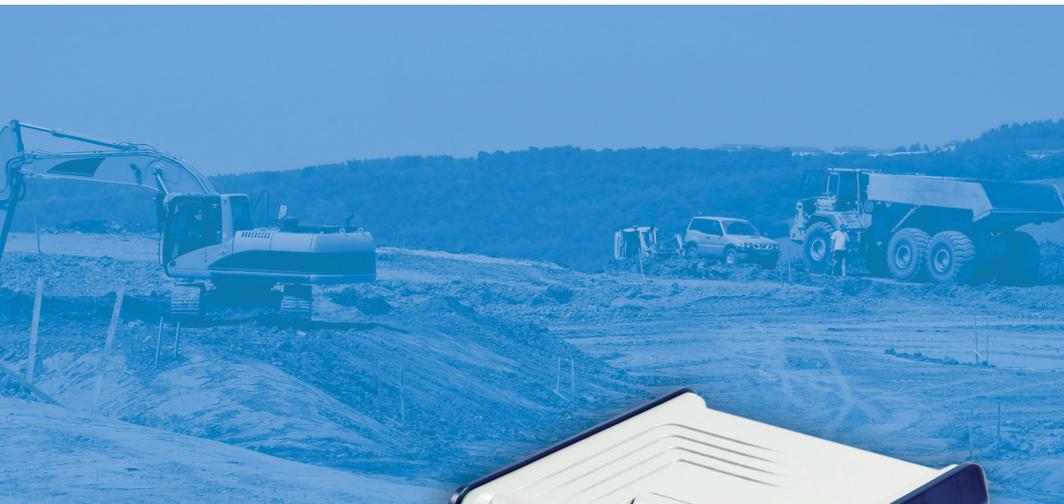




# ProFlex™ 800

powered by  
**ashtech**



## Getting Started Guide



## Backpack Configuration

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(4) installations or defects resulting from installation;

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(6) service performed or attempted by anyone other than an authorized Ashtech Service Center;

(7) any product, components or parts not manufactured by Ashtech,

(8) that the receiver will be free from any claim for infringement of any patent, trademark, copyright or other proprietary right, including trade secrets

(9) any damage due to accident, resulting from inaccurate satellite transmissions. Inaccurate transmissions can occur due to changes in the position, health or geometry of a satellite or modifications to the receiver that may be required due to any change in the GPS. (Note: Ashtech GPS receivers use GPS or GPS+GLONASS to obtain position, velocity and time information. GPS is operated by the U.S. Government and GLONASS is the Global Navigation Satellite System of the Russian Federation, which are solely responsible for the accuracy and maintenance of their systems. Certain conditions can cause inaccuracies which could require modifications to the receiver. Examples of such conditions include but are not limited to changes in the GPS or GLONASS transmission.)

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## What is ProFlex 800?

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Congratulations! You have just acquired the latest dual-frequency ProFlex 800 GNSS receiver from Ashtech! GNSS have revolutionized control surveys, topographic data collection, construction surveying, marine surveying and machine guidance and control. Purchasing the right tools for a professional job is essential in today's competitive business environment. Learning to put these tools to work quickly and efficiently will be the focus of this manual.

ProFlex 800 is a flexible, rugged and high-performance GNSS receiver integrating the best of today's technologies, including the exclusive Z-Blade™ algorithms and multi-constellation (GPS+GLONASS+GALILEO+SBAS) capabilities.

## Scope of this Guide

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This guide is designed to help you rapidly familiarize yourself with your new equipment. **It is more particularly focused on land surveying applications, when the ProFlex 800 is carried in a backpack and used with a data collector and survey field software.**

However, other applications (machine guidance and marine surveying) are suggested in this guide, for example when describing the receiver (connectors, available accessories, etc.), and when presenting the different ways of installing the receiver. For detailed information about using ProFlex 800 in applications other than land surveying implying the use of a backpack, please refer to the *ProFlex 800 Reference Manual*. For the sake of conciseness, only a selection of the many ProFlex 800 functions are presented in this guide.

Most notably, in the survey setups section, only the use of radios is fully described in the implementation of the data link. The other solutions are only outlined. For a full description of these solutions, please refer to the *ProFlex 800 Reference Manual*.

# System Components Overview

The tables below provide an overview of the different key items composing the ProFlex 800. The list of items is intentionally limited to those more particularly required to operate a temporary base, and a rover in backpack configuration. The complete list of items is provided in the *ProFlex 800 Reference Manual*.

Depending on your purchase and based on the type of survey you wish to perform, you may only have some of the listed items. Please refer to the packing list for an accurate description of the equipment that has been delivered to you. Ashtech reserves the right to make changes to the items listed below without prior notice.

