

FSG strain gages



Description

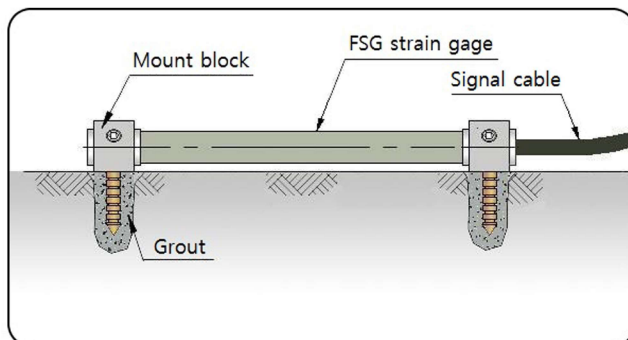
Model 4240 **FSG(foil strain gage) embedment strain gage** has structure that flange is attached in both ends of stainless steel and in the interior of body foil strain gage is stuck with suitable strength.

The concrete deformation is transmitted to body and in the attached FSG also, minute distortion happens, this output is transferred to output device and displayed in mechanical unit. And according to provided gage factor, you can calculate deformation or stress with easy.

This model is composed with PVC and stainless steel for preventing waterproof and rust so that it allows stability and reliability in extreme environments.

Features

- High precision of epoxy molding in the part of cable connection enduring impact
- Stability and reliability in extreme environment
- Possible to dynamic measurement



[Installation of Model 4220 at concrete structure]

Applications

Model 4240 is designed to measure the effective displacement precisely that operates inside of concrete structure by laying into reinforced concrete or concrete structure. Specially, it is useful for real time measurement when dynamic measurement is needed for measurement of displacement after curing of mass concrete, or for the object of study experiment.

By using the special accessory, rosette block and leaving strain gage in 2 or 4 direction, you can measure the volume of strain, direction of distribution, or tendency with easy.

In addition, in large construction like dam that needs long term of measurement, by using case for non-stressed strain gage you can confirm and compare the tendency of non-stressed condition and load-impressed condition.

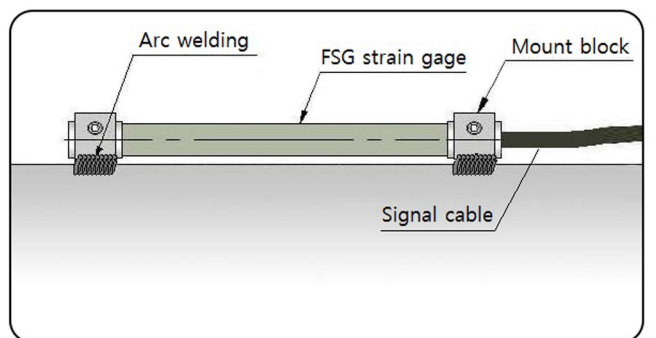
[Model 4220 surface mount]

Model 4220 arc welding strain gage is designed for dynamic strain ratio from bridge supporting system, dam site and power plant. Also, It is possible to weld direct through out mount block.



[Model 4240 embedment]

Model 4240 embedment strain gage is designed to detect the dynamics by electrical resistance signal that happens when mechanical physics such as strength or displacement is operated to elastic body



[Installation of Model 4220 by arc welding]

FSG strain gages

Specification

Model	4240 (Embedment)	4220(Surface mount)
Sensor element	FSG (foil stain gage) sensor	
Range	$\pm 5,000$ microstrain	
Rating output	About 5mV/V ($5,000 \times 10^{-6}$)	
Accuracy	$\pm 0.5\%$ FSR	
Non-linearity	$\pm 1.0\%$ FSR	
Gage length	173.8mm	
Resistance	350 Ω	
Insulation resistance	More than 100M Ω / 500V	
Exciting voltage recommended	Less than 5 VDC	
Operating temperature	-30~80 $^{\circ}$ C	
Water proof	105m H ₂ O	
Weight	0.2kg	
Materials	Stainless steel, PVC tube, high grade epoxy potting	
Signal cable	$\varnothing 10$ mm, 0.5mm ² \times 5C shielded PVC cable	

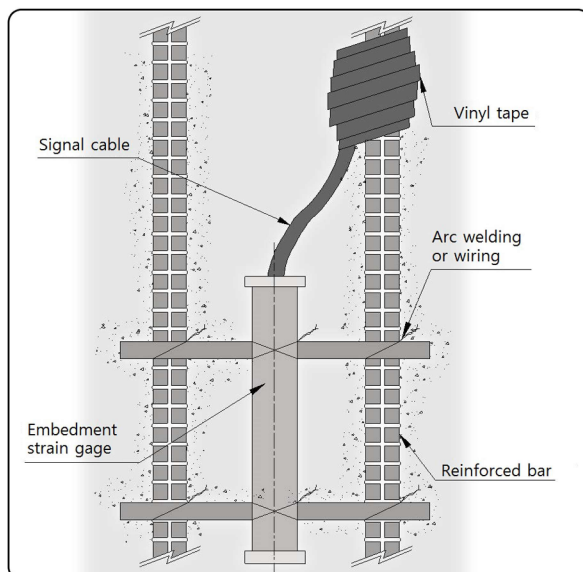
The readout

It is electric resistance sensor that generates mV and can be used by connecting with strain meter or data logger that can read strain

- ACE-600A (FSG readout)
- ADL-200A (Smart logger)

Ordering information

- Keeping readout unit
- Total length of signal cable



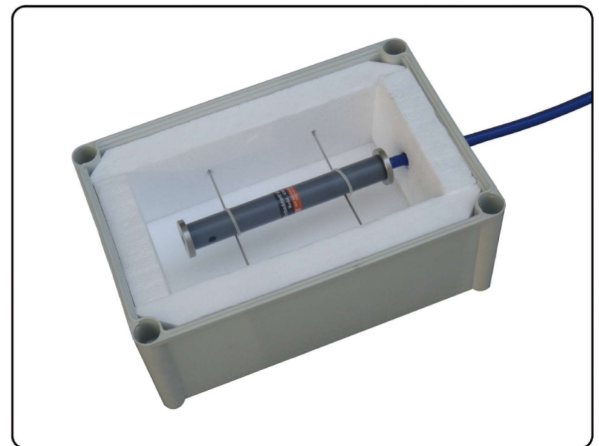
[Installation of FSG embedment strain gage]

Ancillary equipments

- Universal terminal box (model 7012/7024)
- Rosette block for 4 directions
- Enclosure case kit for non-stress strain gage (PC-80)
- 2ea of anchors for model 4220 concrete surface mount

Recommendation

- In case of measuring change of concrete stress by laying in mass concrete, as shrinkage or expansion in the process of curing can happen, you can prevent signal cable from damage by inserting expansion pipe for sewer in the signal cable.
- When laying model 4240 in the shotcrete lining, the radial should be made to contact bedrock so as to get precise measurement.



[Installation kit of No-stress strain gage]