

# Non-Contact Detection of Conductor/Semiconductor Displacement

## CADICOM

### Capacitance Type Displacement Sensor



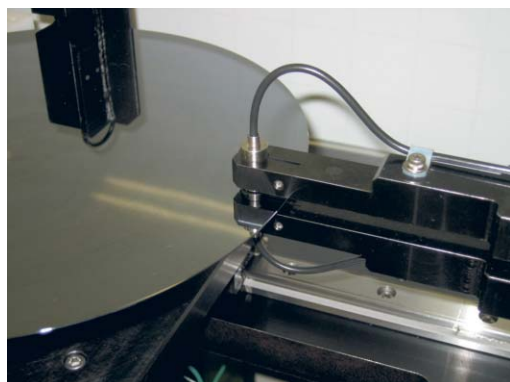
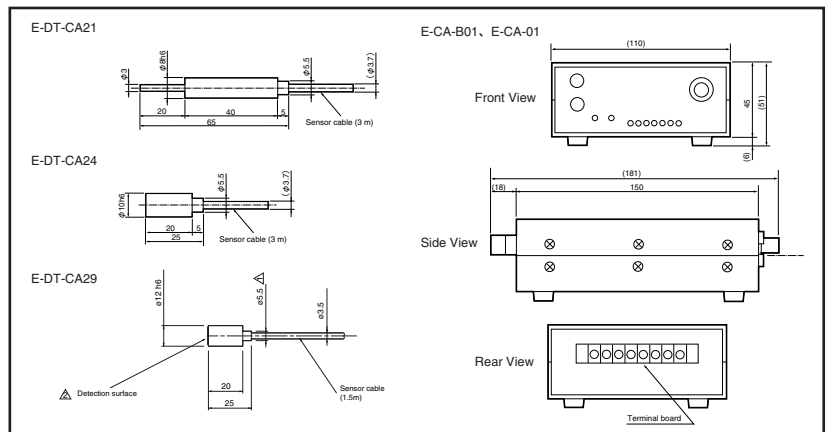
#### Features

- Metal and silicon wafer measurement
- Two units can be connected for wafer thickness measurement.
- Analog output function, 4 KHz response speed
- DC 24V power input

#### Applications

Wafer auto thickness measuring machine

5-point measurement example



#### Specifications

Model	Amplifier unit	E-CA-B01	E-CA-01	E-CA-01
Sensor head	Sensor head	E-DT-CA21	E-DT-CA24	E-DT-CA29
Sensor head shape		φ3 spherical surface φ8 mount	φ10 spherical surface φ10 mount	φ12 spherical surface φ12 mount
Main amplifier dimensions		110(W) × 51(H) × 181(D) (Max. dimensions including rubber feet and sensor connector)		
Measuring length		0.01 – 0.1 mm	0.1 – 1 mm	0.1 – 1 mm
Analog output	Response frequency	4 kHz (-3dB)		
	Linearity	± 0.5% F.S.		
	Output voltage	+0.5 – +5V	+0.5 – +5V	+0.5 – +5V
	Resolution	0.2% F.S. *1		
Temperature characteristics	Amplifier unit	0.1% F.S. / °C		
	Sensor head	0.1% F.S. / °C	0.05% F.S. / °C	0.1% F.S. / °C
	Power source	Voltage: DC 24 V ± 10%, Allowable ripple: 10% p-p or less Consumption: 200 mA or less		
Usage ambient temperature	Amplifier unit	0 – 40°C		
	Sensor head	0 – 40°C		
Usage ambient humidity	Amplifier unit	35 – 80% R.H. (no condensation)		
	Sensor head	35 – 80% R.H. (no condensation)		
Display LED		Power (PWR: Yellow), Detection distance (20, 40, 60, 80, 100%: Green, Over: Red)		
Ambient atmosphere		When using this device, prevent the sensor head and amplifier unit from being splashed with water, oil or other liquids.		
Sensor cable length		3m	Approx. 680 g	1.5m
Weight	Amplifier unit	Approx. 115 g		
	Sensor head (including cable)	Approx. 105 g		
		Approx. 115 g	Approx. 105 g	Approx. 80 g

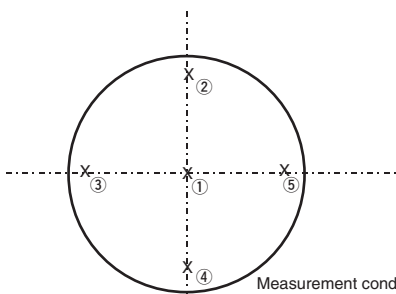
\*: Above specifications are for when the item measured is the standard specimen.  
 \*: % F.S. is percentage of measuring length upper limit value.  
 \*: Temperature characteristics are value for 100% F.S.  
 \*1: Excluding switching noise (Frequency component 250 kHz or higher)

#### Power Unit

Model	E-DL-02
Power source	AC100V
Dimensions	110 (W) × 150 (D) × 45 (H) mm

#### Usage Guidelines

- This unit cannot be used in locations where there is water, oil, chips, or other foreign matter.
- Mount the sensor head unit so its measuring surface is parallel to the surface to be measured.
- Use the unit in a location where there is little ambient temperature fluctuation.
- Avoid subjecting the sensor head to shock or undue force. Take precautions to ensure that the sensor head measuring surface is not scratched.
- Measuring sensitivity and linearity depend on the material being measured. The amplifier unit must be adjusted for each type of metal.
- The amplifier unit and sensor head units are adjusted in a one-to-one configuration at the factory. Do not use this unit in combinations where serial numbers do not match.
- The power input (DC24V) of the amplifier unit can be by a power supply unit provided by you, or you can order our power supply unit (E-DL-02).
- Do not use the power supply unit to power other equipment at the same time.
- Do not cut or add extensions to sensor cables.



Measurement conditions  
 25 repeats x 5 times  
 Ambient temperature fluctuation  
 during measurement : 0.5°C max.

<Wafer Thickness Measurement Result Example>

Deviation (μm)	Measurement point				
	①	②	③	④	⑤
(P-P)max	0.20	0.20	0.30	0.20	0.20
σ(n-1)max	0.06	0.06	0.07	0.07	0.06
6σ	0.37	0.35	0.45	0.40	0.36

Product Code	Product name	Model
4206044	Amplifier unit for φ3	E-CA-B01
0902451	Amplifier unit for φ10	E-CA-01
4211639	Amplifier unit for φ12	E-CA-11A
0902452	Sensor head for φ3	E-DT-CA21A
0902453	Sensor head for φ10	E-DT-CA24A
0902454	Sensor head for φ12	E-DT-CA29A
Options		
0902411	Power supply unit	E-DL-02