## ProFlex 800 Basic Supply

Item	Part Number	Picture
ProFlex 800 GNSS Receiver, includes firmware options listed below: <ul style="list-style-type: none"> <li>• Limited RTK [L]</li> <li>• Dual-frequency tracking [P]</li> </ul>	990658	
Cellular antenna (quad-band)	111397	
Bluetooth antenna	111403	
7.4 V-4.6 Ah Li-ion Battery Pack (rechargeable)	111374	
USB Host-to-Device Cable, 0.2 m Makes ProFlex 800 a USB device.	702104	
Ethernet adaptor cable	702426	
Serial data cable	700461	

Item	Part Number	Picture
AC/DC Power Supply Kit (includes external AC adapter, battery charger and cable extension for powering ProFlex 800 directly from the AC adapter)	802064	
Transport bag	206490	

### ProFlex 800 UHF Rx 410-470 Kit

Item
ProFlex 800 Basic Supply
U-Link Rx 410-470 MHz (UHF antenna not included)

### ProFlex 800 UHF TRx 410-430 Kit

Item
ProFlex 800 Basic Supply
ADL Foundation TRx 410-430 MHz (UHF antenna not included)

### ProFlex 800 UHF TRx 430-470 Kit

Item
ProFlex 800 Basic Supply
ADL Foundation TRx 430-470 MHz (UHF antenna not included)

## Optional Accessories

### GNSS Antennas

Item	Part Number	Picture
ASH-661 L1/L2/L5 GNSS antenna, gain: 38 dB	802135	
ASH-660 L1 GNSS antenna, gain: 38 dB	802133	

### Optional Transmitter Kits

Item	Part Number	Picture
U-Link TRx, 12.5-kHz channel bandwidth	Transmitter: 802080-10 (0.5/2/4W; 410-430 MHz) 802080-30 (0.5/2/4W; 430-450 MHz) 802080-50 (0.5/2/4W; 450-470 MHz) Each P/N includes a half-wave whip antenna, and an antenna bracket. The Y-shaped power/data cable is an integral part of the transmitter (no connector).	 Picture of transmitter with its cable
Pacific Crest radio transmitter, 25-kHz channel bandwidth	110972-30 (35 W, 430-450 MHz) 110972-50 (35 W, 450-470 MHz) Each P/N includes a whip antenna, an antenna bracket and an OEM Y-shaped data/power cable.	 Transmitter alone

## Survey Backpack Kit Option

Item	Part Number	Picture
"Quick Release" male/TNC-male coaxial cable, 1.50 meters.	P076500A	
"Quick Release" female/TNC-male coaxial cable, 0.75 meters.	P076510A	
7.4 V-4.4 Ah Li-ion Battery Pack (rechargeable)	111374	
Backpack	206247	
GNSS Solutions package, includes CD	702081-01	
Range pole option for UHF antenna (includes 0.50-meter pole with 5/8" female adaptor, TNC receptacle and TNC-female/TNC-female cable extension, 0.80 meter long)	802088	
HI Measurement Tool	111146-1	

## Front View



From left to right:



### Bluetooth Antenna

A coaxial female connector (reverse SMA type) allowing you to connect a Bluetooth antenna for wireless communication with a field terminal or other device.



### Cellular Antenna

A coaxial female connector (SMA type) allowing you to connect a cellular antenna. A cellular antenna is required when the ProFlex 800 sends or receives RTK or differential corrections data via its internal cellular modem (GSM). Take care not to swap the Bluetooth antenna and the cellular antenna. The picture below shows where the shorter and longer antennas should be connected.





### USB Host & Device

A nine-contact female connector (Fischer type). Depending on how it is configured, the USB port can be used in two different ways:

1. For a USB host, such as a mass storage device using optional device cable P/N 702104.
2. For a USB device allowing ProFlex 800 to be seen as a disk from the computer connected to this port. In this configuration, files can be transferred between the ProFlex 800's internal memory and the computer using the USB cable provided (P/N 702103).



### Display Screen

The display consists of a 128 x 64-pixel, 1.5-inch monochrome yellow screen using organic LED technology (OLED).

Used in conjunction with the Scroll button, the display screen allows you to view different pages of information. See *Display Screens on page 16* for a detailed description of the information available from this screen.

After a few seconds of inactivity (i.e. Scroll button idle), screen luminosity turns from high to low level.



### Power button

To turn on the ProFlex 800, hold the Power button pressed until the power LED lights up.

To turn off the ProFlex 800, hold the Power button pressed until the "Ashtech" screen is displayed. Then release the button and wait until the ProFlex 800 shuts down.



### Power LED

- This indicator light is off when the ProFlex 800 is off and no external power source is connected to the DC power input.
- It is on and red when an external power source is present at the DC power input and the ProFlex 800 is off.
- It is on and green when the ProFlex 800 is on, regardless of whether it is powered from the internal battery or an external power source.

