

10-Year  
Availability  
Guarantee

# UEILogger™ 300/600

## High performance data logger/recorders

- Flexible: Select from over 25 different I/O board
- Up to 150 analog inputs or 288 digital inputs per cube
- Easy-to-use, intuitive Windows setup/programming
- Stores data to standard SD Card (included)
- "Real-time" diagnostic data display while logging
- Sample up to 500,000 samples/sec
- Compact

4" x 4.1" x 4" UEILogger 300

4" x 4.1" x 5.8" UEILogger 600

- Rugged (tested -40 to +85 °C, 5g vib, 50g shock)
- Extremely cost effective
- Logs from Serial, ARINC-429 and MIL-STD-1553
- Program via Ethernet or load the logging/recording configuration from the SD Card

### \* New in this release!

- Sample rates up to:
  - 250 kHz (18 & 24-bit samples)
  - 500 kHz (16-bit samples)

- Up to 32 Gigabyte SD cards

- 8 Gigabyte SD card included

- Analog input based alarming with output on Douts or Sync pins

- MIL-STD-1553 Logging



UEILogger 300 shown

## General Description:

The UEILogger is a powerful, flexible and easy-to-use data logger/recorder suitable for use in a wide variety of industrial, aerospace, in-vehicle and laboratory applications. Based upon UEI's popular PowerDNA Ethernet DAQ Cubes, the UEILogger maintains all of the PowerDNA's flexibility and adds a powerful standalone data logging/recording capability.

The new UEILogger offers faster logging, larger data storage and additional functionality. The new logger supports sample rates as high as 500 kilosamples per second for 16-bit samples and 250 kilosamples per second for 18 to 24 bit A/D samples. Regardless of system configuration, the new UEILogger provides at least 320 kS/S (16-bit) or 160 kS/S (18-24 bit). The revision also supports SD cards as large as 32 GByte and includes an 8 GByte SD card as standard. Additional features include an alarming function that allows a digital output or Sync bit to be controlled by alarm conditions of Analog inputs. The new revision also supports logging from the MIL-STD-1553 avionics bus. The latest logger also provides a built-in sample rate self-test feature that measures system performance and sets the system maximum sample rates based on actual system configuration.

The UEILogger is configured to meet the specific needs of your application. The Logger Cube contains the controller, network and SD card interface, power supply as well as either three or six I/O slots (UEILogger 300 or 600 respectively). Configure your logger by simply selecting the I/O boards required to match your application. With over 25 different I/O boards available, there's

sure to be a configuration to meet your needs. The UEILogger family uses the same I/O boards as our PowerDNA cubes.

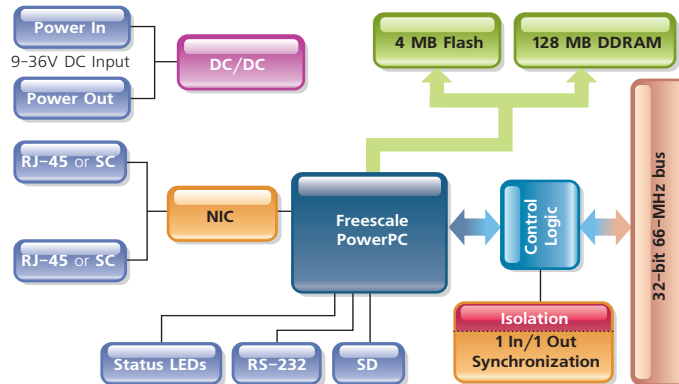
### Simple and Flexible Setup

Developing the data logging application is simple with the intuitive, Windows-based application provided. There is absolutely no programming required. The software allows you to set input and output ranges, sample/update rates, signal conditioning, etc. all from simple pull down menus. Channels may be configured individually or to save time and effort channels with common configurations may set up as a group. A "real-time" diagnostic display function allows you to look at the data being logged to ensure your system is operating properly before you leave the test site. Download a copy of the UEILogger application from our web site at [www.ueidaq.com/UEILoggerdemo](http://www.ueidaq.com/UEILoggerdemo) and test-drive the software before you buy!

