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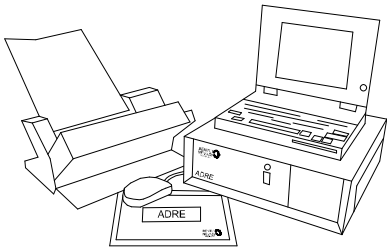
Find the *GE / Bently Nevada ADRE-208-P* at our website: *Click HERE*

ADRE® for Windows® / DAIU

Bently Nevada™ Asset Condition Monitoring



Description

ADRE for Windows® Software (Automated Diagnostics for Rotating Equipment) and the 208 DAIU/208-P DAIU (Data Acquisition Interface Unit) is a portable system for multi-channel (up to 16) machinery data acquisition.

Unlike other general-purpose computer-based data acquisition systems, ADRE for Windows is specifically designed for capturing machinery data. It is an extremely versatile system, incorporating the features and capabilities of oscilloscopes, spectrum analyzers, filters, and recording instruments. As a result, this additional equipment is seldom, if ever, needed. When using the system's real-time display capability, data is presented on the computer screen as it is captured. For users of previous ADRE systems, ADRE for Windows is backwards compatible with existing ADRE 3 databases.

An ADRE for Windows® data acquisition and reduction system consists of:

- One (or two) 208 Data Acquisition Interface Unit(s)[1, 2] **or**
- One (or two) 208-P Data Acquisition Interface Unit(s)[1, 2] **and**
- ADRE for Windows® software **and**

A computer system capable of running ADRE for Windows® software.

The system's Data Acquisition Interface Units can operate using ac or battery power, and are fully portable, allowing convenient operation in test stands or at machinery sites. It is highly configurable to provide support for virtually all standard and non-standard input types including both dynamic transducer signals (such as proximity probes, velocity transducers, accelerometers, and dynamic pressure sensors), static signals (such as process variables from transmitters), and Keyphasor® or other speed input signals. The system also supports multiple triggering modes for automated data acquisition, allowing it to be used as a data or event logger without an operator present.

Notes:

1. A 208 DAIU and a 208-P DAIU may **not** be connected together.
2. The 208 DAIU is a predecessor to the 208-P DAIU and was designed to allow certain older models of Compaq® notebook computers to be connected directly to the 208 using the notebook's docking port connector. A special ISA card is also available for installation in desktop computers, allowing a 208 to be connected. The newer 208-P allows direct connection to an enhanced parallel port (EPP) and is supported by virtually all currently available notebook and desktop computer systems, provided they have an EPP and it can be placed in the EPP mode. The 208-P is recommended for all new applications; because a 208 may not be connected to a 208-P, a 208 is only required for installations in which it must be connected to another existing 208.

Specifications

(DAIUs)

Typical specifications are provided for a temperature of +25°C (+77°F) except where noted. Worst case specification is over the entire operating temperature range of 0°C to +50°C

(+32°F to +122°F) unless specified otherwise.

Signal Conditioning

Direct Measurement Accuracy

Non-RMS Amplitude:

100 to 60k rpm:

- At +25°C (+77°F):

  ±0.77% of input signal and ±0.28% of full-scale range.

- Across operating temperature range:

  ±0.49% of full-scale range.

Non-RMS Amplitude, Integrated:

100 to 60k rpm:

- At +25°C (+77°F):

  ± 3.5% of input signal and ±0.28% of full-scale range.

- Across operating temperature range:

  ±0.49% of full-scale range.

RMS Amplitude:

100 to 600 rpm:

- At +25°C (+77°F):

  ±2.7% of input signal and ±0.31% of full-scale range.

- Across operating temperature range:

  ±0.47% of full-scale range.

600 to 60k rpm:

- At +25°C (+77°F):

  ±0.91% of input signal and ±0.31% of full-scale range.

- Across operating temperature range:

  ±0.47% of full-scale range.

RMS Amplitude, Integrated:

100 to 600 rpm:

- At +25°C (+77°F):

  ±3.4% of input signal and ±0.31% of full-scale range.

