TSAR

GLONASS + GPS board level High Precision Clocks

Introduction

The TSAR offers combined GLONASS and GPS signal reception to supply highly reliable synchronization clock from the two world's two largest Global Navigation Satellite Systems (GNSS), thanks to a state-of-the art 24-channel receiver.

In addition to GNSS, the TSAR offers a 1PPS input to cascade time and frequency from a single antenna to several boards, avoiding the installation of multiple antennas.

Different Oscilloquartz' crystal oscillators can be mounted on the TSAR board to provide the most cost-effective solution to meet the highest adapted holdover performance requirements of any Base Stations, Broadcast Station and sub-systems.

Four 1 PPS and four 10 MHz outputs deliver time and frequency, thereby avoiding a costly and noisy distribution / amplification stage with the host equipment.

Enhanced with its optional Aging and Temperature Drift Compensation (ATDC) system, the TSAR becomes the most stable GNSS quartz clock in holdover mode ever, especially in large temperature variations environments and harsh conditions.

A comprehensive command set via an RS232 serial line is available for the TSAR management, allowing alarm reporting, full equipment control and easy integration into the host system.

Highlights

- GLONASS and/or GPS operation supported
- High frequency stability and long term accuracy, both GNSS-locked and Holdover mode
- Economic, reliable and highly compact board level integration
- 4 1PPS and 4 10MHz outputs of each type
- 1PPS / 10MHz phase alignment within ±10ns
- Several choices of Crystal oscillator to adapt hold-over, phase noise and accuracy requirements at the most cost-effective cost
- PPS auxiliary input for daisy-chain distribution
- Firmware upgradeable

Typical Applications

- Base stations: WIMAX, 3G and LTE
- Broadcasting: DAB, DVB-T/DVB-H and DTV

developed by

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Typical Characteristics

Outputs

10 MHz sine

- 4x 0.8 Vrms min, 50Ω

10 MHz square

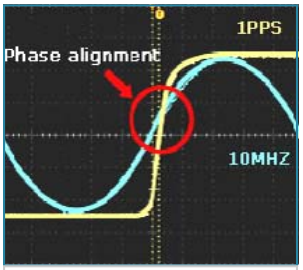
- 1x 3.3 Vpp, LVCMOS

1PPS square

- 4x 3.3 Vpp, LVCMOS

Time-of-Day

- 1x NMEA0183, RS232 or LVCMOS



Phase alignment of 1PPS and 10MHz outputs with "0 crossing" in both tracking and holdover modes

Power supply

- 12 VDC ±5%
- 12 Watts at warm-up, 8 Watts steady state (at 25°C)

Management

- RS-232C or LVCMOS local management
- 4 Alarm lines (logical)
- GUI-based Configuration and Monitoring software

Environmental Characteristics

- Operating temperature max.: -20° to +70°C
- Storage temperature max.: -40° to +85°C
- Humidity: 5 to 95% non condensing

Holdover performances

OCXO	8663 ATDC	8663	8716	8725
Long term stability (Freq. Var. per day)	5E-11	1E-10	5E-10	2E-09
Thermal stability* (Freq. var. peak-peak over full temp. range)	2E-10	6E-10	2E-08	5E-08
***OCXO Height**	25mm	25mm	15.3mm	14.3mm

*Related to each specific OCXO's operating temperature range

GLONASS - GPS system

- **24 channels**
- **GLONASS**: L1-range (1592-1610 MHz), CT-code
- **GPS**: (L1-range 1575.42 MHz), C/A-code
- **Cold Start**: 90 sec.

Antenna cable

Choice of antenna cables:

- 10 m
- 20 m
- 60 m
- 120m (with line amplifier)
- other lengths on demand

Connectivity

SMB or MCX (angle or Straight)

- 4x 1PPS, 3.3Vpp LVCMOS
- 4x 10MHz, 50 Ω outputs
- 1x GNSS antenna, 50 Ω input

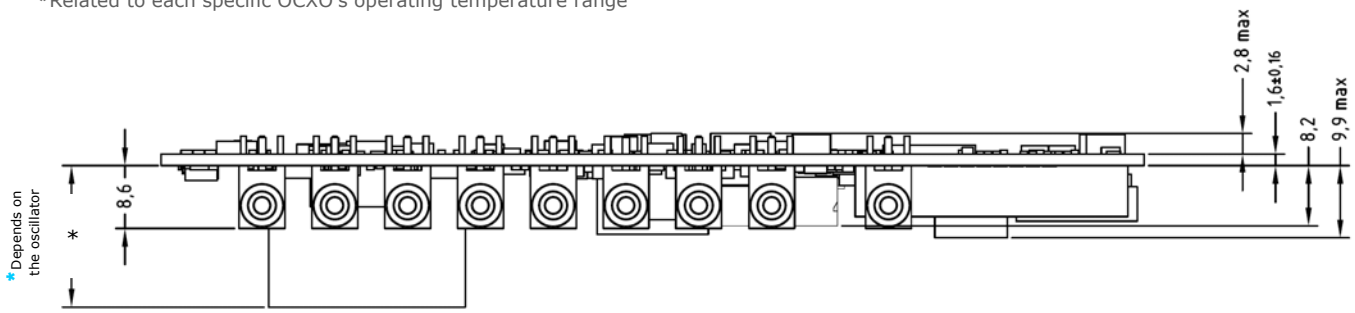
ERNI SMC-B 26 poles female

- For Board to Board or flat cable connection
- 12 VDC power supply and GND
- 1x 10 MHz square wave
- 4x Alarm lines (logical)
- Rx/Tx management port (RS232 or LVCMOS)
- 1x additional TOD outputs (RS232 or LVCMOS)
- PPS input

Compatible with STAR4 Board

Customized configurations can be offered with attractive prices for volume orders.

Number of outputs, type of connectors, lower grade oscillator when Holdover capability is relaxed.



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Oscilloquartz SA reserves the right to change all specifications contained herein at any time without prior notice.

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