The data logging "program" may be loaded onto the UEILogger two ways. It may be downloaded via the unit's standard Ethernet port. The logging application configuration file may also be stored on the SD card. This allows Logger applications to be modified or initiated and data to be extracted simply by installing a new SD card.

The UEILogger software converts data on the SD Card (including all configuration information) into the .CSV format used by virtually all popular DAQ and analysis applications. The software also allows you to review the logged data graphically. The binary data storage format will also be published for users wishing to read the data directly from the SD card.

### Block Diagram:



## General Description (continued):

### Logger Timing Control

Logging applications may be started and stopped in many ways. These include:

1. Initiated by host via Ethernet
2. On power up (start only!)
3. Start/Stop button
4. Real-time clock/calendar
5. Input from the Sync connector
6. An analog input crossing a trigger level (can be used to trigger from a digital signal)
7. An analog input inside or outside a user selected range

### Mounting and Power requirements

The UEILogger cubes offer a wide variety of mounting options. A flange kit allows the cubes to be mounted to a wall or flat surface. Rack and DIN Rail kits allow mounting in 19" racks or on DIN rails respectively. For portable applications there is even an attache style carrying case that will safely hold a cube, its power supply, cables and screw terminal panels.

The UEILogger may be AC, DC or battery powered. The logger includes a 115/230 VAC universal power supply for AC powered applications. The logger may also be powered by any 9-36 VDC source or battery. Power consumption is dependent on the I/O boards installed though will not typically exceed 12-15 watts worst case. A standard automotive battery will supply a fully loaded logger for roughly two days.

## UEILogger Layout:

### A Network Connectors

Ethernet in from host PC or from another Cube: The Logger may be programmed via the Ethernet port or the program/configuration may be stored on the SD Card. Data may be retrieved via Ethernet or the SD Card may be read directly with a standard SD Card reader.

### B USB Port

USB Ver 1.1 port is not currently active.

### C SD Card Slot

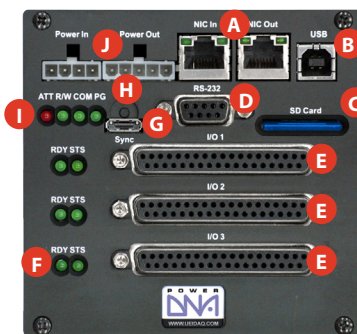
Secure Digital (SD) Card slot for on-board data storage. The SD Card is used as the data storage media in the UEILogger series. The UEILogger includes an 8 GByte SD card and supports SD cards up to 32 GByte (UEI part number DNA-SD32GB.)

### D RS-232 Port

Using the supplied serial cable, you perform initial PowerDNA setup of the operating parameters from any serial terminal running at 57,600 baud/8 data bits/no parity/1 stop bit. From a terminal program you can, for instance, change the IP address from the default, if necessary. You also download updated firmware through the serial port.

### E I/O Board/Layer Slots

Loggers provide either 3 or 6 I/O slots. Boards installed in the I/O slots perform the various analog, digital and communications functions you need for your specific application. Your signals may be connected directly to the I/O boards via your custom cabling or take advantage of our wide variety of easy-to-use, external screw terminal panels. Boards ordered with your logger are factory installed. It is also a simple task to add boards or reconfigure a logger in the field



### F I/O Layer Status LEDs

These two green lights give a visual indication of the status of each I/O layer.

**RDY** - Ready • **STS** - Status

### G Sync Connector

May be used to initiate a logger session or as an output alarm..

### H Start/Reset Button

Recessed to prevent accidental activation, this button may be used to initiate logging applications to reset the CPU layer for activities such as downloading and installing new firmware for the Cube.

### I Communication Status LEDs

These LEDs monitor communications through the serial and infrared ports.