- Across operating temperature range:

  ±0.47% of full-scale range.

600 to 60k rpm:

- At +25°C (+77°F):

  ±3.5% of input signal and ±0.31% of full-scale range.

- Across operating temperature range:

  ±0.47% of full-scale range.

Filtered Measurements

Filter Bandwidth:

Selectable in software,

12 cpm or 120 cpm

(0.2 Hz or 2.0 Hz).

Filter settling time to 99% of final value:

120 rpm bandwidth < 0.733 seconds

12 rpm bandwidth < 7.33 seconds

1X, 2X, nX Amplitude Accuracy:

100 to 225k rpm:

- At +25°C (+77°F):

  ±0.79% of input signal and ±0.21% of full-scale range.

- Across operating temperature range:

  ±0.84% of input signal and ±0.21% of full-scale range.

1X, 2X, nX Phase Accuracy (Steady-State)[1,2,5]:

100 to 360 rpm -5.0° to -9.0°

360 to 1440 rpm 0.0° to –3.0°

1440 to 10k rpm ±2.0°

10k to 60k rpm –2.0° to 5.0°

60k to 225k rpm 0.0° to +12.0°

Integrated 1X, 2X, nX Amplitude Accuracy:

100 to 225k rpm:

- At +25° C (+77° F):

  ±3.50% of input signal and ±0.21% of full-scale range.

- Across operating temperature range:

  ±2.84% of input signal and ±0.21% of full-scale range.

Integrated 1X, 2X, nX Phase Accuracy (Steady-State)[3,4,5]:

100 to 600 rpm 0.0° to -38.0°

600 to 10k rpm 1.0 to –8.0°

10k to 60k rpm –1.0° to 7.0°

60k to 225k rpm 0.0° to 12.0°

120 rpm bandwidth at 500 rpm:

Amplitude ripple < 12% of input signal.

Phase ripple ≤ 7.0°

12 rpm bandwidth at 500 rpm:

Amplitude ripple < 1.2% of input signal.

Phase ripple ≤ 0.7°

Notes:

1. For n Transient:
   100 rpm/s at 12 rpm BW ±4.0°
   100 rpm/s at 120 rpm BW ±3.0°
   1000 rpm/s at 12 rpm BW ±12.0°
   1000 rpm/s at 120 rpm BW ±7.0°
   (BW = bandwidth).
2. For each filter bandwidth, transient phase accuracy is specified at two different rates of acceleration to effectively quantify filter errors.
3. For n Transient:
   100 rpm/s at 12 rpm BW ±5.0°
   100 rpm/s at 120 rpm BW ±4.0°
   1000 rpm/s at 12 rpm BW ±13.0°
   1000 rpm/s at 120 rpm BW ±8.0°
   (BW = bandwidth).
4. Transient phase accuracy is specified at two different rates of acceleration to effectively quantify filter errors. Phase accuracy is dependent on the ratio of input signal level to the full-scale setting. Typical specifications are provided for a ratio of 1:1. Maximum specifications are provided for a ratio of 0.10:1.
5. Values are for the entire operating temperature range.

Dynamic Waveform Data

Filtering associated with dynamic waveform data pertains to anti-alias filters. Unfiltered data is used for timebase information. Anti-alias filtered data is used for spectrum information.

Unfiltered, Non-Integrated

Waveform Amplitude:

100 to 60k rpm:

- At +25°C (+77°F):

  ±0.57% of input signal and ±1.42% of full-scale range.

- Across operating temperature range:

  ±0.73% of input signal and ±1.92% of full-scale range.

Waveform Phase (Steady-State):

100 to 360 rpm +5.0 to +7.6°

360 to 1440 rpm +0.5 to +3.0°

1440 to 60k rpm ±1.75°

Unfiltered, Integrated

Waveform Amplitude:

100 to 60k rpm:

- At +25°C (+77°F):

  ±3.50% of input signal and ±1.42% of full-scale range.

- Across operating temperature range:

  ±3.50% of input signal and ±1.92% of full-scale range.

