

Artisan Technology Group is your source for quality new and certified-used/pre-owned equipment

FAST SHIPPING AND DELIVERY

- TENS OF THOUSANDS OF IN-STOCK ITEMS
- EQUIPMENT DEMOS
- HUNDREDS OF MANUFACTURERS SUPPORTED
- LEASING/MONTHLY RENTALS
- ITAR CERTIFIED
 SECURE ASSET SOLUTIONS

SERVICE CENTER REPAIRS

Experienced engineers and technicians on staff at our full-service, in-house repair center

WE BUY USED EQUIPMENT

Sell your excess, underutilized, and idle used equipment We also offer credit for buy-backs and trade-ins **www.artisantg.com/WeBuyEquipment** *>*

Instra View REMOTE INSPECTION

Remotely inspect equipment before purchasing with our interactive website at **www.instraview.com** *>*

LOOKING FOR MORE INFORMATION?

Visit us on the web at <u>www.artisantg.com</u> for more information on price quotations, drivers, technical specifications, manuals, and documentation

Model bc824/827VXI



Features

Rubidium Oscillator modes:

- Free Running
- 10 MHz Synchronization
- 1 PPS Synchronization
- Time Code Synchronization

Outputs Generated by Low Phase Noise Crystal Oscillator 100 Nanosecond Resolution Internal Clock Register/Message Based Device

Two-Slot Wide, C-Size VXIbus Module

External Event Time Capture (10 nanosecond resolution) Programmable Periodics and Strobe (signal and interrupts) Time Code Output (IRIG B)

Optional Features

Global Positioning Satellite Synchronization (bc827VXI)

Overview

Datum Inc has provided GPS-disciplined precision timing systems since 1984 and telecommunications products for more than 25 years. The VXIbus Rubidium Frequency Standard plug-in card is an ultra stable miniature atomic oscillator supported by a C-size mainframe and resource manager configured in accordance with the VXIbus specification. The timing card will provide an ultra stable 10 MHz sine wave or TTL outputs with minimal noise. The standard product employs both a rubidium oscillator and a low phase noise ovenized crystal oscillator (OCXO). The rubidium oscillator provides exceptional long term stability if the synchronizing input is lost. The OCXO phase locks to the rubidium oscillator, removing rubidium frequency spurs and providing an excellent noise floor.

The VXIbus Rubidium Frequency Standard Plug-in card is a register based device as well as a message based device. The message based interface capability will provide minimal access latency to the card via the system bus. The capability of interrupt generation will allow interrupt driven algorithms to interface to the card.

The bc824VXI will synchronize to an external 1 PPS, 10 MHz reference or IRIG time code. The bc827VXI adds the capability of synchronizing to the GPS satellite constellation. If the input source is lost, then time will be maintained in a flywheel state based on the on-board rubidium standard.



Applications





•

•

•

•

Satellite Ground Stations



RF Telecom Systems

-75 dBc/Hz @ 1 Hz

-110 dBc/Hz @ 10 Hz -140 dBc/Hz @ 100 Hz

-150 dBc/Hz @ 1 kHz -150 dBc/Hz @ 10 kHz

and less than 25 hours power

Time Code, 1 PPS, 10 MHz

100 nanoseconds

Binary or BCD

GPS, Time Code, 1 PPS, 10 MHz

IRIG A or B, modulated or DCLS

(IEEE-1344 compliant)

500 mV to 5 V P-P

20 dB minimum

4 V P-P (fixed)

TTL/CMOS

>10KQ (AC coupled)

-80dBc Overall

<-50 dBc

<-80dBc

off)

Zero

Binary

2.1 to 6.1

IRIG B

3:1

Specifications

Electrical Phase Noise

Spurious Harmonics Channel-to-Channel Isolation

Disciplined Oscillator

Frequency 10 MHz Outputs 10 MHz Rate Accuracy: 1X10⁻¹⁰ Allen Variance Stability 1 sec 3X10⁻¹¹ 10 sec Allen Variance 1X10⁻¹¹ 100 sec Allen Variance <5X10⁻¹¹ Monthly Aging <5X10⁻¹⁰ Yearly 2.5X10⁻¹⁰ Temperature Coefficient One-day Stability 1X10⁻¹⁰ @ 25 C ±3 C (includes aging, frequency offset over temperature range, setting accuracy and 10% input voltage change) 5X10⁻¹¹ @ 25 C Accuracy at Shipment 5X10⁻¹¹ (after 1 hour power on

