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LEVEL LINE PLUMB ANGLE SQUARE AREA DISTANCE GRADE MEASURE MARK LAYOUT

Orion

10cm real time backpack solution – imagine the possibilities



E 387300.3160
N 6466238.0210



The **Orion** difference

The **Orion** System is a comprehensive GIS to RTK system that features flexible real-time solutions. Meet the challenge of any job – These solutions are designed for multiple applications and features state-of-the-art digital architecture. With enough battery life to last an entire day, the system is capable of working as long as you do. This revolutionary product is designed to increase productivity and efficiency in the field by providing the best possible backup and service. The following features and benefits outline the products and systems contained in the **Orion** package.

Training and support

- ✓ **Full training** is provided for all of our equipment. Users can be trained on job specific applications getting the job done more efficiently.
- ✓ Spare equipment is always supplied making field diagnostics easy, **reducing downtime**. Replacement equipment for the **Orion** can be sent overnight in most cases. Rental equipment to be used in remote areas is delivered a day early to allow users become familiar with its operation before using it in the field.
- ✓ There is a range of quick guides to '**keep it super simple**' out on the job.
- ✓ Should you need additional help, or in the unlikely event of equipment failure, support staff can always be contacted on the **national toll free number**.
- ✓ **Seven day 24 hour support**.

Orion – *Choose the accuracy to match the job – ‘SubMetre to Centimetre’*

- ✓ **SUBMETRE**
The **Orion** system is designed for efficiency! Use it in VBS mode (OmniSTAR differential service) together with the pinwheel multipath rejection antenna to achieve consistent submetre results 95% of the time.
- ✓ **DECIMETRE**
Need more accuracy – simply choose HP (High Precision OmniSTAR differential service) and achieve 10cm results in x, y and z coordinates, same hardware, same software.
- ✓ **CENTIMETRE**
Integrate the **Orion** Receiver as part of an RTK System. It can either be part of the base station or the rover, or both. We can even integrate it with other RTK equipment (depending on radio & receiver compatibility). We use the simplest setup system yet. Few cables, minimal setup time, store and carry equipment already in setup configuration.

We are very pleased to be able to offer you the simplest and most flexible GPS system we have ever seen.



Orion – Features and benefits

- ✓ Level 5 RTK Solution software, simple positioning right through to sophisticated road construction. Level 5 software is widely known already by a lot of users. It is the updated version of SDR33 commonly used with Total Stations and RTK equipment.
- ✓ The equipment can be used in conjunction with a Sokkia Total Station. Simply by changing the instrument and continuing on in the same job.
- ✓ Data can be downloaded in text or DXF formats.
- ✓ Positioning can also be output from a second port to integrate with other equipment.
- ✓ Allegro Data Collector is a very hardy and fast data collection tool. It has 15 hours battery time and has the capacity to store up to 750,000 points.
- ✓ The iPAQ option with SDR level 5 provides a cheaper alternative for users not in harsh conditions.
- ✓ Spare cables, spare batteries to keep you going
- ✓ Dual battery system that allows you to swap batteries without losing power. Low battery consumption also means that the unit will work for as long as you do.

Submetre Mapping with the Orion

- ✓ This configuration works exactly the way we are used to Omnistar VBS working – turn it on and away you go. Combined with the new style antenna, submetre accuracy is kept to a maximum.
- ✓ The new backpack style is very comfortable and ergonomically designed to limit stress on the back.

Decimetre Accuracy with the Orion - The First Autonomous System to Overlap GIS and Surveying with Decimetre-Level Accuracy

- ✓ For the first time high-level accuracy is available in the ease and efficiency of a backpack system, particularly in height.
- ✓ This new system enables you to conduct high-accuracy GIS and GPS applications — from landscape design, irrigation and resource mapping projects, to boundary and control densification surveys — without additional labour or equipment.
- ✓ Additional benefits include compatibility with proprietary software, such as IMap, three bi-directional COM ports, and access to PAC technology to virtually eliminate the effect of multi-path in the field.

