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Signal processing unit for PSD module

C10460-01

Specifically dedicated for PSD module

The C10460-01 is a signal processing unit specifically design to convert the output from a PSD module C10443 series (except for the C10443-06) into position signals.

Position signals are output as both analog and digital signals. In case of analog output, connecting the output connector to a voltmeter shows an output voltage that directly represents the position information (The output voltage indicates a position from the center of the PSD, 1 V=1 mm). While, digital output allows serial connection (RS-232C) to a PC. Position information can be easily loaded into a PC via the sample software that comes with the unit.

Features

- **Both analog and digital outputs**
  Analog output: Output voltage directly represents the position information.
  Digital output: High-resolution digital output (16-bit)
- **Single +12 V supply voltage operation**
- **Supplies power to PSD modules**

Applications

- **Optical axis alignment**
- **Range finder**
- **Two-dimensional measurement**
- **Three-dimensional measurement**
- **Length measurement**
- **Liquid level sensors**
- **Distortion measurement**
- **Displacement sensors**

Absolute maximum ratings (Ta=25 °C, unless otherwise noted)

Parameter	Symbol	Condition	Value	Unit
Supply voltage	Vs max		+13	V
Input voltage	Vin max	*1	±12	V
Supply current	Iin max		2	A
Operating temperature	Topr	No dew condensation*2	0 to +40	°C
Storage temperature	Tstg	No dew condensation*2	-10 to +60	°C

*1: Output current from PSD module
*2: When there is a temperature difference between a product and the surrounding area in high humidity environments, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

Electrical characteristics (Ta=25 °C, Vs=+12 V, unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Supply voltage	Vs	*3	+11.5	+12	+12.5	V
Input voltage	Vin		-10.9	-	0	V
Current consumption	Is	*3	-	200	-	mA

*3: A power supply of approximately 12 V and 1.25 A is recommended. The electric current for operating this product varies depending on the use environment. Please check in advance.

■ Analog section

Parameter	Symbol	Condition		Min.	Typ.	Max.	Unit
Maximum output amplitude voltage	Vfs	*4		-	-	±10	V
Output noise voltage	Vn	*5		-	5	-	mVp-p
Output offset voltage	Vos	*5		-10	-	+10	mV
Position detection error	E			-	±3	-	%
Cutoff frequency	fc	-3 dB	Lower	-	DC	-	kHz
			Upper	-	13.5	-	
Position resolution	ΔR	*6		-	5	-	µm

*4: Vfs can be changed by using the range selector switch on the front panel of the unit.
*5: Measured when pseudo signal Vin (VX1=VX2=VY1=VY2=-2 V) is input in place of PSD module output voltage.
*6: Reference value. Values may vary depending on operating environment.

■ Digital section

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Digital output form	-	-	Conforms to RS-232C, 16-bit (outputs position signals X, Y, and light level monitor Σ)			-
Signal conversion time	-	Mode: 2 ms*7	2	-	-	ms
		Mode: 5 ms*8	5	-	-	

*7: Communication parameter 115200 bps/8-bit/Non-parity/1 stop bit
*8: Communication parameter 38400 bps/8-bit/Non-parity/1 stop bit

▶ Applicable PSD modules

· C10443-01
· C10443-02
Note: The C10443-06 is not supported.

▶ Connection example

PSD module C10443 series

Secure with optical bench rod, etc.

Connection cable for PSD module*

Signal processing unit for PSD module C10460-01

Cable with DC plug*

Power supply +12 V

Cable for analog output*

Voltmeter, oscilloscope, etc.

