

Placer GPS 450/455

Versatile GPS Mobile Unit with Communications Support and Optional Dead Reckoning for Commercial Fleet Applications

KEY FEATURES AND BENEFITS

- Multiple Protocols Available
- Lower Acquisition and Operating Costs
- Seamless Mobile Unit to Base Station Data Communications
- Slim Profile for Easy Installation
- Optional DGPS and Dead Reckoning for Improved Accuracy
- PowerTools Software for Installation and Maintenance

The Placer™ GPS 450/455 mobile units provide a versatile and economical platform for mobile positioning applications.

Using state-of-the-art GPS receiver technology, the Placer unit has been optimized for vehicle installation and operation, providing reliable vehicle position, direction, speed, time and status in any weather, anywhere in the world.

Protocol Support

The Placer units integrate GPS and protocol support onto a single board enclosed in a low-profile, ruggedized housing.

The Placer units support the worldwide standard TCP/IP (e.g., CDPD) packet data protocol, the industry-standard MAP27 trunked radio protocol (popular in Europe) and the proprietary Ericsson RDI trunked radio protocol. In all instances, a Placer unit, with the proper cable, can be connected directly to a CDPD, MAP27 or RDI radio with no other hardware.

Also, for conventional private (UHF/VHF) and spread-spectrum radio networks, the Placer units can operate in a transparent mode by simply passing the data to the base station.

Integration Options

Each Placer unit has two digital inputs and two digital outputs to support vehicle peripherals (e.g.,



Mobile Units with optional Dead Reckoning (455 only)

alarm button, ignition lock-out).

In addition, each Placer unit has multiple serial ports, capable of accommodating a variety of mobile data terminals, laptops and Windows CE platforms. These features mean that the Placer units can be easily integrated into mobile data and AVL applications, popular with commercial fleets.

Differential GPS Support

The Placer units support the most popular forms of Differential GPS.

Inverted Differential (available in non-DR configurations) applies differential corrections to vehicle positions as they are received at the base station. This

technique can provide position accuracy to about 5 meters.

Alternatively, you can connect an FM receiver (available from third parties) to the RTCM port on the Placer units and receive differential correction information via FM subcarrier.

Finally, the base station software can transmit the differential correction information (i.e., TAIP DC and DD messages) via the wireless communications network.

Optional Dead Reckoning

By blending GPS and DR continuously, the Placer unit minimizes the effects of GPS outages, resulting in improved position accuracy in urban environments.

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STANDARD COMPONENTS (Part Numbers 30838-XX and 30376-XX; XX=10, 20, 30, 90)

- In-vehicle Mobile Unit (with integrated mounting bracket)
- Power cable with 1A fuse (reverse polarity protection)

GENERAL SPECIFICATIONS

Power (typical):	Source: 10-32 VDC, capable of 500mA Operation: 250mA @ 13V; 3.25W (Max) Standby: 10mA @ 13V; 1.3W Backup: Lithium battery, 3.6VDC; 5 year shelf life
Serial ports:	Radio (450/455): (1) RS-232 DTE MDT (450): (1) RS-232 DCE MDT/RTCM (455): (2) RS-232 DCE
Serial port speed, bps:	300, 600, 1200, 2400, 4800, 9600(def), 19200, 38400
Message formats:	TAIP, TSIP, NMEA-0183 Version 2.1, RTCM SC-104
Comm protocols:	TCP/IP (CDPD), MAP27, RDI, Transparent TAIP
Digital I/O port:	Inputs: (2) switch closures Outputs: (2) 300mA low-side drivers; ignition; GPS, power, 1 pps

FIRMWARE SPECIFICATIONS

Event triggers: Time/Distance Reporting (TDR); Inputs (2)
Event actions: Report to base (1 destination); Report to serial port
Messaging: Accommodates a variety of mobile data terminals, laptops, and Windows CE platforms
Output data: Latitude, longitude, altitude, speed, heading, time, and events

GPS SPECIFICATIONS

Receiver:	L1 frequency, C/A code (SPS), 8-channel continuous tracking receiver, 16 correlators
Update rate:	Once per second; up to once per 9,999 seconds
Accuracy, S/A*:	Position, meters (1 sigma): CrossCheck DR** Non-Differential 58 45 Differential (1 Hz)† 2 1 Velocity (1 sigma): 1 meter/second Time: UTC to nearest microsecond
First acquisition:	Typical (seconds): CrossCheck DR Cold start: <120 <120 Warm start: <45 <2 Hot back-up: <20 <2 Reacquisition: <2 0
Datum:	WGS-84
Differential:	Inverted Differential (non-DR operation), RTCM SC-104, TAIP DC and DD messages via network

HEADING SENSOR SPECIFICATIONS

Gyro:	Piezoelectric vibrating beam
Port:	Gyro, Odometer, Backup light
Odometer pulse:	100mV to 28V peak to peak signal (user-supplied) digital frequency proportional to speed. Min. output 2,000 pulses/mile. Recommended output: >8,000 pulses/mile. Use signal conditioner for analog.

PHYSICAL SPECIFICATIONS

Integrated Electronics:

Assembly:	450: Sheet metal, gold anodized 455: Sheet metal, black anodized Heading sensor: Injection molded plastic
Size:	45X: 229mm W x 95mm D x 33mm H 9" W x 3.75" D x 1.28" H Heading sensor: 102mm W x 64mm D x 92mm H 4" W x 2.5" D x 3.625" H
Weight:	450: 0.43 kg (0.95 lbs) 455: 0.45 kg (1 lbs) Heading sensor: 0.16 kg (0.35 lbs)

Connectors (450/455):

GPS antenna:	SMB (receptacle)
Radio:	DB9 (receptacle)
MDT (450):	DB9 (receptacle)
MDT/RTCM (455):	DB9 (receptacle)
Digital I/O:	DB9 (receptacle)
Heading sensor (455):	DB9 (receptacle)
Power:	Switchcraft TA3 (plug)

ENVIRONMENTAL SPECIFICATIONS

Temperature:	Operating: -40°C to +60°C†† Non-operating: -55°C to +85°C
Humidity:	5% to 95% RH, non-condensing at +40°C
Altitude:	-400 to +5,000 meters
Velocity:	446 meters/second (999 miles/hour)
Vibration:	0.008g ² /Hz 5Hz to 20Hz 0.05g ² /Hz 20Hz to 100Hz -3dB/Octave 100Hz to 900Hz
Shock:	40g for 11 milliseconds
Casing:	Splash-resistant and dust-resistant

ACCESSORIES (Ordered separately)

- GPS antennas/cables: Permanent or magnetic mount
- Heading sensor (455 only) and cable
- FleetVision® and FleetVision External Systems Interface SDK
- Installation and Operations Manual
- Serial and Digital I/O cables

FOR MORE INFORMATION

- E-mail us at sales_info@trimble.com
- Visit our website at www.trimble.com/mpc
- Access our FaxBack database at 1-408-481-7704

* All GPS receivers are subject to degradation of position and velocity accuracies under Department of Defense imposed Selective Availability (S/A).

** In DR/GPS operation; in DR only operation, an additional 3% to 5% of distance traveled up to 1 km.

† At least five satellites; PDOP <4.

†† Operating temperatures for the Heading sensor are -20°C to +60°C.

Specifications subject to change without notice.



Trimble Navigation
Mobile Positioning Products
645 North Mary Avenue
Sunnyvale, CA 94086
1-800-334-9219 inside US
+1-408-481-7920 outside US
+1-408-481-7744 Fax
www.trimble.com

Trimble Navigation Limited
Latin American Office
6505 Blue Lagoon Drive
Suite 120
Miami, FL 33126
+1-305-263-9033
+1-305-263-8975 Fax

Trimble Navigation
New Zealand Limited
11 Birmingham Drive
P.O. Box 8729
Riccarton, Christchurch
NEW ZEALAND
+64-3-339-1400
+64-3-339-1417 Fax

Trimble Navigation Europe
Limited
Trimble House
Meridian Office Park
Osborn Way
Hook, Hampshire, RG27 9HX
ENGLAND
Phone: +44-1256-760-150
Fax: +44-1256-760-148



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