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PXI Modules

3030 Series RF Digitizers



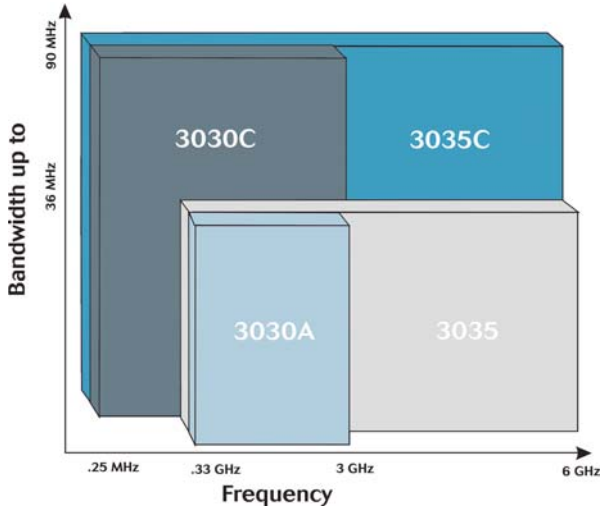
Fully featured wideband PXI RF digitizer module for complex signal analysis applications in communications system test

- Frequency ranges to 3 GHz or 6 GHz
- 36 MHz or 90 MHz wide digitized -1 dB bandwidth
- 13 or 14 bit ADC resolution
- Variable sample rates up to 200 MSa/s
- 75 dB spurious free dynamic range
- 75 dB intermodulation free dynamic range
- Excellent level accuracy of typically 0.3 dB
- List mode for fast frequency settling
- Up to 512 MB sample memory
- Real time streaming output of sample data
- PXI Studio VSA/VSG Application Software

Analyzing RF communications signals has never been more flexible

The 3030 Series range of RF Digitizers used with a 3010 Series synthesizer module provide precision conversion of RF signals into digital IF or I and Q data. Used with PXI Studio application software, the 3030 Series RF Digitizer family provides class leading vector signal analysis of RF signals with functionality and performance ideally matched to the needs of RF test systems for manufacturing and design verification.

There are 4 different RF Digitizers to choose from. Each model provides a different combination of frequency range and measurement bandwidth. All RF digitizers output sample data to which amplitude and phase flatness correction is applied. A level correction factor is output separately that when applied to the I & Q sample data provides compensation for the effects of operating frequency and temperature.



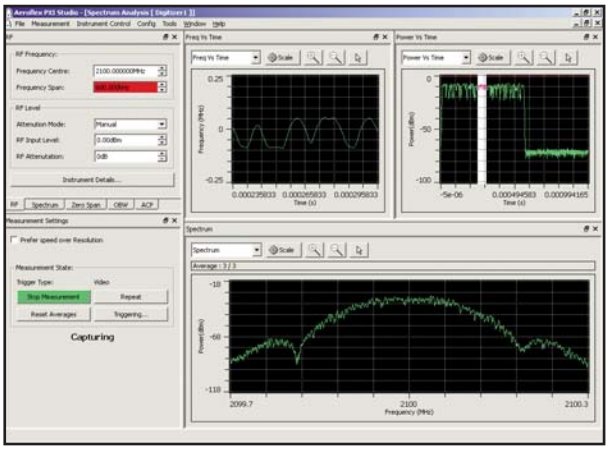
The 3030 Series Family

All 3030 Series RF Digitizer modules offer high linearity, low noise and excellent level accuracy making them especially suited for the analysis of WLAN, WMAN, 2G, 3G and 4G cellular radio signals.

PXI Studio Application Software

PXI Studio is a software application for use with all Aeroflex 3000 Series PXI modules. This highly flexible application can provide vector signal generation and vector signal analysis of complex modulated signals. As standard PXI Studio provides a single integrated user interface to all Aeroflex PXI modules and performs

spectrum and time domain analysis of sample data for general purpose RF component testing and alignment of radio communications transceivers. Optional measurement plug-ins can be added easily. Each provides an intuitive and highly flexible graphical user interface. A full description and specification for each measurement plug-in is provided in a separate data sheet for 3030 Series RF Digitizer measurement suite options.



