TECHNICAL DATA

Fluke 2638A Hydra Series III Data Acquisition System/ Digital Multimeter



ACCURATE
DC accuracy of 0.0024 % and thermocouple accuracy of 0.5 °C

EXPANDABLE CHANNELS
Up to 66 universal differential isolated inputs, 20 on-board math channels, 45 channels/second basic dc scan rate

SELECTABLE INPUTS
Ac V, dc V, ac I, dc I, thermocouple, PRT (2, 3, 4 w), thermistor, resistance (2-4 w), frequency

DIGITAL MULTIMETER MODE
6.5-digit bench DMM function for front-panel inputs

ONE-BUTTON SCREEN CAPTURE
For chart or data displays, color trend-graphing and analysis

MULTI-CHANNEL REAL-TIME DATA
Monitor function for real-time viewing and charting between scans

MEMORY AND DATA
Internal 75,000 scan/setup file memory, USB flash drive support, data security features

SAFETY RATING
Only general purpose portable data acquisition system with an IEC Category II 300 V safety rating

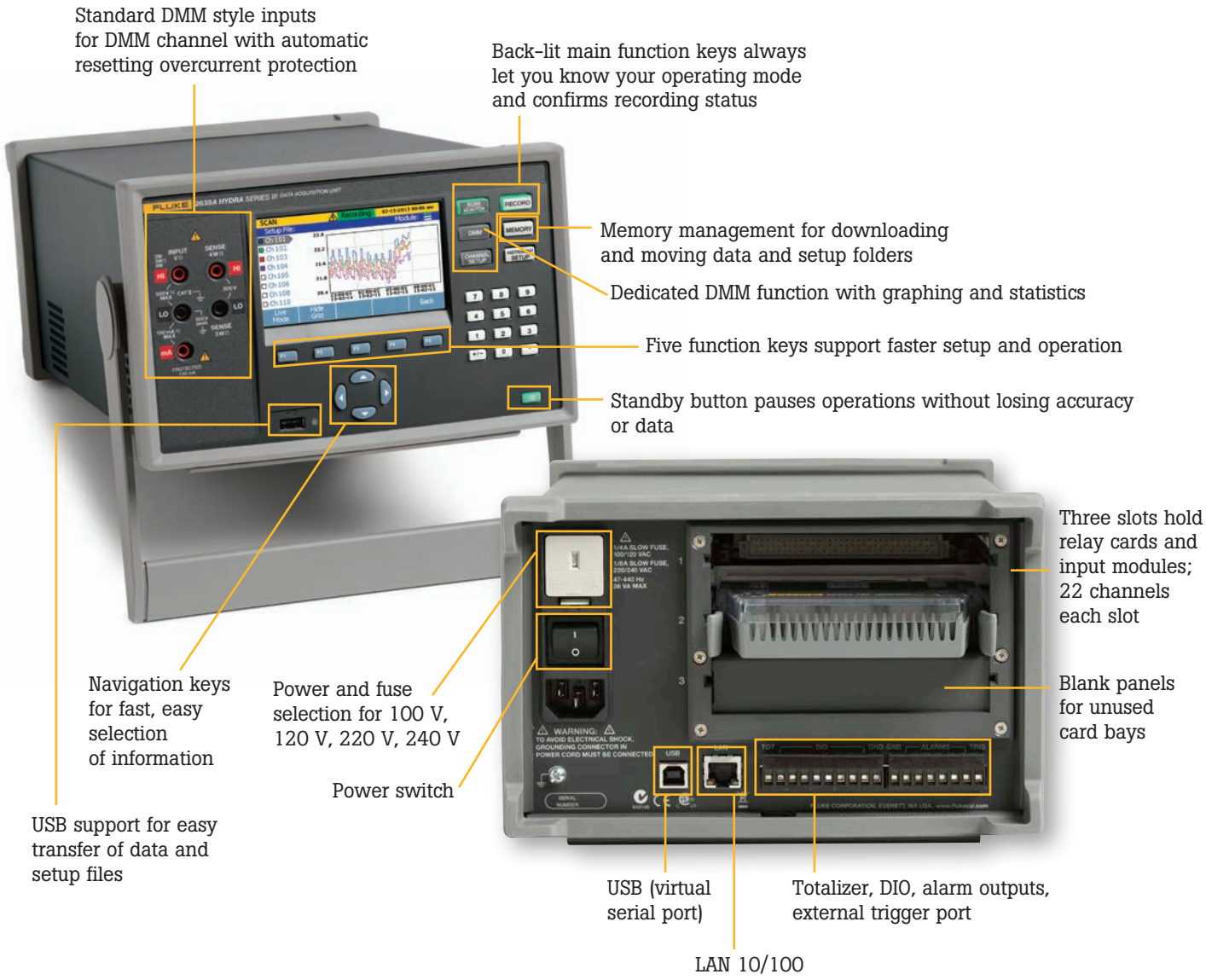
Price-performance breakthrough in a standalone data acquisition system

The Fluke Hydra Series III continues the Hydra Series legacy of precision, multi-channel data acquisition. The new Series III improves on Hydra's industry-leading thermocouple accuracy and adds a new dimension to how you collect and view data in a portable system.

