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Data Sheet

August 13, 2026

FLUKE

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

Fluke 2638A Hydra Series III Data Acquisition System The Fluke 2638A Hydra Series III is a portable precision multi-channel data acquisition system with a dedicated 6.5-digit DMM mode. It expands from 22 to 66 universal differential isolated inputs, supports DC/AC V/I, resistance, thermocouple, RTD, thermistor, and frequency, and provides color trend graphing with USB and LAN connectivity under CAT II 300 V safety ratings. The Fluke 2638A Hydra Series III is a portable precision multi-channel data acquisition system with a dedicated 6.5-digit DMM mode. It expands from 22 to 66 universal differential isolated inputs, supports DC/AC V/I, resistance, thermocouple, RTD, thermistor, and frequency, and provides color trend graphing with USB and LAN connectivity under CAT II 300 V safety ratings.



MODEL

Fluke 2638A

CALIBRATION

Available on request

CONDITION

Used

STATUS

In stock

RFQ / SKU

2638A

LISTING

<https://aumictechlabs.com/products/2638a-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 • 811210 • 541380

This unit

The Fluke 2638A Hydra Series III is a multi-channel data acquisition system and 6.5-digit digital multimeter engineered for precision measurement and logging in industrial and laboratory settings. It combines universal differential analog inputs - expandable from 22 to 66 channels - with dedicated DMM functionality, delivering 0.0024% DC accuracy and 0.5 °C thermocouple accuracy. The instrument supports temperature profiling, process monitoring, environmental

testing, and product validation through its diverse input types and 45 channels/second scan rate.

Technical Specifications

DC Measurement Accuracy: 0.0024% **Thermocouple Accuracy:** 0.5 °C basic accuracy **Channel Capacity:** Expandable from 22 to 66 universal differential isolated inputs across three rear panel slots **Input Types:** DC voltage, AC voltage (300 V rms / 425 V peak front panel; 150 V CAT II / 250 V peak rear inputs), 2-wire and 4-wire resistance, thermocouples (15 types: R, S, N, E, B, C, D, G, L, M, U, W, J, K, T), RTD (2-, 3-, 4-wire), thermistor, frequency (20 Hz to 1 MHz), DC current, and AC current (0.2% or reading + 5 counts at ± 20.99 mA; 1% or reading + 5 counts at ± 21.0 to ± 99.9 mA) **AC Current Maximum Conductor Diameter:** 0.177 in (4.5 mm) **Scan Rate:** 45 channels/second (DC) **Digital Multimeter:** Front-panel jacks; 6.5-digit precision engine supporting voltage, resistance, AC/DC modes, frequency, and temperature measurement

Key Features

On-board memory stores over 57,000 scan/setup files USB flash drive support for extended data collection 20 on-board math channels Full-color display with intuitive menu navigation Dual-level security with administrator, five user, and guest access levels

Industrial safety ratings

Typical Applications Process monitoring, environmental testing, product validation, temperature profiling.

Compatibility & Integration USB flash drive connectivity enables direct file transfer and storage management between internal memory and external drives.

Features & description

From manufacturer datasheet

Features

- Color TFT display with on-instrument trend charts of up to four channels

Applications

- Multi-channel temperature profiling and chamber validation

2638A Characteristics / Specifications

PARAMETER	VALUE
Model	2638A
Manufacturer	Fluke
Instrument Type	Data Acquisition System / Digital Multimeter
Alias	2638A; Hydra Series III; Fluke 2638A
Analog channels	22 to 66 differential isolated
Channels per module	20 universal plus 2 dedicated current
Math channels	20
Digital I/O	8 bits
Alarm outputs	6 TTL
Totalizer	1
DC volts ranges	100 mV to 300 V
DC volts best resolution	0.1 uV on 100 mV range
AC volts ranges	100 mV to 300 V
AC volts basic accuracy	0.11% class
Resistance ranges	100 ohm to 100 Mohm
Resistance basic accuracy	0.01% class
Frequency range	20 Hz to 1 MHz
Frequency accuracy	0.01% class
Thermocouple accuracy basic	0.5 degC
Thermocouple types supported	14 common types
RTD Pt100 resolution	0.001 degC
RTD Pt100 accuracy class	0.016 degC
Scan rate fast	45 channels/s max
Scan rate medium	16 channels/s
Scan rate slow	2 channels/s

PARAMETER	VALUE
Display resolution	4.5 to 6.5 digits
Internal memory	over 75,000 scan/setup records; 20 MB class
Interfaces	USB virtual serial; LAN 10/100
Power	100/120/220/240 V selectable; 47 to 440 Hz
Safety rating	IEC CAT II 300 V
Accuracy temperature window	18 to 28 degC Notes Specs from Fluke 2638A Hydra Series III datasheet and product page. Confirm installed channel count, options, and calibration date on the unit.

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Specifications	
Specifications	
PARAMETER	VALUE
Model	2638A
Manufacturer	Fluke
Instrument Type	Data Acquisition System / Digital Multimeter
Specifications	
PARAMETER	VALUE
Alias	2638A; Hydra Series III; Fluke 2638A
Analog channels	22 to 66 differential isolated
Channels per module	20 universal plus 2 dedicated current
Specifications	
PARAMETER	VALUE
Math channels	20
Digital I/O	8 bits
Alarm outputs	6 TTL
Totalizer: 1	
DC volts basic 1-year accuracy: 0.0024%	
Specifications	
PARAMETER	VALUE
DC volts ranges	100 mV to 300 V
DC volts best resolution	0.1 uV on 100 mV range
AC volts ranges	100 mV to 300 V
Specifications	
PARAMETER	VALUE
AC volts basic accuracy	0.11% class
Resistance ranges	100 ohm to 100 Mohm

PARAMETER	VALUE
Resistance basic accuracy	0.01% class

Specifications

PARAMETER	VALUE
Frequency range	20 Hz to 1 MHz
Frequency accuracy	0.01% class
Thermocouple accuracy basic	0.5 degC

Specifications

PARAMETER	VALUE
Thermocouple types supported	14 common types
RTD Pt100 resolution	0.001 degC
RTD Pt100 accuracy class	0.016 degC

Specifications

PARAMETER	VALUE
Scan rate fast	45 channels/s max
Scan rate medium	16 channels/s
Scan rate slow	2 channels/s

Specifications

PARAMETER	VALUE
Display resolution	4.5 to 6.5 digits
Internal memory	over 75,000 scan/setup records; 20 MB class
Interfaces	USB virtual serial; LAN 10/100

Power: 100/120/220/240 V selectable; 47 to 440 Hz

Safety rating: IEC CAT II 300 V

Warm-up for stated accuracy: 1 hour

Accuracy temperature window: 18 to 28 degC

Notes

Specs from Fluke 2638A Hydra Series III datasheet and product page. Confirm installed channel count, options, and calibration date on the unit.

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.