Orion – VBS / HP receiver kit

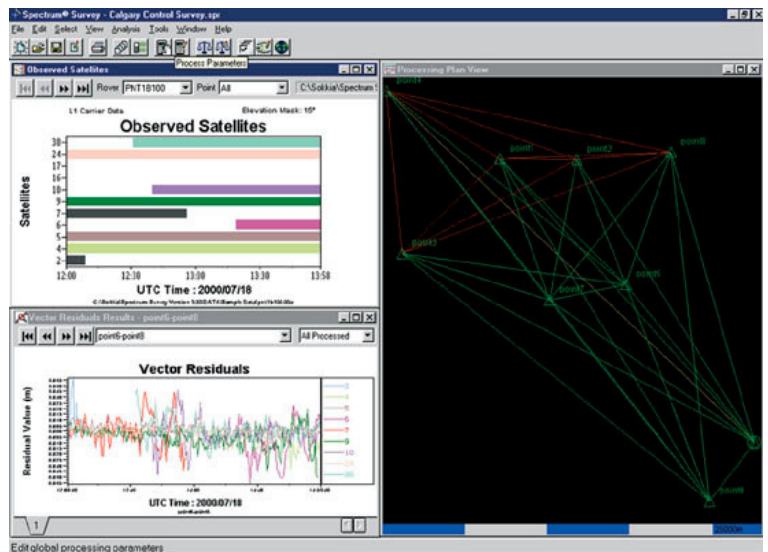


- GSR2650 Dual Frequency Receiver, Quick Reference Guide & Operations Manual
- Cable Kit - 2 x Comms; 2 x Power; 2 x Antenna
- SK-600 LB GPS Antenna
- PC Cable (null modem)
- Rover Back Pack
- GPS adjustable rover pole - carbon fibre 2m
- Pole Clamp and Cradle for data collector
- Camcorder Batteries (4 – 2 spare)
- Camcorder Dual Battery Charger (100-240 V)
- SDR Level 5 Software, Reference Manual & Users Guide
- OmniStar VBS/HP Satellite Correction Service
- Free Satellite Coverage Planning Software



Orion – RTK receiver kit

- Receiver Kit with OmniStar HP capable system plus both L1/L2 RTK base broadcast and RTK rover capabilities
- PDL Radio Base Kit (450-470 MHz)
- Base Power Kit
- PDL Radio Rover Kit (450-470 MHz)
- SDR Level 5 Software with Data Collector/s
- Spectrum Survey Suite
- GPS adjustable rover pole
- GPS tripod/pole bag





Orion – Receiver specification

Physical

Receiver Weight / Dimensions 1.1 kg / 180mm x 186 mm x 75mm

Environmental

Operating / Storage Temperature -40° C to +75° C / -40° C to +90° C

Humidity Not to exceed 95% non-condensing

Position Accuracy¹

Single Point L1 1.8m CEP; L1/L2 1.5m CEP

OmniSTAR VBS¹ 1.0m CEP; HP¹ 0.14m CEP

RTK 1.0cm + 1ppm (h), 2.0cm + 1ppm (v)

Static, Rapid Static, Kinematic, Stop-and-go 0.5cm + 1ppm (h), 2.0cm + 1ppm (v) + 1ppm (v)

1.0cm + 1ppm (h), 2.0cm + 1ppm (v)

Measurement Precision

L1 C/A Code / Carrier Phase (differential channel) 6cm RMS / 0.75mm RMS

L2 P Code / Carrier Phase (differential channel) 25cm RMS (AS on) / 2mm RMS

Data Rates

Measurements/Position 20Hz / 20Hz

Signal Reacquisition

L1 / L2 0.5 s (typical) / 6 s (typical)

Time Accuracy^{1,4} / Velocity Accuracy¹ 102ns RMS / 0.03m/s RMS

Dynamics

Acceleration / Velocity⁵ / Height 10g / 515m/s max / 18,288m

1. Typical values. Performance specifications are subject to GPS system characteristics, U.S. DOD operational degradation, ionospheric and tropospheric conditions, satellite geometry, baseline length and multipath effects. Assumes SA Off.

2. Expected accuracy after three minute static convergence over short baseline.

3. Subject to convergence time and baseline length.

4. Time accuracy does not include biases due to RF or antenna delay.

5. Export licensing restricts operation to 80,000 feet maximum and 1,000 nautical miles / hour maximum.





Orion - SDR LEVEL 5 SOFTWARE

SDR continues the Sokkia tradition of providing complete field data collection solutions. Built on a wealth of experience with the SDR series Electronic Field Books, the Allegro, with SDR Level 5 software, delivers multiple options in a single package. The industry-standard SDR file format is compatible with most desktop software packages, and the versatility of the CE-based platform provides an efficient link between the user and project, or survey operation.

Familiar SDR functionality combines with powerful GPS RTK and ETS capabilities to produce the most efficient data collection and management system on the market.

The Allegro is a sleek, ergonomically designed data collection platform that provides flexible one-handed data capture. This system is ideal for many GPS applications, including topographic stake-out, roading, mapping, and control surveys.

