

# **Getting Started with Z-Max**



## **Z-Max GPS Surveying System**

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# Introduction

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Congratulations! You have just acquired your new Z-Max™ GNSS Surveying System! GNSS (or Global Navigation Satellite System) has revolutionized control surveys, topographic data collection and construction surveying. Purchasing the right tools for a professional job is essential in today's competitive business environment and learning to put these tools to work quickly and efficiently will be the focus of the Z-Max user documentation.

If you're like us, then you're anxious to get started right away. You are not interested in reading a 300-page user manual or searching through five different documents trying to find out how to assemble and turn on your system. You want the right information, at the right time as you take the steps required to master GNSS surveying. Getting Started with Z-Max is an easy-to-read booklet to help you identify and assemble the basic parts of the system. The additional documentation section of this guide provides references to other system documentation you will need as you become more familiar with the Z-Max System.

The Getting Started pamphlet will address the following questions:

- What are all the pieces in the shipping case?
- Did I receive everything I ordered?
- How does everything fit together?
- How can I quickly get started with my system?
- What documentation contains what information?
- Who do I contact if I need help?

The Getting Started pamphlet will **not** tell you how to survey with the system, or describe the technical features of the system. The Getting Started pamphlet will give references to other user guides that will detail the technical features of the Z-Max and surveying applications.

The Z-Max is a professional tool, and users are strongly advised to understand land surveying principles and procedures before using this system.

## What is in the shipping case?

You have opened your shipping case and you are looking at a collection of smaller containers that hold the system accessories. Underneath the tray holding the smaller Z-Max parts, you will find a rugged case containing the Z-Max Main Module.

The flexibility of the Z-Max system means each shipment may be different depending on your needs. To verify your shipment, compare each item in the case with the items listed in the Shipping Document. Important items will have part numbers on them and can be cross-referenced with the Shipping Document.

### Z-Max GPS Receiver Module (P/N 800963)

This is the device that handles all the measuring, recording, and processing of satellite measurements. It also features a system control interface on the front panel.



### GPS Antenna Module (P/N 800961)

This is a highly sensitive antenna captures the faint signals from the GNSS satellites. It is required for the GPS Receiver Module to operate correctly.



### Power Module and Charger

#### Max-Run (P/N 800974) or Max-Lite (P/N 800975)

The Z-Max Battery Module and charger. The Battery Module provides power for the system. The charger is used to restore power in the battery.



## **Z-Max Communication Module (P/N 800964-0x)**

Rover data link modules with UHF radios or cellular modem.



## **Z-Max V Module (P/N 800964-01)**

For non-real-time systems, this device seals the communications bay from moisture. The V-Module looks similar to a Communications Module, so be sure to verify the part number.



## **Interface Cables**

Cables for downloading data from the Z-Max receiver to an office computer for processing.

USB Cable (P/N 110949)



Serial Data Cable (P/N 700461)



## Tripod Mounting

Tribrach adapter (P/N 101199)



HI Measurement Tool (P/N 701083)



HI Measurement Plate (P/N 204456)



## Typical Real-Time-Enabled Systems Will Include:

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### **Vortex UHF Antenna Module (P/N 800962-x0)**

The rover UHF radio antenna.

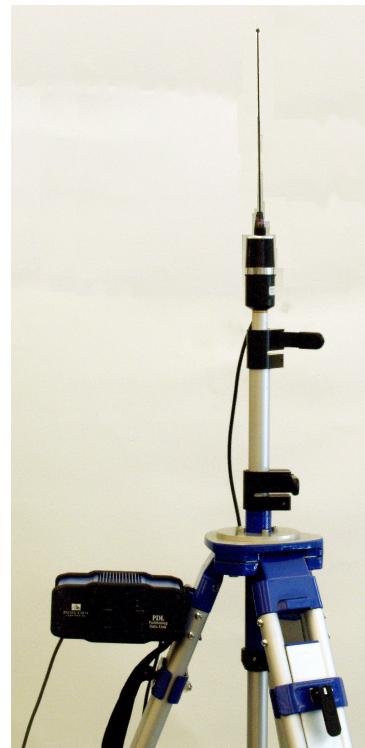


### **Base Radio and Antenna**

Thales U-Link Transmitter (P/N 80098x-xx)  
Base Radio, Data/power Cable, Antenna



Pacific Crest UHF Transmitter (P/N 110972-0x )  
Base Radio, Data/power Cable, Antenna



## **RTK Pole (P/N 110977)**

The fixed-height survey pole.



