ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

**Artisan Technology Group**
(217) 352-9330 | sales@artisantg.com | artisantg.com

**Full-service, independent repair center**
with experienced engineers and technicians on staff.

**We buy your excess, underutilized, and idle equipment**
along with credit for buybacks and trade-ins.

**Custom engineering**
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

**Expert team | Trust guarantee | 100% satisfaction**

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Teradyne / LitePoint / ZTEC Instruments ZT002PXI* at our website: *Click HERE*

# 3 GHz RF Signal Analyzer

## ZT002PXI

- Three-in-one RF instrument
- Frequency range of 100 MHz to 3 GHz or 10 KHz to 500 MHz (Option 1)
- Frequency counter
- Peak power meter
- Time interval analyzer
- Flexible instrument configuration
- External synchronization input and output

**Calibration Certificate Included**

**Driver Software**
- National Instruments LabVIEW™



### Overview

The ZT002PXI is a three-in-one PXI/CompactPCI instrument for ATE and field measurement of telecommunication and radar systems. Its 3 GHz frequency range covers the commercial telecommunication frequencies of cell-sites, base-stations, wireless modems, and digital radio links.

Testing, installing and maintaining RF systems typically requires three pieces of equipment including a frequency counter, a peak power meter, and a time interval analyzer. The ZT002PXI provides all three functions and can be added to a portable PXI chassis to reduce the cost, weight, size, and complexity of carrying multiple pieces of equipment into the field.

In ATE systems, valuable rack space and PXI slots can be saved with this miniature three-in-one instrument. The ZT002PXI is the first instrument to offer RF functions in PXI and comes with a complete LabVIEW™ software interface that allows the user to begin taking RF measurements immediately.

### Three-In-One RF Instrument

The ZT002PXI adds RF signal analysis capabilities to PXI/CompactPCI test sets by combining three of the most common measurements into one instrument. The single-wide, 3U PXI/CompactPCI card combines the functions of a frequency counter, peak-power meter, and time-interval analyzer. In ATE systems, the three-in-one ZT002PXI will save valuable PXI slots and rack space.

# 3 GHz RF Signal Analyzer

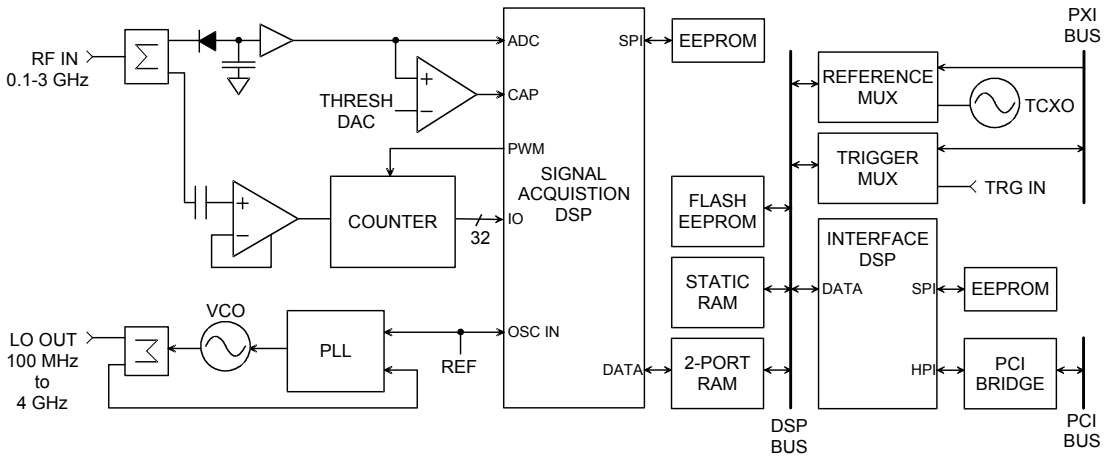



***Figure 1:*** *ZT002PXI block diagram*

## General Purpose ATE Measurements

For measurements used in RF component and RF assembly testing, the three-in-one ZT002PXI processes a continuous or pulsed RF signal up to 3 GHz.

The RF input is processed in parallel using an RF counter that measures frequency, a calibrated envelope detector that measures peak power, and time-capture circuitry that measures the pulse width and pulse repetition interval. Because the acquisition time is selectable between 100 nanoseconds and 1.25 seconds, measurement resolution and speed can be optimized for each application.

