Microwave Converters

Upconverters, Downconverters and Tuners up to 40 GHz.

We offer a wide range choices for upconverters, downconverters, up/down converters and other microwave tuners.

	RANGE	BANDWIDTH	IF FREQ
Downconverters			
RFT-3170	0.5-18 GHz	500 MHz	1 GHz; 70/140/160
RFT-3180	1-18, 26, 40 GHz	1000 MHz	1.5 GHz; 70/140/160
RFT-3280	2-18, 26, 40 GHz	5 Selectable BWs	50-2000 MHz, tunable
Upconverters			
RFT-4180	0.5-18, 26, 40 GHz	50 & 100 MHz	70/140/160 MHz
RFT-4470	1-18, 26, 40 GHz	500 MHz	1.0 GHz
RFT-4480	1-18, 26, 40 GHz	1000 MHz	1.5 GHz
RFT-1180	Baseband-to-IF	5 Selectable BWs	2-36 MHz
Up/Down Converters			
IFAT-8000	up to 8 GHz	5 Selectable BWs	up to 8 GHz
IFAT-8400	up to 8 GHz	13 Selectable BWs	up to 8 GHz

Flexible and Customizable

Each converter is designed with a broad palette of options available to the user at the time of order, to ensure that our solution matches the requirement as closely as possible:

- Choose the microwave and millimeter ranges.
- Specify an IF that supports adjacent or downstream equipment.
- Select from a range of data interfaces, reference stabilities, packaging forms, and environmental extremes.
- Customize, if needed, to meet the exact requirements of an application.

Need something more portable? Ask about our 1/2 Rack benchtop chassis.

Not seeing what you need here? Syntonic Microwave's converters are highly flexible and highly customizable. So please let the factory know what you're interested in and we'll do our best to deliver it to you – form, fit, function! It's not only our desire to help, it's our very company mission.

Synthesizers

Syntonic Microwave's Synthesizers offer instrument-grade performance in a very small size/weight/power (SWaP) configuration.

Single and multi-loop synthesizers using proprietary and state-of-the-art techniques combine to provide the best blend of size, electrical specifications and low cost. Fast-tuning communications and switching techniques assure excellent speed and settling time. High stability reference clocks and synchronization are also available in these product lines.

	Tunable Frequency	Tuning BW	Type	Interface
Synthesizers				
DS-1000	up to 12 GHz	10% of Output	Synthesizer	SPI, 3-Wire
DS-2000	up to 18 GHz	entire range	BIT/CAL Source	SPI, 4-Wire

Synthesizers and digital PLL techniques are a core competency of Syntonic Microwave. We provide products both stand-alone to our customers and for internal use in our own instruments, such as our **IF-to-IF Translators** and **Wideband Microwave Converters**. Other applications include ELINT/SIGINT instrumentation, system calibration, synthetic test equipment, and communications.
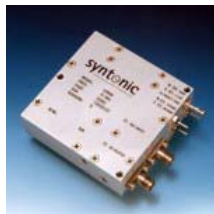
Benchtop configuration

Ask us about our benchtop model, which gives options for:

- wider tuning ranges
- output attentuator options
- GUI's and Ethernet remote access

Frequency Sources

Phase-Locked Oscillators

Need a frequency that isn't a direct multiple of 10 or 100 MHz? Our integer/fractional PLL circuitry solves this problem, enabling us to provide exact frequencies with precision down to the MHz, kHz and below. So specify any frequency you need – we'll do our best to provide that. Syntonic's Phase-Locked Oscillators *(PLO's)* operate at fixed frequencies up to 26 GHz.

	Frequency Range	Type	Reference
Phase Locked Oscillators			
D1000	0.5 to 6 GHz	Integer/Fractional	External
D2000	0.5 to 6 GHz	Integer/Fractional	Internal
D3000	5 to 26 GHz	Integer/Fractional	External

Comb Generators

An all-in-one solution, with integrated PLO, AMP and TCXO. The CG-Series comb generators provide flattened pickets up through 26 GHz. TTL logic is used to put the products in "stand by" mode when not in use, greatly reducing power consumption and heat. This makes the device particularly useful as a calibration source or for Built-In Test (BIT) applications. During "stand by" mode, the device draws only 30 mA.

Model	Oscillator	Freq Range	Picket Spacing	Reference
CG-0750	PLL-VCO	0.75-18 GHz	750 MHz	Internal
CG-0751	PLL-VCO	0.75-26 GHz	750 MHz	Internal
CG-1000	PLL-VCO	1-18 GHz	1000 MHz	Internal
CG-1001	PLL-VCO	1-26 GHz	1000 MHz	Internal
CG-1002	PLL-VCO	1-26 GHz	1000 MHz	**External**

Digitally-Tuned Oscillators

Syntonic's **Digitally-Tuned Oscillators** *(DTO's)* are provided in Octave bandwidths, providing analog tuning steps across the entire tuning range. Unlike legacy DTO's that required precision heater-stabilization, our fully digital design provides the precision and repeatability necessary to assure outstanding long term field reliability without the need for frequent recalibration that plagued legacy designs.

Model	Type	Freq Range	Step Size
DTO-3001	DTO	1.8-2.6 GHz	0.2 MHz
DTO-3002	DTO	2.6-5.2 GHz	0.67 MHz
DTO-3003	DTO	5.2-10.4 GHz	0.67 MHz

IF-to-IF Converters

IFAT: the IF problem-solver

- Upconvert
- Downconvert
- Change Bandwidth

Take control of your IF

	INPUT	OUTPUT	Selectable BW's
Frequencies < 160 MHz			
IFAT-1000	1-160 MHz	1-160 MHz	9 BW's, 0.1 – 40 MHz
Frequencies < 2 GHz			
IFAT-2000	50-2000 MHz	50-2000 MHz	5 BW's, 50-1000 MHz
IFAT-2200	10-2000 MHz	10-2000 MHz	8 BW's, 10-1000 MHz
IFAT-2400	1-2000 MHz	1-2000 MHz	13 BW's, 0.1 MHz – 1 GHz
Frequencies < 8 GHz			
IFAT-8000	50 MHz to 8 GHz	50 MHz to 8 GHz	5 BWs: 50 MHz to 1 GHz
IFAT-8400	1 MHz to 8 GHz	1 MHz to 8 GHz	13 BWs: 0.1 MHz to 1 GHz
Baseband-to-IF			
IFBT-16M	Baseband	70 MHz	2, 4, 8, 16, 36 MHz

Old Tuners have the wrong IF?

Legacy Tuners often have IF frequencies or BW's that no longer interface with today's equipment, such as

recorders and digitizers. The IFAT enables users to transform the RF interfaces of these older assets into something more useful, breathing new life into aging equipment.

New Tuners have the wrong IF?

The new generation of wide-band and ultra-wideband tuners have output frequencies as high as 4 GHz and 6 GHz. These frequencies are often out of sync with adjacent and peripheral equipment. The IFAT-8000 has an input range up to 8 GHz, can process a BW of 1000 MHz (or lower) and can convert/translate the IF to a frequency and bandwidth that is manageable by downstream assets. As times and applications change, the IFAT can change with the new needs.

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