

## SPECIFICATIONS

### Receiver Part

#### Measurements

##### General Info

220 channels, by advanced Pacific Crest Maxwell 6 Custom Survey GNSS technology  
High precision multiple correlator for GNSS pseudo range measurements  
Unfiltered, unsmoothed pseudo range measurements data for low noise, low multipath error, low time domain correlation and high dynamic response  
Very low noise GNSS carrier phase measurements with 1mm precision in a 1Hz bandwidth

Signal-to-Noise ratios reported in dB-Hz  
Proven Pacific Crest low elevation tracking technology

##### Satellite signals tracked simultaneously

- GPS: L1 C/A, L2E, L2C, L5 (reserved)  
- GLONASS: L1 C/A, L1 P, L2C/A (GLONASS M only), L2 P  
- SBAS: L1 C/A, L5 (reserved)

- Galileo: (reserved)  
supports GIOVE-A: L1BOC, E5A, E5B, E5A/B/BOC  
supports GIOVE-B: L1CBOC, E5A, E5B, E5A/B/BOC  
- Compass: (reserved)

B1 (QPSK), B1-MBOC (6,1,1/11), B1-2 (QPSK)

B2 (QPSK), B2-BOC (10, 5),

B3 (QPSK), B3BOC (15, 2.5)

L5 (QPSK)

##### Code differential GNSS positioning

Horizontal: 25mm+1ppm RMS

Vertical: 50mm+1ppm RMS

SBAS differential positioning accuracy: typically <5m 3DRMS

##### Static and FastStatic GNSS surveying

Horizontal: 3mm+1ppm RMS

Vertical: 5mm+1ppm RMS

##### Realtime Kinematic surveying

Horizontal: 10mm+1ppm RMS

Vertical: 20mm+1ppm RMS

Initialization time: typically <15s

Initialization reliability: typically >99.9%

### Hardware

#### Physical

Dimension (L x W x H): 158mm x 158mm x 78mm (6.2in x 6.2in x 3.1in)

Weight: 1.35kg (2.98lb) with battery and radio built in

#### Temperature

Operating: -40°C ~ +65°C (-49F ~ +140F)

Storage: -55°C ~ +85°C (-67F ~ +185F)

Humidity: 100%, condensing

Water/Dustproof: tested to Ip67 standard, protected from temporary immersion to depth of 1m (3.28ft)

Shock and vibration: Designed to survive a 2m (6.6ft) pole drop onto concrete

#### Electrical

Power 12-15V DC external power input

Rechargeable, 7.4V, 10000mAh Lithium-Ion battery units built in receiver

Battery life: 15-20 hours for built-in battery (varies with temperature and working mode)

#### Communications and Data Storage

Standard USB2.0 port

RS-232 port: Baud rates up to 115200

Fully sealed and integrated 2.4GHz communication Bluetooth port

UHF receiving antenna port

Fully sealed and integrated 450-470MHz receiver

Built-in GDL2 Radio (Default configuration)

- Transmit power: 0.5W

- UHF Range (varies with terrain / temperature): 3-5km typical/8-10km optimal

Standard GDL20 (Optional)

- Transmit power: 2.5W

- UHF Range (varies with terrain / temperature): 8-10 km typical/15-20 km optimal

Mini GDL5 Radio (Optional)

- Transmit power: 2/5W

- UHF Range (varies with terrain / temperature): 3-5km typical/8-10km optimal

Fully sealed and integrated internal GPRS/GSM module

External cellphone support for GPRS/GSM module for network RTK (CORS) operations

Network RTK (via CORS) range (varies with temperature / GPRS data rate): 20-50km

Data storage: internal memory 4GB

Recording Rate: 1Hz positioning, up to 20Hz (supported by mainboard Bd970)

Reference outputs: CMR+, CMR+, RTCM 2.1, RTCM 2.2, RTCM 2.3, RTCM 3.0, RTCM 3.1

### Remarks

Measurement accuracy and operation range might vary due to atmospheric conditions, signal multipath, obstructions, observation time, temperature, signal geometry and number of tracked satellites.

Specifications subject to change without prior notice.

