

Background

The Innovator CXB has a set of menus that allow an operator to view read only parameters and another set to configure parameters of the transmitter. This document describes the menus added to implement the ProTV ATSC modulator within the CXB.

Axcera part number 1316306 is assigned to the system controller software package that implements these screens. 1616307 is assigned to the ethernet controller code used with this system controller code to access web pages of the ProTV ATSC modulator.

Implementation

1. Section

2. Menus

2.1. Splash Screens

Figure 2.1-1: Software Splash Screen



P/N: 1316306 firmware version level 2.0b and EPLD version 2.5

2.2. Device Details Screens

These are read only parameters.

2.2.1. Device Details Screens - ATSC Modulator

Figure 2.2.1-1: Device Details - ATSC Modulator Select



Menu Level	ATSC Details Top Level
Description	This screen provides access to the read only parameters of the ATSC modulator.
Parameter Range	N/A

2.2.1.1. Device Details - ATSC Modulator - Input Signals

Figure 2.2.1.1-1: Device Details - Input Signals Catagory



Menu Level	ATSC Details / Input Signals Top Level
Description	This screen provides access to read only input signal parameters of the ATSC modulator.
Parameter Range	N/A

Figure 2.2.1.1-2: Device Details - Input Signals - Selected Stream



Menu Level	ATSC Details / Input Signals / Selected Stream
Description	This screen indicated which input path is currently selected.
Parameter Range	Input #1 or Input #2

Figure 2.2.1.1-3: Device Details - Input Signals - Primary Stream Status



Menu Level	ATSC Details / Input Signals / Primary Stream
Description	This menu indicates if the allocated primary stream is available or not.
Parameter Range	"Available" or "No Sync Signal"

Figure 2.2.1.1-4: Device Details - Input Signals - Secondary Stream Status



Menu Level	ATSC Details / Input Signals / Secondary Stream
Description	This menu indicates if the secondary stream is available or not.
Parameter Range	"Available" or "No Sync Signal"

Figure 2.2.1.1-5: Device Details - Input Signals - Primary Stream: Number of Buffered Packets



Menu Level	ATSC Details / Input Signals / Primary Buffered Packet Count
Description	This display indicates how many packets are stored in the input buffer.
Parameter Range	Minimum of 0

Figure 2.2.1.1-6: Device Details - Input Signals - Primary Stream: Packet Size



Menu Level	ATSC Details / Input Signals / Primary Stream Packet Size
Description	This display indicates the primary transport stream packet size.
Parameter Range	188 or 204

Figure 2.2.1.1-7: Device Details - Input Signals - Primary Stream: Bit Rate



Menu Level ATSC Details / Input Signals / Primary Stream Bit Rate
Description This is the detected bit rate of the primary input transport stream.
Parameter Range

Figure 2.2.1.1-8: Device Details - Input Signals - Primary Stream: Stuffing Rate



Menu Level ATSC Details / Input Signals / Primary Stream Stuffing Rate
Description This is the detected stuffing rate of the primary input transport stream.
Parameter Range

Figure 2.2.1.1-9: Device Details - Input Signals - Primary Stream: TS ID



Menu Level ATSC Details / Input Signals / Primary Stream TS ID Value
Description This is the detected TS ID value of the primary input stream.
Parameter Range 0 to 65535

2.2.1.2. Device Details - ATSC Modulator - Adaptive Status

Figure 2.2.1.2-1: Device Details - Adaptive Precorrection Status Catagory



Menu Level ATSC Details / Adaptive Status Top Level
Description This screen provides access to read only adaptive system parameters.
Parameter Range N/A

Figure 2.2.1.2-2: Device Details - Adaptive Signals - Lower Shoulder Level



Menu Level ATSC Details / Adaptive Signals / Lower Shoulder Value
Description When valid, this is the measured level in dB for the lower shoulder.
Parameter Range 'Invalid' or measured level in dB

Figure 2.2.1.2-3: Device Details - Adaptive Signals - Upper Shoulder Level



Menu Level	ATSC Details / Adaptive Signals / Upper Shoulder Value
Description	When valid, this is the measured level in dB for the upper shoulder.
Parameter Range	'Invalid' or measured level in dB

Figure 2.2.1.2-4: Device Details - Adaptive Signals - Amplitude Ripple



Menu Level	ATSC Details / Adaptive Signals / Amplitude Ripple Value
Description	When valid, this is the measured level in dB for the amplitude ripple.
Parameter Range	'Invalid' or measured level in dB.

Figure 2.2.1.2-5: Device Details - Adaptive Signals - Group Delay



Menu Level	ATSC Details / Adaptive Signals / Group Delay Value
Description	When valid, this is the measured group delay in nano seconds.
Parameter Range	'Invalid' or measured level in nS.

Figure 2.2.1.2-6: Device Details - Adaptive Signals - Nonlinear Sample



Menu Level	ATSC Details / Adaptive Signals / Nonlinear Sample Level
Description	When valid, this is the RF sample level used for nonlinear precorrection.
Parameter Range	'Invalid' or measured level in dB. Required level for precorrection is 0 dBm +/- 10 dB.