RS232C cable

PC
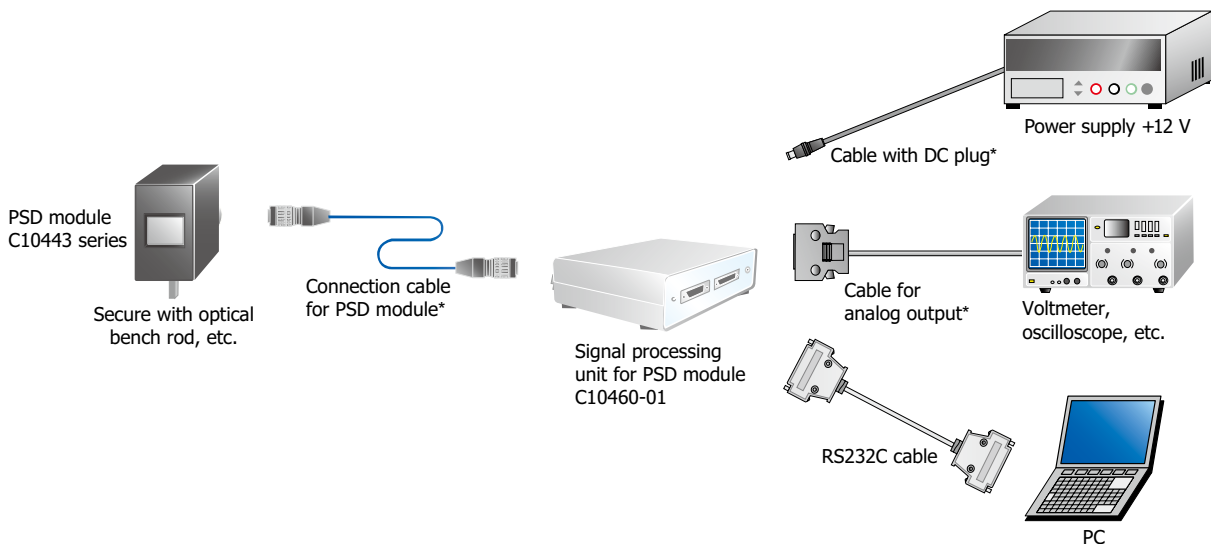
* Accessories of C10460-01

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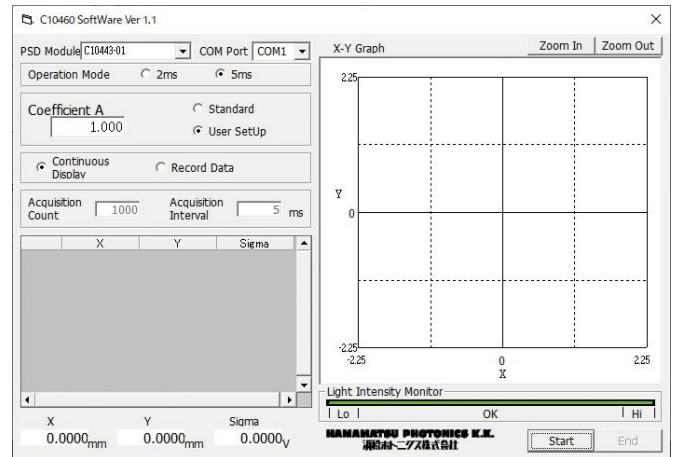
Sample software (accessory)

Sample software acquires and displays position data as numerical values and on an XY graph, as well as recording the data.

