

NetDAQ® Series



Fluke NetDAQ®

NetDAQ® is designed to fit into your system

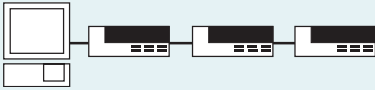
The versatile NetDAQ system offers flexible options for data distribution.

- **Configure a dedicated system.** Simply connect your NetDAQ unit to your desktop or notebook PC for quick, easy data collection.
- **Add NetDAQ® units to your high-speed network.** Adding NetDAQ units directly to your existing network saves the time and expense of setting up large dedicated networks and enables you to implement distributed applications with NetDAQ units in multiple locations enabling multiple PC users to monitor data in real time as it is collected.
- **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 3,000 rps from multiple instruments ensuring high throughput for all units. Plus on-board memory provides a data buffer in case network traffic prevents timely delivery of time-stamped data to the host PC.

Key NetDAQ® features

- Expandable systems from 20 to 2000 analog channels
- High accuracy readings, up to 0.01 %
- High throughput, to support up to 1,000 ch/sec
- Distributed design enables multiple users to view data remotely with standard browsers
- Replaces chart recorders
- **Computed channels save time.** In addition to its 20 analog input channels, each NetDAQ unit supports 10 computed channels. The computed channels perform custom calculations using addition, subtraction, multiplication, division, log, natural log, exponent, square root, absolute value, and integer functions. Math channels feature the same alarm capability as analog channels which saves having to perform separate post calculations on channel data. It is also especially useful for monitoring and alarming on real-time calculated values such as power, flow, volumes, pressure, and more.
- **Count more than four billion "on/off" events.** Both NetDAQ models include a totalizer input channel which is continuously sampled and recorded.





A system of up to 2000 channels can be configured by connecting multiple NetDAQ units to one PC

NetDAQ® 2640A

The Fluke NetDAQ 2640A delivers extremely high accuracy and resolution to provide calibration-level performance:

- Measures up to 300 V at up to 100 rps
- Offers 0.01 % V dc—0.3 °C TC accuracy
- Scans from 6 to 100 channels per second

NetDAQ® 2645A

The NetDAQ 2645A delivers higher speed data acquisition making it ideal for applications that require more dynamic signal capture.

- Directly measures multiple inputs of up to 50 V at 1,000 rps
- Delivers 0.01 % V dc - 0.3 °C TC accuracy
- Scans 48 to 1,000 channels per second



Fluke NetDAQ® rear panel (Universal Input Module removed)

Choose the NetDAQ Model that matches your requirements

Model	Reading/sec (Max)	Resolution (Volts dc)	Max. Input (Volts dc)	Basic TC Accuracy (Type T)
2640A	100	0.3 mV	150/300	0.5 °C
2645A	1,000	3.0 mV	50	0.7 °C

Distributed data acquisition where and when you need it

A Fluke NetDAQ networked data acquisition system is a powerful combination of hardware and FlukeDAQ software (2680A-APSW) that seamlessly delivers data directly over your network. These systems, along with optional Trend Link software, enable multiple users to view just 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 small-to-medium sized equipment monitoring, product testing, and process validation applications. A NetDAQ unit can also be used as a portable dedicated system connected to a notebook computer for maintenance, product validation, research, and troubleshooting applications.

Combine from one to twenty NetDAQs into an integrated system of up to 2000 channels within FlukeDAQ software. Two NetDAQ models offer a choice of scan speeds of 100 channels/second or 1,000 channels/second, and accuracy (up to 0.01 %) to meet your needs. And both NetDAQ models use Fluke’s patented Universal Input Module which accepts any combination of analog input types for each of its 20 channels—without requiring external signal conditioning.

With all these capabilities NetDAQ addresses the escalating need for measurement, recording, and analysis tools that enable you to improve quality, maximize process efficiency and meet regulatory requirements.

