



OPTEX FA

Displacement Sensors

FASTUS | CD2S Series





CD2S DISPLACEMENT SENSOR OVERVIEW

I. CONCEPT & POSITIONING

II. KEY FEATURES

III. SERIES LINEUP

IV. CROSS-SERIES COMPARISON

V. INTERFACE

VI. APPLICATIONS

VII. DIMENSIONS

VIII. OPTIONS

I. CONCEPT & POSITIONING

- Compact Design
- High-Performance
- Supports Both Modern and Legacy Interfaces



II. KEY FEATURES

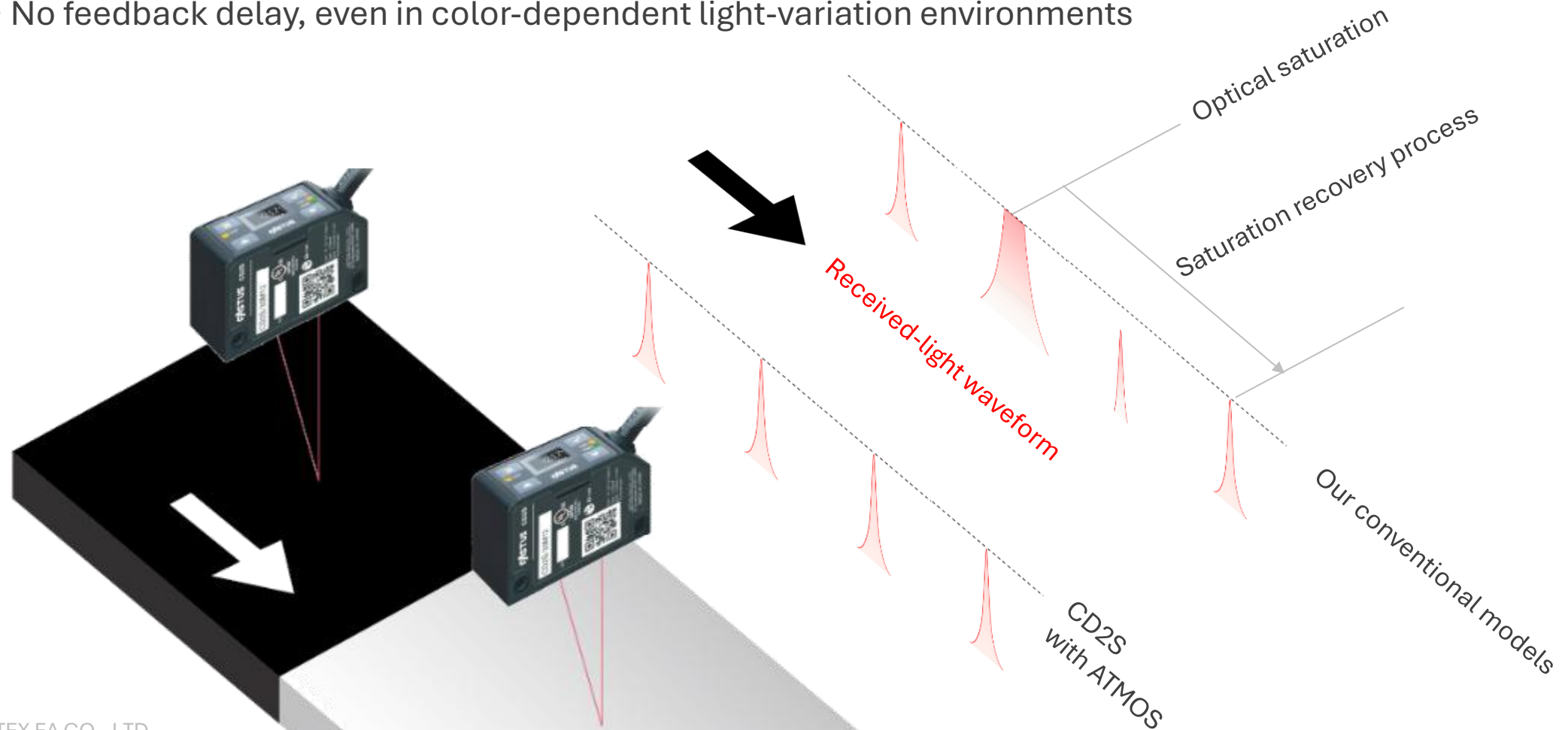
- Surface-independent measurement
- IO-Link and Analog Output
- OLED Display



