

Configuring Satellite RFSD-2XA For RF Signal Monitoring

1. Set your Options
 - a. From Monitoring Menu screen, select 'Monitor Setup' and press Enter.

Monitor Menu	
Monitor	Start Monitoring Monitor Setup Signal Meter Mode
Monitor Setup	
Signal Meter	

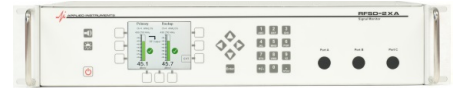
- b. From Monitor Setup menu screen, select 'Options', and press Enter.

Monitor Setup		
Monitor Scripts	Monitoring Scripts Port Configuration Cable Calibration Relay Test Network Setup Cable/Off-Air Plans Satellite Plans Cable/Off-Air Limits Satellite Limits Options Exit	Net Setup
Port Config		Plans
Cable Cal		Exit

- c. Press the DATE TIME soft-key and edit the date and time, as desired.
 - d. Set your desired measurement values for RF signal level (i.e. dBm, dBmV, or dBμV) and demodulated signal quality (i.e. C/N, Eb/No, Es/No, or IRD#).
 - e. You can also edit the other settings, such as the screen appearance (Display Theme), Key beep, etc.
 - f. Press EXIT soft-key after you've finished configuring the Options settings.

Application Note

8/24/2018



OPTIONS	
Level:	dBm
Quality:	C/N
Frequency:	Dnlink
Sounder:	Lock
Freq Dev:	YES
IRD Calc:	New
PoP delay:	10
Key beep:	ON
Display Theme:	Light
Date Format:	mm/dd/yyyy
RF Lvl Avg:	None

PRE SET

DATE TIME

EXIT

(arrows select)

2. Port Configuration

- a.) From 'Monitor Setup' menu, select 'Port Configuration' and press Enter button.

Monitor Setup	
Monitor Scripts	Monitoring Scripts
	Port Configuration
	Cable Calibration
	Relay Test
	Network Setup
Port Config	Cable/Off-Air Plans
	Satellite Plans
	Cable/Off-Air Limits
	Satellite Limits
Cable Cal	Options
	Exit

Net Setup

Plans

Exit

b.) Set up ports and feeds.

On Port Configuration screen, edit the settings for each input port of the instrument. Press Next or Prev (previous) to toggle between the input port to edit the settings for each.

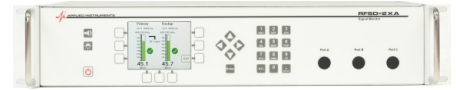
Press the up or down arrow buttons to navigate to a different field.

To edit the geographic Region, Service, System, LNB Model, or Switch Type fields, press Enter and then use up or down arrow buttons to make a selection, then press Enter.

To edit the LNB power field, press the left or right arrow buttons to select whether you'd like to supply the LNB voltage externally or from the RFSD-2XA.

Application Note

8/24/2018



Port Configuration

Port # 1

Input Type Satellite

Region NE Continental US

Service Generic Ku Band

System H/V Sngl Pol LNB

Model LO=10.75 11.7-12.2

Switch None

LNB power RFSD-2XA

Next

Prev

EXIT

Clear Config

Feeds

To edit the Feed related information for each input port, press 'Feeds' soft-key located near the bottom left area of the display. Edit the polarization (receive/downlink/outbound), satellite orbit location (i.e. 89.0°W), and feed label (i.e. 89.0°W or ESPN or HBO) related to the input port of the RFSD-2XA.

Press the up or down arrow buttons to navigate to a different field.

To edit the 'Polarity' or 'Orbit' fields, press the left or right arrow buttons to make a selection.

To edit the 'Feed label' field, type a label using the alphanumeric keypad, then press Enter.

Press EXIT soft-key to EXIT or press 'Create Plan' soft-key to create a satellite channel plan using your present settings.

