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TrimTrac Application Note 7 – 'Extended Function State Machine'

Fundamental understanding of the standard state machine is assumed before reading of the following. This document is meant as a summary of the TrimTrac Extended functionality and not as a replacement for the TrimTrac technical manual. Please refer to either the user manual or application note 6 (Standard Operational State Machine).

A) Motion Filtering - Refer to the 'Motion detection filtering.pdf' document

B) Idle Mode

1. Schedule a defined reporting time once per day or week from idle mode (Set by Scheduled Reporting Mode flag and T18 time).

2. Remain active in Idle awaiting SMS, set Idle state Query Mode to 2 (On Demand). This allows anytime polling of the TrimTrac (it will accept and process any TrimTrac specific incoming SMS).

3. Wake when in Idle mode for a specific time and move to Query mode (or default T5). Set Idle state Query mode to '1' 'Cycled'.

4. Activate a rolling motion sensor when in Idle or during a cycled wakeup. Again activated by Idle Query mode value (0, 1 or 2).

5. Override the T7 motion and set an 'always' in motion flag (motion override set to 1) or turn it off completely (motion override set to 2).

C) Delay state

1. Allow the unit to accept incoming SMS (remains logged into GSM etwork while in Delay (Delay State Polling Mode).
2. Filter spurious motion detects using extended motion detection. (Delay State Extended Motion Detection).

D) Position age flag.

Position age flag; set after motion but ONLY reset when a successful GPS fix occurred. Remember the motion flag is reset after every fix ATTEMPT. The position aged flag becomes important in determining the Extended function Query message, Query Position.

E) Query messages.
You can force the unit (as long as Position Aged flag is set) to perform a new GPS position fix (with a defined fix time, if required) and return via SMS. If the position-aged flag is not set the TrimTrac will pull the last position fix from the it's log and transmit.

The ability also exists to Query the log for status or positional messages (Query Log) plus transmit aggregate messages (up to two per SMS).Or Query for last xx number of log messages or sent/unsent messages.

F) Vehicle Adaptor specific application protocol.
When the standard TrimTrac base unit has a Vehicle Adaptor Module (VAM) attached the state machine functionality is again extended. The basis of this extension is the passive switch/resistor network attached to the two VAM inputs. These are referred to as Alerts with vary degrees of effect on the state machine depending on the switch activation/set resistor value.

There is no simple way to describe the alert functions on the machine state but it's worth remembering; when the VAM alert is forced, the TrimTrac will continue to send the alert via SMS until it receives a response from the server application. It's also worth noting that disconnecting the power to the VAM will result in a Medium Priority alert being sent. It is advisable to disable the VAM Alerts using the Set VAM Application Config. message then enable one at a time until full understanding of each function is gained.

For a complete overview of the enhanced state machine including VAM functionality (See Extended Flow Diagram.pdf).

Please refer to TrimTrac manual for a further flow chart break down of the VAM state machine functionality during each state.