II. KEY FEATURES

Surface-independent measurement 1/3

- No feedback delay, even in color-dependent light-variation environments

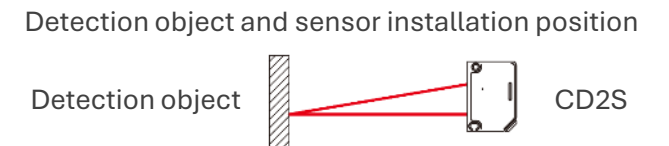
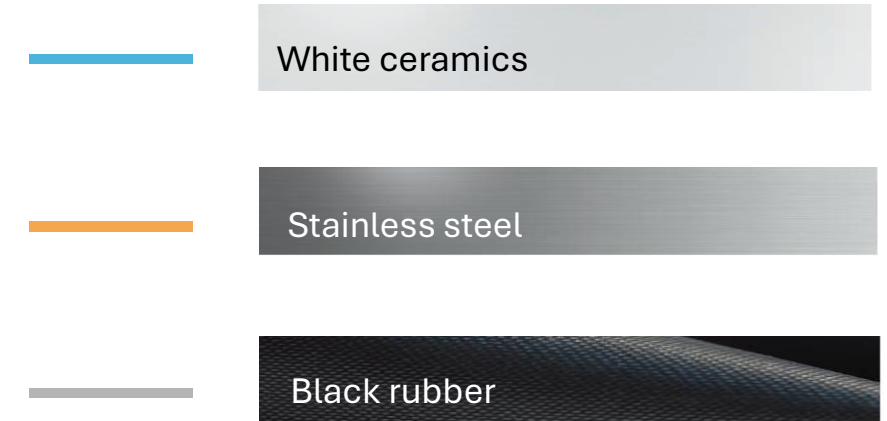
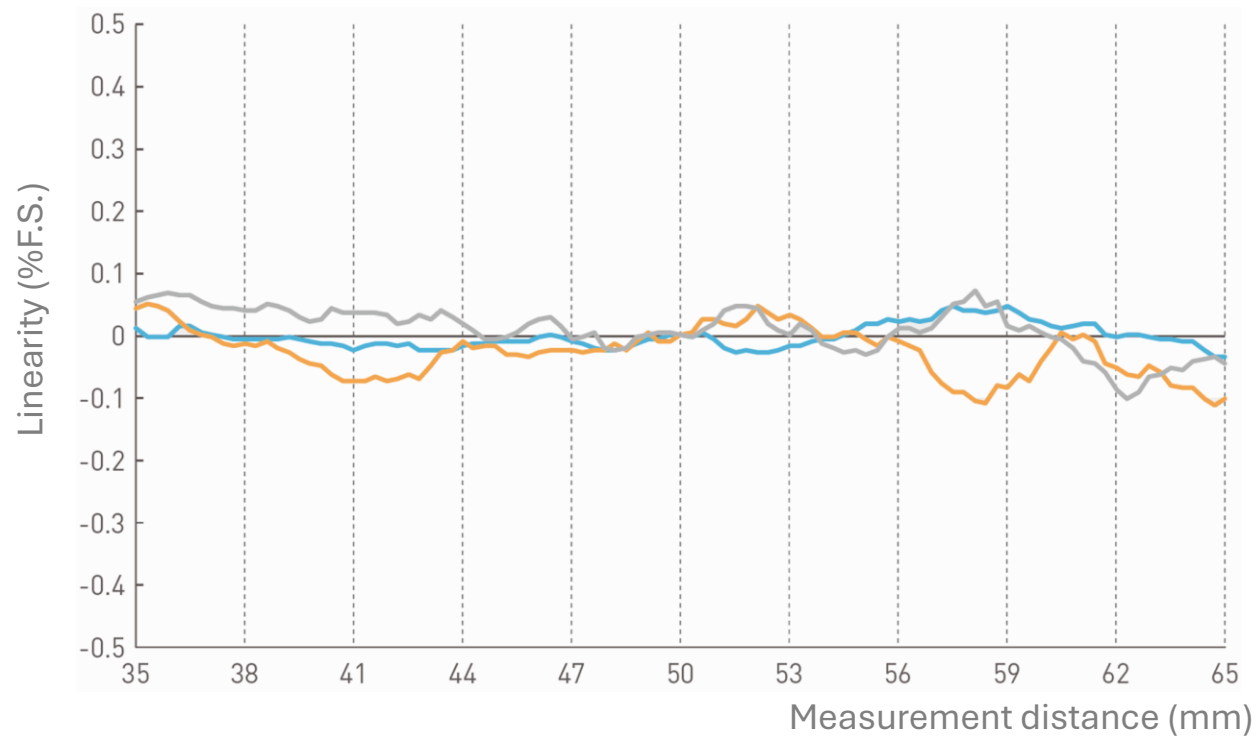


