



Features

- 10MHz to 15GHz frequency range
- Low phase noise
- Calibrated output power -20dBm to +13dBm
- Wide input voltage range: 5V~15Vdc @ 6W
- USB, Ethernet, TTL serial, interfaces.
- 12V POE (w/optional Ethernet adapter)
- External reference 5MHz to >100MHz
- Compact 3.2"x4.3"x0.485"

Electrical Specifications

Note: The 5015 is **NOT** USB powered. You may purchase a Valon **PS6V-1** power supply kit.

DC Input

Input Voltage Range	<p>Absolute Max +16V to -16V (reverse protected)</p> <p>Operational Max +15v</p> <p>Operational Min +4.5V</p> <p>+4.8 to 5.8V (output power reduced)</p> <p>+3.5V (synthesizer remains locked and serial port ok)</p> <p>16V for >10sec resets the synthesizer to factory default settings</p>
Input Power	<p>6 Watts normal operation</p> <p>300mW Standby</p>
DC Input Connector	<p>Hirose DF3A-2P-2DS</p> <p>Mates with Hirose DF3-2S-2C plug and pre-crimped wire H2BXT-10112-R4 (red) and H2BXT-10112-B4 (black). Custom 20" dc cables supplied with synthesizer, additional cables available.</p>

RF Synthesizer Specifications

Frequency Range	10MHz to 15GHz								
Frequency Increment	1Hz for frequency < 4GHz, 10Hz for frequency > 4GHz								
Frequency Lock Time	<p><100uS</p> <p>Lock time is from the time the frequency command is sent, or a frequency step in sweep mode, or input from User Port in List mode to a stable Lock Detector output</p>								
Phase Noise	<p>Typical phase noise (+6dB max)</p> <p>*Note that phase noise at <100Hz offset can be improved typically > 15dB with external reference.</p>								
	10Hz*	100Hz	1kHz	10kHz	100kHz	1MHz	10MHz		
15GHz	-35	-66	-90	-101	-104	-112	-133		dBc/Hz
13GHz	-40	-68	-91	-102	-106	-112	-134		dBc/Hz
10GHz	-50	-68	-94	-104	-107	-120	-140		dBc/Hz
8GHz	-51	-70	-95	-105	-108	-120	-141		dBc/Hz
6GHz	-50	-70	-98	-109	-112	-121	-142		dBc/Hz
4GHz	-53	-74	-102	-114	-117	-126	-144		dBc/Hz
3GHz	-58	-78	-105	-116	-120	-127	-148		dBc/Hz
2GHz	-61	-77	-108	-118	-122	-132	-150		dBc/Hz
1GHz	-70	-84	-114	-125	-127	-138	-150		dBc/Hz
0.5GHz	-75	-90	-118	-130	-132	-143	-155		dBc/Hz
Harmonics	The output waveform is a clipped sine wave. Harmonics are typically -12dBc. Odd harmonics are most prominent.								
Spurious	Non-Harmonic spurious <-60dBc								

Output Return loss	10~ 100MHz	Min.(dB)	Typical(dB)
	50MHz ~ 10GHz	>6	10dB
	10GHz ~ 15GHz	>10	12
		>6	8
Connectors		SMA Female	

RF Output Power Range	10MHz ~ 100MHz	Max dBm	Min dBm
	1GHz ~ 6GHz	>+10	<-30
	6GHz ~ 15GHz	>+15	<-30
		>+13	<-30
RF Output Power Accuracy		±0.7 dBm +10dBm ~-20dBm ±0.9 dBm > +10dBm or <-20dBm	

Reference Frequency

Internal Reference	Frequency	10.000MHz
	Initial Accuracy	± 2ppm (23°C) can be zeroed with reference trim command
	Temperature Stability	±0.5ppm -20°C to +70°C (case temp)
	Reference Trim Range	± 10ppm
	Reference Trim Resolution	0.02ppm
External Reference	Frequency Range	5MHz to 100MHz, typical max 120MHz
	Input power range	-10dBm min. to +13dBm max.
		50Ω nominal impedance
External Reference Connector		SMA Female 50Ω nominal impedance Note: Ext input is ac coupled to synthesizer but dc coupled to internal VCTCXO control circuit. See Operations Manual for details.
EFC Electronic frequency Control at external reference input		Pulling range >±10ppm Voltage ±3V Input resistance 20kΩ Frequency response 0Hz~>5kHz

