

UMI Universal Multichannel Instrument



The UMI is a tabletop, fiber optic signal conditioner especially designed to work with all of FISO's fiber optic sensors. It is a general-purpose instrument ideally suited to perform multi-point temperature, pressure, strain, refractive index and displacement measurements in a myriad of industrial and R&D applications in hostile environments.

The UMI conditioner is designed to perform accurate multi-channel temperature, pressure, strain, refractive index, and displacement measurements. Thanks to its unique, patented technology, the UMI conditioner is capable of measuring the absolute cavity length of FISO's Fabry-Perot fiber optic sensors with astonishing accuracy, providing highly accurate and reliable measurements. The UMI has a 0.01% full-scale resolution and a 0.025% full-scale precision.

FISO's fiber optic sensors offer complete immunity to RF and microwave radiation with high temperature operating capability, intrinsic safety, and non-invasive use.

The UMI comes in a 4-channel or in an 8-channel version. All optical input channels are easily accessible through the unit's front panel. The system scans all the channels in use sequentially with a switching time of 0.15 seconds. It can also read on a discrete channel at a 20 Hz sampling rate. Data is stored in the internal memory buffer for later retrieval or sent directly to any analog input signal reading device through the ± 5 V adjustable analog output available for each channel on the back panel of the UMI unit.

A seven-digit gauge factor assigned to each sensor allows the UMI conditioner to recognize automatically the sensor type and calibration, reducing test setup time.

The UMI conditioner has a non-volatile memory buffer that can store up to 50 000 data points. Data logging sequences, duration, and other acquisition and data-management parameters are easily programmable using the front-panel interface, through remote control commands or, even more easily, thanks to its accompanying software, FISOCOMMANDER. Moreover, its Flash ROM allows firmware upgrades.

Key Features

- 4 or 8 channels
- ± 5 V Analog output
- RS-232 and USB communication ports
- Up to 20 Hz sampling rate
- Large VFD Display
- Compatible with all of FISO's fiber optic sensors

Applications

- Microwave food processing
- Microwave packaging design
- Thermotherapy applications
- NMR
- Automotive
- Aerospace
- High temperature displacement measurement
- Multi-purpose laboratory applications
- In-situ process monitoring
- Civil engineering
- New material research
- Hazardous environments

Specifications

Number of channels	4 or 8
Sampling rate	20 Hz
Switching time	150 ms
Averaging	1 to 500 samples
Precision	0.025% of full scale
Resolution	0.01% of full scale
Dynamic range	15 000 : 1
Display	4 lines by 20 characters Vacuum Fluorescent Display
Data logging	50 000 data points
Analog outputs	±5 V software adjustable in scale and offset
Communication	RS-232; USB
Upgradeability	Flash ROM firmware
Lamp life ¹	40 000 hours of continuous use
Weight	2.2 kg (4.9 lb)
Dimensions (W × D × H)	191 × 217 × 99 mm (7.2 × 8.5 × 3.9 in)
Power requirements	10 to 20 Volts (5 Watts)
Operating temperature	−20°C to 40°C (−4°F to 104°F)

1. Lamp is replaceable.

UMI Dimensions

