

HIGH VOLTAGE POWER SUPPLY SOCKET ASSEMBLY WITH TRANSIMPEDANCE AMPLIFIER C13654-01

The C13654-01 is a high voltage power socket assembly for 28 mm (1-1/8 inch) diameter side-on photomultiplier tubes (PMT), incorporating a regulated high voltage power supply, an active voltage divider, and a transimpedance amplifier. It enables simple yet stable PMT operations with extended DC output linearity by only supplying +15 V and connecting to a potentiometer or a 0 to +5 V for high voltage adjustment.



FEATURES

- Superior DC output linearity
- Low ripple / noise
- Fast high voltage programming response
- High transimpedance amplifier

SPECIFICATIONS

Parameter		Description / Value	Unit
Applicable photomultiplier tubes		φ28 mm (1-1/8 inch) side-on type	—
Input voltage		+15 ± 1	V
Maximum input voltage		+18	V
Maximum input current ^①		55	mA
Linear DC output current of PMT ^{②③}		43	μA
Amplifier	Frequency bandwidth (-3 dB)	DC to 10 kHz	—
	Current to voltage conversion factor	0.3 (load resistance 10 kΩ)	V/μA
	Maximum output signal voltage	+13 (load resistance 10 kΩ)	V
	Output signal offset voltage	Typ. ±0.3	mV
	Output signal ripple / noise (p-p) ^④	Max. 1	mV
High voltage power supply	Output voltage range	0 to -1250	V
	Line regulation against ±1 V input change ^②	Typ. ±0.01	%
	Output voltage control	Control voltage (0 V to +5 V) or potentiometer (50 kΩ)	—
	Control voltage input impedance	100	kΩ
	Output voltage programming response ^⑤	Typ. 80	ms
	Temperature coefficient ^②	Typ. ±0.01	%/°C
Operating ambient temperature / humidity ^⑥		0 °C to +50 °C / Below 85 %	—
Storage temperature / humidity ^⑥		-15 °C to +60 °C / Below 90 %	—
Weight		47	g

NOTE: ① Without PMT ② Input voltage = +15 V, Control voltage = +4 V ③ Within: ±2 % linearity
④ Load resistance = 1 MΩ, Load capacitance = 22 pF ⑤ For 0 % to 99 % high voltage change ⑥ No condensation

Figure 1: DC linearity characteristics

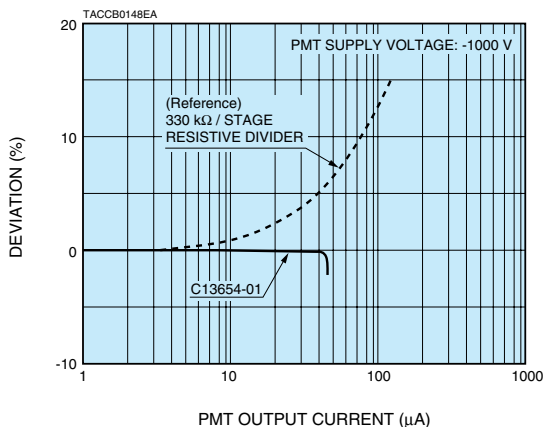
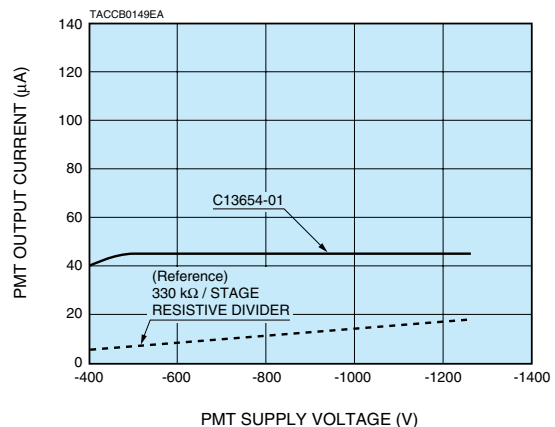


Figure 1: Practical PMT DC output limits



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Figure 3: High voltage controlling characteristics

