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PHV-400/1800V
Programmable PMT High Voltage Power Supply
Operating Instructions

Description:

The Acton Research Corporation PHV-400/1800V Programmable PMT High Voltage Power Supply is a negative power supply, operating in the range of 0 to –1250 volts and designed for use with photomultiplier tubes. It is programmable by an analog input voltage over the entire voltage range. The programming voltage is compatible with the Acton Research Corporation SC-1 SpectraCard 16-bit digital readout system. The PHV-400/1800V PMT power supply is also manually adjustable by a front panel control and digital display.

Installation and Set-up

The PHV-400/1800V PMT power supply operates over a wide range of input AC line voltages and is supplied with a line cord to match this input voltage. No switching or rewiring is required to change operation to 100, 115 or 230 VAC nominal line voltage.

Turn off the AC power switch on the left rear of the PHV-400/1800V. Connect the high voltage cable supplied from the MHV connector on the rear of the PHV-400/1800V to the high voltage MHV connector on the photomultiplier housing. Turn the front panel control fully counter-clockwise to prevent accidental damage to the photomultiplier tube. Plug in the supplied AC line cord to the rear of the PHV-400/1800V and the other end of this line cord to the AC outlet.

Operation:

The PHV-400/1800V PMT power supply can be operated remotely by an analog voltage from the Acton Research Corporation SC-1 SpectraCard or from the front panel control. Remote or manual operation is determined by the position of the REMOTE/LOCAL switch on the rear of the PHV-400/1800V. With the switch in the up or REMOTE position, the output voltage is determined solely by the input programming voltage where +5 volts DC produces an output voltage –1800 volts DC with a linear output to 0 volts. Note that with no connector in the rear programming jack, the output voltage is 0 volts with the REMOTE/LOCAL switch in REMOTE. The front panel control has no effect with the REMOTE/LOCAL switch in REMOTE. The front panel digital meter reads the correct output voltage in both modes, however. With the REMOTE/LOCAL switch in the down position or LOCAL position, the output voltage is determined by the front panel mounted

control where fully clockwise is –1800 volts DC. The output voltage can be monitored on the digital meter as it is adjusted. The programming voltage has no effect in the LOCAL mode. It is advisable to adjust the front panel control fully counter clockwise before changing the position of the REMOTE/LOCAL switch.

Caution: Most side window photomultiplier tubes have an absolute maximum voltage rating of –1250 volts DC and a recommended maximum operating voltage of –1000 volts DC. When using a PHV-400/1800V supply check the manufacturer’s rating for PMT being used and do not exceed this value.

Specifications:

Output voltage	0 to –1800 volts DC
Output current	1 ma. maximum
Programming voltage	0 to +5 volts DC for 0 to –1800 volts DC output
Accuracy	+/- (3% of setting + 0.5% of full scale)
Line Regulation	+/- 0.001% for input variation of +/-1%
Ripple	0.001% peak-peak at maximum power output
Stability (after 30 minute warm-up)	0.005% per hour, 0.02% per 8 hours
Input connector	Switchcraft #142A mating plug #750