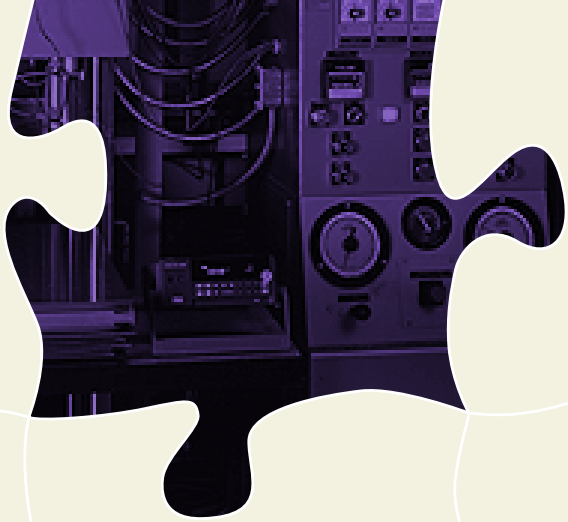
FLUKE®



Data Acquisition
Portable, Wireless, Networked

The complete picture in data acquisition

Fluke's Family of Data Acquisition Products

Portable, wireless, and networked data acquisition

Fluke offers three types of data acquisition tools representing three ways to transfer data.

Getting accurate data where you want it, when you want it, and in a form that you can work with is a universal goal. That's true whether you're designing airplanes or automobiles; manufacturing steel or processing chemicals. For accurate, reliable, quick data acquisition, Fluke is the common denominator.

Fluke data acquisition products feature unique built-in universal signal conditioning and a plug-in Universal Input Module to provide enormous flexibility. This allows you to accurately measure a wide range of parameters simultaneously without the expense or inconvenience of additional equipment.

Powerful, easy-to-use Windows®-based software supports easy configuration, advanced trend analysis, and professional-quality reporting, without any programming.

Hydra Series

The portable Hydra Series transfers data either to internal memory (Hydra Data Logger), to a removable memory card (Hydra Data Bucket), or directly to your PC (Hydra Data Acquisition Unit).

Wireless Logger™

The go-anywhere Wireless Logger™ transfers data in real time via a secure RF link to a wireless modem connected to your PC. Its wireless design enables it to transmit through buildings, walls, and floors and makes it convenient for remote locations. It also saves the expense of cabling in any location.

NetDAQ®

Distributed NetDAQ units plug right into your existing networks to send data directly to a PC. This saves the cost of setting up a new network and allows multiple users to simultaneously view data in real time. NetDAQ units can also be used as a portable dedicated system connected to a notebook computer for maintenance, product validation, research, and troubleshooting applications.

Shared features

While their applications vary, all three product lines share a number of unique features.

Unique built-in signal conditioning saves time and money
Fluke's data acquisition products are the first to integrate signal conditioning directly into the instrument. You can assign any measurement function—thermocouple, RTD, volts, frequency, or ohms—to any or all channels.

Removable Universal Input Module connects any signal
The key to the flexibility of all Fluke data acquisition products is our unique, patented Universal Input Module that allows you to connect and measure virtually any electrical or physical parameter.

Thermocouple reference junction compensation occurs automatically by sensing the temperature of the input module's isothermal block.

Virtually any combination of sensor or signal lines may be connected to the input module which is plugged into the back of the data acquisition unit. You can pre-wire extra input modules at each test site and move your data acquisition units from one location to another.

Rugged design for reliable performance

Fluke data acquisition products are designed to stand up to rugged industrial environments with some models operating from -20° to 60°C. A sturdy metal chassis effectively shields against electromagnetic interference so you can maintain high measurement accuracy on low-level signals regardless of surrounding noise. They are tested to stringent shock and vibration standards and to withstand surges of up to 1500V input on most models. All units conform to IEC, CSA, and CE standards.

Isolated circuitry for top accuracy

Fluke analog measurement circuitry is fully isolated channel-to-channel, input-to-output, and input-to-ground. This isolation supports direct measurement of voltages up to 300V AC rms.

Scan triggers, including interval, push button, external, and alarm triggers, scan all defined channels.

Monitor any channel from the front panel.

Mx+B scaling is available on each channel.

Selectable measurement rates from 4 Rdgs/s up to 1000 Rdgs/s, depending on model.

Front panel lockout prevents unauthorized tampering or accidental setup changes.

Alarms, two for each channel, can be independently set for high or low sense.

Real time clock provides precise time stamping of data.

Closed-case calibration for reliability and traceability.

Operates on AC or DC power.

Model Series	Universal Signal Conditioning	Basic DC Accuracy	PC Interface	Channels Per System	Max Reading Rate (Rdgs/s)
Hydra Series	Yes	0.018%	RS-232 PCMCIA IEEE-488	21 to 42	17
Wireless Logger	Yes	0.018%	RF Modem	21 to 420	17
NetDAQ	Yes	0.01%	Ethernet (TCP/IP)	20 to 400	1000

Application software

No programming required

Windows®-based logger software makes instrument configuration and data analysis as easy as a few mouse clicks. You can create multiple setup files and save them either to your hard disk or to a memory card for quick reconfiguration. You can also save data in a variety of file formats and establish Dynamic Data Exchange (DDE) links with spreadsheet programs to analyze the data in real time.

