

PHOTON COUNTER

USB INTERFACE COMPATIBLE COUNTING UNIT

C8855-01

■ Connection example



* All the pulsed output type of our PHOTON COUNTING HEAD can be used with C8855-01

OVERVIEW

The C8855-01 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 C8855-01 has two counter circuits (double counter method) capable of counting input signals with no dead time.

Since the C8855-01 is hot-swap compatible (plug and play compatible), it helps you set up measurement environment quickly. You can start measurement on the day the C8855-01 is delivered by the sample software.

- **Time-resolved measurement (minimum time resolution: 50 μ s) for monitoring weak light detection like chemiluminescence or biological clocks**

- **Quick measurement setups (hot-swap compatible)**

You can start measurement by just connecting the USB cable without restarting the PC, if required software (device driver, etc) is installed into your PC beforehand.

- **Applicable to various measurement methods**

The C8855-01 is fully controlled by DLL (dynamic link library) supplied.

User can create own software program, which is adequate for various type of user measurement, based on the DLL functions.

FEATURES

- **USB interface**
- **Sample software bundled**
- **Accurate measurement with no dead time (Double counter method)**
- **Power supply for photon counting head (Output voltage and current: +5 V / 200 mA)**
- **Multiple units (Max. 16) can be operated from a single PC**

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SPECIFICATIONS

Parameter		Description / Value
Input	Number of input signals	1 ch
	Signal input level	CMOS positive logic (high level: 2 V min.)
	Signal pulse width	8 ns or longer
	Input impedance	50 Ω
Counter	Counter method	Double counter method
	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 ^(A)	50 μs to 10 s (1, 2, 5 step)
Trigger	Trigger method	Software / External trigger
	External trigger signal	TTL negative logic
ID switch ^(B)		0 to F (hexadecimal number)
General output section		Open collector / 2 bits
Voltage output for photon counting head		+5 V / 200 mA Max.
OS		Windows [®] 7/8/8.1/10 Pro
Interface		USB
Supply voltage		+7 V / 500 mA Max. (supplied from AC adapter)
Dimensions (W × H × D)		120 mm × 30 mm × 96 mm (excluding rubber feet and projecting parts)
Weight		250 g
Operating ambient temperature / Humidity ^(C)		+5 °C to +45 °C / Below 80 %
Storage temperature / Humidity ^(C)		0 °C to +50 °C / Below 85 %
CE marking		Conforms to IEC61326-1 GROUP 1, CLASS B
AC adapter	Input	100 V to 240 V
	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

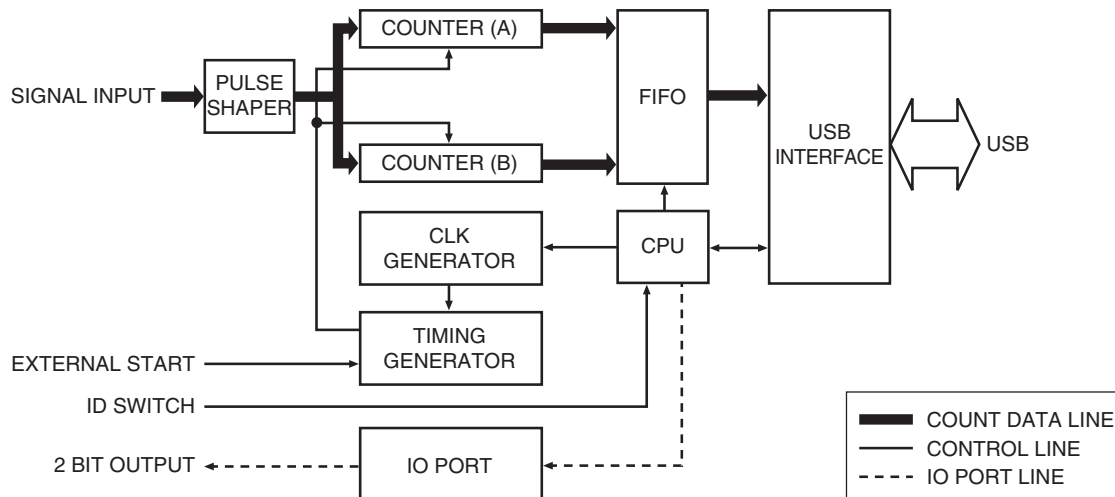
*: Sample software is configured from Lab VIEW™ of National Instruments, Inc.

^(A)The C8855-01 is not suitable for applications requiring time resolution higher than 50 μs. In such applications, use a counting board M9003-01.

