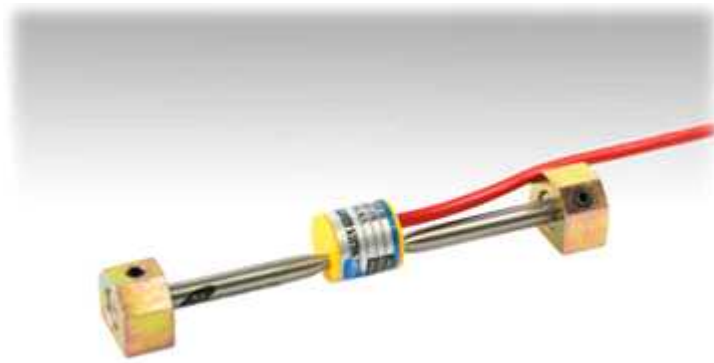


## VW Arc-Weldable Strain Gauge (변형률계)



### Description

The strain gauge is mounted to steel materials, steel structure, etc. to measure the stress change conditions of the structure caused by the excavation work or the surrounding work and used for determining the stability of earth wall panel and temporary facilities.

It is also used to measure the deformation of the structure by embedding the sensor in the concrete and to determine the stability.

The VW sensor is very good in responsiveness and reproducibility and most suitable for permanent measurement because it is seldom affected on aging.

### Composition & Characteristic

#### Components

- ① Strain gauge sensor
- ② Cable
- ③ Mounting Block

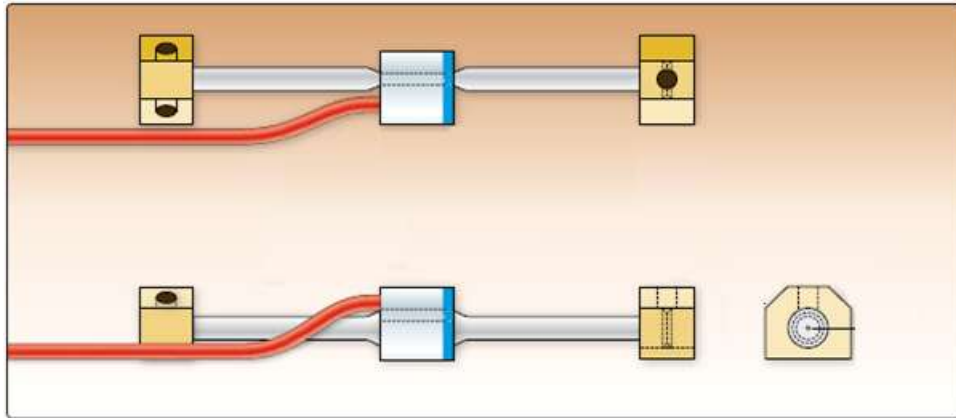
#### Features

- ① Excellent reproducibility and responsiveness because it is not affected by cable length or resistance change
- ② Perfect waterproof structure
- ③ High stability and high sensitivity design
- ④ Built-in high-accuracy temperature sensor

### Specification

Model Name	SJ-4000
Sensor applied	Sensor (V/W Type)
Measurement Range	400 ~ 1,250Hz
Measurement band	Min 1,000 ~ Max 4,000 $\mu\epsilon$
Resolution	1.0 $\mu\epsilon$
Accuracy	$\pm 0.1\%$ FSR
Linearity error tolerance	$\pm 0.5\%$ FSR
Coefficient of expansion	10.8ppm/ °C
Working Temp.	-40°C ~ 80°C
Built-in temp sensor	NTC Thermistor( 3KD-ATF)
Temp sensor working range	Thermistor : -40°C ~ 80°C
Temp sensor accuracy	Thermistor : $\pm 1^\circ\text{C}$
Material	Stainless steel 300, Fluor O-RING & High density epoxy Potting
Waterproofing	100m H2O
Signal cable	$\varnothing 6.4$ mm, 0.235mm <sup>2</sup> X 4C Shielded PVC Sheath Cable

※ This is subject to change without prior notice in order to improve the product's quality.



Description		SJ-4000	Components
Product size	L (mm)	165	
	L(Gage) (mm)	150	
	L(C) (mm)	24	
	L(B) (mm)	21	
	W (kg)	Sensor : 0.08 / M/B : 0.16	

## Reference

### ■ Calculation of strain ( $\mu\epsilon$ )

$$\text{- microstrain}(\mu\epsilon) = \text{Gage Factor} \times 10^{-3} \times F^2 = \text{Gage Factor} \times 10^9 / N^2$$

Where, F= Measurement in Hz unit, N = Measurement in microsec unit, Gage Factor=4.062

### ■ Calculation of stress ( $\sigma$ )

$$\text{- Stress}(\sigma : \text{kg.}\text{cm}^2) = -1.0 \times \text{Strain} (\epsilon) \times \text{Material elastic modulus} (E)$$

### ■ Calculation of axial force (P)

$$\text{- Axial Force}(P : \text{ton}) = \text{Stress} (\sigma) \times \text{Material sectional area} (A) \div 1000$$

### ■ Standard installation: Steel pipe and Strut