- It is blinking red when the sleep mode has been enabled and the receiver is currently running a session. With the sleep mode enabled, the receiver is idle between any two sessions, as if it were virtually turned off, and the power LED is also turned off during this time.



### Log Button

Press this button briefly to start recording raw data on the selected storage medium.

Another short press on this button will immediately stop raw data recording.



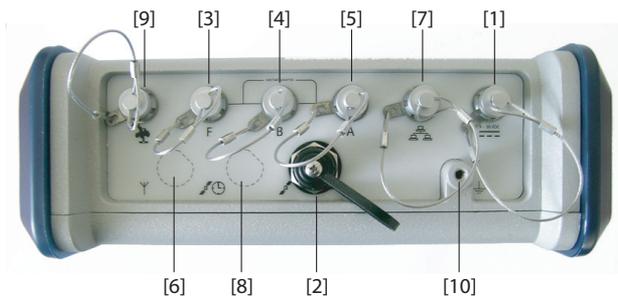
### Scroll button

Press this button briefly to scroll through the different pages of information viewed on the screen.

If an alarm is reported on the display screen, a short press on the Scroll button will acknowledge the alarm. The Scroll button will recover its display scrolling function only after all the alarms have been acknowledged this way.

Another function of the Scroll button is to re-activate the screen backlight after the latter has automatically been turned off. The Scroll button is also used in the firmware update procedure.

## Rear View



### DC Power Input



A Fischer, three-contact, female connector **[1]** allowing the ProFlex 800 to be powered from either the provided AC adapter (connect the cable extension between ProFlex 800 and the end of the AC adapter output cable), or an external 9- to 36-V DC power source through cable P/N 730477 (cf. base setup using an external radio transmitter).



### GNSS Input #1

A TNC coaxial female connector [2] allowing you to connect a GNSS antenna to the receiver via a coaxial cable.



### Serial Data Ports

These are all Fischer, seven-contact, female connectors, each allowing a serial connection to an external device.

- Ports F [3] and B [4] are both RS232-only ports
- RS232/422 Port A [5] is a switchable RS232/RS422 port (Default is RS232).

As an option (installed at the factory), port A also delivers a regulated DC power voltage between pin 1 (+12 V DC) and pin 2 (GND) that can be used to power a connected device. The DC current available is 0.5 A steady state, and 1.0 A peak.

### UHF Input



A TNC coaxial female connector [6] allowing you to connect a radio whip antenna. This connector is available only if the ProFlex 800 has been fitted with a radio module. (Connector [6] is missing from the rear view above.)

**Warning!** Do not confuse this coaxial input with the GNSS input [2] below. Connecting a GNSS antenna to the UHF input might damage it if the embedded UHF transmitter is used (although the transmitter is not supposed to transmit until there are enough GNSS satellites received).

### Ethernet Port



A Fischer, seven-contact female connector [7] allowing you to connect the ProFlex 800 to a local network (LAN). Through this connector, you may remotely control and monitor the ProFlex 800 from any computer connected to the Internet. Data may also flow through this port, in the same way as through a serial port.



### GNSS Input #2

A TNC coaxial female connector [8] for applying an external reference clock. (Connector [8] is missing on the rear view above.)



### CAN 2.0 Bus

A Fischer, five-contact, female connector [9] allowing you to connect the ProFlex 800 to external, NMEA2000-compatible equipment via CAN bus. (For future use.)



### Earth Terminal

A screw terminal [10] for connecting the receiver chassis to Earth.



### Electric Isolation

All signals available on the following connectors are optically isolated from the receiver's internal circuitry and chassis ground, as well as from each other:

- Serial ports A, B and F (including DC power output voltage on port A)
- Ethernet port
- CAN bus

### Buzzer

The internal buzzer will sound whenever an error is detected. The buzzer will sound six times and then stop. The error icon will however continue to blink. To acknowledge the error notification, first press the Scroll key to view the error and associated code and then press the same button again.

## Battery Model & Battery Compartment



The battery used is a 7.4-V DC - 4600 mAh rechargeable battery. It is a standard model used in many camcorders. The battery is housed in a battery compartment accessible from above the ProFlex 800. The compartment door can be opened by lifting and then turning the quarter-turn finger screw counter-clockwise. The battery will automatically operate as a backup power source for the receiver if for some reason the external DC source used is removed from the DC power input.

A slide switch is available at the bottom of the battery compartment to set the behavior of the receiver after removal or failure of the DC power source while the receiver is on:

- Slide switch pushed **to the right**: Automatic re-start. The receiver will automatically be switched on when DC power is restored.
- Slide switch pushed **to the left**: Manual re-start. After power is restored, the receiver will stay off. Operator intervention is needed to switch the receiver back on.

