



## SERVICE BULLETIN ASM-011

Product: Antenna System Monitor

Subject: Firmware 2.50 Release

Date: 14<sup>th</sup> March 2014

### Description

This Service Bulletin announces the release of baseline 2.50 firmware for the Antenna System Monitor (ASM) series products.

The version 2.50 firmware update file ("FFP") is available for download from the RFI website [http://www.rfiwireless.com.au/multicoupling-monitoring/monitoring/antenna-system-monitor-asm3852.html#tab\\_downloads](http://www.rfiwireless.com.au/multicoupling-monitoring/monitoring/antenna-system-monitor-asm3852.html#tab_downloads), and may be flashed into existing ASM models by following the *Maintenance – Firmware Update* process in the Graphical User Interface (GUI) or User Manual.

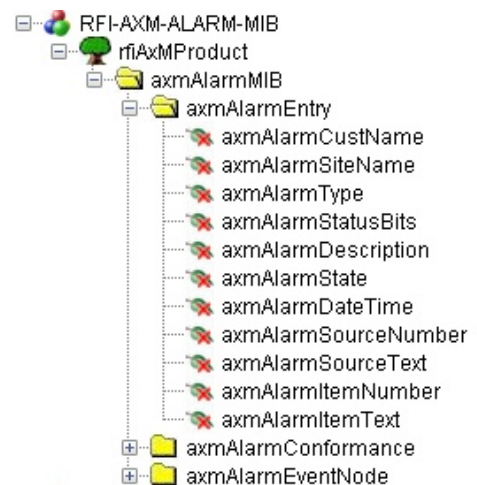
### Product Enhancements

The version 2.50 firmware addresses the following product issues;

- i) Channel Diagnostics screen refreshes may stop working under certain circumstances. This issue has been addressed in this release.
- ii) Tx Port Alarm Config Page has CAM title for Alarm Module linkages. These labels are now displayed correctly for both CAM and SAM modules.
- iii) Manager Messages did not include CAM/SAM alarms prior to this release.

The following new features are available in this release;

- iv) SNMP functionality has been enhanced to include *Alarm Module Number* and *Alarm Number* objects to northbound trap reporting.  
  
New MIB files are available to access these SNMP enhancements.
- v) When APCO P25 Phase 2 (P25P2) modulations are selected for channels, FDMA or TDMA modulation is automatically detected and Tx Power values are correctly displayed for the different modulation types as channels change between modulation types for voice/data call types.



Antenna System Monitor MIB content

- vi) A Networks Identifier field has been added to the GUI. This feature allows individual channels on shared combiners/sites to be associated to their specific networks. This feature is enabled on the *Configuration – User Data* screen, and when enabled, up to 8 separate networks can be labelled.

Network Number	Description
Network - 0	Police
Network - 1	Fire
Network - 2	County Services
Network - 3	DMR Rental
Network - 4	Not defined
Network - 5	Not defined
Network - 6	Not defined
Network - 7	Not defined

This Network ID then appears on respective *Status – Channels* screens, allowing channels belonging to separate networks to be easily identified if the channel name does not do so.

Chan No.	Channel ID	NW ID	ON	Freq	Last recorded activity above threshold			
					Act	Power	Ins Loss	VSWR
Tx1-1	LTR 18	2	Yes	462.15000 MHz	0.00 W	<- 8 dBm	0.0 dB	1.00:1
Tx1-2	LTR 7	2	Yes	454.11250 MHz	56.23 W	+47.5 dBm	2.0 dB	1.02:1
Tx1-3	TRBO 3	1	Yes	454.31250 MHz	0.00 W	<- 8 dBm	0.0 dB	1.00:1
Tx1-4	LTR 10	2	Yes	454.62500 MHz	0.00 W	<- 8 dBm	0.0 dB	1.00:1
Tx1-5	LTR 20	2	Yes	463.22500 MHz	0.00 W	<- 8 dBm	0.0 dB	1.00:1

**Status – Channels – Tx Port** screen showing Network ID column

Alarm messages can now contain this Network ID to allow different network fault priorities to be clearly shown. For example, channels/networks with 24x7 maintenance agreements can now be easily interpreted from Manager Messages Status packets and SMTP (email) alarm messages.

