Related Products

Power Supply for PMT Modules C7169

The C7169 is a power supply unit for driving photosensor modules. Both drive voltages and control voltages can be supplied from this one unit.

Applicable products:

H5773/H5783/H6779/H6780 Series, H5784 Series H7710/H8567 Series, H7711/H7712/H8568/H8569 Series H7732 Series, H7826 Series, H7827 Series, H8249 Series



Parameter	Value	Unit
Output Voltage	±15	V
Input Current Max.	0.3 (+15 V), 0.2 (-15 V)	Α
Control Voltage (variable voltage range)	0 to +1.2	V
AC Input Voltage	100 to 240	V
Input Power Frequency	50/60	Hz
Operating Ambient Temperature	+5 to +50	°C
Storage Temperature	-20 to+50	°C
Output Connector	Binding post	_
Dimensional Outlines	147 × 61 × 200	mm
Weight	Approx.1.2	kg

Amplifier Units

These are amplifier units for photomultiplier tubes and current output type PMT modules.

C7319: Switchable between 2 frequency bandwidths and 3 current/voltage conversion coefficients. Ideal for applications requiring low noise and high gain.

C6438: Wide bandwidth from DC to 50 MHz and gain of 20 dB. (-01 type is 54 dB)

C5594: High cut off frequency of 1.5 GHz. Faithfully amplifies high-speed output pulses.

The input/output connector can be selected from the SMA or BNC types.



▲ From left: C7319, C6438, C5594-44

Parame	ter	C7319	C6438	C6438-01	C5594-44 *6	Unit
Frequency Bandwidth		DC to 20 kHz or DC to	DC to 50 MHz	DC to 50 MHz	50 kHz to 1.5 GHz	_
(-3 dB)		200 kHz (switchable)*1	DC to 50 MHZ			
Voltage Gain		<u></u> *2	20 ± 3 *4 (approx. 10 times)	54 ± 3 *4 (approx. 500 times)	36 *4 (approx. 63 times)	dB
Current-to-Volt	tage	100 mV/μA, 1 V/μA	0.5 mV/μA *5	25 mV/μA *5	3.15 mV/μA *5	
Conversion Factor		or 10 V/μA (switchable)	0.5 πν/μΑ ο 25 πν/μΑ ο	3.15 ΠΙν/μΑ		
Amplifier Input	(output)	±Current (inverted)	±Voltage (non-inverted)	±Voltage (non-inverted)	-Voltage (non-inverted)	_
Input Impedan	ce	— *2	50	50	50	Ω
Recommended Loa	d Resistance	_	50	50	50	Ω
Max. Output Sign	nal Voltage	±13*3	±1 *4	±1 *4	- 2.5 * ⁴	V
	Input	BNC-R	BNC-R	BNC-R	BNC-R	_
Connector	Output	BNC-R	BNC-R	BNC-R	BNC-R	_
	Power	DIN (6-pin)	DIN (6-pin)	DIN (6-pin)	_	_
Input Voltage		±5 to ±15	±5	±5	+12 to +16	V
Input Current	Max.	±16	±55	±80	+95	mA
Dimensions		$60 \times 43.2 \times 65$	$60\times43.2\times65$	$60 \times 43.2 \times 65$	$54 \times 17 \times 33$	mm
Weight		Approx.170	Approx.160	Approx.160	Approx.80	g

^{*1:} Frequency bandwidth is limited to DC to 100 kHz at conversion coefficient of 10 V/ μ A. *2: C7319 is current input type.

^{*3:} At ± 15 V Supply voltage and 10 k Ω load resistance. *4: At 50 Ω load resistance.

^{*5:} Value after current-to-voltage conversion by input impedance. *6: Contact our sales office for other connectors for C5594.

Photon Counting Units C3866, C6465

These photon counting units contain an amplifier and discriminator to convert the single photoelectric pulses from a photomultiplier tube into a 5 V digital signal.

The C3866 has an output linearity up to $1 \times 10^7 \, \text{s}^{-1}$, and a high-speed counter is not required when set to division by 10.