This handy system features an integrated keyboard, touch screen computer, and Windows CE operating system. It is specifically designed to work with a wide range of Sokkia hardware products, including GPS receivers, digital levels, and total stations.

With the Allegro, the answer for powerful data collection is truly in the palm of your hand.



Level 5 Features and Benefits

The SDR Level 5 software is the link between you and any job, with features that include:

- ✓ **Windows® CE-based data collection operating system software** – SDR file format provides instant compatibility with most software packages. Workflow and formats are familiar and provide easy to use graphical plan views, stake out and sky plots. The system is platform-independent with more speed and graphics.
- ✓ **Independent hardware platforms** fit a variety of applications, depending on environment, cost, etc. including the SDR8100 and the DAP Microflex CE5320.
- ✓ New features include **GPS Static and Kinematic data collection capabilities**. There's support for a wide variety of sensors, which includes GPS, total stations, electronic levels and laser range finders.
- ✓ **Multiple reductions** fit to local or published coordinate systems.



- ✓ **Comprehensive** job management and wide range of configurations provide the user with flexibility. Additional versatility and flexibility is provided with functionality for data integrity, a wide range of surveying and COGO programs, as well as complete road (route) surveying and design.

Orion – Data collectors

HP iPAQ



The HP iPAQ Pocket PC h2210 has the optimal combination of features, performance, and expandability to meet your handheld computing needs. The sleek design includes dual slot expansion for flexibility and storage. With integrated Bluetooth, connect wirelessly to other Bluetooth devices. Plus, wireless-ready capabilities allow you to access the Internet, email, and corporate data at home, at work or on the go. Popular productivity applications, Universal Remote Control, iPAQ Backup and other features bring convenience at an outstanding value. View photos, play games, listen to music and enjoy your favorite multimedia. A

removable battery and transfective display give you optimal performance. A broad range of features, Bluetooth, expansion capabilities, and multimedia make the hp iPAQ Pocket PC h2210 essential for you to communicate, access, and manage information when you want.



Specifications

Operating System Installed - Powered by Microsoft® Windows® Pocket PC 2003 Premium Edition

Processor - Intel® XScale™ technology-based processor

processor speed - 400 MHz

Standard Memory - 64 MB SDRAM (56 MB main memory)

System features - External I/O Ports, USB Desktop cradle/charger

Standard Connectivity - USB/Serial, IR, ConsIR (Consumer Infra red interface)

Display - Transfective type TFT colour with LED Backlight; Number of Colours: 64K colour (65,536 colours) 16-bit; Touch-sensitive screen; Resolution (W x H): 240 x 320

Keyboard - Optional Keyboard Solutions

Mouse/Pointing Device - Instant-on/off and Backlight; Navigation button; Touch-sensitive display for stylus; 4 programmable application launch buttons – Calendar, Contacts, Inbox, and iTask buttons; 2 alarm settings; Built-in speaker Soft touch sides for slip free grip.

Wireless capability - Yes

Wireless Technologies - Integrated Bluetooth V. 1.1, optional WLAN 802.11b

Internal Audio - Microphone, speaker, one 3.5 mm headphone jack, MP3 stereo (through audio jack)

Power supply type - AC Input: 100~240 V, 50/60 Hz, AC Input current: 0.2 A max, Output Voltage: 5Vdc (typical), Output Current: 2A (typical)



Dimensions (w x d x h) - 76.4 x 15.4 x 115.4 mm

Weight - 144.2 g

Warranty - One-year parts and labor warranty. Next Business Day Replacement HP Care PAQ™ available for purchase.

Warranty Standard Statement - One-year parts and labour warranty, 90 days technical support for software.

JETT•CE Hand Held Computer

Looking for the latest in hand held computer technology for industrial and commercial use? Designed for one-handed operation, the **JETT•ce** features a powerful Microsoft® Windows® CE .NET 4.2 operating system, Intel® XScale™ Technology processor, sunlight readable display with touch screen technology, and a variety of interface capabilities. The JETT•ce is an ideal solution to meet the complex and varied requirements of a wide range of applications. The standard 320x240 pixel QVGA-TFT color display is sunlight readable with an LED backlight for easy viewing in high or low light conditions. The touch screen gives you the ability to create GUI based applications—providing unlimited possibilities for user control.