LNB Feeds

Port # 1

LNB position LNB1

Polarity Horiz

Orbit 89.0°W

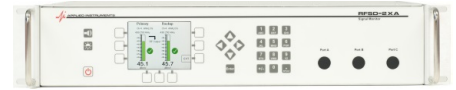
Feed label 89.0°W

Create Plan

EXIT

Application Note

8/24/2018



Create Plan		
03/28/2016		
File Name		
89W G28		
DATE TIME	Location	SAVE
	AI	
Technician		
Clear	SH	EXIT
Notes		
-		

- c.) Select, edit, or create a Channel Plan

You can create a satellite channel plan from within the Port Configuration. Within Monitor Setup menu, select 'Port Configuration' and edit as desired for each input port, then press 'Feeds' soft-key for each input port in that section to edit the feed related info. Within the Feeds screen, press 'Create Plan' soft-key, type a filename and press SAVE soft-key.

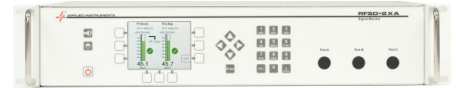
To edit a satellite channel plan, from Monitor Setup menu, select 'Satellite Plans'.

Monitor Setup		
Monitor Scripts	Monitoring Scripts	Net Setup
	Port Configuration	
	Cable Calibration	
	Relay Test	
	Network Setup	
Port Config	Cable/Off-Air Plans	Plans
	Satellite Plans	
	Cable/Off-Air Limits	
	Satellite Limits	
Cable Cal	Options	Exit
	Exit	

Using the up or down arrow buttons, highlight your desired channel plan, and press 'EDIT' soft-key.

Application Note

8/24/2018



Satellite Plans		
Delete	129W.SPLN	Create
	129WH.SPLN	
	123W.SPLN	
	119W.SPLN	
	110W.SPLN	
	89W G28.SPLN	Edit
EXIT		
(Enter to select)		

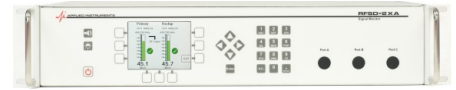
Then press Next soft-key to proceed to view and edit the transponder lineup.

Satellite Plan Editor	
Filename	89W G28
Feed	89.0W
	Save
	Next
	EXIT

From the Transponder List screen, you can add a new transponder by pressing the 'Insert' soft-key or you delete transponders by highlighting a transponder and pressing 'Delete' soft-key.

Application Note

8/24/2018



Transponder List

Tr K3C1 1176.812	Insert
Tr G5E1 1188.059	
Tr G5F1 1192.013	Delete
GTECH6 1198.506	
Tr G5G1 1200.478	Back
Tr 23K 1216.005	

(Enter to edit)

When you press 'Insert' to add a new transponder, a new transponder (Tr ?) will appear in the list above the one you had highlighted.

Transponder List

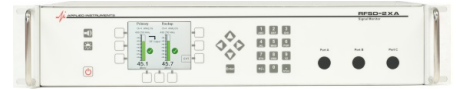
Tr ? 1156.812	Insert
Tr K3C1 1176.812	
Tr G5E1 1188.059	Delete
Tr G5F1 1192.013	
GTECH6 1198.506	Back
Tr G5G1 1200.478	
Tr 23K 1216.005	

(Enter to edit)

Highlight the new transponder (Tr ?) and press Enter to edit the parameters. Using the alphanumeric keypad, type in desired parameters in each field and press Enter. Use up or down arrow buttons to navigate to other fields. For the Modulation field, use the left or right arrow buttons to toggle through the available signal types. Press Next or Prev (previous) to toggle to next or previous transponders in the transponder lineup of the selected satellite channel plan. Press EXIT to return to Transponder List screen. Then press Back to go to Satellite Plan Editor screen and press Save to save your changes.

Application Note

8/24/2018



Edit Transponder	
Label	Tr ?
Downlink	1156.812
Polarity	Vert
Modulation	S2-ACM
Code rate	Auto
Symbol rate	16666
Options	None
Pilot	AUTO
Limit set	Default
<div>Prev</div>	
<div>Next</div>	
<div>EXIT</div>	

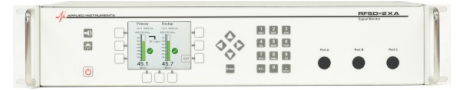
3. Set your Limits threshold settings
 - a. From Monitor Setup menu screen, select 'Satellite Limits', and press Enter.