DC measurement accuracy of 0.0024 %, basic 0.5 °C thermocouple accuracy, full-color display, easy-to-use menu system and industrial safety ratings put the 2638A in a category of its own as a precision data acquisition system. The dedicated 6.5 digit digital multimeter (DMM) mode provides additional utility and value.

The 2638A is expandable from 22 to 66 channels of differential analog inputs. A flexible, 22-channel Universal Input Connector lets you connect and disconnect any type of input to any channel, quickly and easily. Selectable inputs include dc voltage, ac voltage, resistance, thermocouple, RTD, thermistor, frequency and dc and ac current. You can also use the 2638A with optional software and other Fluke data loggers to create a flexible, customized data acquisition system with an almost unlimited number of input channels.

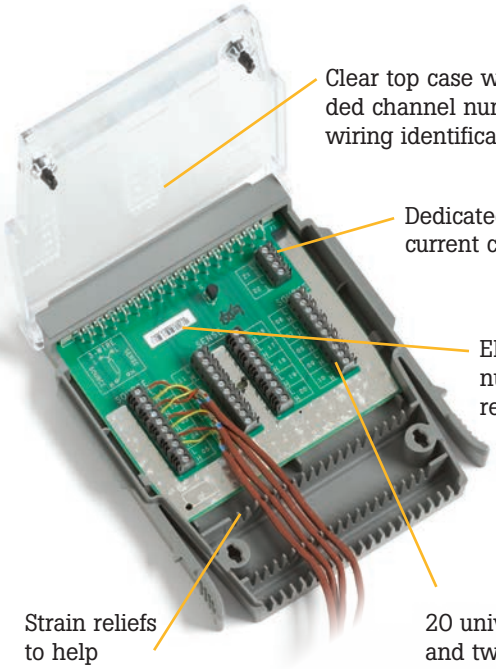




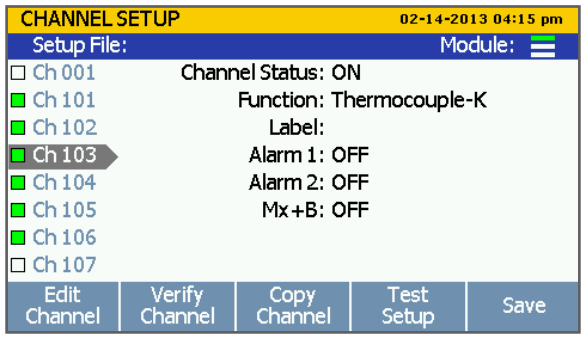
Accurate industrial thermocouple measurements

The 2638A incorporates the Fluke patented Universal Input Connector to bring more accuracy to thermocouple measurements than most other instruments in its class. The Universal Input Connector supports 14 common thermocouple types. Temperature-focused menu selections make the 2638A especially suitable for temperature validation applications.

If you need to zero a large number of thermocouples to a known reference temperature before starting a temperature profiling or validation test, the 2638A will normalize all readings to your reference channel at the push of a button and store the offsets for reference in a supporting data file. If you are conducting chamber tests, heat treating tests under AMS guidelines, or validating temperature devices under 21 CFR regulations, Hydra Series III makes it that much easier to comply.







Universal Input Connector

The Universal Input Connector plugs into any open slot in the 2638A that contains a relay card. The Universal Input Connector has 22 input channels (20 universal inputs and 2 dedicated, low-burden input current channels). Each input connector contains a CJC (cold-junction compensation) device, which is calibrated at the factory. The calibration date and input connector serial number are programed into the input connector and are read by the 2638A when installed. This information is saved in the test setup data file, which is available for review with any associated scan data from a test setup. This feature is a valuable form of traceability if you are working in a regulated industry.

Wiring a test or system setup for 20 to 60 or more channels can be time consuming. With the inexpensive plug-in Universal Input Connector, you can wire your system once, quickly disconnect the connector from your Hydra, then reconnect the Hydra to another input connector for use in a different area.

Other data loggers require you to wire your inputs directly to an expensive "plug-in" active component signal conditioning module. If you need your instrument for another test at another location, you must remove your wiring or use another expensive plug-in signal conditioning module. With Hydra Series III, all your signal conditioning is inside the mainframe, not in your input connector.

Using multiple low-cost Universal Input Connectors gives you the flexibility to leave your input connector at the test site, completely wired, and ready to use. When you need data from that site, simply plug in and load your saved setup file. It's that simple!

Expandable channel capacity

Each 2638A has three slots in the rear panel. Each slot can hold a user accessible relay card and a 22-channel Universal Input Connector.