Use for example the tip of a pen to slide the switch to the left or right.



## Special Button Combinations

- With the ProFlex 800 OFF, pressing the Power, Log and Scroll buttons simultaneously for a few seconds will restore all the factory settings.
- With the ProFlex 800 OFF and a USB key connected, pressing the Power and Scroll buttons simultaneously for a few seconds will cause the ProFlex 800 to start a firmware upload process. If there is no USB key

connected or the key does not contain a firmware upgrade, then the process will abort after a few seconds.

Because data has to be decompressed on the USB key during upgrades, the USB key must be unlocked, with at least 100 MBytes of free memory, before starting the upgrade.

These button combinations are summarized in the table below:

<b>Button Combination</b>	<b>ProFlex 800 State</b>	<b>Function</b>
Power+Log+Scroll	OFF	Restores Factory Settings.
Power+Scroll	OFF	Initiates firmware update from USB key.

## Charging Batteries Before Use

Make sure the battery is fully charged for each ProFlex 800 you will be using in the field.

Follow the instructions below to charge a battery.

### Removing the Battery from the ProFlex 800

Unless the battery has already been taken out, do the following:

- Open the battery trapdoor, accessible from above the ProFlex 800, by lifting and then turning the quarter-turn finger screw anticlockwise. This releases the two springs located under the battery, pushing the battery slightly upward (see picture).



- Grab the battery and take it out of the compartment.

### Charging the Battery

The battery charger comes with a separate universal AC adapter fitted with a 1.5-m output cable. The AC adapter includes a choice of four different, detachable plug types. Follow the instructions below to operate the charger.

- Choose the plug type that is suitable for your country.
- Secure that plug on the AC adapter.
- Connect the cable from the AC adapter to the battery charger.
- Give the battery the right orientation with respect to the charger **[1]** (the battery terminals should come into contact with the two sets of connectors on the charger), then push the battery against the plate and slide it forward **[2]** until it locks into place.



[1]



[2]



[3]



[4]



[5]



[6]

## Inserting the Battery in the ProFlex 800

- Plug the adapter into an AC outlet. Battery charging starts immediately.

For a low battery that's being charged, you will first see the three LEDs switch on and off, one after the other, followed by a short period of time when none of the LEDs is on (see [3]).

After about two hours of charging, the MED LED will stay on [4]. A few minutes later, the HI LED [5], and then the MAX LED [6] will also stay on.

- When the three LEDs are on, this means the battery is fully charged and can be disconnected from the charger.

- Insert the battery into the compartment making sure the battery has the right orientation (the battery terminals should come into contact with the two sets of connectors located at the bottom of the compartment).
- Close the trapdoor, push the finger screw in tight, and turn it fully clockwise.

Note that once it is properly secured, the trapdoor pushes the battery against the bottom of the compartment to ensure electrical connection of the battery to the ProFlex 800.

## Display Screens

If you press the Scroll button several times, you will see the following displays successively.

### Power-On Screen

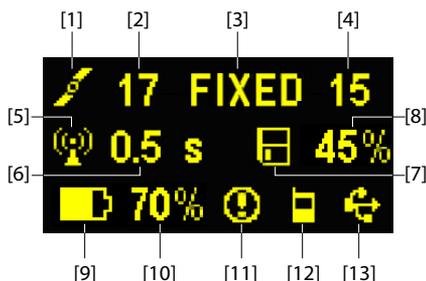
When you power on the receiver, the Ashtech logo appears on the screen. It is displayed until the receiver has completed its auto-test (this takes about 30 seconds).



Then the General Status screen is displayed.

### General Status Screen

An example of General Status screen is shown below.



This screen displays the following information:

- : Satellite icon [1] (always displayed).
- Number of satellites tracked [2].
- Position solution status [3]:
  - NONE: Position not available
  - AUTO: Autonomous GPS position
  - DGPS: Differential GPS position
  - S DGPS: SBAS Differential GPS position
  - FLOAT: Float solution
  - FIXED: Fixed solution (RTK is operational)
  - BASE: Receiver configured as a base.

- Number of satellites used **[4]**: Number of satellites used in the position processing, regardless of the current position solution status.
- : Data link icon **[5]**. This icon is displayed only when corrections are received.
- Age of corrections **[6]**, in seconds. This value is displayed when corrections are received and only after base station information has been received (Position status is at least “DGPS”).
- Raw data logging icon **[7]**:

	Data recording through front panel Log button: – Blinking: Raw data logging in progress – Fixed: No raw data logging in progress.
	ATL data recording for advanced diagnosis.