The C6465 has an output linearity up to $1 \times 10^6 \, \text{s}^{-1}$, and an output pulse width of 30 ns allows it to be used with a general-purpose counter.



▲Left: C3866 Right: C6465

Param	neter	C3866		C6465	Unit
Input Impedance		50		50	Ω
Discrimination Level	(input conversion)	-0.5 to -16		-2.2 to -31	mV
Gain Required in	PMT	3×10 ⁶		5 × 10 ⁶	_
Prescaler		1/1	1/10	_	
Count Linearity		4×10^6 1×10^7		1 × 10 ⁶	S ⁻¹
Pulse-pair Resolu	tion	25 10		60	ns
Output Signal Level		C-MOS		TTL positive logic	_
Output Pulse Wid	th	10	Depends on count rate.	30	ns
Supply Voltage		$+5.2 \pm 0.2$ V, 150 mA/-5.2 \pm 0.2 V, 300 mA		+5 V, 60 mA/-5 V, 120 mA	_
Input		BNC-R		BNC-R	_
Connector	Output	BNC-R		BNC-R	_
	Remote	BNC-R		_	_
	Power	HIROSE SR30-10R-4S *1		DIN (6-pin) *2	_
Dimensions		88 × 32 × 170		60 × 43.2 × 105	mm
Weight		Approx. 320		Approx. 250	g

^{*1:} Supplied with a cable (1 m) attached to the mating plug (HIROSE SR30-10PQ-4P).

Data Acquisition Units C8907, C8908

The C8907 and C8908 data acquisition units have a signal processing circuit that converts analog signals of a PMT module into digital data for output to a PC (personal conputer). Gate time/Integration time, number of reading and photomultiplier tube gain can be controlled from the PC. The C8907 and C8908 also provide output voltage necessary to operate a PMT module, making device setup and connection easier.



Left: PMT module (sold separately) ▶ Right: C8907, C8908

Parameter	C8907	C8908	Unit	
Configuration	Photon counting circuit + counter + CPU + interface	Charge amp + ADC + CPU + interface	_	
Pulse-pair Resolution	20	_	ns	
ADC Resolution	_	12		
Interface	RS-2	232C	_	
Gate Time / Integration Time	10 to 1000 (10 step)	0.04 to 500	ms	
Dead Time	_	0.01 to 500	ms	
Number of Reading at Fixed Set Reading	_	1 to 127	_	
Supply Voltage	+5		V	
Accessories (supplied)	Power cable (6-pin)			
	RS-232C cross cable			
Amaliaahla DMT Madulaa	H7826P, H7826P-01, H7732P-01,	H7826 Series, H7732 Series, H6780 Series*	_	
Applicable PMT Modules	H7732P-11, H5783P*	H5783 Series*, H7710 / H8567 Series*		

^{*:} We can install a signal connector (BNC-P) and a power input connector (HIROSE HR 10A-7P-6P) to the cable ends of an applicable PMT module if needed (extra charge). Please specify the type of connector when placing your order.

^{*2:} Supplied with a cable (1.5 m) attached to the mating plug.

Counting Board M8784

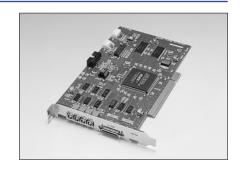
The M8784 counting board is a PCI bus add-in board type counter. The M8784 functions as a photon counter when combined with a photon counting head, etc.

The counter of the M8784 includes two counting circuits (double counter method) capable of counting input signals with no dead time. The internal memory allows pulse counting over extended periods with a high time resolution (10 μ s).

A maximum of two M8784 boards can be simultaneously controlled from a PC, making it possible to perform simultaneous dual-channel measurements.

Initial setting for the M8784 is simple and easy due to PnP (plug and play). You can start measurement on the day you receive the M8784.

The M8784 is designed to install into a PCI bus slot of desktop computers and cannot be used with notebook-sized computers. When using a notebook computer, use the C8855 counting unit also available from Hamamatsu.