Advanced trending capabilities

Optional Trend Link for Fluke software enables you to easily access, view, analyze and compare tremendous amounts of real time or historical data from any Fluke data acquisition product, making paper chart recorders obsolete. Trend Link is designed to make it easy to zoom in on data, review and compare historical data to real-time data, compare batch processing operations, and automatically view statistics on any channel.

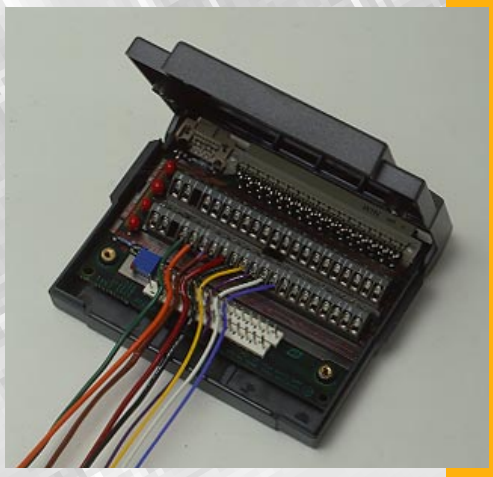
Data acquisition for any application

Any data acquisition application that requires high accuracy, easy setup, portability, and convenience calls for Fluke data acquisition. Fluke data acquisition products are widely used for:

- R & D applications.
- Environmental testing.
- Product testing and process validation.
- Troubleshooting.
- Manufacturing test systems.
- And much more.

Whether you're gathering data at a high-voltage substation, in a clean room, on a production line, or on an automotive test track, Fluke data acquisition products can make your job easier.

Universal Input Module
Connect any sensor type or input signal to any channel—internal signal conditioning automatically switches to correct function.



Thermocouple

AC Current

AC Voltage

DC Current

DC Volt

POT.

RTD

Frequency

Ohms

Hydra Series

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 the 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.

Three models 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.

2635A Hydra Data Bucket

The ideal choice for gathering and transporting large volumes of data and for working extended periods from remote locations.

Flexibility
The Hydra Data Bucket comes equipped with a 256 KB PCMCIA card and is also available with either a 1 MB, 2 MB, or 4 MB memory card to suit your data storage needs. Data may be up-loaded from these cards via the Hydra RS-232 port, the optional 263XA-803 memory card drive, or from your computer's standard PCMCIA slot. Real-time data can be simultaneously transferred to a PC at the same time it is recorded to the memory card.

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

Fail-safe features
The Hydra Data Bucket gives advance indication 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.

2625A Hydra Data Logger

A low-cost alternative for stand-alone monitoring operations.

Internal memory
A built-in nonvolatile memory that can store more than 2000 scans.

Flexible data retrieval
The ability 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

Hydra 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 easily allows you to 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

Optional Hydra Logger software provides an intuitive graphical interface that makes it even easier to configure and access your Hydra unit's powerful features without any programming.

Easy portability and quick configuration for convenient field use.

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

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

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)

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
26XXA-600	Hydra Portable Battery Pack
2620A-101	Current Shunt, 10Ω, 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

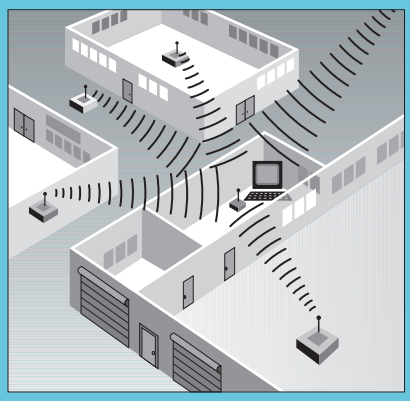
Application software

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

Wireless Logger™

RF-linked data acquisition eliminates the obstacles to gathering data

With the Fluke Wireless Logger, you can collect and transmit data via a secure RF link from virtually any location—no matter how inaccessible—without the expense or hassle of running cable long distances.



The Wireless Logger satellite consists of a Hydra Data Logger (2625A) and a 2.4 GHz wireless modem, both housed in a protective soft-sided carrying case. Built-in signal conditioning eliminates the need to add additional components for signal or sensor interfacing.

Back at the office, attach the wireless base station modem to the RS-232 port on your PC, install Wireless Logger for Windows software, transmit your setup information and you're ready to start collecting data.