Interface

USB	Micro-B socket FTDI virtual com port 9600, 8, N,1,N default, see selectable baud rates below See FTDI for drivers for your computer. Note: The Configuration Manager GUI will automatically configure the USB port and switch to 115200 baud rate.
Ethernet	10BASE-T/100BASE-TX compliant with IEEE 802.3. 8-pin Hirose 2mm connector or optional external RJ-45 module and cable adapter.
USER PORT	3.3V TTL TXD & RXD serial, 5-bit List Mode parallel, Sweep trigger in, Sweep step out, Sweep enable out. All 3.3V TTL Hi-Z input, 200 ohm output. Optional SPI control with SCL MISO MOSI SEL (custom available on request) Lock detect output. Connector: Hirose DF11-8DP-2DS Mates with Hirose DF11-8DS-2C plug and pre-crimped wireH3BXT-10112-** (Digi-Key) LMS-2 LIST Mode Selector Switch and cable accessory is also available.
Selectable Baud Rates	USB, serial TTL: 9600, 19200, 38400, 57600,115200, 230400, 460800, 921600

Environmental

Operational full specifications:	-0°C~+60°C (case temperature, heat sink required)
No damage functional:	-20°C~+70°C (case temperature)
Humidity:	5%~95% minimal condensation allowed
IP rating:	50 No water protection.

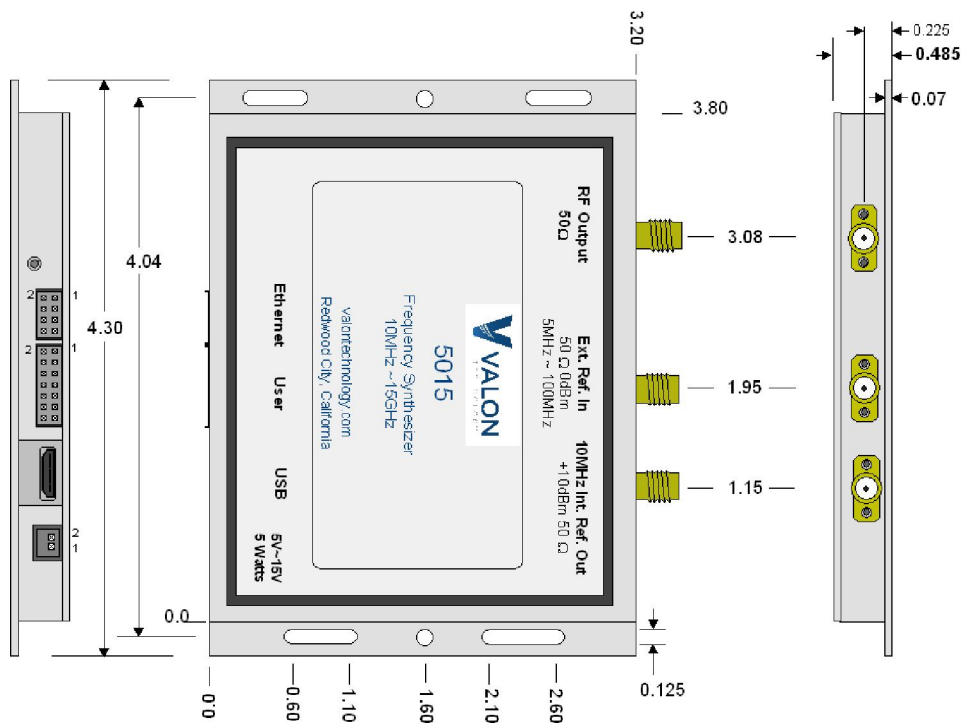
Mechanical Dimensions

3.2"x 4.3"L x 0.485"

Weight: 0.37lbs, 165g

Material: AL-6061-T6

Finish: Clear Alodine (conductive)



Available Accessories:

ETH-1 Ethernet Adapter

ETH-2 PoE 12V Injector

PS6V-1 Power Supply Kit

LMS-2 List Mode Selector Switch and Cable Assembly

Visit 5015 Accessory page at www.ValonRF.com for details and pricing.