Figure 2.2.1.2-7: Device Details - Adaptive Signals - Nonlinear Correction Operational Mode



Menu Level	ATSC Details / Adaptive Signals / Nonlinear Adjust Mode
Description	Nonlinear Precorrection can be enabled or disabled through read / write parameters. This value tells us the operational status of nonlinear precorrection.
Parameter Range	"Auto Applying", "Not Running", "Monitoring", "Initializing" or "Initializing xx" where xx is the percentage of completion.

Figure 2.2.1.2-8: Device Details - Adaptive Signals - Nonlinear Correction Cycle Count



Menu Level	ATSC Details / Adaptive Signals / Nonlinear Cycle Count
Description	This value is a count of the number of times nonlinear precorrection has been updated since corrector reset or modulator reboot.
Parameter Range	

Figure 2.2.1.2-9: Device Details - Adaptive Signals - Linear Sample



Menu Level	ATSC Details / Adaptive Signals / Linear Sample Level
Description	When valid, this is the RF sample level used for linear precorrection. 'Invalid' or measured level in dB. Required level for precorrection is 0 dBm +/- 10 dB.
Parameter Range	

Figure 2.2.1.2-10: Device Details - Adaptive Signals - Linear Correction Operational Mode



Menu Level	ATSC Details / Adaptive Signals / Linear Adjust Mode
Description	Linear Precorrection can be enabled or disabled through read / write parameters. This value tells us the operational status of linear precorrection.
Parameter Range	"Auto Applying", "Not Running", "Monitoring", "Initializing" or "Initializing xx" where xx is the percentage of completion.

Figure 2.2.1.2-11: Device Details - Adaptive Signals - Linear Correction Cycle Count



Menu Level	ATSC Details / Adaptive Signals / Linear Cycle Count
Description	This value is a count of the number of times linear precorrection has been updated since corrector reset or modulator reboot.
Parameter Range	

2.2.1.3. Device Details - ATSC Modulator - GPS Status

Figure 2.2.1.3-1: Device Details - GPS Catagory (Only present if GPS Option is present)



Menu Level	ATSC Details / GPS Status Top Level
Description	This screen provides access to read only GPS system parameters if this optional component is present.
Parameter Range	N/A

Figure 2.2.1.3-2: Device Details - GPS - Altitude



Menu Level	ATSC Details / GPS Status / Altitude
Description	This is the current altitude in meters as measured by the GPS receiver.
Parameter Range	N/A

Figure 2.2.1.3-3: Device Details - GPS - Latitude



Menu Level	ATSC Details / GPS Status / Latitude
Description	This is the current latitude in DD MM SS N/S format.
Parameter Range	N/A

Figure 2.2.1.3-4: Device Details - GPS - Longitude



Menu Level	ATSC Details / GPS Status / Longitude
Description	This is the current longitude in DD MM SS E/W format.
Parameter Range	N/A

Figure 2.2.1.3-5: Device Details - GPS - 1 PPS Reference Signal Status



Menu Level	ATSC Details / GPS Status / 1 PPS Status
Description	This screen tells us if the 1PPS output is locked.
Parameter Range	"Locked" or "Unlocked"

Figure 2.2.1.3-6: Device Details - GPS - Visible Satellites



Menu Level	ATSC Details / GPS Status / Visible Satellites
Description	This screen indicated the number of satellites that are visible.
Parameter Range	Minimum of 0

Figure 2.2.1.3-7: Device Details - GPS - Tracked Satellites



Menu Level	ATSC Details / GPS Status / Tracked Satellites
Description	This screen indicated the number of satellites used to generate references, date and time.
Parameter Range	Minimum of 0

Figure 2.2.1.3-8: Device Details - GPS - Date and Time



Menu Level	ATSC Details / GPS Status / Date and Time
Description	This is the date and time of the GPS based on satellites and time zone.
Parameter Range	N/A

Figure 2.2.1.3-9: Device Details - GPS - Firmware Version



Menu Level	ATSC Details / GPS Status / Firmware Version
Description	This screen indicates the firmware version of the GPS system.
Parameter Range	N/A

2.2.1.4. Device Details - ATSC Modulator - Device Hardware Status

Figure 2.2.1.4-1: Device Details - Device Hardware Catagory



Menu Level	ATSC Details / Device Hardware Top Level
Description	This screen provides access to read only hardware parameters.
Parameter Range	N/A

Figure 2.2.1.4-2: Device Details - Hardware - Serial Number



Menu Level	ATSC Details / Device Hardware / Serial Number
Description	This is the serial number of the modulator assembly.
Parameter Range	N/A

Figure 2.2.1.4-3: Device Details - Hardware - Master Version



Menu Level	ATSC Details / Device Hardware / Master Version
Description	This is character string identifies the master version of firmware installed. This value is longer than 16 characters so the value is scrolled across the display.
Parameter Range	N/A

Figure 2.2.1.4-4: Device Details - Hardware - Kernal Version



Menu Level	ATSC Details / Device Hardware / Kernal Version
Description	This is character string identifies the embedded kernal version.
Parameter Range	N/A