Monitor Setup		
Monitor Scripts	Monitoring Scripts	Net Setup
	Port Configuration	
	Cable Calibration	
	Relay Test	
	Network Setup	
Port Config	Cable/Off-Air Plans	Plans
	Satellite Plans	
	Cable/Off-Air Limits	
	Satellite Limits	
Cable Cal	Options	Exit
	Exit	

- b. In Limits screen, use your up down arrow buttons to select desired Limits file and press Enter OR press Create soft-key to create a new Limits file.

Application Note

8/24/2018



Limits

Delete

TEST2.SLIM
T5.SLIM
T6.SLIM
T7.SLIM
T8.SLIM
T10.SLIM
TEST1.SLIM

Create

Edit

EXIT

- c. To create a new Limits file, press Create soft-key. The Limit Groups List is shown.

Limit Groups List

Add

Default

Delete

Save

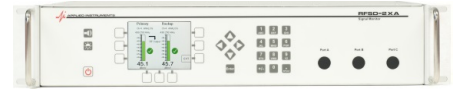
Exit

(Enter to edit)

- d. Press 'Add' soft-key. On the Edit Limits screen, use the alphanumeric keypad to type a label for these limits in the Label field and then press Enter. Then toggle the cursor to the level and quality limit fields using the arrow buttons, edit each field, and press Enter after editing each field.

Application Note

8/24/2018



Edit Limits

Label	Level	Quality
	dBm	C/N
<hr/>		
Minimum:	-68.8	6.0
Min Warning:	-58.8	9.0
Max Warning:	-38.8	24.0
Maximum:	-28.8	28.0

Cancel

Save Group

Edit Limits

Label	Level	Quality
	dBm	C/N
<hr/>		
89W G28 HZ		
Minimum:	-55.0	4.0
Min Warning:	-50.0	7.0
Max Warning:	-20.0	27.0
Maximum:	-15.0	30.0

Cancel

Save Group

Then press Save Group. On the Limit Groups List screen, press the Save soft-key.

Limit Groups List

Default
 89W G28 HZ

Add

Delete

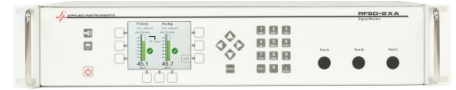
Save

Exit

(Enter to edit)

Application Note

8/24/2018



Limits File		
03/28/2016		
File Name		
89W		
DATE TIME	Location	SAVE
	AI	
Technician		
	SH	
Clear	Notes	EXIT

4. Network Setup

- From Monitor Setup menu screen, select Network Setup and press Enter.

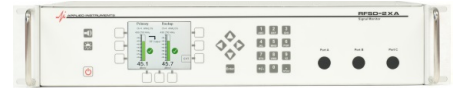
Monitor Setup		
Monitor Scripts	Monitoring Scripts	Net Setup
	Port Configuration	
	Cable Calibration	
	Relay Test	
	Network Setup	
Port Config	Cable/Off-Air Plans	Plans
	Satellite Plans	
	Cable/Off-Air Limits	
	Satellite Limits	
Cable Cal	Options	Exit
	Exit	

- Edit the IP address, System ID, Login ID, and Password fields as desired. Refer to user operation manual for more details. See user manual at:

http://www.appliedin.com/www/assets/products/RFSD-2XA/downloads/RFSD-2XA_Operation_Manual.pdf

Application Note

8/24/2018



Network Setup	
IP Address 169.254.196.243	Clear History
System ID TR2	Save Settings
Login ID TR2	
Password 123	EXIT

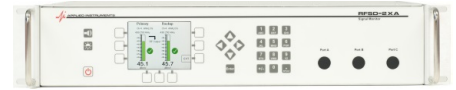
5. Create Monitoring Script file
 - a. From Monitor Setup menu, select Monitoring Scripts and press Enter.

Monitor Setup		
Monitor Scripts	Monitoring Scripts	Net Setup
	Port Configuration	
	Cable Calibration	
	Relay Test	
	Network Setup	
Port Config	Cable/Off-Air Plans	Plans
	Satellite Plans	
	Cable/Off-Air Limits	
	Satellite Limits	
Cable Cal	Options	Exit
	Exit	

- b. Highlight your desired monitoring script that you'd like to run and press Enter, Edit the highlighted monitoring script file, or create a new one.
 - c. To create a new Monitoring Script, press 'Create' soft-key. Then edit each field as desired.

