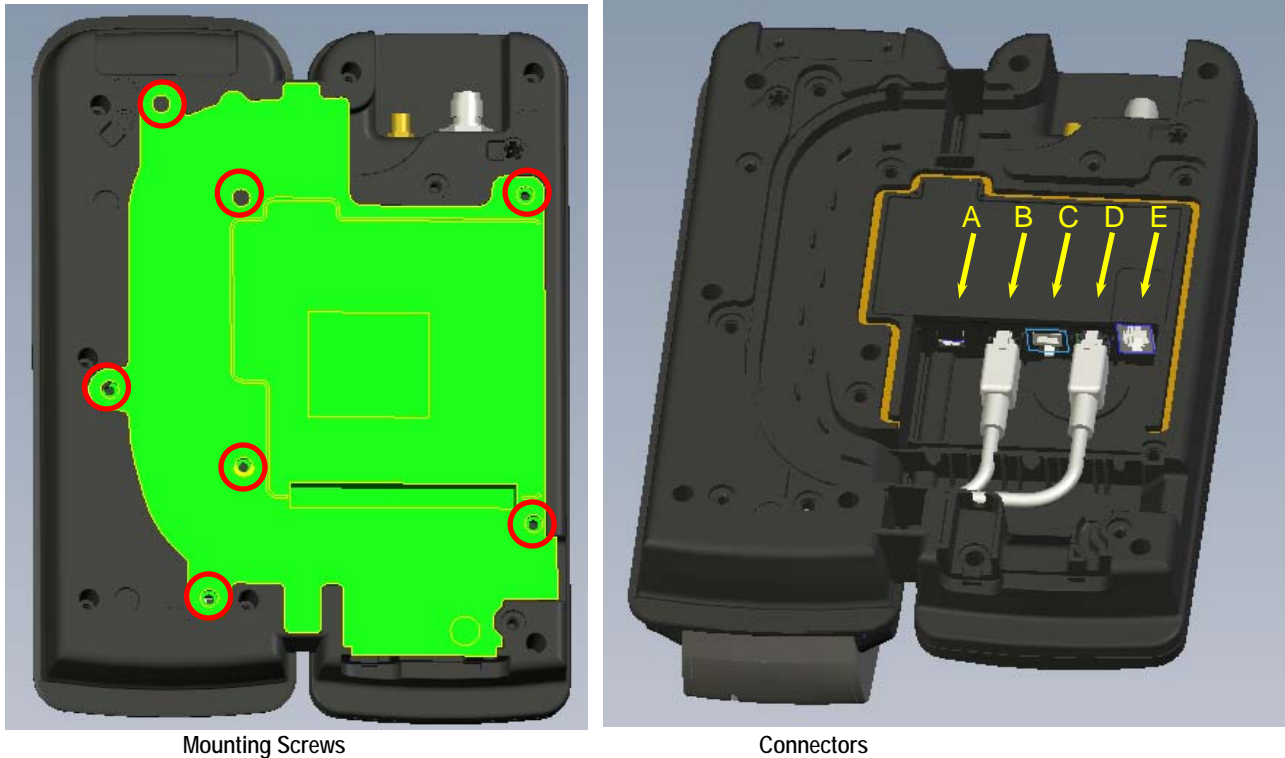


Figure 6 – PRO/MARINE rear cover panel

The connectors present are:

- A) USB data interface.
- B) Alert loop cable.
- C) RJ11 POTS interface
- D) DC power and Accessory input
- E) RJ11 Privacy handset

3.4. PRO/MARINE Security Bolts

Two security bolts ensure the PRO/MARINE docking unit is firmly fixed to the wall and only removed by an 'authorized' (the security key holder) personnel.

Once the mounting bracket has been attached to the wall, the dock slides down into place on the keyhole shaped slots. These two security bolts prevent the docking station from sliding back up freeing the dock.

The security bolts are 4mm in diameter and have a slot for a flat blade screwdriver. The threaded M4 nutserts are highlighted in Figure 8 that receive the security bolts. The bolt under the privacy handset mounting cup must be fitted prior to the cup being screwed into place. The second bolt is

placed under the privacy handset in the recess for the handset antenna cover. Both bolts are then covered with plugs. As the second bolt is under the privacy handset, access to the bolt is denied when the handset is locked into the cradle.