Figure 2.2.1.4-5: Device Details - Hardware - Hardware Version



Menu Level	ATSC Details / Device Hardware / Hardware Version
Description	This is character string identifies the board's hardware version.
Parameter Range	N/A

Figure 2.2.1.4-6: Device Details - Hardware - Calibration Date



Menu Level	ATSC Details / Device Hardware / Calibration Date
Description	This is character string identifies the modulators calibration date.
Parameter Range	N/A

2.2.1.5. Device Details - ATSC Modulator - Event Log List

Figure 2.2.1.5-1: Device Details - Event Log List Catagory



Menu Level	ATSC Details / Event Log Top Level
Description	This screen provides access to read or clear the event log.
Parameter Range	N/A

Figure 2.2.1.5-2: Device Details - Event Log View



Menu Level	ATSC Details / Event Log View
Description	This screen provides access to read specif events. The date and time of the event are indicated then the specific event details. Since this information is longer than 16 characters, the text is scrolled across the screen.
Parameter Range	N/A

Figure 2.2.1.5-3: Device Details - Event Log Clear



Menu Level	ATSC Details / Event Log Clear
Description	This screen provides access to clear all events of the log.
Parameter Range	"Yes" or "No"

2.3. Device Setup Screens

These are read / write parameters.

Figure 2.3-1: Setup



Menu Level	Main Setup Menu
Description	This screen provides access to all transmitter read / write parameters.
Parameter Range	N/A

2.3.1. Setup Screens - Chassis

2.3.2. Setup Screens - ATSC Modulator

Figure 2.3.2-1: Device Setup - ATSC Modulator Select



Menu Level	ATSC Modulator Setup Top Level
Description	This screen provides access to the modulator's read / write parameters.
Parameter Range	N/A

2.3.2.1. Setup Screens - ATSC Modulator - Input Signals Catagory

Figure 2.3.2.1-1: Device Setup - Input Signals Catagory



Menu Level	ATSC Setup / Input Signals Top Level
Description	This screen provides access to read / write input signal parameters.
Parameter Range	N/A

Figure 2.3.2.1-2: Device Setup - Input Signals - 10MHz Reference Source



Menu Level	ATSC Setup / Inputs Signals / 10MHz Reference Source Used to report or set the primary 10MHz reference source. When "GPS" or "External" are selected, "Internal" is automatically used if the
Description	selected source is not operational.
Parameter Range	"Auto Select", "GPS", "External", or "Internal"

Figure 2.3.2.1-3: Device Setup - Input Signals - 10MHz Reference Impedance



Menu Level	ATSC Setup / Inputs Signals / 10MHz Reference Impedance
Description	This is the 10MHz reference source impedance.
Parameter Range	"50 Ohms", or "High Impedance"

Figure 2.3.2.1-4: Device Setup - Input Signals - 10MHz Reference Holdover



Menu Level	ATSC Setup / Inputs Signals / 10MHz Reference Holdover This value specifies the minimum duration of 10MHz reference loss
Description	required for raising the 10MHz reference alarm.
Parameter Range	0 to 3600 seconds

Figure 2.3.2.1-5: Device Setup - Input Signals - 10MHz Reference Holdover Forever



Menu Level	ATSC Setup / Inputs Signals / 10MHz Reference Holdover Forever When set to "Yes" the 10MHz reference loss alarm is disabled and the
Description	back-up reference is used whenever an external reference is lost.
Parameter Range	"Yes" or "No"

Figure 2.3.2.1-6: Device Setup - Input Signals - 1 PPS Impedance



Menu Level	ATSC Setup / Inputs Signals / 1 PPS Impedance
Description	This is the 1 PPS reference source impedance.
Parameter Range	"50 Ohms", or "High Impedance"

Figure 2.3.2.1-7: Device Setup - Input Signals - 1 PPS Holdover



Menu Level	ATSC Setup / Inputs Signals / 1 PPS Holdover
Description	This value specifies the minimum duration of 1 PPS reference loss required for raising the 1 PPS reference alarm.
Parameter Range	0 to 3600 seconds

Figure 2.3.2.1-8: Device Setup - Input Signals - 1 PPS Holdover Forever



Menu Level	ATSC Setup / Inputs Signals / 1 PPS Holdover Forever
Description	When set to "Yes" the 1 PPS reference loss alarm is disabled and the internal synthesized 1 PPS reference is used whenever an external reference is lost.
Parameter Range	"Yes" or "No"

Figure 2.3.2.1-9: Device Setup - Input Signals - 1 PPS Trigger Level



Menu Level	ATSC Setup / Inputs Signals / 1 PPS Trigger Level
Description	This value is the trigger level for the 1 PPS external input in volts.
Parameter Range	0 to 3.5 volts

Figure 2.3.2.1-10: Device Setup - Input Signals - 1 PPS Trigger Edge



Menu Level	ATSC Setup / Inputs Signals / 1 PPS Trigger Edge
Description	This is the trigger edge of the 1 PPS external input.
Parameter Range	"Rising" or "Falling"