- Percentage of free memory in the storage medium used **[8]**.
- : Battery icon **[9]** with visual indication of remaining charge. If an external power source is used (AC adapter or external battery), the battery icon will be animated to indicate battery charging in progress.  
 is displayed when there is no battery in the compartment and the receiver is operated from an external power source.
- Power status **[10]**.

Icon	Definition
Percent value	Percentage of remaining battery. This indication will flash when the remaining energy drops below 5%. When an internal battery is used with external power applied, this icon alternates between the plug and the percentage of charge on the battery.
	Replaces percentage when an external power source is used.

- Alarm status **[11]**.

Icon	Definition
	Alarm detected. Press the Scroll button to view the alarm type. Press it again to acknowledge the alarm, which then disappears from the list. Unless there is another alarm in the queue, in which case you will have to resume the acknowledge sequence, the screen then displays the memory screen.
None	No alarm detected

- GSM module (modem) status [12]. This may be one of the following icons:

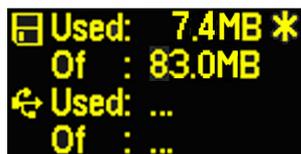
Icon	Definition
Blank	Modem turned off.
	Blinking icon: Modem turned on but not initialized yet. Indicates signal strength at modem antenna input.
	Fixed icon: Modem turned on and initialized (ready for a connection). Indicates signal strength received at modem antenna input. The higher the number of bars, the better the signal.
	This icon will show four dots at the bottom when the input signal is zero. The symbol shown in the upper left corner stands for "2G". When the modem detects a 3G network, "3G" is displayed instead.
	Modem on line.

- [13]: USB status and/or Bluetooth status.

Icon	Definition
	USB port connected to active device
	Bluetooth active

## Memory Screens

From the General Status screen, press the Scroll button to access the Memory screens. Memory screens appear successively (see examples) at a display rate of about five seconds:



Left screen:

- First line: Percentage of free space in the internal memory.
- Second line: Number of files currently stored in the internal memory.
- Third line: Percentage of free space on the USB mass storage device.
- Fourth line: Number of files currently stored on the USB mass storage device.

Right screen:

- First line: Total space occupied by the files currently stored in the internal memory.
- Second line: Nominal size of the internal memory.
- Third line: Total space occupied by the files currently stored on the USB mass storage device.
- Fourth line: Nominal size of the USB mass storage device.

About the “\*” symbol:

- It can only appear at the end of the first or third line.
- Where placed, it indicates that this storage medium is used for data logging.

What if there is no USB mass storage device connected to the receiver?

- Parameters relevant to the USB key size and space used and available are void (three dots displayed instead).
- Number of files is forced to “0”.

## Receiver Identification Screen

From any of the two Memory screens, press the Scroll button to access the Receiver Identification screen. See example below.

- Receiver Serial Number
- Firmware Version
- Receiver Bluetooth Identifier

## Position Computation Screen

From the Receiver Identification screen, press the Scroll button to access the Position Computation screen. This screen displays the latitude, longitude and ellipsoidal height of the position currently computed by the receiver. If the receiver is a base, the displayed coordinates are set ones (not computed ones) representing the reference position assigned to the base. See example below for a rover.



17 FIXED 15  
47° 17' 56.2926 N  
001° 30' 32.5897 W  
W84 +88.1859 m

The upper line contains the same information as in the upper line of the General Status screen.

A new press on the Scroll button will take you to the ATL Recording screen (see below). If however the receiver is fitted with a radio receiver or is connected to an external radio

transmitter, an additional display screen will show up before pressing the Scroll button takes you back to the ATL Recording screen.



The possible two screens show the current radio settings:

- First line: Serial port used, “Rx” for radio receiver or “Tx” for radio transmitter, radio type (U-Link, PDL, etc.). Extra-parameter for “Rx”: Power status
- Second line: Channel number, carrier frequency
- Third line: Protocol used (Transparent, Trintalk, DSNP, etc.), airlink speed
- Fourth line: Squelch setting (medium, low, high). Extra-parameters for Rx if a Pacific Crest: “FEC” if forward error correction enabled, “SCR” if scrambling enabled. Modulation type (GMSK, 4FSK). The fourth line will be slowly scrolled to the right if four parameters have to be displayed in the line.

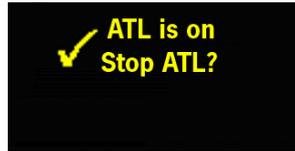
## ATL Recording Screen

Pressing the Scroll button from the Position Computation screen –or from the Radio Settings screen if there is a radio used– will take you to the ATL Recording screen, which looks like one of the following, depending on whether a USB key is connected to the receiver (below, right) or not (below, left).



