

A New Era of *Dual-frequency GPS Surveying*



Real-time...No Strings Attached!

GPS Total Station 4800



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The GPS Total Station 4800 Story

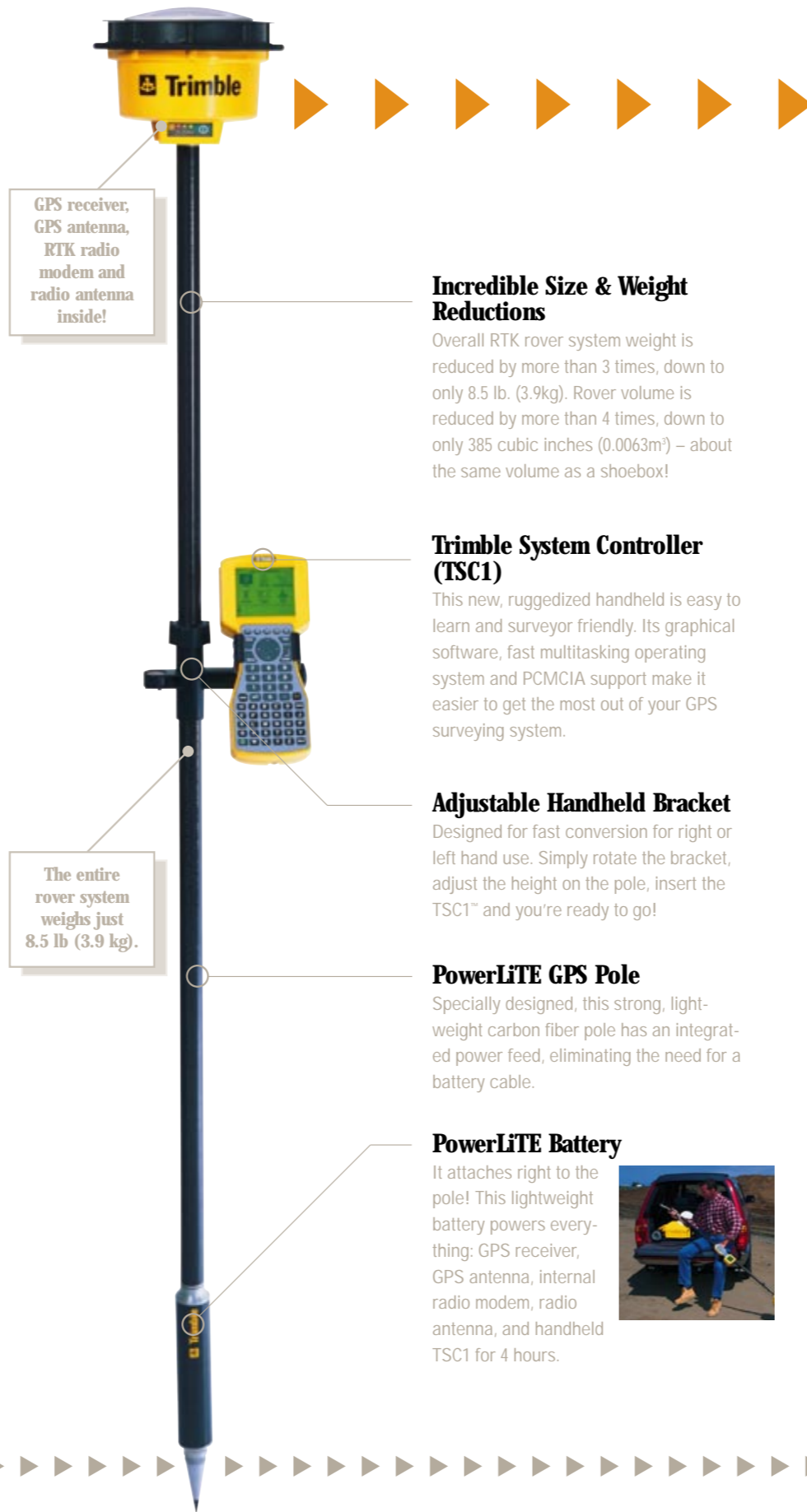
Back in 1992, Trimble pioneered real-time GPS surveying, also known as real-time kinematic. Since then, the Trimble GPS Total Station® has dramatically changed the world of surveying, providing thousands of organizations tremendous increases in productivity for everyday surveying work.

