

## High-Precise Inclinometer

DIGITAL ADVANCED SENSORS **DAS**

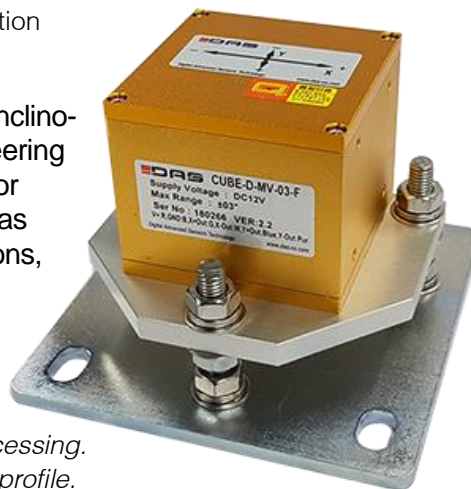
# CUBE



Certificate of State Registration

Inclinometer CUBE is a high-precise, high-performance inclinometer specialized in civil engineering, geotechnical engineering and geosstructural monitoring. CUBE is widely applicable for industries which precise measurement is necessary such as measuring movement of bridge, structures and constructions, measuring ground deformation due to tunneling or boring.

- High-precise, High-performance MEMS inclinometer
- Applicable for industries and engineering which precise measurement, high-stability and reliability are necessary.
- Micro-processor mounted for stable sensing and data processing.
- Utilizing as EL-BEAM sensor by combining with aluminum-profile.



### General Specifications

Item	Specification
Measuring Axis	Uniaxial / Biaxial
Measuring Range <sup>1)</sup>	+/-1 ... +/-15 deg
Resolution	0.0013 deg
Non-Linearity	0.38% FS
Temp. Drift	<0.05 deg per celsius
Response	<0.5sec
Output	-2 ... +2 Diff.Vdc 4 ... 20mA
Power Source	12VDC @Diff.Vdc 24VDC @mA
Current Consumption	<100mA @12Vdc
Operating Temp.	-20 ... +85 celsius
Waterproof	IP65
Dimensions <sup>2)</sup>	W65 x D65 x H55mm
Weight	500g
Cables	Shielded 6C, PU, 300cm

### Specifications for 2 wires-mA output

Item	Specification
Measuring Range <sup>1)</sup>	+/-1 ... +/-30 deg
Resolution	0.0025 deg
Output	4 ... 20mA

### Specifications for Cold-proof<sup>3)</sup>

Item	Specification
Current Consumption	<1A @12Vdc
Operating Temp.	-45 ... +85 celsius
Weight	600g

#### <sup>1)</sup> Measuring Range

\*General : Set freely within +/-1 ... +/-15 deg  
e.g. -3 ... +3 deg

\*2 wires-mA : Set freely within +/-1 ... +/-30 deg

#### <sup>2)</sup> Without mounting or any brackets

<sup>3)</sup> Permanent power source is recommended for Cold-proof CUBE as the internal heating device consumes large current.

### Wiring Connections

Color	Diff.Vdc	mA	2 wires
RED	V+		X+
BLACK	GND (COM)		X-
GREEN	X+	X-OUT	Y+
WHITE	X-	Y-OUT	Y-
BLUE	Y+		
PURPLE	Y-		

## Analog Data Descriptions

- 1) Deg. from Diff.Vdc output

$$\text{deg} = \left( \frac{\text{Measuring Range}}{\text{Output V Range}} \right) \times \text{Output V}$$

Measuring Range : max range – min range  
Output V Range : +2V – (-2V) = 4V

e.g. Measuring range +/-10 deg, Output -1V,

$$\left( \frac{+10 - (-10)}{4} \right) \times (-1) = -5 \text{ deg}$$

- 2) Deg. from mA output

$$= \left( \frac{\text{Measuring Range}}{\text{Output mA Range}} \right) \times (\text{Output mA} - \text{Zero Offset})$$

Output mA Range : 20mA – 4mA = 16mA  
Zero Offset : 12mA

## Ordering Code

Format : CUBE-(1)-(2)-(3)-(4)-(5)

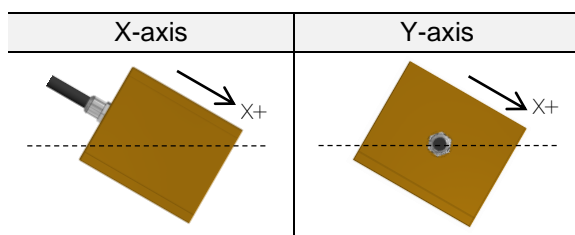
(1)	S	Uniaxial	D	Biaxial
(2)	MV	Diff.Vdc output		
	MA	4 ... 20mA output		
	MA2	2 wires 4 ... 20mA output		
(3)	Measuring Range	(Settable)		
(4)	F	For mounting sensor on a floor		
	W	For mounting sensor on a wall		
(5)	LT	Cold-proof		

e.g. CUBE-D-MV-3-F

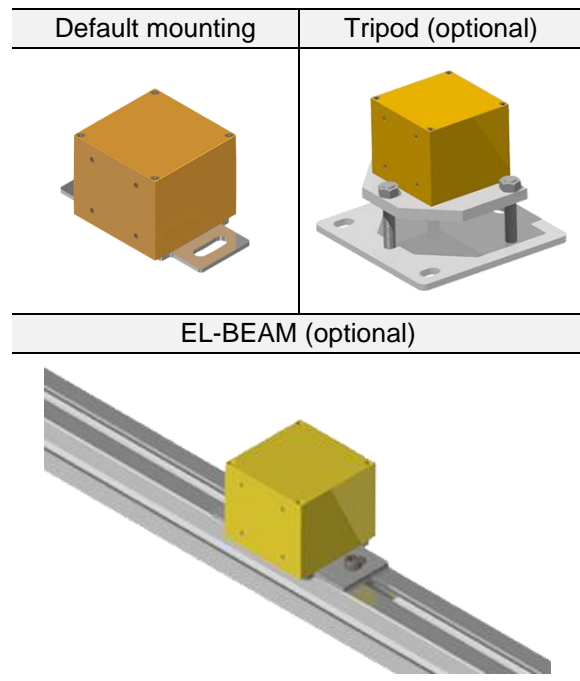
## Options

- 1) Cable length : additional cost per meter
- 2) Tripod mounting and EL-BEAM
- 3) Indicator : Measurement manually (directly) by DIGIANGLE-MULTI indicator.

## Sensing Directions



## Installations



## NOTES

- 1) Ground connection is recommended in noise occurred environment.
- 2) MEMS based inclinometer (tilt sensor) measures tilt (degree) by gravity. Check sensing directions before use.
- 3) Check wiring connections before use.
- 4) 12 months warranty is provided after released. Warranty provided only in case of using for designed purpose correctly.
- 5) Specifications, design and components can be changed without prior notice to improve its performances.

**DAS Co., Ltd.**  
128 Bibong-ro, Bibong-myeon,  
Hwaseong-si, Gyeonggi-do, 18284  
Republic of Korea  
TEL : +82 31) 356-3541  
email : [das@das-co.com](mailto:das@das-co.com)  
Web : <http://das-co.com>