Spread spectrum RF technology clears the way

Unlike traditional narrow band RF transmission that is susceptible to electromagnetic interference, the spread spectrum technology used in the Wireless Logger is ideal in areas where narrow band equipment fails. It was developed for military communications systems requiring exceptional immunity to electromagnetic interference and high data transmission integrity. This means you won't have to worry about motors, solenoids, walkie-talkies, and other sources of severe electrical interference interrupting your transmissions. It transmits up to 120 meters through walls and floors, or up to 300 meters in line-of-sight applications using the modem.

This technology also allows the Wireless Logger to coexist with other electronic equipment. Its power output is lower than cellular phones. The spreading techniques and frequency dwell times used by the Wireless Logger modems produce an effective peak power at any frequency that is lower than equivalent narrow band transmission—too low to disrupt or interfere with other electronic instrumentation. And, it complies with FCC part 15C and does not require an FCC site license. The optional 2.4 GHz modem is ETSI certified for operation in most European and many other countries.

Saves on hazardous duty

The Wireless Logger thrives on tough jobs that would put people at risk. Whether it's placed at the top of a smokestack, or surrounded by toxic materials, high voltage, or exhaust fumes, the Fluke Wireless Logger is quick to set up and can take the heat.

Fault tolerance prevents data loss

Each Wireless Logger satellite can store more than 2000 scans in its nonvolatile buffer. If your PC goes down during data acquisition, the Wireless Logger satellite continues to collect measurements. When your PC comes back on line, the data collected in the interim can be transferred to your data file automatically.

Windows®-based software extends versatile performance

Wireless Logger for Windows software makes it easy to configure and communicate with up to 20 Wireless Logger satellites at the same time through a single spread spectrum modem connected to your PC. And you can share that data with spreadsheet programs in real time.

Easy to set up and verify

A wireless base station that includes Wireless Logger software, base station modem, and a Wireless Logger satellite are all you need to start collecting data.

Its unique Site-Survey feature makes it easy for one person to set up satellites and verify communication between the satellite and the base station.

Wireless Logger™ features

- No cables to run or maintain
- Up to 300m range
- Spread spectrum technology provides exceptional immunity to electromagnetic interference, high-data transmission integrity, and security
- Site-Survey capability enables one person to set up satellites and verify communication to the base station
- High fault tolerance to continue recording data if PC goes down
- Supports up to 20 units for a total of 420 channels

Base Station
Real-time data collection from up to 20 Wireless Logger satellites using the Wireless Logger Base Station.

Basic System	Channel Capacity	Interface	Range (line-of-sight/ indoors, typical)
2625A/W2 (Satellite) and 26X5A/W2-700 (Base Station)	21 to 420	RF Modem (Spread Spectrum) (2.4 GHz)	300m 120m

Ordering information

2625A/W2 (2.4 GHz)	Wireless Logger Includes: 2625A Hydra Data Logger system, one (2.4 GHz, FCC; ETSI certified) wireless modem with power module, C42 Carrying Case, manual
2625A/W2-700 (2.4 GHz)	Wireless Logger Base Station Includes: One wireless modem (2.4 GHz, FCC; ETSI certified), Wireless Logger for Windows software, cables, manual

Options and accessories

26X5A/W2-701 (2.4 GHz)	Hydra Wireless Conversion Kit Includes: (2.4 GHz) wireless modem with power module, C42 Carrying Case (used to convert 2625A or 2635A to wireless operation)
26XXA-705	Wireless Logger Portable Battery Pack Includes: Charger, carrying case, modem power module, connector cable, battery (6.5 Ah@ 12V)
C42	Wireless Logger Carrying Case
C44	Transit Case
2620A-100	Extra Universal Input Module
2620A-101	Current Shunts, 10Ω, for 0-100 mA, Qty (12)

NetDAQ®

Delivers versatile solutions for distributed data acquisition

Fluke NetDAQ networked data acquisition units are a powerful combination of hardware and software seamlessly integrated to deliver your data directly over your network. These systems, with Trend Link software, enable multiple users to view only the information they need in real time, from anywhere on the system. View current, temperature, voltage, and more on the same screen at the same time. You can also monitor several units simultaneously making it ideal for applications such as equipment monitoring, product testing, and process validation. NetDAQ replaces aging chart recorders and adds future expandability to your measurement system.

You can combine from one to twenty NetDAQs into an integrated NetDAQ system of up to 400 channels. Use an existing network or simply connect directly to your PC. Two models offer a choice of scan speeds (up to 1000 Rdgs/s), and accuracy (up to 0.01%) to meet your needs.

NetDAQ® 2640A

NetDAQ delivers extremely high accuracy and resolution to provide calibration-level performance. It measures up to 300V at up to 100 Rdgs/s with 0.01% volts DC accuracy and 18-bit resolution, scanning 6 to 100 Readings per second.

NetDAQ® 2645A

NetDAQ delivers higher speed data acquisition making it ideal for applications that require more dynamic signal capture. It directly measures multiple inputs of up to 50V at 1000 Rdgs/s with 0.01% volts DC accuracy and 16-bit resolution, scanning 48 to 1000 Readings per second.

