Various Functions for Every Need

Measurement period output

The measurement period for bottom-dead-center or eccentricity detection can be specified by strobe outputs. By connecting the EX-V Series to an oscilloscope or other device, you can adjust the device while monitoring a waveform.

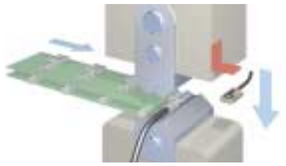
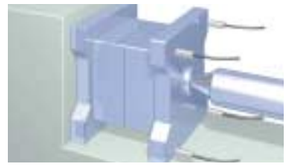
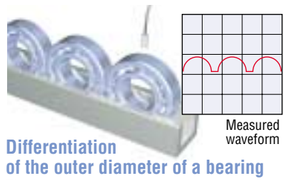
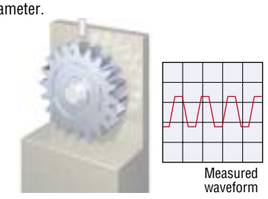
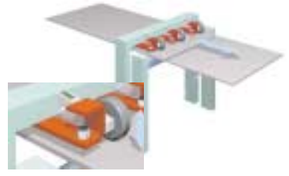
Tolerance limit memory function

Up to four upper/lower tolerance limit settings can be stored in memory. You can switch these settings also by external signals. This makes changeover quick and easy.

Comparator output disable input

The comparator output can be stopped with external signals. While continuing comparator operation, you can stop the output until the device operation stabilizes.

Applications by Facility/Product

Facility / Product	Electric machinery/ electronics	Metal/automobile	Plastic/paper
Facility	 **Detecting improper crimping** Improper crimping can be detected by checking the bottom dead center of the machine.  **Checking the origin of the X-Y stage** The resolution of 0.4 μm enables accurate measurement of the position of the origin.	 **Measuring the eccentricity of ATC tools** Eccentricity due to trapped swarf can be detected.  **Measuring the elongation of a tie bar** The elongation of the tie bar of a die-cast machine can be measured by using a magnet jig.	 **Measuring the distortion of a die for an injection molding machine** The amount of distortion can be measured by comparing the measured values before and after the load is applied.  **Detecting the surface runout of a slitter blade** The eccentricity mode automatically detects the surface runout exceeding the reference value.
Product	 **Measuring the surface runout of a disk** The eccentricity mode detects the surface runout of a disk.  **Measuring subtle vibration of a precision motor** Detecting abnormal vibration prevents defective products from being sent to the next process.	 Measured waveform **Differentiation of the outer diameter of a bearing** The bottom-dead-center mode detects the point where the bearing comes the closest to the sensor head to differentiate the outer diameter.  Measured waveform **Detecting the eccentricity of a gear** Setting the eccentricity mode to the difference between peaks measurement type detects the eccentricity in gear teeth tops.	 **Measuring the gap between rollers** The gap between the molding rollers can be accurately measured  **Detecting double-fed paper bags** Detecting the movement of a jig allows for differentiation between one and two paper bags.

Selection Chart

Controller

EX-V Series

Sensor head

Shape	Measuring range	Resolution	Model
 ø5.4 x 18mm	1 mm	0.4 μm	**EX-305V**
 M10 x 18mm	2 mm	0.4 μm	**EX-110V**
 M16 x 20mm	5 mm	1 μm	**EX-416V**
 ø22 x 35mm	10 mm	2 μm	**EX-422V**
 14 x 30 x 4.8mm	4 mm	1 μm	**EX-614V**

Specifications

Model		Cylindrical	Threaded	Cylindrical, threaded		Thin profile
		ø5.4 x 18 mm	M10 x 18 mm	M16 x 20 mm	ø22 x 35 mm	14x30x4.8 mm
Shape	Sensor head	EX-305V	EX-110V	EX-416V	EX-422V	EX-614V
	Controller	EX-V01	EX-V02	EX-V05	EX-V10	EX-V64
Measuring range		0 to 1 mm 0.04"	0 to 2 mm 0.08"	0 to 5 mm 0.20"	0 to 10 mm 0.39"	0 to 4 mm 0.16"
Display range		-19999 to 19999				
Linearity		±0.3% of F.S.				
Resolution		0.4 μm	0.4 μm	1 μm	2 μm	1 μm
Sampling rate		40000 samples max./sec.[1]				
Display rate		20/sec.				
Display character		7-segment 2-color LED				
Range-over alarm		±FFFF is displayed.				
Control input	Timing input	NPN open-collector or non-voltage contact				
	Reset input					
	Auto-zero input					
	Comparator output disable input					
	Synchronous input					
	External setting input					
Control output	Tolerance setting	Upper/lower 2-level setting x 4 sets (selectable)				
	Signal	NPN open-collector (HIGH, GO and LOW): 100 mA max. (40 V max.)				
	Response time	0.075 ms (at maximum speed)				
	Off-delay time	60 ms				
Strobe output		NPN open-collector: 100 mA max. (40 V max.), Residual voltage: 1 V max. (N.O.)				
Alarm output		NPN open-collector: 100 mA max. (40 V max.), Residual voltage: 1 V max. (N.C.)				
Analog voltage output	Output voltage	±5 V				
	Impedance	100 Ω				
	Response time	0.075 ms (at maximum speed)				
Temperature fluctuation		0.07% of F.S./°C [2]				
Power supply		24 VDC±10%, Ripple (P-P): 10% max.				
Current consumption		240 mA max.				
Ambient temperature	Sensor head	-10 to +60°C (14 to 140 °F), No freezing				
	Controller	0 to +50°C (32 to 122 °F), No freezing				
Relative humidity		35 to 85%, No condensation				
Vibration		10 to 55 Hz, 1.5 mm double amplitude in X, Y and Z directions, 2 hours respectively				
Weight	Sensor head (including 3-m cable)	Approx. 45 g	Approx. 55 g	Approx. 75 g	Approx. 200 g	Approx. 60 g
	Controller	Approx. 235 g				
Major functions		Auto-zero function, Offset function, Measurement modes (15 types), Tolerance limit value memory function (4 patterns)				

1. When the digital filter function is used, the sampling rate is 20000 sampling/sec.
2. When the distance between the sensor head and the target is within 50% of the measuring range.
3. The above data was obtained using an iron target (S45C, SS41, t = 1 mm 0.04"). When measuring aluminum, copper, or stainless steel targets, refer to the linear characteristics for these materials.