FlexSmart™ TRMS Module (S-FS-TRMSA & S-FS-TRMSA-D) Manual

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 HOBO® H22 series data loggers. The S-FS-TRMSA-D is compatible with HOBO H22 loggers, U30 stations, and RX3000 stations. 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.

Note: This module requires a logging interval of two seconds or greater. If you choose a one-second logging interval, it logs errors. Refer to the H22 logger, U30 or RX3000 station, and HOBOware® software manuals at www.onsetcomp.com/resources for additional information on using and configuring the FlexSmart TRMS module.

FlexSmart TRMS Module

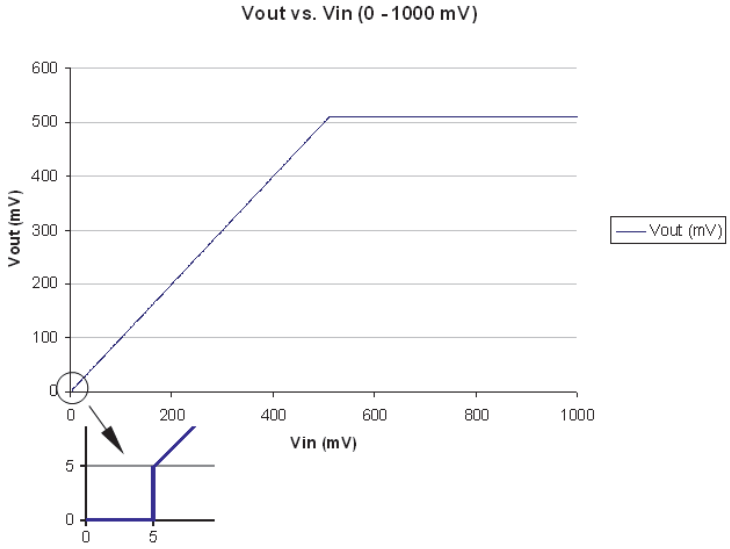
Models: S-FS-TRMSA
S-FS-TRMSA-D

Included Items:

- Detachable screw terminal connector
- Imprintable label

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 (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 (Power is provided by the station where the module is installed.)
Transfer Function	$VRMS = \sqrt{\frac{1}{T} \bullet \int_0^T [V(t)^2] dt}$
Measurement Averaging Option	Yes
CE	The CE Marking identifies this product as complying with all relevant directives in the European Union (EU).



Minimum Input Voltage Graph

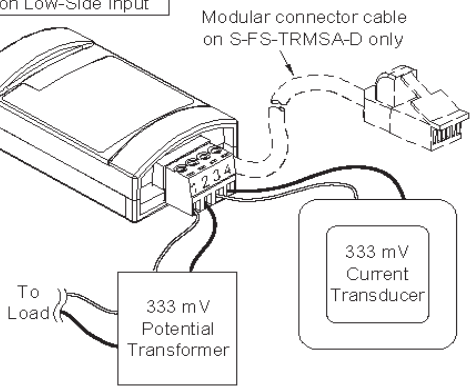
Module Connections

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 software with the module installed on the HOBO H22 or U30 series logger or using HOBOlink® with the RX3000 station. **Note:** There are limitations to the number of modules and smart sensors you can use with an RX3000 station. If you are using both TRMSA-D modules and smart sensors, then you are limited to a maximum of two TRMSA-D modules and any combination of smart sensors to reach a total of 13 data channels. For example, if there are two TRMSA-D modules in use with RX3000 station, then this will leave nine additional data channels for smart sensors. Refer to the smart sensor manuals at www.onsetcomp.com/resources for the number of data channels used by a specific smart sensor. If you are not using smart sensors with the RX3000 station, then you are limited to a maximum of four TRMSA-D modules. Exceeding these guidelines may result in erroneous readings.

The diagram 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 module 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.