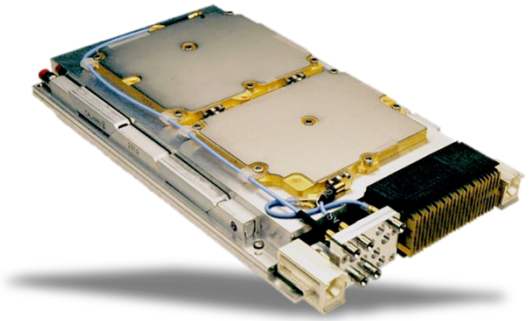
2023 PRODUCT BRIEF

RELEASED 5/18/23

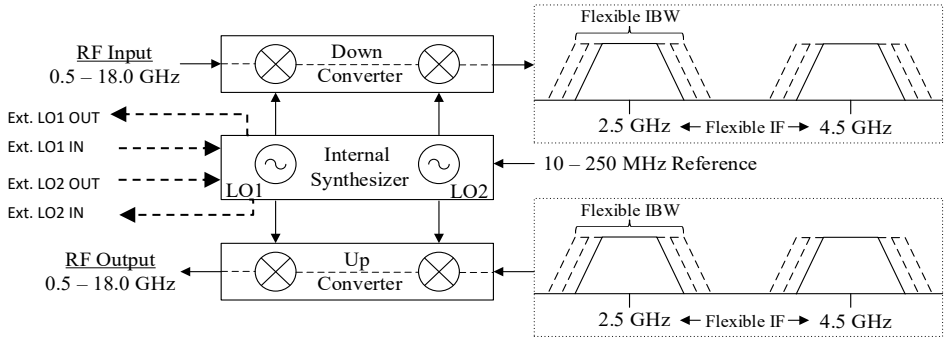
3U Converter

Wideband Microwave Transceiver

Designed for electronic warfare, ELINT and electronic support/surveillance/attack, this 0.5 – 18 GHz wideband converter is a SOSA-aligned, conduction cooled, VPX RF Payload Card which provides coherent up and down conversion channels with an internal synthesizer in a single, 3U slice. With its modular construction it can be configured to accommodate the following coherent channel configurations: two up or two down conversion channels.



- 0.5 – 18 GHz 3U VPX Tuner
- 2 GHz Instantaneous Bandwidth
- < 350 ns Tuning Speed
- Two Channels
  - 1 Rx/1Tx, 2 Rx, or 2 Tx
- SOSA Aligned
- Built-in LO Generation
  - Phase Lock to External Reference



Features

Adaptable

- Final IF can be centered from 2.5 to 4.5 GHz with instantaneous bandwidths (IBW) ranging from hundreds of MHz up to 2 GHz based on final IF
- External LO input and output for driving multiple units with one synthesizer
- Can operate with a reference frequency from 10 to 250 MHz

Reconfigurable

- Available in several configurations

1. 1 Up-converter / 1 Down-converter, common synthesizer
2. 2 Up-converters, common synthesizer
3. 2 Down-converters, common synthesizer
4. Configurations 1 through 3 without internal synthesizer

Optimizable

- Front-end and back-end digitally controllable attenuators for enhanced noise performance or output power and linearity
- Output Blanking

Built-in Testing

- Output power sensors for both the down and up conversion channels
- Temperature Monitoring

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Specifications	Down-Converter	Up-Converter
RF Frequency Conversion	.5 - 18 GHz	
RF VSWR	2.5:1	2.0:1
Nominal Gain	25 dB	25 dB
Nominal Gain Tolerance	+/- .75 dB	+/- .75 dB
Noise Figure	17 dB	19 dB
OP1dB (with max gain)	20 dBm	17 dBm
OIP3 (with max gain)	30 dBm	29 dBm
Maximum RF input power (without damage)	20 dBm	20 dBm
IF Frequency	2.5 to 4.5 GHz	
Instantaneous IF Bandwidth (IBW)	0.5 to 2.0 GHz	
Gain Flatness in IBW	+/- 2.25 dB	
Center Frequency Tuning Step Size	1 MHz	
Group Delay Flatness (80% of IBW)	< 5 ns	
Tuning Speed	350 ns	
Number of tune states for high-speed tuning	32	
Single Signal Spurious	-60 dBc at Pin < -15 dBm	-45 dBc at Pin < -10 dBm
Harmonics	-60 dBc at Pin < -15 dBm	-55 dBc at Pin < -10 dBm
Internally Generated Spurious	-70 dBm	-60 dBm
Integrated Phase Noise	1.0 ° RMS (100 Hz to 40 MHz with 100 MHz ref.)	
Customer Attenuation	RF: 15 dB, .5 dB steps IF: 15 dB, .5 dB steps	RF: 15 dB, .5 dB steps IF: 15 dB, .5 dB steps
BIT Detectors	-10 dBm Threshold Detector at Output (Final IF)	-10 dBm Threshold Detector at Output (.5 to 18 GHz)
Power	Voltage supplies: VS1 = 12 V; V_AUX = 3.3V < 75W	
Operating Temperature Range	-40 °C to +75 °C, Conduction Cooled	
Size	3U, 1.0" - Single Slot	
Weight	2.4 lbs.	
Frequency Reference	10 to 250 MHz	
SOSA (aligned) RF module definition	MOD3-PAY-1F1U1S1S1U1U2F1H-16.6.11-16	
SOSA (aligned) RF module definition AMPS	MOD3p-16.6.11-1-4-F2C-(E7-N)(G2-G2)(E7)(N)<RF5>	

SOSA Aligned Interface utilizes a 10 GbE control interface. LVDS Expansion plane lines on P1 are utilized to enable switching between 32 user predefined tune states. User defined tune states are configurable over the 10GbE interface. Tuning via the 10GbE interface is allowed as well but not guaranteed to meet < 350 ns switching time. With a modest level of design effort, the unit can be configured for independently tuned channels.