### Controller Part

#### Platform

- PXA270 624 MHz processor

- 1 GB Flash ROM

- 256 MB RAM

#### Operating System

- Windows CE 5 (standard supply)

- Windows Mobile 6 Classic, Professional (optional)

#### Wireless Communications

- Integrated Bluetooth Class II, V 2.0 + EDR

#### External Connectors

- One tether connection with full RS232 and USB On-The-Go (USB 1.1) functionality

- One Low-Insertion Force (LIF) docking connector

- DC Power Jack

#### User Interface

- Color screen / Touch display

- 3.7 in (9.398 cm)

- Full VGA 480 x 640 Resolution

- Transflective, portrait mode TFT

- Sunlight readable (for outdoor use)

- High-reliability adjustable LED

- Backlight featuring a bright

- 165 cd/m2 output

- Touchscreen (standard)

- Passive stylus or finger operation

- Signature capture

- Full Alphanumeric keyboard

- Backlit, high durability hard-capped keys

#### Expansion Slots

- One SD/MMC memory card slot

- End-cap USB Interface supports GPS expansion module.

- 100-PIN expansion interface: supports PCMCIA (type II), GPRS/EDGE and other third-party expansion modules developed using Psion Hardware Developer's Kit.

- One Type II CF Card Slot

#### Power Management

- Optional 3.7V, 2700 mAh standard capacity battery

- Advanced smart battery with gauge

- Built in charger

- Rechargeable, user replaceable backup battery pack

#### Environmental

- Withstands multiple drops from 6 ft (1.8 m) or 26 drops (on 12 edges, 6 corners, 8 faces) from 5 ft (1.5 m) to concrete while powered on

- Waterproof/Dustproof: IP65, IEC 60529

- Operating temperature: -4°F to 122°F (-20°C to +50°C)

- 5%-95% RH non-condensing

- Storage temperature: -40°F to 140°F (-40°C to +60°C)

- ESD: +/- 8kVdc air discharge, +/-4kVdc contacts

#### Physical

- Dimension(LxWxH): 223x100x42mm (8.78x3.94x1.65in)

- Weight: 0.46kg (1 lb) without battery

Dealer info

**SOUTH**  
Target your success



**STAR S86<sup>T</sup>**  
Integrated RTK GNSS  
Surveying System

All-in-One RTK Transformer

**SOUTH**  
Target your success

**SOUTH SURVEYING & MAPPING INSTRUMENT CO.,LTD.**

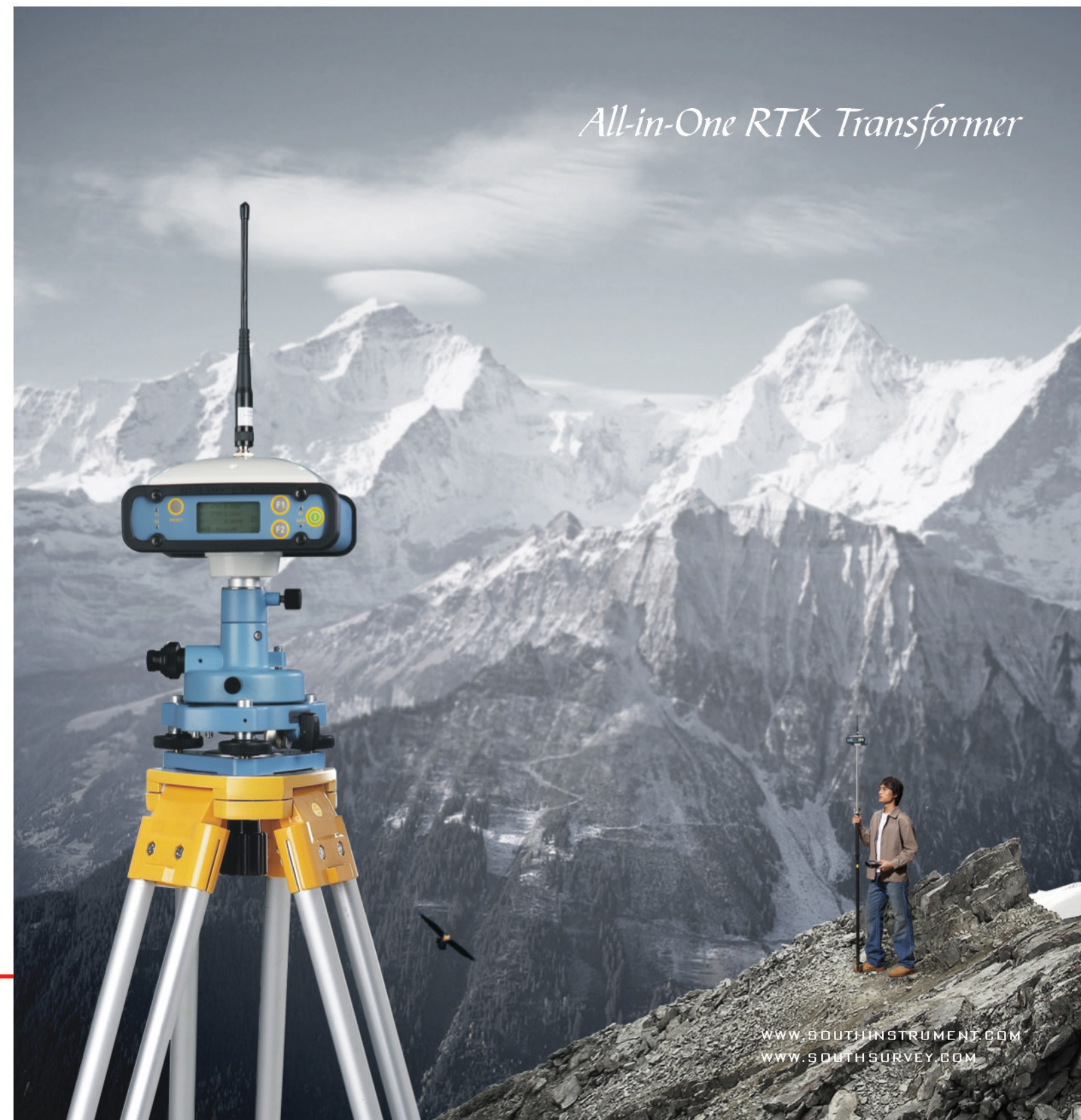
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## KEY FEATURES



