

## FOTS100A FIBER OPTIC TEMPERATURE SYSTEM

### FOTS100A Control Unit

**FOTS100A** includes signal conditioner, 24 V DC power supply, country-specific power cord, USB-A to USB-A cable (2 m), connector cleaner (tape), LC connector cleaner, and stylus for touch screen. Interface cables are available to use with a BIOPAC MP System.

The FOTS100A is equipped with a 5-inch touchscreen display and can be battery operated for remote monitoring projects. The single channel signal conditioner can be controlled directly using the touchscreen display or remotely using Ethernet Interface 10/100 Base-T and/or USB for real-time data acquisition. The unit is equipped with internal storage to provide the required autonomy in remote locations.



### FOTS100A Specifications

Output interface:	Display, USB, ethernet, $\pm 5$ V analog output (0-5 V in older units)
Interface for MP160/150/100 System:	Add CBLEPM (3.5 mm – 2 x tinned wire), CBL100 (3.5 mm – 3.5 mm), and either CBL122 (unisolated RJ11 to 3.5 mm jack) or INISOA signal isolator (purchased separately)
Interface for MP36A/36/35 System:	Add <a href="#">SS70LA</a> to CBL102 and CBLEPM (purchased separately)
Channels:	One
Compatibility:	TSD180A, TSD182A, and TSD181A high accuracy fiber-optic temperature sensors. Older TSD180, TSD182, and TSD181 temperature probes can be used with the FOTS100A-ADAPT adapter.
Display	5.0" color (800×480) capacitive touchscreen.
Sampling rate:	250 Hz.
Communication protocol:	Modbus TCP, SCPI, UDP, FTP
Input power:	24V to 32 V (AC/DC wall-transformer adapter included)
Consumption:	Max power 36 W (during battery charging)
Enclosure:	Plastic casing
Dimensions:	55.8 mm (H) x 199.4 mm (W) x 214.1 mm (L)
Weight	0.68 Kg
Storage temperature:	-40 °C to 70 °C
Operating temperature:	0 °C to 50 °C
Humidity:	95% non-condensing
Internal Storage	32 Gigabytes



Fig. 1 Rear panel connections

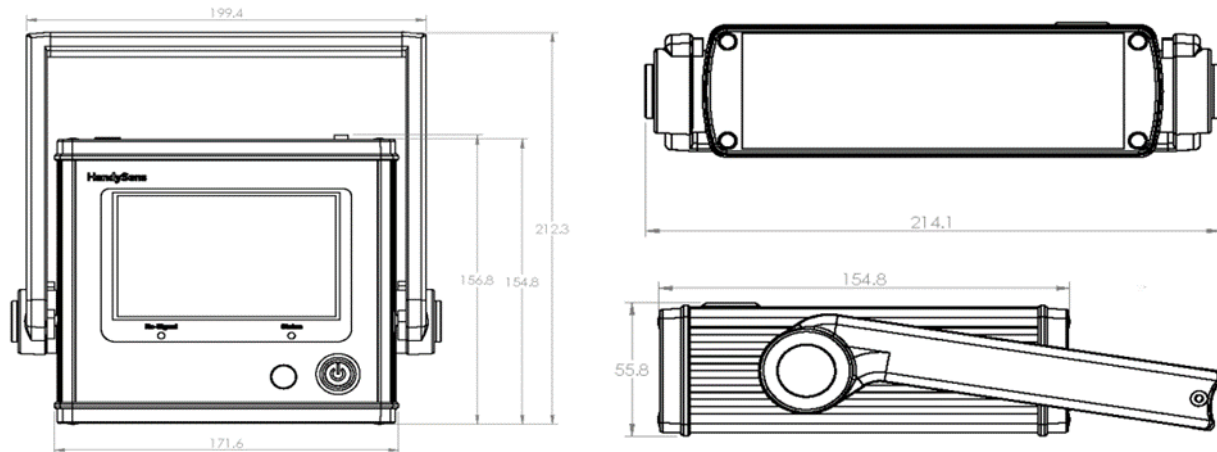


Fig. 2: Product dimensions in millimeters (mm).

## MAGNETIC SENSITIVITY

### FOTS100A

#### Pico-M signal conditioner – GaAs temperature sensing technology

When exposed to strong magnetic field, the GaAs sensor used with the FOTS100A will see an artificial shift in temperature:

Magnetic field	Shift in T° (approximately)
0 T	0 °C
1.5 T	< 0.2 °C
3 T	-0.4 °C
7 T	-2.5 °C
9.4 T	-4.5 °C

This shift does not depend on field orientation and is very reproducible in a given setup, hence it can be easily factored out by the user.

The values at field strength come from the following article: Buchenberg, W.B., Dadakova, T., Groebner, J., Bock, M. and Jung, B. (2015), [Comparison of two fiber-optical temperature measurement systems in magnetic fields up to 9.4 Tesla](#). Magn. Reson. Med., 73: 2047-2051. doi:10.1002/mrm.25314

### FOTS200

#### AccuSens signal conditioner—WLPI temperature sensing technology

- WLPI stands for “White-Light Polarimetric Interferometry”

The TSD380 series sensor probes associated with the FOTS200 readout unit have an optical sensing element that is insensitive to magnetic field, hence, there is no maximum magnetic field specification, which is a nice advantage in high-field MRI applications.

However, this technology has some disadvantages: it is more expensive; the probe cannot be made to a diameter smaller than 1.2 mm O.D.