

## Section 1-5

### FAX Web GUI

**In this section of the class we will connect to the FAX Ethernet ports and go through the important screens of the FAX GUI and a TELNET session. Also ways that these can be used to troubleshoot will also be discussed.**



Front Ethernet port is shipped as DHCP Server (Not for connecting to your LAN). To connect make sure the PC is set for DHCP in IP properties.

Default IP address of 192.168.117.88. Type this address into web browser of your choice – GatesAir prefers Firefox. Internet Explorer seems to have issues displaying all of the screens, may need to clear cache

Can get GUI or Telnet session via either Ethernet port

## **Old Logins in () circa August 2013**

There are 5 possible logins: netadmin (admin) (password: harris (admin)) for changing the other four logins. The default logins from factory are admin (harris or gates) (password: admin (harris or gates)) and user2,3,4 (password pass2,3,4).

No control when logged in as netadmin

All screens can viewed without logging in – no control/config changes can be made



# Flexiva™ FAX Series



The screenshot displays the control interface for the Flexiva FAX FM TX. The main display area shows a block diagram of the drive chain and system components. The drive chain includes Exciter A and B, an IPA (Intermediate Power Amplifier), Power Amps, and an Output stage. The system includes Control and Cooling modules, and Power Supplies. The interface also shows the current mode (FM) and frequency (0.00 MHz). A 'Primary Faults' section at the bottom lists various fault indicators: AC Mains, External Interlock, VSWR, Exciter Trip, IPA Trip, and Foldback. On the right side, there are physical control buttons for 'REMOTE ENABLE' (lit green), 'POWER RAISE', 'DISABLE', 'LOWER', 'ON', and 'OFF' (lit red). A vertical status indicator on the far right shows the status of various components: Exciter (lit green), Drive Chain (lit green), Power Amp (lit green), Power Supply (lit green), Output (not lit), System (lit green), Mute (lit green), Exc A On Air (lit blue), and Exc B On Air (not lit).



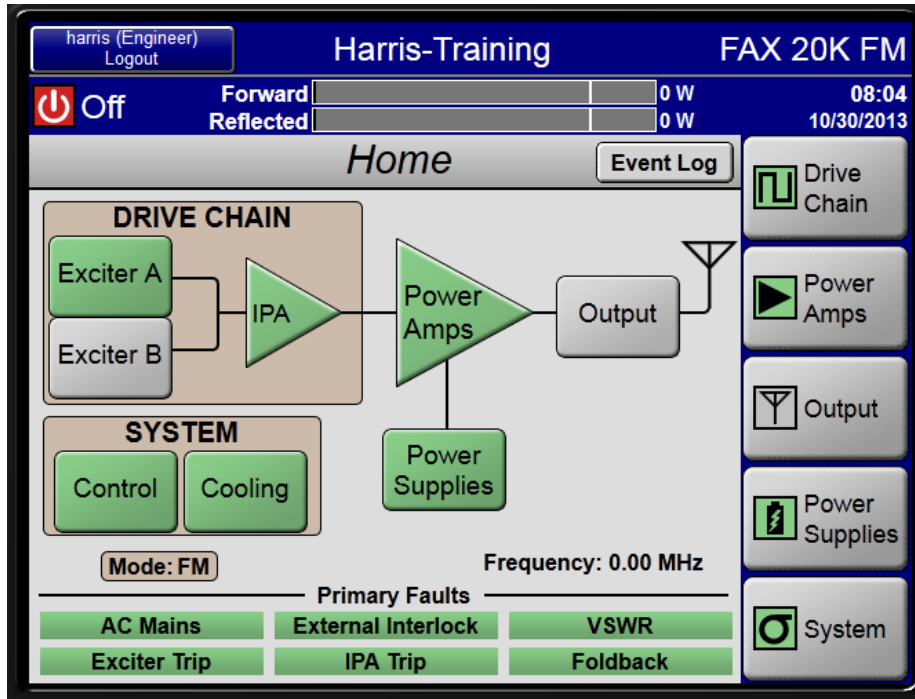
### Edit User Information

	<u>Username</u>	<u>Password</u>	<u>Idle Timeout (Minutes)</u>	<u>Max Sessions</u>
Admin	<input type="text" value="admin"/>	<input type="text" value="admin"/>	<input type="text" value="10"/>	<input type="text" value="1"/>
(* Changing any Admin field will log you out after saving)				
Engineer 1	<input type="text" value="gates"/>	<input type="text" value="gates"/>	<input type="text" value="10"/>	<input type="text" value="1"/>
Engineer 2	<input type="text" value="user2"/>	<input type="text" value="pass2"/>	<input type="text" value="10"/>	<input type="text" value="1"/>
Engineer 3	<input type="text" value="user3"/>	<input type="text" value="pass3"/>	<input type="text" value="10"/>	<input type="text" value="1"/>
Engineer 4	<input type="text" value="user4"/>	<input type="text" value="pass4"/>	<input type="text" value="10"/>	<input type="text" value="1"/>
(* Timeout: 0 = Infinite)				
<input type="button" value="Save"/>		<input type="button" value="Cancel"/>		

Remote on front of transmitter must be enabled or boxes will be grayed out if using rear Ethernet port. There are no save buttons; tab away, exiting the box or logging out saves information. Make sure info is typed in correctly for “Administration Password” as there is no easy access if you cannot login to this screen

Old software - Can change the netadmin login password but netadmin User name cannot be changed





FAX GUI Home Screen when logged as Engineer

Green blocks indicate an ok condition and if exciter A or B is on-air.

Clicking on a block will drill down to the next menu

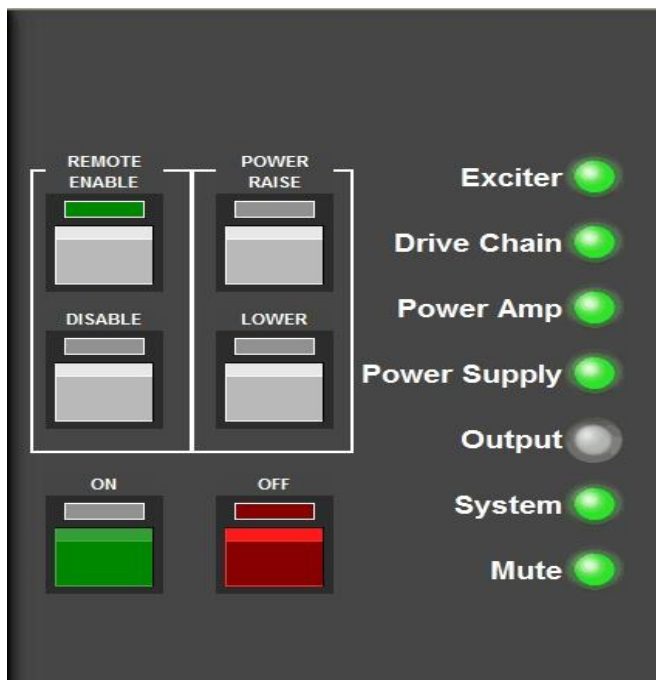
If a block is Red or Yellow, click on that block to the next screen or screens to locate the fault that is active

Clicking on the  icon always

returns the user to the Home Screen (Icon not shown on Home Screen)

Clicking on Logout will still allow for viewing screens but no control/config allowed.





