

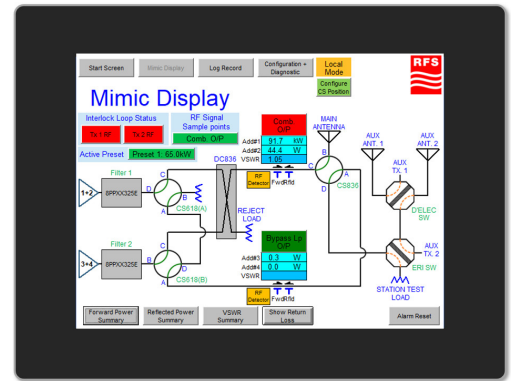


The RFS MSC monitoring system is an expandable, programmable monitoring system that provides a complete range of monitoring functions for antenna, combiner and RF switching systems.

The MSC system can be customised to monitor and display a wide range of parameters, such as: forward and reflected power, VSWR and return loss at multiple points in an RF system; as well as other parameters, including: U-Link/coaxial switch status; surface temperature; cooling liquid flow rate; air pressure; and so on. Virtually any parameter for which a sensor is available can be monitored. Inputs are either via a RS485 Modbus serial data bus, or via the digital or analogue I/O ports. Additional digital and analogue input and output modules can be added, making the MSC Monitoring System completely adaptable for any RF system.

The unit has a large touch screen panel PC, which displays an active mimic panel of the RF switching system (U-Link or motorised), as well as all other monitored parameters. All displays can be extended to a remote location via an ethernet port, which interfaces to the broadcaster's local area network. SNMP is also supported, allowing alarm monitoring and/or switch control, if required.

A simple user interface provides access to multiple display screens, entry of directional coupler parameters, full-scale deflection, and alarm thresholds, as well as any customised control facilities.



FEATURES / BENEFITS

- Compatible with RFS EBD dual sensors for accurate VSWR and RF power monitoring
- Programmable and expandable I/O allows a single MSC system to monitor and/or control large antenna, combiner and switching systems.
- Remote monitoring via LAN / WAN using HTML5 supported web browser on PC or mobile devices.
- SNMP also supported for integration into Network Management System.
- Flexible I/O allows monitoring of virtually any parameters.
- Includes a real time mimic display of switch status and U-Link positions
- Can be customised as control system for motorised switches, interlocks and other equipment on-site.

Technical features

MECHANICAL SPECIFICATIONS

Display		6.5 inch TFT LCD
Touch Screen		5 wire resistive, >35,000,000 operations
Screen Resolution		640 x 480
Screen Luminance	cd/m ²	800
Backlight Lifetime	hr	50,000 (typ.)
Sealing		IP65
Mounting		Rack mounting, customisable, 6RU typ.



ELECTRICAL SPECIFICATIONS

Serial Data Interface		RS485 Modbus RTU Master
Serial Data Capacity		up to 200 Modbus devices
Alarm Contacts		Four (expandable), NO & NC contacts 100VDC, 0.5A
Digital Inputs		8 x opto-isolated inputs, expandable
Analogue Inputs (optional)		6 inputs, expandable, ±10V or ±20mA
Analogue Outputs (optional)		4 outputs, expandable, ±10V or 0-20mA
Power Supply		100 to 240 VAC, 50 to 60 Hz
Battery Back-up		CR2032

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	°C(°F)	0 to 50 (32 to 122)
Storage Temperature	°C (°F)	-30 to 60 (-22 to 140)
Humidity	%	10 - 95 @ 40 °C, non-condensing

Alarm Thresholds

VSWR Alarms

	Comb. O/P	Bypass Lp O/P
VSWR Alm Hi Limit	1.22	1.22
VSWR Alm HHI Limit	1.43	1.43
Interlock Break	<input checked="" type="checkbox"/> Enabled	<input checked="" type="checkbox"/> Enabled
Current VSWR Value		1.01
Detector I/B Addr's	1, 2	3, 4

Reset Ctrl Relay:

The VSWR has exceeded the HHI limit 3 times within 60 seconds.

