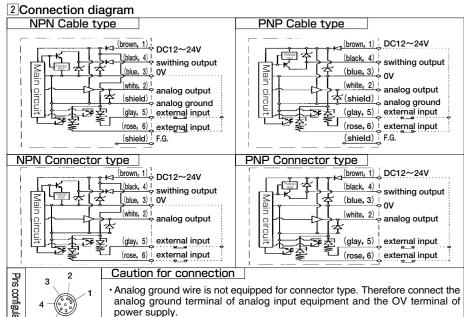
Displacement Sensor CD SERIES Laser type ·CD3-30 ·CD3-50 ·CD3-50 ·CD3-80 ·CD3-100 ·CD3-100 ·CD3-250□□ INSTRUCTION MANUAL · Confirm if the item meets your needs. Before the use, you should first thoroughly read this manual and operate correctly as mentioned You should keep this manual at hand for proper use.

1 Specifications

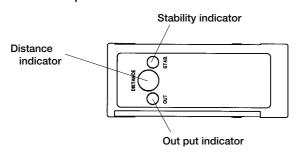
				Laser type				
T	Cable type	CD3-30 (N,P)	CD3-50 (N,P)	CD3-80 (N,P)	CD3-100 (N,P)	CD3-250 (N,P)		
Туре	Connector type	CD3-30C (N,P)	CD3-50C (N,P)	CD3-80C (N,P)	CD3-100C (N,P)	CD3-250C (N,P)		
Measu	ıring Range	30±4mm	50±10mm	80±15mm	100±40mm	250±150mm		
Light S	Source	Class 2 Red laser Diode (wave length 650nm)						
Peak Power		1mW max.						
Pulse Length		300 μS						
Pulse Repetition Rate		1kHz						
Frequency		1kHz						
Spot Size (middle of range)		φ 0.5mm	φ 0.8mm	1×1.5mm	1×1.5mm	3×1.5mm		
Supply	/ Voltage	DC12~24V (-5% +10%)						
Current Consumption		120mA max. / DC12V, 80mA max. / DC24V						
		including analog output value						
Resolution 1)		$4 \mu\mathrm{m}$	10 μ m	10 μ m	30 μ m	150 μ m		
Linearity 2)			≥250mm: ±1.5%F					
			<250mm: ±2.5%F					
Tempe	erature Drift	±0.08%FS/°C						
Response Time		2.2ms max. (sensitivity: fix, averaging: 1)						
		22.5ms max. (sensitivity: AUTO, averaging: 1)						
	Analog output	4~20mA						
Outputs	Switching output	NPN/PNP 100mA max/DC24V						
		Residual voltage 1.8V max.						
	Distance Indicator		Near	: Re	d			
			Middle	: Ora	ange			
			Far	: Gre	een			
			Out of range	: Blir	nking Red/Green			
Indicators			Too high/low	reflection : Blir	nking Red/Green			
	Stability Indicator		Stable	: Gre	een			
			Unstable	: Ind	licator OFF			
			Too high/low	reflection : Re	d			
	Output Indicator		ON status	: Ora	ange			
Ambie	nt Light	Sun	light: 10,000 lx ma	ax. Incandesc	ent lamp: 3,000 lx	max.		
	ing Temperature	−10~40°C						
Opera	ting Humidity	35~85%RH						
Housing Material		Zinc die-cast						
Protection Category		IP67						
Weight	Cable Type	approx.130g (without cable)						
• • • • • • • • • • • • • • • • • • •	Connector Type	approx.140g						

- FS (Full scale) is defined as, CD3-30:8mm, CD3-50:20mm, CD3-80:30mm, CD3-100:80mm, CD3-1) Middle of measuring range, Sensitivity: AUTO, Averaging: 64, Object: white ceramic
- 2) Linearity error (sensitivity: AUTO, averaging: 64, object: white ceramic)

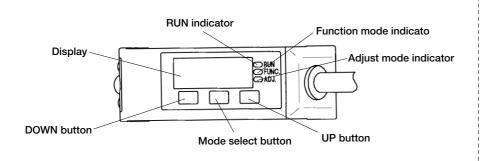


- 1) Connect the lead wires correctly. The analog output wire must not be in contact with any other wire. Do not turn on any power while wiring.
- 2) The blue wire (0V) and shield wire (analog GND) are internally connected. Use the blue wire (0V) for the power supply and use the shield wire (analog GND) for analog output.

