



Multi-feature

*Complete Stratum 2
timing & synchronization
solution*

*Designed for embedded
applications*

*Fully compliant with
applicable international
standards*

*Upgradable to Stratum 1
with GPS option*

ATiMeTM-2

Stratum 2

Miniature, Embedded, Feature-Rich OEM Synchronizer

Applications

Advanced timing and synchronization solution for:

- Core switches
- Major Cross-Connects
- Cellular base-stations
- Enslaved to a GPS receiver - low-cost Stratum 1 source

- Phase Build-Out (PBO) and phase-hit event notification
- Comprehensive host - module bi-directional management capabilities
- 8 KHz output coherent with Main output frequency
- Redundant Master Slave operation. Phase adjustment of the Slave to the Master 8 KHz timing signal

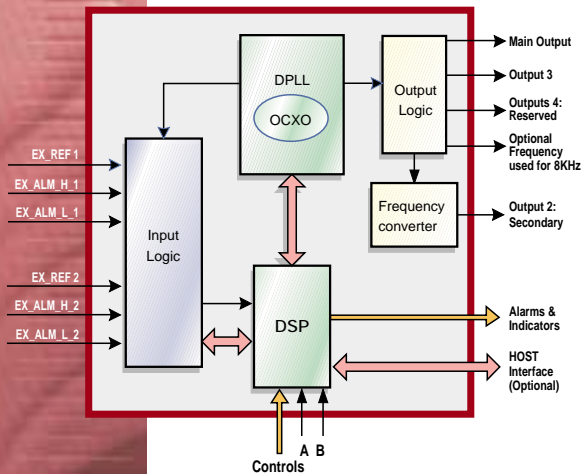
Features

- Embedded, miniature applications solution
- Fully compliant with Bellcore GR-1244-CORE-Stratum 2 specifications and ITU-T G.812 Type II Recommendations
- Continuous monitoring for accuracy of the unused input reference signal
- Multiple outputs frequencies for OC-N and PDH

Description

The ATiMe-2 is a DSP-based digital PLL designed to meet the unique requirements of embedded applications.

It is based on the well proven ATiMe-3E platform, mechanically and functionally compatible to facilitate new developments for both the ATiMe-3E and ATiMe-2. Together with the ATiMe-LC, TeraSync's family of networks synchronizers provides a complete system timing solution.



The host card manages the ATiMe-2 module via logic inputs such as Auto/Manual mode control and EX_REFS' quality indications. The ATiMe-2 module receives input status indication and controls relative to the occurrence of hitless switch-over between the REF inputs. The ATiMe-2 generates mode of operation, status and alarm output indications to the host. Additionally, on board visual indicators are provided.

Three modes of operation are provided: Free-run, Holdover and Enslaved (Locked) to one of the REF inputs.

A comprehensive state machine is implemented to manage, either manually or automatically, the transients between the states in a most effective manner.

Phase Build Out provides a smoother response to input phase hits. The ATiMe-2 generates a phase hit occurrence notification to the host.

Specifications

Input Signals

Number of inputs	2
Input reference frequency.....	8 KHz (default), others - upon request
Signal level	LVTTTL (TTL tolerable)
Time reference characteristics ..	Bellcore: GR-1244-core 3.2.1.R3-1

Output Signal Frequencies

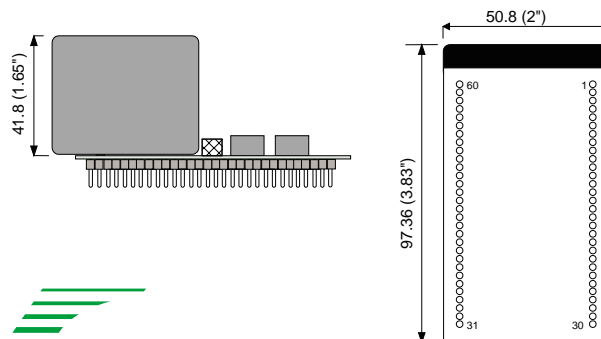
Main.....	19.44, 38.88, 77.76 MHz
Output 2 (synthesized)	Discrete frequencies from 1.544 -135 MHz
Output 3	Range of frequencies. OCXO's Free Running frequency
Optional.....	Range of frequencies, or 8 KHz, synchronized and coherent with Main output
Signal level	TTL (Buffered)

Input and Output Reference Signal Characteristics

Jitter and phase tolerance.....	Bellcore:GR-1244-CORE-4.2 &4.3 ITU-T: G.812 - 9.1, 9.2 (Type II)
Wander generation	Bellcore: GR-1244-CORE-5.3 ITU-T: G.812 - 11.2 (Type II)
Wander tolerance	Bellcore: GR-1244-CORE -4.3 ITU-T: G.825
Phase transient tolerance.....	Bellcore: GR-1244-CORE-4.4
MTIE	Bellcore: GR-1244-CORE-5.4
TDEV.....	Bellcore: GR-1244-CORE-5.4

DPLL Performance

Free run accuracy	$\pm 1.6 \times 10^{-8}$ / year $\pm 2 \times 10^{-7}$ / 15 year ITU-T: G.812 - 6 (Type II)
Holdover stability.....	$\pm 1 \times 10^{-10}$ Bellcore: GR-1244-CORE -3.1 ITU-T: G.812 - 11.2.2 (Type II)
Pull in range.....	± 1 PPM Bellcore: GR-1244-CORE-3.5 ITU-T: G.812-7 (Type II)
Lock accuracy	$< 1 \times 10^{-12}$



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