PXI Studio Spectrum Analyzer Screen Shot

Advantages of PXI

The 3030 Series RF digitizers offer significant economies compared to general purpose rack and stack instruments without compromising performance. In part this is achieved by exploiting the benefits of the PXI specification, an industry standard open architecture for modular instrumentation. Using PXI enables faster measurement speed, smaller size and greater flexibility for easier system integration and future system evolution.

Applications

The RF digitizer is an essential analysis component within any development or manufacturing RF test system designed around the needs of advanced digital communications standards as used in WLAN, WMAN and cellular communications. It is equally important for satellite and terrestrial TV broadcasting and military communications. Whether the application is for test, measurement or system emulation, the 3030 Series delivers the functionality and performance required. When used in conjunction with other Aeroflex PXI RF modules, chassis and system controllers complete RF test systems can be designed. For each Digitizer variant there is a complementary 3020 Series digital RF signal generator module able to produce wideband linear complex modulated RF signals up to 6 GHz. Aeroflex PXI modular instruments are supplied as individual single modules for use within any compliant cPCI or PXI chassis supporting 3U high modules and a PXI system controller supporting Microsoft Windows 2000, XP or 32-bit Vista operating system and NI VISA 3.1 or higher. Alternatively Aeroflex can supply PXI modules pre-configured within a PXI chassis that best adapts to customer requirements (see order information for further details).

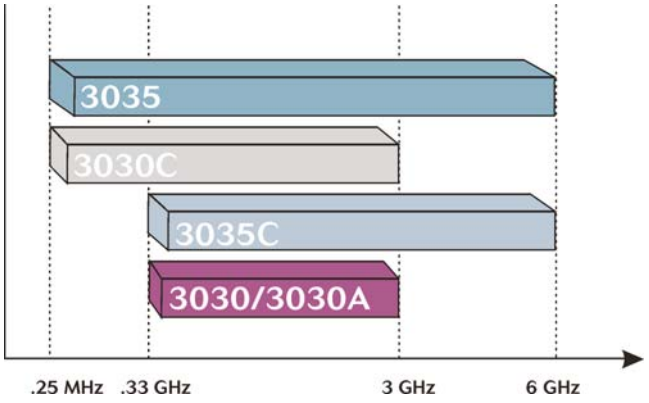


3000/3000B Chassis

Performance Highlights:

Wide Frequency Range:

There is a wide range of frequencies to choose from:
250 kHz or 330 MHz to 3 GHz
250 kHz or 330 MHz to 6 GHz



Level Range: Signal powers up to +30 dBm can be input directly and with a maximum sensitivity of up to -145 dBm/Hz very low level signals are discernible from noise, especially useful when measuring transmitter spurious outputs.

Control of RF input level is provided using reliable, high speed electronic switched attenuation. RF attenuation is selectable in 1 dB steps to a maximum of 31 dB (4 dB steps to 28 dB in 3030A) to optimize downconverter operating conditions. IF attenuation is selectable in 1 dB step to 35 dB to optimize ADC operating point. Together they allow optimization of dynamic range for a wide range of input signal powers and signal characteristics.

Level Accuracy: With a total measurement uncertainty of typically ±0.3 dB, accurate RF power measurements in high volume manufacturing are made possible. Together with <0.08 dB repeatability error ensures that high yields can be maintained.

High Dynamic Range: The 3030 Series is designed for difficult transmitter measurements such as burst power in TDD and TDMA systems and spectral emissions on WLAN/WMAN, 2G, 3G and 4G cellular terminals. Measurement of GSM burst power ramps with over 80 dB dynamic range is possible in a single step. ACLR and spectral mask measurements on 3G terminals can also be made in a single step with a measurement range of typically 68 dB for ACLR.

Wide Bandwidth: -1 dB bandwidth of up to 90 MHz is achieved. Amplitude and phase correction can be applied in which case amplitude flatness of ±0.1 dB is maintained over a ±5 MHz bandwidth and ±0.25 dB flatness is maintained for bandwidths up to 67 MHz. Phase compensation ensures phase errors of < ±0.03 radians across the entire corrected bandwidth.

