

High Resolution Tilt Sensor HR-1100



Precision measurement is not just about removing variability,
it is also opening up new possibilities.

Configuration

1. High Resolution Tilt Sensor / HR-1100
2. Sensor cable (2m) / KE-0078
3. Image Processing Unit / GP-2000
4. Connector / FH-0022
5. Rubber feet / BMC0002
6. CD-ROM (software) / GP-2000CD

Option

1. RS-232C cable
・ KE-2110



Connects to external devices to send and receive data.*

2. DIN rail fitting plate
・ TO-0006



Used to install the imaging unit on a DIN rail.

3. AC adapter
・ FH-0023



Used to drive the device. Not required if a separate power supply is provided.

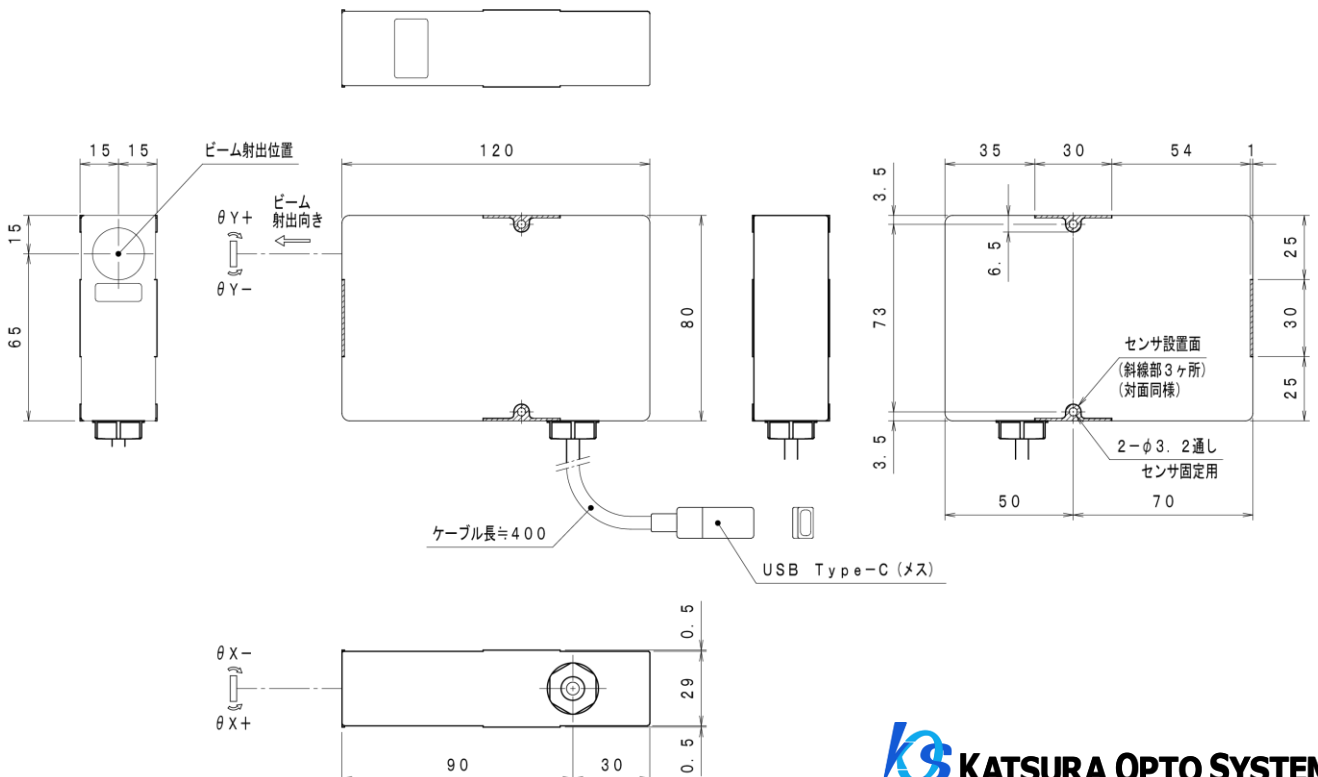
4. USB cable (Mini-B)
・ KE-0014



Used to visually check the camera image of the tilt sensor on a PC.

*In use USB port, SANWA supply (USB-CVRS9HN) recommendation.

Drawing



Specification

Item		High Resolution Tilt Sensor		
Measurement Sample		Optical Plane (reflectance 80% more)*1		
Measurement Type / Measurement Method		Tilt (θX , θY)*2 / Autocollimator		
Working Distance*3		0~1000mm		
Measurement Area	Tilt (θX , θY)	+/-10arcmin (Circular Range)		
Repeatability*4		0.1arcsec		
Linearity*5		+/-0.1% of F.S. (+/-1.2arcsec equates)		
Source	Wave Length / Beam Class / Beam Diameter	660+/-10nm / JIS C6802 2014 class 1 / ϕ 3mm*6		
Digital Out 1	Interface / Terminals	RS-232C Standard (compliant) / D-Sub 9pin Male		
Digital Out 2	Interface / Terminals	RS-232C Standard (compliant) / Hirose Electric: HR10A-7R-6S(73)		
Digital Out 1, 2 Common	Data Output	30times/sec*7		
	Minimum Output Unit	0.001arcmin, 0.00001deg, 0.01mdeg, 0.0001mrad, 0.01arcsec		
UVC Output	Interface / Resolution / Terminals	UVC / VGA (640×480) / USB Mini-B Female		
DIO	Terminals	Isolated I/O Connector (OMRON: XG4A-2034)		
	IN/OUT	8ch/8ch		
	Feature	IN: TARGET, LD ON/OFF, APC, SOFT RESET OUT: READY, REL, OK, NG, ND, ER, LD ON, GOOD		
Power*8	Input	DC+24V+/-10%		
	Connector	Phoenix Contact: 1827716 (*KOS Model Code: FH-0022)		
	Wiring	Pin Number	Signal	Recommended Wire Size*9
		1	DC24V	AWG24-16 (0.2-1.25mm ²)
		2	DC_GND	AWG24-16 (0.2-1.25mm ²)
3		FG	AWG18-16 (0.75-1.25mm ²)	
Power Consumption*10		3.6W		
Ambient Operating Temperature		10-35°C (with no condensation) / Image Processing Unit: 0-40°C*11		
Size (Without Protrusions)		W80xD120xH30mm / Image Processing Unit: W50xD55xH100mm		
Weight		0.35kg / Image Processing Unit: 0.3kg		

*1. When all laser beams are reflected.

*2. Refer to the drawing for the positional relationship between the measuring axis and sensor.

*3. Distance from sensor end face. Refer to the external drawing for details.

*4. The range of variation of 6σ of the value measured with our standard sample set at 50mm W.D. and in the product condition.

*5. Value at W.D. 50mm. Error against the ideal straight line in the measurement of our standard sample. It may vary depending on the object to be measured.

*6. Diameter at W.D. 50mm. ($1/e^2$ width)

*7. During continuous data output (communication command \$START). The number of outputs decreases when another communication command is used or the baud rate is set.

*8. Please provide your own power supply. Optional AC adapter or KHNA30F-24 from COSEL is recommended.

*9. Wire example: UL1007

*10. When powered by AC adapter (FH-0023).

*11. The range to meet the overall specification is 23+/-1°C.

*The appearance and specifications of the product are subject to change without notice for improvement purposes.

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