Three configurations are available, from 22 channels to 66 channels per mainframe. Select a base model with 22 channels and add 22-channel expansion kits when needed. The low cost per channel makes a 2638A a good value for any budget.

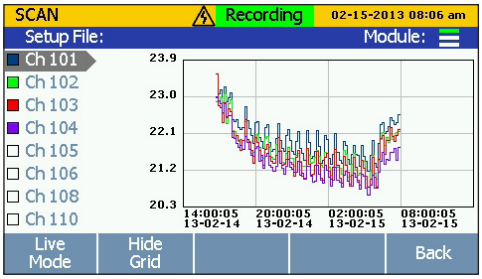
Graphical color display with easy-to-use menus

Never get lost again in a complex menu tree while configuring channels or setting up a test. The large, full color, thin film diode (TFD) display enables the Hydra Series III to display comprehensive easy-to-understand data and easy menu navigation.

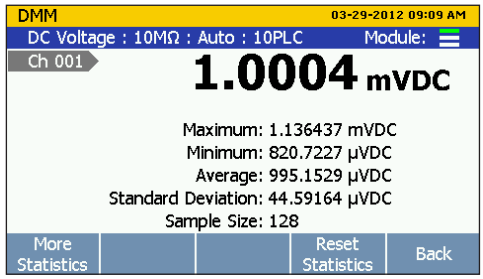
Back-lighted function keys quickly confirm the active menu selection. The "Record" key illuminates to indicate when the 2638A is recording data in scan, monitor or DMM mode. You always have visible confirmation when your data is being recorded.

Copy-and-paste channel functions make repetitive channel setups a simple task. Top-of-screen menu bar headings always let you know where you are in the setup process.

View your data with the push of a button. Page through all channel data and alarms in a quick view mode or scroll through channels and channel statistics individually. Statistics include rate of change, min, max, standard deviation, average, sample size and peak-to-peak information.



Real-time data charting with historical review.



Dedicated DMM functions.

Real-time data charting with historical review

Chart the real-time data of up to four channels at once. Simply select your channels and view real time charts of your measurements. The chart will auto scale for best fit of the displayed values. Zoom in or out to view areas of interest with the push of a button. A history mode enables you to scroll through previously collected data within the scan file—all without a PC and expensive charting programs.

Language support

All displayed text in the menus and data display area are translated to eight languages. You can change the language under the instrument setup area with the push of a button. French, Spanish, Japanese, German, Korean, English, Portuguese, Chinese and Russian are all supported languages in the 2638A.

Screen capture function

With one key push on the front panel, you can capture the screen contents of the 2638A directly to the USB drive in .jpg file format. Capture trend chart results or data displays for reports or just closer review.

Two alarms per channel

Each channel can be set for two alarm points: High-High, High-Low or Low-Low, in any combination. The 2638A then compares the set points during each scan. An out-of-range value is reported on the main display and data files. You can also assign any alarm point to any of six TTL alarm outputs.

Math channels

Each channel measurement can be set to scale and record your measurement using mx+b gain and offset calculations that are available during your channel setup menu. In addition, each 2638A mainframe has 20 internal math channels with alarm settings for more complex calculations that record results to your data file during each scan. Each channel result can be used as a variable in another math channel calculation.

DMM mode adds functionality and value

The Hydra Series III is based on a 6.5 digit (22-bit) precision digital multimeter measurement engine with exceptional measurement quality and resolution—so when you are not using your Hydra to collect multi-channel data, you can use it as a precision digital multimeter. Front-panel DMM-style input jacks and dedicated DMM menu selections enable you to measure dc voltage, dc resistance, ac voltage, ac resistance, Ohms, frequency, and temperature (thermocouples, RTDs and thermistors). Record DMM measurements to a separate DMM data file for later viewing. The 2638A also displays measurement statistics and graphs measurements right on the main display.

USB and internal memory

The Hydra Series III features 20 mb on-board memory for storing over 75,000 data records and configuration files. In addition to this large on-board memory, a built-in USB port is available to collect and store large files directly to a USB flash drive. An on-board file management menu makes moving data files or configuration files from internal or USB memory to your PC easy.

Memory management
The main panel memory key opens a simple menu for managing data files and setup files. If you want to load a previously saved setup file for a test, simply select your file from either internal memory or from a USB drive and you are ready to start scanning. You can easily move stored internal data to a USB for PC analysis or move setup files to another 2638A. With Hydra Series III you have easy access to data without the need for a direct PC connection.

To help safeguard your test data in the case of a power outage, the 2638A has a menu selection to resume scanning in the same configuration immediately when power is restored. It is just another way the 2638A works with and protects your data.

Flexible triggers and resolution
To begin a scan, you have several options that can be set in your test setup menu:

- External trigger
- Remote SCPI command
- Alarm trigger
- Time interval trigger
- Manual trigger initiated from the front panel

Measurement resolution is at your control with the 2638A. You can choose between standard settings of Fast, Medium or Slow (4.5, 5.5, 6.5 digits) for the resolution you need. You can also select custom measurement speeds on individual channels to get the accuracy and resolution to suit your requirements.

