

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

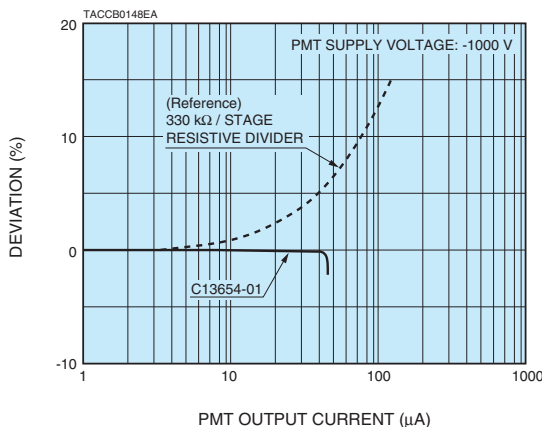
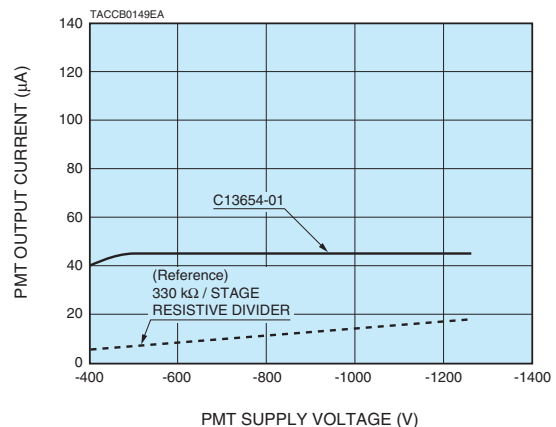