The JETT•ce comes standard with 64MB of SDRAM and 64MB of built in Compact Flash (approximately 32MB used for operating system), which is expandable to 2GB. For removable data storage or I/O cards, the JETT•ce is equipped with a Compact Flash (CF) slot. Featuring a variety of interface options, the JETT•ce comes standard with one RS-232 serial port. For applications that require dual serial port capability, a second serial port configured as RS-232, RS-422 or RS-485 is available. The JETT•ce comes standard as a battery powered unit with a rechargeable Nickel Metal Hydride (NiMH) battery pack, which is interchangeable with AA Alkaline batteries. A line powered unit is also available.

The JETT•ce is specifically designed for industrial and commercial use. The case is molded from Xenoy®, one of the most durable, chemical-resistant materials available on the market today. Securely clamped into place, the keypad surface ensures excellent splash resistance and prevents curling or peeling of the keypad overlay.

Specifications

CPU/Operating System - Microsoft® Windows® CE. NET 4.2 Intel® XScale™ Technology processor 200 MHz - (400 MHz Future Option)

Memory/Storage - 64MB Compact Flash built-in (approximately 32MB used for operating system) • Expandable to 2GB • 64MB SDRAM

Power - Nickel Metal Hydride rechargeable batteries (1400 mA, 7.2V) • AA Alkaline batteries (6) • Recharge/Line Power: 11 to 18 VDC, 1.5A • 8 hours minimum operating time

Keys/Switches/Indicators - Standard or Custom graphics available • Standard or Custom Layouts: 45-key membrane (10 rows x 4 columns plus 1 x 5 bottom row), 45-key elastomeric, 30-key elastomeric (10 x 3), 15-key elastomeric (5x3) • Custom Layouts available • Feedback: Tactile and Audible • Power/Resume switch: 5



programmable LED Indicators (2nd, Alt, Caps Lock, Shift, Ctrl), one fixed LED for Low battery/Charge status (battery unit only) • Optional Backlit keypad

Custom Options - Expandable sizes of built-in Compact Flash (up to 128MB) • Line Powered Unit • Customizable options: Case Color, Bumper Color, LED Logo Tag (elastomeric keypad only), Keypad Layout (quantity of keys and locations), Keypad Graphics, Logo Tag, LED Colors, Serial Tag, Cables and Pin-outs.

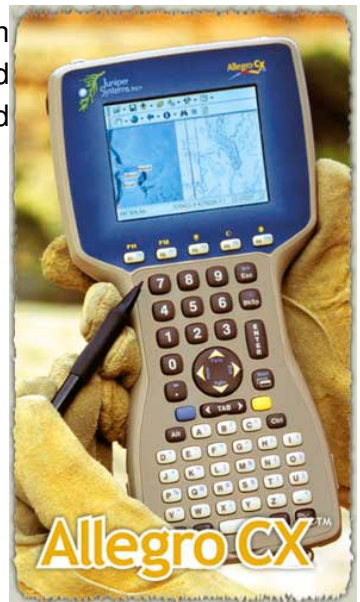
Environment - Storage temperature: -25 to +70degrees C • Operating temperature: 0 to + 50degreesC • Charging temperature: 0 to + 40degreesC • Humidity: 5-95% (non-condensing)

Display - 320x240 QVGA-TFT color display with touch screen (Standard) or customized for your application

Warranty -Two years

Allegro CX

The Allegro CX has exciting new features such as a fast Intel Xscale 400 MHz processor, wireless capability with integrated Bluetooth, and a colour display option that is highly visible in direct sunlight. You expect ruggedness, reliability, and flexibility from the Allegro. The Allegro CX has these features and more to make field data collection even more productive.



FEATURES

- **Fast Processor For Performance**
- **Microsoft Windows CE® .NET V4.2**
- **Color Display Option**
The high visibility color TFT active Matrix Transflective LCD provides brilliant contrast, even in direct sunlight.
- **Monochrome Display Option**
The ¼ VGA , 320 x 240 pixel display offers 18 percent more viewing area than comparable units, making applications and data easier to see. A display heater and adjustable backlight are standard features.
- **Bluetooth Transceiver**
A class 2 Bluetooth transceiver is integrated with the color display option, providing wireless connectivity for a 10 metre radius.
- **Meets Tough Environmental Specifications**
Do not let the attractive design fool you. The case is rugged, shock resistant, and chemical resistant. Gaskets completely seal the case from water and dust. (Yes, it floats!) The Allegro CE operates in temperatures ranging from -30 to 54 degrees C.
- **Efficient Keyboard Layout**
The keyboard bezel protects the keys from tearing. It can be removed to clean the keyboard (the Allegro remains sealed during cleaning).
- **Field-Friendly Design**
The shape and smooth edges of the case make it easy to hold in either hand and use in the field
- **Plenty of Memory for Efficient Program Execution**
From 64 M and 128 M of SDRAM is available, providing sufficient memory to run programs like mobile GIS.