NetDAQ® fits into your system

The versatile NetDAQ system offers flexible options for data distribution.

Configure a dedicated system
Simply daisy-chain one or more NetDAQ units to your desktop or notebook PC for quick, easy data collection.

Add NetDAQ® units to your network
Adding NetDAQ units directly to your network saves the time and expense of setting up a large network. This capability also enables you to provide data access to any or all users on your network. NetDAQ Logger software works with any Ethernet network that uses TCP/IP communications protocol and supports major network operating systems including Novell®, Windows for Workgroups, Windows NT®, and Windows 95. Built-in 10Base-2 (coax) and 10Base-T (twisted pair) connectors give you options for hookup configuration.

Add a dedicated NetDAQ® system to your company network
Isolate your data acquisition application from the rest of the network while still allowing multiple-user viewing. This prevents your data acquisition application from being hampered by network operations and protects it from network failure.

Quick results you can rely on
The NetDAQ system supports 3000 readings per second from multiple instruments ensuring high throughput for all units. Plus NetDAQ's on-board memory provides a data buffer in case network traffic prevents timely delivery of time-stamped data to the host PC.

Computed channels save time
In addition to its 20 analog input channels, each NetDAQ unit supports 10 computed channels.

It performs custom calculations using addition, subtraction, multiplication, division, log, natural log, exponent, square root, absolute value, and integer functions. Math channels have the same alarm capability as analog channels. This saves the time of performing separate post calculations on channel data and is especially helpful for monitoring and alarming on real time calculated values such as power, flow, volumes, pressure, and more.

NetDAQ® Logger and optional trending software keep you on top of the situation

The highly intuitive NetDAQ Logger software makes it easy to set up and configure up to 20 NetDAQs. Combining NetDAQ Logger software with Fluke's optional trending software enables multiple users to easily monitor processes and import data into spreadsheet programs for further analysis. This provides more efficient operation and improved productivity.

NetDAQ Logger software supports up to 400 channels and offers a choice of English, French, Spanish, or German during installation.

Developer's Toolbox for system integration

Fluke offers an optional NetDAQ Developer's Toolbox to allow programmers and developers to automate and customize NetDAQ operation using Visual Basic, C or C++ programming languages.

It includes a set of routines which manipulate NetDAQ measurement hardware through NetDAQ Logger for Windows software allowing you to:

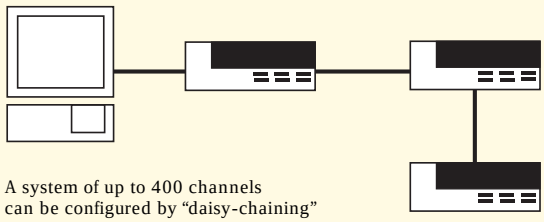
- Create custom user interfaces for NetDAQ applications.
- Access real time data and store it in any format, such as a custom database.
- Automatically load different setup files.
- Change Mx+B values for each channel on an instrument.
- Control digital I/O channels.
- Access and control NetDAQ's serial port.

NetDAQ® features

- Expandable systems from 20 to 400 channels
- High accuracy readings, up to 0.01%
- Higher throughput, to support up to 3000 readings per second
- Distributed design enables multiple users, equipped with Trend Link software, to view trend data at the same time
- Network flexibility enables you to add to your existing network or set up as a dedicated system

Model	Reading/sec (Max)	Resolution (Volts DC)	Max. Input (Volts DC)	Basic TC Accuracy (Type T)
2640A	100	0.3 mV	150/300*	0.3ºC
2645A	1000	3.0 mV	50	0.7ºC

*300V max for channels 1, 11; all others 150V



A system of up to 400 channels can be configured by "daisy-chaining" multiple NetDAQ units to one PC.

Ordering information

2640A	NetDAQ Data Acquisition Unit (100 Rdgs/s)
2645A	NetDAQ Data Acquisition Unit (1000 Rdgs/s)

Includes: Instrument, Universal Input Module, 4m Coax cable, 50Ω terminator, Y BNC adapter, power cable. (User manual included with NetDAQ Logger software.)

Application software

2640A-911	NetDAQ Logger
2640A-912	NetDAQ Logger with Trend Link
2600A-904	Trend Link for Fluke
264XA-903	Developer's Toolbox

Options and accessories

264XA-801	Ethernet Card (10Base-2, 10Base-T) PC plug-in
264XA-802	Parallel-to-LAN Adapter (10Base-2)
264XA-803	PCMCIA-to-LAN Adapter (10Base-2, 10Base-T)
2620A-100	Extra Universal Input Module
2620A-101	Current Shunts, 10Ω, for 0 to 100 mA, Qty (12)
Y2641	19" Rack Mount Kit, single/dual
Y2642	Wall/Cabinet Mounting Plate
Y2644	NEMA 4X (IP65) Enclosure
C44	Transit Case

Data Logging Software

Puts your data to work

Fluke offers logger software for all our data acquisition units. These Windows®-based programs turn your PC into a powerful tool for data acquisition, without any programming. They support:

- Configuration of signal conditioning for sensors and signals connected to the Universal Input Module.
- Data logging functions like intervals, triggering, alarms, signal scaling and engineering units.
- Easy data exchange by recording data in a file format that's easily imported into other applications such as spreadsheets.
- Dynamic Data Exchange (DDE) allows you to establish links for sharing data in real time with Windows-based spreadsheet programs such as Microsoft Excel, Lotus 1-2-3, and InTouch by WonderWare. Data is updated every second.