With the Trimble GPS Total Station, surveyors can generate centimeter level coordinates while surveying a point – without requiring line of sight, without having to point an instrument, and in any weather conditions. This was made possible by adding a radio communication link between GPS receivers. With real-time GPS surveying, productivity gains of over 100 percent have been common compared to optical surveying techniques.

Real-time GPS surveying is terrific, but...

The benefits of dual-frequency real-time surveying are so great that wearing a backpack or a waistpack to carry the GPS receiver, batteries, radio modem, and radio antenna is an accepted practice. However, carrying all of this gear has also effected the surveyor's mobility and versatility. Many surveyors told Trimble that cables kept getting in their way, especially the ones strung between the range pole and their body. They also commented that there was just too much to carry around, particularly when there are other things to carry – like stakes, shovels, hammers, magnetic locators...and lunch.

Surveyors wanted a smaller, lighter, and easier to use GPS system without the hassles of cables, backpacks, and extra equipment. Of course, they still wanted the Trimble quality they have come to expect over the years. With this in mind, the surveyors and engineers at Trimble took on this challenge to apply their ingenuity and create exactly what was asked for, and more: The GPS Total Station 4800 – the start of a new era in dual-frequency GPS surveying.



GPS receiver, GPS antenna, RTK radio modem and radio antenna inside!

The entire rover system weighs just 8.5 lb (3.9 kg).

Incredible Size & Weight Reductions

Overall RTK rover system weight is reduced by more than 3 times, down to only 8.5 lb. (3.9kg). Rover volume is reduced by more than 4 times, down to only 385 cubic inches (0.0063m³) – about the same volume as a shoebox!

Trimble System Controller (TSC1)

This new, ruggedized handheld is easy to learn and surveyor friendly. Its graphical software, fast multitasking operating system and PCMCIA support make it easier to get the most out of your GPS surveying system.

Adjustable Handheld Bracket

Designed for fast conversion for right or left hand use. Simply rotate the bracket, adjust the height on the pole, insert the TSC1™ and you're ready to go!

PowerLiTE GPS Pole

Specially designed, this strong, lightweight carbon fiber pole has an integrated power feed, eliminating the need for a battery cable.

PowerLiTE Battery

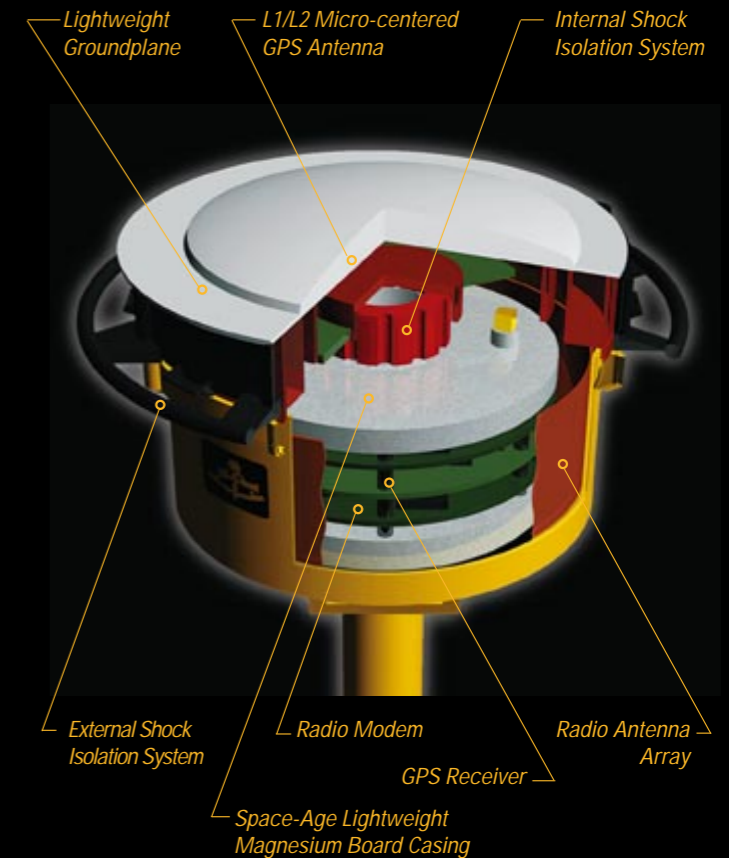
It attaches right to the pole! This lightweight battery powers everything: GPS receiver, GPS antenna, internal radio modem, radio antenna, and handheld TSC1 for 4 hours.



