

Time Code Processor

TCP

Process precision time between GNSS, Havequick, IRIG, PPS, NTP and PTP.



Features

- Input:
 - ◊ GNSS* (GPS, Galileo, SAASM, M-Code)
 - ◊ Havequick
 - ◊ IEEE 1588-2002/2008*
 - ◊ IRIG
 - ◊ IRIG-DLCS
 - ◊ NTP*
 - ◊ xPPS
- Output:
 - ◊ Havequick
 - ◊ IEEE 1588-2002/2008*
 - ◊ IRIG
 - ◊ IRIG-DLCS
 - ◊ NMEA
 - ◊ NTP*
 - ◊ xPPS
- Disciplined Clock
 - ◊ Jam & Smooth Correction
- Certifications
 - ◊ 48,000 ft
 - ◊ MIL-STD-810
 - ◊ MIL-STD-461 (CE102 & RE102)
- Video Inserter*
- PTP Client* and Server*
- NTP Client* and Server*
- Embedded GNSS Receiver*
- Secure GPS Options
- Improved Holdover*
- Small Form-Factor*
- Backup Batteries*
- Character Display*

* optional

Ordering Options

Item	Description
TCP-S	Rugged Time Processor, Standard
TCP-M	Rugged Time Processor, Mini
TCP-AS	Airborne Time Processor, Standard
CBL-TCP	Cable, Time Processor
TCP-BATT-L	Battery, Li-Ion
TCP-BATT-C	Battery, SCAP
TCP-CSAC	CSAC
TCP-DISP	Character Display, OLED
TCP-GPS	GPS Receiver

Item	Description
TCP-GAL	Galileo Receiver
TCP-SAASM	SAASM Receiver
TCP-MCODE	M-Code Receiver
TCP-NTP-C	NTP Client
TCP-NTP-S	NTP Server
TCP-OEXO	Ovenized Oscillator
TCP-PTP-C	PTP Client
TCP-PTP-S	PTP Server
TCP-VIDEO	Video Insertion

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Specifications

Option	Value	Units	Notes
Display Character Array	16 x 2	-	optional
Environmental Altitude Storage Temperature Operating Temperature Humidity	48,000 -50 to +95 -40 to +85 95	feet °C °C %	non Li-Ion option non Li-Ion option non-condensing
Ethernet # Ports Physical Layer IP Version	1 10/100BASE-T IPv4	- - -	optional 100/1000BASE-T
Inputs Sync Accuracy, GPS Sync Accuracy, Havequick Sync Accuracy, IRIG-X12X Sync Accuracy, NTP (typ) Sync Accuracy, PTP (typ)	± 10 ± 200 ± 10 ± 10 ± 100	ns ns µs ms ns	optional HQ1, HQ2, PTTI HQ, Saturn i/ii, XHQ optional optional, support for both IEEE 1588:2002/2008
Input Event Capture # Programmable Events Accuracy	4 ± 100	- ns	debounced switch closure
Internal Clock Holdover, Standard Holdover, OCXO Holdover, CSAC	± 10.0 ± 5.0 ± 0.5	ns/s ns/s ns/s	< 0.5 °C/min ambient change optional, < 0.5 °C/min ambient change optional, < 0.5 °C/min ambient change
General Purpose I/O # Ports V _{IL} (max) V _{IH} (min) V _{OL} V _{OH} I _o	5 0.8 2.0 0.0 3.3 12	- V V V V mA	
GNSS RF, GPS Receiver RF, GPS SAASM Receiver RF, GPS M-Code Receiver RF, Galileo Receiver Impedance, Antenna Active Power, Current (max)	L1 L1/L2 L1/L2 - 50 / 75 100	- - - - Ω mA	optional optional optional optional optional optional, active or passive
Mechanical Standard Enclosure Dimensions Standard Enclosure Weight Mini Enclosure Dimensions Mini Enclosure Weight	15.0 x 10.8 x 5.9 0.7 to 1.4 14.9 x 10.3 x 3.7 0.5	cm kg cm kg	depending on options
Outputs # IRIG-X12X Ports # Programmable LVCMOS Ports # NMEA Serial Ports # NTP Servers # PTP Servers	1 5 1 1 1	- - - - -	optionally add up to 3 more Havequick, IRIG-DCLS, xPPS, status optional optional, supports for both IEEE 1588:2002/2008
Power Input Range Consumption, Standard Consumption, OCXO Consumption, CSAC Discharge Time, Li-Ion Battery Charge Time, Li-Ion Battery Discharge Time, Super Capacitor Battery Charge Time, Super Capacitor Battery	9 to 36 2.2 1.3 0.12 6 1.25 0.33 0.75	V W W W hrs hrs hrs hrs	optional optional optional optional optional optional optional optional
Video Insertion Encoding	PAL, NTSC	-	optional