OSA 5241 Retimer

Dual E1/T1 Retimer

Co-existence of data and voice traffic and emergence of sophisticated mobile networks, almost always requires some form of equipment synchronization. In today's de-regulated telecom environment, synchronization distribution is a complex issue, since traffic signals often traverse several synchronization domains.

Interfacing problems affecting the quality of synchronization are almost inevitable. Oscilloquartz presents to the users a family of solutions to solve synchronization interfacing problems. They are based on the synchronization of equipment via re-timed E1 or DS1 signals.

Re-timing consists in "imprinting" the timing of an available synchronization signal onto a given traffic signal, usually an E1 or a DS1 signal.

In the Re-timing function, the outgoing traffic signal contains the traffic data coming from the traffic input and the timing coming from the synchronization input. The outgoing traffic signal can then be used for synchronising other telecom equipment such as a switch or a base station.

Re-timing is useful in all situations, where there is no other way than taking a traffic-carrying E1/DS1 signal to synchronise an equipment, and when the original E1/DS1 signal is affected by excessive levels of wander.

Although synchronization is usually distributed via the SDH or SONET transport network, there are situations where this type of synchronization cannot be used. If a synchronous equipment such as a switch does not feature an external timing input, there is no other way than using one of the traffic-carrying E1/DS1 signals entering the switch its synchronization.

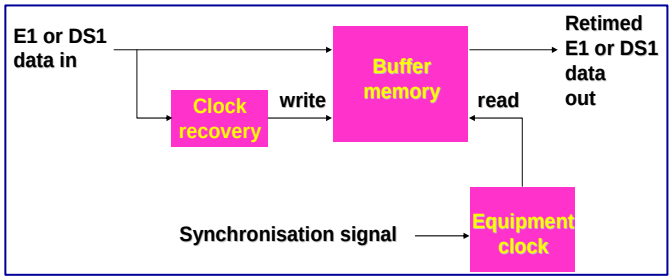
E1/T1 based retiming synchronization solutions by Oscilloquartz is the number one set of solutions and provide the highest capabilities for high performance reference when state of the art stability and competitive accuracy are needed at a minimum price. **Oscilloquartz** offers numerous variants, from single channel stand alone box up to 56 channels GPS based retiming.

The alarm threshold and monitoring parameters of the instrument are accessible for read and write operations through the local RS-232.

Main applications are :

- Synchronisation reference for UMTS-3G base station
- Synchronize any equipment from traffic carrying E1/T1 signal
- wander filtering

Retiming Function



Highlights:

- Two retiming channels
- Two frequency outputs (2.048 MHz)
- Two frequency input reference (2.048 MHz)
- High frequency stability allowed by the use of high performances OCXOs (high loop time constant)
- Less than 1 10^{-10} / 24 hrs holdover frequency accuracy
- RS-232C local management
- Low power consumption
- Expected life time greater than 15 years
- Low cost effective solution

OSA 5241

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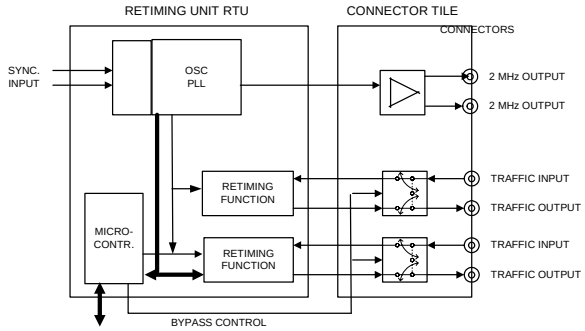
Technical specification OSA 5241 Retimer

Principle of operation

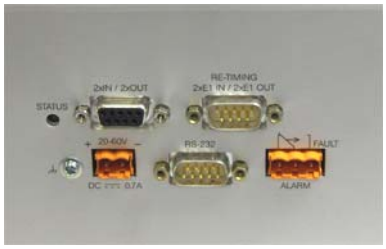
OSA 5241 Retimer's principle of operation is based on quartz oscillator frequency locked to frequency references signals provided on the two inputs.



The basic concept is rather simple: a buffer stock memory is used in write / read sequence, write being driven by clock recovery from the averaged incoming signal, the read being driven by a smooth synchronisation signal to provide a "wander free" outgoing traffic signal containing the traffic data coming from the traffic input and the timing coming from the synchronization input. The outgoing traffic signal can then be used for synchronising other telecom equipment such as a switch or a base station

The main aspect of operation of the **OSA 5241 Retimer** are :

- Retiming is applied on E1 traffic signals when affected by excessive wander, acceptable for the transport of traffic, but excessive for the distribution of synchronization
- The long-term frequency (data rate) of the traffic signal must be locked to the network PRC,
- The retiming buffer transmits the incoming traffic at the data rate of the synchronisation signal, thus *removing the excessive wander*.
- Retiming is used when E1 or T1 traffic signals transported over SDH or SONET are used as synchronisation links (e.g. GSM base station or UMTS B-node).



Typical Characteristics

Internal reference:

Type:	8663 OCXO
Frequency accuracy:	$\pm 1 \times 10^{-11}$ (when locked to G811 reference input signal after 12 hours of operation
Frequency stability:	1×10^{-11} /1 day locked
Temperature coefficient:	less than $5\ 10^{-10}$ in temperature range : 0-50°C (unlocked)
Frequency holdover	$< 1\ 10^{-10}$ / 24 hrs

Output frequency:

2 MHz outputs	3.5V ± 0.2V / SUB-D 120Ω (square)

Warm up:

Warm up time:	12 minutes

Control Monitoring :

- Digital control and monitoring on RS-232 local interface

Environment :

Operational Temp :	-5°C to +55°C
Storage Temp:	-20°C to +80°C
Humidity:	< 80% (max 35°C)
EMC:	EN50081 EN50082 EN60950
Expected lifetime:	20 years

Standard retiming Output signals:

Number of channels:	2
Sync. input:	2.048 MHz
Traffic ports:	2.048 Mbit/s, G.703/9 (E1)
	1.544 Mbits/s, G703/3(T1)
Line codes:	HDB3 and AMI for E1
	B8ZS and AMI for T1
Multiframes:	CRC-4 and CAS for E1
	D4 and ESF for T1
Buffer size:	2 frames
Slip category:	Frame slip
Slip rate monitoring:	Configurable alarm threshold (1slip/wk to 255 slips/H)
Traffic bypass:	Circuit is by-passed in case of failure
Max. frequency offset:	+4.6 ppm (traffic rel sync.)
Jitter & wander tol.:	G.824 for T1 & G.823 for E1
or	120Ω balanced 2048 kbit/s RTU
or	100Ω balanced 1544 kbit/s RTU

Electrical / Mechanical:

DC Voltage:	36/60V
Power consumption:	max 8W during warm up
	less than 3 watts steady state
Dimensions:	19'' 2U

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

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