Finally, it's all on a pole!

4800 – A Fully Integrated GPS Receiver, GPS Antenna, Radio Modem and Radio Antenna

A shock resistant housing includes a state-of-the-art GPS antenna, dual-frequency GPS receiver, radio modem, and hidden radio antenna! There's no backpack or waistpack and there are no cables strung between the range pole and the surveyor!



GPS Total Station 4800

Dual-frequency GPS Surveying *Made Easy*

Single Button Operation

Easy to use, single button operation for control surveying; LED display provides information on satellite tracking, power level, memory, and radio communications status.



It's easy to walk, run, bend, kneel, climb, get in and out of a truck, and change batteries

A backpack and a range pole attached to your body by cables can be a major hassle, especially when considering the terrain or the obstacles in your way. Scaling a fence to get to that all-important survey mark is not an attractive proposition with a backpack, especially when you're hooked to a range pole by a GPS antenna or other cables. The 4800 gives you complete freedom of movement – and as far as fences go – no problem!



The GPS Total Station 4800 Rover takes the load off your back – letting you survey how and where you want to...

The GPS Total Station 4800 Rover inte-

grates a lithium ion power supply into the GPS pole, which allows for greater field versatility, unrestricted motion, and increased reliability due to the absence of extra cables tying you to the pole. With the internal radio modem and radio antenna, the 4800 rover becomes even more versatile for RTK surveying, with NO cables attached to your body, and NO backpack! Because of this, field mobility becomes much easier, safer, and less cumbersome. For example: climbing over rough terrain, scaling walls and fences, walking through thick brush, setting construction stakes, lifting survey mark covers, and more.



It's easy to switch between tripod-mount and pole-mount for topographic, stake-out, and control surveys

Operational as a real-time base or rover station, the 4800 provides geodetic precision and real-time centimeter accuracy without the hassle of cables and multiple components associated with other GPS equipment. Dual frequency GPS is a very versatile tool: It can be used for topographic surveying, geodetic control, and stakeout. The 4800 makes it easier than ever to take advantage of this versatility – simply remove the 4800 unit from the top of the tripod and mount it to the top of the PowerLiTE™ pole. Now, the 4800 becomes a convenient, "tetherless" solution for post-processed or real-time GPS surveys; there's no need to detach and re-attach cables strung to your body.



It's easy to learn...and use Learning the Handheld is Easy

The Survey Controller™ software for TSC1 is specially designed for those just starting out with GPS. Tools such as on-line help, friendly icons, project maps, and satellite visibility diagrams make learning GPS surveying faster and easier. For the experienced user, the handheld software provides a handy set of powerful tools for site calibration to local control, coordinate geometry calculations, and a host of other features that will maximize productivity.

Multitasking Operating System

The new super-fast, multitasking operating system allows several screens to be open simultaneously without any interruption to GPS surveying activities or satellite lock. You no longer have to key your way through several screens to move between tasks, just run them all at once!

Rugged, Lightweight, Convenient

The TSC1 handheld sets the industry standard for environmental specifications. It has an easy-to-read, 2.5" x 3" (6.4 x 7.6cm) display and rapid screen response, even in extreme temperatures. The unit also features a standard PCMCIA card slot for virtually unlimited datalogging capability and rapid download and exchange of data.



TSC1 Shown
Actual Size

Graphical Status Display

The TSC1 keeps you continuously informed with icons showing both receiver and TSC1 power levels, the number of satellites being tracked, and radio link status. Constant display of both horizontal and vertical precision values while surveying further ensures confidence in positions.

