

With linear image sensor and
better provides accurate measurement.

Measurement sensor features easy setup and operation.
Resolution of $0.1\mu\text{m}$ and $\pm 0.1\%$ F.S. linearity. (Specular Type)
Optics (CD4L-25) that are ideal for glass sensing.



〈For general use〉

Regular
type

CD4-30 (IEC Class 2 「FDA CLASS II」 Type)
CD4-30-3R (High power Class 3R Type)

Short distance

Tire inspection

Measurement range : $30 \pm 5\text{mm}$
Resolution : $1\mu\text{m}$
Linearity : $\pm 0.1\%$ F.S.



Regular
type

CD4-85 (IEC Class 2 「FDA CLASS II」 Type)
CD4-85-3R (High power Class 3R Type)

Middle distance

Checking clear package of IC mounted on PCB

Measurement range : $85 \pm 20\text{mm}$
Resolution : $3\mu\text{m}$
Linearity : $\pm 0.1\%$ F.S.



Regular
type

CD4-350 (IEC Class 2 「FDA CLASS II」 Type)
CD4-350-3R (High power Class 3R Type)

Long distance

Monitoring the die cast

Measurement range : $350 \pm 100\text{mm}$
Resolution : $40\mu\text{m}$
Linearity : $\pm 0.1\%$ F.S.



〈For glass material〉

Specular
type

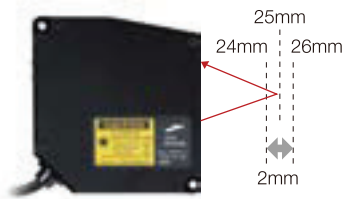
CD4L-25 (IEC Class 1 「FDA CLASS II」 Type)

er displacement sensor with linear image sensor
shutter provides accurate measurement.

<Glass material>

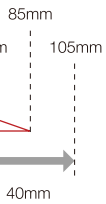
CD4L-25 Specular type : $25 \pm 1\text{mm}$

The optical path is designed to project the correct angle for the detection of specular reflections from transparent objects.

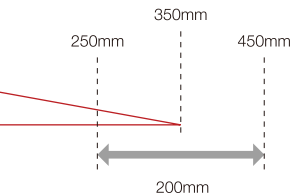


$30 \pm 5\text{mm}$

$85 \pm 20\text{mm}$



$50 \pm 100\text{mm}$



Class 2 (IEC/JIS) CLASS II (FDA) laser product

CD4-30

CD4-85

CD4-350

High power type (models with
“-3R”) has class 3 laser



Class 3R - High power types

CD4-30-3R

CD4-85-3R

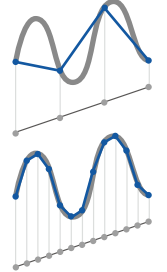
CD4-350-3R

For matte black objects or any
application that requires a
higher power laser, there are
models of the CD4 series
available which use a Class 3R
light source.



High speed sam

The CD4 Displacement
sampling rate and high der



Convention
with slow r

CD4 Series
sampling r
racy.

IP67 Environme

The sensing heads of the
series have an IP67 rating
use in applications where
may be exposed to water

Class 1 (IEC/JIS) CLASS II (FDA) laser product

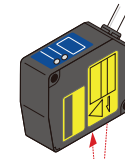
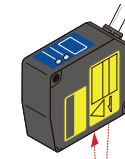
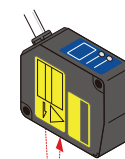
CD4L-25

CD4L-25 is registered to CDRH.
(Center of devices and radio-
logical health)



Hint of installation for best accuracy

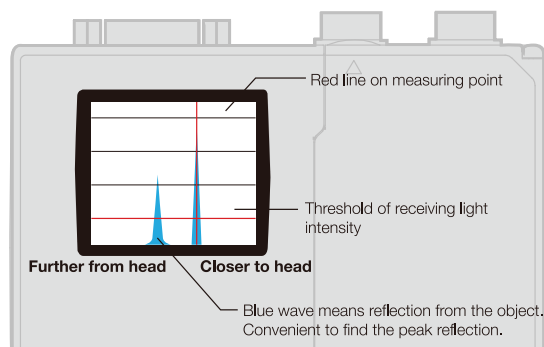
To obtain accuracy the sensor head must be oriented as shown below.



