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Calibration

Data Acquisition System Selection Guide

1586A Super-DAQ Precision Temperature Scanner and 2638A Hydra Series III Data Acquisition System/Digital Multimeter

1586A Super-DAQ
Precision Temperature Scanner

2638A Hydra Series III
Data Acquisition System/Digital Multimeter

The Fluke Calibration 1586A and Fluke 2638A are two new data acquisition systems that offer great value and performance. This selection guide will help you understand the differences between the two, the strengths of each, and which one will best meet your current and future needs.

1586A Super-DAQ Precision Temperature Scanner

A temperature-optimized data logger that can "cross over" as a precision thermometer for the lab

The 1586A should be considered by users focused on temperature data acquisition where accuracy matters. It can be used with internal High-Capacity Modules, an external DAQ-STAQ Multiplexer, or both. Configured with the internal High-Capacity Module, the 1586A has superior RTD and thermistor accuracy compared to the 2638A. Additional temperature-focused features that will appeal to metrologists and technicians include sensor characterizations, a probe library, and the ability to control Fluke Calibration dry-wells and baths in automated tests. For best measurement accuracy, the 1586A accepts ITS-90, CVD, and polynomial temperature sensor characterizations. The 1586A also measures and records lower level dc voltage and current.

The 1586A is ideal for data acquisition applications where temperature accuracy is important, including:

- Chamber mapping
- Freeze-drying validation
- Heat treating test
- Materials testing
- Temperature sensor calibration

When configured with the external DAQ-STAQ Multiplexer, the 1586A provides convenient probe connections and performance so good it is a great option for use as a reference thermometer readout for temperature calibration labs (accuracy improves to 0.29 °C for thermocouples and 0.005 °C for RTDs). It's a nice upgrade for users of thermometer readouts like the Black Stack or Chub E4 who are interested in a more modern user interface and a more advanced data acquisition platform.

For more information on the 1586A visit www.flukecal.com/1586A.

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2638A Hydra Series III Data Acquisition System/ Digital Multimeter

The perfect replacement for Fluke Hydra Data Loggers; more capable, too!

The 2638A is the successor to past Hydra models. It is a full-featured general purpose data acquisition system and is a great fit for most data acquisition applications where very good measurement accuracy is needed. Its thermocouple accuracy is better than competing data acquisition models, and equal to that of the 1586A when using the Universal Input Module. The 2638A is expandable to 60 channels per mainframe and over 1,000 channels with application software. Compared to the 1586A Super-DAQ Precision Temperature Scanner, it features a faster scan rate of up to 45 channels/second, and covers higher ac and dc input voltages (up to 300 V vs. 50 V). The higher voltage ranges and CAT II safety rating make it a robust solution for industrial factory and process monitoring applications.

The 2638A is ideal for data acquisition applications within test and measurement, industrial and manufacturing, including:

- Automated manufacturing test
- Component testing
- Oven profiling
- Burn-in testing
- Life cycle testing
- Process monitoring
- Materials testing

For more information on the 2638A visit www.flukecal.com/2638A.

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Features and specifications comparison

	1586A with DAQ-STAQ Multiplexer	1586A with High-Capacity Module	2638A with Universal Input Module
Maximum channel count	40	40	60
Maximum scan speed (channel/second)	10 (PRT) 10 (TC) 10 (V dc)	10 (PRT) 10 (TC) 10 (V dc)	16 (PRT) 15 (TC) 45 (V dc)
Able to control Fluke Calibration dry-wells and baths in automated tests	Yes	Yes	No
Current reversal (PRT only)	Yes	Yes	No
Sensor characterizations	ITS-90, CVD, Polynomial	ITS-90, CVD, Polynomial	Alpha, R0
Probe library	Yes	Yes	No
TC accuracy (Internal CJC for type K at 0 °C)	0.29 °C	0.62 °C	0.62 °C
RTD accuracy (4-wire, PT385, at 0 °C)	0.005 °C	0.008 °C	0.038 °C
Thermistor accuracy (5 kΩ or 10 kΩ thermistor at 0 °C)	0.002 °C	0.002 °C	0.003 °C
DC V input	50 V max, all functions and ranges	50 V max, all functions and ranges	Front panel: 300 V max CAT II Rear panel: 150 V max CAT II
DC V accuracy	0.0037 % + 0.0035 %	0.0037 % + 0.0035 %	0.0037 % + 0.0035 %
AC V (100 V)	n/a	n/a	300 V/150 V
AC V accuracy (60 Hz)	n/a	n/a	0.6 % + 0.08 %
DC I range	0 mA to 100 mA	0 mA to 100 mA	0 mA to 100 mA
DC I accuracy	0.015 % + 0.0011 %	0.015 % + 0.0011 %	0.015 % + 0.0011 %
Frequency range	n/a	n/a	3 Hz to 1 MHz
Safety/Conformity	CE, CSA, IEC 61010 3rd ed.	CE, CSA, IEC 61010 3rd ed.	CE, CSA, IEC 61010 3rd ed., Category II

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