REMOTE ENABLE/DISABLE – Enables or disables the User Remote J1 parallel I/O on rear panel of FAX as well as the remote capabilities via IP and SNMP on rear Ethernet port ONLY.

S15 -2 OFF Disables front panel control of transmitter when remote is enabled

S15-2 ON Enables front panel control when Remote is enabled

S15-3 ON;S15-4 OFF – Remote Enable button LED is Green

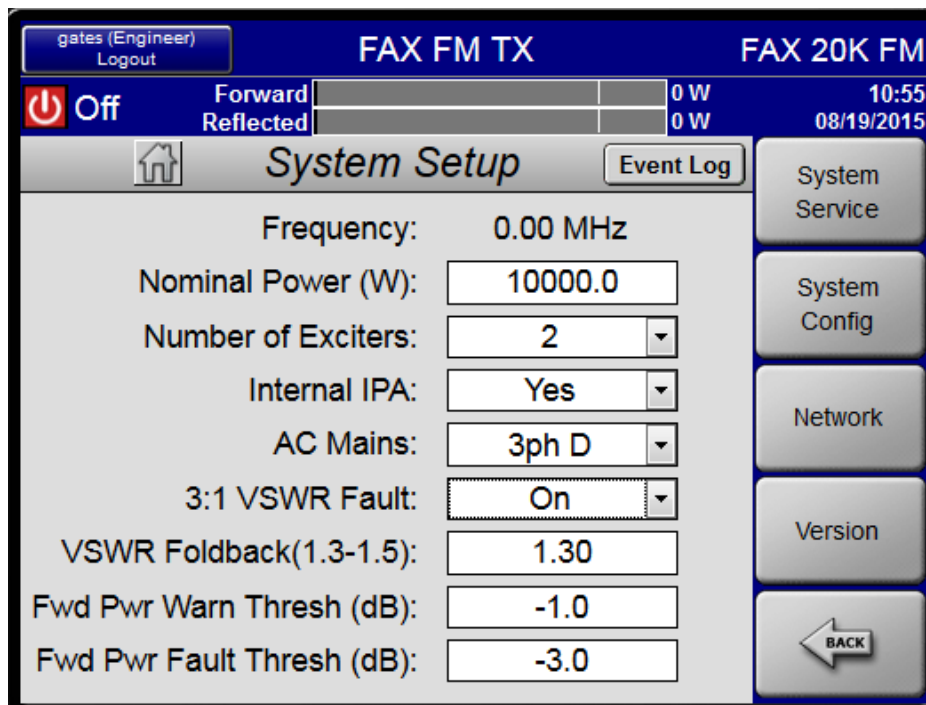
S15-3 OFF; S15-4 ON – Remote Enable button LED is Red

## POWER RAISE/LOWER-

Raises or Lowers RF power out. Caution there is some lag time in response. Holding buttons down may cause over or under shoots of desired power.

Tip: If transmitter has been lowered by pressing the Lower button, to get back to 100 % press and hold the POWER button under the LCD and then press RAISE and release both. Power will go back to calibrated power in a few seconds.





Frequency – entered in LCD when using exciter other than FAX Compact (display only). Using FAX Compact - This field is populated by exciter via RS485; also changing in HP transmitter will change exciter freq

Nominal Power changes the bargraph calibration on LCD for 100 % reading

Number of Exciters – 1 or 2 Change here or on LCD if adding exciter. S5/6 must be set on System Interface or Multi-Unit Control Board (depends on Model) See Section 5.4 of manual. Also set exciter type on System Config screen

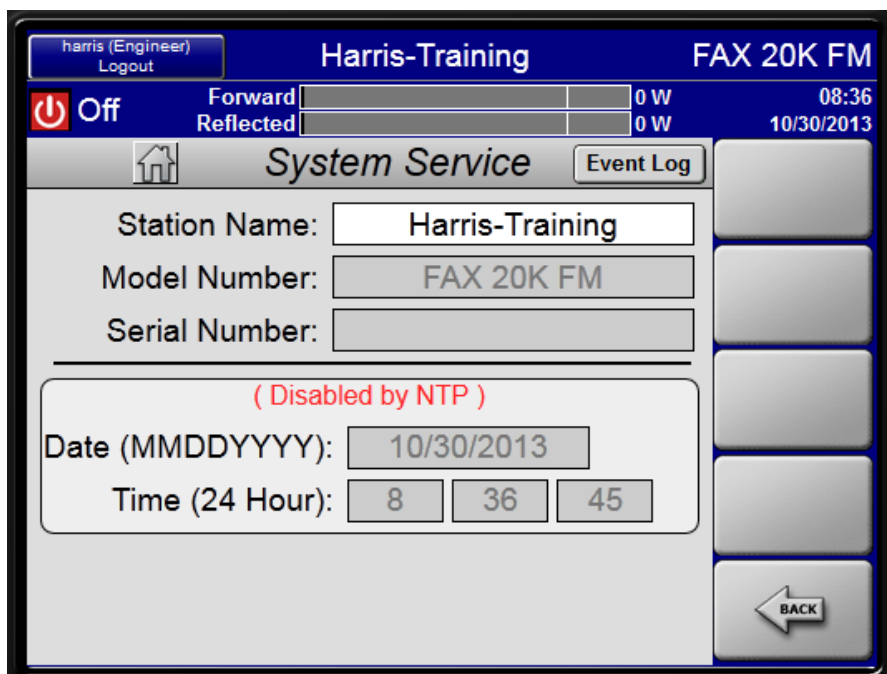
Internal IPA should always be set to YES (display only)

AC Mains (display only). AC jumper settings MUST be correct on rear of transmitter See Section 2.12.3 of manual.