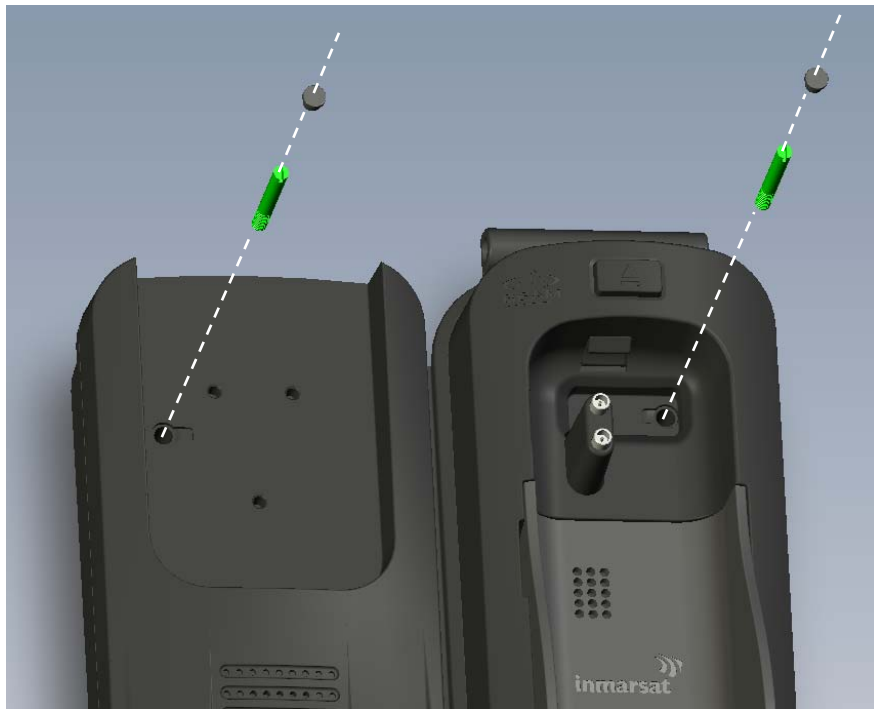


Figure 7 – Security Bolts



Figure 8 – Mounting Bracket security

3.5. Additional Buttons and LED's



The docking station includes additional buttons to access the functions of the dock.

MUTE	Will mute uplink audio. Flashes RED when mute is active.
VOLUME UP	Increase volume
VOLUME DOWN	Decrease volume
BUTTON "A"	IsatDock Pro – Redial Will redial the last number IsatDock Marine – Track Will send a tracking SMS upon being pressed
SPEAKER	This button will activate the speakerphone when in a call. Green indicates a call in speakerphone mode.

STATUS LED

Colour	Flashing		Can place call
Red	Yes	Not registered and limited signal	No
Red	Solid	Registered and limited signal	No
Yellow	Yes	Not registered and Low/Average signal	No
Yellow	No	Registered and low/average signal	Yes
Green	Yes	Not registered and Good signal	No
Green	No	Registered and Good signal	Yes

3.6. Adjusting LED Brightness

Pressing the UP and DOWN buttons together will put the docking station into LED brightness adjustment mode. Once in this mode the LED's will flash. Press UP or DOWN to increase or decrease the LED brightness to a comfortable level, depending on your environment. This mode will automatically timeout after 5 seconds of button inactivity.

3.7. Keylock

A barrel type lock is situated in the top of the dock. When locked, the eject button cannot be depressed and the latch holding the top of the handset in position cannot be disengaged from the IsatPhone Pro. Once locked, the access to the security bolt beneath the handset is also denied thus ensuring the PRO/MARINE docking stations cannot be removed from their mounting bracket.



Figure 9 – Keylock position

3.8. MARINE - Cover

The MARINE docking station achieves an IP54 rating over the handset by the use of a hinged cover. Bonded into the inside edge of Marine cover, is a silicon gasket. When fully closed, this creates a waterproof seal on the lower half of the dock. \

The cover is released by the latch at the base of the cover.



Figure 10 – IsatDock MARINE cover



Figure 11 – Cover Seal

4. Installation

4.1. PRO/MARINE – Cable routing

The IsatDock provides three different cable routing options when installing the docking station.

Cables may exit via path ‘A’ that travels around to the top of the dock allowing for the interface cables to be run with the external antenna connections. Path ‘B’ directs cables out the base of the dock while path ‘C’ results in cables exiting to the side.

In all cases the cables pass through the IP sealing foam and plastic cable guides at the same point.

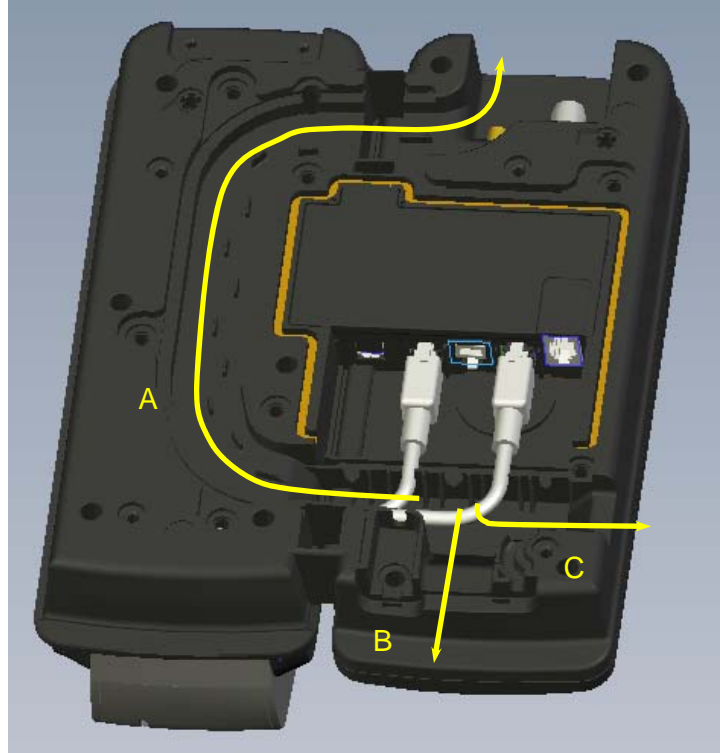
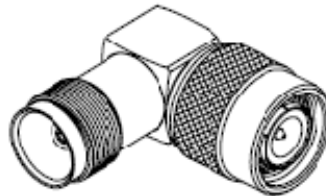


