

FXTX

Compact Frequency Extension Unit

Expand tuner ranges beyond base frequencies

- Mix and match with Mercury's tuner family including previously purchased units
- Autosensing and syncing for easy set up
- Two standard input ranges to choose from



The FXTX compact frequency extension unit is designed for use with Mercury's TAC product family, extending the tunable frequency ranges beyond their base operation settings. The FXTX can be used as a separate, stand-alone device that can be added to existing systems or, alternatively, can be used independently without a supporting tuner. Switching is provided internally to support selection of all frequency sources, such as antennas upstream from the FXTX.

When operated with Mercury's matching tuner solutions, a single control interface allows the user to seamlessly toggle between the low-frequency bypass path and the high-frequency block conversion path. This pairing enables a single point of control for the user, typically from the tuner, to greatly improve the user experience.

Highlights

- Built to pair with the TAC product family
 - Links via Sync cable
- Two standard input ranges:
 - 18–40 GHz (extends 0.5–18 GHz Tuner range)
 - 26.5–50 GHz (extends 0.5–26.5 GHz Tuner range)
- Can be used independently or with other tuners
- Convenient bypass path
- Built-in LO
- Accepts external reference
- Available in single or dual-coherent versions
- Internal switching

DOWNCONVERTER		
RF and IF Characteristics	40 GHz Version	50 GHz Version
RF Input		
Port 1 is for the downconverted range; Port 2 for bypass path; output is selected via user control		
Port 1: Millimeter Input Range	18–40 GHz	26.5–50 GHz
Port 2: Microwave Input Range (pass thru)	0.5–18 GHz	0.5–26.5
IF Output		
The Single IF Output port provides either the converted IF from the downconverters or the Microwave pass-through from the Port2 RF Input, depending on the selection via user input		
Converted RF Output	within the 2–18 GHz, inverted	within the 2–18 GHz, inverted
Pass-through of Microwave range	0.5–18 GHz, upright	0.5–26.5 GHz, upright
L0 Input		
The L0 for the FXT is located inside the chassis. Users only provide 100 MHz reference to the unit, which is most commonly supplied by the accompanying Tuner		
L0 Reference	100 MHz, 6 dBm +/- 3 dB	100 MHz, 6 dBm +/- 3 dB
Transfer Characteristics		
Band Breaks	Band 1= 18.0–26.5 GHz Band 2= 26.5–40.0 GHz	Band 1= 26.5–40.0 GHz Band 2= 40.0–50.0 GHz
Noise Figure	13 dB typ., 20 dB max.	13 dB typ., 20 dB max.
Max. RF input without damage	+10dBm	+10dBm
RF / IF Conversion Gain	0 dB typ 18–40 GHz, 5 dB typ 0.5–18 GHz	0 dB typ 26.5–50 GHz, 5 dB typ 0.5–26.5 GHz
Input P1, typ	-10 dBm	-10 dBm
Image Rejection (referenced to either RF input)	60 dBc min.	60 dBc min.
RF1, RF2 to IF Rejection, In IF Band	65 dBc min.	65 dBc min.
L0 Re-radiation (at any RF input)	-70 dBm max.	-70 dBm max.
L0-IF Leakage	-65 dBm	-65 dBm
Single Tone Spurious	-40dBc max. at -40dBm RF input	-40dBc max. at -40dBm RF input
Phase Noise, in degrees RMS, typ (ref dependent)		
18–26.5 GHz inputs	0.20	--
26.5–40 GHz inputs	0.33	0.33
40–50 GHz inputs	--	0.41
Connections		
RF Input	2.92 mm-F	2.4 mm-F
By-Pass	SMA-F	SMA-F
L0 input	SMA-F	SMA-F
IF output and Reference Input	SMA-F	SMA-F
VSWR, RF / IF ports	3:1 max. (over the applicable band)	3:1 max. (over the applicable band)