AC Options:  
 3ph D = 3-Phase Delta  
 3ph Y = 3-Phase Wye  
 Single Phase

3:1 VSWR Fault - As VSWR increases above the foldback threshold the VSWR ratio continues to increase even though the reflected power remains constant. With this field set to ON, when the VSWR reaches 3:1 the transmitter will fault off and 3 strike. On the fourth strike in 60 seconds or less the transmitter will stay OFF and will require a manual ON to return to operation once the VSWR is corrected.





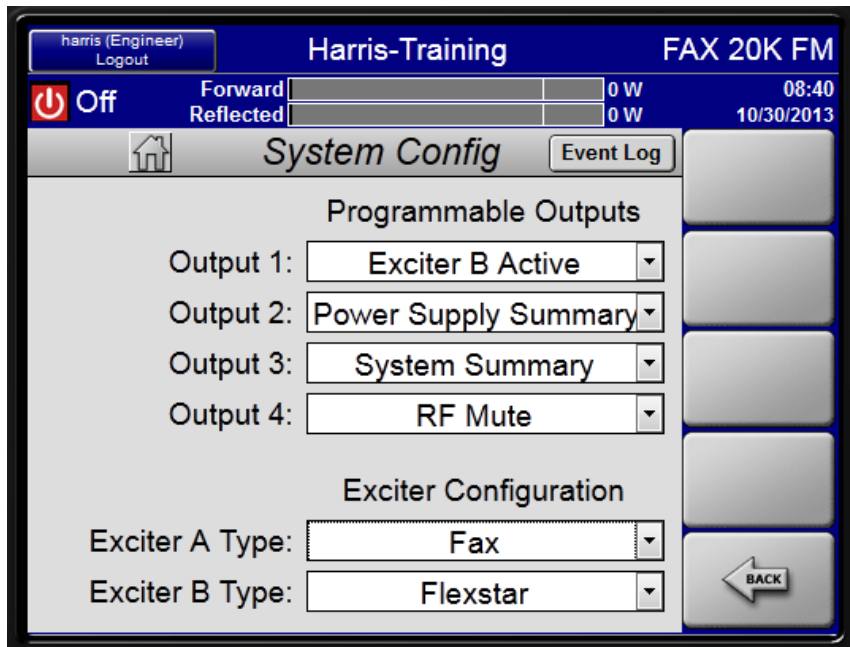
Allows for changing TX ID. Up to 20 characters (Do not use special characters like !,?,\* etc. In certain versions of software will lock up the controller)

Model Number – Set at Factory

Serial Number – Set at Factory

Time/Date – Can be internal clock or NTP(See NTP Screen for configuration)





Allows for configuring up to 4 User Remote digital Outputs

This is J1 on rear of FAX; Power Block 1 on 20 kW and higher power models

Output 1 J1-15

Output 2 J1-16

Output 3 J1-17

Output 4 J1-18

J10-J14 cannot be changed by user

## Exciter Configuration

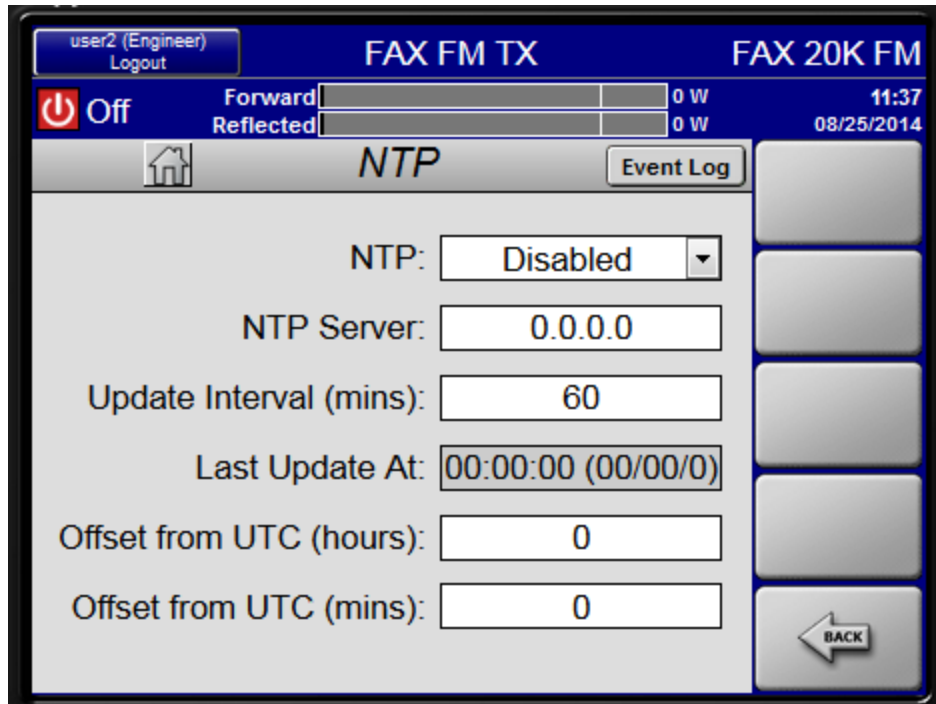
FAX, Flexstar, Digit, Micromax, Custom Drive and Custom IPA

Custom Drive – Use when Exciter other than one listed is used and has External APC input

Custom IPA – Use when Exciter does not have an External APC input, APC drives internal IPA

Also set switches S5/6 on System Interface





NTP Server – Valid IP Address of any NTP server

Update Interval – Range 2 to 1000 minutes. Time between update requests from server

Last Update At – should update per interval, if not updating likely a network issue or busy server

Offset will depend on the time zone the transmitter will be located and on Standard Time or Daylight Savings Time

Offset shown is Quincy,IL which is 5 hours behind UTC (Coordinated Universal Time) during Daylight Savings Time