II. KEY FEATURES

Surface-independent measurement 2/3

- Stable detection is ensured regardless of the target material, including white ceramics, stainless steel, and black rubber.

[CD2S-50*]

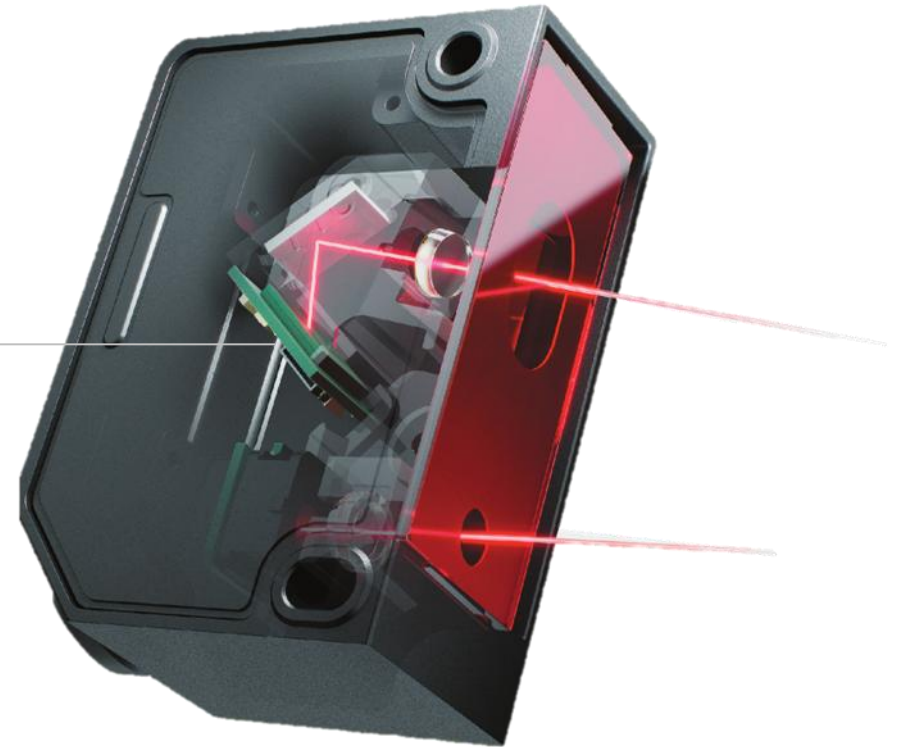


II. KEY FEATURES

Surface-independent measurement 3/3

- ATMOS (Auto Tuning CMOS) by OPTeX FA, our proprietary technology, provides an increased light-receiving margin for fast and stable detection.

It maintains real-time performance without feedback control, even under color-induced light fluctuations.