Totalizer
A totalizer input located on the rear panel provides a simple counter that records to the data file on every scan. The totalizer count can accumulate up to 1,048,575 counts and be reset from the front panel or remote command.

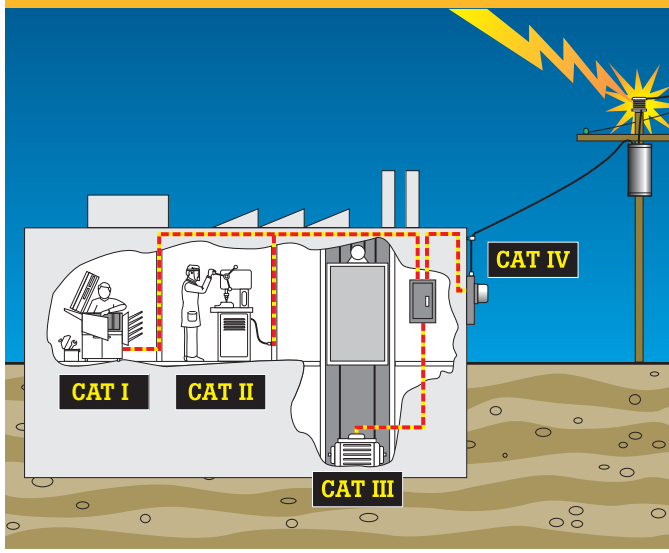
Channel statistics
Each channel's measurement statistics can be viewed at any time. During scanning, monitoring or in DMM mode, you have rate-of-change (per minute and per second), standard deviation, minimum, maximum, peak-to-peak, and average—all available at the touch of a button.

Connectivity
USB (virtual serial port) and LAN interface connections are available for easy connection to your company network or direct to you PC. Use Fluke DAQ application software for the 2638A or develop your own interface with the standard SCPI command set, or use our Lab View driver or Indusoft Web Studio to support your specific application needs.

Category II international safety ratings
The Hydra Series III is the only general purpose portable data acquisition system with an IEC Category II safety rating to help protect you and your operators when making real-world measurements on machinery in industrial areas. Other data loggers that are not clearly rated for these types of category measurements should be reviewed before being used for industrial measurement. Fluke takes your safety and your measurements seriously.

A note on measurement safety
An instrument's safety ratings should always be reviewed before performing any electrical measurement. Data loggers should not be an exception to that rule.

It is sometimes mistakenly assumed that a high voltage input specification on a data logger makes it safe to use on or near industrial equipment or to monitor mains power. This is not always the case. The Fluke Hydra Series III was designed specifically to meet stringent CAT II safety standards.



Data security
If you use your 2638A in a regulated industry, you will appreciate the data traceability feature option in the instrument setup menu. This two level (administrator/authorized user) system allows an administrator to assign up to five authorized users. The system provides an authenticated record of the operator of any recorded data. Both setup files and resulting data files contain the authorized user ID and timestamp. Guest users may use an existing secured setup file but cannot make changes, and any resulting data file carries the non-traceable label of "Guest."

Calibration
The 2638A comes with a factory test report showing all points measured during the manufacturing phase. Accredited calibration certificates are available when specified at the time of order.

Calibration of the 2638A is straightforward and only requires a password to access the calibration menu from the front panel. The 2638A can be calibrated manually following the internal menu or by using automated procedures with Fluke Calibration MET/CAL® Calibration Management Software.

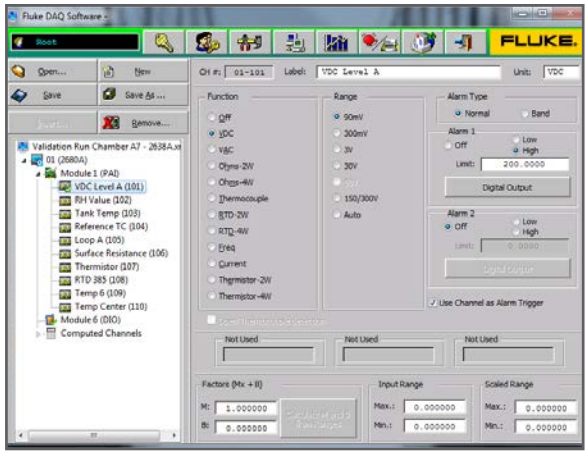
Built-in relay maintenance counter
The key to the isolation and accuracy of the 2638A in part comes from the use of high-quality switching relays inside the unit. Because these relays do deteriorate with extended use, the 2638A has a maximum relay counter for each installed relay board. This will assist a user in anticipating when replacing the relay board may be advisable.