Figure 12 – PRO/MARINE cable routing options

For an extra clean installation, a hole may be driven through the surface directly behind the docking station. Right angled adapters are fitted to the external antenna connectors and the cables are routed via path ‘A’ out through the same hole. With the cables routed in this manner, there are no cables visibly exiting the docking station due to the recessed antenna connectors at the top of the docking station.



TNC adapter (GPS)



SMA Adapter (GPS)

4.3. PRO/MARINE – Privacy Handset

There are two options for the privacy handset mounting cup depending upon the type of docking station and the mounting orientation of the docking station. One mounting cup has a sprung upper section while the second is a single molded piece with a reversible retention clip.

The three options are shown below in Figure 13.

Option A shows a horizontal desk mounted situation. The ‘springless’ cup is fitted to the docking station with the mounting clip in a ‘flush’ position.

Option B shows how the mounting clip can be slid out and reversed, producing a protruding point that the Privacy handset rests upon. For a wall mounted docking station this retains the privacy handset and the springless cup has enough height to allow the handset to rise up off the clip and out of the mounting cup.

Option C. In harsh environments, the Privacy handset is actively retained in the mounting cup. This is achieved by using the ‘sprung’ mounting cup. To remove the handset from the cup, the phone is lifted up against the pressure of the spring until it clears the lower mounting pip and can be removed from the docking station (see Figure 15)

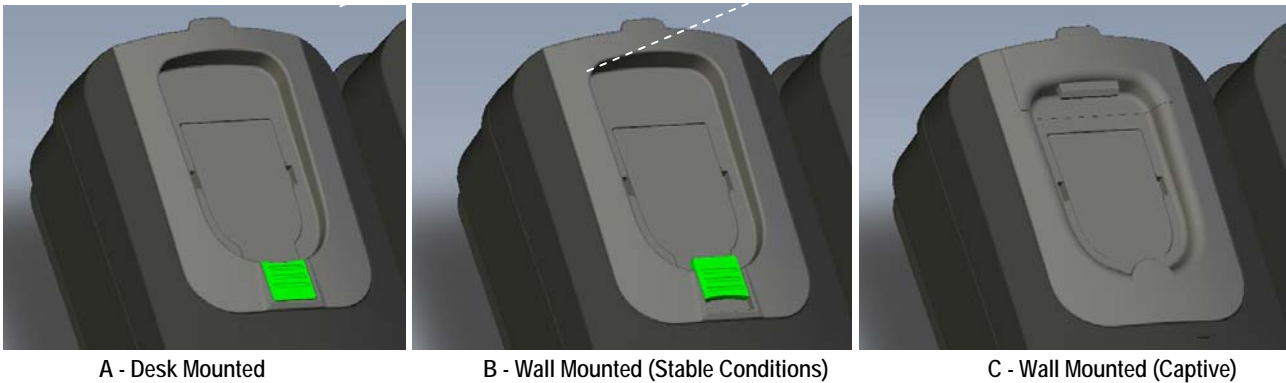


Figure 13 – Mounting Cup options

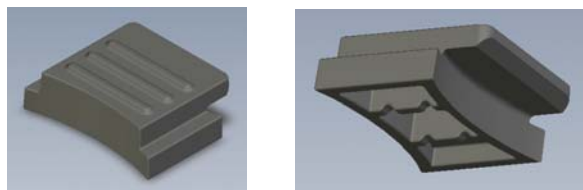


Figure 14 – Mounting Cup Clip

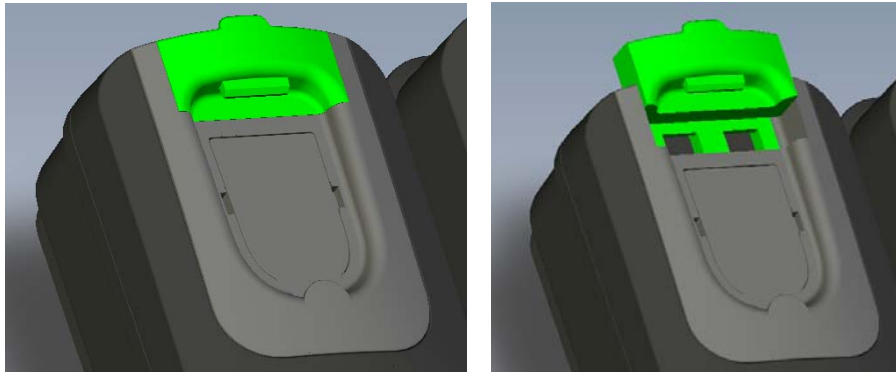


Figure 15 – Mounting Cup (Marine Version)