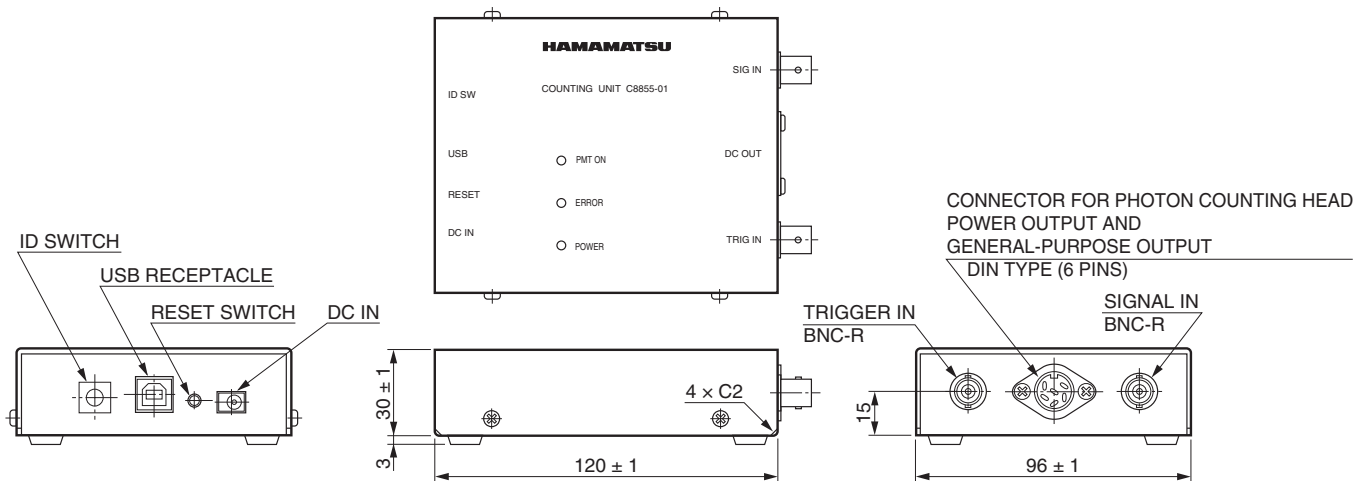
^(B)The ID switch is used to set ID numbers when two or more C8855-01 units are connected to single PC.

^(C)No condensation

BLOCK DIAGRAM

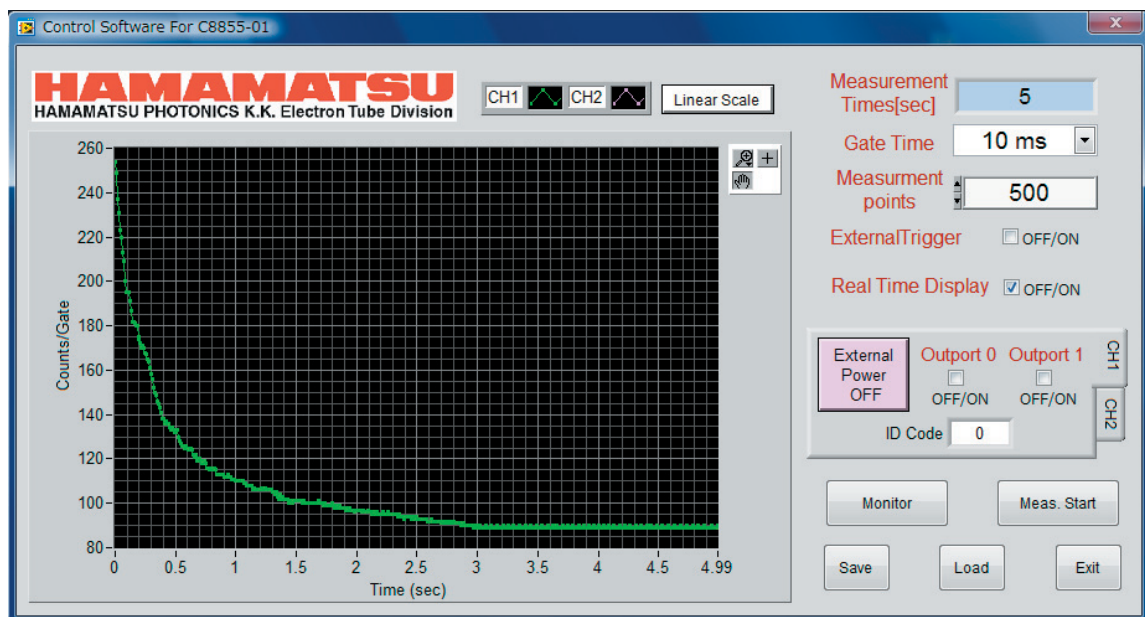


DIMENSIONAL OUTLINES (Unit: mm)



TPHOA0035EB

SAMPLE SOFTWARE SCREEN



● Specifications

Counter gate time: 50 μ s to 10 s (in 1, 2 or 5 steps)

Maximum number of measurement points: 100 000 points

Measurement time: Counter gate time (50 μ s to 10 s) \times Measurement points

Data save: CSV file

Information on how to create operation software is included in the C8855-01 instruction manual, so you can make your own software.