- **Secure Data and Program Storage**
From 128 M, 516 M, or 1 G of non-volatile solid state disk storage is available. Your data are secure without battery backup.
- **PC Card Slot Provides Options**
Add data storage and input/output options through the user-accessible PC card slot.
- **Wireless Sensor Integration with Expansion Pods**
- **Long Battery Life**
A NiMH battery pack provides up to 30 hours of battery life.
- **Multiple Communication Options**
Two standard 9 pin D RS-232C serial ports and an IrDA port allow you to connect multiple devices to the Allegro CE. The USB port provides fast file transfer and synchronization with a PC.
- **Fast File Transfer and Synchronization**
Using the USB/Power Dock[®] you can quickly transfer and synchronize files between the Allegro CE and a PC.

OmniSTAR. *High performance (HP) Service*

The OmniSTAR High Performance Service is a satellite based differential service providing accuracy of 10cm (95%). OmniSTAR High Performance (HP) uses unique OmniSTAR algorithms to tune the solution down to 10cm accuracy. The OmniSTAR High Performance System can be used at any time after the equipment is powered on and the user determines what precision to work with, this is read from the screen of the data collector.

OmniSTAR has 11 Base Stations located around Australia that are OmniSTAR High Performance Service enabled. These Base Stations are located at:

- Perth
- Kalgoorlie
- Karratha
- Broome
- Darwin
- Townsville
- Brisbane
- Cobar
- Bathurst
- Melbourne
- Adelaide

Each Base Station is a Dual Frequency GPS Receiver. The GPS data from each of these base stations is transmitted to the Network Control Centre in Perth. Here the data is quality checked. The data is then transmitted over Australia via the Optus communication satellite. The Optus communication satellite is situated to the north east of Australia.

The OmniSTAR High Performance Service uses four innovative techniques to determine precise satellite ranges and hence derive very accurate positions

1. **Carrier Phase** – Use of the GPS carrier phase range of data to provide high resolution satellite ranges.



2. **Precise Ephemeris** – Precise ephemeris data is very accurate GPS satellite orbit information. The precise ephemerides are broadcast over the OmniSTAR service and are used to determine the precise location of the GPS satellites to greatly enhance the accuracy of the users position.
3. **Dual Frequency GPS Receivers** – Use of Dual Frequency GPS Receivers to eliminate the large satellite range errors associated with the GPS signal being refracted through the ionosphere.
4. **Base Station Network** – Use of a wide area reference station network allows for the calculation and removal of other more local unmodelled GPS errors and biases.

From the available literature, other service providers offering similar styled services would appear to be using some but not all of the above methods. The users can operate in High Performance mode anywhere within site of the Optus satellite. The OmniSTAR HP Solution is completely automatic, all you do is power up the receiver. First of all the Receiver calculates its current position. Then the unique OmniSTAR algorithms progressively refine the solution to provide a solution down to 10cm accuracy. The Receiver can also be used on the OmniSTAR standard (VBS) service providing accuracy of 75cm.

Orion pricing for VBS/HP Receiver Kit

All options include the standard receiver kit as previously detailed. All prices include a 12-month Omnistar satellite subscription.

Option 1



Orion with Jett	
Jett with SDR Level 5	
Download/Charging cable with power adaptor, 2x data cables, soft Case.	

Option 2



Orion with TDS Recon	
TDS Recon with SDR Level 5 software	
USB PC cable, 2x Serial cable, Charger, 2x stylus pen, 10x screen protectors.	
TDS Recon with Bluetooth & SDR Level 5 software	

Option 3



Like the **Orion** ...meet the team

DELTA

Sub-metre GPS/GIS Data Capture and Mapping with the Axis Series DGPS Receivers

The **DELTA** Series system integrates an internal dual channel beacon, as well as OmniSTAR and AMSA functionality, with the IMap data collection software to accomplish real-time mapping and data collection that can be collected anywhere. This revolutionary system incorporates unmatched data collection customisation, efficiency, and data visualisation while in the field.



Centauri

Centimetre Accuracy with RTK (Priced at around \$45,000 ex gst)

Our **Centauri** RTK Survey Systems combines proven GPS technology and innovative design. The GSR2600 (backpack mounted) or the Radian IS (all on the pole mounted), along with the SDR Level 5 Data Collection Software, is ideal for real-time applications, including land surveying and construction stakeout