to recharge

to link with external radio, 5-pin

to link with computer, 7-pin

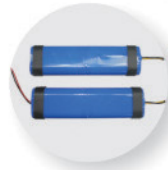
SIM card slot (for CORS applications)



Compact housing with metal and hard plastics, rugged and durable, good for heat dissipation



LCD screen, vivid display of basic receiver information



Built-in double batteries, working time up to 15-20 hours



Control panel, direct settings for mode and status



### Built-in Transmitting Radio Module

The mini 0.5W radio transmitter equipped inside is a distinct feature that brings you great convenience. Within effective working range (3-5km typical, 8-10km optimal), you may switch freely between base station and rover, therefore complicated base setup and displacing the external radio transmitter as well as the external power supply are no longer necessary to you.



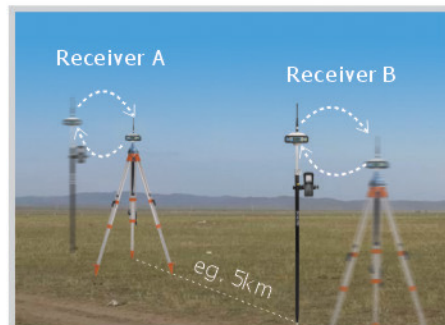
### Built-in GPRS/GSM Module

Such a module has enabled this receiver to be multifunctional, which helps you easily change between radio RTK mode and network RTK mode subject to the practical condition. Interchangeability would definitely get you a very economical solution.



### Open Port for External Radio Access

S86T is connectible with external radio transmitters at different power rates for longer working range (8-10km typical, 15-20km optimal). The multiple choices allow you more options for radio access.



With the outstanding built-in radio transmitter feature and interchangeability capability, base and rover can be switched very easily by just moving the tripod and controller or even preparing another set of tripod, carbon fiber pole and controller. It brings you more convenience than most of other regular RTK receivers cannot.

## WIDE APPLICATIONS



Control survey



Rail/Road survey



Topographic map survey



Hydrographic survey



Electric wire survey



Access to CORS

## Base Station



Multifunctional receiver unit standby, to interchange between base and rover.

Standard GDL20 Radio (optional): 15/25W, 8-10km typical, 15-20km optimal.  
Mini GDL 5 Radio (optional): 2/5W, 3-5km typical, 8-10km optimal.

### UHF Transmitting Antenna

All-direction antenna (100W, gain 7.5dBi) guarantees reliable signals in long distance.

### Controller Holder Bracket

Holds the controller in any direction at your convenience, with mini compass to get you well oriented.



### Receiving Antenna

All-direction antenna, gain 5dB, to install underneath for better avoiding interference.

### PSION Controller

PSION Workabout Pro 3, from internationally reputed brand TEKLOGIX, a flexible, expandable, rugged device.

### Carlson SurvCE onboard (optional)

Apart from default software EngineeringStar, S86T can also work with Carlson SurvCE (GPS), a user-friendly fieldwork solution, to meet diverse needs. Advanced functionality, ease-of-use, and sheer capabilities of this data collection software makes S86T a much more powerful kit for your RTK jobs.

### Carbon Fiber Pole

Rigid pole CLS25, extendable to 2.45m, with high quality leveling bubble, light weight but durable.

### S86T Series Case

Quality carrying case, rugged and durable