Need a large system data collection network? No problem!
Need a 200 or 2,000 channel system? Fluke DAQ application software (2680A-APSW) makes it easy to seamlessly collect data from multiple channels and mainframes. Version 6.0 or later of this powerful application software links all Fluke data acquisition products (NetDAQ® Networked Data Acquisition Unit, 2680 Series Data Acquisition Systems and Hydra III) into small or large data collection systems.

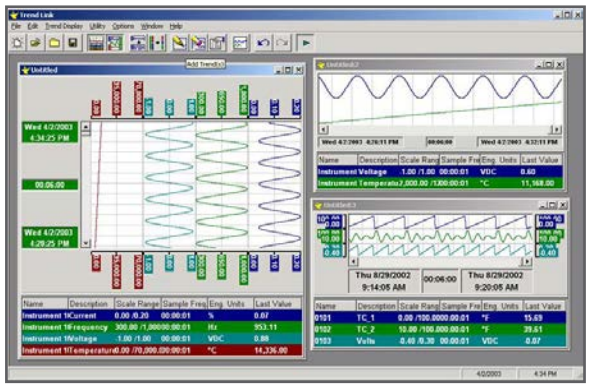
If you want to build your own system, use our LabView drivers. Or use Fluke DAQ software with the Indusoft WebStudio HMI software platform to create a customized, graphical process-and-communication-interface with Fluke data acquisition products.

Trend Link Software extends system capabilities
Optional Trend Link software is a comprehensive and powerful trend plotting software package. It allows you to access, view and analyze tremendous amounts of historical and real time data in a trending or chart recorder-like display. With Trend Link software, you can zoom in on points of interest in your data, or zoom out to display a wide overview of long-term trends.

Service and CarePlans
The 2638A Hydra Series III ships with a standard one-year warranty. Extended service plans for up to four additional years of coverage (Silver CarePlan) and annual calibration and repair services with expedited handling (Gold CarePlan) are also available in most countries.



Need a large system data collection network? No problem!


Optional Trend Link software

Measurement specifications

Accuracy specifications generally are valid for 6.5 digit resolution mode (unless otherwise noted) after a minimum of one-hour warm-up, and within an operating temperature range of 18 °C to 28 °C. Derating applies with a fast sample rate and for operating temperatures outside the limited range. Twenty-four-hour specifications are relative to calibration standards and assume a controlled electromagnetic environment per EN 61326. The confidence level for accuracy specifications is 95 % within one year of calibration (unless otherwise noted).

Measurement specifications		
Scan rate	Fast	45 channels per second max (0.03 seconds per channel, depending on function and range)
	Medium	16 channels per second (0.1 seconds per channel)
	Slow	2 channels per second (0.5 seconds per channel)
	Custom	Selectable from 0.2 NPLC to 200 NPLC
Display resolution		4.5 to 6.5 digits, depending on function and sample rate

Specifications

DC voltage	
Maximum input	300 V
Common mode rejection	140 db at 50 Hz or 60 Hz ±0.1 % (1k Ω imbalance)
Normal mode rejection	60 db for NPLC of 1 or greater and power-line frequency ±0.1 %
Measurement method	Multi-ramp A/D
A/D linearity	2 ppm of measurement + 1 ppm of range
Input bias current	30 pA at 25 °C

DC voltage input characteristics

Range	Resolution	Measurement rate/Resolution			Input impedance
		Fast 4.5 digits	Medium 5.5 digits	Slow 6.5 digits	
100 mV	100.0000 mV	10 µV	1 µV	0.1 µV	10 MΩ or >10 GΩ[1]
1 V	1.000000 V	100 µV	10 µV	1 µV	10 MΩ or >10 GΩ[1]
10 V	10.00000 V	1 mV	100 µV	10 µV	10 MΩ or >10 GΩ[1]
100 V	100.0000 V	10 mV	1 mV	100 µV	10 MΩ ±1 %
300 V	300.000 V	100 mV	10 mV	1 mV	10 MΩ ±1 %

[1] 10 MΩ is default input impedance.

DC voltage accuracy

Accuracy is given as ± (% measurement + % of range).

Range	24 hour (23 ±1 °C)	90 days (23 ±5 °C)	1 year (23 ±5 °C)	T.C./ °C outside 18 °C to 28 °C
100 mV	0.0025 + 0.003	0.0025 + 0.0035	0.0037 + 0.0035	0.0005 + 0.0005
1 V	0.0018 + 0.0006	0.0018 + 0.0007	0.0025 + 0.0007	0.0005 + 0.0001
10 V	0.0013 + 0.0004	0.0018 + 0.0005	0.0024 + 0.0005	0.0005 + 0.0001
100 V	0.0018 + 0.0006	0.0027 + 0.0006	0.0038 + 0.0006	0.0005 + 0.0001
300 V	0.0018 + 0.002	0.0031 + 0.002	0.0041 + 0.002	0.0005 + 0.0003

AC voltage

AC voltage specifications are for ac sine wave signals >5 % of range. For inputs from 1 % to 5 % of range and <50 kHz, add an additional error of 0.1 % of range.

Maximum input		Front panel: 300 V rms or 425 V peak; Rear inputs: 150 V CAT II; 250 V peak
Measurement method		AC-coupled true-rms. Measures the ac component of input with up to 300 V dc bias on any range
AC filter bandwidth	Slow	20 Hz
	Fast	200 Hz
Maximum crest factor		5:1 at full scale

AC voltage input characteristics

Range	Resolution	Measurement rate/resolution			Input impedance
		Fast 4.5 digits	Medium 5.5 digits	Slow 6.5 digits	
100 mV	100.0000 mV	10 µV	1 µV	0.1 µV	1 MΩ ±2 % shunted by 150 pF
1 V	1.000000 V	100 µV	10 µV	1 µV	
10 V	10.00000 V	1 mV	100 µV	10 µV	
100 V	100.0000 V	10 mV	1 mV	100 µV	
300 V	300.000 V	100 mV	10 mV	1 mV	

AC voltage accuracy

Accuracy is given as ± (% measurement + % of range).

Range	Frequency	24 hour (23 ±1 °C)	90 days (23 ±5 °C)	1 year (23 ±5 °C)	T.C./°C outside 18 °C to 28 °C
100 mV	20 Hz to 20 kHz	0.1 + 0.05	0.11 + 0.05	0.11 + 0.05	0.01 + 0.005
	20 Hz to 50 kHz	0.2 + 0.05	0.22 + 0.05	0.22 + 0.05	0.01 + 0.005
	50 Hz to 100 kHz	0.55 + 0.08	0.6 + 0.08	0.6 + 0.08	0.05 + 0.01
1 V	20 Hz to 20 kHz	0.1 + 0.05	0.11 + 0.05	0.11 + 0.05	0.01 + 0.005
	20 Hz to 50 kHz	0.2 + 0.05	0.22 + 0.05	0.22 + 0.05	0.01 + 0.005
	50 Hz to 100 kHz	0.55 + 0.08	0.6 + 0.08	0.6 + 0.08	0.05 + 0.01
10 V	20 Hz to 20k Hz	0.1 + 0.05	0.11 + 0.05	0.11 + 0.05	0.01 + 0.005
	20 Hz to 50 kHz	0.2 + 0.05	0.22 + 0.05	0.22 + 0.05	0.01 + 0.005
	50 Hz to 100 kHz	0.55 + 0.08	0.6 + 0.08	0.6 + 0.08	0.05 + 0.01
100 V	20 Hz to 20 kHz	0.1 + 0.05	0.11 + 0.05	0.11 + 0.05	0.01 + 0.005
	20 Hz to 50 kHz	0.2 + 0.05	0.22 + 0.05	0.22 + 0.05	0.01 + 0.005
	50 Hz to 100 kHz	0.55 + 0.08	0.6 + 0.08	0.6 + 0.08	0.05 + 0.01
300 V	20 Hz to 20 kHz	0.1 + 0.05	0.11 + 0.05	0.11 + 0.05	0.01 + 0.005
	20 Hz to 50 kHz	0.2 + 0.05	0.22 + 0.05	0.22 + 0.05	0.01 + 0.005
	50 Hz to 100 kHz	0.55 + 0.27	0.6 + 0.27	0.6 + 0.27	0.05 + 0.03

DC current

Input protection	0.15 A /600 V resettable PTC
Common mode rejection	140 db at 50 Hz or 60 Hz ±0.1 % (1 kΩ imbalance)
Normal mode rejection	60 db for NPLC of 1 or greater and power line frequency ±0.1 %

DC current input characteristics

Range	Resolution	Measurement rate/resolution			Shunt resistance (ohms)	Burden voltage
		Fast 4.5 digits	Medium 5.5 digits	Slow 6.5 digits		
100 µA	100.0000 µA	10 nA	1 nA	0.1 nA	1k Ω	<1 mV
1 mA	1.000000 mA	100 nA	10 nA	1 nA	1k Ω	<1 mV
10 mA	10.00000 mA	1 µA	100 nA	10 nA	10 Ω	<1 mV
100 mA	100.0000 mA	10 µA	1 µA	100 nA	10 Ω	<1 mV

DC current accuracy

Accuracy is given as ± (% measurement + % of range).