heads, calculated value, etc. are displayed on the



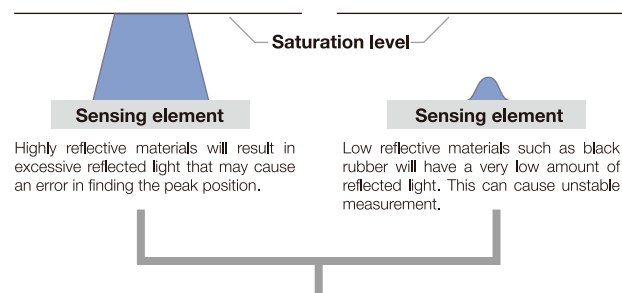
For stable measurement and improved accuracy the light intensity needs to be adjusted to the optimum setting.
With the built-in monitor the status of the level can be verified.



sors. Good for measuring thickness.

Bank 1 input	Bank 0 input
OFF	OFF
OFF	ON

The microcomputer in the CD4 controller will automatically control the shutter speed depending upon the reflectance of the target. This will select the best light intensity level for accurate measurement and will help to minimize the error (AUTO Sensitivity Mode).



By connecting the CD4 controller to a PC, the following operations can be performed from the PC via RS232.

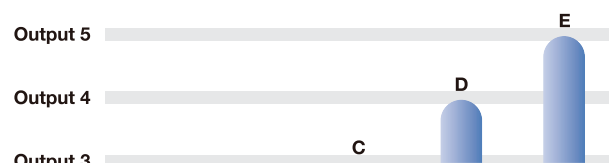
- Writing and reading out the setting value
- Reading out the measurement value
- Reading out the control output status
- Operating the control input
- Data buffer function

Communication method	RS-232C
Transmission type	Asynchronous
Baud rate	9600/19200/38400/115200 bps
Transmission code	ASCII
Data length	7/8 bit
Stop bit length	1 bit
Parity check	Nil/Even number/Odd number
Data classification	STX·ETX

The underlined values are the factory default settings.

Adjust the communication settings of the PC and the CD4 using the values in the above table. The settings of the CD4 controller can be accessed in screen number 14 (RS232C).

This is convenient for sorting items according to size. Each of the 5 comparator outputs can be set independently, all outputs have a high and low threshold limit.



High / Low pass filters are used to filter out unwanted signals.
A low pass filter will help to filter out high frequency noise in the measurement which will help to eliminate slow gradual changes in the signal.



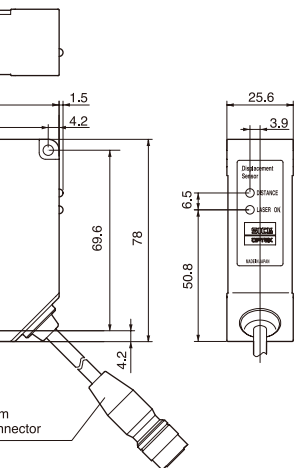
Easy disconn

Therefore it computes for
thickness, width, etc.
Independent measurement
possible as well. Any com
heads (30, 85, 350) can b

