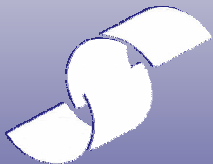


## Chassis Products

- Signal Monitoring, Detection, and Analysis
- Government Regulatory Compliance Monitoring
  - Out of spec signals
  - Unauthorized activity
- Satellite and Microwave Systems Installations and Antenna Positioning Applications
- Demodulation formats: BPSK/QPSK; 8 /16PSK; 16/ 32/64/128/256QAM; SQPSK; UQSPK; FSK
- Processing rate of 50 KBaud to 46 MBaud
- 140 MHz Wide IF, digitally tunable to  $\pm 30$  MHz from IF Center Frequency with 1KHz resolution
- User- friendly GUI



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# Satellite, Microwave and DVB Monitoring System WSC6100



## DESCRIPTION

The WSC6100 Demodulator Monitor & Analysis system provides satellite and microwave communication managers with real-time monitoring and analysis reports by recovering PSK and QAM symbols from digitally modulated Intermediate Frequency (IF) signals. The system measures received signal strength, Bit Error Ratio (BER), Signal-to-Noise Ratio (SNR), carrier frequency offsets, I/Q Quadrature and gain distortion levels, I/Q DC offsets, symbol timing offsets, and the data rate offsets.

A Windows-XP<sup>®</sup> host-based Graphical User Interface (GUI) configures the system, enables downloading operating parameters in the flash memory and monitors and displays test results. The GUI design is based on OSF/Motif style guidelines such as push buttons, pull-down menus, text editors, etc.

The WSC6100 also supports a host-independent mode in which the system uses operating parameters stored in flash memory. In both host and independent modes, the WSC6100 outputs real-time analog data on X–Y connectors for viewing Eye patterns/Constellation on an oscilloscope, and sends the hard decision output data stream out the DB50 connector.

## ADDITIONAL FEATURES

- Reed-Solomon FEC, T=2 to T=16
- 32-Tap T/2 FFE transversal equalizer with blind acquisition capability
- Test Format of Parallel Hard Decision of M-bits with clock
- User software provides snapshots of captured results
- Test Connectors for Analog Symbol Output of X-Y (I/Q) constellation pattern and “Eye”
- IEEE 802.3 Ethernet (TCP/IP) control interface
- Standard and Customized Symbol Maps

# WSC6100 Specifications

## Performance

Modulation Types .....	BPSK, QPSK, 8PSK, 16PSK, 16QAM, 32QAM, 64QAM, 128QAM, 256QAM, SQPSK, UQPSK, FSK
Symbol Rate .....	50K to 46M Symbols/sec , accuracy > 1%
Payload Rate .....	50 to 360 Mbps
Ambiguity Rotation .....	0, 90 180, 270 degrees
$\alpha$ Roll-off Factor .....	15%, 20%, 25%, 30%, 35%, 40%
IF Range .....	140 MHz
IF Tuning Range .....	$\pm 30$ MHz centered at IF with 1 KHz resolution
IF Power Level .....	-45 to -5 dBm
IF Return Loss .....	<20 dB, VSWR <1.22, Reflection <1%
AGC .....	0-40 gain programmable in 0.2 dB steps

## Operational Features

Decimation .....	2,4,8,16,32,64,128,256,512 and 1024
Nyquist filter .....	Up to 64 taps
Equalizer .....	32-Tap T/2 FFE, Asymmetric with DC offset Removal, Blind Acquisition Sequence with DDE during lock
SNR (Eb/No) .....	Measurement Accuracy of 1 dB
BER .....	Built-in PRBS-9, PRBS-15, PRBS-23
Symbol Maps .....	Downloadable through control interface; Industry Standard or Customized (Differential or Absolute)
Format .....	Sliced Symbol 10 bits I and 10 bits Q Demapped Symbols or Demapped Byte
Symbol Clock .....	50% average duty cycle $\pm 10\%$ at Symbol rate
Digital Control .....	IEEE 803.3 Ethernet (TCP/IP)