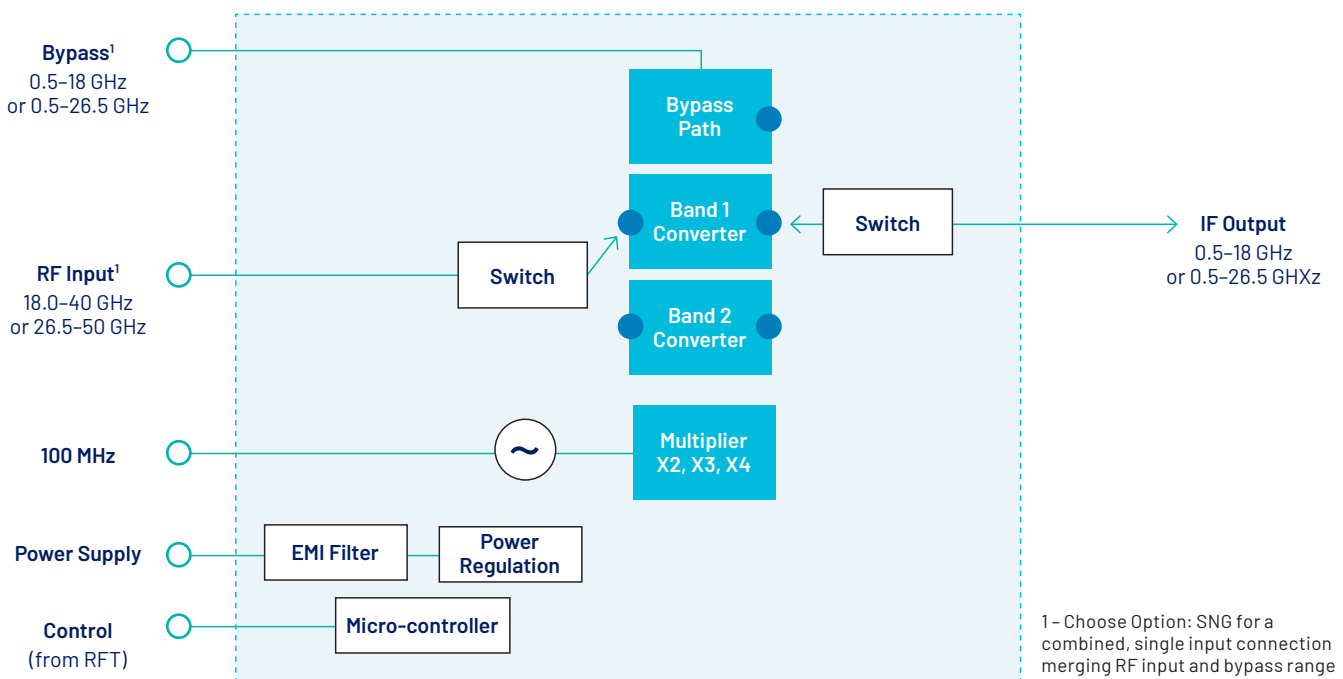
UPCONVERTER		
RF and IF Characteristics	40 GHz Version	50 GHz Version
RF Input		
The RF Output of the FXT can be configured to pass then entire RF range (base plus extension) or, alternatively, with the microwave and millimeter ranges split to ports 1 and 2		
Port 1:	18-40 GHz	26.5-50 GHz
Port 2 (if selected)	0.5-18 GHz	0.5-26.5
IF Output		
The IF Output is obtained from the accompanying Microwave Tuner		
IF from Tuner	within the 2-18 GHz range, as appropriate for final output	within the 2-18 GHz range, as appropriate for final output
L0 Input		
The L0 for the FXT is located inside the chassis. Users only provide 100 MHz reference to the unit, which is most commonly supplied by the accompanying Tuner/Exciter		
L0 Reference	100 MHz, 6 dBm +/- 3 dB	100 MHz, 6 dBm +/- 3 dB
Transfer Characteristics		
Band Breaks	Band 1= 18.0-26.5 GHz Band 2= 26.5-40.0 GHz	Band 1= 26.5-40.0 GHz Band 2= 40.0-50.0 GHz
Max. RF input without damage	+20dBm	+20dBm
IF / RF Conversion Gain	0 dB typ 18-40 GHz	0 dB typ 26.5-50 GHz
Output P1, typ	+5 dBm	+5 dBm
Image Rejection (referenced to IF input)	>60 dBc	>60 dBc,
L0-RF Leakage, typ	<-50 dBm	<-50 dBm
L0-IF Leakage, typ	<-50 dBm	<-50 dBm
Single Tone Spurious	<-50 dBc	<-50 dBc
Phase Noise, in degrees RMS, typ (ref dependent)		
18-26.5 GHz inputs	0.20	--
26.5-40 GHz inputs	0.33	0.33
40-50 GHz inputs	--	0.41
Connections		
RF Output	2.92 mm-F	2.4 mm-F
By-Pass (if any)	SMA-F	SMA-F
L0 input	SMA-F	SMA-F
IF Input and Reference Input	SMA-F	SMA-F
VSWR, RF / IF ports	3:1 max. (over the applicable band)	3:1 max. (over the applicable band)

SPECIFICATIONS: FXTX COMPACT

Power Supply	DC, 10–15 V
Power Dissipation	10 W typ per channel
Power Connector	LEMO, two conductor
AUX Connector	LEMO, eight conductor
Size	10" × 7" × 1.5"
Operating Temp Range	-30° C to +55° C, case

Humidity	Up to 95% non-condensing
Storage Temp	n/s
Shock	n/s
Vibration	n/s
EMI	n/s

SAMPLE DOWNCONVERTER BLOCK DIAGRAM



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