You don’t normally have to record ATL data, but if for troubleshooting purposes, the Technical Support asks you to do so, then proceed as follows:

- Press the Log button (left-hand button). This will cause the receiver to start recording ATL data on the specified storage medium. The screen will then look like this:



You can then freely use the Scroll button to access other receiver screens without affecting the ATL data collection in progress (pressing the Scroll button from this screen will take you back to the General Status screen).

- When enough ATL data have been recorded (Tech Support will usually indicate the duration of ATL data collection needed for troubleshooting), then come back to the ATL Recording screen and simply press on the Log button again to stop the recording.

NOTE 1: ATL data recording is totally independent of raw data recording: controlling ATL recording is done exclusively from the ATL recording screen, and raw data recording from any other screen.

NOTE 2: Before connecting a USB key to record ATL data, make sure there is no \*.par files saved on the key as the presence of this type of file would initiate some other functions in the receiver.

## Screen Backlight

The screen backlight is automatically turned off if no key is pressed for 1 minute. When the backlight is off, a short press on the Scroll button will turn it back on. The Scroll button will then recover its usual functions.

## Data Transfer Screen

For more information on the screen displayed when downloading files, refer to *Downloading Raw Data on page 30*.

## Mounting Options

### Backpack Mount



The ProFlex 800 is secured in a backpack when used as a rover for land surveying applications.

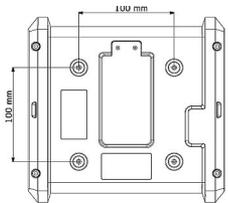
### Tripod Mount



In land surveying applications, when used as a roaming base mounted on a tripod, the ProFlex 800 can be secured on one of the legs of the tripod using the lug located on its bottom side.

The lug may be secured onto the chassis in two different ways allowing the receiver to be installed either with its front panel upwards or sideways (recommended).

### Bottom Mount

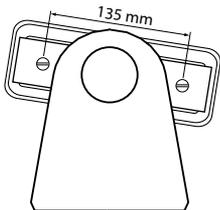


This type of installation is suitable for machine guidance or marine applications. The ProFlex 800 is secured from underneath the receiver case, using four screws M4.

Preparing the support (a flat plane) on which the receiver will be mounted only consists of drilling four holes, forming a simple, 100-mm square.

Note that this is a VESA<sup>1</sup>-compliant mounting scheme.

### Cradle Mount



This type of installation is also suitable for machine guidance or marine applications. The ProFlex 800 can be secured on a cradle of your choice, possibly designed to allow adjustable orientation of the receiver front panel.

On both sides of the receiver case are two M4 screws, 135 mm apart, that can be used for mounting the receiver on the chosen cradle.

In this mounting case, the two plates located on either side of the receiver case can either be kept in position or simply removed.

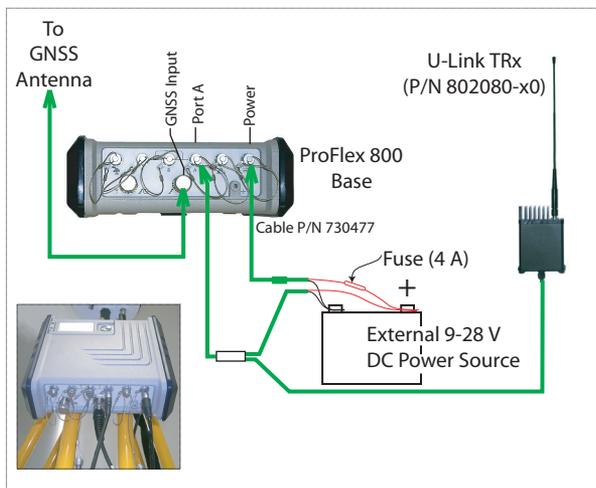
1.VESA= Video Electronics Standards Association.

## Prerequisites

- You will need a tripod and a tribrach (not provided) to install the base. You will also need an antenna extension pole fitted with a 5/8" male adaptor (not provided but available as an accessory).
- For a long-range radio link, i.e. more than 1 mile or 1.6 km, for which the radio antenna should be placed as high as possible, it is good practice to install the antenna on top of an antenna pole secured on a tripod (neither of these items is provided).
- To power an external radio, you need an external 9-28 V DC (U-Link TRx) or 9-30 V DC (Pacific Crest radio) power source. In all cases, using a standard 12 V DC battery is a convenient choice. In this configuration, the ProFlex 800 can be powered either from the same power source (recommended), using cable P/N 730477, or from its internal battery.  
Powering the ProFlex 800 from the external battery offers two advantages:
  1. Operating sessions can be extended significantly.
  2. The external battery operates as a trickle charger for the ProFlex 800's internal battery.
- For a ProFlex 800 fitted with an internal transceiver, the level of RF power radiated by the UHF antenna depends on the type of DC source used to power the receiver:
  - Internal battery used: The RF power is limited to 100 mW whatever the requested level of power.
  - External DC power used: The RF power level is as requested (not intentional limitation).