## Test Parameters

SNR (Eb/No) .....	Estimation/Monitored Values
Filter State .....	Outputs/Overflows
Symbol Loop .....	Frequency Offset and Error
Carrier Loop .....	Frequency Offset and Error
Hard Decision Symbols	
Demodulation State	

## Analysis/Control Software

Human Interface .....	Windows-XP® -based Graphical User Interface (GUI)
Display/Plots .....	Constellation Display Constellation Error Symbols Spectral Analysis Equalizer Tap Response Channel Frequency Response SNR, AGC Levels

## Oscilloscope Outputs

Analog X-Y .....	I/Q constellation pattern and "Eye"
Clock .....	Analog X-Y synch.

## I/O Connectors (Rear Panel)

Digital Control .....	RJ-45 IEEE 802.3
System Init/Reset .....	RS-232
IF Input .....	50-ohm SMA female
X, Y, CLK Outputs .....	50-ohm SMA females (3)
Symbol Output .....	50 pin "D" subminiature PECL level data and clock

## Visual Indicators (Front Panel)

Power On .....	Green LED (Good)
Board Fault .....	Red LED (Fault)
Signal Lock .....	Green LED (Locked) Red (Not Locked)

## Environmental

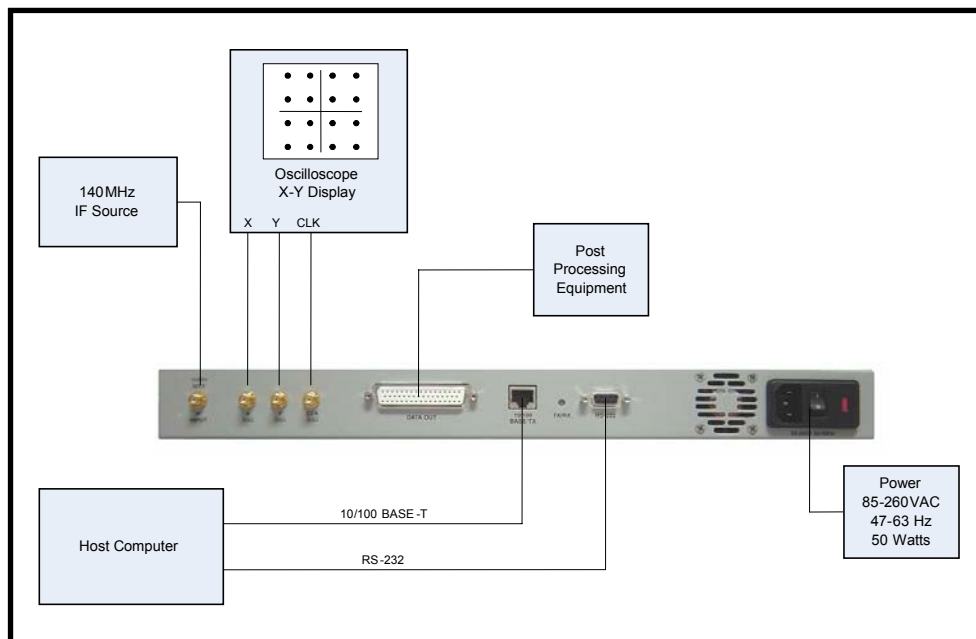
Temperature .....	0 to +40 deg C Ambient
Humidity .....	5% to 95% non-condensing
Altitude .....	3000 meters maximum

## Physical Characteristics

Width .....	430 mm / 16.9 inches
Depth .....	305 mm / 12.0 inches
Height .....	43 mm / 1.69 inches
Weight .....	2.7 kg / 6.0 lbs

## Power Requirements

Input .....	90-250 VAC, 47-440 Hz
Consumption .....	70 Watts maximum
Heat Dissipation .....	315 BTU/Hr



WSC6100 Connections