



Mobile Data, AVL & Mapping



P Y R A M I D
COMMUNICATIONS

Since 1990

Track with Confidence



MERLIN 2017 Vehicle Tracking

WORKS WITH EXISTING 2-WAY RADIO

COMPACT AVL

INPUTS AND OUTPUTS

COST EFFECTIVE



- ▲ High speed: 1200 Baud MSK
- ▲ 16 Channel internal GPS with backup power supply
- ▲ 6 General purpose I/O lines for vehicle monitoring or remote control
- ▲ Programmable GPS on Demand™, Emergency and Code 3 Alert
- ▲ Compact: only 6" x 5.25" x 1.25"
- ▲ LTR™, Passport™ and conventional compatible
- ▲ PC Programmable
- ▲ Non-volatile E²PROM stores 1024 position fixes for later replay

Merlin 2017 Dual Mode AVL Terminal with GPS

The Merlin™ series AVL from Pyramid Communications is a **microprocessor controlled GPS** based Automatic Vehicle Location device that **connects to an existing** conventional or trunking 2-way radio and will **automatically send its position information to dispatch** on a programmed interval. The Merlin AVL has 3 inputs that can be used **for general purpose vehicle monitoring** (doors open, shotgun removed, etc...) or can be programmed **to special functions**. The AVL also has **3 general purpose outputs** that can be used **to alert** the driver when out of the vehicle **or for remote control** of vehicle functions. The Merlin AVL easily interfaces to any conventional or trunking mobile. **Position updates are stored** in non-volatile E²PROM memory for download and playback at a later time. Merlin is capable of **storing 85 hours** of vehicular activity at five minute update intervals.

Dual Mode Operation

The Merlin AVL will **automatically send** its position information on a **pre-programmed interval**. One of the **general purpose inputs** can be programmed as a Code 3 input. When activated will update at a shorter interval for **more accurate tracking by**

dispatch. Both update rates are PC programmable. **Normal rate can be programmed** between one minute and four hours in one minute increments. **Code 3 rate** can be programmed between five seconds and 20 minutes in 5 second increments.

Smart Trunking Access

When the Merlin AVL is **connected to a trunking radio** and a GPS update is sent, the unit will key the radio for 200mS; it then **monitors the radio's transmitter** for an on-air condition. If it does not see the radio transmit at all (system is busy), it will **retry every four seconds** until successful or time out (60 sec). When it detects that the radio is transmitting, it will **continue to monitor** the on-air line until **the transmitter remains keyed** for at least 400mS to ensure that the radio is not handshaking or retrying. After successful acquisition of a voice channel, it will send its status request **ensuring the message is received** by the base.

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General:

Operation: 16 channel GPS with automatic and manual reports
 Storage: Non-volatile E²PROM with 100 year data retention
 Interface: Radio: DB15M Data bus: DB9F
 GPS Antenna: SMA female
 Data Bus: RS-285 9600 Baud bidirectional multi-addressing
 Application: Conventional and Trunking mobiles
 Adjustments: Tx Deviation

Power Requirements:

13.6 VDC±25% @ 200mA nominal

Physical:

Dimension: 6.00" L x 5.25" W x 1.25" H
 Weight: 14 oz.
 Case: Extruded Aluminum

Encoder:

Format: MPT-1317¹ MSK 1200 Baud
 PTT Delay: 0.1 - 2.5 Sec in 100 mSec steps plus Smart Trunking access
 Tx Audio: 0 - 2.5V RMS 2.2K Ohms, AC coupled
 Tx Data Out: 9600 N81 RS232 or 5V TTL level

Decoder:

Format: MPT-1317¹ MSK 1200 Baud
 Rx Audio: 100 K Ohm AC coupled to discriminator
 Level: 20mV – 10V RMS
 Rx Data In: 9600 N81 RS232 or 5V TTL level

Outputs:

PTT: Active Low 2 A open collector
 Audio Mute: Active Low 2 A open collector
 Mic Mute: Active Low 2 A open collector
 Aux1-Aux3: Active Low 2 A open collector

Mil-Std-810D/E Ratings:

501.2	Procedure II	High Temp +60°C
502.3	Procedure II	Low Temp -30°C
514.3	Procedure I	Vibration, Ground Vehicle Category 8
516.3	Procedure I	Shock

¹ Code of practice for transmission of digital information over Land Mobile Radio Systems, Dept. of Trade and Industry, April 1981. Specifications subject to change without notice.

Automatic Vehicle Tracking Storage

Each update is stored in non-volatile E²PROM memory for later recall and playback. The Merlin™ is able to store 1024 position fixes including date, time, speed, heading and position fix within 50 feet. The data is stored in a circular queue with the oldest data being over written with each new position fix. The Merlin AVL can store 85 hours of vehicular activity at five minute update intervals.

Programmable Inputs

The Merlin AVL has 3 general purpose inputs that can be used to monitor vehicle status such as door open, shotgun removed from holder, etc. Each input has a special function that can be enabled via PC programming. Input 1 can be programmed for Emergency transmission to alert dispatch in the event of a pending emergency. The number of emergency transmissions is programmable. Input 2 can be used for GPS on Demand™ that will send a position fix whenever a switch is closed. Input 3 can be used for Code 3 input to change the update rate between slow and fast.

PC Programmable

The Merlin AVL is PC programmable for all operating parameters using the FY-1 programming cable. Parameters include: Signaling speed (1200), PTT delay, # of retries, I/O polarities, normal and Code 3 update rates, Emergency operation, and GPS on Demand™.

System Design

The Merlin AVL works in conjunction with the Model 2016 intelligent modem that connects between a PC or mainframe/mini computer to provide a complete dispatch system. The 2016 interfaces with Street Smarts Mapping software for GPS and Automatic Vehicle Location.