**TABLE 4.1 – NIST INTERNET TIME SERVERS**

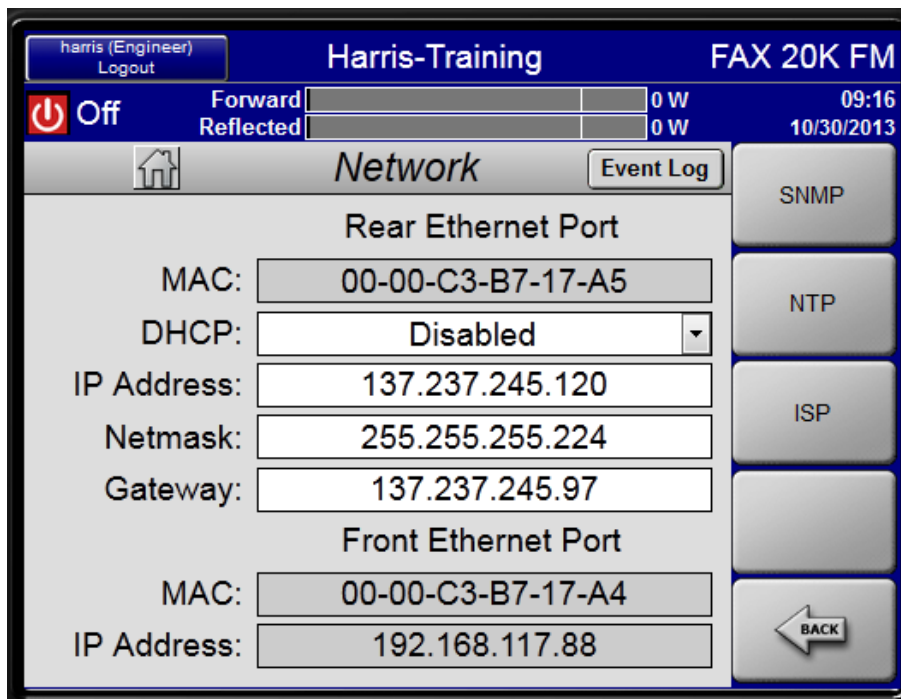
NAME	IP ADDRESS	LOCATION
time-a.nist.gov	129.6.15.28	NIST, Gaithersburg, Maryland
time-b.nist.gov	129.6.15.29	NIST, Gaithersburg, Maryland
time-a.timefreq.bldrdoc.gov	132.163.4.101	NIST, Boulder, Colorado
time-b.timefreq.bldrdoc.gov	132.163.4.102	NIST, Boulder, Colorado
time-c.timefreq.bldrdoc.gov	132.163.4.103	NIST, Boulder, Colorado
utcnist.colorado.edu	128.138.140.44	University of Colorado, Boulder
time.nist.gov	192.43.244.18	NCAR, Boulder, Colorado
time-nw.nist.gov	131.107.1.10	Microsoft, Redmond, Washington
nist1.datum.com	63.149.208.50	Datum, San Jose, California
nist1.dc.glassey.com	216.200.93.8	Abovenet, Virginia
nist1.ny.glassey.com	208.184.49.9	Abovenet, New York City
nist1.sj.glassey.com	207.126.103.204	Abovenet, San Jose, California
nist1.aol-ca.truetime.com	207.200.81.113	True Time, Sunnyvale, California
nist1.aol-va.truetime.com	205.188.185.33	True Time, Virginia

## NTP Servers

All Servers provide the same information, however some are more busy than others.

More information is available in NIST Document on Class CD





MAC Address of rear FAX Ethernet Port displayed

Sets up rear Ethernet port only

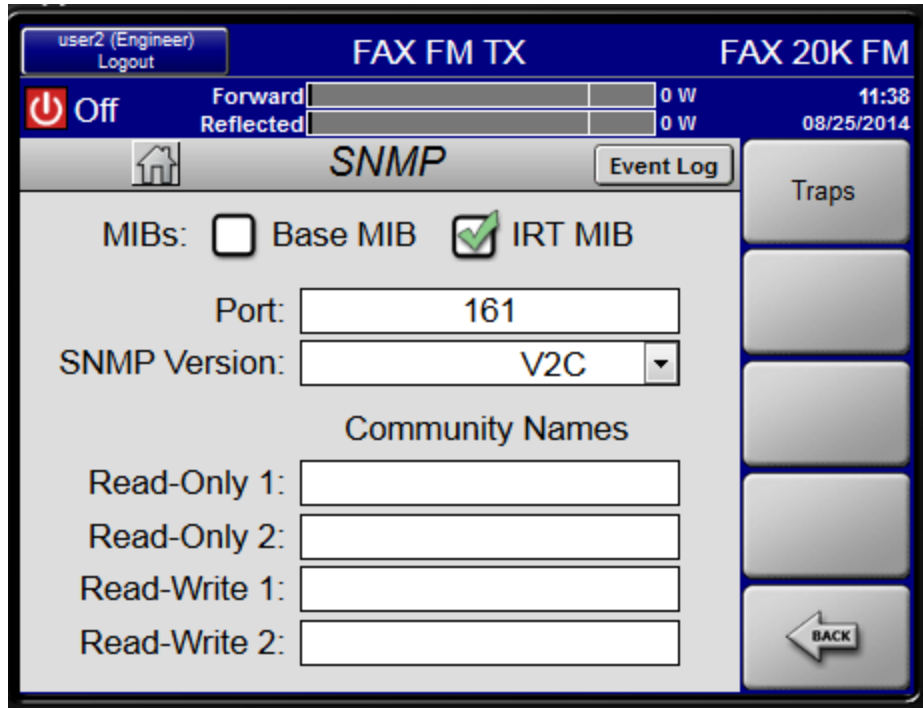
Allows for Static or DHCP IP Address

A telnet session can be opened via rear port as well

Connect LAN to this port for remote monitoring and control

Front Ethernet port not configurable. It is DHCP Server and is Local only. If using this port Remote must be Disabled. (August 2013 code)





## SNMP Configuration Menu

Port – 161 default; Range 161,162,49152-65535

Read-Write Community set to either Public or Private

SNMP Version 1 or 2 only

MIB's Required:

GatesAir-transmission-smi.mib

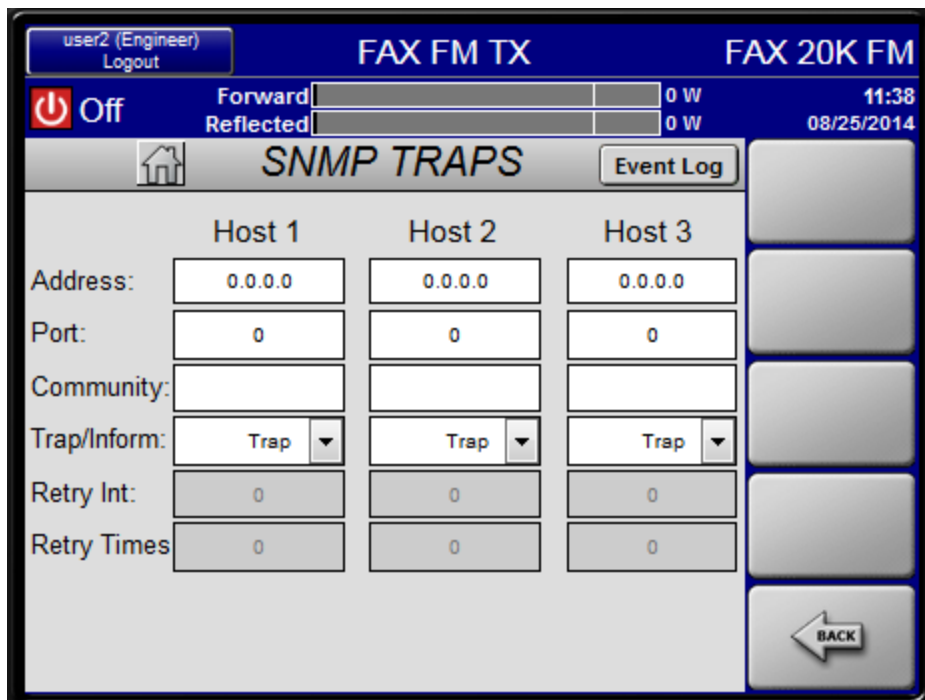
TX-BASE-MIB-101126.mib

IRT MIB's available as well

These are available on GatesAir Customer Portal – [support.gatesair.com](http://support.gatesair.com)

There are several MIB browsers available for free iReasoning or MGSoft





	Host 1	Host 2	Host 3
Address:	0.0.0.0	0.0.0.0	0.0.0.0
Port:	0	0	0
Community:			
Trap/Inform:	Trap	Trap	Trap
Retry Int:	0	0	0
Retry Times:	0	0	0

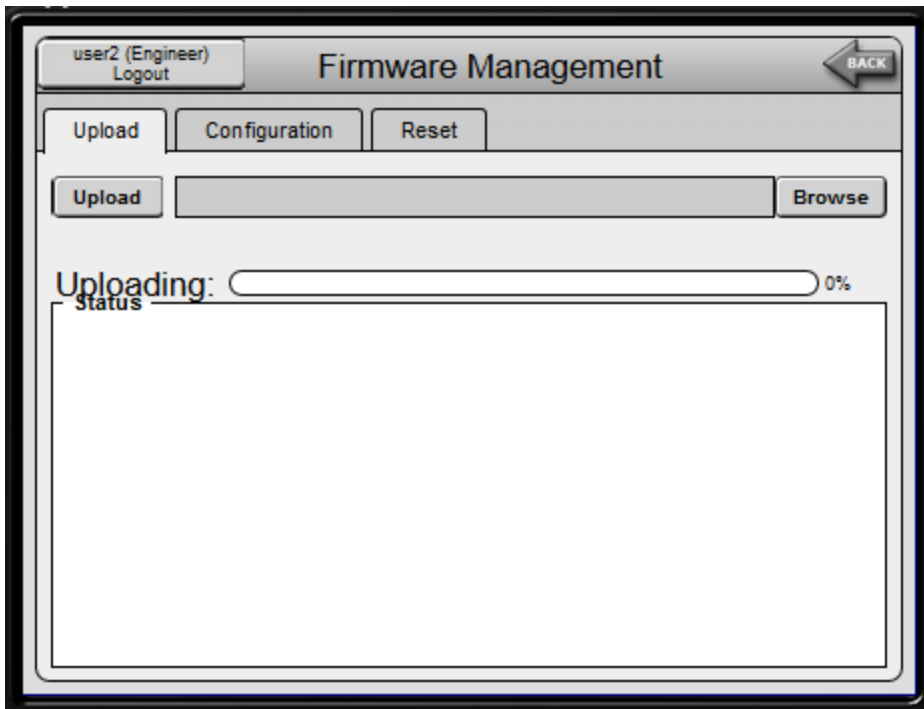
Address – valid IP address of a trap receiver

Port – valid port number 162 is default

Community – Public or Private

Trap/Inform – when set to Trap the event will be sent to the trap address. Inform mode a trap will be sent to the address, the transmitter will wait to hear an acknowledgement for the SNMP Manager. If no acknowledge is received the trap will be sent the specified Retry Times at the specified Retry Int





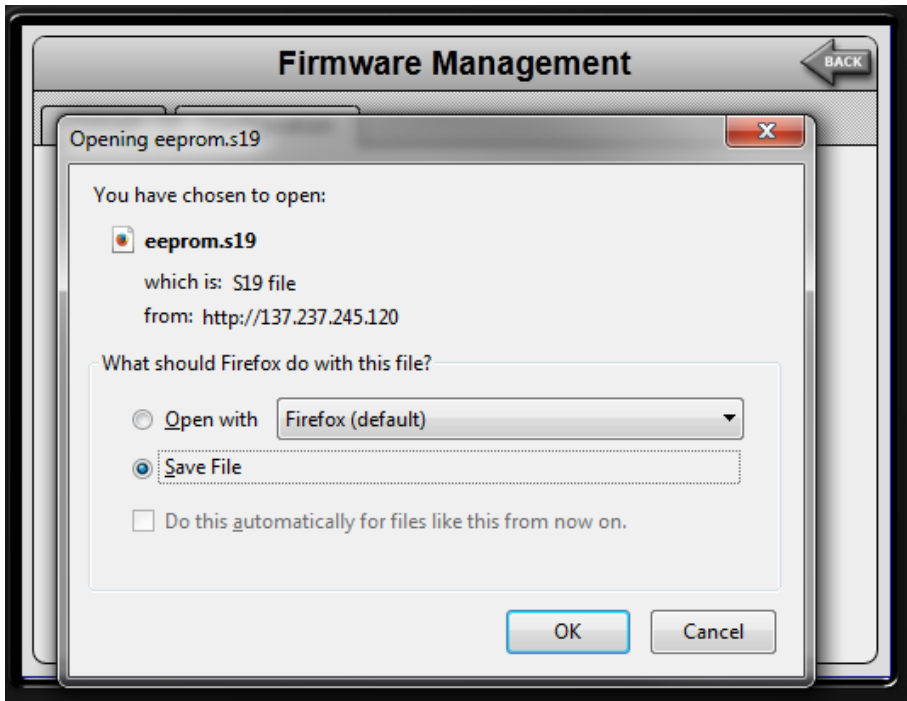
In-System Programming screen for uploading new software and configuration files to FAX

The file(s) to upload will be an .s19 file that can be obtained from GatesAir. This could be three files, one for the bootloader, one for the transmitter and one for the GUI. Newer software has complete build. Use this to upload a saved config as well.