The use of Network IDs assists maintenance personnel identify channels/networks. Across the multiple shared Tx combiners that may be present on a site, channels 1, 3, 4, 8, and 14 of one combiner, and channels 3, 6, 7, and 12 may belong to one network (i.e. the Metro P25 trunking system) and are distributed across combiners due to frequency separation compatibility. The Network ID tag in alarm messages will allow a reported fault to be conveniently identified as not just the channel, but also the network to which that channel belongs – allowing the required level of maintenance response (i.e. 24x7) to be provided for the reported fault. Alternatively, for networks that have all of these channels on one combiner, this NW ID can be used to identify the Tx and/or Rx antenna that the network uses on the site, allowing notification of which antenna system has failed in the event of a VSWR fault.

Chan No.	Channel ID	NW ID	ON	Frequency
Tx1-1	LTR 18	2	<input checked="" type="checkbox"/>	462.15000 MHz
Tx1-2	LTR 7	0 - Other	<input type="checkbox"/>	11250 MHz
Tx1-3	TRBO 3	1 - Police	<input type="checkbox"/>	31250 MHz
Tx1-4	LTR 10	2 - Fire	<input type="checkbox"/>	62500 MHz
Tx1-5	LTR 20	3 - County Services	<input type="checkbox"/>	22500 MHz
		4 - DMR Rentals		
		5 - Not defined		
		6 - Not defined		
		7 - Not defined		

Network IDs can be affiliated to each channel

Note: These new features require that a longer Manager Messages data packet length is now used by the ASM.

3/13/14, 3:52:49,

Customer=Mobile Comms

Site=Mt Morgan

Tx Port 2 - LTR-TRBO TX2, Chan 2 - TRBO 1 (Network 4 - DMR Rentals), PWR=FAIL( +48.6), VSWR=OK( 1.00)

**Example SMTP (Email) Alarm showing Network ID ('Network 4 - DMR Rentals')**

- vii) Antenna Isolation and Rx Level are now alarm source selections that can be assigned to the 4 summary alarm outputs on the ASM, and CAM/SAM module's alarm outputs.

Alarm Output	Alarm Source	Input/Channel	Alarm Configuration
SAM1-1	Antenna Isolation	Not applicable	Alm Func: Latching, Rly Mode: N/R
SAM1-2	Digital Inputs 1-10	Alarm not in use	Configure Alarm Detail
SAM1-3	Rx Chans 1-20	Alarm not in use	Configure Alarm Detail
SAM1-4	Rx Chans 21-40	Alarm not in use	Configure Alarm Detail
SAM1-5	Rx Chans 41-60	Alarm not in use	Configure Alarm Detail
SAM1-6	Rx Chans 61-80	Alarm not in use	Configure Alarm Detail
SAM1-7	Tx Port 1 - Not defined	Alarm not in use	Configure Alarm Detail
SAM1-8	Tx Port 2 - Not defined	Alarm not in use	Configure Alarm Detail
SAM1-9	Tx Port 3 - Not defined	Alarm not in use	Configure Alarm Detail
SAM1-10	Tx Port 4 - Not defined	Alarm not in use	Configure Alarm Detail

