FlexSmart™ TRMS Module

(Part No: S-FS-TRMSA & S-FS-TRMSA-D)

Quick Start Guide

Inside this package:

- FlexSmart TRMS Module
- Detachable screw terminal connector
- Imprintable label
- This guide

Note: Refer to the documentation provided with the Onset HOBO® H22 or U30 series data logger and HOBOware® Pro software for additional information on using and configuring the FlexSmart TRMS Module.

Introduction

Thank you for purchasing an Onset FlexSmart TRMS Module. With proper care, it will give you years of accurate and reliable measurements.

The S-FS-TRMSA and S-FS-TRMSA-D are easy-to-configure, True-RMS input measurement modules. The S-FS-TRMSA is compatible with Onset's HOBO H22 series data loggers. The S-FS-TRMSA-D is compatible with both the HOBO U30 and H22 series loggers. The "-D" variant has a modular connector for connecting to an available smart-sensor port. Both 2-channel modules have an input range of 512 millivolts RMS full-scale. Thus, they are fully compatible with industry-standard voltage and current transformers (PT and CT) which output 333 millivolts RMS full-scale.

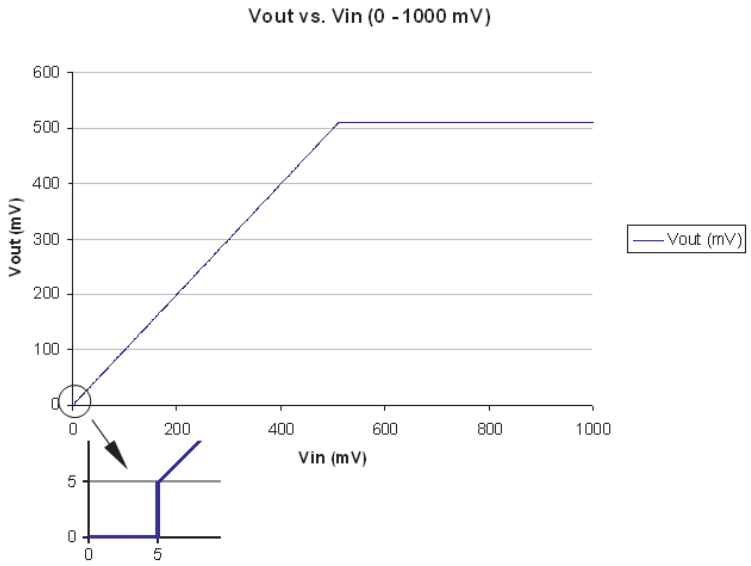
The modules feature extremely low-power operation, resulting in long battery life for unattended data logging applications.

Specifications

Input Channels	Two, AC-coupled
Field Wiring	Two-wire via screw terminals on detachable connector, 16-24 AWG Replacement detachable connectors: Part of spares kit, Onset part no: A-FS-TRMSA-4P-1
Input Range	5 to 512 mVRMS
Minimum Input Voltage	5mVRMS; Input voltages < 5mV will be clipped to zero (see graph below)
Maximum Input Voltage	+/- 1V referred to AC- terminals (pins 2 and 4)
Input Frequency	50/60 Hz
Accuracy	+/- 0.3% of reading +/- 0.5% of FSR
ADC Resolution	15 bits
AC Waveform	< 4 Crest Factor
Power Requirements	+3.3V @ 3mA active, 6µA sleep
Transfer Function	$VRMS = \sqrt{\frac{1}{T} \bullet \int_0^T [V(t)^2] dt}^{\perp}$
Measurement Averaging Option	Yes
CE	The CE Marking identifies this product as complying with all relevant directives in the European Union (EU).

10093-G MAN-S-FS-TRMSA

Minimum Input Voltage Graph



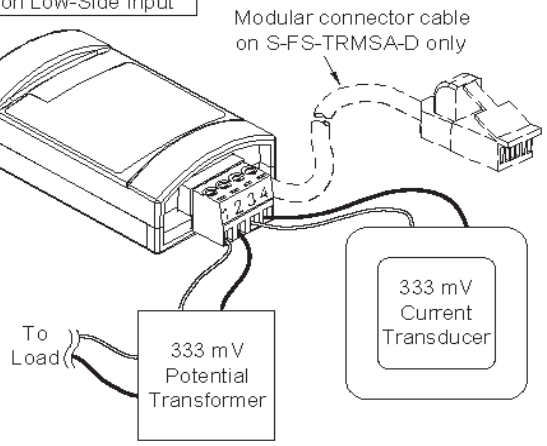
Module Connections

Potential Transformers (PT) and Current Transducers (CT) are connected to the module via a four-pin Phoenix-style detachable screw terminal connector. Once the PTs and/or CTs are connected, the module can then be configured using HOBOware Pro software (with the module installed on the HOBO H22 or U30 series data logger).

The diagram at below illustrates *typical* connections for a PT and CT. For module connection instructions specific to PTs and CTs purchased from Onset, refer to the documentation provided with each PT and CT.

Note: For three-phase monitoring, each of the three modules should be wired so that similar parameters are connected to corresponding pin numbers. For example, voltage inputs pins 1 and 2 on each module; current inputs pins 3 and 4 on each module.

Pin #	Function
1	Channel 1 High-Side Input
2	Common Low-Side Input
3	Channel 2 High-Side Input
4	Common Low-Side Input



Measurement Averaging

This sensor supports measurement averaging. When measurement averaging is enabled, data is sampled more frequently than it is logged. The multiple samples are then averaged together and the average value is stored as the data for the interval. For example, if the logging interval is set at 10 minutes and the sampling interval is set at 1 minute, each recorded data point will be the average of 10 measurements. Measurement averaging is useful for reducing noise in the data.