Configuration Tab – Downloads current configuration that is stored in memory on the Control&Display Board. It is a good idea to download this file at installation, whenever a change is made to the transmitter setup or prior to a software upload. The config file contains all settings that can be accessed from the “SETUP” button on front of transmitter, ie Cal data, dual exciters, switch mode setting, frequency etc.

Reset Tab – Resets transmitter, this will drop RF power briefly





When Download button is pressed on Configuration Tab a dialog box will open so the file can be renamed and saved.

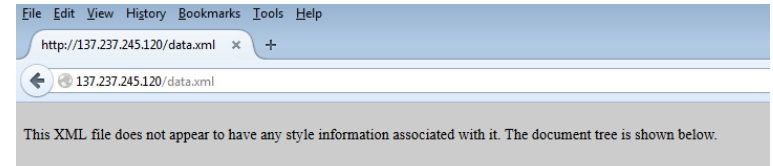
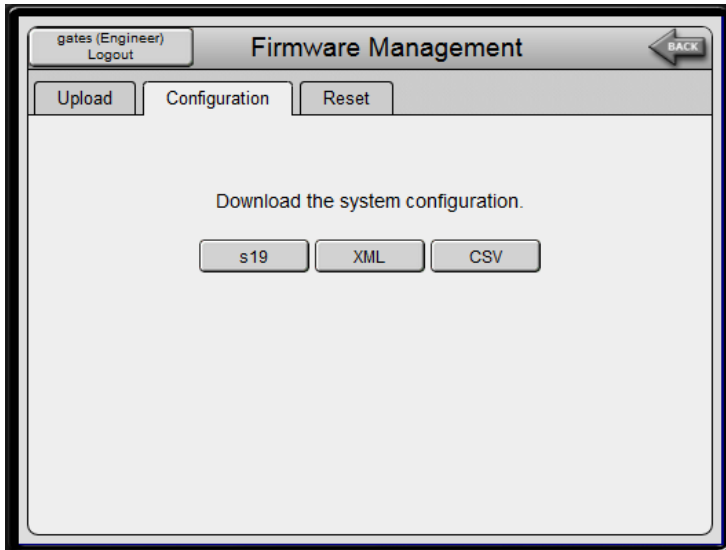
Use a date or some way to define when file was saved.

For example:

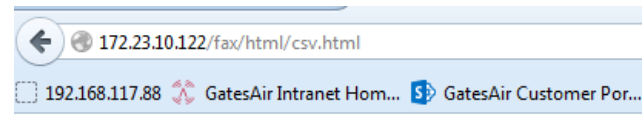
10-1-2013 Install.s19



To get a snapshot of the data points within the transmitter, click on either the XML or CSV button.

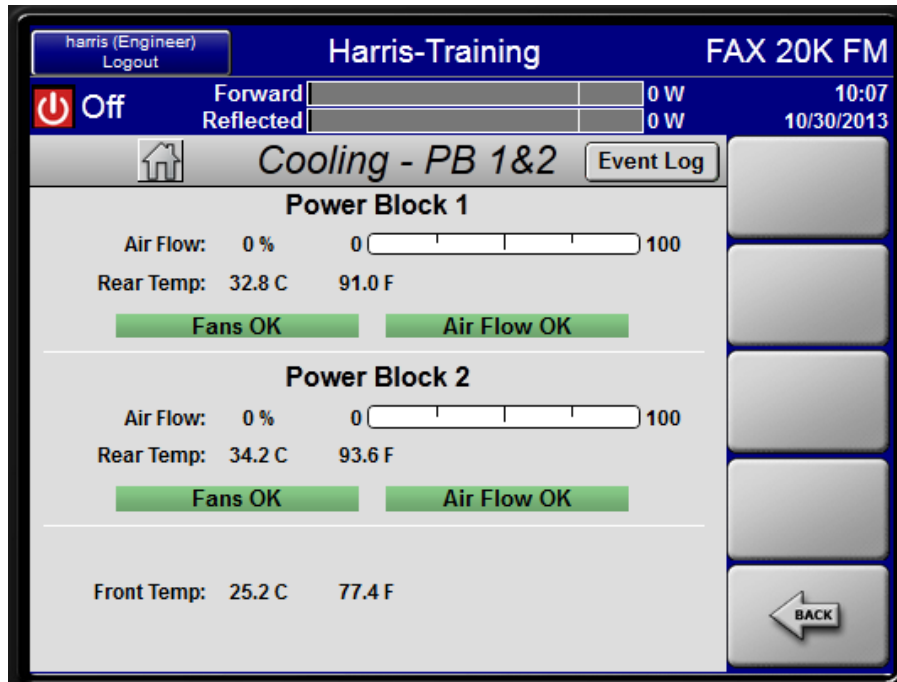


```
-<ecdi>
--<data>
<datapoint name="tx_model"> FAX 20K FM </datapoint>
<datapoint name="tx_serial_number">msr47959-001</datapoint>
<datapoint name="GuiSystemType">6</datapoint>
<datapoint name="ex1_swversion">0285, Jul 1 2014,13:43:25</datapoint>
<datapoint name="ex1_bootswversion">0035, Mar 29 2010,14:51:06</datapoint>
<datapoint name="ex1_htmlGUIVersion">V3.0</datapoint>
<datapoint name="ex1_time"> 1:44:45PM</datapoint>
<datapoint name="ex1_date">Monday, August 25, 2014</datapoint>
<datapoint name="ex1_pagetitle">FAX FM TX</datapoint>
<datapoint name="tx.build.version">A20</datapoint>
<datapoint name="ex1_bom_file01">fax_controller_0285.s19</datapoint>
<datapoint name="ex1_bom_file02">FAX_Web_GUI_V3.0.s19</datapoint>
<datapoint name="ex1_bom_file03">pcmDevType.s19</datapoint>
```



```
Download CSV

currentuser_active,0
currentuser_privileges,-1
tx_model, FAX 20K FM
tx_serial_number,12345678
tx_cfg.tx_model,10
tx_cfg.num_pbs,2
tx_cfg.num_pas,8
tx_cfg.num_pss,7
tx_cfg.num_ipas,0
tx_cfg.device_id,0
GuiSystemType,6
ex1_swversion,0301; Jun 11 2015;13:24:54
ex1_bootswversion,0035; Mar 29 2010;14:51:06
ex1_htmlGUIVersion,V3.S.1
ex1_time,11:06:30AM
ex1_date,Wednesday; August 19; 2015
```



Shows temperature of each power block. The temperature and Airflow shown is measured on the Power Supply Interface Board 801-0234-061 Sheet 6 (Airflow) and Sheet 7 (Temp). This temp is the control for the fan speed which is variable.

