EQIO

CPCI-1002

PRODUCT MANUAL

6U CompactPCI High-Precision Timing Card

CPCI timing card · Industrial measuremen...



Measurement and control, made easy.

Easy · Quick · Input · Output

EQIO.COM

01 OVERVIEW

6U CompactPCI High-Precision Timing Card

CPCI timing card · Industrial measurement and control · Communications networking · Equipment time synchronous · CompactPCI

CPCI-1002 supports GPS, B(AC) code and B(DC) code input, provides B code and 1PPS output, has holdover, latency correction and API configured with capability, used for build unified time base measurement and control and communications system.
Front panel settings antenna, code input, output connect and status indicator, facilitates and acquisition control module together installation. Latency correction used for compensation link latency, holdover function can reference temporary interrupt during keep time, used for multi equipment synchronous and field measurement system.



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 from source time reference

Timing card supports GPS, B(DC) and B(AC) input, can 6U CompactPCI measurement and control system provides unified time base. GPS and B(DC) reference under 1PPS synchronous accuracy ≤±0.2μs, B(AC) reference ≤±10μs, acceptance should stated used input, not can has reference unified used optimum metrics. Matching driver can read input line status.

Time distribution and holdover

10-ch RS-422 time signal and 2-ch HCMOS1PPS output can connect different receive equipment, time signal output 1PPS synchronous metrics ≤±0.2μs. Reference interrupt when published holdover metrics 15 minutes≤±1ms, and normal lock status is different conditions, application should recognition and log status change.

Configured with, compensation and status management

Driver can read GPS location, satellite number and input line status, API supports interrupt, time settings and latency correction. Compensation range 0 to 99999.9μs, stepper 0.1μs, settings can memory; actual compensation value should based on cables and receive link measurement determine, not cannot only per theoretical length directly claim system accuracy.

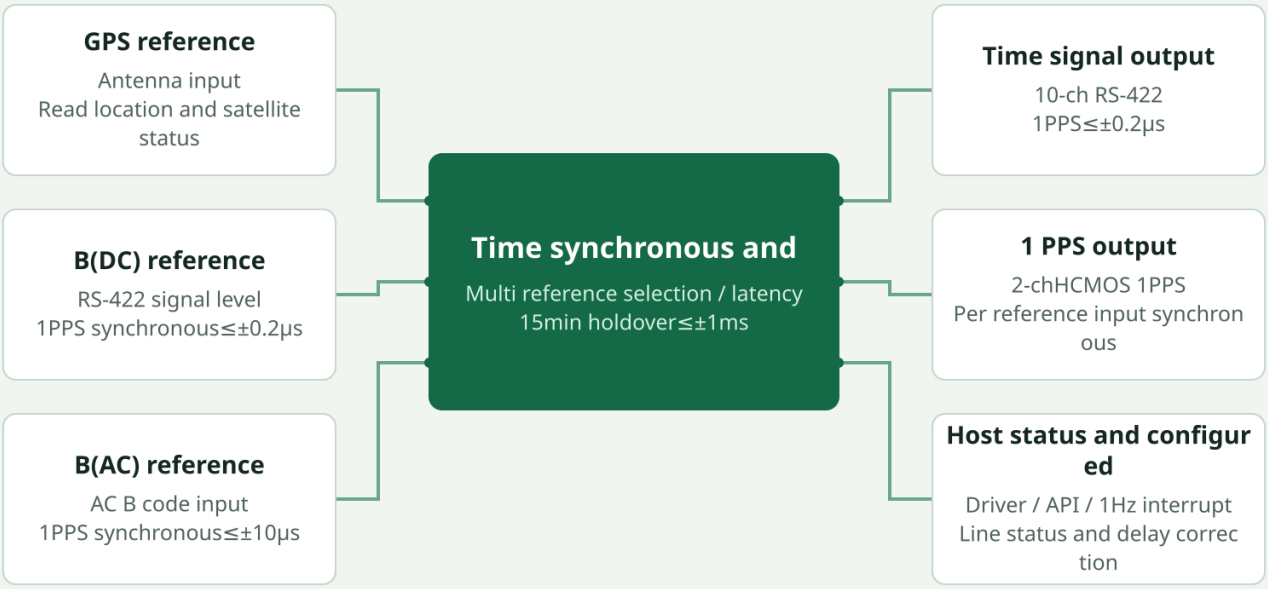
The functional notes explain the product’s role from published configuration. Optional functions, software and peripherals follow the project definition. Chip capability is not the same as implemented I/O.

03 ARCHITECTURE

Signal and functional relationships

FUNCTIONAL BLOCK DIAGRAM

CPCI-1002



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

Functional relationship not indicates internal clock circuit; synchronous accuracy, holdover accuracy and receive end system accuracy respectively de, output signal level and API per delivery note confirm.

Platform and I/O

This the board is time reference receive, holdover and signal distribution function card, published data not stated CPU or clock device model. Block diagram synchronous function centre, show three type reference, two kinds of output signal level and host API management, accuracy must per input source and operation status distinguish, not can board-level metrics directly view product time accuracy.

> **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	6 LED, 1 reset button

Environmental conditions

Operating temperature	Operating temperature: -40°C~55°C, storage temperature: -45°C ~ 60°C
Humidity	95%non-condensing

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

Unified time base acquisition chassis

Match 6U CPCI system in, can toward acquisition and control module distribution time code or 1 PPS, use log used together reference. Receive end input circuit, software time and cables latency still will affect final complete accuracy, should via product measurement verification, not cannot only cite timing board output metrics.

Equipment between time synchronous

Has B code or 1PPS receive capability equipment can per signal level and I/O definition connect, build hardware time reference solution. Host software should monitoring reference line, fault and holdover status, product the table does not lists network timing protocol, if required network distribution should separately supplied corresponding equipment or software solution.

Communications and test platform timing

GPS or external B code can test and communications equipment provides reference, driver status information has to log input fault and recovery process. Bench should respectively test normal synchronous, reference loss and 15 minutes holdover conditions, and per actual receive equipment confirm HCMOS and RS-422 wiring, avoid mix used signal level.

Integration checks

Reference conditions	GPS, B(DC) and B(AC) respectively should synchronous metrics; lock and 15 minutes holdover status must separate acceptance.
Output wiring	Check 10-ch RS-422 and 2-ch HCMOS1PPS, J30J-25TJWP2-J pinout and receive end signal level.
API and compensation	Confirm driver, default 1Hz interrupt, latency correction and configured with read-back; compensation range 0–99999.9µs, stepper 0.1µs.
Installation environment	Boot power consumption<10W, steady-state<6W, operation−40–55°C; check 6U chassis, antenna and input output cables conditions.

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

Email lyping@eqio.com Phone +86 182 8191 2988
Web eqio.com

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

Email lyping@eqio.com Phone +86 182 8191 2988 Web EQIO.COM