• Also ideal for long-term data collection such as in biological clock monitoring *)

This is an ideal feature when the time needed to record count data in the memory is longer than the time needed to transfer the count data to a PC and write it into the storage medium. This allows time-resolved measurement (minimum resolution: $10 \mu s$) over a long period of time . Memory recording time is calculated from "counter operation time \times memory length". (Example: minimum resolution $10 \mu s \times$ maximum memory length 256 000 = 2.56 s)

- *) Standard sample software may not work at some conditions depending on the combination of measuring time and time resolution. Please consult with our sales office in advance with information of your condition.
- Time-resolved measurement of chemiluminescence (minimum resolution 10 µs)
- Supports different kinds of measurements

The M8784 is fully controlled by DLL (dynamic link library) functions that come with the M8784.

All information on these DLL functions is available to support software programming that handles various types of user measurement applications.

elected)

Supplied: CD-ROM (containing instruction manual, device driver, DLL, sample software, etc.), Signal input cable (E1168-22), General-purpose I/O connector (JAE: TXA20A-26PH1-D2P1-D1), Connection cable set (JAE: XHP-3, XHP-4)

(€ : Conforms to the EMC directive (89/336/EEC) of the European Union.

^{*:} Sample software is configured from Lab VIEW™ of National Instruments, Inc.

Counting Unit C8855

The C8855 is a counting unit with a USB interface and can be used as a photon counter when combined with a photon counting head, etc.

The counter of the C8855 has two counter circuits (double counter method) capable of counting input signals with no dead time. The USB interface easily connects to a notebook PC allowing measurement in an even wider application field. When used with a photon counting head, the C8855 supplies power (+5 V / 200 mA) necessary to operate the photon counting head.

Since the C8855 is hot-swap compatible (plug and play compatible), it helps you set up measurement environment quickly. You can start measurement on the day the C8855 is delivered by using the sample software that comes with the C8855.

The C8855 cannot be used in simultaneous dual- channel measurements or long-time

measurements with a fast time resolution. In such applications, use the M8784 counting board also available from Hamamatsu.



ullet Time-resolved measurement (minimum resolution: 50 μ s) for monitoring chemiluminescence and biological clocks

Quick measurement setups (hot-swap compatible)

When software such as a device driver is installed into your PC beforehand, you can start measurement by just connecting the USB cable, without restarting the PC.

Applicable to various measurement methods

The C8855 is fully controlled by DLL (dynamic link library) functions that come with the C8855.

All information on these DLL functions is available to support software programming that handles various types of user measurement applications.

Parameter		Description / Value		
Input	Number of Input Signals	1 ch		
	Signal Input Level	TTL positive logic		
	Signal Pulse Width	8 ns or longer		
	Input Impedance	50 Ω		
	Counter Method	Double counter method		
Counter	Max.Count Rate	50 MHz		
	Max.Counter Capacity	2 ³² counts/counter gate		
Counter Gate	Counter Gate Mode	Internal counter gate only		
	Internal Counter Gate Time	50 μs to 10 s (1, 2, 5 step)		
Trigger	Trigger Method	Software or external trigger		
	External Trigger Signal	TTL negative logic		
General Output Section		Open collector / 2 bits		
Voltage Output		+5 V / 200 mA Max.		
Compatible OS		Windows® 98/98SE/Me/2000		
Interface		USB (Ver. 1.1)		
Supply Voltage		+5 V / 500 mA Max. (supplied from accessory AC adapter)		
Dimensions		(W): 148 mm \times (D): 96 mm \times (H): 30 mm (excluding rubber feet and projecting parts		
Weight		300 g		
Operating Ambient Temperature/Humidity		+5 °C to +45 °C / 80 % or less (no condensation)		
AC Adapter	Input	AC 90 V to AC 260 V		
AC Adapter	Output	7 V / 1.6 A		

Supplied: CD-ROM (containing instruction manual, device driver, DLL, sample software, etc.) USB cable, AC adapter, AC cable, power output connector *: Sample software is configured from Lab VIEWTM of National Instruments, Inc.

(€ : Conforms to the EMC directive (89/336/EEC) and the low voltage directive (73/23/EEC) of the European Union.