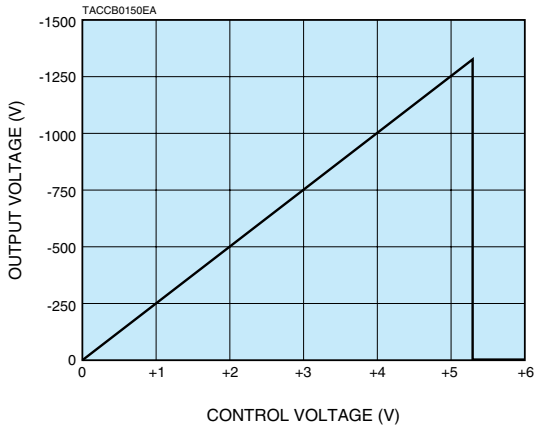


Figure 4: Frequency bandwidth

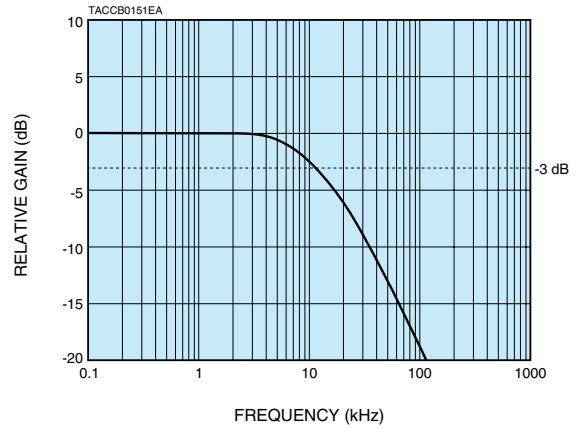


Figure 5: Adjustment method of high voltage

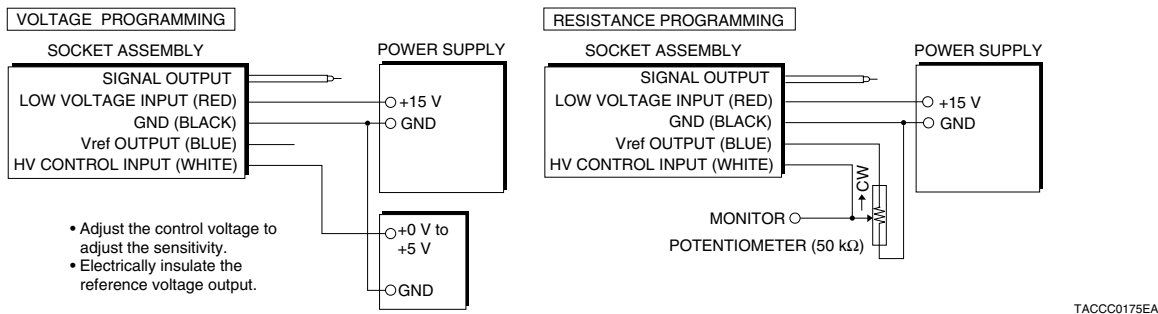


Figure 6: Schematic diagram

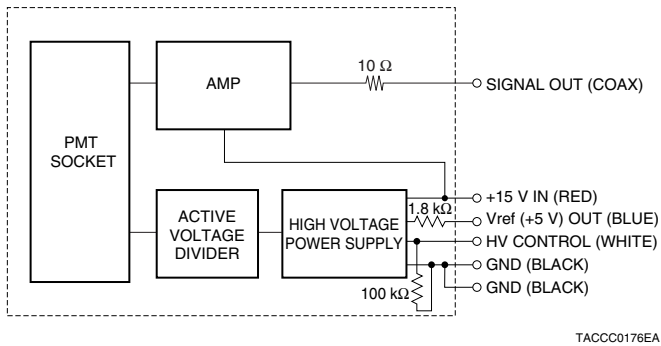
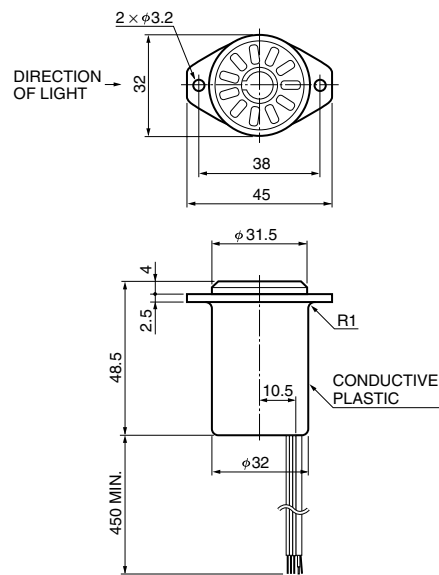


Figure 7: Dimensional outline (Unit: mm)



SIGNAL OUTPUT	COAXIAL CABLE RG-174/U *
+15 V INPUT	AWG 24 (RED)
Vref OUTPUT	AWG 24 (BLUE)
HV CONTROL INPUT	AWG 24 (WHITE)
GND	AWG 24 (BLACK)
GND	AWG 24 (BLACK)

* Option: Available with BNC/SMA connector.

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TACC1071E01
JUL. 2016 IP