Hydra Logger software

Hydra Logger software provides easy access to all the powerful features in the Hydra Series.

- Access one or two Hydra instruments at one time via RS-232
- Establish modem communications for remote data acquisition
- Convert files to .CSV or Trend Link formats
- Copy files from a Data Bucket memory card to the PC
- Store Data Bucket configurations on a memory card for easy one-step field setup

Wireless Logger™ for Windows software

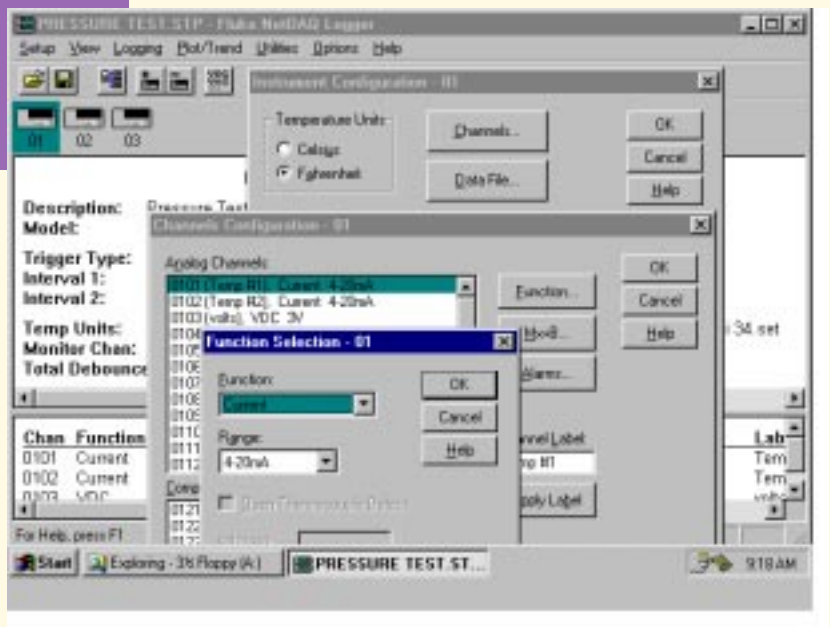
This easy-to-use software enables you to communicate to Wireless Logger satellites through a single spread spectrum modem connected to your PC.

- Configure remote communications with up to 420 channels (20 Wireless Loggers)
- Site Survey feature helps determine working distance
- Set software to alert you to alarm events at your PC

NetDAQ® Logger software

NetDAQ Logger software allows you to easily configure and reconfigure your system and view your data.

- Set up multiple NetDAQ units (up to 20), distributed throughout your facility in a grouped mode to create a "virtual instrument" that synchronizes and directs all data to a single data file
- Save valuable disk space by recording only readings outside the range of your normal process limits
- Easy network configuration
- Advanced triggering modes
- File rollover feature automatically creates a new data file at a specific time or size



All logger software features point-and-click configuration dialogs.

Trend Link for Fluke software

Combine easy analysis and reporting with Trend Link for Fluke software. Trend Link for Fluke software is a comprehensive trend plotting, batching, and analysis package. It combines the look and feel of a chart recorder with the analytical power of your PC. Trend Link software is available for the full line of Fluke data acquisition instruments—Hydra Series, Wireless Logger, and NetDAQ.