Application Note

8/24/2018



New Configuration

Personality:	Monitor Only
Modules:	1
Feeds:	4
Auto Switchback:	OFF
Switch Delay:	0
Hysteresis Band:	1.0 dB

Next

EXIT

Press Next soft-key. Then select the related Channel Plan and Limits file for each input port (i.e. Input Feed 1, Input Feed 2, Input Feed 3, Input Feed 4). Highlight each field to be edited and press Enter, then select from list and press Enter. If you wish to skip a feed (input port) during the Monitoring process, select 'Skip Feed' in the Channel Plan field. Press Next soft-key to toggle to the settings for each input port and adjust settings as desired.

Monitoring Script

Input Feed 1. 89.0W
Channel Plan C:89W G28
Limits File 89W

Back

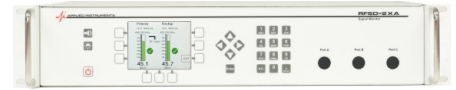
Next

EXIT

Then press Save when finished editing monitoring script for all input ports. Type a filename in the Save screen and press Save soft-key.

Application Note

8/24/2018



Configuration File
03/28/2016

File Name
89W G28

DATE
TIME

Location
AI

SAVE

Clear

Technician
SH**EXIT****Notes**

After saving, this monitoring script will then become the active one. Press OK soft-key.

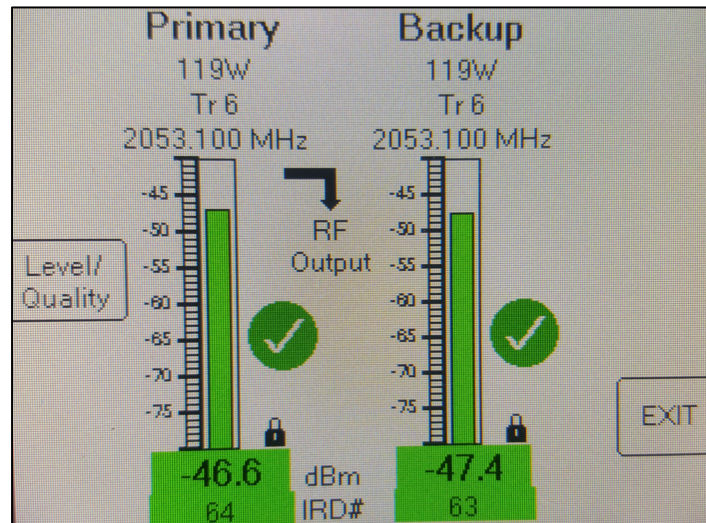
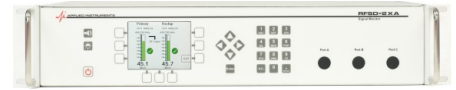
NOTE
File stored and selected as active
configuration file.