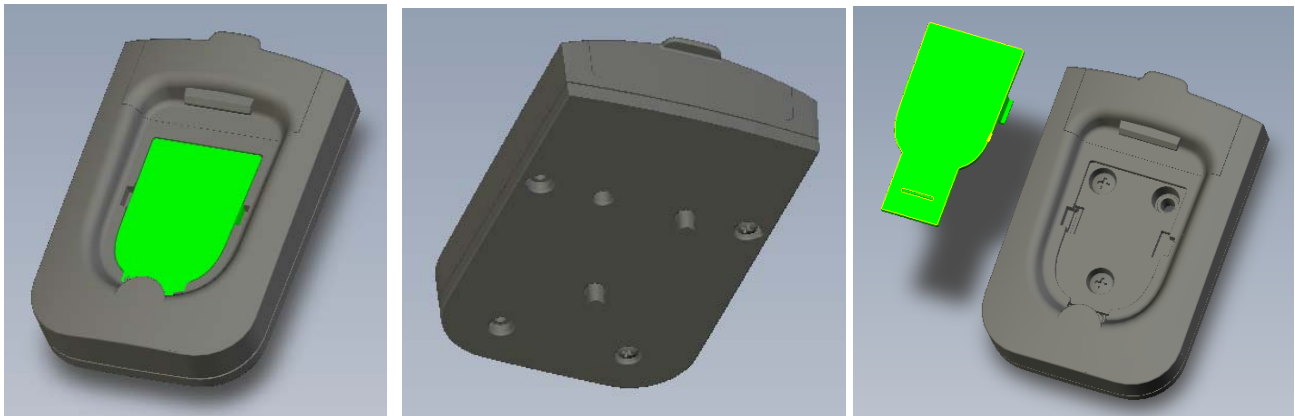
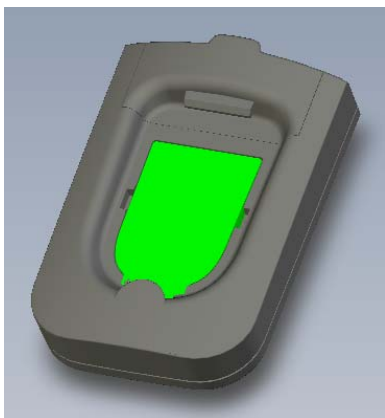
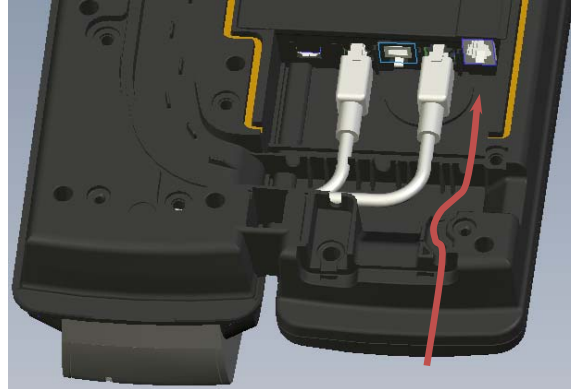


Figure 16 – Privacy Handset mounting cup



Switch privacy cups, depending on the intended installation environment.

The Privacy Handset connects to the docking station via a RJ9 connector. For the PRO / MARINE versions, the privacy handset is connected beneath the rear panel. Once connected, the cable is run back through the foam and placed in the 'S' channel through the base of the phone.



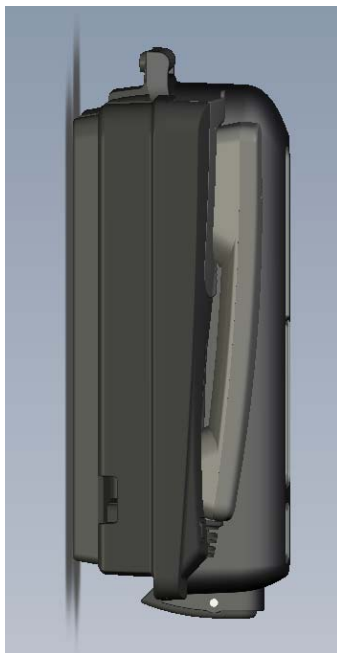
LITE / DRIVE

PRO / MARINE

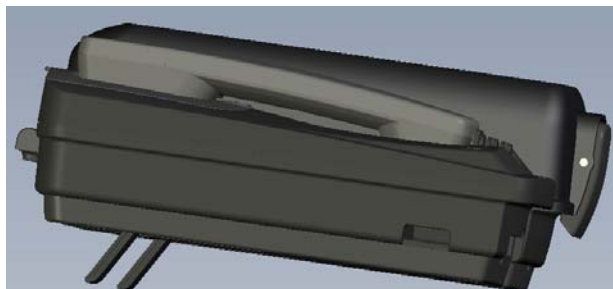
Figure 17 – Privacy Handset connection point

4.4. PRO/MARINE Mounting Orientations

The IsatDock PRO/MARINE can be mounted either flat on a desk or vertically to a wall. When wall mounting the docking station, the wall bracket is first screwed to the wall and the dock is slid into place. Two security pins are then slid into place locking the dock to the wall. The docking station can be elevated in the desk mounted orientation by two retractable feet included in the mounting bracket.