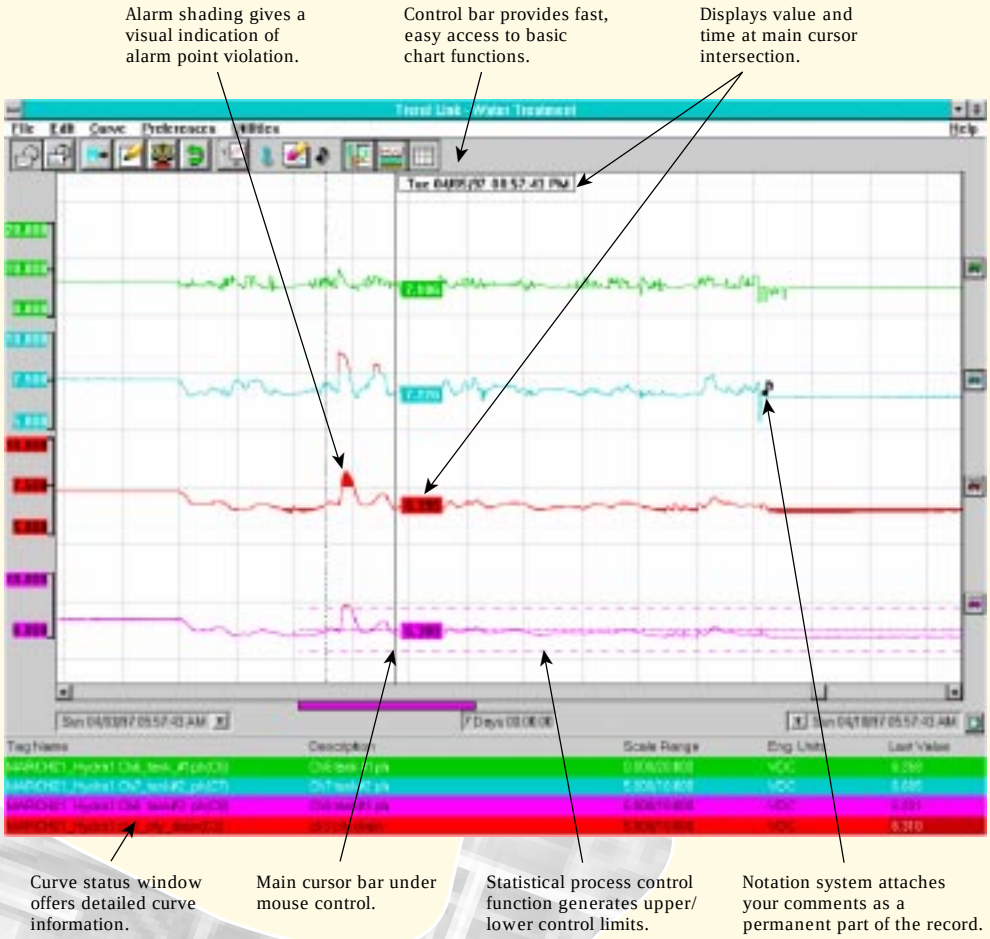
- Review real-time data in the context of historical data for performance or batch comparisons
- Compare multiple channels from different time periods
- Zoom in on a particular time span for closer analysis
- View multiple windows—each featuring different process parameters—in real time
- Calculate basic statistics such as mean and standard deviation for any trend
- Create X-bar R charts and X-Y scatter diagrams for statistical analysis
- Import data directly into spreadsheet programs from trend plots
- Attach text notes to any point on a trace that become part of a permanent record

Quickly find specific data

Trend Link enables you to quickly scroll through volumes of historical and real-time data looking for key events or changes in the process. When you find what you're looking for, you can compare multiple traces against each other on the same screen or zoom in on a particular point in time.

Document your results

The data and trend plots you generate with Trend Link software can be easily cut and pasted into spreadsheet and word processing programs to generate presentation-quality reports. Or you can print plots directly for hard copy documentation.



Data logging software availability chart

Application Software	Instrument Model						
	2620A	2620A/05	2625A	2635A	2625A/WL	2640A	2645A
Hydra Logger[2] 2635A-901	•		•	•			
Hydra Logger with Trend Link[2] 2635A-902	•		•	•			
Wireless Logger 26X5A/WL-902					•		
NetDAQ Logger[1,2] 2640A-911						•	•
NetDAQ Logger with Trend Link[1,2] 2640A-912						•	•
Trend Link for Fluke[1,2] 2600A-904	•		•	•	•	•	•
Developer's Tool Box 264XA-903						•	•

[1] Programs will automatically install the appropriate 16- or 32-bit software based on the resident operating system (Windows 3.1, Windows 95, or Windows NT) at time of installation.
[2] Language support for English, French, Spanish and German.

Hydra/Wireless Logger™ Specifications

- 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 90-264V AC, or 9-16V DC. Can operate from both simultaneously

Hydra rear panel.

Hydra Series and Wireless Logger™

Channel capacity
Analog inputs: 21
Digital I/0 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 Ω 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 kΩ 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 10Ω Current Shunt Strip

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

Digital inputs
Threshold: 1.4V
Hysteresis: 500 mV
Maximum Input: +30V, min -4V; 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).

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

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

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

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

Dimensions (HxWxD)
9.3 cm x 21.6 cm x 31.2 cm

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

Wireless Logger™ Modems

2625A/W2; 2625A/W2-700 (2.4 GHz band)

Power output
100 mW

Frequency
2.4-2.4835 GHz; frequency hopping

Radio range
120m, indoors
300m, line-of-sight; typical

Input voltage
6 to 15V DC

Input current
Rx = 675 mA
Tx = 850 mA
Standby = <40 mA

Operating temperature
0 to 60°C

Weight
200 grams

Dimensions (HxWxD)
13.5 cm x 7.5 cm x 1.7 cm

Humidity
20% to 90% (non-condensing)

Certifications
FCC: Part 15C - No license required
ETSI: ETS 300 328 Type Test (Europe)
CE: EMC (EN 55022 and EN 50082-1); LV (EN 60950)