Figure 2.3.2.1-11: Device Setup - Input Signals - Input Stream 1 Format



Menu Level	ATSC Setup / Inputs Signals / Input Stream 1 Format
Description	This screen specifies the stream format of physical input 1.
Parameter Range	"ASI" or "SMPTE310M"

Figure 2.3.2.1-12: Device Setup - Input Signals - Input Stream 2 Format



Menu Level	ATSC Setup / Inputs Signals / Input Stream 2 Format
Description	This screen specifies the stream format of physical input 2.
Parameter Range	"ASI" or "SMPTE310M"

Figure 2.3.2.1-13: Device Setup - Input Signals - Primary Stream



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Menu Level	ATSC Setup / Inputs Signals / Primary Stream
Description	Used to select the primary transport stream.
Parameter Range	"Input 1" or "Input 2"

Figure 2.3.2.1-14: Device Setup - Input Signals - Secondary Stream



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Menu Level	ATSC Setup / Inputs Signals / Secondary Stream
Description	Used to select the secondary transport stream.
Parameter Range	"Input 1" or "Input 2"

Figure 2.3.2.1-15: Device Setup - Input Signals - Stream Switching



Menu Level	ATSC Setup / Inputs Signals / Stream Switching
Description	This screen is used to configure the stream switching system. "Set To Primary" is used to fix the selected stream to the Primary Input source. "Set To Secondary" is used to fix the selected stream to the Secondary Input source. "Prefer Primary" is used to select the primary stream if it is present or switch to the secondary stream if the primary stream is not present. "Use Either Input" is used to switch to the other stream if the selected stream is not present but not to switch back if the other stream returns.
Parameter Range	"Set To Primary", "Set To Secondary", "Prefer Primary", or "Use Either Input"

Figure 2.3.2.1-16: Device Setup - Input Signals - Primary To Secondary Switching Delay



Menu Level	ATSC Setup / Inputs Signals / Primary To Secondary Switching Delay
Description	This value sets the switching delay from primary source to secondary source after an error is detected in the primary transport stream.
Parameter Range	0 to 300 seconds

Figure 2.3.2.1-17: Device Setup - Input Signals - Secondary To Primary Switching Delay



Menu Level	ATSC Setup / Inputs Signals / Secondary To Primary Switching Delay
Description	This value sets the switching delay from secondary source to primary source after an error is detected in the secondary transport stream.
Parameter Range	0 to 300 seconds

Figure 2.3.2.1-18: Device Setup - Input Signals - Time Sync Source



Menu Level	ATSC Setup / Inputs Signals / Time Sync Source
Description	This value sets the preferred source for time and date information.
Parameter Range	"GPS", "Manual", "NTP"

2.3.2.2. Setup Screens - ATSC Modulator - Primary Stream Catagory

Figure 2.3.2.2-1: Device Setup - Primary Stream Catagory



Menu Level	ATSC Setup / Primary Stream Top Level
Description	This screen provides access to read / write primary stream parameters.
Parameter Range	N/A

Figure 2.3.2.2-2: Device Setup - Primary Stream - PAT Loss Alarm Delay



Menu Level	ATSC Setup / Primary Stream / PAT Loss Alarm Delay
Description	This value sets the delay time before reporting of a PAT Loss alarm. An alarm is activated if the PAT table is not detected in the primary transport stream at least once per specified time interval.
Parameter Range	0 to 10.0 seconds

Figure 2.3.2.2-3: Device Setup - Primary Stream - PAT Loss Alarm Switch



Menu Level	ATSC Setup / Primary Stream / PAT Loss Alarm Switch Control
Description	This value determines if loss of PAT table input shall activate the automatic switch over to the secondary transport stream source based on the current stream switching configuration.
Parameter Range	"On" or "Off"

Figure 2.3.2.2-4: Device Setup - Primary Stream - Transport Stream Stuffing Rate Alarm



Menu Level	ATSC Setup / Primary Stream / Transport Stream Stuffing Rate Alarm
Description	This value determines the level where too many MPEG-2 null packets generate an alarm.
Parameter Range	0 to 100%

Figure 2.3.2.2-5: Device Setup - Primary Stream - TS Stuffing Rate Alarm Switch



Menu Level	ATSC Setup / Primary Stream / TS Stuffing Rate Alarm Switch Control
Description	This value determines if a Transport Stream Stuffing Rate Alarm shall activate the automatic switch over to the secondary transport stream source based on the current stream switching configuration.
Parameter Range	"On" or "Off"

Figure 2.3.2.2-6: Device Setup - Primary Stream - Transport Stream ID Valid Value



Menu Level	ATSC Setup / Primary Stream / Transport Stream ID Valid Value
Description	This value sets the expected transport stream ID value.
Parameter Range	0 to 100%

Figure 2.3.2.2-7: Device Setup - Primary Stream - Transport Stream ID Value Alarm Switch



Menu Level	ATSC Setup / Primary Stream / TS ID Alarm Switch Control
Description	This value determines if a Transport Stream ID Value mismatch shall activate the automatic switch over to the secondary transport stream source based on the current stream switching configuration.
Parameter Range	"On" or "Off"

