

# 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 1 mm 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 (GLONASSM only), L2 P
- SBAS: L1 C/A, L5 (reserved)
- Galileo: (reserved)

supports GIOVE-A: L1BOC, E5A, E5B, E5AltBOC  
 supports GIOVE-B: L1CBOC, E5A, E5B, E5AltBOC

- 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: 2.5mm+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 (LxWxH): 184mmx184mmx96mm (7.2inx7.2inx3.8in)  
 Weight: 1.2kg (2.64lb) with internal battery, internal radio

### Temperature

Operating: -40°C ~ +75°C (-49F ~ +167F)  
 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, removable 7.4V, 2.5Ah Lithium-Ion battery in internal battery compartment  
 Battery life: 6-10 hours for 2 batteries from standard supply (varies with temperature and working mode)

### Communications and Data Storage

Standard USB 2.0 port  
 RS-232 port: Baud rates up to 115200  
 Fully sealed and integrated 2.4GHz communication Bluetooth port  
 UHF receiving antenna port and GPRS/GSM signal antenna port  
 Fully sealed and integrated MDS Series receiver/transmitter option:  
 Optional frequency:  
 - MDA module: 410-430 MHz  
 - MCB module: 430-450 MHz  
 - MDC module: 450-470 MHz  
 Radio RTK performance:  
 - High performance external radio transmitter with Advanced Data Link (ADL)

technology for remote communications, OEM particularly for SOUTH by Pacific Crest, 0.1-2.0/4.0 configurable transmit power, environmentally sealed to IP67 standard and ideal for EMI resistance  
 - Integrated radio transmitter only: 1-2km (varies with terrain and temperature)  
 Fully sealed and integrated internal GPRS/GSM module  
 External cellphone support for GPRS/GSM module for network RTK (CORS) operations  
 Network RTK (via CORS) performance (varies with temperature and GPRS data rate): 20-50km  
 Data storage: internal memory 4GB  
 Update 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

## Controller Part

### Platform

PXA270 624 MHz processor  
 1 GB Flash ROM  
 256 MBRAM

### Operating System

Windows CE 5 (standard supply)  
 Windows Mobile 6 Classic, Professional (optional)

### Wireless Communications

Integrated Bluetooth® Class II, V.20 + 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: +/- 8 kVdc air discharge, +/- 4 kVdc contacts

### Physical

- Dimensions (LxWxH): 223mmx100mmx42mm (8.78inx3.94inx1.65in)  
 - Weight: 0.46kg (1 lb) without battery

**SOUTH**  
 Target your success



**STAR S82<sup>V</sup>**

Integrated RTK GNSS  
 Surveying System



Distributor Info

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.

**SOUTH**  
 Target your success

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

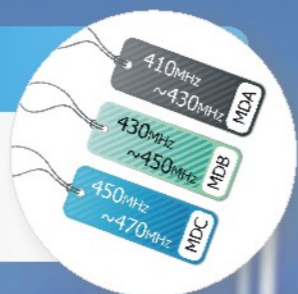
Add: 2/F, Surveying Building (He Tian Building), NO.26, Ke Yun Road, Guangzhou 510665, China  
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# KEY FEATURES

## Customized Radio Frequency Options

The integrated MDS series receiving radio modules include 3, MDA (410-430MHz), MDB (430-450MHz), and MDC (450-470MHz) for options. It allows the receiver to be compatible with popular radio transmitters on the market.



## Built-in Transmitting Radio Module

0.5W, independent of external radio while working within short range, eg. 1-2km (in good condition).



## Huge Internal Memory

The 4G internal memory capacity of S82V allows mass storage of measured data for long time collection, which brings great convenience to your static work.



## Separated Module Packs

Advanced data link with both UHF receiving radio and GPRS/GSM modules built in, switchable for radio/network RTK modes. 2 modules are separately installed for reducing interference, yet just a very small receiver.



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 for fast and simple setup. It brings you more convenience than most of other regular RTK receivers cannot.

**Compact Housing**  
Solid, yet handy housing with ABS+PC material at industrial level, nice-looking and long-lasting.



**BD970 Motherboard Equipped**  
Proven Pacific Crest Maxwell 6 technology delivers demonstrated performance, outstanding efficiency.



**Dual Bluetooth Integrated**  
Helps the receiver to communicate with controller and mobile device for realtime data transfer.



**Control Panel**  
Imported PLC control circuit with 2 buttons & 6 indicating lights to view status and mode, easy to use.

RTK Survey

Static Survey

Access to CORS

Wide Applications

Rail/Road Survey

Data Collection

Hydrographic Survey

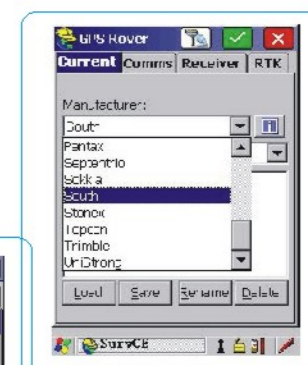
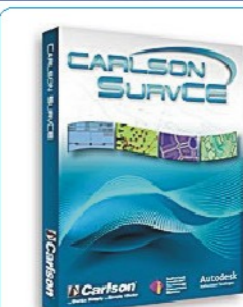
Stake-out

Electronic Wire Survey



## Carlson SurvCE onboard (optional)

Apart from default software EngineeringStar, S82V 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 S82V a much more powerful kit for your RTK jobs.



## Powerful PCC external radio transmitter



OEM by Pacific Crest, the unit enjoys almost the same features and functionalities as the original ADL Sentry radio. With such a high performance Advanced-Data-Link device, S82V is enabled to be compatible with the major popular RTK receiver products available in the global market, which brings you more flexibility and convenience at work.

3 options:

- ADL-A, to match S82V with MDA module for 410-430MHz
- ADL-B, to match S82V with MDB module for 430-450MHz
- ADL-C, to match S82V with MDC module for 450-470MHz