3 Functions of components



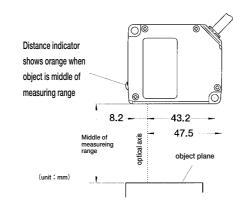
Distance indicator	This LED indicates the distance from sensor to object.						
			10% of FS 				
		Г	₩	i I			
	Blinking red and green	Red ON	Orange ON	Green ON	Blinking red and green		
	This LED blink high/low reflecti	_	n when stability	y indicator is	red ON due to too		
Stability indicator This LED indicates the level of received light intensity.							
	Green : Stable measuring						
	OFF : Unstable measuring						
Red : Measurement is impossible due to too high/low level of light intensity.					v level of Receiving		
Output indicator	Orange : Switching output is ON status						
	OFF : Switching output is OFF status						



RUN indicator	This LED indicates RUN mode.					
Function mode indicator	This LED indicates function select mode.					
Adjust mode indicator	This LED indicates adjust mode of function.					
Display	RUN indicator ON :Indicate distance from sensor to object.					
	Function mode indicator ON :Indicate function.					
	Adjust mode indicator ON :Indicate value of selected function.					
Mode select button	Mode is changed by this button.					
	RUN mode T>3 sec. Function select mode Adjust mode					
	T>3 sec.					
	T=duration of pressing button					
UP/DOWN button	RUN mode :no effect					
	Function select mode :Select function					
	Adjust mode :Adjust value of function					

4 INSTALLATION

Install the sensor and adjust the light spot onto the measuring point so that the distance indicator turns ON (orange) at the middle of measuring range.



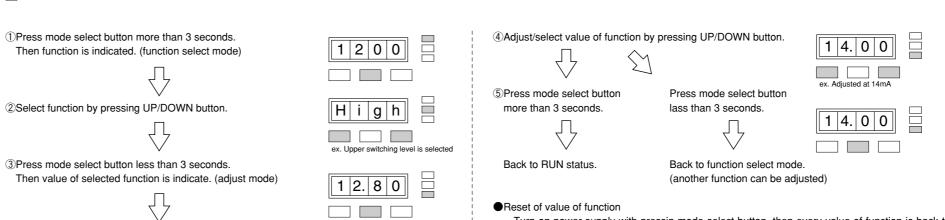
- Adjust the sensor position so that the optical plane of the sensor is parallel with the plane of the object to be detected to obtain reliable measurement.
- · In the laser type sensor, an invisible laser circle resides around the visible light spot. If there is any matter around the spot that is glossier than the measuring object it may lead to incorrect measurement.

ELINCTION

Function	Function mode indicate	Adius	et mode indicate	Adjust/Select item	Teaching	Initial value
Upper switching level	High	4.0020.00 (m -99999999 -4.004.00 (m -10.0010.00 (m -15.0015.00 (m -40.0040.00 (m	current indicate/indication off relative distance 30mmtype, distance indicate 50mmtype, distance indicate 80mmtype, distance indicate 100mmtype, distance indicate	tion off Indicate and icate and ica		Middle of measureing rang +5%(FS)
Lower switching level	Lo	,	m) 250mmtype, distance indicate me as above	Lower switching level can be adjusted without object.	Possible	Middle of measureing ran
Output style (Timmer)	OtyP	ondy, oFdy, onEs, oFF		Timmer mode can be selected. ondy : on delay oFdy : off delay onEs : one shot oFF : without timmer		oFF
Timmer period	tlEr	0999, (n 1 S10 S	ns)	Timmer period can be adjusted. 0999ms: every 1ms 110S: every 1S		0
Hysteresis	HySt	0.001.99 (m 00002499 0.001.00 (m 0.002.49 (m 0.003.75 (m 0.0010.00 (m	A) current indicate/indication off relative distance m) 30mmtype, distance indicate m) 50mmtype, distance indicate m) 80mmtype, distance indicate m) 100mmtype, distance indicate m) 250mmtype, distance indicate	Hysteresis of switching output can be adjusted.		0.15%(FS)
Averaging	Arg	1, 4, 16, 64, 256, 1024		Averaging times of output can be selected.		64
Sensitivity	SEnS	120 AL	то	Sensitivity can be selected. 1 (low)~20 (high) : Sensitivity can be fixed at selected sensitivity. AUTO : Sensitivity is adjusted automatically.	Possible	AUTO
Offset	OFSt	-50.0P50.0P		Offset can be adjusted ±50% compare to initial value. Adjustation offset range Adjustation off	Possible	0.0P
Span	SPAn	-50P50P		Span of analog output can be adjusted ±50% compare to initial value. Adjustable span range (A) Adjustable span range (A) A (B) Adjustable span range (A) A (B) A		0P
Analog output when reflection is too high/low	EoUt	Hold, CLp		Analog output can be selected when reflection is too high/low. Hold : Analog output is held just before reflection becomes too high/low. CLp : aAnalog output is fixed at 24mA.		CLp
Display style during RUN status	dISP	4-20, dISt, 0-99, off, rd	ıs	Display style during RUN status can be selected. 4-20 : Current indicate (4-20mA) dISt : Distansce indicate (mm) -4.0004.000 30mm type -10.00, -9.9999.999, 10.00 50mm type -15.0010.00, -9.9999.999, 10.0015.00 80mm type -40.0010.00, -9.9999.999, 10.0040.00 100mm type -150.0100.0, -99.9999.99, 100.0150.0 250mm type 0-99 : Relative distance within range (-9999∼9999) off : Display off rdIS : Reverse plus and minus when distance displayed.		dISt
Bank	Ban	0, 1, 2, 3		4 pattern of function can be memorized. (Except for external input costomization and inside memory ON/OFF) Two external input (Rose wire and Grey wire) can be devided ingo four		0
External input custormize	InPt	A Type A b Type B c Type C d Type D		types. Bank No. 0 1 2 3 (Bank select) Rose wire OFF ON OFF ON Type B Rose wire OFF ON ON Type C Rose wire Reset Reset Type D Rose wire Reset Reset Type D Rose wire Sensitivity teaching Gray wire Sensitivity teaching ON: Connect PNP to +V		A
Interior memory ON/OFF	EEP	On, OFF		ON: Connect NPN to 0V 1.Choose OFF if you wish to keep operation without writing date of results into interior memory (Operation by external input only). 2.Choole OFF for the lifetime of interior memory (Limits: hundred thousand times). * 1.Change setting by button operation will be written on the memory. 2.Information which are not written on interior memory will be cleared when switched off.		oN

