Vehicle Computer Unit

ST-9501

Vehicles equipped with the EMTRAC system carry a compact, yet rugged, Vehicle Computer Unit (VCU), which is connected to an omni-directional antenna that receives location data and transmits priority requests to wayside detectors through secure RF communication. The positioning capability is able to track vehicles with precision, and the radio range allows reliable wayside response—even in adverse conditions.

Vehicle Computer Unit

Features:

- 900 MHz, frequency-hopping spread spectrum radio with secure, 256-bit AES encryption

- Typical transmission range of 3,600 feet

- Integrated 32-bit computer board contains ultra-fast processor and superior memory, while MicroSD-card offers additional storage capability

- Capable of communication through Ethernet, RS-232, or wireless connection

- Supports up to 16 inputs or outputs in any combination

- Capable of storing 5,000 vehicle-detection zones

- Ability to monitor multiple inputs to prompt priority requests, including emergency light-bar, door or pull-cord activity, schedule adherence, and passenger count

- Time-out feature configurable to cease priority requests after designated amount of no-motion time

- Programmable with Windows operating systems running EMTRAC Systems Manager software

Specifications:

Vehicle Computer Unit	
Dimensions (enclosure):	2.05" (H) x 4.70" (W) x 7.38" (D) 52 mm (H) x 119 mm (W) x 187 mm (D)
Weight:	VCU - 2.1lbs (950g)
Material:	Aluminum (die-cast alloy), Powder Coated
Power:	10 to 37.5 VDC, 2A max
Temp:	-34°C (-30°F) to +74°C (+165°F)
Humidity:	5% to 95% Relative

Navigation Engine

Parameter	Specification	
Receiver Type:	72-channel, GPS/GLONASS/WAAS/Galileo	
Navigation Update Rate:	4 Hz Max, 1 Hz (w/Dead Reckoning)	
Accuracy:	Position	2.0 m CEP
Sensitivity:	Tracking	-160 dBm
	Cold Starts	-148 dBm
	Hot Starts	-157 dBm
Heading Accuracy:	0.5 degrees	
Operational Limits:	Velocity	1,640 ft/sec [500 m/s]

UHF Radio (Typical Performance)

Performance	Standard Range
Transmit Power Options:	1mW - 1 Watt
Urban Range:	3,600 ft (1100 m)
Interface Data Rate:	1,200 - 230,400 bps
RF Data Rate:	9,600 bps to 115,200 bps
Receiver Sensitivity:	-110 dBm to -100 dBm

All specifications are subject to change without notice.

Radio, Security, and Networking	
Frequency:	902 - 928 MHz
Spread Spectrum:	Frequency-Hopping Spread Spectrum
Modulation:	FSK (Frequency Shift Keying)
Certifications:	FCC (Part 15.247), Industry Canada (IC)
Encryption:	256-bit AES
Data Comm.:	Ethernet 100Base-T or Serial (RS-232)