Low Phase Noise: The 3030 Series modules are all designed to be used with either a PXI 3010 or 3011 RF synthesizer module. This provides a low noise agile local oscillator signal from which the 3030 Series phase noise is defined.

RF Frequency	Typical phase noise at 20 kHz offset (dBc/Hz)
50 MHz	-112
500 MHz	-118 (3030A/3035) -112 (3030C/3035C)
2 GHz	-116
5 GHz	-108

Noise floor at 2 GHz is typically -138 dBc/Hz from 10 MHz offset.

Fast Switching

Frequency settling can be achieved in typically 250 μs, (3010 opt 01 fitted). This makes the 3035 ideal for high productivity RFIC testing.

Flexible ADC

Sample data is available as digital IF samples at the full ADC sample rate or as downconverted, decimated and re-sampled I & Q samples at a user defined rate. Sample data can be both block transferred across the PCI interface and streamed out of the front panel data interface simultaneously. Samples rates of up to 90 MSa/s can be supported for streaming applications e.g. in radio system emulation applications or for producing uninterrupted time records for RF events. Sample rates of up to 200 MSa/s can be block transferred. On board sample memory supports acquisition of up to 256 M x 16 bit samples. Data blocks can be pipelined e.g. data transfer can commence during the acquisition thus minimising any transfer latencies and by leveraging from the wide bandwidth available on the PCI interface, sample data transfer times to the host processor are also minimised and so help accelerate test time.

In order to further minimize data transfer times, functions are provided that permit selective data transfer of sub-sets of samples from a longer acquisition. This is especially useful for TDMA type systems such as GSM. It makes it possible to only transfer active burst data for analysis reducing the number of samples to transfer by approx 80% leading directly to faster measurement times.

Data acquisition can be edge triggered or gated.

Small Size

The 3030 Series modules are unparalleled in terms of size. Test systems can be assembled occupying a fraction of the space required for conventional instrumentation. Each module occupies just 2* slots in a 3U PXI rack. With a single additional slot to accommodate the 3010 RF synthesizer the complete Wideband Digitizer occupies just 3 slot widths.

* this excludes 3035C which requires 3 slots

Triggering and Synchronization

The 3030 Series highly versatile acquisition trigger modes maximize flexibility in synchronised measurement applications. Acquisition can be triggered by software or hardware triggers including the PXI trigger bus, local bus, star trigger as well as via front panel TTL and LVDS inputs. Internal video level triggering can be derived from the received signal with facilities to prevent false triggering from noisy or other extraneous out of channel/band signals. All trigger modes are supported by a user definable positive and negative trigger delay.

A trigger hold off mode is provided to allow control of trigger re-arming. This can be especially useful when acquiring TDD type signals as used in WLAN and WIMAX.

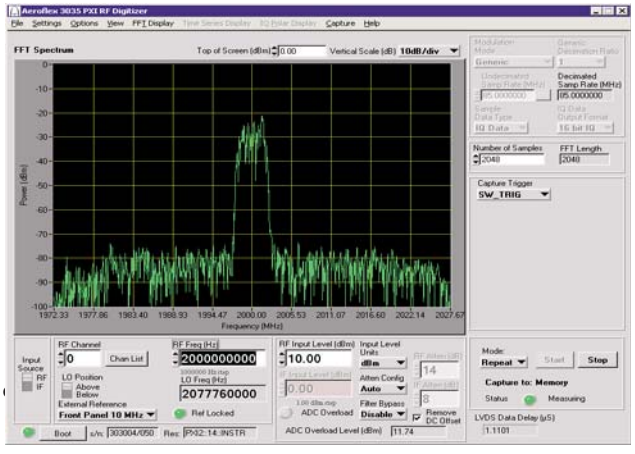
List Mode

This feature enables the digitizer to be pre-loaded with up to 128 combinations of different frequency and level settings. All digitizer internal hardware settings are pre-calculated making re-selection of a new frequency possible in typically 250 µs (3010 opt 01 fitted), while still maintaining level accuracy. This feature is ideally suited for fast mobile phone transmitter alignment applications and is complemented by similar features in the 3020 Series RF signal generator in support of the corresponding fast mobile phone receiver alignment. Channelized timer mode allows setting of variable list dwell period (in output samples).