Wall Mounted



Desk Mounted

Figure 18 – PRO/MARINE mounting Orientations

There are four keyhole shaped slots in the mounting bracket that mate with feet on the rear of the plastics. To attach the bracket, the larger end of the keyhole will pass over the feet (see 'B' below). The bracket is then slid up to lock the feet into the narrow section of the keyhole.



A – Align Keyholes with feet

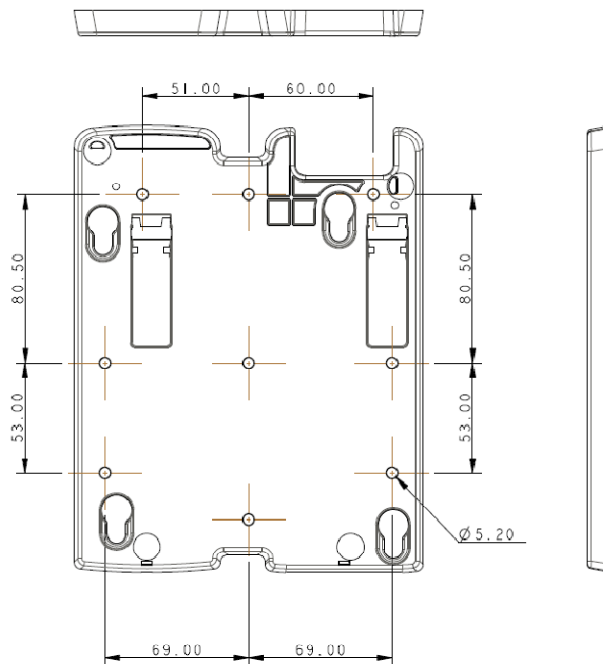
B – Initial Position

C – Final Position

Figure 19 – Fitting the Mounting Bracket

4.5. PRO/MARINE – Mounting Bracket

If the PRO/MARINE docking station is to be mounted vertically, the bracket is first mounted to the wall and the docking station then attaches to the bracket. There are the options of nine mounting holes in the bracket or if required, extra holes could be drilled in the bracket to mate with the intended surface.



The mounting bracket is then attached to the docking station via four 'mushroom' shaped feet.

5. Electrical Interfaces

5.1. PRO/MARINE - Antenna Connectors

The two external antenna connectors can be found in the cavity at the top of the IsatDock.



Figure 20 – External Antenna Electrical Interfaces

INTERFACE	DESCRIPTION	CONNECTOR
GPS External Antenna	Connection point for the external GPS antenna.	SMA (F) bulkhead connector with O-ring
GSPS External Antenna	Connection point for the external GSPS antenna.	TNC (F) bulkhead connector with O-ring

5.2. PRO/MARINE – Rear Connector Bay



Figure 21 – Connector Bay Electrical Interfaces

INTERFACE	DESCRIPTION	CONNECTOR
Data Interface	Data port to the IsatPhone PRO or programming interface to enable upgrading of the Docking station firmware.	MicroUSB Type B Reverse Mount SMT
Alert Interface	Two wire normally closed (NC) alarm alert loop, for connecting to remotely located Duress Button(s)	Micro-Fit3.0 single Row 2Way Header
RJ11 POTS	Interface to a Standard telephone handset or PABX system	RJ11 (6P24C) modular jack
DC Input	Combined DC input and Accessory connection	Micro-Fit3.0 Dual Row 4Way header
Privacy Handset	Conventional telephone handset	RJ9 (4P4C) modular jack

5.3. Powering from the “DC power cable / lead”

The DC power cable / lead can be used where AC power is unavailable. This can be connected to a 9 to 32V DC power source (such as a vehicle battery).

1. Route the power cable from the IsatDock cradle to the connection point, DO NOT apply power until complete.
2. Connect the **BLACK** Ground wire to negative battery / vehicle chassis (if negatively grounded chassis).
3. Connect the **RED** +VIN wire to the vehicle + Battery via a 3A fuse.
4. Connect the **YELLOW** Accessory wire to the vehicle accessory power, via a 1A fuse. (This may be connected to Vehicle Ignition voltage if Accessory power is unavailable). The Accessory (or ON/Off Sense) enables the IsatDock to automatically power on and off as the vehicle key is enabled. If this function is not required, this **YELLOW** Accessory wire MUST be also connected to the +VIN (**RED** wire).

