

FlexCoder Quick Guide

Description

The FlexCoder combines IP grooming and Edge QAM technology into one integrated package. By providing a wide-range of functionality in a compact solution, the FlexCoder brings remarkable cost savings. The unit can convert ASI to IP video streams, as well as Mux and Demux ASI and IP streams.

The FlexCoder is an ideal solution for video labs and campus environments when you need to provide a custom channel line-up for in-house distribution.



NOTE: The RFI Input Option, referenced in some steps of this guide, is no longer available for purchase.



Step 1: Login

- Assign 172.16.70.2 as the static IP address for your computer.
- Enter 172.16.70.1 into your Browser to access the FlexCoder.
- Logon with Username: “Admin” and the password: “pass”.

Login

Username:

Password:

Step 2: Determine Mode of Operation

Mode	Input	Functions and Notes	Output TS Select
1 PASS-THRU	(RJ45) GigE Full Duplex ⁽¹⁾ ; 4xMPTS (16 prog./3 audio each max) (BNC) 4xASI	<ul style="list-style-type: none"> • May select up to four (4) input sources to present four (4) transport streams (TS) over QAM and/or IP. • Limited PSIP Manipulation, e.g. Re-PID Capability • May direct any one (1) of the TS to the ASI output (5th Output) 	^(2,3) 4xQAM (16 prog. each max) ^(2,3) 4xMPTS (16 prog. each max) 1xASI (214 Mbps)
2 DEMUX	(RJ45) GigE Full Duplex ⁽¹⁾ ; 4xMPTS (16 prog./3 audio each max) (BNC) 4xASI	<ul style="list-style-type: none"> • Defines 32xSPTS max • Full PSIP Manipulation and Program Filtering Capability 	32xSPTS; 40 Mbps max each
3 MUX	(RJ45) GigE Full Duplex ⁽¹⁾ • 32xSPTS (3 audio each max); or • 4xMPTS (16 prog./3 audio each max) (BNC) 4xASI	<ul style="list-style-type: none"> • A total of 32 TS inputs can be multiplexed over a total of four (4) TS in any combination on QAM and IP. • Full PSIP Manipulation and Program Filtering Capability • May direct any of the output TS to the ASI output (5th Output) 	^(2,3) 4xMPTS ^(2,3) 4xQAM 1xASI

⁽¹⁾ Sum of input data and output data must not exceed 1 Gbps.

⁽²⁾ MPTS and QAM output TS quantity cannot exceed four (4).

⁽³⁾ Once defined, a TS may be selected for presentation on either QAM or IP, or both.

STEP 3 - Changing Operation Mode

The DEMUX Mode is the default mode as shipped from the factory. If this is your desired mode then proceed to STEP 4. To change to a different mode do the following:

- 1 From the Status page - Click on the Admin tab

Status	Input	TS Map	TS Config	QAM Config	Output	Refresh	
Input		Output					
Interface	Input Status	Input Bitrate	TSID	Program	TSO Index	Interface	Status
Disabled	-	-	-	-	Unassigned	None	Offline
Disabled	-	-	-	-	Unassigned	None	Offline

- 2 Under the “System Mode Select” drop down menu highlight the desired mode.
- 3 Click the “Reboot Unit” button.

After the unit has rebooted, log back into the unit again as in STEP 1.

System Mode Select (reboot only): **2** FlexCoder Pass-thru Mode ▼

System Reboot: **3** Reboot Unit

IGMP Version Support: IGMPv2 ▼

System Watchdog: Enabled ▼

Remote Control IP Address: 172.16.70.1

Remote Control Subnet Mask: 255.255.255.0

Remote Control Default Gateway: 172.16.70.254

Data IP Address: 192.168.2.1

Data Subnet Mask: 255.255.255.0

Data Default Gateway: 192.168.2.254

Event Log Destination: 172.16.70.2

Log Destination Port #: 514

Time Server IP: 172.16.70.2

Syslog Errors: Enabled Disabled

NOTE: Do not press “SAVE” when changing modes. The “Reboot Unit” Button will apply the new Mode Setting.

CAUTION: Switching modes results in all IP settings to revert back to the factory defaults. This action should never be performed while accessing the unit remotely, as communication to the FlexCoder will be lost. The property will require a service call to configure the new mode settings and the IP addresses of the FlexCoder should this occur.

STEP 4 - Main > Input Configuration

For the Input Configuration screen, DEMUX and PASS-THRU Modes allow 4 configurable Transport Streams. MUX Mode allows up to 32 configurable Transport Streams (TS). Source selections for each TS are: IP(UDP), IP(RTP), RF(optional), ASI#1 to ASI#4 and Disabled.