**ATT** - Attention • **R/W** - Read/Write  
**COM** - Communications underway  
**PG** - Power Good / Ready

### J Power Connectors

Power-In, 9-36V DC either from the universal AC power supply included with the Logger, or a user-supplied source. Power-Out (same voltage as applied to Power-In) may be used to power another Logger, if desired. A 15-pin "D" connector is available as an alternative to the plastic Molex connector. Please contact the factory for details on this version.

## Software / Programming:

The data logger application is very intuitive. The initial screen allows you to select the particular Logger Cube (if more than one are on the network) as well as the I/O boards (also referred to as layers) you wish to include in your logging application. You configure your application by making selection in the Channels, Clock and Trigger, Alarms and Data Tabs. The Channels Tab allows you to select the channels you wish to log, the input ranges to use and the conversion to engineering units desired. An example of the Channels display is shown to the right.

After selecting and configuring the channels to log, switch to the "Clock and Trigger" tab. Here you select your logging sample rate as well as how you would like to initiate the logging. The Clock and Trigger function as well as the Data and Alarms tabs are shown on the following page. The "Alarms" function allows you to set various alarm conditions and to select the digital outputs (from a DIO board or the Logger's Sync connector at which the alarm may be controlled). The "Results" tab allows you to control the movement of the logged files from the Cube to your host PC as well as the conversion to the .CSV output files when desired. Selecting the "Chart" function from within the Results tab allows you to plot the data on your PC screen. Finally, the "Diagnostic Display" tab allows you to view "live" data as it is being acquired. This allows you to confirm things are working as expected before leaving the logger for an extended session. Finally the Diagnostic Display table also shows the current state of the cube's buffer memory. This allows the user to confirm the UEILogger is keeping up with the data logging session running and will quickly point out applications that might lead to buffer overflow.

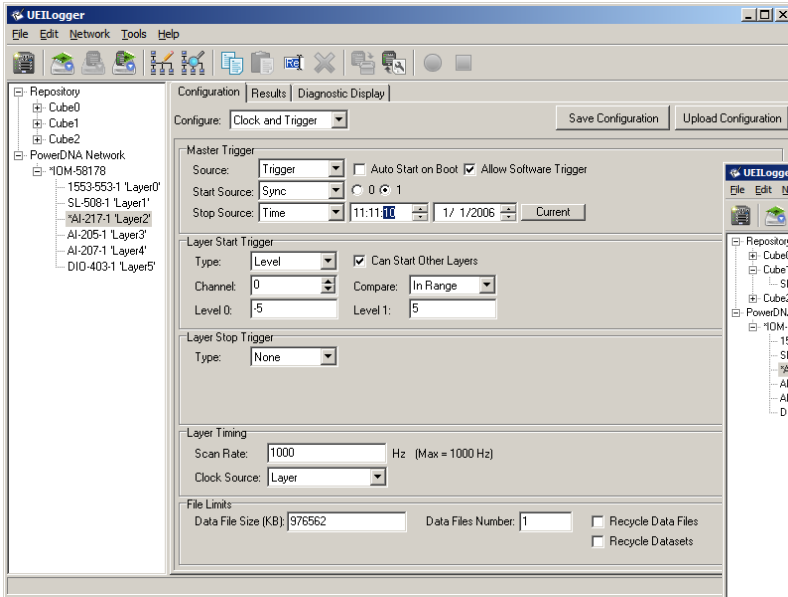
United Electronic Industries, Inc.  
Tel: (508) 921-4600

Configuration   Results   Diagnostic Display						
Configure: Channels						Save Configuration
Model: Channels						
S/N: Clock and Trigger						
Mfg. Date: 01-Dec-2006						
Cal. Date: 02-Jan-2007						
Enable All Channels		Make All Like Ch. 0		Excitation Voltage: 10V		
Input						
	Name	Enabled	Sensor	Type	Units	Gain
Aln0	Sensr 1 Upper	<input checked="" type="checkbox"/>	V		V	0: -10...10 V
Aln1	Thermocouple1	<input checked="" type="checkbox"/>	TC	J	C	8: -200...1190 C
Aln2	TC2	<input checked="" type="checkbox"/>	TC	J	C	8: -200...1190 C
Aln3	TC3	<input checked="" type="checkbox"/>	TC	J	K	8: 70...1460 K
Aln4	S4 L	<input checked="" type="checkbox"/>	V		V	9: -0.05...0.05 V
Aln5	S5 L	<input checked="" type="checkbox"/>	V		V	9: -0.05...0.05 V
Aln6	Bridge Sensor	<input checked="" type="checkbox"/>	V		V	1: -.5...5 V
Aln7	...	<input type="checkbox"/>	V		V	0: -10...10 V