ACC - On/Off Feature (DC cable lead)

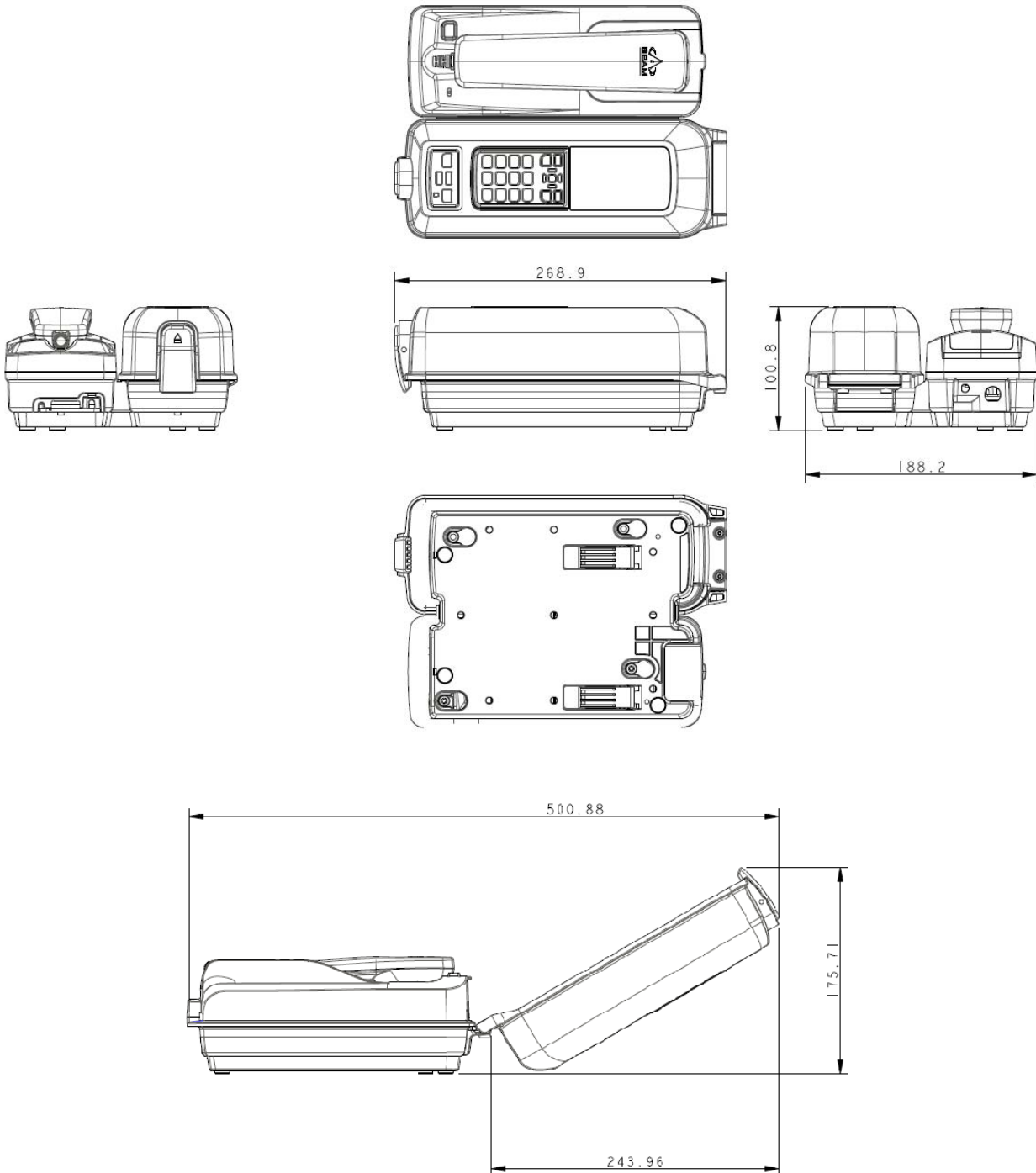
The DC Power lead allows users to control the on/off status of the IsatDock. This input (**YELLOW wire of the DC cable lead**) can be connected to a vehicle's accessories, ignition or other similar circuits to allow the user to control the on/off status of the IsatDock in synchronization with a vehicles operation. If this function is not required, this **YELLOW** wire MUST be connected to the +VIN (**RED** wire). By default the IsatDock will stay on for 20 minutes after being switched off by Accessories. If Accessories is switched off during a call, the IsatDock will stay on for 20 minutes after the termination of the call.

