CrossCheck AMPS

Intelligent Mobile Unit with Integrated GPS and Cellular Transceiver for Commercial Fleets

Key Features and Benefits

- **Fleet Asset Management for Security and Efficiency**
- **Lower Acquisition and Operating Costs**
- **Configurable IQ *Event Engine* Firmware**
- **Seamless Mobile Unit to Base Station Data Communications**
- **Slim Profile for Easy Installation**
- **Optional DGPS for Improved Accuracy**

Trimble

The CrossCheck™ AMPS 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 IQ*Event Engine*™ firmware, providing improved security, efficiency, and *low 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.

Management Information

The CrossCheck unit can continuously record position, event and vehicle status data which can be immediately downloaded over-the-air, or for vehicles with pre-set routes, data can be 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.

Mobile Unit and optional handset for voice communications

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.

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

Intelligent Mobile Unit with Integrated GPS and Cellular Transceiver for Commercial Fleet 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: 10–15.8 VDC, capable of 2.0 A Transmit: 500 mA to 1.6 A @ 13 V; 21 W (Typical) Standby: 400 mA @ 13 V; 5.2 W (450 mA with handset) Backup: Lithium battery, 3.6VDC; 5 year shelf life
Memory (data storage)	~4,100 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 212 A (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)

IQ*EVENT 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; Heading; 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, palmtops and PDAs
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 maximum
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

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

Specifications subject to change without notice.

CELLULAR SPECIFICATIONS

Cellular	AMPS, 3 W. 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: call 911 only, call authorized numbers only or unlimited calling. 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 × 4.53″ D × 1.7″ H 244 mm W × 115 mm D × 43.4 mm 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	0.008 g^2/Hz	5 Hz to 20 Hz
	0.05 g^2/Hz	20 Hz to 100 Hz
	–3 dB/Octave	100 Hz to 900 Hz
Shock	40 g for 11 milliseconds	
Casing	Splash-resistant and dust-resistant	
Auto transient noise	ISO 7637 pulses 3a, 3b, 4	
MTBF	100,000 hours	

ACCESSORIES (ORDERED SEPARATELY)

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

FOR MORE INFORMATION

E-mail us at **sales_info@trimble.com**
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