Software

Each RF digitizer is supplied with a variety of software including; Aeroflex PXI Studio application software with standard and optional plug-ins to measurement libraries. Each digitizer is also supplied with various driver software and soft front panels.

Driver Software: All 3030 Series modules are supplied with multi layered software APIs and GUIs starting with a common low level vxi pnp compatible 'module' driver and a single high level 'RF Digitizer' driver for the combination of a 3030 Series and a 3010 Series module. Each driver is supplied as a .dll interface. Additional .net and COM interfaces are provided for the RF Digitizer level driver. Both the module and RF Digitizer drivers are supported with associated soft front panel graphical user interfaces to aid manual operation and debugging during application development.



3030 Series Module Soft Front Panel

PXI Studio Spectrum Measurement Suite Highlights

As standard the 3030 Series modules are supplied with a spectrum analyzer plug-in for use in PXI Studio and a spectrum measurement .dll interface for application developers providing frequency and time domain analysis of 3030 Series digitized I & Q data.

The spectrum analyzer plug-in provides a graphical user interface for manual operation in benchtop applications. Using the spectrum analyzer plug-in analysis can be performed for frequency spans up to 200 MHz. The resolution bandwidth is continuously variable from 1 Hz to 10 MHz using 3 dB or noise equivalent bandwidth windows. A range of spectrum measurement functions are also provided including:

Channel Power and Adjacent Channel Power Measurement: The user defines the channel configuration to be measured (i.e. channel width, channel spacing, center frequency, etc). The measurement then computes the central channel RMS power as an absolute and the adjacent channel powers relative to this from the FFT spectrum. Four adjacent channels are examined (two either side of the central channel). In manual mode up to 99 channels can be specified each with arbitrary channel spacing and channel width.

Occupied Bandwidth: is calculated from the FFT spectrum by a function that returns the bandwidth in which a user defined percentage of the total signal power is occupied.

The FFT spectrum can be configured as either RMS averaged or peak hold in which case the function will output an averaged result or retain peak values if repeatedly called. The number of averages is user defined.

A marker power function is provided together with a marker peak find and a next peak search function. These enable measurement of discrete signals within the FFT spectrum.

Time domain analysis functions include computation of average power of a range of IQ data samples plus power and frequency versus time. The time window for analysis can be the entire IQ sample array or any user defined subset.

The underlying analysis library components of the spectrum measurement .dll are also provided. These are hardware independent functions that can be used to develop bespoke spectrum analysis applications. To assist with programming, source code examples and user help are provided for a wide variety of different applications development environments including LabView, LabWidows CVI, VB and Visual C.

Optional Analysis libraries

Low level signal analysis libraries are also available for measurement of GSM/EDGE, WiMAX, WLAN, UMTS uplink, CDMA2000 uplink and Bluetooth® wireless technology transmissions. (See PXI Studio datasheet for 3030 options). These provide measurement of power, modulation quality and spectrum parameters in accordance with the relevant standards for mobile terminal testing, ideal for both production line and development laboratory use. Each application library is supplied with example source code to help familiarize the user.

Customer Support

Users can elect to purchase PXI modules with optional warranty extensions. Standard extended warranty provides a 36 month or 60 month warranty period plus the benefits of guaranteed product repair times in the event of failure. Standard extended warranty can also be provided inclusive of scheduled calibration. On request Aeroflex can provide customized premium warranty support designed around your specific needs.

SPECIFICATION

All 303x specifications are defined when used in conjunction with the 3010/11 RF Synthesizer PXI module and driver software supplied with the module.

Note: Not all functionality described below is exposed in the Aeroflex software applications provided.