Wiring for a Marine Application

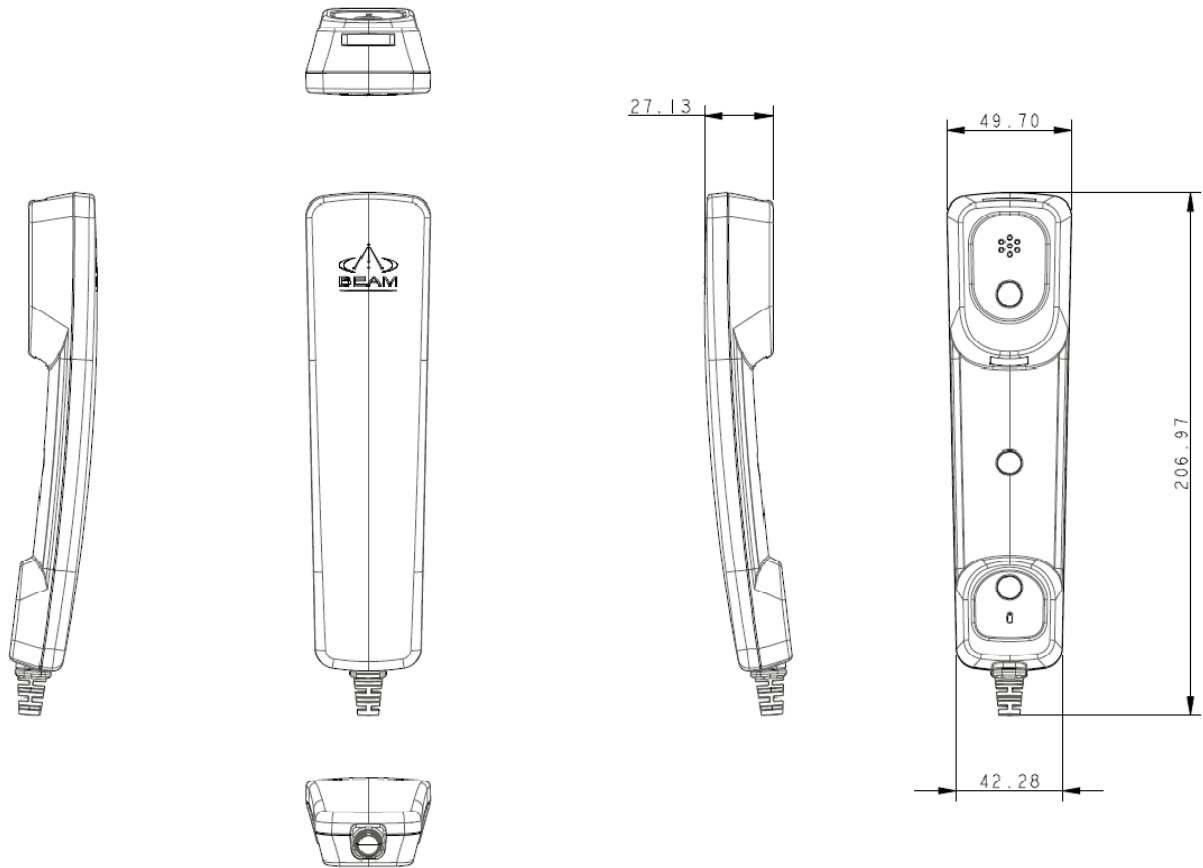
When installed in a marine application using the DC cable lead, the **YELLOW wire of the DC cable lead** can be wired to a suitable panel switch which will allow the IsatPhone Pro to be turned on and off when not in use or to dock or undock the IsatPhone Pro handset.