OK

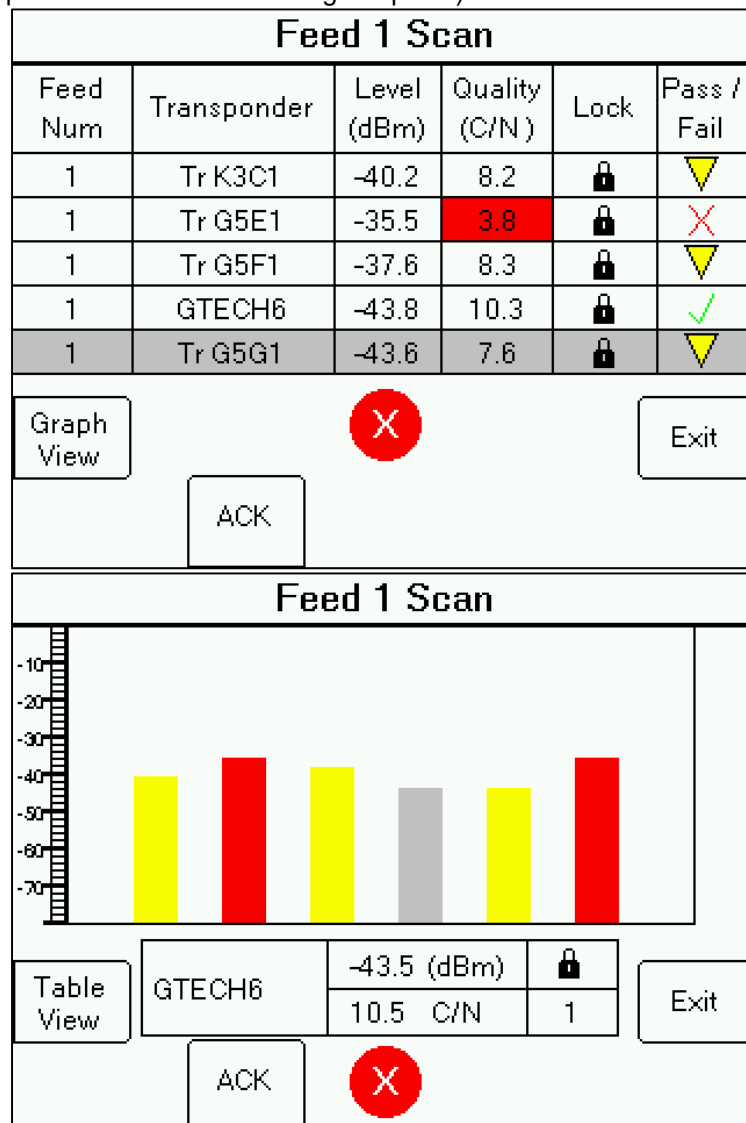
6. Power cycle instrument (Power instrument off and back on again).
7. Start monitoring
From Monitor Menu, select 'Start Monitoring'.
 - a.) If instrument is configured for "Primary-Backup", then instrument will begin monitoring both the primary and backup satellite transponders. You can press the "Level/Quality" soft-key to select which value, either the RF level or demodulated signal quality, that you would like to be displayed on the bar graphs. Both the RF level and demodulated signal quality value numbers are displayed beneath the bar graphs.

Application Note

8/24/2018

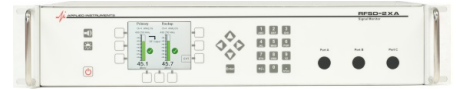


- b.) If instrument is configured for "Monitoring Only", then instrument will begin monitoring one or more (if more than one, it will begin toggling through the transponders in the channel plan in the active Monitoring Script file).



Application Note

8/24/2018





- After instrument cycles through transponders once, you can view monitoring statistics remotely via web browser or SNMP browser. Refer to user operation manual for more details about remote monitoring via SNMP or web browser. See user manual at:

http://www.appliedin.com/www/assets/products/RFSD-2XA/downloads/RFSD-2XA_Operation_Manual.pdf

Example of Status data for instrument configured for "Primary-Backup"

← → ↻ 🏠 ⓘ Not secure | 192.168.1.199/status.cgi


**APPLIED INSTRUMENTS, INC.**
TELECOMMUNICATIONS INSTRUMENTATION

**RFSD-2XA**

Status Data Active Data History Data Log Data


Refresh


Unit ID: 1
Date: 08/24/2018
Time: 14:05:21

Run State	Monitoring
Alarm State	Normal 
Switch State	Primary

Example of Active data for instrument configured for "Primary-Backup"





← → ↻ 🏠 ⓘ Not secure | 192.168.1.199/active.cgi

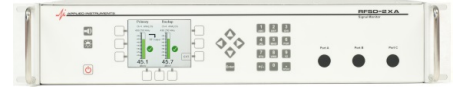
**APPLIED INSTRUMENTS, INC.**
TELECOMMUNICATIONS INSTRUMENTATION

**RFSD-2XA**

Status Data Active Data History Data Log Data



Refresh

Date	Time	Input	Chan/Transp	Lock	Level (dBm)	Quality(dB)	IRD	EbNo(dB)	EsNo(dB)	Alarm
08/24/2018	14:05:59	1	Tr 6		-46.4	15.7	64	14.6	17.0	 Normal
08/24/2018	14:05:58	2	Tr 6		-47.1	15.6	64	14.5	16.9	 Normal



Example of History data for instrument configured for "Primary-Backup"

