EQIO

VPX-1002

PRODUCT MANUAL

3U VPX High-Precision Timing Card

VPX timing card · Communications network...



Appearance reference (generated from product photos); shipped units may differ.

Measurement and control, made easy.

Easy · Quick · Input · Output

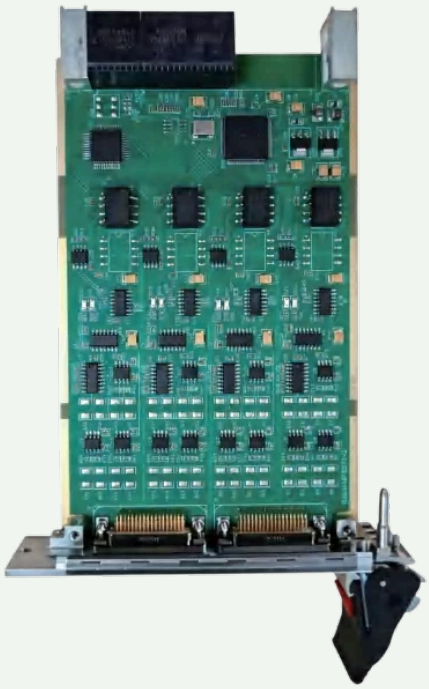
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01 OVERVIEW

3U VPX High-Precision Timing Card

VPX timing card · Communications networking · Measurement and control system · Electrical power automation · VPX

VPX-1002 supports GPS, B(AC) code and B(DC) code input, provides B code and 1PPS output, has holdover, latency correction, fault detection and API configured with function, used for measurement and control equipment provides unified time baseline.
Front panel provides antenna, code input, output connect and status indicator, suited to and acquisition board together consists of synchronous measurement and control system. Latency correction can compensation different link latency, short-term holdover function used for reference signal temporary interrupt during time keep.



Product appearance reference; shipped units may differ.

Key features

- GPS, B(AC) and B(DC) input
- 10-ch RS-422 time signal output
- 2-ch HCMOS1PPS output
- GPS1PPS synchronous accuracy≤±0.2μs
- 15 minutes holdover accuracy≤±1ms

02 FUNCTIONS

Functions and engineering value

Multi reference time baseline attach

Timing card receive GPS, B(DC) code or B(AC) code, measurement and control equipment establish unified time reference. Different input should different synchronous accuracy, GPS and B(DC) conditions under 1PPS metrics ≤±0.2μs, B(AC) ≤±10μs, selection and acceptance must per actual reference from source distinguish. Input line status can via driver read.

Time signal distribution and short-term keep

Board provides 10-ch RS-422 time signal and 2-ch HCMOS1PPS output, can respectively connect requires time code and 1 PPS equipment. Reference temporary interrupt when has 15 minutes holdover, accuracy≤±1ms published metrics, not can lock reference when synchronous accuracy reuse to holdover status.

Software configured with and latency compensation

Driver can read GPS and input status, API supports interrupt control, time settings and latency correction. Correction range 0 to 99999.9μs, stepper 0.1μs, settings can memory; requires based on actual link measurement configured with compensation value, and via read-back status confirm current reference and synchronous status.

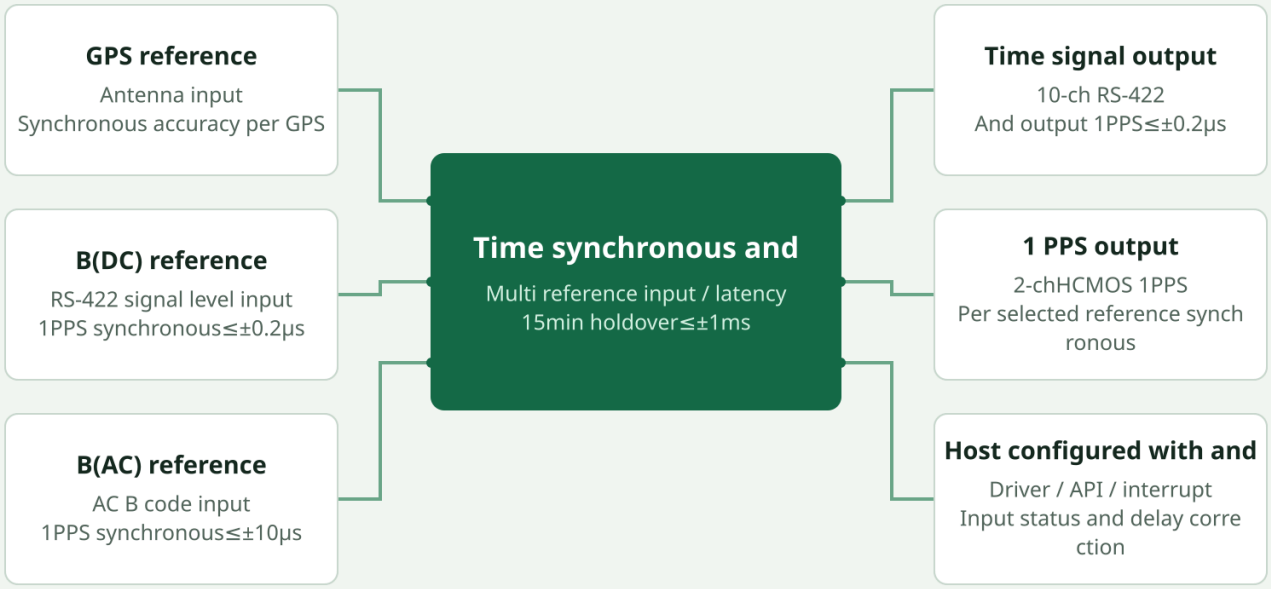
The functional notes explain the product’s role from published configuration. Optional functions, software and peripherals follow the project definition. Chip capability is not the same as implemented I/O.