6 ADJUST / SELECT FUNCTION

to (4)



initial status.

Turn on power supply with pressin mode select button, then every value of function is back tu

7 TEACHING

Switchig level, sensitivity, offset are adjusted by teaching. ①Press mode select button more than 3 seconds. 1 2 0 0 Then function is indicated. (function select mode) H i g h ②Select function by pressing UP/DOWN button. ③ Press mode select button less than 3 seconds. Then value of selected function is indicate. (adjust mode) 1 2. 8 0

1 4. 0 0

4 Place object at the adjust point, and press UP and DOWN button 1 2. 0 0 at the same time.

5Blink adjuted value 3 time, If error is indicated, confirm then teaching is completed. situation of installation. **\ \ |** | / | 1 | 4. | 0 | 0 | ||E|r|r| | Blink 3 times

⑥Press mode select button Press mode select button more than 3 seconds. lass than 3 seconds.

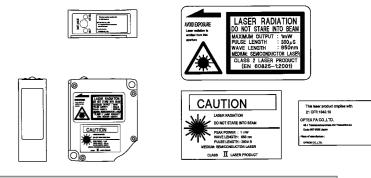
Back to RUN status. Back to function select mode. (another function can be teached)

8 Warnings and cautions

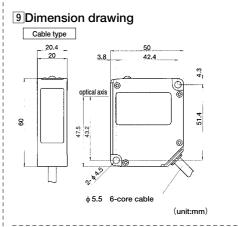
Warnings

●Laser beam

- OThis item utilizes visible light laser beam and is subject to safety standard class 2 of JIS C6802 as well as IEC and FDA regulations. ODO NOT stare into the beam, or reflect the beam with a mirror.
- ODO NOT disassemble the unit. Sensor are not equipped with auto-laser-off function.
- ●DO NOT allow dust, oil, water, etc. to accumulate on the sensor face.
- It degrades the sensor function. If pollution, just wipe clean using a dry cloth. ●When a switching regulator is to be used with a power supply, make sure to ground the frame
- ground terminal.
- ●DO NOT use the sensor in a transient state at power on (Approx. 30min. warm-up time). ●DO NOT run the sensor cable near a high-voltage lines, or power lines or put them together in the same raceway. This warning should be strictly observed to prevent malfunctions caused by
- inductive interference. •Use of controls or adjustments or performance of procedures other than those specified herein
- may result in hazatdous radiation exposure. Sensors equipped on machinary are under FDA of American laser regulation.CD3 series have
- already been registered with CDRH (Center for Devices and Radiological Health).



$\hat{\Lambda}$ Must not use this item as safety equipment for the purpose of human body protection



• Specifications and equipment are subject to change without any obligations on the part of manufacture.

• For more information, questions and comments regarding products, please contact us below.

M12 8 pins connector 7.7

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