2.3.2.3. Setup Screens - ATSC Modulator - Secondary Stream Catagory

Figure 2.3.2.3-1: Device Setup - Secondary Stream Catagory



Menu Level	ATSC Setup / Secondary Stream Top Level
Description	This screen provides access to read / write secondary stream parameters.
Parameter Range	N/A

Figure 2.3.2.3-2: Device Setup - Secondary Signals - PAT Loss Alarm Delay



Menu Level	ATSC Setup / Secondary Stream / PAT Loss Alarm Delay
Description	This value sets the delay time before reporting of a PAT Loss alarm. An alarm is activated if the PAT table is not detected in the primary transport stream at least once per specified time interval.
Parameter Range	0 to 10.0 seconds

Figure 2.3.2.3-3: Device Setup - Secondary Stream - PAT Loss Alarm Switch



Menu Level	ATSC Setup / Secondary Stream / PAT Loss Alarm Switch Control
Description	This value determines if loss of PAT table input shall activate the automatic switch over to the primary transport stream source based on the current stream switching configuration.
Parameter Range	"On" or "Off"

Figure 2.3.2.3-4: Device Setup - Secondary Stream - Transport Stream Stuffing Rate Alarm



Menu Level	ATSC Setup / Secondary Stream / Transport Stream Stuffing Rate Alarm
Description	This value determines the level where too many MPEG-2 null packets generate an alarm.
Parameter Range	0 to 100%

Figure 2.3.2.3-5: Device Setup - Secondary Stream - TS Stuffing Rate Alarm Switch



Menu Level	ATSC Setup / Secondary Stream / TS Stuffing Rate Alarm Switch Control
Description	This value determines if a Transport Stream Stuffing Rate Alarm shall activate the automatic switch over to the primary transport stream source based on the current stream switching configuration.
Parameter Range	"On" or "Off"

Figure 2.3.2.3-6: Device Setup - Secondary Stream - Transport Stream ID Valid Value



Menu Level	ATSC Setup / Secondary Stream / Transport Stream ID Valid Value
Description	This value sets the expected transport stream ID value.
Parameter Range	0 to 100%

Figure 2.3.2.3-7: Device Setup - Secondary Stream - Transport Stream ID Value Alarm Switch



Menu Level	ATSC Setup / Secondary Stream / TS ID Alarm Switch Control
Description	This value determines if a Transport Stream ID Value mismatch shall activate the automatic switch over to the primary transport stream source based on the current stream switching configuration.
Parameter Range	"On" or "Off"

2.3.2.4. Setup Screens - ATSC Modulator - Output Signals Catagory

Figure 2.3.2.4-1: Device Setup - Output Signals Catagory



Menu Level	ATSC Setup / Output Signals Top Level
Description	This screen provides access to read / write output signal parameters.
Parameter Range	N/A

Figure 2.3.2.4-2: Device Setup - Output Signals - Modulator Mute



Menu Level	ATSC Setup / Output Signals / Modulator Mute
Description	This value determines if the modulator's output if muted or allowed to operate. When set to "On", the output is muted. When set to "Off" the output is enabled but it may still be muted due to other conditions.
Parameter Range	"On" or "Off"

Figure 2.3.2.4-3: Device Setup - Output Signals - Modulator Output



Menu Level	ATSC Setup / Output Signals / Modulator Output Mode
Description	This value determines the RF output level. When set to "Normal", the RF output level is normal but when set to "Standby" the output level is reduced by -10dB relative to normal. See also Figure 2.3.2.4-3.
Parameter Range	"Normal" or "Standby"

Figure 2.3.2.4-4: Device Setup - Output Signals - Null Packet Usage



Menu Level	ATSC Setup / Output Signals / Null Packet Usage
Description	Keep null packet "On" provides the most transparent transport stream processing but "Off" provides provides the highest level of flexibility with regards to gross input data rate (payload + stuffing). Note: Payload + stuffing may exceed the nominal data rate but payload data rate must not exceed the nominal data rate.
Parameter Range	"On" or "Off"

Figure 2.3.2.4-5: Device Setup - Output Signals - Output Level Set



Menu Level	ATSC Setup / Output Signals / Output Level Set This value is used to set the current output level in dB relative to the nominal level. Note: When modulator output mode is set to standby, the output level is set to -10dB. See also Figure 2.3.2.4-3.
Description	
Parameter Range	-10.0 to 0.0 dB

Figure 2.3.2.4-6: Device Setup - Output Signals - Output Frequency Set



Menu Level	ATSC Setup / Output Signals / Output Frequency Set This value is used to set the output frequency in Hz. Each position of frequency value may be individually set provided the value is adjusted within the acceptable range.
Description	
Parameter Range	30,000,000 to 1,000,000,000 Hz

Figure 2.3.2.4-7: Device Setup - Output Signals - Output Frequency Offset



Menu Level	ATSC Setup / Output Signals / Output Frequency Offset This value is used to apply an output frequency offset. Each position is individually set provided the value is adjusted within the acceptable range.
Description	
Parameter Range	-8,388,608 to 8,388,607 Hz

Figure 2.3.2.4-8: Device Setup - Output Signals - Output Polarity



Menu Level	ATSC Setup / Output Signals / Output Polarity This value is used to adjust the polarity of the output signal spectrum. When set to "Normal", the lowest carrier number is placed on the lowest spectrum frequency. When set to "Inverted", the highest carrier number is placed on the lowest spectrum frequency.
Description	
Parameter Range	"Normal" or "Inverted"

Figure 2.3.2.4-9: Device Setup - Output Signals - Peak Clipping Level



Menu Level	ATSC Setup / Output Signals / Peak Clipping Level This value is used to adjust the peak clipping level relative to the average RMS at baseband.
Description	
Parameter Range	12.0 to 2.0 dB in 0.5 dB intervals.