FREQUENCY

Range

RF input:

3030A 330 MHz to 3.0 GHz

3030C 250 kHz to 3.0 GHz

3035 330 MHz to 6.0 GHz

3035C 250 kHz to 6.0 GHz

IF input: (3030A/3035 only)

Centered on 77.76 MHz

Resolution

Up to 3 GHz: 1 Hz

Above 3 GHz: 2 Hz

Accuracy

As per frequency reference

Settling Time (LIST mode)

Typical times taken to be settled at final frequency

Up to 3 GHz settled to 0.7 ppm or 1 kHz whichever is the smaller

Above 3 GHz settled to 2 kHz

3010 Loop bandwidth		3030A/3035	3030C/3035C	
			<500 MHz	>500 MHz
Normal	3010 opt 01 fitted	250 µs	2 ms	325 µs
	3010 opt 01 not fitted	1.1 ms	3 ms	1.2 ms
Narrow		10 ms		

LEVEL

Input Coupling

AC coupled

Maximum RF Input Power

3030A +22 dBm (with a min. of 8 dB input attenuation)

3035 +30 dBm (with a min. of 10 dB input attenuation and 10 dB IF attenuation)

3030C/3035C +30 dBm (with a min. of 10 dB input attenuation)

Max IF input

3030A/3035:

+10 dBm with 0 dB IF attenuation

3030C/3035:

Not applicable

RF Input Attenuator

3030A 0 to 28 dB in 4 dB steps

3030C/3035/3035C 0 to 31 dB in 1 dB steps

IF Attenuator

0 to 35 dB in 1 dB steps

RF Input Return Loss

3030A Typically 16 dB (8 dB input attenuation)

3030C/3035/3035C Typically 16 dB

Level Accuracy (RF input, 23°C ±5°C)

Valid for signals with <5 MHz occupied bandwidth at the tuned frequency and S/N ratio >40 dB

3030A/3035

Below 3 GHz <±0.6 dB, typically ±0.3 dB

Above 3 GHz <±1.0 dB

3030C/3035C(1)

Below 500 MHz <±1.0 dB, typically ±0.5 dB

Between 500 MHz and 3 GHz < ±0.7 dB, typically ±0.3 dB

Above 3 GHz < ±1.0 dB

(1) Level accuracy is unspecified in either manual or auto-IF attenuator modes with RF attenuation set to >16 dB AND the pre-amplifier set to enabled

Level Temperature Stability

3030A ±0.01 dB/°C

3030C/3035/3035C ±0.02 dB/°C

Level Repeatability

After warm up following a return from a change in frequency or level. Valid for at least 2 hours and excluding temperature influence

3030A < ±0.05 dB

3030C/3035/3035C < ±0.08 dB

Level Settling Time (list mode and front end mode auto)

Level settling time (list mode and front end mode Auto)

3030A/3030C/3035C(1) Typically 250 µs to within ±0.3 dB of final level

(1)3035C operation is specified for RF frequencies up to 3 GHz (with LO set below RF) and for RF frequencies up to 2812.5 MHz (with LO set above RF)

LIST MODE

List Mode Channel Parameters

Frequency, level (defined as input level or as RF and IF attenuator settings), dwell period (in output samples)

List Addresses

128 numbered 0 to 127

Settling Time

See frequency and level data

Address Sources

Manual (software commanded)

External (hardware triggered)

Internal (counter timer)

External Mode Trigger Sources

PXI trigger bus, star trigger, PXI local bus, LVDS aux 1 to 5, TTL+ve, TTL-ve

Counter Mode (internal)

Time mode (common to all channels) dwell time 250 µs to 10 seconds with resolution 0.1 µs

Sample Mode (Channelized): up to 232 output samples

SPECTRAL PURITY

SSB Phase Noise

Typical at 2 GHz and at ambient room temperature

Loop Bandwidth	*Narrow*	*Wide (normal)*
Offset	dBc/Hz	dBc/Hz
100 Hz	-55	-85
1 kHz	-85	-103
10 kHz	-114	-103
20 kHz	-116	-110
100 kHz	-133	-130
1 MHz	-136	-136
10 MHz	-138	-138

Phase noise below 100 Hz is dependent upon reference phase noise.

