## Portable, flexible solutions for stand-alone or PC-based data acquisition

The Hydra Series offers easy portability along with Fluke's built-in signal conditioning and Universal Input Module at a price to fit your budget. You can easily retrieve data from Fluke Hydra units via the RS-232 interface or through a modem in upload or real-time mode. Channel information and measurement parameters can be set up directly from the front panel or your PC.

Choose from three Fluke Hydra Series models, all featuring removable memory card data storage, internal memory storage, and direct real-time data transfer options. Should power fail, these instruments automatically resume data collection when power is restored.



*Hydra Data Bucket*

## Key Hydra™ Series features

- Review the min/max and last readings from the front panel
- Channel 0 accepts standard test leads from the front panel for quick measurements
- Monitor a selected channel from the front panel
- Use the Channel function to configure measurement type and range for each individual channel
- Use the Memory Card Drive (in 2635A only) to store data and instrument configuration on a portable, non-volatile memory card and transfer collected data to your PC for later analysis

## 2635A Hydra Data Bucket

The versatile Hydra Data Bucket is the ideal choice for gathering and transporting large volumes of data and for working extended periods from remote locations. It offers:

- **Flexible storage.** The Hydra Data Bucket comes with a 256K PCMCIA card and can be equipped with optional 1 MB, 2 MB, or 4 MB memory cards to suit your data storage needs.

- **Versatile data transfer.** Data may be uploaded from these cards via the Hydra RS-232 port, the optional 263XA-803 memory card drive, or from your computer's standard PCMCIA slot. You can transfer real-time data to a PC at the same time it is recorded to the memory card.

- **Quick setup.** Simply push a few front panel buttons or load instrument setups from the memory card.

- **Fail-safe features.** The Hydra Data Bucket warns of a low battery or low memory condition on the memory card. Its internal memory buffer continues to store up to 70 scans while the card is removed and replaced.

# Hydra™ Series

## Choose the Hydra Series that matches your requirements

| Model | Universal Signal Conditioning | Nonvolatile Data Storage | Interface |
|---|---|---|---|
| 2635A Data Bucket | Yes | PCMCIA Card | RS-232 |
| 2625A Data Logger | Yes | Internal | RS-232 |
| 2620A Data Acquisition Unit | Yes | None | RS-232 |
| 2620A/05 Data Acquisition Unit | Yes | None | IEEE-488 |

## 2625A Hydra™ Data Logger

The Hydra 2625A provides a low-cost alternative for standalone monitoring operations with:

- **Built-in nonvolatile memory** that can store more than 2000 scans.
- **Flexible data retrieval** that enables you to upload stored data, or transfer real-time data via modem or directly to your PC via the RS-232 port.

## 2620A Hydra™ Data Acquisition Unit

The Hydra 2620A is ideal for applications that require direct connection to a PC for real-time data collection.

- **Easy-to-use front-end.** An RS-232 serial interface makes it easy to connect the Hydra Data Acquisition Unit to a PC or modem for real-time data acquisition. The 2620A can also be used as a 20-channel panel meter.
- **IEEE interface.** An optional IEEE-488 interface allows you to easily integrate the 2620A with other IEEE-488 instruments and your PC. The 2620A delivers workhorse performance for a wide variety of applications such as test and monitoring systems.
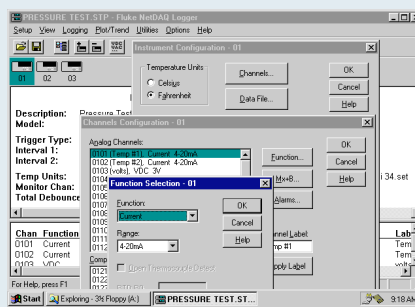


## Menu-driven software simplifies setup

Hydra Logger software provides an intuitive graphical interface that makes it even easier to configure and access the powerful features of your Hydra units without any programming.