RELATED PRODUCT

Photon counting unit C9744



TPHOF0094

Photon counting unit is designed to convert single photoelectron pulses from a photomultiplier tube into digital signals of logic pulse by use of the built-in amplifier and discriminator circuits. Photon counting with a high S/N ratio can be performed by simply connecting a counter to the output of the photon counting unit.

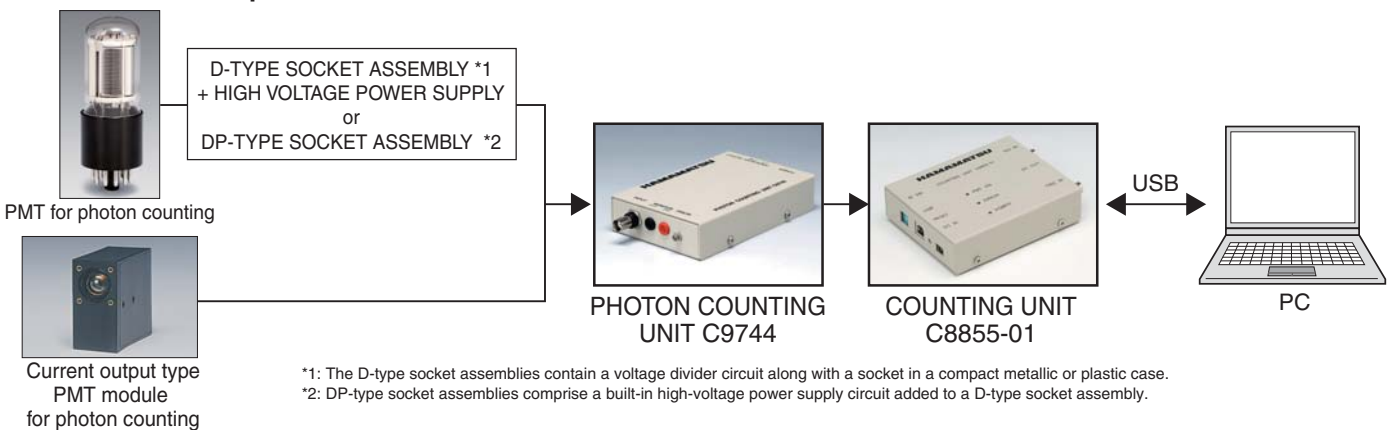
The C9744 uses a high-speed electronic circuit that allows measurement with an excellent output linearity up to 10^7 s^{-1} . The C9744 also has a prescaler (division by 10) eliminating the need for a high-speed counter.

Specifications

Parameter	Description / Value	
Input impedance	50 Ω	
Discrimination level (input conversion)	-0.4 mV to -16 mV	
Required PMT gain	3×10^6	
Prescaler	$\div 1 / \div 10$	
Count linearity	$\div 1$	$4 \times 10^6 \text{ s}^{-1}$
	$\div 10$	$1 \times 10^7 \text{ s}^{-1}$
Pulse-pair resolution	$\div 1$	25 ns
	$\div 10$	10 ns
Output pulse	CMOS POSITIVE LOGIC	
Output pulse width	$\div 1$	10 ns
	$\div 10$	Depends on count rate
Supply voltage	+5.0 V \pm 0.2 V, 130 mA / -5.0 V \pm 0.2 V, 50 mA	
Connector	Input	BNC-R
	Output	BNC-R
	Power	DIN (6-pin) [Ⓑ]
Dimensions (W x H x D)	90 mm x 32 mm x 140 mm (excluding rubber feet and projecting parts)	
Weight	Approx. 250 g	
Operating ambient temperature	0 °C to +50 °C	
Operating ambient humidity [Ⓐ]	Below 80 %	
Storage temperature	-15 °C to +60 °C	
Storage humidity [Ⓐ]	Below 85 %	

[Ⓐ]No condensation [Ⓑ]Supplied with a cable (1.5 m) attached to the mating plug.

Connection example



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Lab VIEW[™] is a trademark of National Instruments, Inc.

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