



Network & Communication

**BRIEF IEEE
C37.94**

PRODUCT & TECHNOLOGY

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Smart Solutions for Smart Networks

VCL-2710, IEEE C37.94 Multi-Mode to Single Mode Optical Converter



VCL-2710, DIN Rail version



VCL-2710, 19 Inch Rack mount



- **VCL-2710** is available in DIN Rail mount version and 1U high, standard 19-inch rack mount version.

• Features



- Complies with IEEE C37.94 standards
- Single Mode Power Budget 13dB to 50dB
- Single and 1+1 redundant power supply options.

• Power Supply:



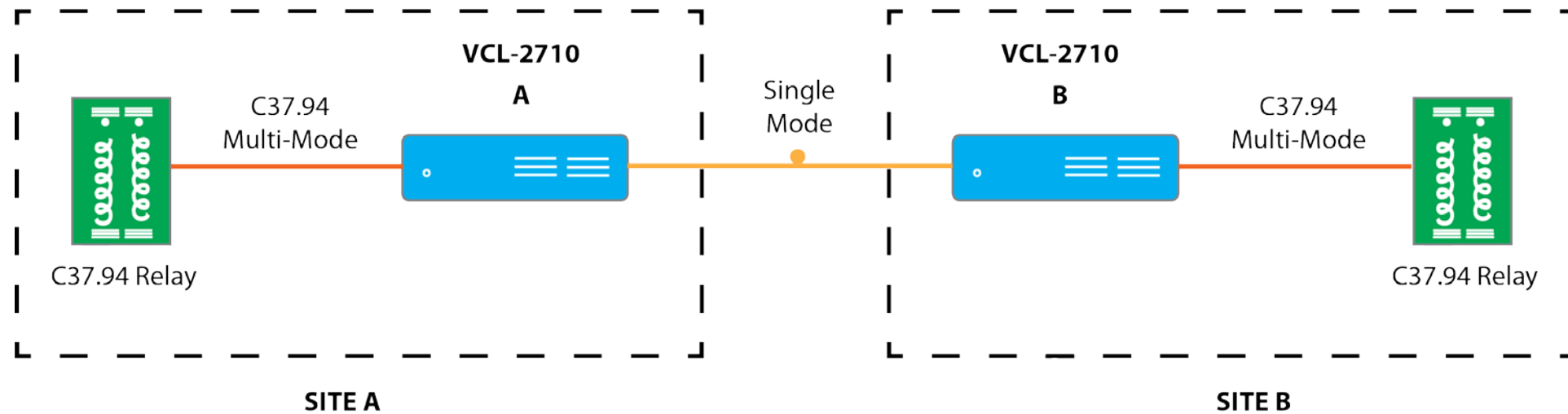
- 48V DC (18V DC to 60V DC)
- 110V DC,
- 220V DC,
- 100~240V AC, 50/60Hz
- Redundant 1+1 power supply options available only in 19-inch rack mount chassis.

VCL-2710, IEEE C37.94 Multi-Mode to Single Mode Optical Converter

- ▶ Designed to extend IEEE C37.94 multi-mode channels over extended single-mode optical fiber spans.
- ▶ Ruggedized, sub-station-hardened converter that converts **IEEE C37.94 Multi-Mode Optical Signal to a Single-Mode Optical Signal.**
- ▶ Provides clock synchronization and clock re-generation functions which allows it to transmit the IEEE C37.94 multi-mode signal over extended single mode optical fiber links of up to 50dB optical link loss budget (i.e., typically of optical spans of up to 140 Miles / 225 Kms).

***63dB
optical link
loss budget
(i.e., typical
reach of
155 Miles /
250 Kms).***

VCL-2710, IEEE C37.94 Multi-Mode to Single Mode Optical Converter



VCL-2711, IEEE C37.94 over Ethernet / IP-MPLS / MPLS-TP



Front View

VCL-2711, 19 Inch Rack mount



Back View

VCL-2711, IEEE C37.94 over Ethernet / IP-MPLS / MPLS-TP

- ▶ **VCL-2711, IEEE C37.94 over IP-MPLS / Ethernet / MPLS-TP** Transmission Equipment is a ruggedized, sub-station-hardened transmission equipment which converts and transmits up to **four IEEE C37.94 Interfaces over an IP-MPLS / Ethernet / MPLS-TP link with “SDH / SONET like” performance.**
- ▶ **No bit-errors** and almost “zero” jitter and wander due to its integrated GPS (ITU-T G.811) compliant “Primary Reference (PRC) Clock” synchronization options.

Seamlessly migrate from SDH / SONET transmission networks to more efficient IP / MPLS transmission networks without incurring large capex.

