LL-3765-200

Time Code to NTP/PTP Converter

Datasheet V 1.0

Key Features

- Reads IRIG B DC Time Codes incl. B004,..,007 with Year Information
- Fibre Optic Inputs available
- Redundant Power Supply Option
- Different Clock Options
  - OCXO
  - Rubidium
- 2 x SFP-Ports with NTP
- Alarm relay dry contact

Options

- **internal GNSS Receiver (Dual Band)**
- **NMEA Data Input (+1PPS)**
- **HaveQuick Time Code**
- **ICD-GPS-060A**
- **STANAG 4430**
- **Rubidium**
- **1, 5 and 10 MHz (sine, TTL or FO) Outputs**
- **1PPS**
- **IEEE1588 PTPv2 Grandmaster**

Description

The LL-3765-200 is a Time Code to NTP/PTP Converter.

The unit reads HaveQuick (ICD-GPS-060A, STANAG 4430) or IRIG time codes (B, A, G), synchronises its internal clock to the incoming time code and and provides the time information via NTP or PTP protocol in addition to the timing signals 10MHz and 1PPS to the clients.

Depending on the internal clock (TCXO, OCXO, Rubidium) the unit provides different degrees on holdover time, with Rubidium time drift is about 1µsec per day.

Unit can run as synchronised clock, or as Time code "Repeater" on external reference.

For high security, redundant input option is available, as redundant power supplies.

When equipped with redundant Time Code inputs, two general operation modes can be selected: Using the Input with better quality (i. e. TFOM), or switch only by failure from master input.

Timing Inputs & Outputs can be ordered as Fibre Optic or COAX.

Optional, with rubidium clock, unnormal behaviour of Time Reference input can be detected (Jamming or Spoofing) by software.

Customization of LL-3765-200 available by request.

LL-3765 TC to NTP/PTP Converter

Specifications:

Time Code Input

Format: IRIG B, A, G,
according to IRIG STANDARD 200-04
Typ: Pulse width code, TTL level
Connector: BNC
optional
ST, 850nm MM, Fibre Optic

or

Format: HaveQuick GPS-ICD-060A/STANAG 4430
Typ: serial, Manchester II, 1667bps
Connector: BNC
optional
ST, 850nm MM, Fibre Optic

Time Code Output

Format: IRIG B, A, G (selectable)
according to IRIG STANDARD 200-04
Typ: Pulse width code, TTL level
Connector: BNC
optional
ST, 850nm MM, Fibre Optic

or

Format: HaveQuick GPS-ICD-060A/STANAG 4430 (selectable)
Typ: Serial, Manchester II, 1667bps
Connector: BNC
optional
Fibre Optic: ST, 850nm MM
optional
RS485, Sub D, 9P, female

10MHz Output (1x)

Typ: 10MHz, sinus
Level: 7-10dBm @50Ω
Connector: BNC (optional SMA)

1PPS Output (1x)

Level: TTL-Level @50Ω
optional
10V @50Ω, acc. GPS-ICD-060A
Connector: BNC

Ethernet:

Control Interface
Typ: 100BASE-TX
Connector: RJ45

Timing (2x)
Typ: 1GbE
Connector: SFP

Protocol: NTP v2, v3, v4 (RFC1305, RFC1119, RFC5905, RFC5906, RFC5907, RFC1769)
Optional: PTP v2 IEEE1588-2008 (PTPv2), SNTP (RFC2030)

RS232 Interface (1x) Optional

Format: NMEA ZDA, RMC*
Typ: RS232
Connector: Sub D, 9P, female

Power

AC-Voltage: 100 – 240VAC / 50-60Hz optional
DC-Voltage: 28VDC nom. (16-32VDC)

OCXO: max 80W (operation), max 105W (warm up)
Rubidium: max 97W (operation), max 130W (warm up)

Connector: AC: C14 or SJT 14-05PN
DC: 3W3C, male

Environmental

Temperature: Operating -10°C to +55°C
Storage -40°C to +85°C

Humidity: 0% - 95%, non condensing @40°C

Altitude: Operation: 3000m
Storage: 12.000m

Vibration: EC 60068-2-6, 2g, 3 axis, sine sweep, 60-500 Hz

Shock: IEC 60068-2-27 / MIL-STD-810H, 516.8, 30g, 11ms halfsine

Optional: BSI Zone 1 certification

Chassis

19", 1U, rackmount, DIN41494-5/IEC297-3
Dimensions: 483,0 mm x 45,0 mm x 360 mm (W x H x D)

Comparison OCXO Rubidium

Typ	OCXO	Rb
Aging Day	5 x 10E–10	
Aging Month		<1x10E–10
Aging Year	5 x 10E–08	
Temperature Stability	±2.5 x 10E–8	±3x10E–10
Temperature Range	–10°C bis +60°C	–20°C bis +65
AD 1sec	2 x 10E–12	3x10E–11
AD 10sec	2 x 10E–12	1x10E–11
AD 100sec	5 x 10E–12	5x10E–12
SSB dBc/Hz		
1Hz	–100	–102
10Hz	–130	–135
100Hz	–145	–145
1kHz	–150	–150

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