# Ordering information

| | |
|---|---|
| 2620A | Hydra Data Acquisition Unit |
| 2620A/05 | Hydra Data Acquisition Unit with IEEE-488 interface |
| 2625A | Hydra Data Logger |
| 2635A | Hydra Data Bucket (256 KB memory card) |
| 2635A-1MB | Hydra Data Bucket (1 MB memory card) |
| 2635A-2MB | Hydra Data Bucket (2 MB memory card) |
| 2635A-4MB | Hydra Data Bucket (4 MB memory card) |

*Includes: Instrument, Universal Input Module, line cord, user manual, Starter Software (DOS), RS43 cable*

## Options and accessories

| | |
|---|---|
| 2620A-100 | Extra Universal Input Module |
| 263XA-803 | External PC Memory Card Drive |
| 263XA-804 | Memory Card-256 KB |
| 263XA-805 | Memory Card-1 MB |
| 263XA-806 | Memory Card-2 MB |
| 263XA-807 | Memory Card-4 MB |
| RS43 | RS-232 cable; (DB9 to DB9), Hydra to PC; 1.8m (6 ft) |
| 26XXA-600 | Hydra Portable Battery Pack |
| 2620A-101 | Current Shunt, 10 Ω, 0.1 % for 0 to 100 mA, Qty (12) |
| M00-200-634 | 19" Rack Mount Kit |
| Y8021 | Shielded IEEE-488 Cable, 1 Meter |
| P/N 889589 | Service Manual |
| C40 | Hydra Carrying Case |
| C44 | Transit Case |

## Application software*

| | |
|---|---|
| 2635A-901 | Hydra Logger |
| 2635A-902 | Hydra Logger with Trending |
| 2600A-904 | Trend Link for Fluke |

*\*IEEE –488 not supported*

- **Universal Input Module:** Connect 20 analog inputs of virtually any sensor type without external signal conditioning
- **Hydra Interfacing:** Use RS–232 interface to connect to printer, PC or modem
- **External Trigger:** Activate scanning with real–world events
- **Totalizer:** Count on/off events, updated at every scan
- **Alarm Outputs:** Flag out–of–limit conditions to external devices
- **Power:** Accepts 90–264 V ac, or 9–16 V dc. Can operate from both simultaneously
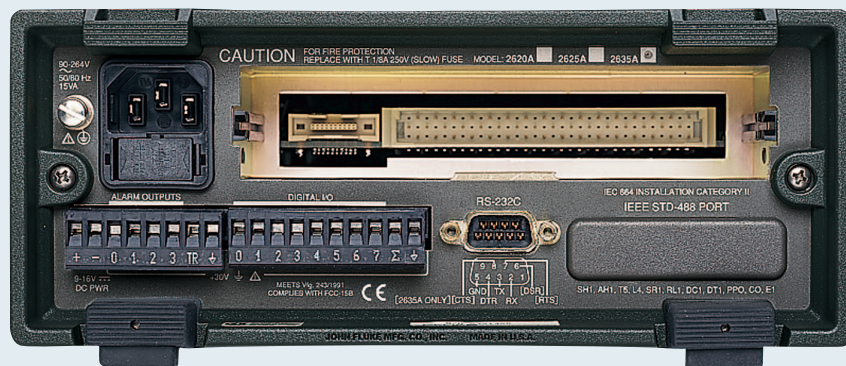


*Hydra Series (Universal Input Module Removed)*

# Hydra™ Series

### Channel capacity
Analog inputs: 21
Digital I/O and alarm outputs: 12 total
Totalizer: 1

### Measurement rate
Slow: 4 Rdgs/s nominal
Fast: 17 Rdgs/s nominal
(1.5 Rdgs/s for V ac, Hz and $\Omega$ inputs nominal)

### Analog to digital converter
Dual slope type, linear to 17 bits
Common mode rejection
AC: ≥120 dB (50/60 Hz, ±0.1 % max 1 k$\Omega$ source imbalance); dc: ≥120 dB

### Normal mode rejection
53 dB (60 Hz, ±0.1 %)
47 dB (50 Hz, ±0.1 %)

### Common mode and normal mode voltage maximum
300V dc or V ac rms (channels 0,1,11) 150V dc or V ac rms (all other inputs)

### Isolation
Analog input to analog input, and analog input to any digital input: meets IEC 1010 for 300/150 volts reinforced and ANSI/ISA-S82.01-1994 and CSA-C22.2 for 250 volts single insulation

### Current measurements
AC or dc current measurements up to 100 mA may be accomplished using the 2620A–101 10 $\Omega$ Current Shunt Strip