Power Alarms

	Comb. O/P	Bypass Lp O/P
Power Alm Lo Limit (W)	0	0
Power Alm Hi Limit (W)	70000	35000
Power Alm HHI Limit (W)	70000	35000
Interlock Break	<input checked="" type="checkbox"/> Enabled	<input checked="" type="checkbox"/> Enabled
Current Power Value (W)	14	426
Detector I/B Addr's	1	3

Reset Ctrl Relay:

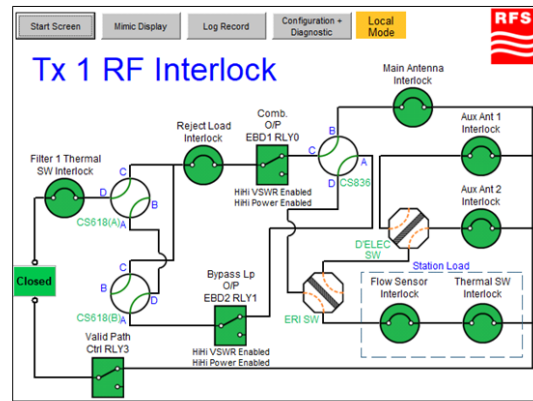
The forward power has exceeded the HHI limit 3 times within 60 seconds.

Return Loss-VSWR Converter

Enter return loss value

Return Loss: VSWR

30.00 | 1.07



Detector Data

Detector Information

	ANTENNA 1		ANTENNA 2		STANDBY ANTENNA	
Modbus Address	1	2	3	4	5	6
Det Coupling (dB)	67.50	57.50	67.50	57.50	67.50	57.50
P_ave Adjusted Reading (W)	1323.5	1.6	1302.2	1.0	0.0	0.1

FSD Setup

ANTENNA 1

Forward Power Scale: 1.25 2.50 3.75 5.00 7.50

Reflected Power Scale: FWD/10 FWD/50 FWD/100

Multiplier: 10 W 100 W 1 kW 10 kW 100 kW

FSD Values: F: 2.50 kW R: 25.00 W

ANTENNA 2

Forward Power Scale: 1.25 2.50 3.75 5.00 7.50

Reflected Power Scale: FWD/10 FWD/50 FWD/100

Multiplier: 10 W 100 W 1 kW 10 kW 100 kW

FSD Values: F: 2.50 kW R: 25.00 W

STANDBY ANTENNA

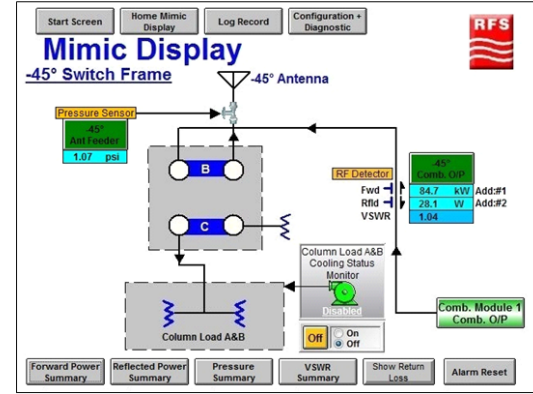
Forward Power Scale: 1.25 2.50 3.75 5.00 7.50

Reflected Power Scale: FWD/10 FWD/50 FWD/100

Multiplier: 10 W 100 W 1 kW 10 kW 100 kW

FSD Values: F: 2.50 kW R: 25.00 W

Set Alarm Thresholds: Forward Power Threshold to Enable VSWR Calculation: 50.0 W



MSC Sample Screens

External Document Links

- [CMR \(Power Monitoring Display\)](#)
- [EBD \(Dual RF Power Sensor\)](#)

Notes