Figure 2.3.2.4-10: Device Setup - Output Signals - Peak Clipping Strength



Menu Level	ATSC Setup / Output Signals / Peak Clipping Strength This value is used to adjust strength of applied peak clipping. '0' equals hard clipping while '100' equals the maximum softness (minimum sideband noise).
Description	
Parameter Range	0 to 100 %

Figure 2.3.2.4-11: Device Setup - Output Signals - Stream Monitoring Location



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Menu Level	ATSC Setup / Output Signals / Stream Monitoring This value is used to determine the transport stream monitoring location for the ASI Monitor Output port.
Description	
Parameter Range	"Input 1", "Input 2", or "Output Stream"

Figure 2.3.2.4-12: Device Setup - Output Signals - Test Signals



Menu Level	ATSC Setup / Output Signals / Test Signals This value is used to determine the status of the test signal system. "Off" is the normal state where no test signals are applied. "Single Carrier" enables a single carrier test signal. "PRBS ON" is used to enable a forced transmission of stuffing data (null packets) only. "PRBS Auto" is used to enable a transmission of stuffing data (null packets) only when the input stream is not available. "Test Signal" is used to enable a test signal with a 3dB peak-to-average peak ratio.
Description	
Parameter Range	"Off", "Single Carrier", "PRBS ON", "PRBS Auto", or "Test Signal"

2.3.2.5. Setup Screens - ATSC Modulator - Nonlinear Precorrector Adjustments

Figure 2.3.2.5-1: Device Setup - Nonlinear Precorrector Adjustments Catagory



Menu Level	ATSC Setup / Nonlinear Precorrector Adjustment Top Level This screen provides access to read / write parameters of the Nonlinear Precorrector system.
Description	
Parameter Range	N/A

Figure 2.3.2.5-2: Device Setup - Nonlinear Adjust - Mode



Menu Level	ATSC Setup / Nonlinear Adjust / Mode This value sets the mode of the nonlinear precorrector system. "Only Monitor" is selected when nonlinear correction is disabled but it still allows shoulder performance to be monitored. "Static Correction" is selected to enable manual nonlinear correction. "Adaptive On" is used to enable adaptive precorrection.
Description	
Parameter Range	"Only Monitor", "Static Correction", or "Adaptive On"

Figure 2.3.2.5-3: Device Setup - Nonlinear Adjust - Operational Mode



Menu Level	ATSC Setup / Nonlinear Adjust / Operational Mode This value sets the operational mode of the nonlinear precorrector system. "Idle / Static" is selected to apply current correction characteristics but future changes are not automatically made. "Single" is selected to have the system calculate correction characteristics one time then system returns to "Idle / Static". "Continuous" applies the current correction characteristics and automatically monitors the system and applies new correction values when better performance can be obtained. "Run To Target" applies correction and applies new correction values until the upper and lower spectrum shoulders match target levels. "Automatic Run" is selected when continuous precorrection is desired until the upper and lower shoulder values are corrected. "Automatic Run" then holds correction static with the option to have new correction values automatically calculated and applied when output performance subsequently drops below the set threshold.
Description	
Parameter Range	"Idle / Static", "Single", "Continuous", "Run To Target", "Automatic Run"

Figure 2.3.2.5-4: Device Setup - Nonlinear Adjust - Reset To Neutral Command



Menu Level	ATSC Setup / Nonlinear Adjust / Reset To Neutral Command
Description	This screen provides access to reset the nonlinear correction to neutral.
Parameter Range	"On" or "Off"

2.3.2.6. Setup Screens - ATSC Modulator - Linear Precorrector Adjustments

Figure 2.3.2.6-1: Device Setup - Linear Precorrector Adjustments Catagory



Menu Level	ATSC Setup / Linear Precorrector Adjustment Top Level
Description	This screen provides access to read / write parameters of the Linear Precorrector system.
Parameter Range	N/A

Figure 2.3.2.6-2: Device Setup - Linear Adjust - Mode



Menu Level	ATSC Setup / Linear Adjust / Mode
Description	This value sets the mode of the linear precorrector system. "Only Monitor" is selected when linear correction is disabled but it still allows group delay and amplitude ripple to be monitored. "Static Correction" is selected to enable manual linear correction. "Adaptive On" is used to enable adaptive precorrection.
Parameter Range	"Only Monitor", "Static Correction", or "Adaptive On"

