

# Distributed Fibre Optic Temperature Sensing

## GEO-001I—INTERROGATOR



### Applications

The development of the curing temperature in concrete, e.g. in the construction of dams, is crucial for the occurrence of thermal stresses and the thereof resulting cracks. With the aid of fibre optic temperature sensing it is now possible to record the temperature distribution at low costs over thousands of spatially distributed points at the same time.

- ~ RCC Dams (monitoring of curing temperatures)
- ~ Analysis of thermal stresses in dams
- ~ Earth and Rockfill Dams
- ~ Hydro Power Supply Canals

The Geosense® GEO-001I interrogator utilises Raman scattering to determine the change in temperature along a single optical fibre. The exact location of the measurement is determined from a precise time measurement.

The system offer a spatial resolution of  $\pm 0.5\text{m}$  and accuracy of  $0.1\text{C}^\circ$  of cables up to 10km in length.

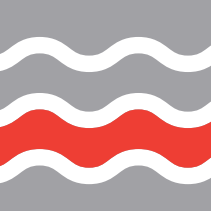
The interrogator can be provided as an indoor model, outdoor or pelicase the latter two are ideally suited to be moved around sites without fear of damaged. All models feature an SD card for removable memory storage and with a multitude of communication protocols data retrieval is very simple.

The data can be visualised using GeoAxiom FO.



INSTRUMENT OPTION	002	004	008	0012
Distance range	2km	4km	8km	12km
Min sampling interval	0.15m	0.15m	0.25m	0.25m
Min spatial resolution	0.7m	0.7m	0.7m	0.7m





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### Specifications

	002	004	008	0012
Measurement Time	10s to 24h	10s to 24h	10s to 24h	30s to 24h
Available measurement modes	Single ended; dual ended (incl. fibre break recovery)			
Laser class (IEC 60825-1:2001)	1M (eye-safe)			
ATEX certification	EX II (1) GD; I M2			
Data storage capacity	120 traces internally; SD/SDHC card slot			
Optical Connector	E2000 APC 8° angled			
Number of channels	1 option 100		8 option 800	
	2 option 200		12 option 120	
	4 option 400		24 option 24	
	6 option 600			
Computer Interface	USB, Ethernet (LAN)			
Communication	SCPI, Modbus, TCP/IP, OPC			

### HOUSING AND ENVIRONMENTAL CONDITIONS

Housing Option	H01 (indoor)	H02 (Outdoor)	H04 (Portable)
	-10C° to +60 C°	-10C° to +60 C°	-10C° to +55 C°
	(-40C° to +50C° with option T01)	(-40C° to +50C° with option T01)	
	Outdoor Extreme	Outdoor Extreme	
	-25C° to +60C° with option T02	-25C° to +60C° with option T02	
	Outdoor extended	Outdoor extended	
Storage temperature range	-40C° to +80C°	-40C° to +80C°	-40C° to +80C°
Operating humidity range	0 % to 95% rh. Non condensing	0 % to 95% rh. Non condensing	0 % to 95% rh. Non condensing
Dimensions (H x W x D)	88 x 338 x 364 mm	500 x 400 x 150mm	500 x 400 x 200mm
Weight	9kg	17kg	12kg

### References

- ~ Wala Dam, RCC Dam, Jordan
- ~ Shimenzhi Dam, RCC Dam, China,
- ~ Mujib Dam, RCC Dam, Jordan
- ~ Birecik Dam, Turkey
- ~ Winscar Reservoir, UK
- ~ Canal d'Oraison, France



Specifications may change without prior notice

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