Waveform Phase (Steady-State):

100 to 600 rpm +33.7 to +36.3°

600 to 10k rpm +4.75 to +7.25°

10k to 60k rpm ±3.25°

Anti-alias Filtered, Non-Integrated

Waveform Amplitude:

1.67 Hz to 1 kHz:

±0.86% of input and ±1.92% of full-scale range.

1 kHz to 5 kHz:

+ 0.0% to -2.32% of input and ±1.92% of full-scale range.

5 kHz to 10 kHz:

+ 0.0% to -8.32% of input and ±1.92% of full-scale range.

Anti-alias Filtered, Integrated

Waveform Amplitude:

1.67 Hz to 1 kHz:

±3.50% of input and ±1.92% of full-scale range.

1 kHz to 5 kHz:

±3.50% to 4.32% of input and ±1.92% of full-scale range.

5 kHz to 10 kHz:

±3.50% to -10.32% of input and ±1.92% of full-scale range.

Gap Voltage Measurements

Amplitude:

- At +25°C (+77°F):

  ±0.43% of input signal and ±79 mVdc of full-scale range.

- Across operating temperature range:

  ±98 mVdc

Resolution:

±12.2 mV

Measurement Range:

0 to ±25 Vdc

Response:

low-pass filter, -3dB at 0.09 Hz

Settling time to 99% of final value:

8.3 seconds

Process Variable Measurements

1 to 5 Vdc, 0 to 10 Vdc Inputs

Amplitude:

- At +25°C (+77°F):

  ±0.43% of input signal and ±38 mVdc

- Across operating temperature range:

  ±58 mVdc

Resolution:

±3.05 mV

Measurement Range:

0 to +12.5 Vdc

Response:

low-pass filter, -3dB at 0.09 Hz

Settling time to 99% of final value:

8.3 seconds

4 to 20 mA Inputs

Amplitude:

- At +25°C (+77°F):

  ±0.53% of input signal and ±152 µ Adc

- Across operating temperature range:

  ±232 µ Adc

Resolution:

±12.2 mA

Measurement Range:

0 to +40 mA

Response:

low-pass filter, -3dB at 0.09 Hz

Settling time to 99% of final value:

8.3 seconds

Keyphasor Inputs

Keyphasor Signal Conditioning rpm (Hz) Accuracy:

100 to 12.5k rpm:

- At +25°C (+77°F):

  ±0.01 % ±1 rpm

- Across operating temperature range:

  ±0.02 % ±1 rpm

12.5k to 25k rpm:

- At +25°C (+77°F):

  ±0.02 % ±1 rpm

- Across operating temperature range:

  ±0.03 % ±1 rpm

25k to 60k rpm:

- At +25°C (+77°F):

  ±0.03 % ±1 rpm

- Across operating temperature range:

  ±0.05 % ±1 rpm.

Simulated Keyphasor Accuracy:

100 to 60k rpm: ±0.05%

Keyphasor Status Capabilities:

Error Detection: Indicated in software if change in shaft rotative speed between consecutive Keyphasor signals varies more than 12.5%, or if the detected shaft rotative speed is less than 100 rpm or above 60k rpm.

Keyphasor Index: Indicated in software; this can be used to position shaft at 0° reference when machine has stopped. Manual Threshold mode must be selected.

Triggering

Trigger modes:

Manual or Automatic (triggers on negative edge of input Keyphasor signal).

Auto Threshold:

50% of peak-to-peak level, acquisition time is one full period of input signal.

Manual Threshold:

-19.9 Vdc to +19.9 Vdc,

0.100 Vdc increments.

Increment accuracy:

- At +25°C (+77°F):

  ±1.72%

- Across operating temperature range:

  ±2.05%

Hysteresis:

0.2 Vdc to 2.0 Vdc,

0.200 Vdc increments

Increment accuracy:

- At +25°C (+77°F):

  ±9.05%

- Across operating temperature range:

  ±15.3%

Trigger Range:

100 rpm to 60k rpm

Minimum Duty Cycle:

0.5%

Trigger Initiation Event:

Triggering may be initiated by exceeding a defined upper limit, lower limit, or both, for rpm, amplitude, or phase. Triggering may also be initiated at a pre-programmed date/time or by an external contact closure (shut-down/event detection circuit). The trigger initiation event variable is selected in software.