Frequency Retrace

Sync Sources

bc824VXI bc827VXI

Real Time Clock

Bus Request Resolution Bus Request Latency Major Time Format Minor Time Format

Time Code Translator

Time Code Formats

Modulation Ratio Input Amplitude Input Impedance Signal to Noise Ratio

Time Code Generator

Time Code Format Modulation Ratio **Output Amplitude** DC Level Shift

. **Datum - San Jose**

6781 Via Del Oro San Jose CA 95119-1360 Toll Free (800) 348-0648 Telephone (408) 578-4161 Fax (408) 574-4950 e-mail salessj@datum.com

Specifications are subject to change without notice. Copyright© Datum Inc. All rights reserved.

BD9802005B

Timing Functions

Heartbeat (TTL, 50Ω)

Event Capture (TTL, 50Ω) Enhanced Event (TTL, 50Ω) Event Compare (TTL) 1 PPS Pulse Rate (TTL, 50Ω)

GPS Subsystem (bc827VXI only)

Time Accuracy Position Accuracy Maximum Velocity Number of Channels Receiver Frequency Time to First Fix

Solution Modes

Environment

Temperature: Operating Storage Humidity: Operating Storage

VXI Bus

Address Space Data Transfer Power

Input Voltage Sensitivity Warm-up Time

Physical Size

Weight Connector Types

GPS Cable Length

Option

250 kHz to less than 1 Hz 100 ns resolution, zero latency 10 ns resolution, 50µs latency Programmable, 1ms - hours Positive edge on-time

Programmable periodic

Model bc824/827VXI

<200 nanoseconds 100 meters SEP (SA on) 300 meters/sec (1,080 KPH) 6 1.575 GHz (L1, C/A code)

Brief power off: 1.5 minutes (1.3 and 4 satellites) Worst case: 5 to 15 minutes 1.3 and 4 satellites

<u>Module</u> Antenna 0C to 50C -40C to 70C -50C to 50C -55C to 85C

10% to 80%* 100% 5% to 95% 100% *non-condensing

A16 only

Byte, Half-Word, Word V Warmup Operating +5VDC 0.75A 0.75A +12 1.0A 0.5A +24 2.0A @ 0C 0.8A -24 0.4A 04A $<5X10^{-11}$ ($\Delta = \pm 10\%$ VDC) Time to Lock <4 min (25C) 6 minutes/1X10-9

Double Wide C-Size (9.2 in X 13.5 in) 4.25 lbs 8 front panel BNC outputs SMA for optional GPS antenna 15-pin 'D' connector P1 & P2 per VXIbus specification 50 feet

LabVIEW Driver

For more information about the complete range of Quality Timing Products from the Datum Group of Companies, call (800) 348-0648 in the United States and Canada.

Or visit our site on the World Wide Web at http://www.datum.com for continuously updated specifications and information.





Artisan Technology Group is your source for quality new and certified-used/pre-owned equipment

FAST SHIPPING AND DELIVERY

- TENS OF THOUSANDS OF IN-STOCK ITEMS
- EQUIPMENT DEMOS
- HUNDREDS OF MANUFACTURERS SUPPORTED
- LEASING/MONTHLY RENTALS
- ITAR CERTIFIED
 SECURE ASSET SOLUTIONS

SERVICE CENTER REPAIRS

Experienced engineers and technicians on staff at our full-service, in-house repair center

WE BUY USED EQUIPMENT

Sell your excess, underutilized, and idle used equipment We also offer credit for buy-backs and trade-ins **www.artisantg.com/WeBuyEquipment** *>*

Instra View REMOTE INSPECTION

Remotely inspect equipment before purchasing with our interactive website at **www.instraview.com** *>*

LOOKING FOR MORE INFORMATION?

Visit us on the web at <u>www.artisantg.com</u> for more information on price quotations, drivers, technical specifications, manuals, and documentation