Wireless Logger satellites supported
Up to 20 Hydra Wireless Logger satellites can be supported by a Wireless Base Station

Hydra Series and Wireless Logger™

Input	Range	Resolution	Accuracy (3-Sigma)[1]
DC Volts	90 mV to 150/300V	1 µV to 10 mV	0.018%
AC Volts[2]	300 mV to 150/300V	10 µV to 10 mV	0.13%
Resistance	300Ω 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°C	0.02°C	0.05°C
Thermocouples			
J	-100 to 760°C	0.1°C	0.39°C
K	-100 to 1372°C	0.1°C	0.45°C
T	-150 to 400°C	0.1°C	0.39°C
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 90V AC to 264V 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

NetDAQ® Specifications

- Universal Input Module: Connect 20 analog inputs of virtually any sensor type without external signal conditioning
- NetDAQ Interfacing: Ports for both 10Base-2(coaxial) and10Base-T (twisted pair) are provided for convenient network cabling. RS-232 input for calibration
- External Trigger: Activate scanning with real-world events
- Totalizer: Count on/off events, value reported with every scan
- Alarm Outputs: Flag out-of-limit conditions to external devices
- Power: Accepts 107-264V AC, or 9-16V DC. Can operate from both simultaneously for fail-safe power operation

NetDAQ rear panel.

NetDAQ® 2640A/2645A

Channel capacity
Analog inputs: 20
Computed channels: 10

Computed channels
Ten computed channels can be created by processing analog input channels and other computed channels with addition, subtraction, multiplication, division, log, natural log, exponent, square root, absolute value, and integer functions.

In addition, the following predefined selections are available: the average of a group of channels, the difference between any two channels, the difference between a channel and a group of averaged channels.

Measurement rate (2640A)
Slow: 6 Rdgs/s nominal
Medium: 41 (50 Hz), 48 (60 Hz) Rdgs/s nominal
Fast: 100 Rdgs/s nominal
(5 Rdgs/s for V AC nominal, 140 Rdgs/s on 300Ω range, 37 Rdgs/s on 3 MΩ range)

Measurement rate (2645A)
Slow: 45 (50 Hz), 54 (60 Hz) Rdgs/s nominal
Medium: 200 Rdgs/s nominal
Fast: 1000 Rdgs/s nominal
(5 Rdgs/s for V AC nominal, 370 Rdgs/s on 300Ω range, 44 Rdgs/s on 3 MΩ range)

Analog to digital converter
2640A: Multi-slope type, linear to 18 bits
2645A: Multi-slope type, linear to 16 bits

Common mode rejection
2640A: AC: ≥120 dB (50/60 Hz, ±10.1% max 1 kΩ source imbalance);
DC: ≥120 dB
2645A: AC: ≥100 dB (50/60 Hz, ±10.1% max 1 kΩ source imbalance);
DC: ≥100 dB

Normal mode rejection
50 dB @ 50/60 Hz, ±10.1%

Common mode and normal mode voltage maximum
2640A: 300V DC or V AC rms (channels 1,11); 150V DC or V AC rms (all other channels)
2645A: 50V DC or 30V AC rms (all channels)

Isolation
2640A: Analog input to analog input, and analog input to any digital input; meets IEC 1010-1 Category II ANSI/ISA-82.01-1994 and CSA-C22.2 No. 1010.1-92 for 150/300 volts reinforced
2645A: Analog input to any digital input; meets IEC 1010 Category II, ANSI/ISA-82.01-1994 and CSA-C22.2 No. 1010.1-92 for 150/300 volts reinforced

Current measurements
AC or DC current measurements up to 100 mA may be accomplished using the 2620A-101 10Ω Current Shunt Strip

Totalizing input
DC coupled, non-isolated, max +30V, min -4V
Max count: 4,294,967,295
Minimum signal: 2V peak
Threshold: 1.4V
Rate: 0-5 kHz (debounce off)
Hysteresis: 500 mV
Input debouncing: None or 1.66 ms

Digital inputs
Threshold: 1.4V
Hysteresis: 500 mV
Maximum input: +30V, min -4V; non-isolated

Digital/master alarm outputs
The open collector output lines are non-isolated, TTL compatible

Digital I/O and alarm outputs
8 total; totalizer: 1

Alarm associations
Digital I/O may be used as a digital input or alarm status output (associated with any input channel or channels)

Trigger input
Minimum pulse: 5 µs
Minimum latency: 2 ms
Repeatability: 1 ms
Input "High": 2.0V min, 7.0V max
Input "Low": -0.6V min, 0.8V max
non-isolated, contact closure and TTL compatible

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

Power
107 to 264V AC, 50 or 60 Hz (<15 watts), or 9 to 16V DC (<6 watts). (If both sources are applied simultaneously, the greater of AC or DC is used.) At 120V AC the equivalent DC voltage ~14.5V.