Figure 2: Practical PMT DC output limits



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

Figure 3: High voltage controlling characteristics

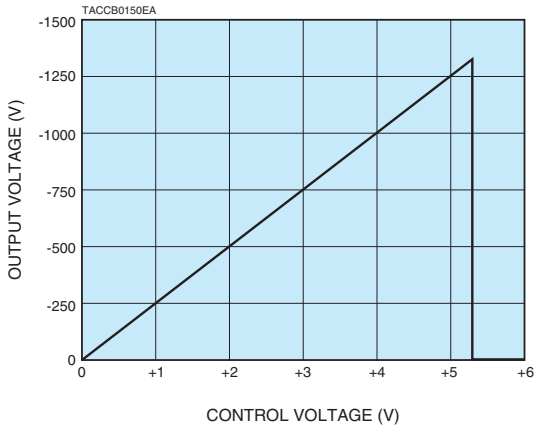


Figure 4: Frequency bandwidth

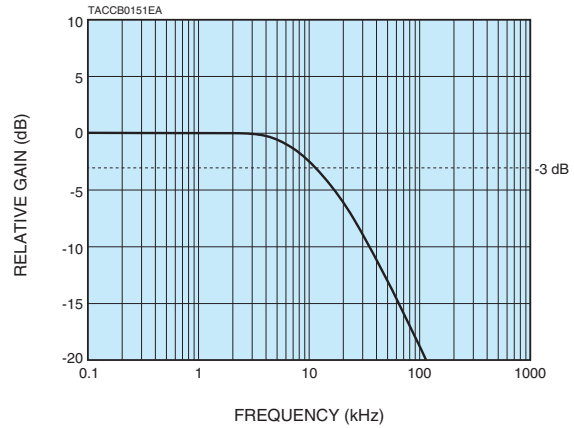


Figure 5: Adjustment method of high voltage

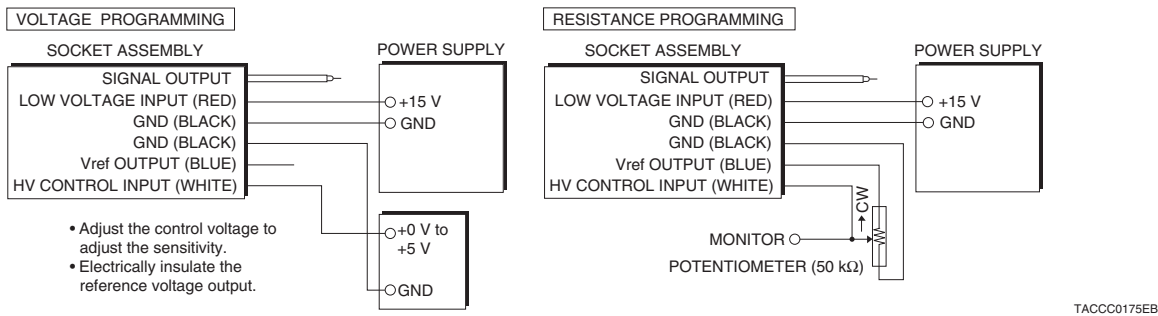


Figure 6: Schematic diagram

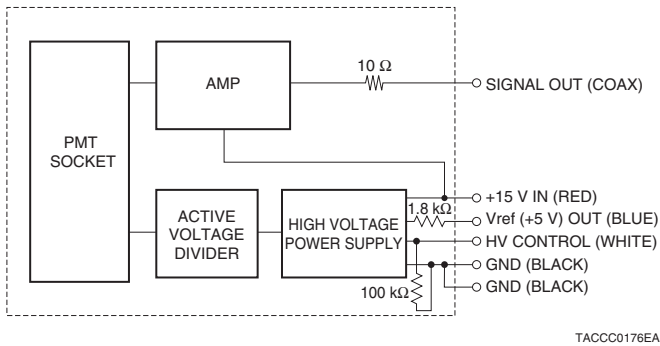
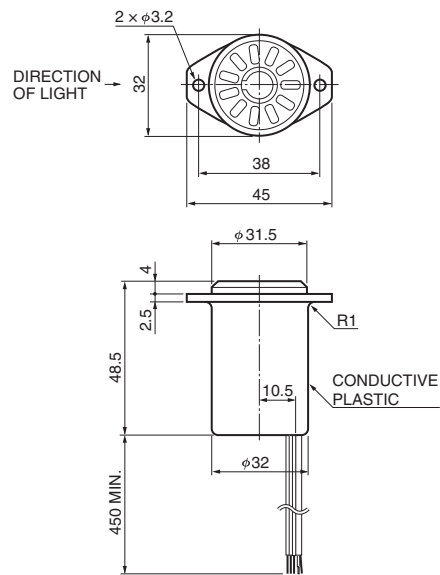


Figure 7: Dimensional outline (Unit: mm)



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.

TACCA0156EF

HAMAMATSU PHOTONICS K.K. www.hamamatsu.com

HAMAMATSU PHOTONICS K.K., Electron Tube Division

314-5, Shimokanzo, Iwata City, Shizuoka Pref., 438-0193, Japan, Telephone: (81)539/62-5248, Fax: (81)539/62-2205

U.S.A.: Hamamatsu Corporation: 360 Foothill Road, Bridgewater, NJ 08807, U.S.A., Telephone: (1)908-231-0960, Fax: (1)908-231-1218 E-mail: usa@hamamatsu.com

Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49)8152-375-0, Fax: (49)8152-265-8 E-mail: info@hamamatsu.de

France: Hamamatsu Photonics France S.A.R.L.: 19, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: (33)1 69 53 71 00, Fax: (33)1 69 53 71 10 E-mail: info@hamamatsu.fr

United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire AL7 1BW, UK, Telephone: (44)1707-294888, Fax: (44)1707-325777 E-mail: info@hamamatsu.co.uk

North Europe: Hamamatsu Photonics Norden AB: Torshammsgatan 35 16440 Kista, Sweden, Telephone: (46)8-509 031 00, Fax: (46)8-509 031 01 E-mail: info@hamamatsu.se

Italy: Hamamatsu Photonics Italia S.r.l.: Strada della Moia, 1 int. 6, 20020 Arese (Milano), Italy, Telephone: (39)02-93 58 17 33, Fax: (39)02-93 58 17 41 E-mail: info@hamamatsu.it

China: Hamamatsu Photonics (China) Co., Ltd.: 1201 Tower B, Jiaming Center, 27 Dongsanhuan Beilu, Chaoyang District, 100020 Beijing, P.R.China, Telephone: (86)10-6586-6006, Fax: (86)10-6586-2866 E-mail: hpc@hamamatsu.com.cn

Taiwan: Hamamatsu Photonics Taiwan Co., Ltd.: 8F-3, No.158, Section2, Gongdao 5th Road, East District, Hsinchu, 300, Taiwan R.O.C. Telephone: (886)3-659-0080, Fax: (886)3-659-0081 E-mail: info@hamamatsu.com.tw

TACC1071E02
JAN. 2020 IP