RPM:

External Keyphasor source, Keyphasor 1 or 2, from 100 to

60k rpm.

Amplitude:

1X, 2X, nX, direct, gap, process variable.

Phase:

1X, 2X, or nX phase from 0 to 359 degree phase lag.

Time:

Predefined date/time.

External Contact:

Shutdown/Event detection circuit, selectable "Normally Open" or "Normally Closed" logic.

Inputs

Signal

Description and Quantity:

Eight signal inputs. Coaxial connectors at the rear panel accept displacement, velocity, and acceleration inputs, and process inputs that have less than 1 k Ω source impedance.

Maximum signal input:

±25 Vdc, protected to ±33.75 Vdc

Input impedance:

1 M Ω ±3%

Frequency range:

dc to 10 kHz

Channel over-range indication:

Indicated in software when input signal amplitude reaches 98% (or higher) of selected full-scale.

Keyphasor

Description and Quantity:

Two external Keyphasor inputs. Connectors on rear panel will accept displacement, TTL logic driver, optical driver, or tach driver outputs.

Input impedance:

24 k Ω ±1%

Maximum signal:

-20 to +20 Vdc

Minimum signal:

3.0 V peak-to-peak

Hysteresis:

Selectable within the software. (See Triggering-Hysteresis).

Shutdown/Event Detection Input

Description:

Connector will accept high or low voltage input. Shutdown/Event detection can be used for triggering with "Normally Open" or "Normally Closed" logic selected in software.

High Voltage:

90 V to 240 V (ac or dc)

Maximum current:

4 mA

Input Impedance (High Voltage input to Return):

62 k Ω ±2%

Low Voltage:

5V to 30V (ac or dc)

Maximum current:

15 mA.

Input Impedance (Low Voltage input to Return):

2.16 k Ω ±2%

Outputs

Keyphasor/Test outputs:

Two buffered, short-circuit protected signal outputs are available on the rear panel.

Low level:

- At +25°C (+77°F):

  0 Vdc +0.8 Vdc

- Across operating temperature range:

  -0.2 Vdc

High level:

- At +25°C (+77°F):

  5 Vdc +0.2 Vdc

- Across operating temperature range:

  -3.0 Vdc

Logic level:

HCMOS

Output impedance:

< 150 Ω over temperature range.

Note: For signal frequency accuracy see Keyphasor conditioning.

External Keyphasor Source Mode:

Keyphasor output is synchronized with Keyphasor input on rear panel. Output negative edge corresponds to negative edge on Keyphasor input signal. Pulse width follows that of input signal. Maximum delay from Keyphasor IN signal threshold detection to Keyphasor OUT level transmission is 10 µs or 3.6° at 60k rpm.

Internal Keyphasor Source Mode:

Keyphasor output is at the simulated Keyphasor programmed frequency.

Test Output:

Output frequency is at internal simulated Keyphasor frequency, with a 50% duty cycle.

Input Power

Desktop ac Power Supply

Input:

90 to 260 Vac, 47 to 64 Hz (auto-switching)

Output:

30 Vdc ±5% at 1.6 A

Battery

Nominal Rating:

21.6 Vdc at 700 mA

Output:

At least 19.5 Vdc and not greater than 36 Vdc at 1.0 A for one hour.

Charge time:

High Temp Battery: < 15 hours to fully charge.

Standard Battery: < 6 hours to fully charge.

Discharge time (on a single charge):

4 hours typical

Life:

500 full charge cycles < 15% capacity loss.

Type:

Nickel-cadmium

Low Battery Warning:

Indicated in software, providing approximately 10 minutes of continued operation.

Note: Always dispose of batteries properly. Do not burn or incinerate.

Current Draw:

Input voltage of ac desktop power module; from 26.5 to 32 Vdc. System current draw from 400 mA to 1100 mA with battery fully charged or disconnected.