Figure 2.3.2.6-3: Device Setup - Linear Adjust - Operational Mode



Menu Level	ATSC Setup / Linear Adjust / Operational Mode
Description	This value sets the operational mode of the linear precorrector system. "Idle / Static" is selected to apply current correction characteristics but future changes are not automatically made. "Single" is selected to have the system calculate correction characteristics one time then system returns to "Idle / Static". "Continuous" applies the current correction characteristics and automatically monitors the system and applies new correction values when better performance can be obtained. "Run To Target" applies correction and applies new correction values until the upper and lower spectrum shoulders match target levels. "Automatic Run" is selected when continuous precorrection is desired until the upper and lower shoulder values are corrected. "Automatic Run" then holds correction static with the option to have new correction values automatically calculated and applied when output performance subsequently drops below the set threshold.
Parameter Range	"Idle / Static", "Single", "Continuous", "Run To Target", "Automatic Run"

Figure 2.3.2.6-4: Device Setup - Linear Adjust - Reset To Neutral Command



Menu Level	ATSC Setup / Linear Adjust / Reset To Neutral Command
Description	This screen provides access to reset the linear correction to neutral.
Parameter Range	"On" or "Off"

2.3.2.7. Setup Screens - ATSC Modulator - Adaptive Precorrector Adjustments

Figure 2.3.2.7-1: Device Setup - Adaptive Precorrector Adjustments Catagory



Menu Level	ATSC Setup / Adaptive Precorrector Adjustment Top Level This screen provides access to read / write parameters of the Adaptive Precorrector system.
Description	
Parameter Range	N/A

Figure 2.3.2.7-2: Device Setup - Adaptive Precorrector - Lower Shoulder Target Value



Menu Level	ATSC Setup / Adaptive Correct / Lower Shoulder Target Value This value can be is used by the adaptive precorrector systems to start and stop linear and nonlinear precorrector operations. This value specifically relates to the lower shoulder of the feedback signal.
Description	
Parameter Range	-60 to 0 dB

Figure 2.3.2.7-3: Device Setup - Adaptive Precorrector - Upper Shoulder Target Value



Menu Level	ATSC Setup / Adaptive Correct / Upper Shoulder Target Value This value can be is used by the adaptive precorrector systems to start and stop linear and nonlinear precorrector operations. This value specifically relates to the upper shoulder of the feedback signal.
Description	
Parameter Range	-60 to 0 dB

Figure 2.3.2.7-4: Device Setup - Adaptive Precorrector - Amplitude Ripple Target Value



Menu Level	ATSC Setup / Adaptive Correct / Amplitude Ripple Target Value This value can be is used by the adaptive precorrector systems to start and stop linear and nonlinear precorrector operations.
Description	
Parameter Range	0.0 to 5.0 dB

Figure 2.3.2.7-5: Device Setup - Adaptive Precorrector - Group Delay Target Value



Menu Level	ATSC Setup / Adaptive Correct / Group Delay Target Value This value can be is used by the adaptive precorrector systems to start and stop linear and nonlinear precorrector operations.
Description	
Parameter Range	0 to 1000 nS

Figure 2.3.2.7-6: Device Setup - Adaptive Precorrector - Lower Shoulder Hysteresis Value



Menu Level	ATSC Setup / Adaptive Correct / Lower Shoulder Hysteresis Value This value is used with the target value and the usage setting by the adaptive precorrector systems to start and stop linear and nonlinear precorrector operations.
Description	
Parameter Range	0 to 50 dB

Figure 2.3.2.7-7: Device Setup - Adaptive Precorrector - Upper Shoulder Hysteresis Value



Menu Level	ATSC Setup / Adaptive Correct / Upper Shoulder Hysteresis Value This value is used with the target value and the usage setting by the adaptive precorrector systems to start and stop linear and nonlinear precorrector operations.
Description	
Parameter Range	0 to 50 dB

Figure 2.3.2.7-8: Device Setup - Adaptive Precorrector - Amplitude Ripple Hysteresis Value



Menu Level	ATSC Setup / Adaptive Correct / Amplitude Ripple Hysteresis Value This value is used with the target value and the usage setting by the adaptive precorrector systems to start and stop linear and nonlinear precorrector operations.
Description	
Parameter Range	0.00 to 5.00 dB

Figure 2.3.2.7-9: Device Setup - Adaptive Precorrector - Group Delay Hysteresis Value



Menu Level	ATSC Setup / Adaptive Correct / Group Delay Hysteresis Value This value is used with the target value and the usage setting by the adaptive precorrector systems to start and stop linear and nonlinear precorrector operations.
Description	
Parameter Range	0 to 1000 nS

Figure 2.3.2.7-10: Device Setup - Adaptive Precorrector - Lower Shoulder Usage



Menu Level	ATSC Setup / Adaptive Correct / Lower Shoulder Usage When set to "On", the target value and hysteresis value are used by the adaptive precorrector systems to start and stop linear and nonlinear precorrector operations.
Description	
Parameter Range	"On", or "Off"