VCL-2711, IEEE C37.94 over Ethernet / IP-MPLS / MPLS-TP

- ▶ Deploy C37.94 interfaces over Ethernet / IP / MPLS-TP transmission links without incurring a large capex or the tiresome task of having to replace and rewire the existing C37.94 Relays to inter-connect to the far-end substations over Ethernet / IP / MPLS-TP links.
- ▶ End-to-end transmission delay (latency) of less than 5ms on IEEE C37.94 links
- ▶ Symmetrical latency
- ▶ Zero transmission errors
- ▶ SDH / SONET quality “Jitter” and “Wander” control
- ▶ Multiple, integrated clock synchronization options include:
 - External 1PPS, 2.048Mbits and 10MHz Clock options
 - GPS - Integrated GPS (ITU-T G.811) compliant Primary Reference Clock

*Latency less
than 5ms*

VCL-2711, IEEE C37.94 over Ethernet / IP-MPLS / MPLS-TP

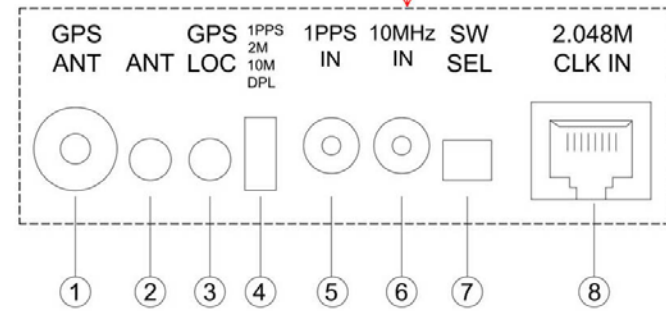
- ▶ **C37.94 Interface Specifications:**
 - Number of C37.94 interfaces : 4
 - Standards: IEEE C37.94
 - Optical connector: ST
 - Optical: 820nm/850nm Multi-Mode
 - Optical Transmitter: LED
- ▶ **Network (Transmission) Interface Specifications:**
 - Number of 10/100BaseT Ethernet interfaces: 1 (RJ-45)
- ▶ **Power Supply:**
 - 1+1, Redundant
 - 24V DC / 48V DC (input range 18V DC ~ 60V DC)
 - 110V DC
 - 220V DC

***Power Supply
options***

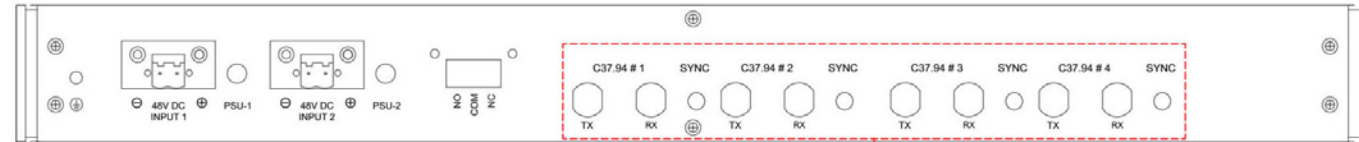
Front View



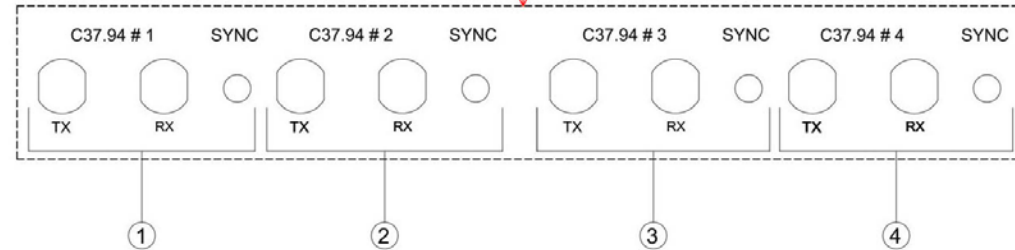
IT No.	Description	Defination	Qty
1	GPS ANT	GPS Antenna	1
2	ANT	Antenna LED	1
3	GPS LOC	GPS Lock LED	1
4	Selected Input LED	4x1 LED's	1
5	1PPS IN	IPPS Input	1
6	10MHz IN	10MHz Input	1
7	SW SEL	Clock Selection Switch	1
8	2.048M CLK In	2.048M Clock Input	1