Mechanical

Size

(W x D x H):

36.8 cm x 35.6 cm x 12.7 cm

(14.5 in x 14.0 in x 5.0 in)

Weight:

Weight without power supply:

10.5 kg (23 lb)

Weight with power supply:

11.2 kg (25 lb)

Environmental Limits

Operating Temperature:

High Temperature Battery: 0°C to +50°C (+32°F to +122°F).

Standard Battery: 0°C to +40°C (+32°F to +104°F).

Storage Temperature:

High Temperature Battery: -30°C to +50°C (-22°F to +122°F).

Standard Battery: -20°C to +40°C (-4°F to +104°F).

Relative Humidity:

0% to 95% noncondensing

Approvals

Meets European CE Mark requirements.

Sampling Specifications

Sampling Ratio:

One waveform set for every vector set (10 vector samples) when sampling is automatically triggered. Each waveform has a corresponding vector sample. Data is transferred to the host computer every tenth vector sample (one vector set). When a manual sample is initiated, one waveform and one static data record are taken.

Vector Sampling:

Upon sample trigger, 1X, 2X, and nX amplitude and phase, direct, rms, gap, speed, date, and time label are simultaneously sampled on all active channels. These values comprise a static data record.

nX Vectors:

Selectable; for n > 3, integer values from 3 to 15; for 0.100 < n < 1, selectable in increments of 0.025.

Waveform Set:

8/16 channels, simultaneously sampled, of synchronous and asynchronous waveforms, or 2/4 channels of high resolution (3200 line) asynchronous waveforms.

Vector Set:

10 samples for 8/16 channels. Simultaneously sampled 1X, 2X, and nX amplitude and phase, direct, rms, gap, speed, date and time label.

Sampling Rates

Synchronous:

128 samples/rev for maximum speeds up to 14,999 rpm.

64 samples/rev when maximum speed is between 15k rpm to 29,999 rpm.

32 samples/rev when maximum speed is between 30k rpm to 60k rpm.

Asynchronous:

2.56 x Frequency Span

Note: Synchronous sample rates are based on the selected maximum speed. When the maximum speed is selected in software the corresponding synchronous sample rate is determined. The synchronous sample rate does not change during

data acquisition and will be continuous over the entire database.

Aliasing Cutoff Frequency:

-3.0 dB at Frequency Span.

160 db/decade roll-off rate.

Aliasing Rejection:

≥ 30.9 dB at 1.56 x Frequency Span

Memory

Waveform:

48.4/96.8 k bytes (for 8/16 channels) of internal RAM per waveform set.

Maximum waveform samples:

256 waveforms per channel.

Vector:

1432/2864 bytes (for 8/16 channels) of internal RAM per vector set.

Maximum vector samples:

2560 vectors per channel.

Sample Modes:

Once triggered, sampling is based on a change in rpm, time, or both. A sample may also be taken manually.

Δ rpm programmability:

±1 rpm over entire rpm range up to 29,999 rpm. For speeds above 29,999 rpm, Δ rpm must be greater than 20. Selectable for increasing, decreasing, or bi-directional speed changes. Sampling is based on the selection of one of the external Keyphasor sources.

Δ Time programmability:

0.10 second increments to

59 minutes and 59.9 seconds.

Software Specifications

Plot Types Supported:

Orbit

Orbit/Timebase

Timebase

X vs. Y (any variable vs. any variable)

Trend

Tabular List

"Plus" Orbits

Polar

Bode

Shaft Centerline

Full Spectrum

Half Spectrum

Cascade (using half or full spectrum)

Waterfall (using half or full spectrum)

Minimum Computer Requirements[1, 2]

RAM:

32 MB

Processor:

486, 25 MHz or better

Video:

640 x 480 (VGA) or better

CD-ROM:

Required to load software

Keyboard and mouse:

Required

Operating Systems Supported [3, 4]:

Microsoft Windows® 98,

Windows NT® 4.0, and Windows® 2000

Enhanced Parallel Port for connecting to 208-P DAIUs [5, 6]:

Required

Free hard disk space:

80 Mb

Notes:

1. Depending on the operating system chosen, the minimum computer requirements may be more stringent than those listed here. Consult Microsoft.
2. Complete computer systems are available from us. http://www.bently.com/search/dbsearch/dbview/view.asp?id=e9909a30870111d3be3000805f8f09f7. These systems have been selected based on high quality, performance, reliability, and world-wide warranty. Systems are offered with a choice of external color monitors, laser printers, and/or portable printers. When a complete system (Computer, DAIU, and ADRE for Windows® software) is ordered from us it can be shipped with all software pre-installed and fully tested. Contact your nearest sales professional for specifications and ordering information.
3. ADRE for Windows® Versions 4.1 and earlier also supported Windows® 3.X operating systems. If upgrading to current ADRE for Windows® software from a previous version, it will only run on the operating systems indicated above, and will not run on Windows® 3.X.
4. We do not recommend running our software on any version of Microsoft® operating systems that we have not specifically tested for compatibility. Consult the factory regarding the specific version of your operating system and compatibility with our Bently Nevada software. While we test our software with new versions of the operating systems listed, we may not have always tested the most recent version of certain operating systems before they are released by Microsoft®.
5. The 208 DAIU is a predecessor to the 208-P DAIU and was designed to allow certain older models of Compaq® notebook computers to be connected directly to the 208 using the notebook's docking port connector. A special ISA card is also available for installation in desktop computers, allowing a 208 to be connected. The newer 208-P allows direct connection to an enhanced parallel port (EPP) and is supported by virtually all currently available notebook and desktop computer systems provided they have an EPP and it can be placed in the EPP mode. The 208-P is recommended for all new applications; because a 208 may not be connected to a 208-P, a 208 is only required for installations in which it must be connected to another existing 208.
6. If your computer does not have an EPP, it may be possible to add a PCMCIA card for notebooks (BNC p/n 02290002) or an ISA card for desktops (p/n 02290001). Please consult your sales professional for exact compatibility details prior to purchase.

Ordering Information

208/208-P Data Acquisition Interface Unit:

Includes power cord and communication cable.

102351-AXX-BXX

A: Adapter Type

- **0 0** No Adapter (208 DAIU) [1]
- **0 2** ISA Interface Card (208 DAIU) [2]
- **0 4** Enhanced Parallel Port (208-P DAIU) [3]

Notes:

1. When two 208 DAIUs are connected together, only one requires a computer interface. The other 208 DAIU may use option 0 0 (no adapter). A 208 may not be connected to a 208-P.
2. The ISA interface card is used for interfacing a 208 DAIU to desktop computers that have an available ISA expansion slot.
3. Enhanced Parallel Port **or** available PCMCIA slot (notebooks) **or** available ISA slot (desktops).

B: Battery Types

- **0 1** Standard Battery
- **0 2** High Temperature Battery

Note: Required communication cables are supplied with each 208 DAIU. It is not necessary to order additional cables when ordering multiple 208 DAIUs.

ADRE for Windows® Software

Distributed on CD-ROM only. Includes program CD-ROM and printed Quick Start Guide.

109579 - AXX-BXX-CXX-DXX

A: ADRE for Windows® Software

- **0 0** No component
- **0 1** ADRE for Windows®
- **0 2** ADRE for Windows® update

0 3 ADRE for Windows® enhancement/upgrade

B: ADRE for Windows® Software for display only

0 0 No component

0 1 ADRE for Windows® display only

0 2 ADRE for Windows® display only update.

0 3 ADRE for Windows® display only enhancement/ upgrade

0 5 5 user license

1 0 10 user license

2 0 20 user license

C: ADRE for Windows® printed Quick Start Guide

0 0 No component

0 1 ADRE for Windows® Quick Start Guide

D: Machine Library™ CBT

0 0 No component

0 1 BN Machine Library™ CBT

ADRE for Windows® Software Support Plans:

1374/20-A-XX

A: Support type and duration[1,4]

01 1 year single [2] software package.