· Acquisition count: 1 to 300000
· Acquisition interval
    Mode 1: 2 ms to 120000 ms (in 2 ms intervals)
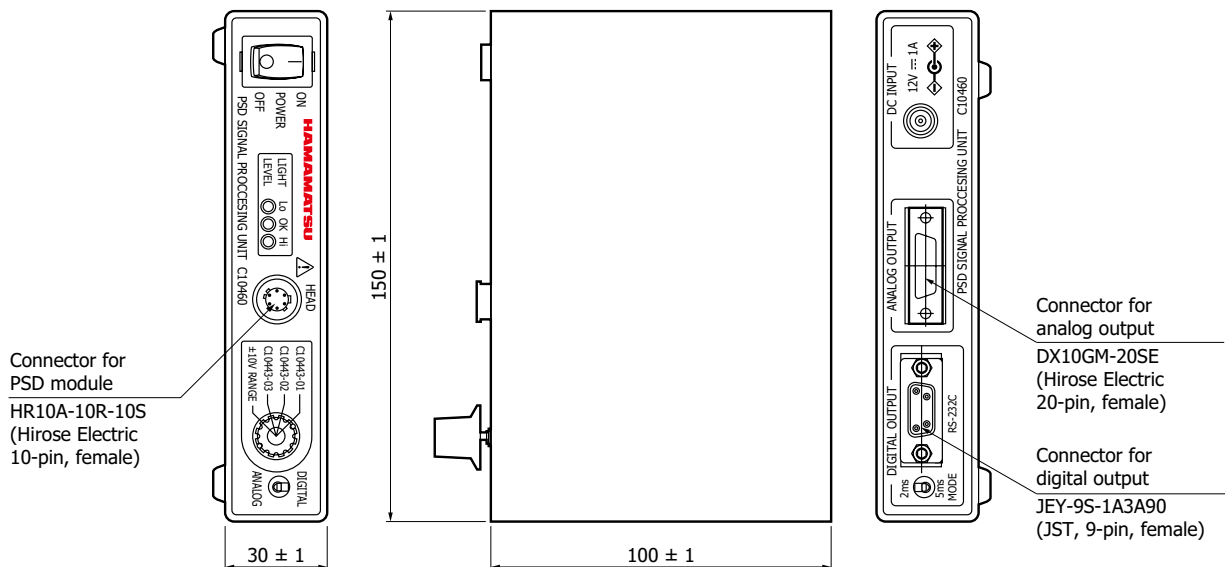   Mode 2: 5 ms to 300000 ms (in 5 ms intervals)

Compatible OS:
Microsoft® Windows® 10 Pro (32-bit, 64-bit)

Note: Microsoft Windows is either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

Dimensional outline (unit: mm)

Connector for PSD module
HR10A-10R-10S
(Hirose Electric 10-pin, female)

Connector for analog output
DX10GM-20SE
(Hirose Electric 20-pin, female)

Connector for digital output
JEY-9S-1A3A90
(JST, 9-pin, female)

150 ± 1

30 ± 1

100 ± 1

KACCA0195EE

▶ Accessories (unit: mm)

· Instruction manual
· Sample software CD-ROM
· Cable with DC plug
· Cable for PSD module

1000 ± 50

Connector HR10A-10P-10S
(Hirose Electric, 10-pin, female)

Connector HR10A-10P-10P
(Hirose Electric, 10-pin, male)

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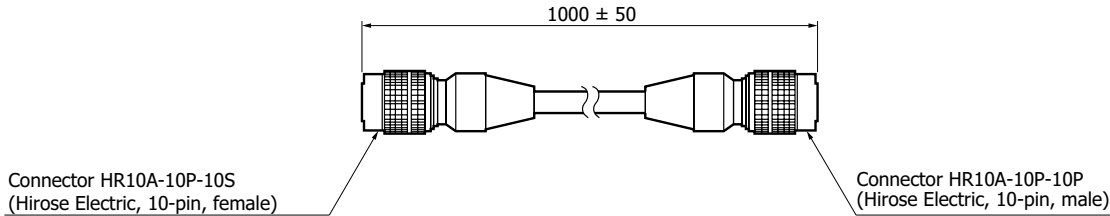
· Cable for analog output (no connector on one end)

1000 ± 50

Connector 10120-6000EL (Sumitomo 3M, 20-pin, male)

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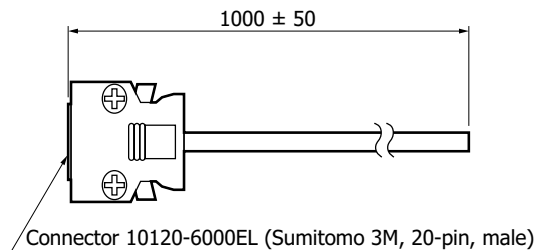
Note: RS232C cable is not supplied with C10460-01. Use a commercially available cable with 9-pin D-sub connectors. (male - female, straight)

▶ Related information

www.hamamatsu.com/sp/ssd/doc_en.html

■ Precautions
· Disclaimer

■ Technical notes
· PSD
· PSD signal processing circuits, PSD modules

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