Figure 2.3.2.7-11: Device Setup - Adaptive Precorrector - Upper Shoulder Usage



Menu Level	ATSC Setup / Adaptive Correct / Upper Shoulder Usage When set to "On", the target value and hysteresis value are used by the adaptive precorrector systems to start and stop linear and nonlinear precorrector operations.
Description	
Parameter Range	"On", or "Off"

Figure 2.3.2.7-12: Device Setup - Adaptive Precorrector - Amplitude Ripple Usage



Menu Level	ATSC Setup / Adaptive Correct / Amplitude Ripple Usage When set to "On", the target value and hysteresis value are used by the adaptive precorrector systems to start and stop linear and nonlinear precorrector operations.
Description	
Parameter Range	"On", or "Off"

Figure 2.3.2.7-13: Device Setup - Adaptive Precorrector - Group Delay Usage



Menu Level	ATSC Setup / Adaptive Correct / Group Delay Usage When set to "On", the target value and hysteresis value are used by the adaptive precorrector systems to start and stop linear and nonlinear precorrector operations.
Description	
Parameter Range	"On", or "Off"

2.3.2.8. Setup Screens - ATSC Modulator - GPS System Catagory

Figure 2.3.2.8-1: Device Setup - GPS System Catagory



Menu Level	ATSC Setup / GPS System Top Level This screen provides access to read / write parameters of the optional GPS system. Note: Not all systems have the GPS system enabled.
Description	
Parameter Range	N/A

Figure 2.3.2.8-2: Device Setup - GPS - Antenna Bias



Menu Level	ATSC Setup / GPS / Antenna Bias When set to "On", the 5V antenna bias supply is enabled. When set "Off", the antenna is not powered.
Description	
Parameter Range	"On", or "Off"

Figure 2.3.2.8-3: Device Setup - GPS - Antenna Cable Delay



Menu Level	ATSC Setup / GPS / Antenna Cable Delay This value is used to specify the cable delay associated with the type and length of cable used to connect the antenna to the modulator. This value is very important in SNF systems.
Description	
Parameter Range	0 to 1375 nS

Figure 2.3.2.8-4: Device Setup - GPS - Internal Reference Holdover Time



Menu Level	ATSC Setup / GPS / Internal Reference Holdover Time This value is the holdover time for which it is acceptable to continue operating on the internal TCXO reference of the GPS whenever GPS lock is lost.
Description	
Parameter Range	0 to 3600 seconds

Figure 2.3.2.8-5: Device Setup - GPS - Internal Reference Holdover Forever



Menu Level	ATSC Setup / GPS / Internal Reference Holdover Forever When set to "Yes", the modulator may continue indefinitely to operate on the internal TCXO reference of the GPS whenever GPS lock is lost. When set to "No", the modulator will raise a GPS Unlocked alarm after the Internal Reference Holdover Time has expired with possible output muting based on alarm configurations.
Description	
Parameter Range	"On", or "Off"

2.3.2.9. Setup Screens - ATSC Modulator - General Device IO Catagory

Figure 2.3.2.9-1: Device Setup - General Device IO Catagory



Menu Level	ATSC Setup / General Device IO Top Level This screen provides access to general read / write parameters system used for general communication with the modulator.
Description	
Parameter Range	N/A

Figure 2.3.2.9-2: Device Setup - General IO - Serial Baud Rate



Menu Level	ATSC Setup / General IO / Serial Baud Rate This screen is used to view and change the serial baud rate. The modulator must be communicating with the transmitter for changes to be made and the transmitter automatically tries different baud rates if it is not communicating with a modulator. The default of 115200 works well so slower baud rates are not recommended.
Description	
Parameter Range	115200, 57600, 38400, 19200, 9600, 4800, or 2400

Figure 2.3.2.9-3: Device Setup - General IO - Ethernet DHCP



Menu Level	ATSC Setup / General IO / Ethernet DHCP When set to "On", the modulator will attempt to get its TCP/IP address from a DHCP server. DHCP set to "Off" is recommended so that remote operators will not need to search and find the IP address of the device.
Description	
Parameter Range	"On", or "Off"

Figure 2.3.2.9-4: Device Setup - General IO - Ethernet IP Address



Menu Level	ATSC Setup / General IO / Ethernet IP Address This screen displays the actual control IP address of the modulator device. This is not the TsoIP address if Transport Stream over IP is implemented.
Description	
Parameter Range	IP values 0.0.0.0 thru 255.255.255.255

Figure 2.3.2.9-5: Device Setup - General IO - Ethernet IP Subnet Mask



Menu Level	ATSC Setup / General IO / Ethernet IP subnet Mask This screen displays the actual control IP subnet mask of the modulator device. This is not the TsoIP mask if Transport Stream over IP is implemented.
Description	
Parameter Range	IP values 0.0.0.0 thru 255.255.255.255

Figure 2.3.2.9-6: Device Setup - General IO - Ethernet IP Gateway



Menu Level	ATSC Setup / General IO / Ethernet IP Gateway
Description	This screen displays the actual IP gateway of the modulator device.
Parameter Range	IP values 0.0.0.0 thru 255.255.255.255