- 1 IP selections require Address and Port entries
- 2 RF (RFI option) channel setting is set under the QAM Config tab.
- 3 ASI #1 to #4 are the rear panel input connectors

Once all entries have been made click the "Save" button

Input	Source	IP Address	IP Port	RF Channel
TS1	IP - UDP	239.10.10.10	50000	7 / 177 MHz
TS2	RF	192.168.2.101	50000	7 / 177 MHz
TS3	ASI #1	192.168.2.102	50000	7 / 177 MHz
TS4	Disabled	192.168.2.103	50000	7 / 177 MHz

STEP 5 - Main > TS Map Settings

A DEMUX & MUX MODES ONLY

The setting parameters are the same between DEMUX and MUX modes with the exception of the number of Input and Output TS'. The DEMUX has (4) Input TS' with up to (32) Output TS' whereas the MUX Mode is the complete opposite with (32) Input and (4) Output TS's.

- 1 Select the desired programs from the Input TS's under the green header (#1) for each output TS (TSO#) using the "Selection Control" and click on the "Add =>" button.
- 2 To remove programs from the Output, click on the check box and then click the "<= Remove" button.

Programs	Input PIDs	Bitrates	Selection Control	Input	Output	Output PIDs	Bitrates
TS1 - IP - UDP - 239.10.10.10:50000							
<input type="checkbox"/> PMT () 1	148	8.99	TSO15 Add ->		<input type="checkbox"/> TSO1 - Output(s) enabled		8.99
<input type="checkbox"/> V: MPEG-2	149	8.33			<input type="checkbox"/> PMT (WNET-HD) 1 : 13-1	148	8.99
<input type="checkbox"/> A: AC-3 : eng	152	0.39			<input type="checkbox"/> V: MPEG-2	149	8.33
<input type="checkbox"/> A: AC-3 : spa	153	0.13			<input type="checkbox"/> A: AC-3 : eng	152	0.39
<input type="checkbox"/> A: AC-3 : fre	154	0.13			<input type="checkbox"/> A: AC-3 : spa	153	0.13
<input type="checkbox"/> PMT () 2	164	4.82			<input type="checkbox"/> A: AC-3 : fre	154	0.13
<input type="checkbox"/> V: MPEG-2	165	4.36			<input type="checkbox"/> TSO2 - Output(s) enabled		4.82
					<input type="checkbox"/> PMT (KIDS) 2 : 13-2	164	4.82

B PASS-THRU MODE (Not Available, go to Step 6)

STEP 6 - Main > TS Configuration

A DEMUX & MUX MODES

The setting parameters are basically the same between DEMUX and MUX modes with the exception of the number of Output TS' and the "Re-PID" option (Disable/Enabled) on DEMUX mode.

General TS Configuration

There are (4) User TS Bitrate preset profiles. The available selections are 38.81, 19.39, 12.00, 8.00 Mbps or User Defined.

TS Output Configuration

If Re-PID'ing (only in DEMUX MODE) is desired, select "Enabled" on the corresponding TS0. Output PID and Programs number can then be changed. The Default is "Disabled" with these fields grayed out. On MUX Mode the PIDs can always be changed.

The screenshot shows the FlexCoder Demux Mode interface. At the top, it displays system information: ESN: 2016050137, Headend Name, Temperature: 107.3°F, Uptime: 1d 5h 14m 50s, and Location. Below this is a navigation menu with tabs for Main, Network, Time, Event Log, Logout, and Admin. The main content area is divided into several sections: Status, Input, TS Map, TS Config, QAM Config, Output, and Refresh. The 'TS Config' section is active and contains two main parts: 'General TS Configuration' and 'TS Output Configuration'. The 'General TS Configuration' section has four rows for 'User TS Bitrate' (1-4) with dropdown menus and input fields. The 'TS Output Configuration' section is a table with columns: Re-PID, TSID, Bitrate Select, Selected Bitrate, VCT, Modulation Mode, and Out Of Band. It lists several TS entries, including 'TS01 - IP / ASI' and 'TS1 - P1'. The 'TS1 - P1' entry has input fields for Input PID (148), Output PID (148), Program Number (1), Short Ch. Name (WNET-HD), Major Ch. Number (13), and Minor Ch. Number (1). There are also input fields for V: MPEG-2, A1: AC-3 : eng, A2: AC-3 : spa, and A3: AC-3 : fre. The estimated bitrate is shown as 9.26 Mb/S. Numbered callouts 1 through 5 are placed on the interface to highlight specific fields: 1 on the TSID field, 2 on the Bitrate Select dropdown, 3 on the VCT dropdown, 4 on the Modulation Mode dropdown, and 5 on the Out Of Band dropdown.