Temperature, humidity (non-condensing)
Operating:
-20 to 28°C, ≤90% RH
28 to 40°C, ≤75% RH
40 to 60°C, ≤50% RH
Storage: -40 to 70°C, 5 to 95% RH

Altitude
Operating: 2000m
Storage: 12,200m

Electromagnetic Interference (EMI)
Passes FCC EMI Class B Equipment, Vfg. 243, European Norms EN50081-1 and EN50082-1, CE approved

Safety
Complies with applicable sections of CE, IEC 1010-1, ANSI/ISA-S82.01-1994, CSA-C22.2 No. 1010.1-92 and CSA standards as noted under "Isolation"

Weight
3.7 kg

Dimensions (HxWxD)
9.3 cm x 21.6 cm x 39.4 cm

Battery life
10 years minimum for real-time clock

Interfaces
Ethernet: Conforms to IEEE 802.3 Ethernet standard. Compatible with 10Base-2 and 10Base-T standards. Uses TCP/IP protocol.
RS-232C: For calibration only. The optional NetDAQ Service Manual provides step-by-step calibration instructions.

Data buffer memory
Each scan consists of computed channels, time stamp, all defined analog input channels, the status of the eight digital I/O, and the totalizer count.

The number of stored scans varies with the number of channels configured ranging from 6400 scans for 1 configured channel to 1,896 scans for 20 configured channels.

Model 2640A NetDAQ®

Input	Range	Resolution	Accuracy (3-Sigma)[1]
DC Volts	90 mV to 150/300V	0.3 µV to 1 mV	0.01%
AC Volts[2]	300 mV to 150/300V	10 µV to 10 mV	0.3%
Resistance	300Ω to 3 MΩ	1 mΩ to 10Ω	0.015%
Frequency	15 Hz to 1 MHz	0.01 Hz to 100 Hz	0.05%
RTD (Pt100)	-200 to 600ºC	0.003ºC	0.06ºC
Thermocouples			
J	-100 to 760ºC	0.02ºC	0.35ºC
K	-100 to 1372ºC	0.02ºC	0.4ºC
T	-100 to 400ºC	0.02ºC	0.3ºC
Other Thermocouple types R, S, B, C, E, N			

Model 2645A NetDAQ®

Input	Range	Resolution	Accuracy (3-Sigma)[1]
DC Volts	90 mV to 50V	3 µV to 10 mV	0.02%
AC Volts[2]	300 mV to 30V	10 µV to 1 mV	0.3%
Resistance	300Ω to 3 MΩ	10 mΩ to 100Ω	0.02%
Frequency	15 Hz to 1 MHz	0.01 Hz to 100 Hz	0.05%
RTD (Pt100)	-200 to 600ºC	0.03ºC	0.16ºC
Thermocouples			
J	-100 to 760ºC	0.2ºC	0.7ºC
K	-100 to 1372ºC	0.2ºC	0.8ºC
T	-100 to 400ºC	0.2ºC	0.7ºC
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 107V AC to 264V AC.

[2] Accuracies for crest factor to 2.0.

FLUKE®

Fluke measurement specification philosophy

The accuracy specifications for Hydra and NetDAQ instruments are calculated conservatively so that they include three standard deviations from the nominal value—this is referred to as 3-Sigma. Greater than 99.7% of the instruments produced will perform within the error limits. Rigorous screening and testing procedures catch and correct the three out of 1000 instruments which could have fallen outside their published specifications. Many other products use a 'root-sum-square' scheme, or only specify the error band within one standard deviation (1-Sigma) of nominal. This method produces a specification that appears to be more accurate, but the resulting "typical" specifications correctly characterize only ~66% of the instruments produced. This method is kind of like knowing how accurate "most of the instruments" will be. NetDAQ's 3-Sigma specifications tell you how accurate ALL of the instruments will be.

Note: Listed specifications are summary in nature. Accuracies listed are most favorable within the stated range. You may obtain detailed specifications by contacting the offices listed on this page.

For complete product specifications or information on other Fluke products, contact your local Fluke sales representative.

Customer support

Choosing a data acquisition system that meets your specifications is just the first step in making a smart equipment investment. You also need to choose a company that can help you get up and running quickly and easily and that will support you throughout the life of the system.

Fluke has addressed these issues by assembling a wide variety of searvices that are solidly backed by our sales and application support teams, world-wide service centers, and state-of-the-art parts supply system. Our offerings range from comprehensive service programs and technical training to custom programming and system consulting.

Extended warranty service agreements

Warranty extensions are available, in some locations to cover necessary repairs and performance testing, including parts, labor, and return-surface freight costs. Warranty extensions may not be available in all countries. Contact your local Fluke sales office for specific details.

Service parts and spare parts kits

A complete inventory of Fluke replacement parts, subassemblies, and modules are available.

Contact your local sales office to find out more about the service programs available in your area or to develop a customer program that suits your needs and budget.

Fluke. *Keeping your world up and running.*

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