02 1 year multi-software [3] package.

03 2 year single software package.

04 2 year multi-software package.

05 3 year single software package.

06 3 year multi-software package.

07 4 year single software package.

08 4 year multi-software package.

09 5 year single software package.

10 5 year multi-software package.

Notes:

1. 1 year support plan is provided with initial purchase of ADRE for Windows® software.
2. Single is for users with a single copy of software.
3. Multi is for users with multiple copies of software.
4. If an additional support plan is purchased with the initial software purchase, the two purchases are added together for a total support period.

Accessories

136208-01

MachineLibrary™ Multimedia Training Software

208 Upgrade Kits

134559-01

This kit is used to upgrade a 208 DAIU (that already has the CE mark) to a 208-P DAIU with CE mark. The CE mark is located on the rear panel.

134559-02

This kit is used to upgrade a 208 DAIU (that does NOT already have the CE mark) to a 208-P DAIU with CE mark. The CE mark is located on the rear panel.

107303-01

DAIU hard shipping case

102358-01

DAIU soft carry case

129043-01

208 DAIU ISA interface card

02290001

ISA enhanced parallel port card

02290002

PCMCIA enhanced parallel port

80917-01

TK15 Keyphasor Conditioner/Power Supply

29654-01

Patch Panel

10798-03

Optical pickup sensor

20545-25

Optical pickup cable

20211-05

Optical pickup mounting package. Includes: mounting pliers, magnetic base, and gooseneck transducer holder.

02290050

Reflective tape roll

102357-01

Field Connection Kit Includes:

10	BNC receptacle to double banana plug
4	BNC receptacle to alligator test clip
4	BNC T-connector
10	BNC 90° connector
10	BNC receptacle to single banana plug
4	BNC receptacle to double banana plug
10	Single binding post to BNC plug
10	Banana jack to alligator clip
4	Double binding post to BNC plug
6	BNC union
10	1.8 metre (72 inch) BNC coaxial cable
5	1.8 metre (72 inch) banana cable - Black
5	1.8 metre (72 inch) banana cable - Red
5	1.8 metre (72 inch) banana cable - Yellow
5	1.8 metre (72 inch) banana cable - Green
5	1.8 metre (72 inch) banana cable - Blue

ADRE Computer System

109580 AXX-BXX-CXX-DXX-EXX

A: Computer

00	No component
06	Notebook (Windows 2000)

B: Monitor

00	No component
01	17 inch monitor

C: Mouse

00	No component
01	Microsoft mouse

D: Printer

00	No component
01	110V HP Laserjet Printer
02	220 V HP Laserjet Printer
03	HP Deskjet Portable

E:

00	No component
01	keyboard & Convenience base

Tables and Figures

Table 1: Scale Factor Options for Supported Input Types

Scale Factor Units	Minimum	Maximum
mV/mil	8	400
mV/µ in	0.2	6
mV/mm	200	10,000
Displacement mV/µ m	0.2	10
REBAM® mV/µ m	0.2	240
mV/in/s	40	2,000
mV/mm/s	1	50
mV/g	4	200
mV/g (if units are integrated in/s)	80	200
$mV/m/s^2$	0.4	20
$mV/m/s^2$ (if units are integrated mm/s)	5	20
mV/any unit (generic dynamic)	Allowable scale factor selection is based on a combination of desired full-scale range and measurement type, (e.g., pp, pk, rms).	
lb • ft	Scale factors are based on selected full-scale range and are not editable.	
N • m	Scale factors are based on selected full-scale range and are not editable.	
mV/°	Scale factors are based on selected full-scale range and are not editable.	
Any process variables	Scale factors are calculated based on full-scale range and are not editable.	