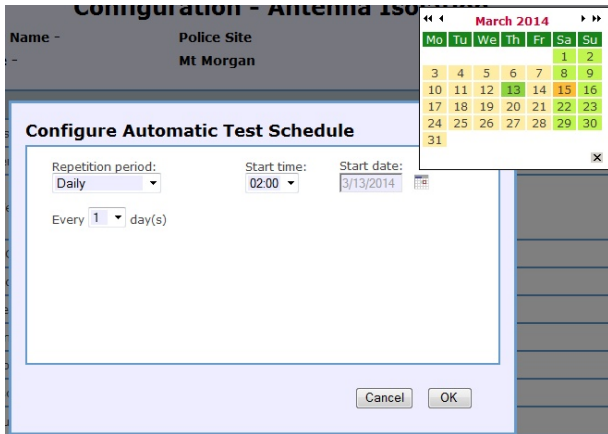
**SAM Module Alarm Output Sources**

Alarm Source	Alm Func	Rly Mode
Rx Chans 1-20	Normal	N/Q
Summary Alarm		
Rx Power		
Tx Power		
Tx VSWR		
Antenna Isolation		
Rx Chans 1-20		
Rx Chans 21-40		
Rx Chans 41-60		
Rx Chans 61-80		
Tx Port 1 - Not defined		
Tx Port 2 - Not defined		
Tx Port 3 - Not defined		
Tx Port 4 - Not defined		

**ASM Alarm Relay Sources**

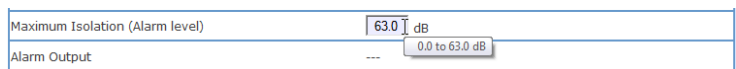
- viii) The Antenna Isolation Test can now be scheduled to a random time/date and repetition period. Click on the *Edit* field to access a powerful calendar function that adds the ability to schedule the Antenna Isolation Test to convenient off-peak traffic times, and to repeat them at that repetition to build a useful history of system isolation performance.

Configuration - Antenna Isolation	
Customer Name -	Police Site
Site Name -	Mt Morgan
Setting	Value
Automatic Isolation Test	<input checked="" type="checkbox"/> Enabled
Test Frequency	466.00000 MHz
Automatic Test Schedule	At 02:00 every day, starting 3/13/2014 <a href="#">Edit</a>
Tx Reverse Coupling Loss (Nominal)	41.5 dB
Tx Feeder Loss (Nominal)	0.5 dB
Rx Subsystem Gain(Loss)	0.0 dB
Rx Post Gain(Loss)	+10.0 dB
Minimum Isolation (Alarm level)	30.0 dB
Maximum Isolation (Alarm level)	63.0 dB
Alarm Output	---



- ix) The ASM can now also calculate the range of Maximum Isolation values that can be measured within the system, based on the entered coupling, feeder loss and Rx subsystem values.

Hovering the mouse above the Maximum Isolation field will expose this value range. Entering a Maximum Isolation value outside this calculated value will result in an error message appearing when the APPLY button is clicked.



Displayed calculated Maximum Isolation value range

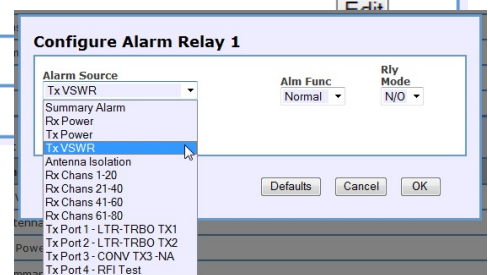
- x) The four (4) summary alarm relay outputs on the ASM can now be mapped to any of the available alarm sources – the ASM Antenna Isolation, Rx Level, Tx Level or Tx VSWR, and they may also be mapped to CAM/SAM modules External or Digital inputs if these optional modules are connected.

This new feature allows the ASM's four alarm relays to be mapped to other alarm sources than the previously available 'summary' alarm conditions, and allows some functionality to be achieved by the ASM directly without the use of the optional CAM/ASM modules. An example of this may be to map Tx VSWR alarms to one of the ASM alarm relay outputs to control an Antenna Change-Over (ACO) coaxial relay – allowing a standby Tx antenna to be automatically selected if the main Tx antenna failed.