6. Physical Dimensions

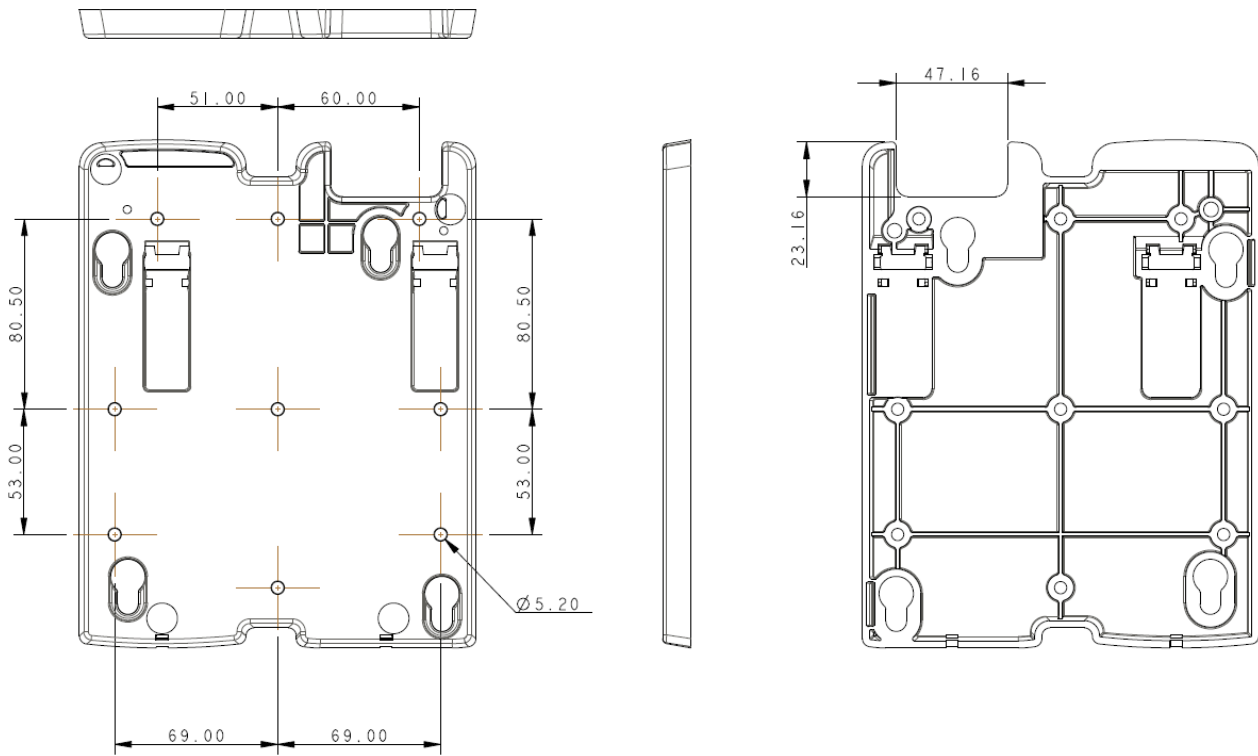
6.1. PRO/MARINE



6.2. Privacy Handset



6.3. Wall Bracket



7. Placing a call – Inbuilt speakerphone and Privacy handset

1. Dock the IsatPhone into the docking station
2. Wait for the docking station to synchronize with the IsatPhone. If the IsatPhone Pro was inserted in the OFF state it can take approximately 1minute for the handset to turn ON and synchronize with the docking station.
3. Check that the status LED is solid green
4. Dial the destination number on the IsatPhone Pro's keypad and place the call
5. By default the IsatDock Pro and Marine will start all calls in speakerphone mode. If you wish to switch to using the Privacy handset you can do so by taking the privacy handset off-hook.
6. Terminate the call by returning the Privacy Handset back to ON-Hook or by pressing the 'speakerphone' button. You can terminate all calls by pressing the red button on the IsatPhone Pro handset.

8. Placing a call – POTS/RJ11 Interface

1. Dock the IsatPhone into the docking station
2. Wait for the docking station to synchronize with the IsatPhone. If the IsatPhone Pro was inserted in the OFF state it can take approximately 1minute for the handset to turn ON and synchronize with the docking station.
3. Check that the status LED is solid green
4. Lift the handset of the POT's phone. You should hear a constant tone
5. Dial the destination number. Call processing is disabled by default, therefore dial the destination in international format.

Eg 00 61 3 9560 9055

00 International dial prefix

61 Australia dialing code

3 95609055 National prefix and destination number

6. Once the call has connected you can terminate the call at anytime by placing the POT's handset back ON-HOOK.

9. Adjusting Volume

NOTE: The IsatPhone Pro handset has its own volume controls for both incoming call ringing and in-call audio levels. It is recommended that you set the IsatPhone Pro to maximum volume and use the docking station to reduce the volume if required.

You can raise and lower the volume of the docking station by pressing the UP/DOWN arrows.

Not in a call – Idle state

When in the idle state, pressing the up/down buttons will adjust the incoming call ring volume

In call

When in a call pressing the up/down buttons will adjust the call volume.

10. Configuring the Unit

The IsatDock can be configured by the IsatDock Management System. This is a Microsoft Windows application that connects to the docking station via a USB cable. This application allows users to configure settings such as:

- POTS Call processing
- Auto and quick dialing
- Audio Gain's
- Upgrade Firmware
- Retrieve status – IMEI, Firmware Version, Serial Number, etc
- Tracking
- Accessories timeout

11. Antenna Specifications

AMPLIFIER + INTEGRAL ANTENNA	
Equipment Type:	Maritime or Mobile
Intended Operating Environment:	[x] Commercial [x] Light Industry & Heavy Industry
Power Supply Requirement:	DC 10 - 32 Volts maximum
RF Input Power Rating:	30.0 dBm or 1.0 Watt (conducted)
RF Output Power Rating:	37.5 dBm or 5.6 Watts peak (conducted)
Duty Cycle:	N/A
Tx Operating Frequency Range:	1626.5 - 1660.5 MHz
Rx Operating Frequency Range:	1565.19– 1585.65 MHz (GPS) 1518-1559 MHz (Inmarsat)
RF Output Impedance:	50 Ohms
Channel Spacing:	N/A
Occupied Bandwidth (99%):	83.1 KHz
Modulation:	TX Modulation: GMSK RX Modulation: OQPSK
Emission Designation*:	G7W
Antenna Connector Type:	Integral
Antenna Description:	Manufacturer: Aeroantenna Technology, Inc. Type Maritime Model: AT1595-82 Type Mobile Model: AT1595-83 Frequency Range: GPS 1565.19– 1585.65 MHz, Inmarsat Receive: 1518- 1559 MHz,



	Inmarsat Transmit: 1626.5-1660.5 MHz GPS Gain: 26 dBi INMARSAT RECEIVE Amplifier: 26 dB INMARSAT TRANSMIT Amplifier: 11 dB Antenna: 6.0 dBi (for model AT1595-83) Antenna: 3.5 dBi (for model AT1595-82)
Ambient Temperature Rating:	-40 to +70 degree C

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation

11.1. FCC Information

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

- *Reorient or relocate the receiving antenna*
- *Increase the separation between the equipment and receiver*
- *Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.*
- *Consult the dealer or an experienced radio/TV technician for help.*

Warning: *Changes or modifications not expressly approved by <manufacturer> could void the user's authority to operate the equipment*

"This device has been designed to operate with the antennas listed below, and having a maximum gain of 6 dBi dB. Antennas having a gain greater than 6 dBi dB are strictly prohibited for use with this device."

"To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication"

All antenna cable used with these antenna must have a dB loss of 6.5dB or greater.



WARNING: To satisfy FCC RF exposure requirements for mobile transmitting devices, a separation distance of 55 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended.

The antenna used for this transmitter must not be co-located in conjunction with any other antenna or transmitter