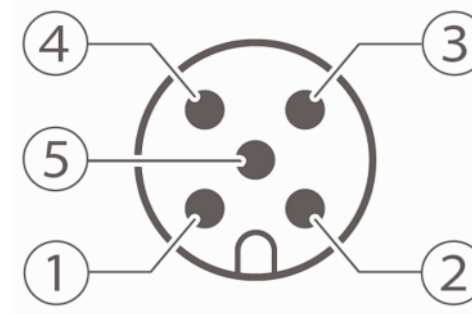


II. KEY FEATURES

IO-Link and Analog Output 1/2

Suitable for

- New installations
- Retrofits

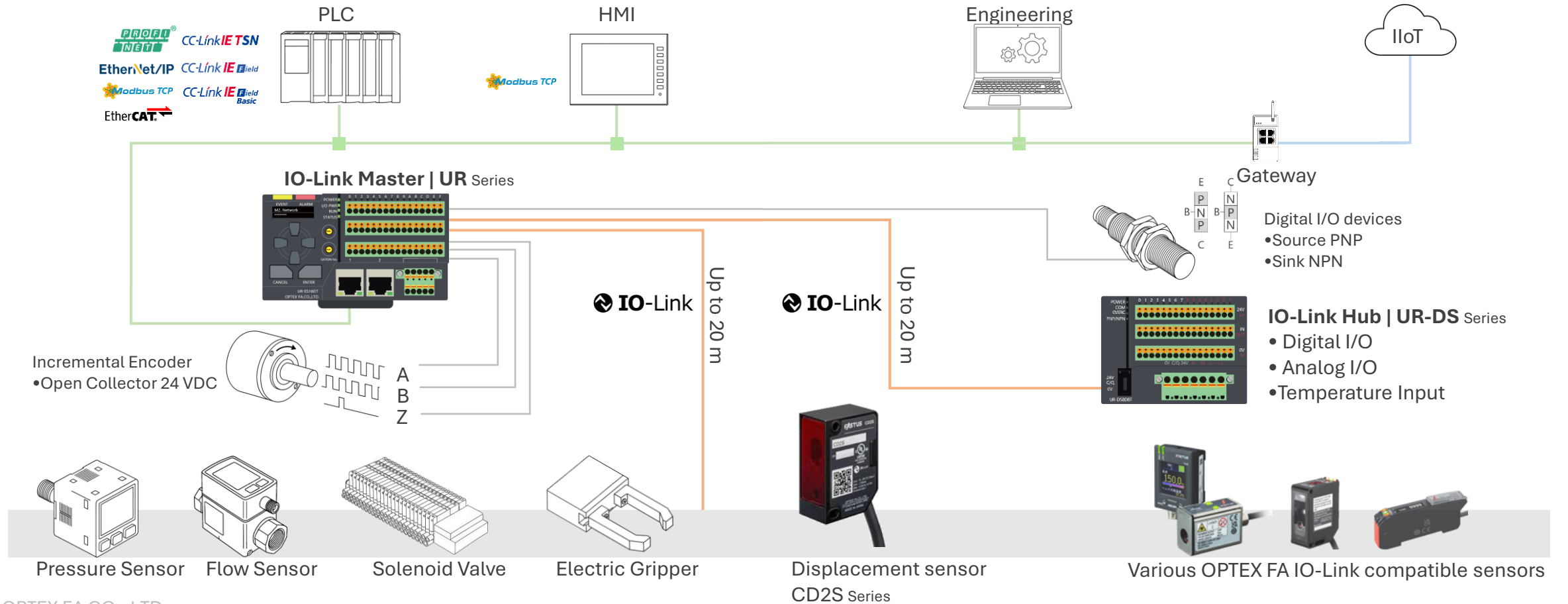


- ① 18 ... 24 VDC
- ② **Analog output (Q_A)**
- ③ 0 V/Analog ground
- ④ **Control output 1 (Q₁)/IO-Link**
- ⑤ External input

II. KEY FEATURES

IO-Link and Analog Output 2/2

- More convenience with IO-Link







II. KEY FEATURES

OLED Display





- Seven-language menu display
English/German/Spanish/Chinese Simplified/Chinese Traditional/Japanese/Korean
- A simple received-light waveform monitor provide practical support during sensor installation.



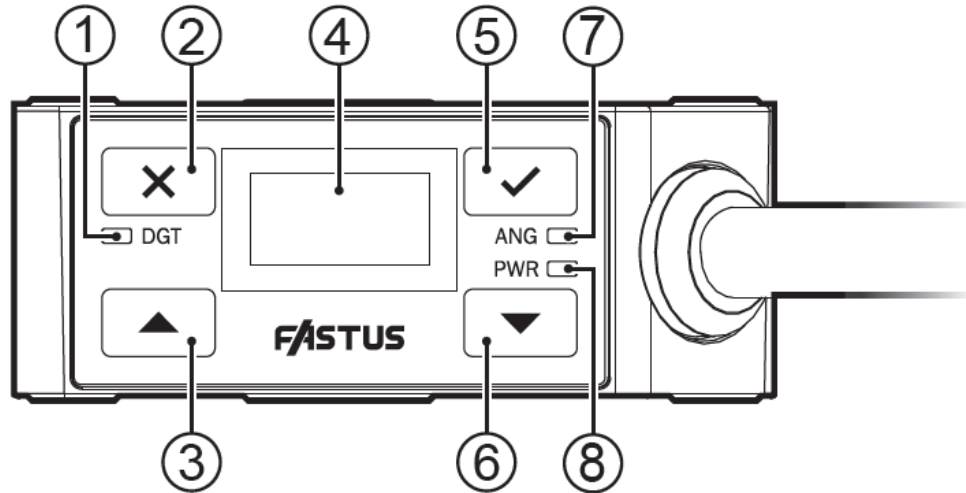
III. SERIES LINEUP

Part no.	20822	20283	20824	20980	20981	20982
Model	CD2S-30M12	CD2S-50M12	CD2S-110M12	CD2S-30	CD2S-50	CD2S-110
Product image	 			 		
Connection	Plug M12, 5 Pin			2 m cable		
Light source	Red semiconductor laser (655 nm) CLASS 1					
Spot size	0.2 x 0.5 mm	0.3 x 0.7 mm	0.5 x 1.6 mm	0.2 x 0.5 mm	0.3 x 0.7 mm	0.5 x 1.6 mm
Range	30 mm±5 mm (25 ... 35 mm)	50 mm±15 mm (35 ... 65 mm)	110 mm±50 mm (60 ... 160 mm)	30 mm±5 mm (25 ... 35 mm)	50 mm±15 mm (35 ... 65 mm)	110 mm±50 mm (60 ... 160 mm)
Linearity	±0.1% of F.S. (±10 μm)	±0.1% of F.S. (±30 μm)	±0.1% of F.S. (±100 μm)	±0.1% of F.S. (±10 μm)	±0.1% of F.S. (±30 μm)	±0.1% of F.S. (±100 μm)
Repeat accuracy	2 μm	5 μm	20 μm	2 μm	5 μm	20 μm
Sampling period	333 μs/500 μs/1 ms/2 ms/4 ms/8 ms/16 ms/Auto					
IO-Link	Ver. 1.1, COM3 (230.4 kbps), Minimum cycle time: 0.8 ms					
Analog output	Current 4 ... 20 mA, Voltage 0 ... 10 V					
Control output	PNP/NPN open collector or Push-Pull					
External input	Switchable between OFF/Threshold Teach/Analog Teach/Hold/Zero point Teach-in /Laser Off					
NRTL certification	UL Listed Certification for the U.S. and Canada					

IV. CROSS-SERIES COMPARISON

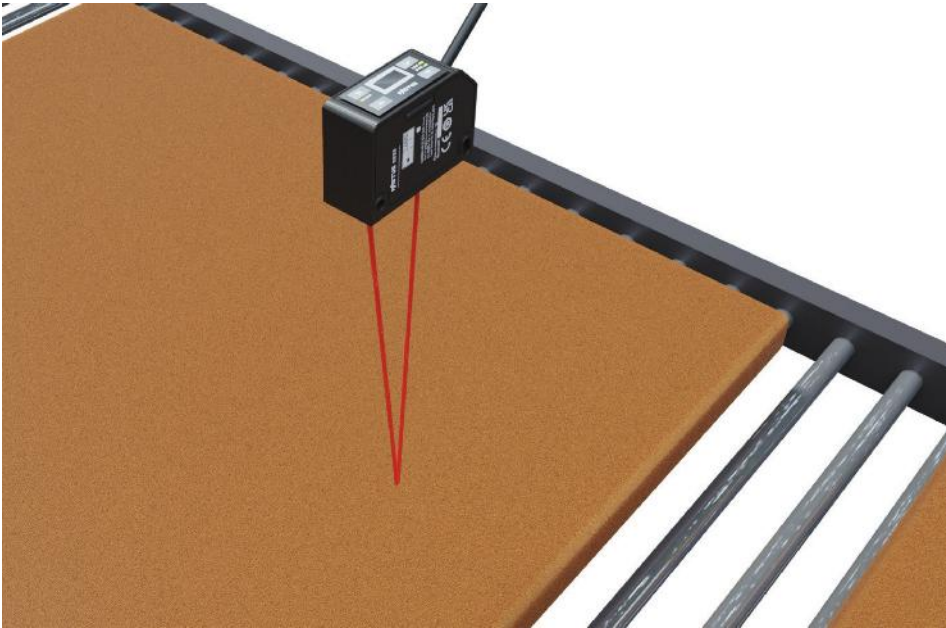
Series	Image	Model	Range (mm)	Accuracy	Linearity		Measurement Distance	
CD2H		CD2H-700	700±500	100 µm	±0.3% of F.S.	±3 mm	200 ... 1200 mm	//
		CD2H-350	350±250	20 µm	±0.1% of F.S.	±500 µm	100 ... 600 mm	//
		CD2H-245	245±175	10 µm		±350 µm	70 ... 420 mm	//
		CD2H-130	130±70	4 µm		±140 µm	60 ... 200 mm	//
		CD2H-50A	50±10	0.25 µm		±100 µm	40 ... 60 mm	
		CD2H-30A	25±5	0.25 µm		±10 µm	25 ... 35 mm	
CD33		CD33-250	250±150	75 µm	±0.3% of F.S.	±900 µm	100 ... 400 mm	//
		CD33-120	120±60	30 µm	±0.1% of F.S.	±120 µm	60 ... 180 mm	//
		CD33-85	85±20	10 µm		±40 µm	65 ... 105 mm	
		CD33-50	50±10	5 µm		±20 µm	40 ... 60 mm	
		CD33-30	30±4	2 µm		±8 µm	26 ... 34 mm	
CD2S		CD2S-110	110±50	20 µm	±0.1% of F.S.	±100 µm	60 ... 160 mm	
		CD2S-50	50±15	5 µm		±30 µm	35 ... 65 mm	
		CD2S-30	30±5	2 µm		±10 µm	25 ... 35 mm	
CD22		CD22-100	100±50	20 µm	±0.1% of F.S.	±100 µm	50 ... 150 mm	
		CD22-35	35±15	6 µm		±30 µm	20 ... 50 mm	
		CD22-15	15±5	1 µm		±10 µm	10 ... 20 mm	

V. INTERFACE

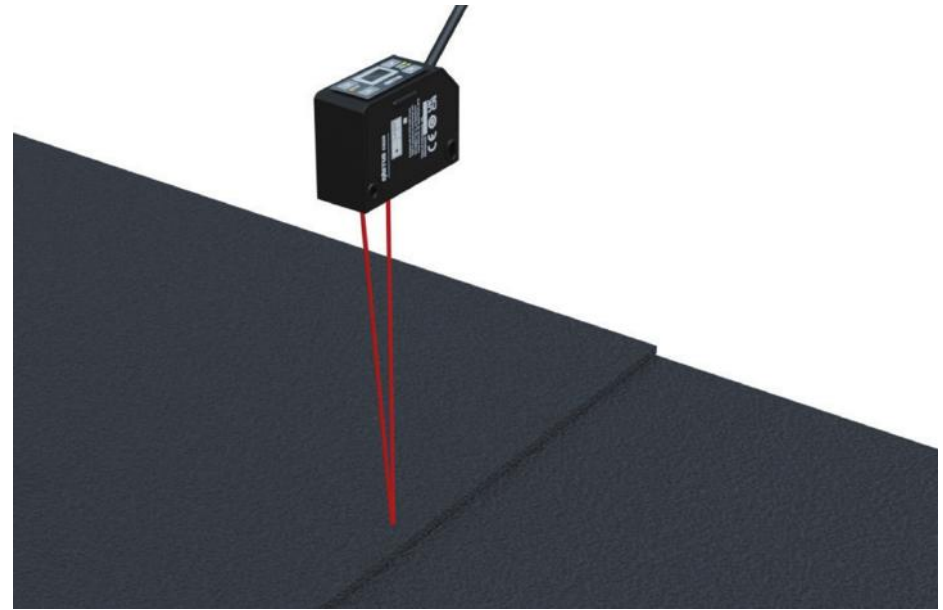


① DGT status LED	Lits orange when control output is on and blinks red in the event of an error.
② Cross pushbutton	Short press: Cancels the menu item. Long press: Changes the measurement value display from Measurement value (relative) to Measurement value (absolute).
③ UP pushbutton	Move setting menus or increase values when entering items.
④ OLED display	Shows measurement values and setting menus.
⑤ Tick pushbutton	Short press: Move to setting screen, determine menu item, and enter setting range. Long press: Move to set screen, from measurement value display.
⑥ DOWN pushbutton	Move the setting menus or decrease values when entering items.
⑦ ANG status LED	Lits orange when analog signal is output. Blinks red when laser is off.
⑧ PWR status LED	Lits green when power is on and blinks green during IO-Link communication.