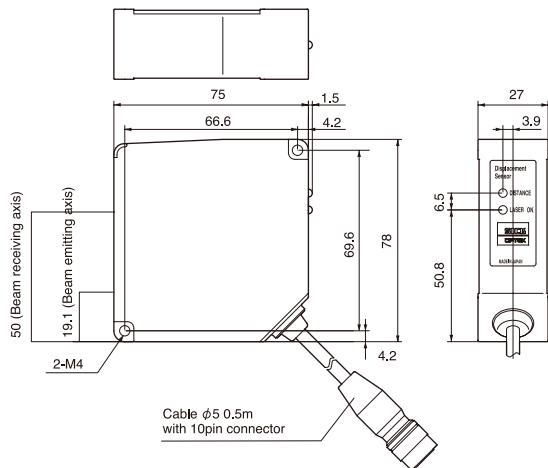


or head

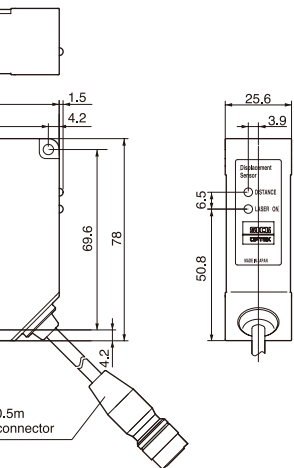
-85/-85-3R



Model No. : CD4-350/-350-3R



head

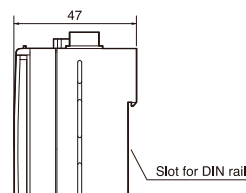
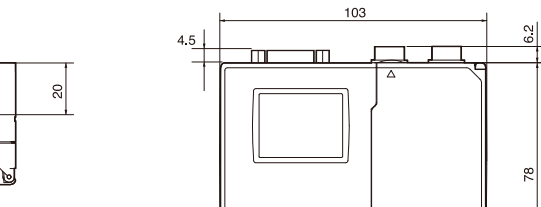


Model No. : CD4CN-S-ROBOT

: Extension 2m cable to connect the sensor head

Model No. : CD4CN-5S-ROBOT

: Extension 5m cable to connect the sensor head



CD4 series

Model	IEC Class 1 (FDA CLASS II) Type	CD4-30	CD4-85
	High power Class 3R Type	CD4-30-3R	CD4-85-3R
Measurement range		30 ±5mm	85 ±20mm
Light source	(Regular type)	Class 2 (IEC/JIS) CLASS II (FDA) Red laser diode , 650nm, max 1m W	
	(High power type)	Class 3R (IEC/JIS) CLASS III a (FDA) Red laser diode, 650nm, max 5mW	
Spot size (*1)		30 × 100μm	70 × 290μm
Linearity (*2)		±0.1% F.S.	
Resolution (*3)		1μm	3μm
Supply voltage		Supplied by CD4A-N/P controller	
Temp drift		±0.01% F.S. / °C	
Laser emission indicator		Green = Laser emission	
Measurement indicator		Red = In range, closer than center 5% of measurement range (0 to 45%)	
		Orange = Within +/- 5% of the center of the measuring range	
		Green = In range, farther than center 5% of measurement range (55 to 100%)	
		Red/Green alternating = Out of measuring range	
Protection category		IP67	
Operation temp / humidity		-10 to 45 °C (14 to 113 °F), 35 to 85% RH	
Storage temp / humidity		-20 to 60 °C (-4 to 140 °F), 35 to 85% RH	
Environmental illuminance		Incandescent lamp = Max 3,000 lux	
Vibration resistance		10 to 55 Hz double amplitude 1.5mm for XYZ	
Shock resistance		50G (500m/s ²)	
Cable		50cm (19.7 inch) cable	
Cable extension		CD4CN-S-ROBOT (2m, 78 inch) , CD4CN-5S-ROBOT (5m, 197 inch)	
Material		Aluminum diecast	

*1 Defined with center strength 1/e² (13.5%). There may be leak light other than the spot size. The sensor may be affected when there is a high

*2 256 times in average (using the special amplifier) , object: White ceramic. The value is subject to objects.

*3 The typical value in the conditions of 256 times in average (using the special amplifier) , object: White ceramic, distance range: Middle. The

