What's in the box?

Check that you receive all of the following components with Trimble Survey Controller:

| Part	Part Number	Connection / Use
ACU controller	571 225 500	
ACU controller pouch	571 906 345	
Trimble Survey Controller software CD	571 702 071	
Getting Started Guide (this document)	571 702 061	
Multiport adaptor	RGR-MultiADPT	ACU 26-pin D-sub to LAN or USB
Power cord, and power supply with adaptors for Europe, UK, USA, and Australia	571 906 344	Mains power to the ACU. Use it to power the ACU and charge the internal battery.
PC adaptor	571 202 204	PC COM port to ACU COM1
2.5 m system cable	571 202 216	ACU to PC adaptor
USB cable	1-44016	ACU to PC Use with the multiport adaptor when transferring files with Microsoft ActiveSync.
Adaptor 26-to-9 pin D-Sub	1-RGR-A26TO9PIN	Convert the ACU 26-pin connector to a 9-pin COM2 connector
Screen protector	1-RGR-ALCDPELOFF	
Other available accessories	**Part Number**	
ACU holder	571224091	
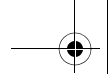
Introduction
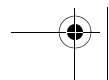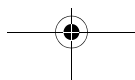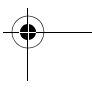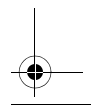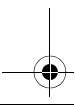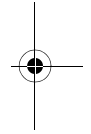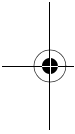
The ACU Controller

In this chapter:

- Attaching the ACU
- ACU function keys
- Power supply
- Screen
- Clock
- Storage card
- Rebooting
- Caring for the unit

Trimble Survey Controller is designed to run on the ACU controller. This chapter describes the controller and how to use it. Figure 1.1 shows the front of the ACU and its keys.

Figure 1.1   The ACU controller – front view

The ACU Controller

Attaching the ACU

⚠ **Warning –** Switch off the ACU when attaching it to the holder or when changing the batteries in the holder with the ACU attached. Otherwise, the on/off status of the ACU and the holder may become unsyncronised.

To attach the ACU:

1. Hold the controller with both hands.

2. Fit the groove on the back of the controller over the lower lip on the front of the holder.

3. Press down and rest the back of the controller flat against the holder.

4. Gently release downward pressure and guide the controller so that the teeth on the front of the holder click into the notches on top of the controller.

Figure 1.2 shows how to attach the ACU to the holder.

Figure 1.2   Attaching the ACU

ACU Function Keys

Table 1.1 describes Trimble Survey Controller functions that are associated with the ACU icons.

Table 1.1   ACU function keys

On this instrument or receiver ...	tap ...	to ...
Conventional or GPS	Menu	access the main Trimble Survey Controller menu
		access the *Trimble function* screen
Conventional (with Autolock™)		switch Autolock on and start a search
		switch Autolock on or off
		take a measurement
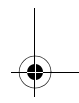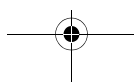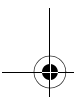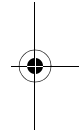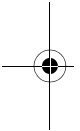
The ACU Controller

Table 1.1   ACU function keys (Continued)

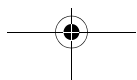| On this instrument or receiver ...	tap ...	to ...
Conventional (with servos)		turn the instrument horizontally to the current point name or stakeout location
		turn the instrument vertically to the current point name or stakeout location
		turn the instrument horizontally and vertically to the current point name or stakeout location
		change face
		take a measurement
Conventional (3600)		activate the first softkey (F1)
		activate the second softkey (F2)
		activate the third softkey (F3)
		activate the fourth softkey (F4)
		take a measurement

Table 1.1   ACU function keys (Continued)

On this instrument or receiver ...	tap ...	to ...
		access the *Position* dialog
		access the *Satellites* dialog
		activate the first softkey (F1)
GPS		activate the second softkey (F2)
		activate the third softkey (F3)
		activate the fourth softkey (F4)
		activate the **Enter** button
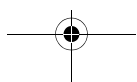
Power Supply

Under normal operation, the ACU draws power from the device it is attached to or from one of the following external batteries:

- 12V NiMH

- 7.4 Lithium-ion

The ACU has an internal, rechargeable 4.8 volt 600 mAh NimH battery. If power is lost during operation the ACU automatically switches over to this battery, which provides approximately two hours running time when fully charged.
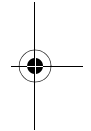
The ACU holder has dual 7.4V 1.8Ah lithium-ion batteries. When fully charged, these provide approximately 15 hours running time to the ACU through the 7-pin backplane.

The TSCe is supplied with a rechargeable 4.8 volt 3800 mAh NiMH battery, which provides over 30 hours of running time when fully charged.
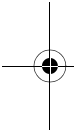
Charging the batteries

The internal battery of the ACU is automatically charged when the controller is connected to an external power supply.

To charge the internal battery:

- Connect the AC adaptor from the ACU 4-pin Hirose port to the mains power supply.

The ACU detects the following low power levels from the external batteries:

- 10 volts (12V NiMH battery)

- 6 volts (Lithium-ion battery)

The ACU alerts you when power level is critically low. If this happens, turn the equipment off and change the external battery. Otherwise, the ACU will switch over to its internal battery.
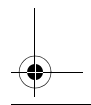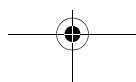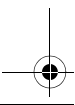
The TSCe incorporates a quick circuit that recharges its internal NiMH battery to 90% capacity in approximately one hour. To charge the battery, use one of the following methods:

– Connect the AC adaptor to a mains power supply, with the Multiport adaptor (part number RGR-MULTIADPT) plugged into the 26-pin port (COM 2) on the TSCe.