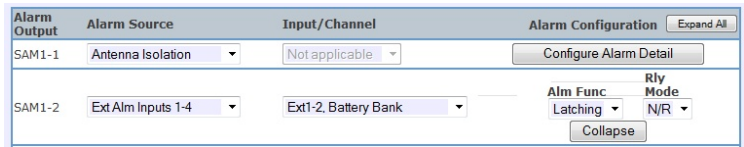
**Alarm Output Mapping**

Relay	Alarm Source	<a href="#">Edit</a>
Relay 1	Tx VSWR, Normal, N/O	<a href="#">Edit</a>
Relay 2	Antenna Isolation, Normal, N/O	<a href="#">Edit</a>
Relay 3	Rx Power, Normal, N/O	
Relay 4	Summary Alarm, Normal, N/O	

Configure – Alarm Settings – System screen extract showing the ASM's four alarm relays



- xi) The CAM/SAM Alarm Outputs can now be mapped to the CAM/SAM External or Digital Inputs as an alarm source.



Configuration – Alarm Modules screen

This new feature may be used to have the CAM/SAM Alarm Outputs action a local control function, determined by a monitored condition - such as starting a backup generator if a normally solar-charged backup battery bank dropped below a minimum voltage.

- xii) A new Alarm Test feature is now provided in the ASM. This feature allows each ASM alarm to be individually tested, without changing the normal alarm level values to simulate an alarm condition.

Maintenance - Test Alarms		
Customer Name -	Police Site	
Site Name -	Mt Morgan	
Alarm	Status	
System Alarm Relay 1 (Summary Alarm)	Inactive	Test
System Alarm Relay 2 (Rx Power)	Inactive	Test
System Alarm Relay 3 (Tx Power)	Inactive	Test
System Alarm Relay 4 (Tx VSWR)	Inactive	Test
Email status message	Idle	Test
SNMP status trap	Idle	Test

In the *Maintenance – Test Alarms* screen, any ASM alarm (relay output, SMTP Email, or SNMP) may be selected.

When a chosen Test button is clicked, the associated alarm state will be created for ~3 seconds before returning to its normal state.

During this time, the alarm output action can be observed, to confirm its correct alarm state operation.

- xiii) The history logging interval for data measurements can now be enabled and disabled by the dataset type.

In addition, normal data measurements can be made for selected data, but other measurements may have their logging interval disabled.

This feature is particularly useful For logging data with no measurement interval – allowing traffic data to be logged as closely to real-time as possible to assist with traffic analysis or fault-finding activities.

Configuration - History		
Customer Name -	Police Site	
Site Name -	Mt Morgan	
Setting	Value	
Recover 'Last Recorded' Status values after power loss	<input checked="" type="checkbox"/>	Enabled
Rx Power Logging	<input checked="" type="checkbox"/>	Enabled <input checked="" type="checkbox"/> Use Interval
Tx Power Logging	<input checked="" type="checkbox"/>	Enabled <input checked="" type="checkbox"/> Use Interval
VSWR Level Logging	<input checked="" type="checkbox"/>	Enabled <input checked="" type="checkbox"/> Use Interval
Logging Interval	10 Sec	
Rx Power Logging Resolution	0.2 dB	
Tx Power Logging Resolution	0.2 dB	
VSWR Level Logging Resolution	5 %	

Configuration – History screen showing logging selections

It should be noted that History Log File storage space may be consumed at an accelerated rate if the data logging interval is disabled for prolonged periods.

- xiv) A default value is now displayed in History Graphs if no recorded value exists for the selected displayed period. This prevents empty graphs being displayed which may otherwise give the impression that there is a data logging problem.

Note: It is important to remember that a data value is only recorded into the History Log files if the measured value has changed by more than the Logging Resolution values entered on the *Configuration – History* screen.

### Upgrading to Firmware 2.50

**Note:** Please read all Service Bulletins published from the release of the firmware currently operating in your ASM prior to commencing an upgrade to this version 2.50 firmware. Upgrades may require a transition through an intermediate firmware version on the way to reaching this version - or may have other implications for your ASM.

Firmware 2.50 *cannot* be applied to units currently operating firmware earlier than 2.0. Units must be updated to firmware 2.0 or 2.05 prior to attempting an update to 2.50. Units currently running firmware earlier than 2.05 should rename the firmware FPP file to "APMxxxxx.fpp" prior to its use. This renaming step is not required once a unit has been upgraded to 2.05 or later.

### Cost Impact

Firmware version 2.50 is available to RFI customers at no charge.

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