

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**

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 [®] 2000 / XP Pro / Vista Business (32) / 7 Pro (32)
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 IEC61236-1 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

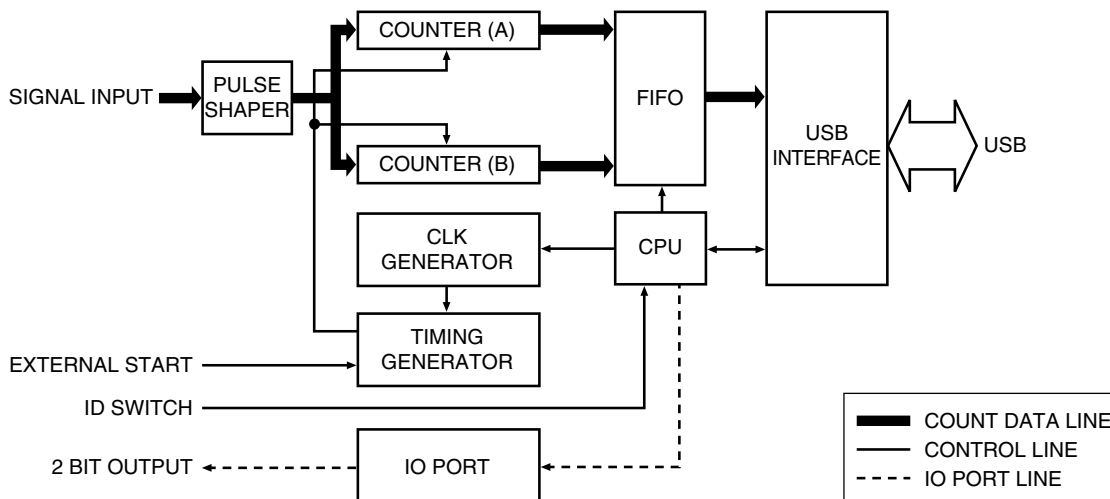
*: Sample software is configured from Lab VIEW™ of National Instruments, Inc.

^(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.

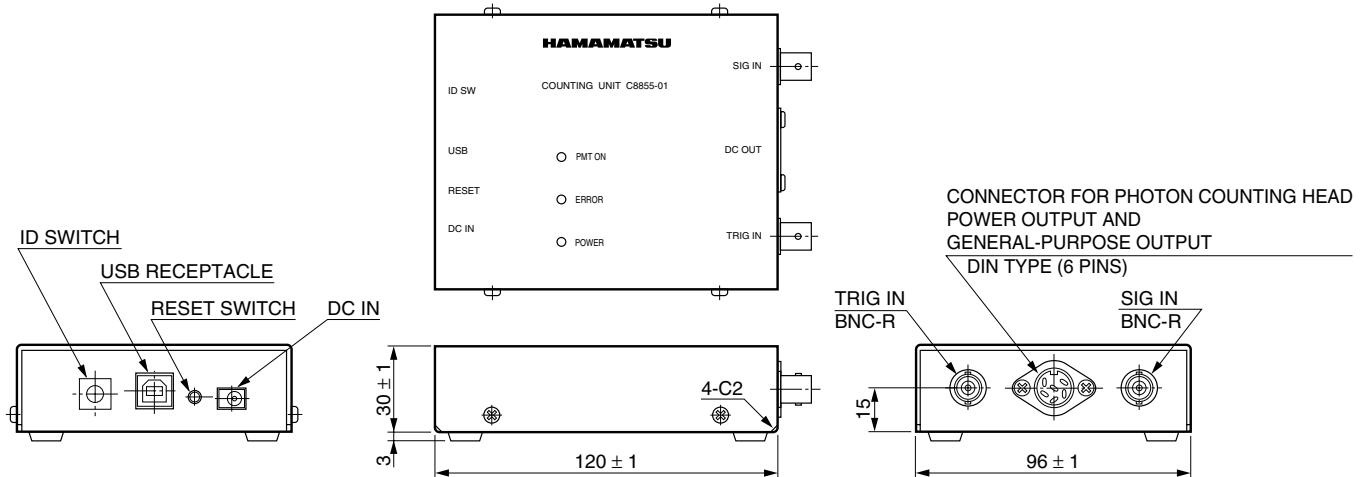
^(B)The ID switch is used to set ID numbers when two or more C8855-01 units are connected to single PC.