NetDAQ specifications

- **Universal input module:** Connect 20 analog inputs of virtually any sensor type without external signal conditioning
- **NetDAQ interfacing:** Ethernet 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 to 264 V ac, or 9 to 16 V dc. Can operate from both simultaneously for fail-safe power operation

NetDAQ® 2640A/2645A

Channel capacity

Analog inputs: 20

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

300 Ω 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

300 Ω 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: 300 V dc or V ac rms (channels 1,11); 150 V dc or V ac rms (all other channels)

2645A: 50 V dc or 30 V ac rms (all channels)

Model 2640A NetDAQ®

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

Model 2645A NetDAQ®

Input	Range	Resolution	Accuracy (3-Sigma) ¹
DC Volts	90 mV to 50 V	3 μV to 10 mV	0.02 %
AC Volts ²	300 mV to 30 V	10 μV to 1 mV	0.3 %
Resistance	300 Ω to 3 MΩ	10 mΩ to 100 Ω	0.02 %
Frequency	15 Hz to 1 MHz	0.01 Hz to 100 Hz	0.05 %
RTD (Pt100)	-200 °C to 600 °C	0.03 °C	0.16 °C
Thermocouples			
J	-100 °C to 760 °C	0.2 °C	0.7 °C
K	-100 °C to 1372 °C	0.2 °C	0.8 °C
T	-100 °C to 400 °C	0.2 °C	0.7 °C
<i>Other Thermocouple types R, S, B, C, E, N</i>			

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 107 V ac to 264 V ac.

² Accuracies for crest factor to 2.0.

Isolation

2640A: Analog input to analog input, and analog input to any digital input; meets IEC measurement category II, ANSI/ISA 61010-1 (82.02.01) :2004, CAN/CSA C22.2 No. 61010-1:2004 for 150/300 V reinforced

2645A: Analog input to any digital input; meets IEC measurement category II, ANSI/ISA 61010-1 (82.02.01) :2004, CAN/CSA C22.2 No. 61010-1:2004 for 150/300 V reinforced

Current measurements

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

Totalizing input

DC coupled, non-isolated, max +30 V, min -4 V

Max count: 4,294,967,295

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

Ordering information

2640A

NetDAQ Data Acquisition Unit (100 rps)

2645A

NetDAQ Data Acquisition Unit (1,000 rps)

Includes: Instrument, FlukeDAQ Software, Universal Input Module, manual on CD, power cable.

Application software

2600A-904

Trend Link for Fluke

2680A-APSW

Fluke DAQ Software and extra license (one license included with 2680 Series, 2640A, 2645A)

Options and accessories

2620A-100

Extra Universal Input Module

2620A-101

Current Shunts, 10 Ω , for 0 to 100 mA, Qty (12)

Y2641

19 in Rack Mount Kit, Single/Dual

Digital inputs

Threshold: 1.4 V

Hysteresis: 500 mV

Maximum input: +30 V, min -4 V; 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 μ s

Minimum latency: 2 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 $^{\circ}$ C to 50 $^{\circ}$ C range

Power

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

Temperature, humidity (non-condensing)

Operating:

-20 $^{\circ}$ C to 28 $^{\circ}$ C, \leq 90 % RH

28 $^{\circ}$ C to 40 $^{\circ}$ C, \leq 75 % RH

40 $^{\circ}$ C to 60 $^{\circ}$ C, \leq 50 % RH

Storage: -40 $^{\circ}$ C to 70 $^{\circ}$ C, 5 to 95 % RH

Altitude

Operating: 2000 m (6,500 ft)

Storage: 12,200 m (40,000 ft)

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/EN 61010-1:2001, ANSI/ISA-61010-1 (82.02.01) :2004, CAN/CSA C22.2 No. 61010-1:2004, and CSA standards as noted under "Isolation"

Weight

3.7 kg (8.2 lbs)

Dimensions (HxWxD)

9.3 cm x 21.6 cm x 39.4 cm
(3.67 in x 8.50 in x 15.50 in)

Battery life

10 years minimum for real-time clock

Interfaces

Ethernet: Conforms to IEEE 802.3 Ethernet standard. Compatible with 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.

Fluke data acquisition systems are supported by a wide variety of optional software and development tools to support almost any research or industrial application.