Range	24 hour (23 ±1 °C)	90 days (23 ±5 °C)	1 year (23 ±5 °C)	T.C./°C outside 18 °C to 28 °C
100 µA	0.005 + 0.003	0.006 + 0.0035	0.007 + 0.0035	0.002 + 0.001
1 mA	0.005 + 0.001	0.006 + 0.0011	0.007 + 0.0011	0.002 + 0.001
10 mA	0.005 + 0.003	0.006 + 0.0035	0.007 + 0.0035	0.002 + 0.001
100 mA	0.005 + 0.001	0.015 + 0.0035	0.015 + 0.0035	0.002 + 0.001

Thermocouple temperature accuracy

Type	Temperature range	Temperature	Accuracy	
			Internal CJC	External CJC
K	-270 °C to 1372 °C	-200 °C	1.60 °C	0.42 °C
		0 °C	0.62 °C	0.15 °C
		1000 °C	0.64 °C	0.22 °C
T	-270 °C to 400 °C	-200 °C	1.60 °C	0.40 °C
		0 °C	0.65 °C	0.15 °C
		200 °C	0.48 °C	0.12 °C
		400 °C	0.41 °C	0.12 °C
R	-50 °C to 1768 °C	0 °C	1.28 °C	1.13 °C
		300 °C	0.71 °C	0.63 °C
		1200 °C	0.54 °C	0.49 °C
		1600 °C	0.56 °C	0.51 °C
S	-50 °C to 1768 °C	0 °C	1.26 °C	1.11 °C
		300 °C	0.76 °C	0.67 °C
		1200 °C	0.62 °C	0.56 °C
		1600 °C	0.65 °C	0.59 °C
J	-210 °C to 1200 °C	-200 °C	1.42 °C	0.30 °C
		0 °C	0.61 °C	0.12 °C
		1000 °C	0.53 °C	0.16 °C
N	-270 °C to 1300 °C	-200 °C	1.69 °C	0.63 °C
		0 °C	0.64 °C	0.23 °C
		500 °C	0.45 °C	0.18 °C
		1000 °C	0.46 °C	0.21 °C
E	-270 °C to 1000 °C	-200 °C	1.43 °C	0.26 °C
		0 °C	0.61 °C	0.10 °C
		300 °C	0.46 °C	0.09 °C
		700 °C	0.46 °C	0.12 °C
B	100 °C to 1820 °C	300 °C	1.98 °C	1.98 °C
		600 °C	1.03 °C	1.03 °C
		1200 °C	0.62 °C	0.62 °C
		1600 °C	0.57 °C	0.57 °C
C	0 °C to 2315 °C	600 °C	0.55 °C	0.34 °C
		1200 °C	0.64 °C	0.42 °C
		2000 °C	0.95 °C	0.66 °C
D	0 °C to 2315 °C	600 °C	0.45 °C	0.33 °C
		1200 °C	0.51 °C	0.38 °C
		2000 °C	0.73 °C	0.58 °C
G	0 °C to 2315 °C	600 °C	0.37 °C	0.36 °C
		1200 °C	0.34 °C	0.34 °C
		2000 °C	0.51 °C	0.50 °C
L	-200 °C to 900 °C	-200 °C	0.99 °C	0.20 °C
		0 °C	0.62 °C	0.12 °C
		800 °C	0.49 °C	0.13 °C
M	-50 °C to 1410 °C	0 °C	0.64 °C	0.16 °C
		500 °C	0.51 °C	0.16 °C
		1000 °C	0.42 °C	0.15 °C
U	-200 °C to 600 °C	-200 °C	1.49 °C	0.38 °C
		0 °C	0.63 °C	0.15 °C
		400 °C	0.40 °C	0.12 °C
W	0 °C to 2315 °C	600 °C	0.37 °C	0.36 °C
		1200 °C	0.34 °C	0.34 °C
		2000 °C	0.51 °C	0.50 °C

Resistance input characteristics

Range	Resolution	Measurement Rate / Resolution			Source current
		Fast 4.5 digits	Medium 5.5 digits	Slow 6.5 digits	
100 Ω	100.0000 Ω	10 mΩ	1 mΩ	0.1 mΩ	1 mA / 4 V
1 kΩ	1.000000 kΩ	100 mΩ	10 mΩ	1 mΩ	1 mA / 4 V
10 kΩ	10.00000 kΩ	1 Ω	100 mΩ	10 mΩ	100 µA / 6 V
100 kΩ	100.0000 kΩ	10 Ω	1 Ω	100 mΩ	100 µA / 12 V
1 MΩ	1.000000 MΩ	100 Ω	10 Ω	1 Ω	10 µA / 12 V
10 MΩ	10.00000 MΩ	1 kΩ	100 Ω	10 Ω	1 µA / 12 V
100 MΩ	100.0000 MΩ	10 kΩ	1 kΩ	100 Ω	0.1 µA / 12 V

Resistance accuracy

Accuracy is given as ± (% measurement + % of range).