03 ARCHITECTURE

Signal and functional relationships

FUNCTIONAL BLOCK DIAGRAM

VPX-1002



Functional relationships · lines do not show internal circuits, pins or dedicated bus topology

Function block diagram not inferred internal CPU or clock circuit; input reference, synchronous and holdover accuracy respectively mark, not state PTP/NTP protocol capability.

Platform and I/O

This product is time base receive, holdover and time signal distribution function board, published data not gives CPU or internal clock device model. Block diagram time synchronous function centre, distinguish GPS, two kinds of B code reference and RS-422/HCMOS output, accuracy must follow reference from source and lock, holdover status respectively de.

> **Reading the diagram**
>
> Solid lines show published functional relationships, not on-board buses, bridge chips or connector pins. Optional controllers, radios, storage and software follow the configuration and interface files.

04 SPECIFICATIONS

Technical specifications

Compiled from published product data. Batch, I/O and environmental ratings follow the order confirmation.

Technical data

Input signal	GPS, B (DC) code (RS-422 signal level), B (AC) code
Output signal	And output 1PPS synchronous accuracy: ≤±0.2μs, signal level: RS-422, channel count: 10-ch, physical I/O: J30J-25TJWP2-J
Holdover accuracy	Holdover time: 15min, holdover accuracy: ≤±1ms
Power consumption	Boot power consumption: <10W, steady-state power consumption: <6W
1PPS	And GPS1PPS synchronous accuracy≤±0.2μs, and input B (DC) code synchronous accuracy≤±0.2μs and input B (AC) code synchronous accuracy≤±10μs, signal level: HCMOS, channel count: 2-ch, physical I/O: J30J-25TJWP2-J

I/O and expansion

Input/output	1 antenna input I/O, 1 B (DC) code input I/O, 1 B (AC) code input I/O, 1 output I/O
Other	4 LED, 1 reset button

Environmental conditions

Operating temperature	-40°C ~ 55°C (operating temperature), -45°C ~ 60°C (storage temperature)

Software and timing

Status read	Can via driver read GPS longitude, latitude, altitude, satellite number, and input signal and line status
Time settings	Can selected line signal without input when via driver settings time
Interrupt control	API open /related interrupt and provides response function; default 1Hz, specific function I/O matching driver
Latency correction	0~99999.9μs, stepper 0.1μs, settings rear can memory
Automatic synchronous and self-test	Per second automatic synchronous; supports fault detection and reset

05 APPLICATIONS

From product capability to applications

Synchronous measurement and control and data log

3U VPX measurement and control chassis in, can toward acquisition or control equipment distribution unified time signal, use different equipment log used together reference. Receive end time accuracy also subject to input circuit, software and link affect, should complete system in measurement, not cannot only cite timing card output metrics.

Device network time matching

Communications equipment if has corresponding B code or 1PPS receive I/O, can from this card provides hardware time baseline. Should check signal signal level, connector and reference switch policy, product the table does not lists PTP or NTP function, therefore network timing protocol must be separately determine equipment or software implements.

Electrical power monitoring reference time base

GPS or external B code can monitoring equipment provides time reference, driver status information facilitates recognition unlock and input fault. Project should per antenna conditions, cables latency and equipment receive specification design wiring, and test reference interrupt and recovery procedure, 15 minutes holdover metrics only used for should keep stage.

Integration checks

Reference and accuracy	Per GPS, B(DC) or B(AC) actual input respectively acceptance synchronous accuracy, not ±0.2μs used for all reference and holdover status.
Signal level and wiring	Check 10-ch RS-422 and 2-ch HCMOS1PPS, J30J-25 connector pinout and receive end signal level, do not directly mix connections.
Latency and software	Compensation range 0–99999.9μs, stepper 0.1μs; confirm driver API, default 1Hz interrupt and configured with read-back procedure.
Power and environment	Boot power consumption<10W, steady-state<6W, operation−40–55°C; check antenna installation and complete chassis power budget.

06 CONFIGURATION

Appearance, configuration and selection



Multi-angle reference (generated from product photos); shipped units may differ.

Configuration

Latency correction range 0–99999.9µs, stepper 0.1µs, operating temperature -40–55°C.

Selection guide

Order confirmation	Batch, I/O and environmental ratings follow the order confirmation
Published data	Compiled from published product data; EQIO provides selection and system integration
Configuration talk	Share the application, I/O count, environment and software so a configuration can be proposed

Request a quotation and selection support

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EQIO

Easy · Quick · Input · Output

BRAND

Measurement and control, made easy.



EQIO product family · concept rendering

Brand story

EQIO builds measurement and control products and systems. The name stands for Easy Quick Input Output: Easy is a clear structure that is quick to learn, Quick is a direct path to efficient delivery, and Input / Output is every link between the device under test and the control system.
The soft single-cycle wave inside the Q links the brand to signals, acquisition and I/O. “Measurement and control, made easy” is our promise for every selection, integration and delivery.

What we do

Products

Data acquisition, test instruments, control and I/O, modular platforms, software, cables

Systems

Configured to the measurand, channels, accuracy and software, from design to commissioning

Support

Selection advice, training, maintenance and calibration

How we deliver

01
Requirements

02
Solution design

03
Build & integration

04
Factory test

05
Delivery & training

06
Ongoing support

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