For better measurement accuracy over time and temperature, the PXI backplane clock can be selected as the reference timebase.

## Pulsed RF Signal Analysis

Pulsed RF systems, such as radars, can be quickly characterized with the ZT002PXI. The ZT002PXI is able to capture RF bursts as short as 100 nanoseconds.

In addition to measuring frequency and peak power, time-capture circuitry measures the width and repetition interval (PRI) of a pulsed RF input. Complex pulsed input signals such as radar triplet pulses can be acquired and characterized. An on-board digital signal processor performs the measurements of pulse-width, PRI, frequency, and peak power in less than 100 microseconds.

On-board memory allows the acquisition and analysis of multiple subsequent RF pulses without any lost data. This allows each and every RF pulse to be captured and downloaded over the PCI bus in block transfers. The continuous, non-interrupted data acquisition and download allows signals to be characterized in real-time, continuously and indefinitely for applications in electronic intelligence gathering and electronic signal characterization.

# 3 GHz RF Signal Analyzer

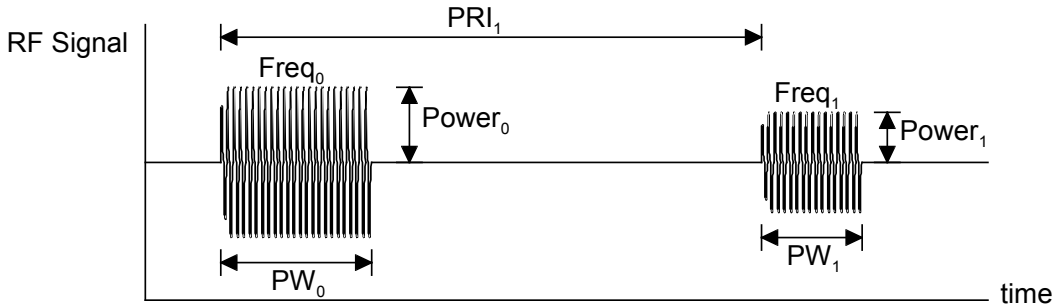



***Figure 2:*** *ZT002PXI measurements*

## Optional Fixed Local Oscillator Output

An optional phase-locked loop based fixed Local Oscillator (LO) output up to 4 GHz is also available on the ZT002PXI. The LO output can be used for signal generation or signal downconversion to extend the ZT002PXI input frequency range using an external mixer. Contact factory for options.

## Driver Software

To enable quick and simple system integration with other PXI instruments, LabVIEW™ application software and drivers are provided with the ZT002PXI. This application software allows continuous, non-interrupted RF data to be captured, downloaded and displayed on the graphical user interface.

## Ordering Information

**Standard Configuration**

| | |
|---|---|
| PXI | ZT002PXI-00 |

**Options**

| | |
|---|---|
| Low Frequency PXI | ZT002PXI-01 |

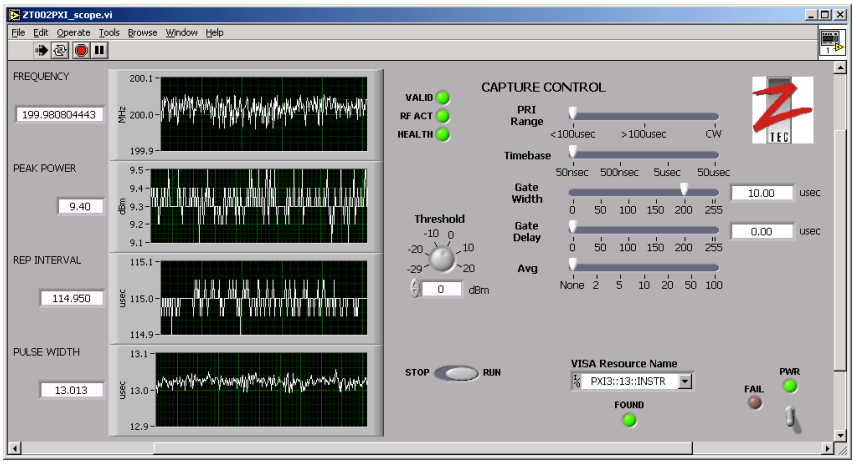



***Figure 3:*** *ZT002PXI LabVIEW™ application software*

# 3 GHz RF Signal Analyzer

## Performance Characteristics

**RF Input**

| | |
|---|---|
| Frequency | 100 MHz to 3.0 GHz |
| Signal Range | -34 dBm to +16 dBm |
| Input Impedance | 50 _ |
| Input Coupling | AC |
| Input Connector | SMA |
| Input VSWR | < 1.2:1 0.1 to 2.5 GHz<br>< 1.4:1 2.5 to 3.0 GHz |
| Modulation | Continuous Wave or Pulsed |