VI. APPLICATIONS



Thickness measurement of unfired boards

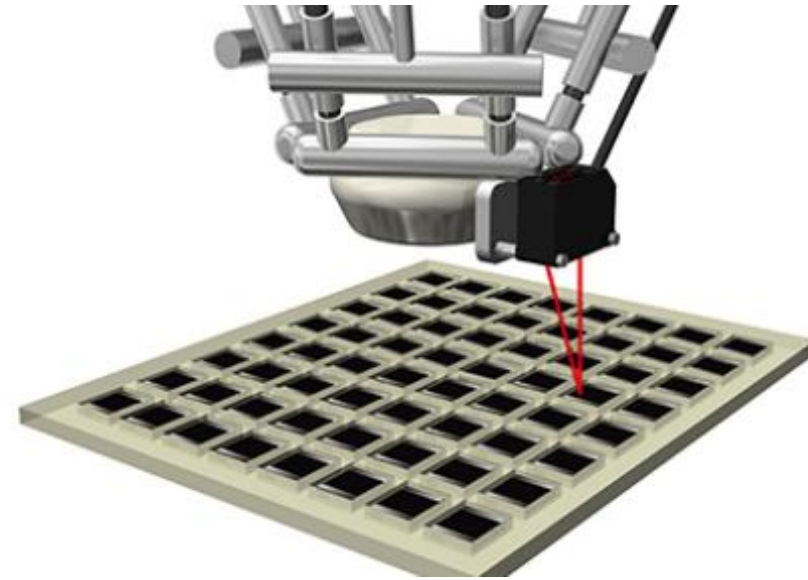


Detection of overlapped rubber sheets

VI. APPLICATIONS

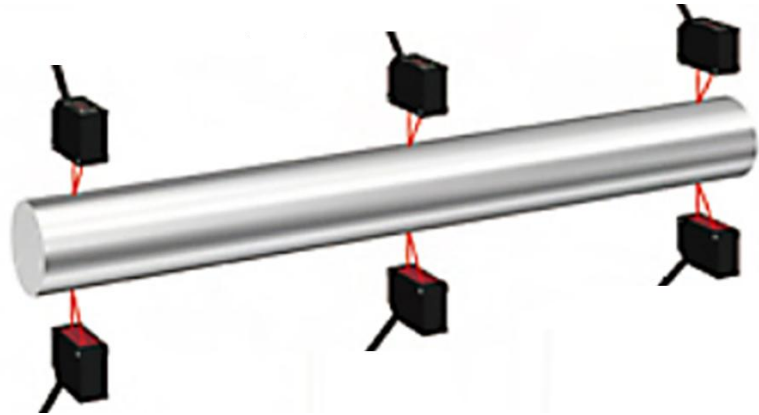


PCB component height measurement



Height verification before robot pick-up

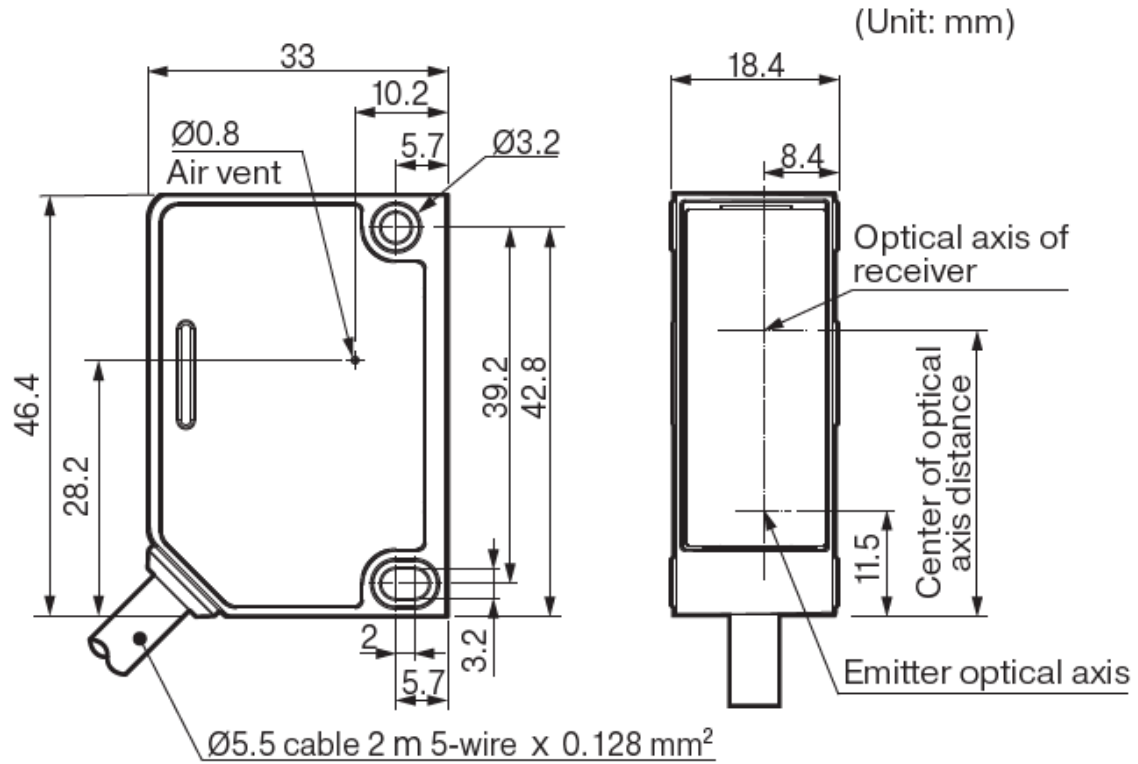
VI. APPLICATIONS



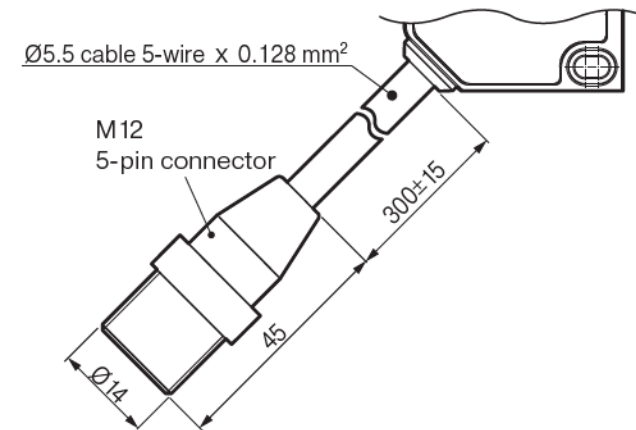
Shaft runout measurement

VII. DIMENSIONS

Cable type



Pigtail cable type



VIII. OPTIONS

Connector cables

For CD2S-xM12 Models



Part no.	55714
Model	YF2A15-020VB5XLEAX

- Standard
- Cable length 2 m
- Minimum bending radius: 26 mm (when fixed in place)



Part no.	55715
Model	YF2A15-050VB5XLEAX

- Standard
- Cable length 5 m
- Minimum bending radius: 26 mm (when fixed in place)



Part no.	55717
Model	YF2A15-100VB5XLEAX

- Standard
- Cable length 10 m
- Minimum bending radius: 26 mm (when fixed in place)

VIII. OPTIONS

Connector cables

For CD2S-xM12 Models



Part no.	53394
Model	DOL-1205-G02M-R

- Bend-resistant
- Cable length: 2 m
- Minimum bending radius: 9 mm (when fixed in place), 27 mm (when movable)



Part no.	53395
Model	DOL-1205-G05M-R

- Bend-resistant
- Cable length: 5 m
- Minimum bending radius: 9 mm (when fixed in place), 27 mm (when movable)

VIII. OPTIONS

IO-Link masters



Part no.	20553
Model	UR-ES16DT

- 16ch (IO-Link, Source PNP, Sink NPN, High-Speed Counter)
- PROFINET, EtherNet/IP, EtherCAT, CC-Link IE Field Basic, Modbus



Part no.	20449
Model	UR-MS16DT

- 16ch (IO-Link, Source PNP, Sink NPN, High-Speed Counter)
- CC-Link IE TSN, CC-Link IE Field

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