Ergonomic Keyboard

A specially developed, ergonomically designed keyboard allows easy access to main functions with just one finger. Key spacing and key size are ideal for working with gloves or for one hand operation.

GPS Total Station 4800

Dual-frequency GPS Surveying *Improved in Other Ways, too!*

Why dual-frequency Surveying?

When GPS equipment is classified as "dual-frequency", it means that the electronics of the GPS receiver and GPS antenna can track and use data from both L1 and L2 signals from the GPS satellites. The primary advantages of dual-frequency receivers are: fast, reliable On-the-Fly (OTF) initializations, the ability to survey with higher accuracy over longer baselines for control; and less occupation time spent at each survey point.

Stay on the leading edge of technology

- The world's first real-time GPS survey instrument that's all on a pole
- The world's first integrated GPS receiver, GPS antenna, radio modem and radio antenna for real-time GPS surveying
- The world's first carbon fiber survey pole with integrated lithium ion battery
- The world's first true multitasking operating system in a survey handheld – the TSC1, engineered and built by Trimble
- The world's first lightweight GPS antenna that provides geodetic quality measurements without having to align the GPS antennas with each other – the Trimble patented Micro-centered™ antenna
- Survey Controller handheld software to take advantage of the state-of-the-art TSC1 hardware platform and operating system



For extra data storage capacity and faster data transfer, the TSC1 features a PCMCIA card slot. Optional 4MB or 10MB cards increase storage capacity for projects with very high volumes of GPS data.

HELP

Access to "HELP" is always at your fingertips just by pressing the dedicated "HELP" key. It's a user manual you can never forget to bring along!

More Productive

GPS is already proven in the surveying industry because of its productivity. The GPS Total Station 4800 comes packed with new features directly aimed at further increasing productivity. With fewer pieces of equipment to deal with, faster setups and breakdowns are possible. The new super-fast, multitasking operating system in the handheld allows several screens to be open simultaneously. This allows you to perform many difficult survey tasks without any interruption of initialization or satellite lock.

Powerful, new stakeout graphics in the TSC1 take full advantage of 5Hz position updates, letting you stakeout faster. Also, improved offset capability in the handheld allows you to survey both sides of the road simply by moving along the curb line and capturing both the center line and opposite curb line simultaneously. During the survey, the "job map" display allows a real-time, graphic review of what's been surveyed or staked out, thus avoiding costly site revisits. Back at the office, the PCMCIA card support allows for faster download of the day's data.



Survey with even greater confidence

Trimble has always believed in the importance of providing an extra measure of confidence for surveyors as they work. This means extra confidence that field equipment will function properly when it's needed and extra confidence that the survey results themselves are dependable. The 4800 system helps to further ensure high quality surveys via horizontal and vertical precisions that are constantly visible as you survey, via high-precision Micro-centered antennas, via multiple site calibrations, and via in-field geoid models.

As far as the system's readiness to function when it's needed, the 4800's totally integrated GPS receiver, GPS antenna, radio modem and radio antenna means that there's no chance of being down because of a faulty or missing cable. Also, with fewer components and a built-in help system, you're less likely to accidentally leave something back at the office, including the manual. Finally, the ruggedness and extended temperature capabilities of the TSC1 handheld help ensure that you can work confidently in even the toughest situations.



GPS Total Station 4800

Back in the office, *it's easy to finish the job*

GPSurvey – The Industry Standard GPS Post-processing Software for Control Work

Back in the office, post-processing software that supplies the best possible answers, quality control measures, and report writing facilities is needed to get the job done right. A friendly user interface and powerful analysis tools make Trimble's GPSurvey™ the most popular GPS post-processing software in the world. GPSurvey is a comprehensive Microsoft Windows-based program designed to process data from all Trimble survey receivers and data imported from third party GPS receivers, using RINEX files. The GPSurvey software suite provides:

- Comprehensive GPS project management
- Data transfer from GPS receiver to computer
- Pre-mission planning
- Robust baseline processing (including OTF)
- Graphic display and editing of measured geodetic network
- Graphical loop closures for blunder detection
- Geoid modeling for better determination of MSL heights
- Least-squares network adjustment
- Coordinate and datum transformations
- Professionally presented project reporting

Trimble Survey Office – The New Standard for GPS and Optical Survey Instrument Reductions

Trimble Survey Office™ is the world's first office software to allow processing of raw GPS measurements, real-time kinematic GPS data, and data from popular optical survey instruments in a single Microsoft Windows package. It features:

- Modern, 32 bit operation that is Microsoft Windows 95/NT 4.0 compatible
- Automatic reduction of field data, processing of feature codes, and plot generation
- Powerful text and graphical editing tools for raw and processed data
- Complements your CAD and existing software with fast and simple data export to most popular survey software packages such as Softdesk and AutoCad
- Full integration of geoid models improves accuracy of orthometric (MSL) heights
- Custom project report generation using Microsoft Access
- Create even better, more professional reports with the ability to copy maps and report data directly to Microsoft Word software
- Seamless integration with Trimble's GPSurvey post-processing software for control work
- Creation of points for GPS and optical total station stake-out
- Fast upload of stakeout or control data to the TSC1 handheld



Windows tools for easy GPS data processing and integration of all your survey instrument results.

TSC1 *A Platform for the Future*



Surveyors are very familiar with the productivity advantages of handhelds. Before GPS became popular for surveying, handhelds were widely used with optical instruments and EDM's. For GPS, the role of handhelds was expanded to also include controlling and monitoring a GPS receiver. Surveyors have been waiting for the next generation of handhelds to satisfy their growing needs.

You want a faster, more rugged, and easier-to-use handheld with even more functionality. In addition, it should have more space available for future applications, more space for survey data, and better compatibility with other surveying instruments.

These requirements have been the driving force behind the design of the Trimble System Controller (TSC1), the new handheld for surveying. The TSC1 is the handheld platform for the future – with a true, modern multitasking operating system, ergonomic keyboard, large graphical display, and plenty of room for future additions...

GPS Total Station 4800

About *Trimble*

Founded in 1978, Trimble Navigation Limited is known worldwide as a high growth, leading edge technology company - especially in GPS. Today, Trimble is one of the largest manufacturers of surveying and mapping systems in the world. Trimble's rapid climb in surveying and mapping is the result of many factors. Some of the most important ones are described here.

Visit Trimble's World Wide Web site at www.trimble.com for more GPS news, information about other Trimble products, customer applications, and more...

Largest R&D Program

Trimble continues to invest more in R&D for advancing the art of GPS surveying than any other surveying and mapping manufacturer. This is exemplified by the fact that Trimble has already accumulated more than 100 GPS-related patents. Many of these patents are authored by surveyors, and include major technology breakthroughs that deliver significant productivity advantages to users.

Largest GPS Training Organization

Trimble and Trimble partners train more surveyors in GPS surveying each year than all other GPS organizations combined. Trimble maintains numerous training centers worldwide and also conducts hundreds of on-site user training sessions. At a Trimble training course, instructors with thousands of hours experience in GPS surveying techniques share their personal knowledge with each student in a modern training facility. Hands-on field and software exercises, step-by-step instructional manuals, and quick reference guides show the most efficient and cost effective uses for GPS surveying equipment.



Over 80 Surveying Professionals on Staff

Based on an independent study of surveyors and GPS users, Trimble was rated first in Customer Support among major GPS equipment suppliers. One of the main reasons for this rating is the fact that Trimble directly employs over 80 surveyors. Many of these surveyors are located in field offices close to Trimble users and many staff Trimble's Service and Support department phones.

With major offices around the world and over 250 distributor locations, access to Trimble technical experts and surveyors is just a phone call away. This is supplemented by dedicated Trimble Support pages on Trimble's World Wide Web site, a BBS System that contains the latest customer support information, "Frequently Asked Questions" (FAQ), a FTP site for downloading files, and much more. These sites are available 24 hours a day, 7 days a week.

Reserved for Specifications, Data Sheets & Ordering Information





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