Range	24 hour (23 ±1 °C)	90 days (23 ±5 °C)	1 year (23 ±5 °C)	T.C./ °C outside 18 °C to 28 °C
100 Ω	0.003 + 0.003	0.008 + 0.004	0.01 + 0.004	0.0006 + 0.0005
1 kΩ	0.002 + 0.0005	0.008 + 0.001	0.01 + 0.001	0.0006 + 0.0001
10 kΩ	0.002 + 0.0005	0.008 + 0.001	0.01 + 0.001	0.0006 + 0.0001
100 kΩ	0.002 + 0.0005	0.008 + 0.001	0.01 + 0.001	0.0006 + 0.0001
1 MΩ	0.002 + 0.001	0.008 + 0.001	0.01 + 0.001	0.001 + 0.0002
10 MΩ	0.015 + 0.001	0.02 + 0.001	0.04 + 0.001	0.003 + 0.0004
100 MΩ	0.3 + 0.01	0.8 + 0.01	0.8 + 0.01	0.15 + 0.002

RTD temperature accuracy (4 wire)

Temperature	Accuracy	Fast sample rate (NPLC < 10)	T.C./ °C outside 18 °C to 28 °C
-200 °C	0.015 °C	add 0.02 °C	0.0021 °C
0 °C	0.02 °C	add 0.02 °C	0.0023 °C
300 °C	0.04 °C	add 0.02 °C	0.0028 °C
600 °C	0.06 °C	add 0.02 °C	0.0033 °C

Thermistor temperature accuracy (4 wire)

Temperature	Accuracy 2.2 kΩ thermistor	Accuracy 5 kΩ thermistor	Accuracy 10 kΩ thermistor
-40 °C	0.002 °C	0.003 °C	0.003 °C
0 °C	0.004 °C	0.003 °C	0.003 °C
25 °C	0.01 °C	0.005 °C	0.005 °C
50 °C	0.012 °C	0.007 °C	0.009 °C
100 °C	0.08 °C	0.035 °C	0.017 °C
150 °C	0.35 °C	0.15 °C	0.06 °C

Frequency

Range	Frequency	24 hour (23 ±1 °C)	90 days (23 ±5 °C)	1 year (23 ±5 °C)	T.C./ °C outside 18 °C to 28 °C
100 mV to 300 V	20 Hz to 40 Hz	0.03	0.03	0.03	0.001
	40 Hz to 1 MHz	0.006	0.01	0.01	0.001

General specifications	
Voltage	100 V to 264 V in 4 power model selections (100 V, 120 V, 220 V, 240 V)
Frequency	47 Hz to 440 Hz (automatically sensed when turned on)
Power consumption	36 V A peak (24 W average)
LAN	10/100 Mb TCPIP DHC
Remote commands	SCPI command set
Internal memory	75,000 scans 1,000 setup files
File security	Dual level, Administrator, four secure users, Guest status
Alarm outputs	6 TTL alarm outputs—assignable to one or multiple channels
Alarm setpoints	2 assignable alarm setpoints/ channel , Hi Lo, Hi Hi, Lo Lo
Language menus	English, Chinese, French, German, Japanese, Korean, Portuguese, Russian and Spanish
Temperature (operating)	0 °C to 50 °C
Temperature (storage)	20 °C to 70 °C
Temperature (warm-up)	One hour to full uncertainty specifications
Relative humidity (non-condensing) operating	0 °C to 28 °C <90 % 28 °C to 40 °C <75 % 40 °C to 50 °C <50 %
Relative humidity (non-condensing) storage	20 °C to 70 °C <95 %
Weight	6 kg (13.2 lbs)
Dimensions	150 mm x 285 mm x 385 mm (5.91 in x 11.22 in x 15.16 in
Standard rack height	3 U

Ordering information

2638A/20 Data Acquisition Unit/Data Logger: 20 universal channels includes one relay board (2638A-RLY) and one (2638A-100) connector
2638A/40 Data Acquisition Unit/Data Logger: 40 universal channels includes two relay boards (2638A-RLY) and two (2638A-100) connectors
2638A/60 Data Acquisition Unit/Data Logger: 60 universal channels includes three relay boards (2638A-RLY) and three (2638A-100) connectors
Power selection: Specify 100 V, 120 V, 220 V, 240 V power when ordering (power settings may be changed by the user)

Included

Each 2638A is shipped with relay boards and Universal Input Connectors installed, test leads, safety information and 2680A-APSW/L (Lite version) on DVD, power cord, screw-driver, and traceable calibration report with data.

Accessories

2638A-20chkit 20-Channel Expansion Kit for 2638A (includes one relay board (2638A-RLY) and one (2638A-100) connector)
2638A-100 Extra Universal Input Module for 2638A
2638A-RLY Extra Relay Board for 2638A (Replacement)
Y2638S 19-Inch Rackmount, Single Mounting, 2638A
Y2638D 19-Inch Rackmount, Dual Mounting, 2638A
2638A-101 10 Ohm Shunt Resistors (Quantity 10 each) 100 mA max, 0.05 %
2638A-1GB 1 GB USB Flash Memory
2638A/CASE 2638A Transit Case

Options

Accredited Calibration Certificate 17025: add option/C to model
2680A-APSW Fluke DAQ 6.0 Application Software for 2638A, 2680A, NetDAQ® Networked Data Acquisition Unit
2680A-904 Trend Link for Fluke Data Acquisition Products (requires 2680A-APSW)

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