^(C)No condensation

BLOCK DIAGRAM

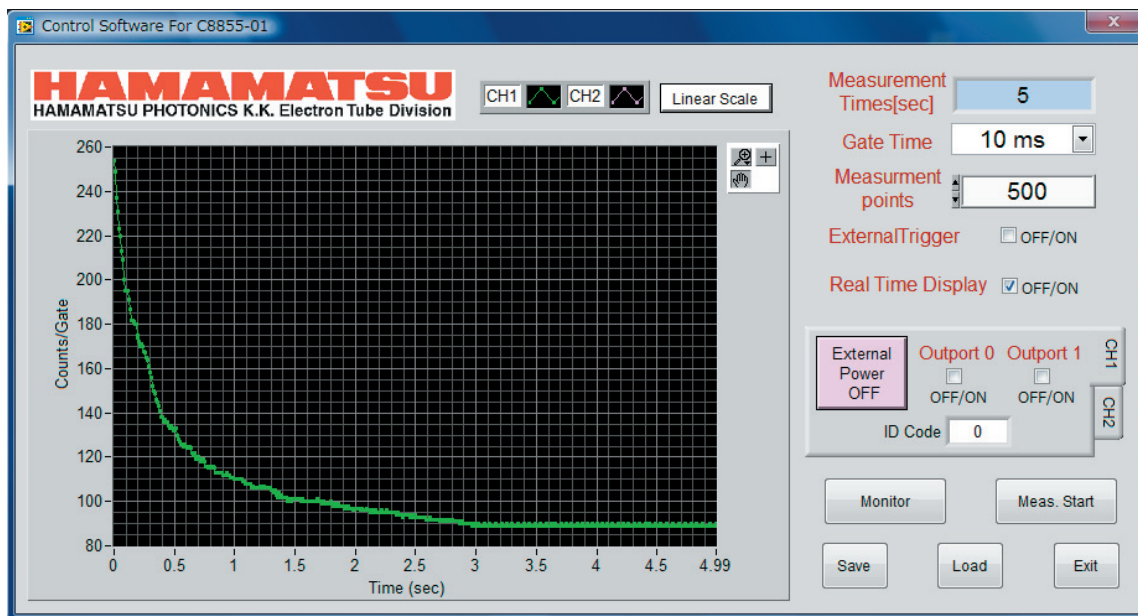


DIMENSIONAL OUTLINES (Unit: mm)



TPHOA0035EA

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 5 V digital signals 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.

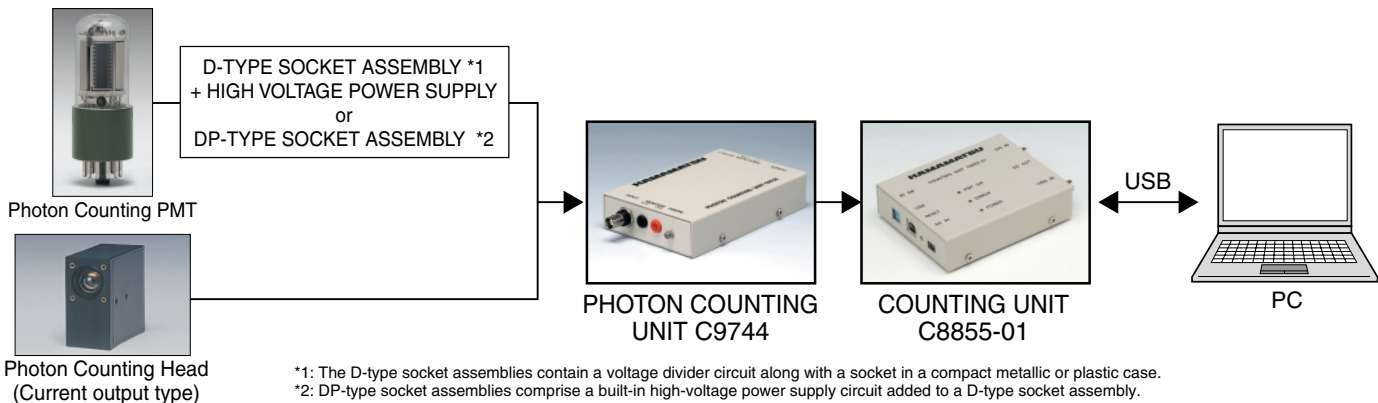
The C9744 uses a high-speed electronic circuit that allows measurement with an excellent output linearity up to 10^7 s^{-1} . The C9744 also has a prescaler (division by 10) eliminating the need for a high-speed counter.

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	± 1	$4 \times 10^6 \text{ s}^{-1}$
	± 10	$1 \times 10^7 \text{ s}^{-1}$
Pulse-pair Resolution	± 1	25 ns
	± 10	10 ns
Output Pulse		CMOS 5 V, POSITIVE LOGIC
Output Pulse Width	± 1	10 ns
	± 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 \times H \times D)		90 mm \times 32 mm \times 140 mm (excluding rubber feet and projecting parts)
Weight		Approx. 250 g
Operating Ambient Temperature		0 $^{\circ}$ C to +50 $^{\circ}$ C
Operating Ambient Humidity ^(A)		Below 80 %
Storage Temperature		-15 $^{\circ}$ C to +60 $^{\circ}$ C
Storage Humidity ^(A)		Below 85 %

^(A)No condensation ^(B)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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