7400RSi & 7400DSi

DGPS/RTK Reference Surveyor & Differential Surveyor

Centimeter accuracy, 5 Hz output rate, and 0.1 second latency for dynamic positioning and precise navigation

The 7400RSi™ Reference Surveyor and 7400DSi™ Differential Surveyor offer the best solution available for demanding positioning and navigation requirements. These receivers seamlessly transition, in real time, between centimeter level accuracy, based on RTK/OTF carrier phase data, and sub-meter accuracy, based on L1 C/A code data. Positions are computed and output at rates up to 5 Hz and 0.1 second latency. Based on Trimble's advanced Maxwell processing technology, these dual frequency (L1/L2) DGPS/RTK receivers provide

the highest level of accuracy achievable, accepting multiple types of input data and automatically switching to provide the optimal solution for marine applications. Utilizing Trimble's field-proven RTK technology, the 7400RSi and 7400DSi, in the RTK mode, feature fully automatic on-the-fly (OTF) initialization.

The 7400RSi and 7400DSi also incorporate Trimble's Super-trak™ technology. Super-trak enhances low power satellite signal acquisition, improves signal tracking capabilities under less than ideal conditions, and provides increased immunity to signal jamming resulting from radio frequency interference. Super-trak increases productivity and facilitates continual operations in demanding environments such as ports,

harbors, along river banks, and near sources of satellite signal obscuration and radio frequency interference.

Both the 7400RSi & 7400DSi receivers feature 9 channels of continuous satellite tracking contained within a lightweight, rugged, weatherproof housing. For ease of operation and system integration, Trimble has designed these receivers to have four serial ports and low power consumption. During operation, the receiver can output 1 PPS, a subset of NMEA-0183 messages, including QA/QC data, and binary data, including raw measurements, for archiving or post-mission analysis.

The 7400RSi and 7400DSi are ideal for hydrographic and navigation systems, vessel tracking, dredging, and other dynamic positioning and precise

7400RSi & 7400DSi

Standard Features

- Centimeter level, real-time positioning using carrier phase RTCM SC-104 data
- Sub-meter, real-time positioning using L1 C/A code phase RTCM SC-104 Differential correction data
- 5Hz position updates
- Automatic OTF(on-the-fly) initialization while moving
- Super-trak™ signal processing technology
- Outputs a subset of standard NMEA-0183 messages
- 4 serial I/O ports
- 1 PPS output
- Remote Controller™ software
- Rugged, lightweight, power efficient
- One year hardware warranty
- Quickplan™ software for mission planning

Options and Accessories

- Rugged L1/L2 Antenna
- Compact L1/L2 antenna
- Permanent mount L1/L2 Antenna
- Removable Antenna Groundplane
- Antenna weather dome
- Trimble formatted RTK (OTF) data input/output
- Data collector support
- Office support module: OSMII
- Receiver transport case
- 6Ah,10Ah or camcorder batteries
- External frequency input
- 30m antenna cable
- 10m antenna cable
- Extended hardware warranty
- Firmware and Software update service
- Site training

Ordering Information

7400RSi   **Part Number 30565-70**

Includes 7400RSi receiver, Remote Controller software, 7400 Operation Manual, 7400RSi/DSi User Guide, 5-pin Lemo to DB9 cable, 7-pin Lemo to DB9 cable, power input cable

7400DSi   **Part Number 30565-75**

Includes 7400DSi receiver, Remote Controller software, 7400 Operation Manual, 7400RSi/DSi User Guide, 5-pin Lemo to DB9 cable, 7-pin Lemo to DB9 cable, power input cable

Compact L1/L2 antenna	**Part Number 31352-00**
L1/L2 permanent antenna	**Part Number 31353-00**
Rugged L1/L2 antenna	**Part Number 31354-00**
Rugged L1/L2 antenna, 4 hole mount	**Part Number 31354-05**

Physical Characteristics

GPS Receiver

Size:	9.4" (24cm)W x 11" (28cm)D x 3.1" (8cm)H
Weight:	6.2 lbs.(2.8 kg)
Power:	Nominal 10.5-35 VDC, 9 watts
Operating temp:	-25° to +55°C
Storage temp:	-30° to +75°C
Humidity:	100% fully sealed

Technical Specifications

Tracking:	9 channels L1 C/A code, L1/L2 full cycle carrier. Fully operational during P-code encryption.
Signal processing:	Multibit; Maxwell architecture; very low-noise C/A code processing; multipath suppression

Positioning:

RTK (OTF):

Mode	Latency	Accuracy[1,2]
1 Hz.	0.4 second	1cm + 2ppm (times baseline length) Horizontal 2cm + 2ppm (times baseline length) Vertical
5 Hz	0.1 second	3cm + 2ppm(times baseline length) Horizontal 5cm + 2ppm(times baseline length) Vertical

Initialization:	Automatic while moving or static
Time required:	Typically <1 minute
Range:	Up to 10km

LI C/A Code Phase:

Mode	Latency	Accuracy[1,2]
1 Hz./5 Hz.	0.1 second	Horizontal – 50cm Vertical – 75cm

1. Depends on radio link latency

2. One sigma figure, varies with SA errors and satellite geometry

Start-up:	< 2 minutes from power-on (cold start) < 30 seconds with recent ephemeris (warm start)
Communications:	4 x RS232 ports. Baud rates up to 38,400
Configuration:	Configuration of receiver via user defineable application files
Remote Control:	Full control & display of receiver operations via graphical user interface software running remotely under Microsoft Windows.
Output Formats:	NMEA-0183: GGK, GGA, ZDA, VTG and GST Trimble Binary Streamed Output
Data Inputs:	The receiver can use the following types of corrections. RTCM message type 18/19 (RTK operation) RTCM message type 1 (DGPS operation) RTCM message type 9-3 (DGPS operation) CMR2 (RTK operation) (optional) The choice of correction type depends on the baseline length and the corrections that are currently being received.

ADVISORY NOTICE: This receiver uses the GPS P-code signal, which by U.S. policy may be switched off without notice.

Specifications and descriptions subject to change without notice.