Typical phase noise at 5 GHz: –108 dBc/Hz 20 kHz offset

LINEARITY AND NOISE

(Specifications apply to RF input)

Intermodulation

Typically 75 dB intermodulation free dynamic range (2 tone input with maximum 0 dBm input power for each tone) manual mode

Adjacent Channel Leakage Ratio (ACLR) in any 3GPP frequency band

3030A/3035:

Better than 63 dB ACLR on 3GPP (downlink test model 1)

Typically 68 dB ACLR on 3GPP uplink

3030C/3035C:

Better than 60 dB ACLR on 3GPP (downlink test model 1)

Typically 65 dB ACLR on 3GPP uplink

Spurious (excluding IF image frequencies and harmonic responses)

3030A/3035:

Typically -75 dBc

3030C/3035C:

Typically -70 dBc

Residual Responses (no signal input)

<-95 dBm, typically -100 dBm with RF input terminated into 50 ohms and minimum RF and IF attenuation

Noise Spectral Density (no signal input)

RF input terminated in 50 ohms and minimum RF and IF attenuation

3030A:

Below 1 GHz, <-145 dBm/Hz

1 GHz and above, <-140 dBm/Hz

3035:

<-135 dBm/Hz, typically -140 dBm/Hz

3030C/3035C: (preamp in)

Below 500 MHz <-135 dBm/Hz

Above 500 MHz <-140 dBm/Hz

IF OUTPUT (3030A, 3035 ONLY)

Frequency center

77.76 MHz

Level

3030A:

Relative to RF input (0 dB input attenuation selected)

Typically -3 dB between 330 MHz to 2.5 GHz

Typically -5 dB between 2.5 GHz to 3 GHz

3035:

Nominally -4 dB relative to RF input (0 dB input attenuation selected)

Bandwidth

Typically 100 MHz (-3 dB)

A/D CONVERSION

Resolution

3030A/3035 *14 bits*

3030C/3035C *13 bits*

ADC Clock

3030A/3035 *103.68 MHz*

3030C/3035C *250 MHz*

Sample Rate Control

IF Data: same as ADC clock

IQ Data:

3030A/3035[1]	*6328.125 Sa/s to 85 MSa/s or 51.84 MSa/s with LVDS output enabled*
3030C/3035C	*15.3 kSa/s to 250 MSa/s or 90 MSa/s with LVDS output enabled*

[1] LVDS output sample rate is limited to a max. of 5MSa/s with option 198 enabled

Sample Rate Resolution

0.1 Hz when the sample rate is entered as a real number

Sample rate can be entered as a fraction made up of integers

Sample Rate Accuracy

As per 10 MHz ref[1]

[1] add ±2 µHz when using generic re-sampling mode

Amplitude Flatness (correction on)

<±0.1 dB across center 5 MHz on all variants

3030A:

<±0.25 dB across 30 MHz, typically ±1.0 dB across 36 MHz

3035

Typically ±1.0 dB across 36 MHz

Below 2.9 GHz <±0.25 dB across 33 MHz

Above 2.9 GHz <±0.4 dB across 33 MHz

3030C/3035C

Below 500 MHz <±0.25 dB across 15 MHz, typically ±1.0 dB across 20 MHz

500 MHz to 1 GHz <±0.25 dB across 33 MHz, typically ±1.0 dB across 36 MHz

Above 1 GHz <±0.25 dB across 67 MHz, typically ±1.0 dB across 90 MHz

Phase Flatness (typical with correction on)

3030A/3035 ±0.03 radians pk-pk to 33 MHz

3030C/3035C

Below 500 MHz ±0.03 radians pk-pk to 15 MHz

Below 1 GHz ±0.03 radians pk-pk to 36 MHz

Above 1 GHz ±0.03 radians pk-pk to 67 MHz

Data Output

A sample data block (equal to the data capture length) can be stored to the memory internal to the 3030 and then transferred across the PCI bus and or can be continuously streamed out of the LVDS connector

IF data samples have 16 bit wordlength

IQ data samples can be 16 or 32 bit wordlength

Note: IF data output to LVDS is not supported on 3030C or 3035C

Sample Memory

3030A/3035 128 M x 16 bit samples

3030C/3035C 256 M x 16 bit samples

TRIGGERING

Trigger Mode

Single, repeat

Trigger Type

Edge, gated, none (software triggered)

Hardware Trigger Sources

Internal IF or IQ data (with user defined level threshold) and timer

External (LVDS, Trig bus, local bus, star trigger, TTL)

Trigger Polarity

+ve or –ve (Edge trigger), Gate high, Gate low (Gated trigger)

Trigger Functions

Pre-trigger

0 to sample length

Delayed Trigger

0 to + 2 G samples

Trigger Latency

0 to 1 sample at the output sample rate

Trigger hold off (303xC modules only)