Back View

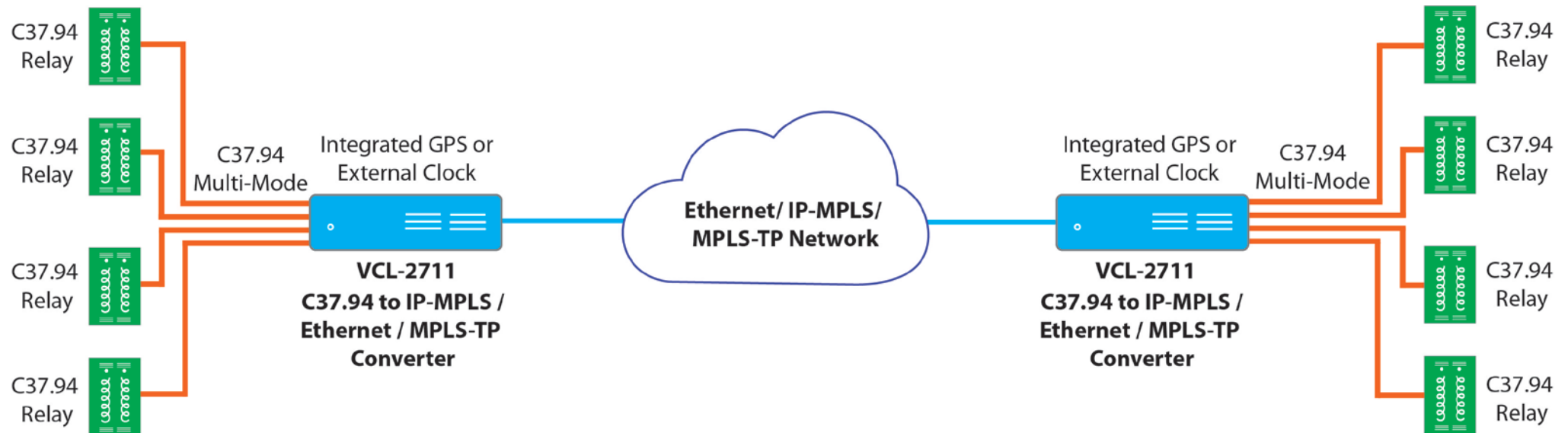


IT No.	Description	Defination	Qty
1	C37.94 # 1	C37.94 # 1 Input / Output	2
	SYNC	C37.94 Sync LED	1
2	C37.94 # 2	C37.94 # 1 Input / Output	2
	SYNC	C37.94 Sync LED	1
3	C37.94 # 3	C37.94 # 1 Input / Output	2
	SYNC	C37.94 Sync LED	1
4	C37.94 # 4	C37.94 # 1 Input / Output	2
	SYNC	C37.94 Sync LED	1



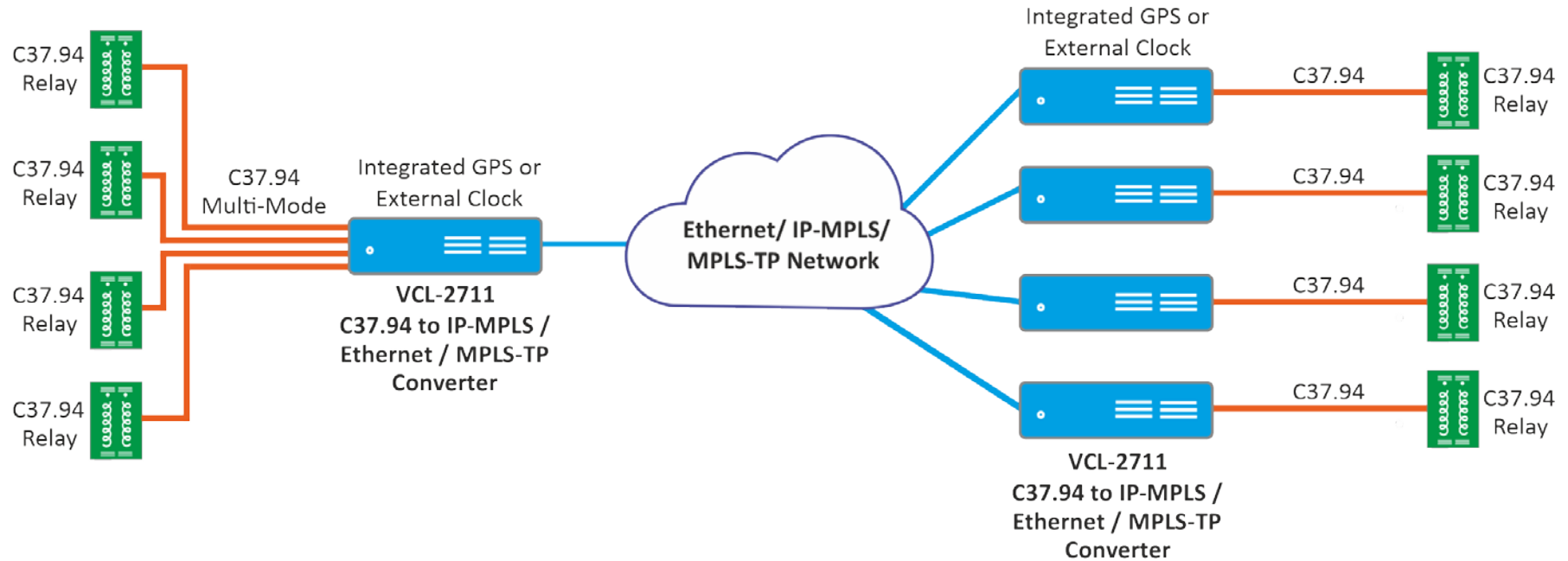
VCL-2711, IEEE C37.94 over Ethernet / IP-MPLS / MPLS-TP

Point-to-Point



VCL-2711, IEEE C37.94 over Ethernet / IP-MPLS / MPLS-TP

Point-to-Multi-Point



Thank You.



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SMART SOLUTIONS FOR SMART NETWORKS