## U-Link TRx

The connection diagram is as follows. The use of port A is recommended on the receiver side. However, any of the other serial ports may be used as well.

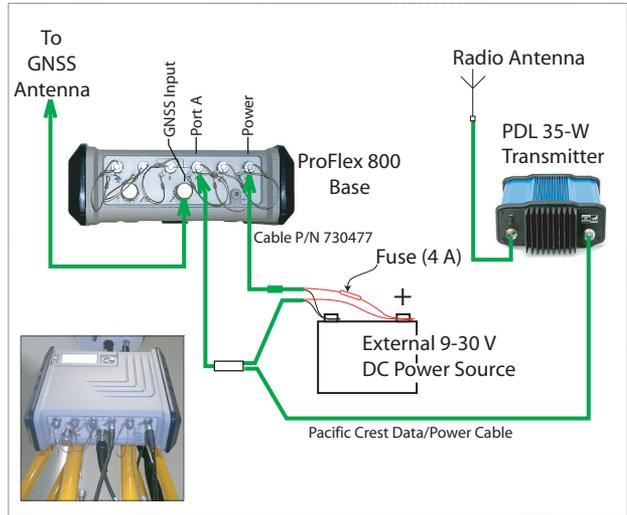


Mount the different items as shown on the picture.



## PacCrest Radio Link

The connection diagram is as follows. The use of port A is recommended on the receiver side. However, any of the other serial ports may be used as well.

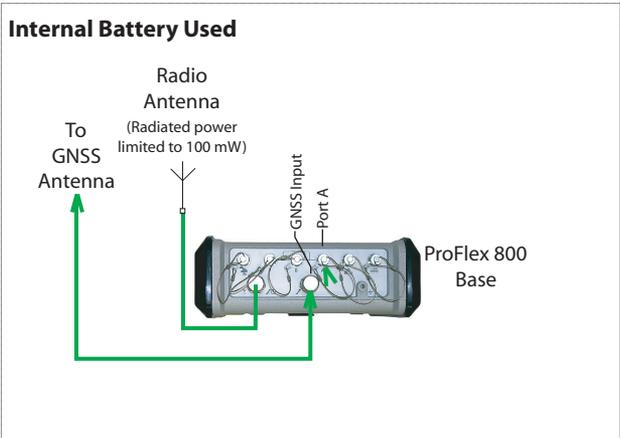
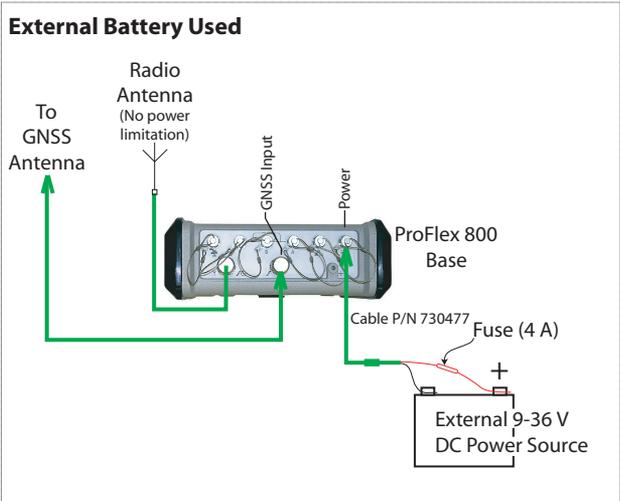


Mount the different items as shown on the picture.



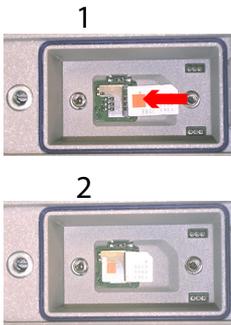
# Embedded Transceiver (ADL Foundation)

English

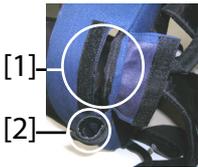


## Prerequisites

- Insert a freshly charged battery into the ProFlex 800.
- Use a range pole fitted with a 5/8" male adaptor at the upper end (not provided).  
**Caution!** Use of a non-metal range pole is recommended to maintain the performance level of the radio antenna.
- Mount the GNSS antenna at the top of the range pole.
- Connect coaxial cable P/N P076510A to the GNSS antenna.
- If a radio link is used with the base, your rover should normally have been fitted with the radio receiver kit that matches the reception band covered by the radio transmitter used at the base.
- If a GPRS connection is used, your rover should normally have been fitted with the SIM card that will allow it to perform a network connection.  
To connect a SIM card, open the trapdoor and remove the battery. The SIM card can be inserted in a dedicated socket located at the bottom of the compartment. Insert the SIM card as shown on the picture.