- 1 TS ID:** user must enter the identification number for the output TS. The range is 1 to 65535. The TS ID assigned must be unique.
- 2 Bit rate Select:** User selects from the 4 profiles set in the General TS Configuration section.
- 3 VCT:** MPEG Virtual Channel Table selections are off, TVCT (terrestrial) and CVCT (cable)
- 4 Modulation Mode:** user can select the modulation mode for the MPEG TS table. Options are: Reserved, Analog, QAM64, QAM256, 8-VSB, and 16-VSB
- 5 Out of Band:** an out-of-band (OOB) is a channel which is the combination of the forward and reverse OOB channels. When a cable virtual channel is flagged as being out-of-band, it is carried on the out-of-band channel. Possible options are Enable, and Disable. When Enabled, assigns the OOB bit in the TS packet and labels the TS as out-of-band.

STEP 6 - Main > TS Configuration

- 6 **Program Number:** user must enter a unique output program number for each program. PMT (Program Map Table) provides information on each program present in the transport stream such as program number, and the list of the elementary streams (audio, video or data).
- 7 **Short Name:** user may enter the short name of the channel. Up to 7 alphanumeric characters are allowed.
- 8 **Major Channel Number:** user may enter the major channel number for the output program. The range is 1 to 99 for Terrestrial and 1 to 999 for Cable (CVCT).
- 9 **Minor Channel Number:** The minor channel number for the output program is 1 to 99 for Terrestrial (TVCT) and 0 to 999 for Cable (CVCT).

NOTE: when zero (0) is entered as a minor channel, it sets the encoder to provide a one part virtual channel number as entered in the major channel field. For example, a major channel of “205” with a minor channel of “0” will be displayed as “205” on a TV. A major channel of “205” with a minor channel of “1” will be displayed on a TV as “205-1”.

Once all entries have been made click the “Save” button.

B PASS-THRU MODE

The PASS-THRU mode is a read-only screen when the RePID Inputs is set to “Disabled”. All information is based upon the input programs. When RePID is set to “Enabled”, the user is permitted to modify the TS Output Configuration and Output Mapping fields. Refer to the field descriptions under the DEMUX/MUX section above.

ESN: 2016050005
Temperature: 116.3°F
Uptime: 0d 0h 2m 14s

Headend Name:
Location:

Main
Network
Time
Event Log
Logout
Admin

Status
Input
QAM Config
TS Config
Output
Refresh

General TS Configuration

Re-PID Inputs	Disabled ▼
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TS Output Configuration

	TS ID	Modulation Mode	Out of Band	VCT Type
TS1	0	QAM256 ▼	Disabled ▼	CVCT ▼
TS2	0	QAM256 ▼	Disabled ▼	CVCT ▼
TS3	0	QAM256 ▼	Disabled ▼	CVCT ▼
TS4	0	QAM256 ▼	Disabled ▼	CVCT ▼

Input Programs

Output Mapping*

Input	Input PID	Output PID	Program Number	Short Name	Major Channel	Minor Channel
TS1 - QAM						
TS2 - QAM						
TS3 - QAM						
TS4 - QAM						

*No VCT information will be present in the stream if the original stream does not contain a VCT

STEP 7 - Main > QAM Configuration

A ALL MODES

RF Input Option (Stk# 6582-RFI) Configuration

- 1 **Input Channel:** Drop down list of channel/frequency dependent upon MAP selection.
- 2 **QAM Mode:** Choices are 256B and 64B
- 3 **QAM Map:** Choices are: STD, HRC and IRC (QAM) and 8VSB for OTA.

FlexCoder Mux Mode

ESN: 2016050005
Headend Name:
Temperature: 116.3°F
Uptime: 0d 0h 4m 19s
Location:

Main Network Time Event Log Logout Admin

Status Input TS_Map TS_Config QAM_Config Output Refresh

RF Input - Not Installed

1	Input Channel/Frequency	3 / 63 MHz
2	Input QAM Mode	256B
3	Input QAM Map	STD
	Input QAM Data Rate	5.3605 Mbaud
	QAM Lock State	Not Installed