← → ↻ Ⓜ Not secure | 192.168.1.199/history.cgi ☆ 📶 🔴




APPLIED INSTRUMENTS, INC.
 TELECOMMUNICATIONS INSTRUMENTATION

RFSD-2XA

Status Data Active Data History Data Log Data
Refresh

Date	Time	Input	Chan/Transp	Lock	Level (dBm)	Quality(dB)	IRD	EbNo(dB)	EsNo(dB)	Alarm
08/24/2018	14:04:25	2	Tr 6	✓	-47.1	UNDER	UNDER	UNDER	UNDER	✓ Normal
08/24/2018	14:04:25	1	Tr 6	✓	-46.4	UNDER	UNDER	UNDER	UNDER	✓ Normal
08/24/2018	14:02:04	2	Tr 6	✓	-46.8	15.6	64	14.5	16.9	✓ Normal
08/24/2018	14:02:04	1	Tr 6	✓	-46.1	15.8	65	14.7	17.1	✓ Normal
08/23/2018	15:25:37	2	Tr 6	✓	-48.8	15.5	63	14.4	16.8	✓ Normal
08/23/2018	15:25:37	1	Tr 6	✓	-48.0	15.7	64	14.6	17.0	✓ Normal
08/23/2018	15:14:38	2	Tr 6	✗	-68.7	UNDER	UNDER	UNDER	UNDER	✗ Alarm

Example of Log data for instrument configured for "Primary-Backup"

← → ↻ Ⓜ Not secure | 192.168.1.199/logs.cgi ☆ 📶 🔴

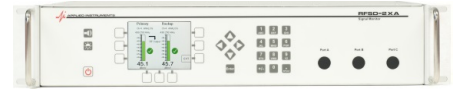

APPLIED INSTRUMENTS, INC.
 TELECOMMUNICATIONS INSTRUMENTATION

RFSD-2XA

Status Data Active Data History Data Log Data
Refresh

Date	Time	Log Message
08/24/2018	14:04:24	Monitor ON
08/24/2018	14:02:46	Monitor OFF
08/24/2018	14:02:01	Monitor ON
08/24/2018	14:01:58	Switch to PRIMARY
08/24/2018	14:01:58	Power On
08/24/2018	14:01:58	Power Restore


Application Note


8/24/2018



Example of Status data for instrument configured for "Monitor Only"

← → ↻ 🏠 169.254.196.243/status.cgi

**APPLIED INSTRUMENTS, INC.**
TELECOMMUNICATIONS INSTRUMENTATION

**RFSD-2XA**

Status Data Active Data History Data Log Data


Refresh


Unit ID: **TR2**
Date: 03/28/2016
Time: 17:39:33

Run State	Monitoring
Alarm State	Alarm ❌
Switch State	Primary

Example of Active data for instrument configured for "Monitor Only"

← → ↻ 🏠 169.254.196.243/active.cgi

**APPLIED INSTRUMENTS, INC.**
TELECOMMUNICATIONS INSTRUMENTATION

**RFSD-2XA**

Status Data Active Data History Data Log Data

Refresh

Date	Time	Input	Chan/Transp	Lock	Level (dBm)	Quality(dB)	IRD	EbNo(dB)	EsNo(dB)	Alarm
03/28/2016	17:40:22	1	Tr K3C1	✓	-40.4	8.2	66	7.7	9.5	⚠ Warning
03/28/2016	17:40:23	1	Tr G5E1	✓	-35.1	4.0	29	3.5	5.3	❌ Alarm
03/28/2016	17:40:25	1	Tr G5F1	✓	-38.6	8.3	67	7.8	9.6	⚠ Warning
03/28/2016	17:40:27	1	GTECH6	✓	-44.5	10.5	82	10.0	11.8	✓ Normal
03/28/2016	17:40:29	1	Tr G5G1	✓	-43.0	7.6	61	7.1	8.9	⚠ Warning
03/28/2016	17:40:30	1	Tr 23K	❌	-35.1	0.0	UNDER	UNDER	UNDER	❌ Alarm

9. After viewing your signal level and quality in the real environment, you can then go edit your Limits file as needed to refine your threshold value settings.



Applied Instruments, Inc. • 5230 Elmwood Ave. • Indianapolis, IN USA 46203 • Tel (317) 782-4331 • www.appliedin.com