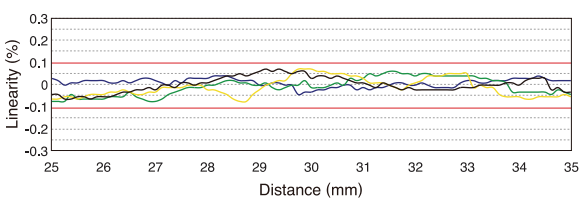
CD4L-25

Model	CD4L-25
Measurement range	25 ±1mm
Light source	Class 1 (IEC/JIS) CLASS II (FDA) Laser, 650nm, max 390 micro W
Spot size (*1)	25 × 35 μm
Linearity (*2)	± 0.1% F.S.
Resolution (*3)	0.1 μm
Supply voltage	Supplied by CD4A-LN/LP controller
Temp drift	±0.01% F.S. / °C
Laser emission indicator	Green = Laser emission
Measurement indicator	Red = In range, closer than center 5% of measurement range (0 to 45%)
	Orange = Within +/- 5% of the center of the measuring range
	Green = In range, farther than center 5% of measurement range (55 to 100%)
	Red/Green alternating = Out of measuring range
Protection category	IP67
Operation temp / humidity	-10 to 45 °C (14 to 113 °F), 35 to 85% RH
Storage temp / humidity	-20 to 60 °C (-4 to 140 °F), 35 to 85% RH
Environmental illuminance	Incandescent lamp = Max 3,000 lux
Vibration resistance	10 to 55 Hz double amplitude 1.5mm for XYZ
Shock resistance	50G (500m/s ²)
Cable	50cm (19.7 inch) cable
Cable extension	CD4CN-S-ROBOT (2m, 78 inch) , CD4CN-5S-ROBOT (5m, 197 inch)

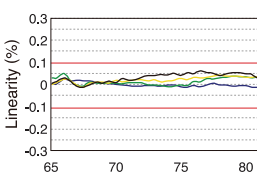
	CD4A-N / -LN (NPN output type)	CD4A-P / -LP (PNP output type)
	Max.2 pcs	
	100μs	
	12 to 24V, DC ±10%	
	270mA/24V (When connected with 2 sensor heads. Including analog current output)	
	±0.01% F.S./ °C	
	Voltage output ±5V / F.S. (Output impedance 100Ω, resolution 1mV)	
	Current output 4 to 20mA / F.S. (Load impedance 300Ω, resolution 1.5μA)	
	NPN open collector	PNP open collector
	Max. 100mA / DC 24V (residual voltage Max. 1.8V)	Turns ON when the sensor head fails in measurement.
	NPN open collector	PNP open collector
	Max. 100mA / DC 24V (residual voltage Max. 1.8V)	
	HI / LO setting and Hysteresis setting are available for each output.	
	ON when connected to GND	ON when connected to 12 to 24V
	8 banks selectable	
Model No. : CD4-30/CD4-30-3R	ON when connected to GND	ON when connected to 12 to 24V
	Laser off or measurement value holding (selectable in the menu)	
Model No. : CD4-350/CD4-350-3R	ON when connected to GND	ON when connected to 12 to 24V
	Zero reset of head A measurement value / Head B measurement value / Calculation value is available.	
	Average sampling times, Filter mode (Cut-off frequency) , Calculation, Hold setting, Output during alarm, Output control (Hysteresis) , Analog output, Sensor head sensitivity control, Timer function, Memory function, Memory bank function, Auto zero reset	
	LCD display	
	IP20	
	-10 to +45°C (Non-condensing) / 35 to 85% RH	
	-20 to +60°C / 35 to 85% RH	
	10 to 55Hz, Double amplitude 1.5mm, 2h for XYZ axis	
	20G (196m/s ²)	
	Chassis: Polycarbonate, Connection terminals: Nylon 66	
	240g (including connection terminals)	