Min trigger hold-off: 0 (default)

Max trigger hold-off: 65536 (0xFFFF) µs in steps of 1 µs

SPECTRUM ANALYZER PLUGIN

This Windows™ application software is designed for minimum screen resolution of 1024 x 768 useable for 600 x 800

Frequency Span Range

Variable between 2 kHz to 200 MHz and zero span

Resolution 1 Hz

RBW

Variable between 1 Hz to 10 MHz

Resolution 1 Hz

Window Type

NEBW: Gaussian 3 dB: Gaussian fixed: Blackman Harris 5 term

Sample Time

Up to 333 seconds

Resolution 1 ns

Measurements

Channel Power and Adjacent Channel Power

Adjacent channels: 2 upper and 2 lower or user defined up to 99

Channel filter alpha: 0.0 to 1.0

Channel spacing: up to 15 MHz

Channel width: up to 25 MHz

Occupied Bandwidth (OBW)

Percentage range: 1% to 99.99%

N Peaks

Frequency and power output for up to 10 signal peaks sorted in order of descending power

Average Power

The RMS average power for all IQ samples

Markers

4 markers plus delta marker

Marker Functions

Marker power and frequency with peak search, next peak, peak track

Power and time

Frequency and time

Traces

Live, avg, max. hold

Spectrum trace, power versus time trace, frequency versus time trace

Text results summary

INTERFACES

3010/11

LO output (SMA)

10 MHz reference I/O (SMA x 2)

303x

RF input, (SMA)

Local oscillator input (SMA)

*IF output and input (SMA*2) 3030A/3035 only*

*10 MHz reference (SMA*2)*

Data interface LVDS (VHDCI)

TTL trigger (SMB)

POWER CONSUMPTION (TYPICAL)

	3010/3011	3030A	3035	3030C	3035C
+3.3v	50mA	3A	3A	2.2 A	2.2 A
+5v	650 mA[1]	1.5 A	2 A	3.1 A	4.1 A
+12v	50 mA[2]	300 mA	300 mA	350 mA	350 mA
-12v	30 mA	150 mA	150 mA	50 mA	50 mA
DC power		23 W	26 W	27.5 W	32.5 W

[1] 250 mA transiently during power up

[2] 3011 OCXO requires 300 mA startup reducing to 150 mA after 5 minutes

DIMENSIONS AND WEIGHT

Dimensions

3010/11 Single width 3U PXI module

3030/3030A/3030C /3035 Double width 3U PXI module

3035C Triple width 3U PXI module

Weight

3010	375 g (0.8 lbs)
3011	390 g (0.86 lbs)
3030A/3030C/3035	750 g (1.7 lbs)
3035C	1060 g (2.3 lbs)

FREQUENCY REFERENCE

Source

3030A/3035:

External (front panel SMA)

3030C/3035C:

External (front panel SMA), Internal (PXI backplane)

Frequency

10 MHz

Level

3030A/3035:

0.4 V to 4 V pk-pk into 50 ohms or looped through

3030C/3035C:

1.0 V to 4 V pk-pk into 50 ohms or looped through

GENERAL

The following general specifications are common to the 3010, 3011 and 303x.

Standard Warranty

24 months

Calibration Interval

Recommended 24 months

Electromagnetic Compatibility

EN 61326-1:2006, Emissions Class A Immunity Table 1

Safety

EN 61010-1:2001 Safety requirements for electrical equipment for measurement, control and laboratory use-Part 1, General requirements

Driver Software

VXIpnp compliant software driver

LOCAL OSCILLATOR INPUT

Frequency Range

1500 MHz to 3000 MHz

Level

303x input: Nominally 0 dBm

RATED RANGE OF USE

Operating Temperature

0 to 50°C, meets IEC-60068-2-1 and 60068-2-2

Operating Humidity

10 to 90% non-condensing, meets IEC-60068-2-56

CONDITIONS OF STORAGE AND TRANSPORT

Storage Temperature

-20 to +70°C, meets IEC-60068-2-1 and 60068-2-2

Storage Humidity

5 to 93% non-condensing, tested to IEC-60068-2-56

Shock

30 g peak, half sine, 9 ms pulse. Tested in accordance with IEC-60068-2-27

Random vibration 5 Hz to 500 Hz, 2.46 g rms non-operating. Tested in accordance with IEC-60068-2-64

COMPLIANCE

PXI hardware specification, revision 2.2, ECN 1 revision 1.0. PXI software specification revision 2.1 VXI plug & play specifications (VPP-2, VPP-3.x, VPP-4.x and VPP-7)

3010/3011 SPECIFIC SPECIFICATIONS

Specifications are common to the 3010 and 3011 unless otherwise stated.