QAM Output Configuration

4	Output Channel/Frequency	2 / 57 MHz	3 / 63 MHz	4 / 69 MHz	5 / 79 MHz
5	Output Control	Off	Off	Off	Off
	CW Control	<input type="checkbox"/> Enable CW for QAM Module			
	Final Output Level	40 dBmV			
	Output QAM Mode	256B			
	Output QAM Map	STD			
	Output QAM Data Rate	5.3605 Mbaud			
	Output QAM Interleaver	128-1			
	Output QAM Alpha	12%			
	QAM Lock State	Lock			

Save

B PASS-THRU & MUX MODE Only

QAM Output Configuration

- 4 Select the channel for the 1st QAM. The next 3 will be automatically assigned. TS01 is mapped to QAM 1, TS02 is mapped to QAM 2 and so on.
- 5 Ensure all outputs are on and CW mode is not enabled.

Once all entries have been made click the “Save” button to apply changes.

STEP 8 - Main > Output

A DEMUX MODE

- 1 IP Type:** There are two available options (RTP & UDP). Select the one that matches the protocol used by the receiving equipment.
- 2 IP Address and IP Port:** The user must enter the IP Address and Port number.
- 3 ASI:** One output TS (only) can be simultaneously provided as an ASI output by selecting Enabled.

FlexCoder Demux Mode								
ESN: 2016050137		Temperature: 107.3°F		Uptime: 1d 5h 16m 49s		Location:		
Headend Name:								
Main	Network	Time	Event Log	Logout	Admin			
Status	Input	TS Map	TS Config	QAM Config	Output	Refresh		
Input		TS		Output				
Source	TS Mapping	Bitrates		IP Type	IP Address	IP Port	ASI	
TS1 - P1 IP - UDP (239.10.10.10:50000)	TSO 1	Transport	PID	5.93 / 38.81	UDP	239.11.11.11	50000	Enabled
		P1 - WNET-HD	148					
		V: MPEG-2	149					
		A: AC-3 : eng	152					
		A: AC-3 : spa	153					
A: AC-3 : fre	154							
TS1 - P2 IP - UDP (239.10.10.10:50000)	TSO 2	Transport	PID	5.14 / 38.81	UDP	192.168.1.200	50001	Disabled
		P2 - KIDS	164					
		V: MPEG-2	165					
		A: AC-3 : eng	168					
		A: AC-3 : spa	169					
A: AC-3 : fre	170							
TS1 - P3 IP - UDP (239.10.10.10:50000)	TSO 3	Transport	PID	9.39 / 38.81	UDP	239.11.11.11	50002	Disabled
		P3 - WWOR-TV	248					
		V: MPEG-2	249					
		A: AC-3 : eng	252					
		A: AC-3 : spa	253					
TS1 - P4 IP - UDP (239.10.10.10:50000)	TSO 4	Transport	PID	12.16 / 38.81	UDP	192.168.1.200	50003	Disabled
		P4 - WNBC	348					
		V: MPEG-2	349					
		A: AC-3 : eng	352					
		A: AC-3 : spa	353					

B MUX & PASS-THRU MODES

FlexCoder Mux Mode								
ESN: 2016050005		Temperature: 109.1°F		Uptime: 1d 10h 32m 0s		Location:		
Headend Name:								
Main	Network	Time	Event Log	Logout	Admin			
Status	Input	TS Map	TS Config	QAM Config	Output	Refresh		
TS		Bitrates		Output				
TS Mapping	Bitrates		IP Type	IP Address	IP Port	QAM	ASI	
TSO 1	Transport	PID	29.44 / 38.81	UDP	239.20.20.20	50000	Disabled	Enabled
	P1 - WNET-HD	148						
	V: MPEG-2	149						
	A: AC-3 : eng	152						
	A: AC-3 : spa	153						
	A: AC-3 : fre	154						
	P2 - KIDS	164						
	V: MPEG-2	165						
	A: AC-3 : eng	168						
	A: AC-3 : spa	169						
A: AC-3 : fre	170							
TSO 2	Transport	PID	35.66 / 38.81	UDP	239.20.20.20	50001	Disabled	Disabled
	P4 - WNBC	348						
	V: MPEG-2	349						
	A: AC-3 : eng	352						
	A: AC-3 : spa	353						
	A: AC-3 : fre	354						
	P5 - COZI-TV	364						
	V: MPEG-2	365						
	A: AC-3 : eng	368						
	A: AC-3 : spa	369						

- 1 Settings** are the same as the DEMUX Mode with the addition of the QAM field. Selection is either "Disabled" or the RF channels selected under QAM Configuration in STEP 7. TS01 is QAM #1, TS02 is QAM #2, etc.

