

*Complete Stratum 3E
central timing and
synchronization
solution*

*State of the art, off-
the-shelf module that
reduces the risk, cost
and time associated
with product
implementation*

*Fully compliant with
applicable
international
standards*

ATiMeTM-3E

Stratum-3E

Feature Rich Synchronizer

Applications

Advanced timing and synchronization solution for:

- Core and access IP switches
- DWDM, SONET and SDH, Cross-Connect and transmission products
- Cellular and WLL base-stations
- Broadband, multi-service access products
- Enslaved to a GPS receiver, performs as a low-cost Stratum 1 solution

Features

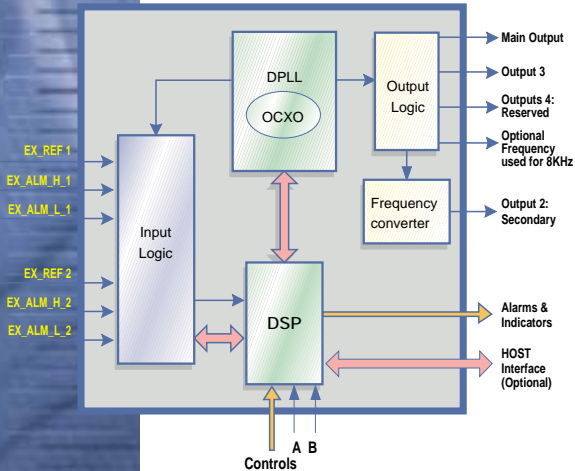
- Bellcore GR-1244-CORE-Stratum 3E specifications and ITU-T G.812 Type III Recommendations compliant

- Phase Build-Out (PBO) and phase-hit event notification
- Low profile, 0.5" height option
- 8 KHz output derived from and coherent with main output frequency
- Continuous monitoring for accuracy of the unused input reference signal
- Comprehensive host – module management capabilities
- Configurable to feature-rich Stratum 3 module (ATiMe-3)
- Range of output frequencies: OC-N and PDH based frequencies
- Input reference switch-over:
 - Automatic or Manual hitless switch-over
 - Revertive or Non-Revertive switch-over, user selectable

Description

The ATiMe-3E is a DSP-based Digital PLL that performs the signal processing required to deliver output frequencies, free of the input impairments.

ATiMe-3E block diagram:



The module receives input controls and indications that affect the occurrence of hitless switch-over between the REF inputs. The ATiMe-3E generates the mode of operation, status and alarm output indications to the host. The host card manages the ATiMe-3E via logic inputs, e.g. Auto/Manual mode control, EX_REFS' quality indications.

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 the transients between the states in a most effective manner.

Phase Build Out provides a smoother response to input phase hits. The ATiMe-3E generates a phase hit occurrence notification to the host.

Specifications

Input Signals

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

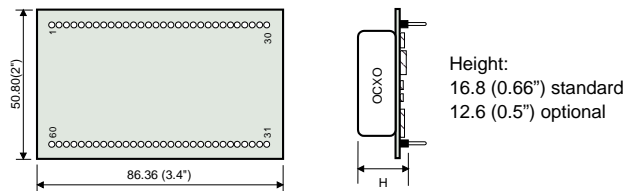
Main	19.44, 38.88, 77.76 MHz
Output 2 (synthesized).....	1.544 - 135 MHz
Output 3.....	Range of frequencies.
	OCXO's Free Running frequency
Optional	Range of frequencies, or
	8 KHz, synchronized and coherent with Main output
Signal level.....	TTL (Buffered)

Input and Output Reference Signal Characteristics

Jitter and phase tolerance.....	Bellcore: GR-1244-CORE-4.2 & 4.3 ITU-T: G.812 Type III
Wander generation.	Bellcore: GR-1244-CORE-5.3 ITU-T: G.812 para 11.2 Type III
Wander tolerance	Bellcore: GR-1244-CORE -4.3 ITU-T: G.825 ETSI: ETS 300-462-5
Wander transfer	Bellcore: GR-1244-CORE-5.4 ITU-T: G.812 -10-Type III
MTIE	Bellcore: GR-1244-CORE-5.4
TDEV.....	Bellcore: GR-1244-CORE-5.4

DPLL Performance

Free run accuracy.....	1 PPM (basic option)
Holdover stability.....	$\pm 2 \times 10^{-9}$ initial offset $\pm 1 \times 10^{-8}$ for 24 hours
Pull in range.....	User selectable: 10, 15, 20, 25 PPM Others: available upon request
Lock accuracy	$< 1 \times 10^{-11}$



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