LOCAL OSCILLATOR OUT

Frequency Range

1.5 GHz to 3.0 GHz

Resolution

1 Hz

Accuracy

As frequency standard

Output Power

Fixed level in the range -4 dBm to +3 dBm

Output Impedance

50 Ω nominal

VSWR

<2:1

FREQUENCY REFERENCE OUT (3011 ONLY)

Level

2 V pk-pk nominal square wave into 50 ohms

Frequency

10 MHz

Aging Rate

1 in 10^9 per day, 1 in 10^7 per year

Temperature Stability (0°C to 50°C)

Typically better than $\pm 1 \times 10^{-8}$

Warm-Up Time

<5 Minutes

VERSIONS, OPTIONS AND ACCESSORIES

When ordering please quote the full ordering number information.

Ordering Numbers	Versions
3030A	PXI wideband RF digitizer 330 MHz to 3 GHz
3030C	PXI wideband RF digitizer 250 kHz to 3 GHz
3035	PXI wideband RF digitizer 330 MHz to 6 GHz[1]
3035C	PXI wideband RF digitizer 250 kHz to 6 GHz
3010	PXI RF synthesizer
3011	PXI RF synthesizer (including OCXO 10 MHz reference)

Each supplied with

The 3030 Series and 3010/11 are each supplied with:

CD ROM containing drivers, PXI Studio application software, spectrum analyzer measurement plugin and user documentation

CD ROM containing factory test data and calibration certificate

2 SMA link cables (with 3010/3011)

2 SMA link cables (with 3030A/3035)

1 SMA link cable (with 3030C/3035C)

Options

3010/11 Opt 01	High speed frequency switching (subject to export control)
3030 Opt 198	Limit LVDS output sample rate to 5 MSa/s (applies to 3035 only)

Optional application libraries (supplied on separate CDROM)

See PXI Studio data sheet

3030 Opt 100	GSM/EDGE measurement suite
3030 Opt 101	UMTS/HSUPA uplink measurement suite
3030 Opt 102	CDMA2000/1xEV-DO reverse link measurement suite
3030 Opt 103	WLAN measurement suite
3030 Opt 104	WiMAX OFDMA measurement suite
3030 Opt 106	Bluetooth measurement suite
3030 Opt 107	LTE FDD measurement suite

When purchased as an upgrade, order as:

RTROPT100/3030	GSM/EDGE enable
RTROPT101/3030	UMTS uplink enable
RTROPT102/3030	CDMA2000 reverse link enable
RTROPT103/3030	WLAN enable
RTROPT104/3030	WiMAX OFDMA enable
RTROPT106/3030	Bluetooth enable
RTROPT107/3030	LTE FDD enable

Service Options

W3010/103	3010 Standard extended warranty 36 months
W3030/103	3030 Standard extended warranty 36 months
W3010/103C	3010 Standard extended warranty 36 months with scheduled calibration
W3030/103C	3030 Standard extended warranty 36 months with scheduled calibration
W3010/105	3010 Standard extended warranty 60 months
W3030/105	3030 Standard extended warranty 60 months
W3010/105C	3010 Standard extended warranty 60 months with scheduled calibration
W3030/105C	3030 Standard extended warranty 60 months with scheduled calibration

Optional Accessories

43139/738	SMA link cable (130 mm)
43139/739	SMA link cable (180 mm)
46885/224	SMA connector saver
23435/698	68 way VHDCI to SCSI-3 cable assy 1.8 m
23435/699	68 way VHDCI to VHDCI cable assy 1.8 m

Notes

[1] Subject to export control without 3030 option 198 fitted

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