

## Multi-Tier Waveform Generator



### Features

- PCM/FM
- SOQPSK
- CPM
- Internal Clock & Data Generator
- I & Q Output
- 80 kbps to 40 Mbps
- Easily Interfaces to Common Vector Signal Generators

### Applications

- Receiver Testing
- Demodulator Testing
- Ground Station Verification
- Simulation
- Training

### Description

SK-10155-2 is a self powered rack mounted unit which contains highly integrated modulator baseband circuitry generating PCM/FM, SOQPSK-TG and CPM modulation waveforms. The unit is intended for bench/ground testing, preflight tests, demonstration of modulation waveforms or as practical circuit availability for testing the various characteristics of an RF carrier using these modulation methods. Generating and providing quadrature baseband signals from input clock and data signals, the unit is intended to interface with commercial Vector Signal Generators (VSG), such as the Agilent N5182A MXG, among others. With the unit interfaced to a VSG, all compliant modulation waveforms are provided at the selected center frequency of the VSG. For example, using the N5182A VSG allows any modulation to be generated at 20 MHz, 70 MHz, L- or S- band, thus providing test capability for demodulators as well as receivers.

PCM/FM waveforms are generated using a pre-modulation filter whose cutoff frequency is exactly 0.7 times the data rate, and sets the output deviation to precisely 0.7 ( $\pm 0.35$ ). The modulation index is digitally controlled and hence no adjustment is necessary. SOQPSK and CPM are generated in accordance with RCC106-04. When operated normally, the unit automatically adapts to the incoming bit rate and no additional configuration is required.

In addition to the waveform generation function, the unit provides a programmable clock source for the user. Also provided is a PN (pseudo-noise) sequence generator, which may be selected as the data source. Full control of clock to data relationship is included. A selectable RCC scrambler (randomizer) is also included. Remote control via RS232 is provided.

The front panel provides configuration entry via keypad entry and LCD display, allowing all parameters of the generator to be set. The last configuration is saved upon loss of power and is recovered upon restoration of power.

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### SK-10155-2 Datasheet

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