## **Mounting Bracket (P/N 204439)**

Bracket used to mount the data collector to the survey pole.



## Typical Backpack-Mounted Rover Systems Will Include:

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### **Z-Max Backpack (P/N 204437)**

Provides a comfortable way for a person to carry the Z-Max on their back.



### **Range Pole RF Adapter (P/N 800979)**

Provides a cable interface on the survey pole. Used when the Z-Max is in Backpack Configuration.



### **Max-RF Adapter (P/N 800978)**

Provides a cable interface on the GPS Receiver Module. Used when the Z-Max is in Backpack Configuration.



## **GPS-RF Cable (P/N 730478)**

The GPS-RF cable that connects the Range Pole RF Adapter to the Max-RF Adapter. The cables for the GPS RF and the UHF RF are identical except for color coding; the GPS RF cable is coded black. Cables are required when the Z-Max is in Backpack Configuration.



## **UHF-RF Cable (P/N 730473)**

The UHF-RF cable that connects the Range Pole RF Adapter to the Max-RF Adapter. The cables for the GPS- RF and the UHF-RF are identical except for color coding; the GPS-UHF cable is coded grey. Cables are required when the Z-Max is in Backpack Configuration.



# Getting Started

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Let's get your system operational.

## 1. Charge the Power Module

The Power Module will arrive partially charged, but the charge level may be from 1% to 90%. So, plug in your charger and connect the Power Module to the charger as shown in Figure 1. Charge the Power Module for at least 2-3 hours to make sure that your Power Module is charged enough to get you through this booklet. Charging the Power Module overnight is recommended. If you don't completely charge your Power Module now, be sure to do so before going out into the field.



Figure 1 Power Module and Charger

## 2. Attach the Power Module to the GPS Receiver Module.

Attach the Power Module to the GPS Receiver Module as shown in Figure 2.



Figure 2 Power Module and GPS Receiver Module

If you are using an external power source instead of the Power Module, plug the external power cable (attached to whatever power source you are using) into the rear panel of the Main receiver Module at the port marked 'POWER' as shown in Figure 3.



Figure 3 Connecting External Power to Main Module

### 3. Attach the GPS Antenna Module

Attach the GPS Antenna Module to the GPS Receiver Module as shown in Figure 4. For the Z-Max to track satellites, the system should be outside and the GPS antenna should have a relatively open view to the sky.



Figure 4 Connecting GPS Antenna Module

#### 4. Attach the Communication Module or V-Module

Attach the Communication Module or the V-Module to the Main Receiver Module as shown in Figure 5. The V-Module is used to seal the communication bay if there is no Communication Module.



Figure 5 Connecting Communication Module

#### 5. Front panel orientation

The features of the front panel are shown in Figure 6. These include:

- 4 LED indicator lights: RTK Solution, Communication, Data Log, and SV/Power;
- front panel display;
- control keys for the front panel display; -
- the Power button

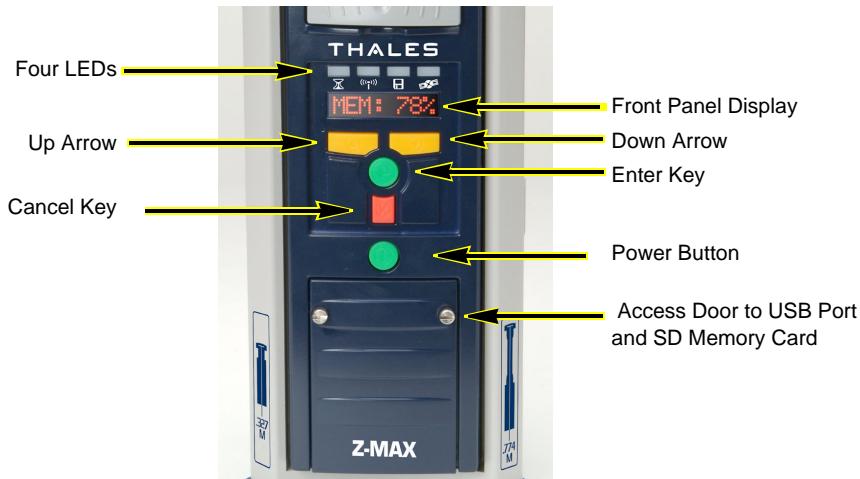


Figure 6 Front Panel

## **6. Power on the system**

To power on the system, press the Power Button for 2 seconds.