### Totalizing input
DC coupled, non-isolated, max +30V, min –4 V
Max count: 65,535
Minimum signal: 2 V peak
Threshold: 1.4 V
Rate: 0–5 kHz (debounce off)
Hysteresis: 500 mV
Input debouncing: None or 1.66 ms

### Digital inputs
Threshold: 1.4 V
Hysteresis: 500 mV
Maximum Input: +30 V, min –4 V; non–isolated

### Digital/alarm outputs
The open collector output lines are non–isolated, TTL compatible

### Alarms associations
Alarm outputs 0–3 are fixed assignments associated to channels 0–3. Alarms for channels 4–19 are mapped to digital I/O lines. Digital I/O may be used as a digital input or alarm status output (associated with any input channel or channels).

# Hydra™ Series Specifications

## Hydra™ Series

| Input | Range | Resolution | Accuracy (3-Sigma)[1] |
|---|---|---|---|
| DC Volts | 90 mV to 150/300 V | 1 µV to 10 mV | 0.018 % |
| AC Volts[2] | 300 mV to 150/300 V | 10 µV to 10 mV | 0.13 % |
| Resistance | 300 Ω to 10 MΩ | 10 mΩ to 1 KΩ | 0.013 % |
| Frequency | 15 Hz to 1 MHz | 0.01 Hz to 1 kHz | 0.05 % |
| RTD (Pt100) | –200 to 600 ℃ | 0.02 ℃ | 0.05 ℃ |
| **Thermocouples** | | | |
| J | –100 to 760 ℃ | 0.1 ℃ | 0.39 ℃ |
| K | –100 to 1372 ℃ | 0.1 ℃ | 0.45 ℃ |
| T | –150 to 400 ℃ | 0.1 ℃ | 0.39 ℃ |
| *Other Thermocouple types R, S, B, C, E, N* | | | |

Detailed specifications are available on request.

[1] Total instrument accuracy for 90 days following calibration and ambient temperature range of 18 to 28 °C. Includes A/D errors, linearization conformity, initial calibration error, isothermality errors, reference junction conformity and power line voltage effects within the range from 90 V ac to 264 V ac.

[2] Accuracies for crest factor to 2.0.

## Hydra™ 2635A Memory Card capacity—number of scans

| Memory Card Size | Channels in Scan | | |
|---|---|---|---|
| | 4 | 10 | 20 |
| 256 KB | 8900 | 4800 | 2710 |
| 1 MB | 36860 | 19860 | 11210 |
| 2 MB | 74110 | 39910 | 22550 |
| 4 MB | 149039 | 80251 | 45359 |

### Trigger input
Minimum pulse: 5 µs
Maximum latency: 100 ms
Repeatability: 1 ms
Input "High": 2.0 V min, 7.0 V max
Input "Low": –0.6 V min, 0.8 V max
non-isolated, contact closure and TTL compatible

### Clock
Accurate to within 1 minute/month for 0 to 50 °C range

### Power
90 to 264 V ac 50 or 60 Hz (<10 watts), or 9 to 16 V dc (<4 watts). (If both sources are applied simultaneously, the greater of ac or dc is used.) At 120 V ac the equivalent dc voltage ~ 14.5 V.

### Temperature, humidity (non-condensing)
Operating:
0 to 28 °C, ≤90 % RH
28 to 40 °C, ≤75 % RH
40 to 60 °C, ≤ 50 % RH
Storage: –40 to 75 °C,
5 to 95 % RH

### Electromagnetic Interference (EMI)
Passes FCC EMI Class B Equipment, VDE 0871B, and CE-EN61010, CE approved

### Safety
Complies with applicable sections of the IEC1010, ANSI/ISA-S82.01-1994, CSA-C22.2, and CE standards as noted above

### Weight
3.0 kg (6.5 lbs)
Dimensions (HxWxD)
9.3 cm x 21.6 cm x 31.2 cm
(3.67" x 8.50" x 12.28")

### Interfaces
RS-232
IEEE-488 (Optional, 2620A only) – Disables RS-232 interface while in use

## Hydra™ 2625A Data Memory
• Stores 2,047 scans

### Scan contents
• Memory life: 5 years minimum; at 25 °C
• Date and time stamp
• All defined analog input channel values
• Status of four alarm outputs and eight digital I/O
• Totalizer count