

Power Line Carrier Communication Equipment PL-9500 (Ver. 01) is a new generation equipment for carrier transmission and reception of Speech, Facsimile, RTU data, and tele-protection signals in frequency range of 32 KHz to 508 KHz over high voltage overhead transmission lines. The system offers a single channel expandable to two channels for full bandwidth Speech / Fax or Shared Speech-cum-superimposed data channel or one high-speed 4-wire exclusive data channel of 1200 bauds. The superimposed data channel can support upto 600-baud (2160-3700 Hz) channel as a backup for RTU/SCADA on wideband communication links. PL-9500 (Ver.01) can be used either as a terminal equipment or as Drop / Insert through a coupled repeater.



## FEATURES

- Single or dual channel configurations.
- 32 KHz to 508 KHz frequency range with 1 KHz frequency allocation steps.
- 20/40W PEP power at Line output.
- On site configuration of channel frequencies and transmission levels.
- Field programmable VF upper cut off through switch selection.
- DSP based circuitry for field programmable pilot & transit band pass filters.
- Remote extension of direct EPABX lines, Hot Line, Express Channels and 2W/4W E&M modes available on same VF interface unit.
- Ease of installation and maintenance.
- Local and Remote loop-back facility.
- Can transmit trip signals from Distance Protection Scheme (Network) for the protection of high voltage transmission lines.
- Supervisory unit facilitates easy maintenance and operation.
- Extensive use of Integrated Circuits and Crystal filters ensures high quality and reliability of equipment.
- Compliance with relevant ITU-T, IEC and IS standards.
- Fully complies to the relevant EMI & EMC standards.
- Availability of Normal Rack as well as Swing Rack.

## SPECIFICATIONS

### GENERAL INFORMATION

Multiplexing	Analog, Frequency Division
Channel Capacity	Upto 2 Channels
Modulation	AM, SSB Supressed carrier
VF-Band	300 – 3720 Hz
Speech Bandwidth	300 – 2000 Hz, 300 – 2200 Hz 300 – 2400 Hz, 300 – 3400 Hz

### HF INTERFACE

Impedance	75 / 125 Ohms (Unbalanced) or 150 Ohms (balanced)
Output Power to Line	20 / 40W PEP
Transmission Level (40W Version)	+ 38 dBm
Receiver Sensitivity	-43 dBm
Return Loss	12 dB minimum
Carrier Stability	± 2 ppm over the temperature range of 0° to 50° C
Carrier Leak Medium	Better than -45 dBm0 66/132/220/440 KV HVTs
Tapping Loss (for parallel connection of an additional PLCC equipment)	<1.5 dB at $\Delta f \geq 8$ KHz <1.5 dB at $\Delta f \geq 8$ KHz

### VF INTERFACE

2W Transmit Level	-13.5 to +8.0dBm, 0dBm (Nom.)
2W Receive Level	-17.0 to +4.5dBm, -7dBm (Nom.)
2W Impedance	600 Ohms
2W Return Loss	14dB minimum
4W Transmit Level	-17.0 to 8.0dBm, -3.5dBm (Nom.)
4W Receive Level	-17.0 to +8.0dBm, -3.5dBm (Nom.)
4W Impedance	600Ohms
4W Return Loss	20dB minimum
Frequency Response (Without Companders)	
300-400 Hz	-0.9 to +3.0 dB
400-600 Hz	-0.9 to +1.70 dB
600-2400 Hz	-0.9 to +0.9 dB
2400-3000 Hz	-0.9 to +1.7 dB
3000-3400 Hz	-0.9 to +3.0 dB
Linearity (-10 to -3.0 dBm0 input)	± 0.5 dBm0
Limiting	Starts above -3 dBm0 at 2W input
End to End Frequency Deviation	2 Hz maximum

### GROUP DELAY

500-600 Hz	3 mSec. (Maximum)
600-1000 Hz	1.5 mSec. (Maximum)
1000-2600 Hz	0.5 mSec. (Maximum)
2600-2800 Hz	2.5 mSec. (Maximum)

### SIGNALLING PILOT

Signaling Frequency	3825 Hz
Pilot Frequency	Programmable (2160, 2220 2580, 3360, & 3780 ±30Hz)
Level	-14 dBm0
Distortion at 10 pps, (50/50 Break / Make)	<5.0 mSec (5%)
AGC Range	
Input	-26 to +14 dB
Output	± 1.0 dB

### NOISE PERFORMANCE

Idle Noise	Better than -55 dBm0p without compander Better than -65 dBm0p with compander
Cross Talk	Better than -50 dBm0p
Side Tone (HF Terminated)	Better than -40 dBm0p
Out of Band Spurious	Better than -60 dBm0p

### POWER SUPPLY

Input Voltage	-48V Nom. (-40V to -60V)
Power Consumption (For 20W Version) (For 20W Version)	160W (for twin channel system) 220W (for twin channel system)

### MECHANICAL

Rack Size	Height : 1910 mm Width : 595 mm Depth : 562 mm
Color of Rack	Normal Rack -Siemens Grey Powder Coating (Inside & Outside)

### ENVIRONMENTAL

Meets all specs.	0° C to +50° C
Operational	-10° C to +55° C
Storage	-25° C to +65° C
Humidity	95% max. at 40° C

Specifications subjected to change without notice. (23102017)

NOTE: Specifications hold for a pair of end to end terminals excluding coupling equipment and HV lines impairment.

## Punjab Communications Limited

B-91, Phase VIII, Industrial Area, S.A.S. Nagar (Punjab) 160 071 India  
 Phones : +91-172-2237101 (8 lines), Fax : +91-172-2237125, 3046919  
 e-mail : marketing@puncom.com

Visit us at our internet site : [www.puncom.com](http://www.puncom.com)