100 % is full speed on fans only run at full speed in the event of high temp or fault

If airflow drops to around 70 % it is a good idea to clean filters or investigate a possible problem.

If the Fans OK turns red a fan has failed and the corresponding red LED on the rear power block door will be on.

Front temp is display only





## System Meters Menu

Power Control Reference is generated on Control&Displaybd Sheet 4. Disabled in backup control.

APC voltages generated on System Interface Board 801-0234-051 Sheet 5

## Control Power Supplies:

+4.6 V: From Main Power Supplies – 4.2 V is due to diode drops

+3.3 V: Control/Display Board Sheet 7

+1.8 V: Ethernet Supply Control/Display Sheet 14





Download Log to txt file (next slide)



Print Log to any attached printer

## Filters Log

AC=Active or Cleared

FWIA=Flt/Wrn/Info/Action

Filter ▲ [ A C / F W I A ]

**Active**

Active+Cleared

Active Only

Cleared Only

**Log Types**

Faults

Warnings

Information

Actions

harris (Engineer) Logout    Harris-Training    FAX 20K FM

On    Forward  4793 W    14:25

Reflected  46 W    10/30/2013

Event Log    CLR LOG    Log size: 21    Filter ▼ [ A C / F W I A ]    BACK

<b>FLT</b>	<b>PB1 PS4 Volt Fault</b>	* Set 14:25:50 10/30/13	<b>ACTIVE</b>
<b>FLT</b>	<b>SYSTEM Power Level Fault</b>	* Set 14:25:48 10/30/13	<b>ACTIVE</b>
<b>FLT</b>	<b>PB1 IPA OUT</b>	* Set 14:25:47 10/30/13	<b>ACTIVE</b>
<b>WRN</b>	<b>PB2 FWD Power Limit</b>	* Set 14:25:46 10/30/13	<b>ACTIVE</b>
<b>INF</b>	<b>SYSTEM Power Level Fault</b>	* Set 14:25:44 10/30/13 Clear 14:25:46 10/30/13	<b>CLEARED</b>
<b>INF</b>	<b>PB1 IPA OUT</b>	* Set 14:25:43 10/30/13 Clear 14:25:46 10/30/13	<b>CLEARED</b>
<b>INF</b>	<b>PB2 FWD Power Limit</b>	* Set 14:25:42 10/30/13 Clear 14:25:46 10/30/13	<b>CLEARED</b>
<b>INF</b>	<b>PB1 PS4 Volt Fault</b>	* Set 14:25:41 10/30/13 Clear 14:25:42 10/30/13	<b>CLEARED</b>
<b>INF</b>	<b>SYSTEM Power Level Fault</b>	* Set 14:25:41 10/30/13 Clear 14:25:42 10/30/13	<b>CLEARED</b>
<b>INF</b>	<b>PB2 FWD Power Limit</b>	* Set 14:25:40 10/30/13 Clear 14:25:42 10/30/13	<b>CLEARED</b>

