1310nm Direct Modulation Optical Transmitter • VL2000-TX Series

USER MANUAL

1.0 PRODUCT SUMMARY

1.1 General Station Description

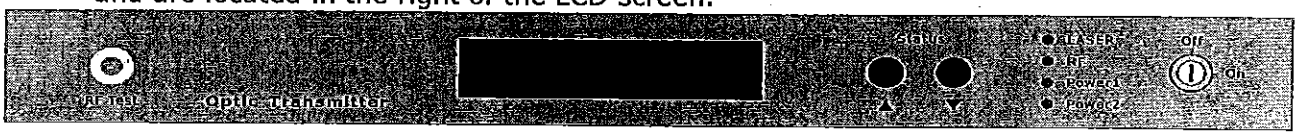
VL2000-TX series of AM laser transmitters deliver high performance signal transmission of NTSC, PAL, digital or compressed digital information for CATV and/or telephony applications. This series of products, based on high-linearity, optically isolated, distributed feedback DFB lasers, are specifically designed for multi-channel AM video applications. Built-in driver amplifier and control circuits endow the device with exceptionally low noise and inter-modulation characteristics. Automatic output power control, coupled with temperature stabilization provided by a thermoelectric cooler, ensures the maximum performance of the whole unit and the longer life of the laser.

The unit is packaged in a rack-mounted casing of 1.75-inch high and 19-inch width. Each unit is equipped with a self-governed power supply with 110V AC input.

All internal laser parameters and monitoring functions are under microprocessor control. The front panel LCD displays select information related to laser operation. If the laser parameter is beyond the permitted range, the laser power supply will be off automatically. At the same time, there will be an alarm and the failure cause will be displayed in the LCD screen.

2.0 AMPLIFIER CONTROLS, INDICATORS, AND ALARMS

This section of the manual will give an overview of the available menus in the VL2000-TX series transmitter. All instructions in Section 2.0 refer to the representation of the front panel shown in the diagram below. The user can scroll through the menus by using the push buttons that are on the front panel and are located in the right of the LCD screen.



2.1 The operation of the panel

2.1.1 Operation description

Working select indication (LED) is near the powers supply switch in the front panel. When it is green, the device is working properly. When it is red, the laser does not work. When it is red sparking, there is an alarm.

A. Plug in city power supply

B. Turn on power switch in the back panel

Front panel display " KEY OFF"

Laser	select lamp Red
RF	select lamp Red
Power1/2	select lamp Green

C. Press laser start-up key switch

Front panel shows "KEY ON...". Laser select lamp turns green

2.1.2 Start-up main menu

Press ▲ \ ▼ button and the following menu will be displayed in sequence.

Menu # 1 - OUTPUT POWER
Read-only menu, displays the optical output power

Menu # 2 - LASER CURRENT
Read-only menu, displays laser temperature

Menu # 3 - LASER TEMP
Read-only menu, displays the laser temperature

Menu # 4 - TEC COOLING/HEATING
Read-only menu, displays the amount of current that the Thermoelectric Cooler requires to maintain the laser temperature at nominal 25 °C

Menu # 5 - RF LVL

Read-only menu, tells the RF input level

Menu # 6 - UNITTEMP

Read-only menu, tells the system temperature

Menu # 7 - +5V Reads

Read-only menu, displays the voltage +5V

Menu # 8 - -5V Reads

Read-only menu, displays the voltage -5V

Menu # 9 - +24V READS

Read-only menu, displays the voltage +24V

Menu # 10 - S/N

Read-only menu, tells the serial-number

2.1.3 Menu assistant manual

1. If the LCD screen displays "INTERLOCK", and the red light is sparking, it means that the remote point at the back panel is loosing.
2. If RF input level is too high, there will be alarm (Red sparking). Then you should cut down the power supply and turn on again.
3. +5V voltage (+5V READS) >±0.5V alarm.
   -5V voltage (-5V READS) >±0.5V alarm.
4. If any fault occurred, there will be alarm (Red sparking). Microprocessor will cut down the laser automatically, and digitalpanel will show the reason of the fault.

3.0 CARRIER TO NOISE PERFORMANCE

(59 route PAL-D, CTB=65dB, CSO=60dB)

Link loss (dB)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
VL2000-TX	53	52.5	52.0	51.6	51.2	50.4	50.1									
		53	52.6	52.2	51.8	51.4	51.1	50.5								
					54.1	53.7	53.2	52.6	51.9	51.1						
						54.5	54.0	53.0	52.5	52.0	51.0					
							56.0	55.0	54.0	53.0	52.0	51.0				
								55.8	55.0	54.2	53.4	52.6	51.0			
									55.0	54.0	53.0	52.0	51.0	50.0		
										54.4	53.6	52.8	52.0	51.2	50.4	
											53.5	52.5	52.0	51.0	50.0	49.0

4.0 OPERATION NOTICE

1. The machine should have good grounding with grounding resistance<4Ω. According to the international standard, 110V plug in adopts tri-wire rule and the middle wire is the grounding wire.

2. The machine adopts high performance, high reliability, and steady voltage switch power supply. It has constant voltage overflow protection and can work in 110 VAC electric network. The micro-processor can monitor the output DC voltage. If the Fuse is melted broken, it will show that the machine's inner parts has occurred problems.

3. In order to make sure reflect loss is ≥45dB, we use SC/APC connector; other type (such as FC/PC) cannot match with it. Keep the connector clean when installing. After several plug-in/out, clean it with degreased cotton with anhydrous alcohol.

4. Do not turn on the machine separately or without protection cover at the connector end. Otherwise the laser will do harm to human body, especially eyes.

5. RF level decides the OMI of the laser and the system index(CNR, CTB, CSO). When at 59 route PAL-D, its RF level is 20dBmV. Suppose channel is N

$$Si(N)=20+10Lg(59/N) \quad (dBmV)$$

6. CNR and Channel N

$$CNR(N)=CNR(59)+10Lg(59/N) \quad (dB)$$