## **7. Verify Operations**

To verify that the receiver is working:

- Check the SV/Power LED. The SV/Power LED should blink red every 1-2 seconds (power is on) and blink green several times between each red blink (one SV is tracked for each green blink).
- Check the Data Log LED. The Data Log LED should blink green every 20 seconds to indicate that data is being recorded to memory.

At this point, your Z-Max receiver should be powered on, tracking satellites, and recording data. For more information on all the other features of the receiver, see the ***Operation and Applications Manual***.

# Additional Documentation

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Some additional documentation is provided in print and others are on CD-ROM. The exact documentation you received depends on what software and accessories you purchased.

## Z-Max Operation and Applications Manual

This manual covers all aspects of the receiver as well as how to setup a static, kinematic, and an RTK survey. This manual also covers a number of receiver functions, and reading it before performing GNSS surveys is strongly recommended. The manual comprises 3 sections:

**Operation and Reference** section that contains:

- a detailed description of each of the modules,
- a description of the LEDs, the front panel display and external ports,
- a more extensive Getting Started that includes monitoring receiver status and saving user parameters,
- a detailed description of the front panel display menus,
- operational topics such as data collection and downloading.

**System Guide to Post-Process Surveying** section that contains:

- a description of each of the modules used in a post-process survey,
- detailed instructions on connecting the modules,
- step-by-step guide to static and kinematic survey setup and execution,
- a troubleshooting guide.

**System Guide to RTK Surveying** section that contains:

- a description of each of the modules used in an RTK survey,
- detailed instructions on connecting the modules for an RTK survey,
- step-by-step guide to RTK survey setup and execution,
- a troubleshooting guide.

## Field Application Software Guide

This manual covers the field application software that runs on the handheld computer/data collector. This manual covers the following:

- a detailed description of the graphical interface;
- a description of how to use the software to configure, execute, and monitor different kinds of surveys;
- how to use the graphical and mapping capabilities in the software;
- how to use the additional surveying utilities such as COGO and Stakeout.
- a brief description of the field computer hardware.

## Office Software Manual

This manual covers all aspects of the PC software but your functionality will depend on software options that were purchased. This manual covers the following:

- downloading data from the receiver or the handheld data collector;
- post-processing raw data and performing quality assurance;
- map making and data preparation and analysis;
- creating background map projects to allow you to combine survey results with ESRI shape and raster files,
- additional software utilities such as Mission Planning, WinComm, Geoids, Download, CE Download, RINEX converter, and DSNP-to-RINEX.

## Z-Max System Pocket Guide

This pocket guide is a quick reference guide to using the Z-Max Surveying System. The guide provides a short description of the modules and their functionality including using LEDs, front panel display menus and setting up a receiver during a static, kinematic, or RTK survey. This manual is meant to be used as a quick reference reminder in the field and does not contain complete explanations for use and set up.

## Additional Help

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If you have any problems with missing equipment, basic setup, or require further assistance, you can contact Technical Support by telephone, email, or Internet. If you need more information than is included in this brief Getting Started, then please spend some time with the enclosed documentation before contacting Technical Support.

### **Thales Navigation Products Technical Support**

#### **North, Central, and South America (NCSA) plus International**

Monday thru Friday, 7:00 A.M. to 5:00 P.M. (PST, GMT -8 hours/PDT, GMT -7 hours)

Tel: 800 229 2400, Option 1 (North America)

Tel: 408 615 3980 or 408 615 3981 (International)

Fax: 408 615 5200

Email: professionalsupport@thalesnavigation.com

#### **Europe, Middle East, and Africa (EMEA) plus International**

Monday thru Friday, 8:00 A.M. to 6:00 P.M. (GMT +1)

Tel: 33 2 2809 39 34

Email: professionalsupportemea@thalesnavigation.com

When contacting Technical Support, the following minimum information is required:

Receiver serial number

Software version number

Software key serial number, if applicable

Firmware version number

A clear, concise description of the problem.

Also visit the Thales Navigation FTP site at <ftp://ftp.thalesnavigation.com> for updates to current firmware, software, product release notices, PDF versions of manuals, training materials, and FAQs.