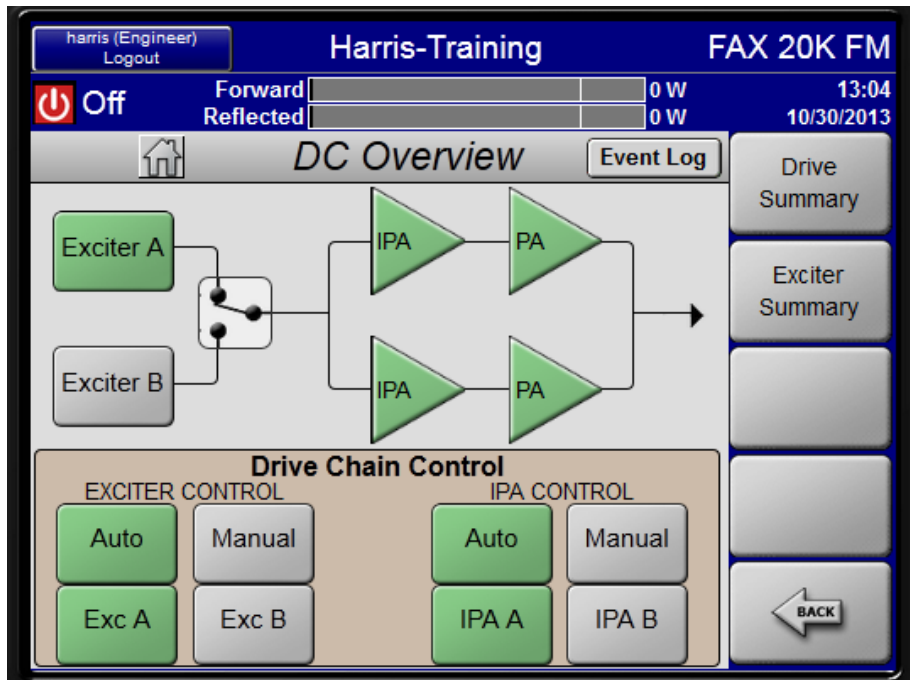


Clear Log

Active Faults

Number	Occur	Clear	Name
1	14:26:18 10/30/13	N/A	TX APC ON
2	14:26:02 10/30/13	N/A	TX OFF COMMAND
3	14:25:53 10/30/13	N/A	TX APC OFF
4	14:25:50 10/30/13	14:26:03 10/30/13	PB1 PS4 Volt Fault
5	14:25:48 10/30/13	14:26:03 10/30/13	SYSTEM Power Level Fault
6	14:25:47 10/30/13		<b>PB1 IPA OUT</b>
7	14:25:46 10/30/13	14:26:02 10/30/13	PB2 FWD Power Limit
8	14:25:44 10/30/13	14:25:46 10/30/13	SYSTEM Power Level Fault
9	14:25:43 10/30/13	14:25:46 10/30/13	PB1 IPA OUT
10	14:25:42 10/30/13	14:25:46 10/30/13	PB2 FWD Power Limit
11	14:25:41 10/30/13	14:25:42 10/30/13	PB1 PS4 Volt Fault
12	14:25:41 10/30/13	14:25:42 10/30/13	SYSTEM Power Level Fault
13	14:25:39 10/30/13	14:25:42 10/30/13	PB2 FWD Power Limit
14	14:25:38 10/30/13	14:25:42 10/30/13	PB1 IPA OUT
15	14:25:38 10/30/13	14:25:39 10/30/13	PB2 FWD Power Limit
16	14:25:37 10/30/13	N/A	TX ON COMMAND
17	14:24:23 10/30/13	14:25:38 10/30/13	PB1 IPA OUT
18	13:42:26 10/30/13	N/A	TX HIGHT POWER MODE ON
19	13:42:19 10/30/13	N/A	TX OFF COMMAND
20	13:42:15 10/30/13	N/A	TX LOW POWER MODE ON
21	13:05:45 10/30/13	N/A	TX ON COMMAND
22	13:04:08 10/30/13	N/A	IPA SW MODE AUTO
23	13:04:08 10/30/13	N/A	EXCITER SW MODE: AUTO
24	13:00:57 10/30/13	N/A	TX OFF COMMAND



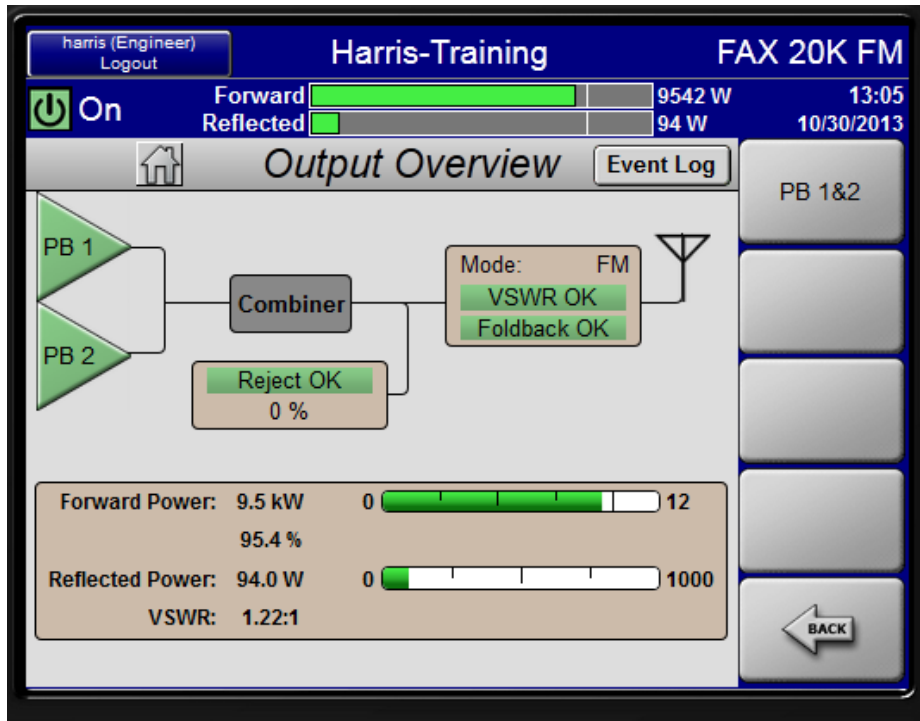


Allows for selection of exciters and IPA. Exciter that is grayed is off air. If it is red it is faulted.

IPA's switch in tandem, if IPA in PB1 switches so does IPA in PB2.

If Exciter or IPA auto switches corresponding front panel LED will be Amber and status will change to "Tripped" in LCD Status menu. Requires a TX ON to re-arm the switch.





Shows Forward and Reflected power information.

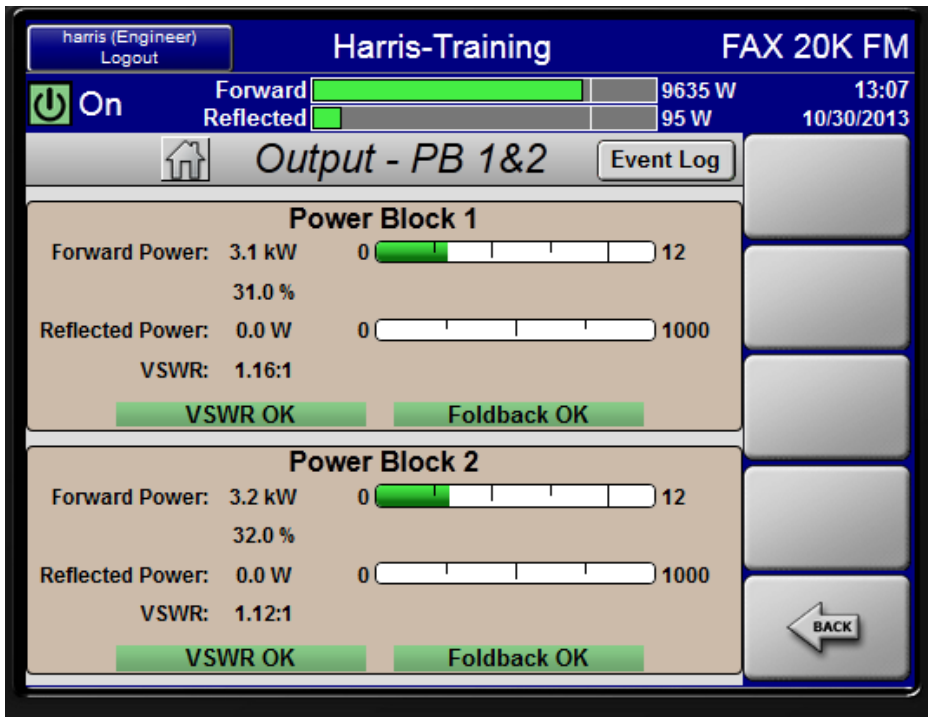
Combiner just shown as part of the RF chain in the system. Display only

Reject Load power shown as a percent of the load handling capability. This will be in 20 kW or higher power transmitters only.

FAX20 - 6 kW per PB

FAX30/40 – 6 kW per PB; 12 kW for cabinet





PB 1&2 shows individual power block RF information

There will be another screen for PB3&4 for FAX30/40

Power block cannot be calibrated to a meter (no way for in-line meter) so the calibration is estimated.

Example FAX20:

10 kW per power block

Loss – 2 %

$10000 * .02 = 10,200$  calibration power

This does not have to be that accurate for forward power. However needs to be close as VWSR protection is based off the forward power calibration