**Low Frequency RF Input (Option 1)**

| | |
|---|---|
| Frequency | 10 kHz to 500 MHz |
| Signal Range | -34 dBm to +16 dBm |
| Input Impedance | 50 _ |
| Input Coupling | AC |
| Input Connector | SMB |
| Input VSWR | < 1.4:1 |
| Modulation | Continuous Wave or Pulsed |

**RF Frequency Measurements**

| | |
|---|---|
| Acquisition Gate | 100 nanoseconds to 1.25 seconds |
| Range | 100 MHz to 3.0 GHz<br>10 kHz to 500 MHz (Option 1) |
| Resolution | 1 Hz |
| Relative Accuracy | 9 digits/second (0.001 ppm/s) |
| Absolute Accuracy | 0.001 ppm/s + timebase accuracy |
| Internal Timebase | ±2.5 ppm |
| PXI Timebase | Timebase accuracy can be improved to ±0.001 ppm with PXI reference |

**Peak Power Measurement**

| | |
|---|---|
| Range | -34 dBm to +16 dBm |
| Resolution | ±0.01 dB |
| Accuracy | ±0.25 dB (-20 dBm to +10dBm)<br>±1.00 dB (-34 dBm to +16 dBm) |

**Low Frequency Peak Power Measurement (Option 1)**

| | |
|---|---|
| Range | -34 dBm to +16 dBm |
| Resolution | ±0.01 dB |
| Accuracy | ±0.5 dB (-20 dBm to +10dBm)<br>±1.0 dB (-34 dBm to +16 dBm)<br>±2.5 dB < 20 MHz |

**RF Pulse Width Measurements (Pulse-Modulated Inputs)**

| | |
|---|---|
| Minimum Width | 100 nanoseconds |
| Accuracy | ±1 nanosecond |
| Resolution | 1 nanosecond |

**RF Pulse Repetition Interval Measurements (Pulse-Modulated Inputs)**

| | |
|---|---|
| Minimum PRI | 100 microseconds |
| Accuracy | ±1 nanosecond |
| Resolution | 1 nanosecond |

**Data Acquisition**

| | |
|---|---|
| Acquisition | Programmable Aperture Window, Aperture Delay, Signal Threshold |
| Auto Detect | Automatic Detection & Control of Aperture Window & Signal Threshold |
| Data Processing | < 100 microseconds for complete measurement |
| Data Memory | 32 kbytes for multiple RF pulse acquisition |

**Reference Input**

| | |
|---|---|
| Clock Source | Internal TCXO, PXI Backplane |
| Internal TCXO | ±2.5 ppm accuracy |

**Trigger**

| | |
|---|---|
| Trigger Source | Front Panel, PXI Backplane, Software |
| Trigger Edge | Rising or Falling |
| External Trigger | Trigger Input or Output |
| Trigger Input | TTL Compatible, 10 kΩ Input Impedance, SMB Connector |
| Input Function | Synchronous Data Acquisition |
| Trigger Output | TTL Compatible into 50 Ω, SMB Connector |
| Output Function | Acquisition Window for Detected RF Envelope |

**PXI Interface**

| | |
|---|---|
| PCI Interface | 33 MHz, 32-bit Address, 16-bit Data |
| PCI Voltage | Universal, +3.3V or +5V |
| PCI Compatibility | Version 2.2 |
| PXI Signals | PXI_TRIGn input/output selectable<br>PXI_STAR input selectable<br>10 MHz reference input selectable<br>Left and right side buses not used |

**Physical and Environmental**

| | |
|---|---|
| Physical size | Single-Wide 3U CompactPCI/PXI Instrument |

**Artisan Technology Group** is an independent supplier of quality pre-owned equipment

## Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

## We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

## Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP