

CrossCheck AMPS Cellular

Intelligent Mobile Unit with Integrated GPS and Cellular Transceiver for Commercial Fleet and Consumer Applications

KEY FEATURES AND BENEFITS

- Asset and Route Management for Security and Efficiency
- Lower Acquisition and Operating Costs
- Configurable IQEvent Engine Firmware
- Seamless Mobile Unit to Base Station Data Communications
- Slim Profile for Easy Installation
- Optional DGPS for Improved Accuracy
- PowerTools Software for Installation and Maintenance

The CrossCheck™ AMPS Cellular mobile unit shatters the barrier to widespread acceptance of mobile positioning applications.

The CrossCheck unit integrates GPS, AMPS Cellular and computing power onto a *single board* enclosed in a low profile housing for *lower acquisition costs*.

The CrossCheck unit has intelligent reporting and storage with its IQEvent Engine™ firmware, providing improved security, efficiency, and *lower operating costs*.

Asset Management

The CrossCheck unit is ideal for enhanced asset management and security. First, asset monitoring and control is enhanced using operating events (e.g., trailer connect, ignition on/off, time clock) and digital inputs to notify an operations center of normal vehicle activity.

Second, driver, vehicle and cargo security is enhanced using security events (e.g., out of area, motion detection) and digital inputs to alert an operations center of unauthorized activity. The CrossCheck unit also provides digital outputs to activate vehicle security peripherals (e.g., ignition lock-out) in response.

Route Management

The CrossCheck unit can continuously record position, event,



Mobile Unit and optional handset for voice communications

vehicle and *application* (mobile) data which can be immediately downloaded over-the-air, or for vehicles with pre-set routes, stored for downloading at a later time.

Once downloaded, the data can: support real-time dispatch; highlight exceptions; improve route efficiency (with third-party software); improve customer service and provide route verification for contract compliance, thus improving overall efficiency.

Consumer Applications

The CrossCheck unit provides the foundation for consumer services like roadside assistance, stolen vehicle recovery, navigation, yellow pages and remote locksmith.

Fleet Management Software

The CrossCheck unit is part of Trimble's seamless middleware architecture for AVL applications, which is designed to help resellers quickly develop end-user software solutions.

The CrossCheck PowerTools software has a graphic interface for: configuring the IQEvent Engine, GPS and cellular diagnostics; and reflash (to update the unit).

In addition, Trimble's FleetVision® software is cost-effective for many fleet applications. For customized applications, FleetVision's ESI SDK enables developers to integrate AVL and FleetVision into their solutions.

CrossCheck AMPS Cellular

Intelligent Mobile Unit with Integrated GPS and Cellular Transceiver for Commercial Fleet and Consumer Applications

STANDARD COMPONENTS (Part Number 33827-00)

- In-vehicle Mobile Unit (with integrated mounting bracket)
- Power cable with 3A fuse (reverse polarity protection)

GENERAL SPECIFICATIONS

Power (typical):	Source: 10-16 VDC, capable of 2.0A Transmit: 500mA to 1.6A @ 13V; 21W (Typical) Standby: 400 mA @ 13V; 5.2W (450mA with handset) Backup: Lithium battery, 3.6VDC; 5 year shelf life
Memory (data storage):	250 KB (~4300 reports)
Serial port:	MDT/Aux: (1)RS-232 DCE
Serial port speed, bps:	300, 600, 1200, 2400, 4800, 9600(default), 19200
Message formats:	TAIP, TSIP, NMEA-0183 Version 2.1, RTCM SC-104
Modem:	Bell 212A (1200 bps), ARQ error protection
Digital I/O port:	Inputs: (4) switch closures Outputs: (3) 300 mA low-side drivers; ignition; GPS, power, and cellular status
Status LEDs:	GPS (green), Cellular (amber)

IQEVENT ENGINE FIRMWARE SPECIFICATIONS

Event triggers: Inputs (4); Outputs (3); Power; Power management; Data log; Ignition; First GPS fix; GPS fix; DGPS fix; Cellular; Roaming; GPS antenna; Battery over or under voltage; Regions; Speeds; Distance/Counter/Timer; Time elapsed or Time of day; User defined; or any combination

Event actions: Report to base (up to 10 destinations); Log report; Report to serial port; Modify another event; Change output driver status; Set or Increment a counter/timer/distance; Modify time/distance reporting; or Change power management

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
Accuracy, S/A*:	Position (1 sigma): Non-Differential: 58 meters Differential (1 Hz): 2 meters Velocity (1 sigma): 1 meter/second Time: UTC to nearest microsecond
First acquisition:	Cold start: <120 seconds Warm start: <45 seconds Hot back-up: <20 seconds Reacquisition: <2 seconds
Datum:	WGS-84
Differential:	Inverted Differential, RTCM SC-104, TAIP DC and DD messages via cellular network

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

Specifications subject to change without notice.

CELLULAR SPECIFICATIONS

Cellular:	AMPS, 3W. Meets radio frequency requirements of EIA/IS-19B (mobile station power class 1) and protocol requirements of EIA/TIA-553
Frequencies:	Transmit: 824.04 to 848.97 MHz Receive: 869.04 to 893.97 MHz
Optional handset:	Hands-free speaker and microphone
Operations:	Three voice calling modes: 911, authorized numbers or unlimited. Two voice reporting modes: data-to-voice (event first) or voice-only. Event reporting: data-only
Authentication:	IS-91 with TSB-50 interface
Type approvals:	FCC Title 47, Parts 15/22, ID=JUPMESSENGER2 IC RSS-118; ID=1756 182 300A

PHYSICAL SPECIFICATIONS

Integrated Electronics:

Assembly:	Bottom: Die-cast aluminum Top: Injection molded plastic
Size:	9.6" W x 4.53" D x 1.7" H 244mm W x 115mm D x 43.4mm H
Weight:	1.75 lbs (0.80 kg)

Connectors:

MDT/Aux:	DB9 (receptacle)
Digital I/O:	DB15 (receptacle)
Handset:	RJ-45
Power/ignition:	Switchcraft TA3 (plug)
Antennas:	GPS: SMA (receptacle) Cellular: Mini UHF (receptacle)

ENVIRONMENTAL SPECIFICATIONS

Temperature:	Operating: -30°C to +60°C Non-operating: -40°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
Auto transient noise:	ISO 7637 pulses 3a, 3b, 4
MTBF:	100,500 hours

ACCESSORIES (Ordered separately)

- GPS and Cellular antennas/cables: Permanent or magnetic mount
- FleetVision and FleetVision External Systems Interface SDK
- CrossCheck AMPSLink SDK
- CrossCheck PowerTools
- Handset upgrade kit
- MDT/Aux (serial) and Digital I/O cables

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



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



© July 1998 Trimble Navigation Limited. All rights reserved. Trimble with the Trimble Logo and FleetVision are trademarks of Trimble Navigation Limited registered in the U.S. Pat. and Trademark Off. CrossCheck and IQEvent Engine are trademarks of Trimble Navigation Limited. All other marks are property of their respective owners. TID11254 (7/98)