– Connect the O-shell to O-shell lemo (PN 31288-02) to Port 1 on the receiver (running on mains power)

– Connect the O-shell lemo from the OSMII to the O-shell lemo on the TSCe.

The control unit monitors the battery while it is charging. To turn off the display, press the ⏻ key.
Before using the TSCe on battery power alone, charge the battery for a minimum of two hours.

Battery replacement

⚠ **Warning –** Do not attempt to change the battery or you may seriously damage the ACU. Contact your local distributor.
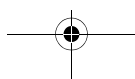
Contact your local distributor for a replacement battery.

Screen

The ACU reflective LCD screen can be viewed easily in direct sunlight or in overcast conditions. It also incorporates a passive touch interface for navigation. Tap elements on the display screen with a stylus or your finger.

The ACU Controller

Recalibrating the touch screen

If the touch screen does not respond properly when you tap it, recalibrate it as follows:

1. Tap ▣Start and select *Settings / Control Panel / Stylus*. The *Stylus Properties* dialog appears.

2. In the *Calibration* tab, tap Recalibrate.

3. Follow the prompts.

Disabling the touch screen

To clean the ACU screen during a survey, press Ctrl+ α (the alpha key) then 1 four times (to access "S") to disable it. This locks the screen and keypad, except for the Esc key.

To disable the TSCe screen, press Ctrl+S.
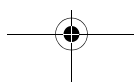
To enable the touch screen and keypad again, press Esc.

Backlight

To modify the backlight settings:

• Select *Display / Backlight* from the Control Panel.

• If the *Auto on* option is disabled, press ▲ and ☀ .

Press ▲ and ☀ to switch between these backlight modes:

• screen and keyboard on

• screen only on

• screen and keyboard off

Clock

To change time and date settings on the ACU:

1. Tap ![Start] and select *Settings / Control Panel / Date/Time*.

   The *Date/Time Properties* dialog appears.

2. Change the date and time as required. Press [◄──] to accept the new settings or [Esc] to cancel.

Note – When you connect the ACU to a GPS receiver or to your PC using Microsoft ActiveSync, the date and time are automatically updated.

Storage Card

The ACU has a built-in storage card for your data and programs. This appears in the Windows CE files system as the *\Disk* folder.

Note – The system maintains several special files on the card, such as nk.bin and ranger.reg, which contain information crucial to the correct operation of the ACU. Directly modifying these files may result in the ACU failing to operate correctly.

Safeguarding data

Back up your work regularly using Microsoft ActiveSync or the Trimble Data Transfer utility. For more information, see Chapter 4, Data Transfer.

Rebooting

If the ACU fails to respond to keystrokes, then perform one of the following resets, which shut down the hardware and restart the Trimble Survey Controller software.

Soft reset (warm boot)

This method retains all data.

The ACU Controller

To perform a soft reset:

- Hold down ⌐▲⌐ and ⌐Ctrl⌐, while you press and release ●.

The ACU resets to the default Microsoft Windows desktop view.

To warm boot the TSCe, hold down ⌐▲⌐ and ⌐Ctrl⌐, while you press and release ⌐⏻⌐.

Hard reset (cold boot)

This method retains any data on the built-in storage card (the *Disk* folder). However, a hard reset clears the contents of the RAM memory, including any desktop shortcuts that you have created.

To perform a hard reset:

1. Hold down ⌐⏻⌐.

   After approximately 5 seconds, a countdown timer appears, indicating that the controller will reset.

2. Continue to hold ⌐⏻⌐ for a further 5 seconds, then release.

The controller briefly displays the boot screen and then resets to the default Microsoft Windows desktop view.
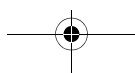
Caring for the unit

Trimble recommends the following to maintain your ACU during everyday use, and to prevent potential physical damage or data loss.

Operating temperature: –20° C to +55° C

Storage temperature: –30° C to +70° C

Do not expose the TSCe to temperatures below –20° C (–4° F) or above +60° C (140° F). Do not leave it in direct sunlight for extended periods of time.

Shock

The TSCe is designed to withstand a MIL-STD-810E drop. However, impact or pressure on the display screen may cause it to crack. Protect the display from impact, pressure, or abrasive substances.

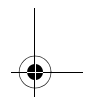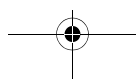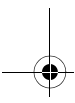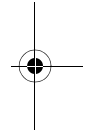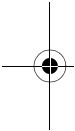**Environment** – The ACU is designed to withstand driving rain and dust.

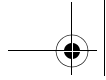The TSCe is designed to be immersible in up to one meter of water, for up to one hour.

Cleaning the case – Clean the controller with a soft cloth dampened with clean water or with water containing a mild detergent. If the keyboard has dirt or grime on it, use compressed air or a vacuum cleaner, or gently rinse it with clean water.

Care of the touch screen – Clean the touch screen with a soft cloth dampened with clean water or glass cleaner. Do not apply any cleaner directly to the screen. Apply the cleaner to the soft cloth and then gently wipe the screen.

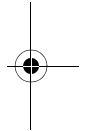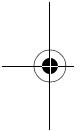*Note – Do not use abrasive cleaners.*

Applying a screen protector – Use a screen protector to help keep the touch screen clean and protected. Clean the screen thoroughly and leave it slightly wet. Peel the backing from the screen protector and then apply the protector to the screen. Use a soft cloth to squeeze the excess water and air from under the screen protector.

The ACU Controller