## Preparing the Backpack



1. Unzip the larger compartment of the backpack.
2. Insert the different cables needed into the backpack. All cables can pass through either of the velcro flaps [1] located at the top of the backpack.
  - **GNSS antenna:** Insert the TNC end of the 1.50 m "Quick Release" cable (P/N P076500A) into the backpack through one of the velcro flaps, then make it run along the inner edge of the compartment, down to where the rear panel of the receiver will be located once placed in the backpack.
  - **Data Link:**  
If cellular communication is used to receive RTK corrections, no special cable is needed.  
If a radio is used to receive RTK corrections, insert the UHF range pole into the side compartment of the backpack. Secure the pole using the short velcro strap [2] located on top of the side compartment. Pass the attached coaxial cable through a velcro flap [1], then



[3]



[4]



[5]

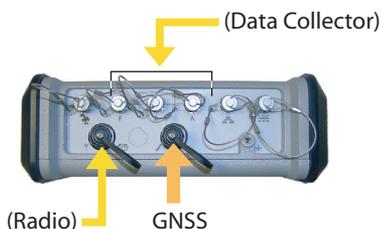
make it run along the inner edge of the main compartment, down to where the rear panel of the receiver will be located once placed in the backpack.

- **Communication with field terminal:**

If Bluetooth is used, no special cable is needed.

If wired communication is used, pass the Fischer end of serial data cable P/N 700461 (provided) through a velcro flap, and again make it run along the inner edge of the compartment, down to where the rear panel of the receiver will be located once placed in the backpack.

3. Anchor all the cables together, inside the compartment, using the short velcro straps [3].
4. Insert the ProFlex 800 into the compartment in such a way that the rear panel is facing the bottom of the compartment [4].
5. Connect all the ends of the cables present at the bottom of the compartment to the rear panel. The required connections are:
  - GNSS cable to GNSS Input #1 (mandatory)
  - UHF radio cable to UHF input (if a radio is used)
  - Serial data cable to the serial port of your choice (if a serial link is used with the field terminal).



6. If needed, connect the following antennas directly to the front panel of the receiver:
  - Bluetooth antenna, if wireless communication with the field terminal is preferred to a serial link.
  - Cellular antenna, if the internal cellular modem is used to receive RTK corrections.
7. Secure the receiver inside the backpack by tightening the three pairs of Velcro straps [5] over the case. If internal antennas are used, some straps should be positioned in

such a way that the antennas can pass through the slots designed into these straps.

8. Turn on the ProFlex 800 and close (zip) the compartment.
9. Place the backpack on your back.
10. Connect the free ends of the quick-release coaxial cables together. This connects the GNSS antenna to the receiver.
11. Secure your field terminal on the range pole and turn it on. You are now ready to start using your system.



[6]

If you are using an external cell phone for acquiring RTK corrections, place it in the mesh pocket **[6]** located on the left-hand belt of the backpack.

## Logging Raw Data

### Starting/Stopping Raw Data Logging

You simply need to use the Log button to start and stop raw data logging. Later, you will however need to do the following manually:

1. Downloading phase (if appropriate, rename the raw data files collected on each site).
2. Post-processing phase: Manually correct all computed elevations for the antenna height.

By default, raw data is logged to the receiver's internal memory. The Raw Data Logging icon on the General Status screen will start flashing when a raw data file is open for logging.

### Downloading Raw Data

Use a USB mass storage device as a transit storage medium to download raw data files from the receiver's internal memory to your office computer.

**Important!** During a download operation, files are not deleted from the receiver but simply copied to the USB mass storage device.

After downloading the files to this device, connect the USB device to your computer and use your usual browser to copy the files to the project folder.

#### Using a USB Mass Storage Device

- Connect the USB mass storage device to the receiver via the short USB Host-to-Device cable provided (P/N 702104).

If raw data files are present in the receiver's internal memory, the following icons will automatically appear on the display screen:



- To confirm the file transfer, press the Log button. The General status screen will re-appear after the file transfer is complete.
- To cancel the file transfer, press the Scroll button.

- If you do not press any button within the next 10 seconds, the download procedure will be canceled automatically and the screen will come back to the previous display.

### **Using the USB Cable Provided**

- Connect the USB cable provided (P/N 702103) between the office computer and the receiver's USB port. The receiver is then seen as a USB device from the office computer
- Using Windows Explorer on your office computer, browse the receiver's internal memory for the raw data files.
- Copy/paste the files to your project folder. Note that raw data files can directly be deleted from the receiver's internal memory through this connection.

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## Getting Started Guide

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