CD4 series : by material

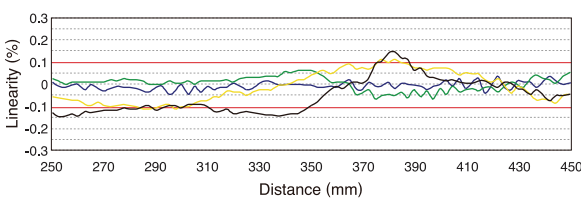
Model No. : CD4-30/CD4-30-3R



Model No. : CD4-85/CD4-85-3R

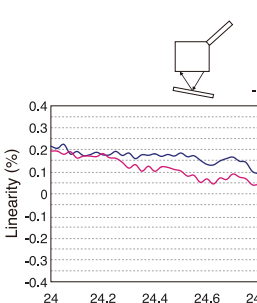
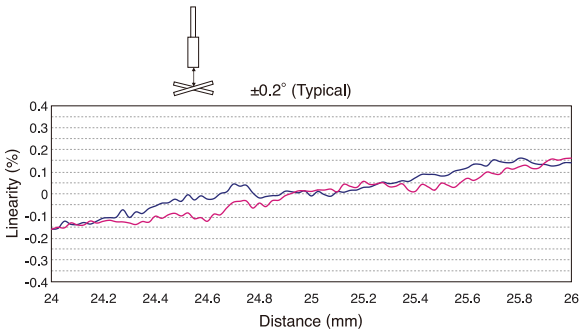
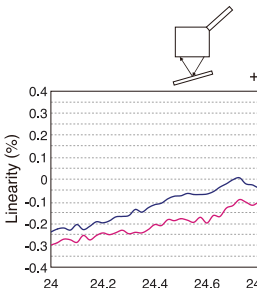
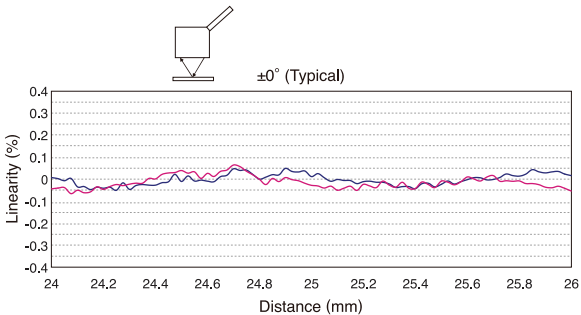


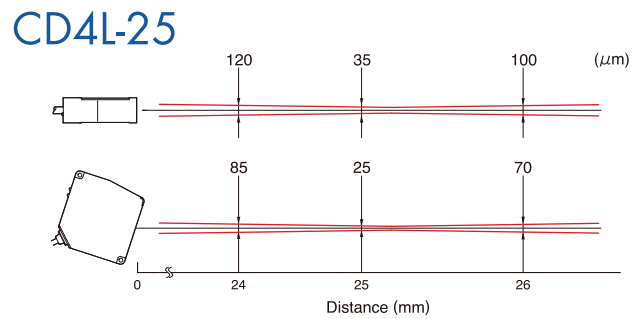
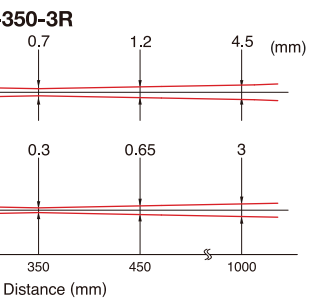
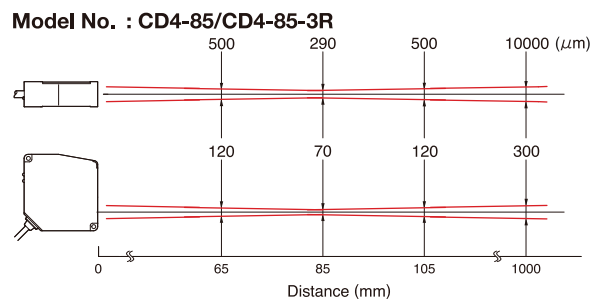
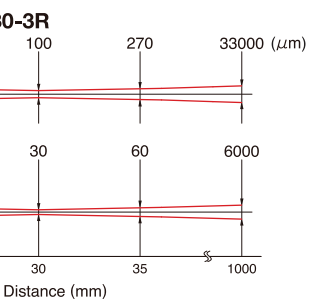
Model No. : CD4-350/CD4-350-3R



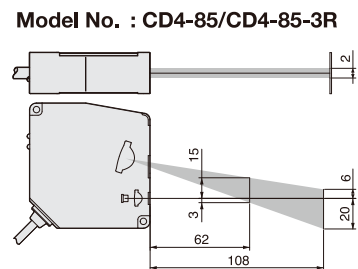
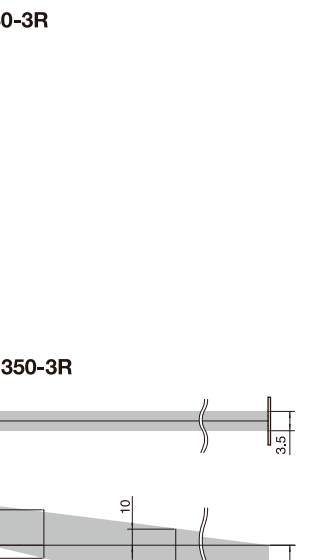
- White ceramic
- Aluminum
- Gray ceramic
- Black rubber

CD4L-25 : by angle





REFERENCE AREA



CD4L-25

