FXTR

Rack Mount 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 setup
- Two standard input ranges to choose from

The FXTR rack mount frequency extension unit is designed for use with Mercury's upconverters, downconverters, and up/downconverters, extending the tunable frequency ranges beyond their base operation settings. The FXTR 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 FXTR.

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

- Pairs with Mercury downconverters and upconverters
  - 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
LO Input		
The LO 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		
LO 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.
LO Re-radiation (at any RF input)	-70 dBm max.	-70 dBm max.
LO-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
LO 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)

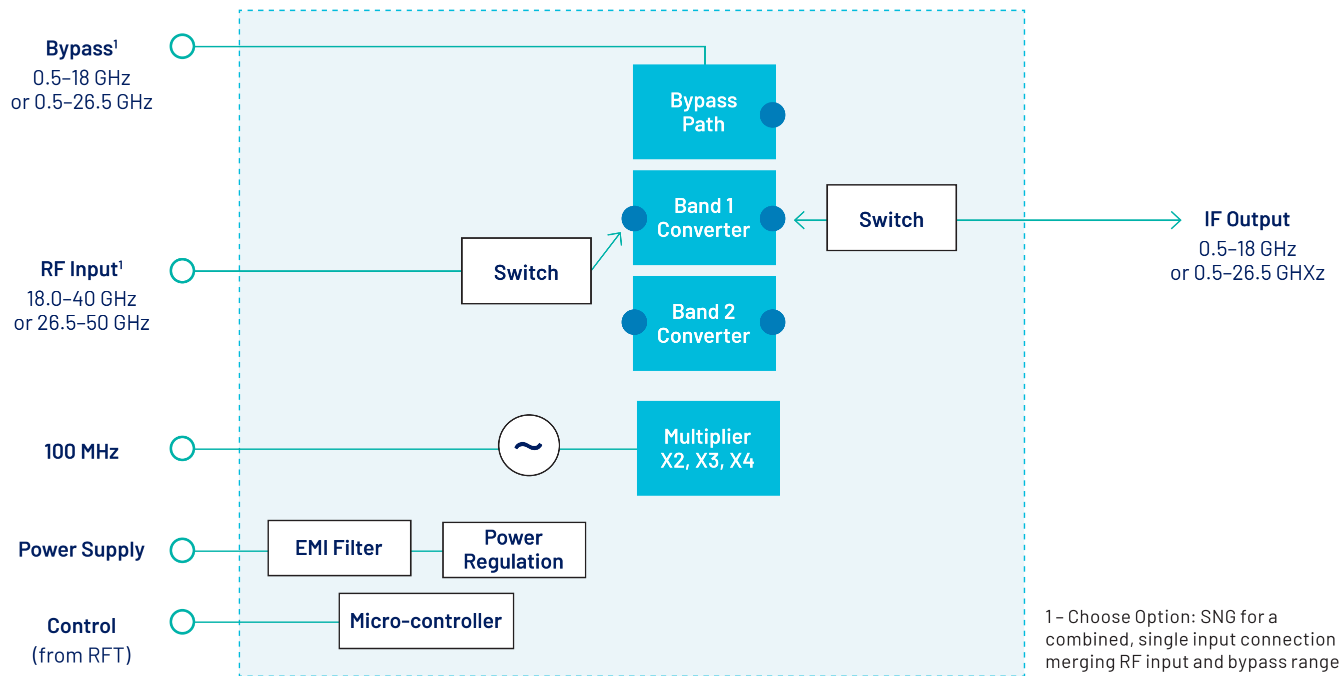
UPCONVERTER RF and IF Characteristics	40 GHz Version	50 GHz Version
RF Input		
The RF Output of the FXT can be configured to pass then entire RF range (base plus extension) or, alternatively, with the microwave and millimeter ranges split to ports 1 and 2		
Port 1:	18–40 GHz	26.5–50 GHz
Port 2 (if selected)	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
LO Input		
The LO 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		
LO 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,
LO-RF Leakage, typ	<-50 dBm	<-50 dBm
LO-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
LO 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: FXTR RACK MOUNT

Power Supply	A/C, 90–240 V
Power Dissipation	15 W typ per channel
Power Connector	A/C
AUX Connector	DB-9
Size	Rack mount, 1U and 2U available
Operating Temp Range	0° C to +50° C, ambient

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

SAMPLE DOWNCONVERTER BLOCK DIAGRAM



1 – Choose Option: SNG for a combined, single input connection merging RF input and bypass range

Corporate Headquarters
50 Minuteman Road
Andover, MA 01810 USA
+1 978.967.1401 tel
+1 866.627.6951 tel
+1 978.256.3599 fax

International Headquarters
Mercury International
Avenue Eugène-Lance, 38
PO Box 584
CH-1212 Grand-Lancy 1
Geneva, Switzerland
+41 22 884 51 00 tel

Learn more
Visit: mrcy.com/ftx