Table 2: Full-Scale Range Selection for Supported Input Types

Units	Full-Scale Range Selection								
mil pp	2.00	5.00	10.00	20.00	50.00	100.00	200.00	500.00	
µ in pp	20.00	50.00	100.00	200.00	500.00				
mm pp	0.10	0.20	0.50	1.00	2.00	5.00	10.00	20.00	50.00
µ m pp	1.00	2.00	5.00	10.00	20.00	50.00	100.00	200.00	500.00
						1000.00	2000.00	5000.00	10000.00
in/s pk	0.20	0.50	1.00	2.00	5.00				
in/s rms	0.10	0.20	0.50	1.00	2.00				
mm/s pk	5.00	10.00	20.00	50.00	100.00	200.00			
mm/s rms	2.00	5.00	10.00	20.00	50.00	100.00			
integrated mil pp	2.00	5.00	10.00	20.00	50.00				
integrated mm pp	0.10	0.20	0.50	1.00	2.00				
integrated µ m pp	50.00	100.00	200.00	500.00	1000.00	2000.00			
g pk	2.00	5.00	10.00	20.00	50.00				
g rms	1.00	2.00	5.00	10.00	20.00				
m/s^2 pk	20.00	50.00	100.00	200.00	500.00				
m/s^2 rms	10.00	20.00	50.00	100.00	200.00				
integrated in/s pk	2.00	5.00							
integrated in/s rms	2.00	5.00							
integrated mm/s pk	50.00	100.00	200.00						
integrated mm/s rms	50.00	100.00	200.00						
lb • ft	1000	2000	5000	10000	20000	50000	100000		
N • m	1000	2000	5000	10000	20000	50000	100000		
Degree	0.50	1.00	2.00						
Any generic dynamic	Allowable full-scale range selection is based on a combination of scale factor and measurement type, (e.g., pp, pk, rms)								
Any process variable	Process variable full-scale range can be from -999,999 to +999,999. Scale factors are automatically calculated depending on the selection of full-scale range.								

Note: Choice of full-scale range selection may depend on transducer type. Not all full-scale ranges are applicable to every transducer type.

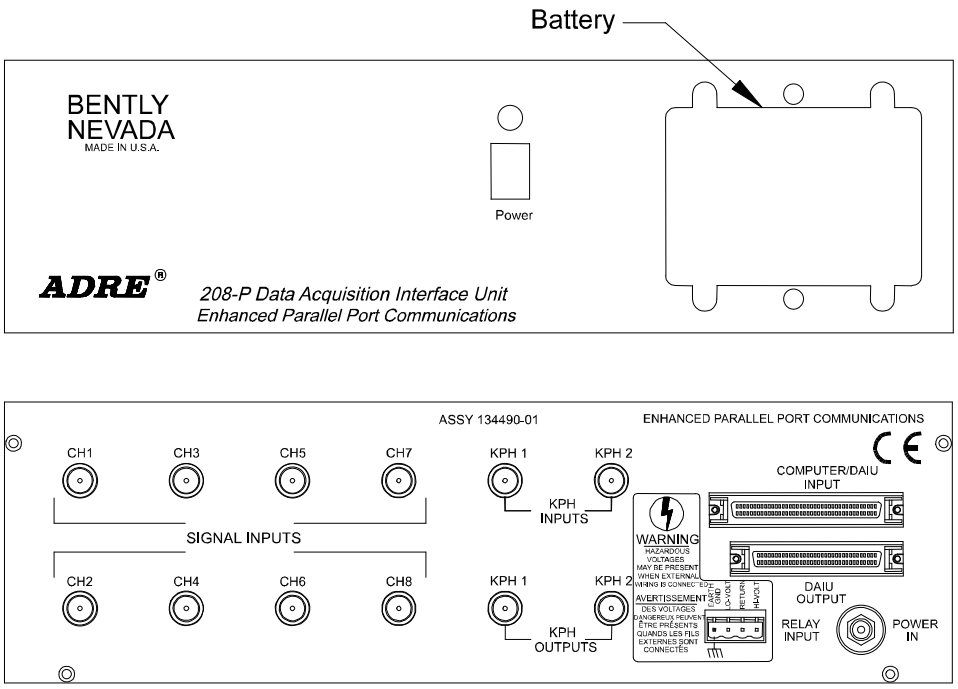


Figure 1: Front and Rear Views of 208-P DAIU

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