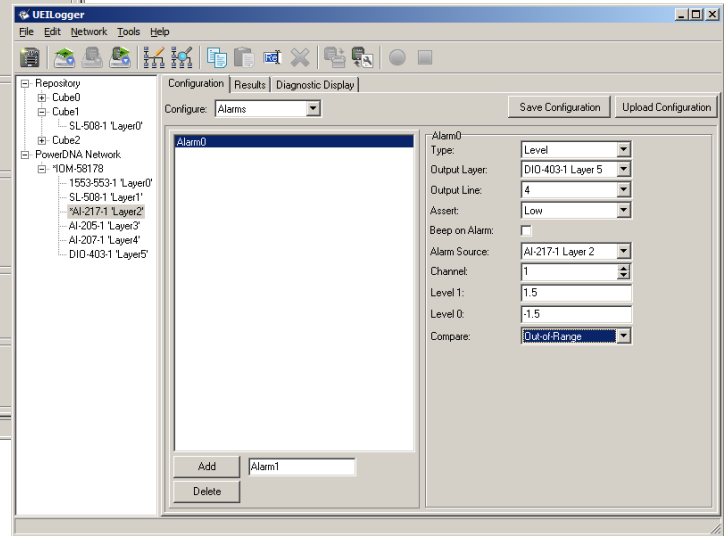
The Channels function allows you to configure each input to match your application's requirements and to provide the desired conversion to engineering units equations.

<http://www.ueidaq.com>  
Fax: (508) 668-2350

# Programming (continued)



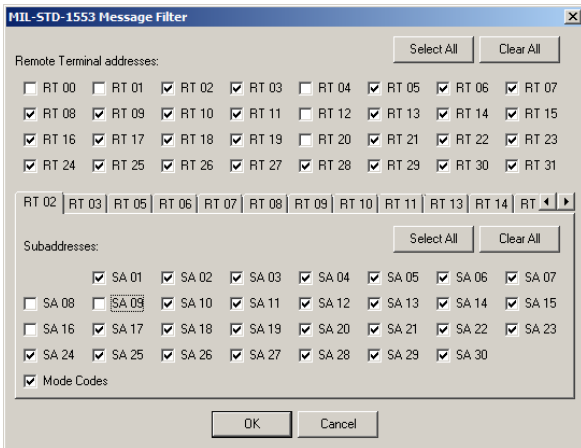
The Clocks and Trigger GUI show above allows you to set how the logger starts and stops each logging session. It also allows you to select sample rates and various disk write and overwrite options.



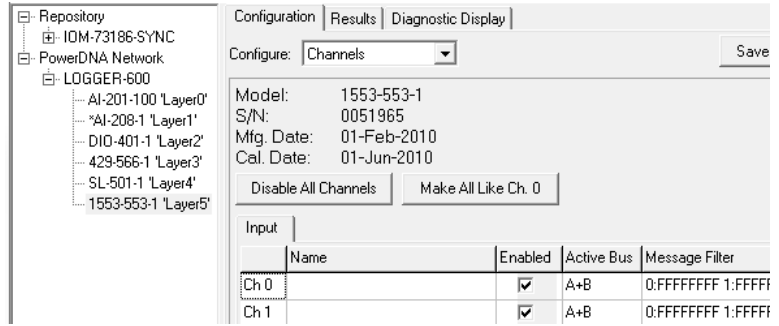
The new alarming function allows the user to set alarm conditions based on the levels of one or more analog inputs and have the alarms control digital outputs.

## MIL-STD-1553 Logging

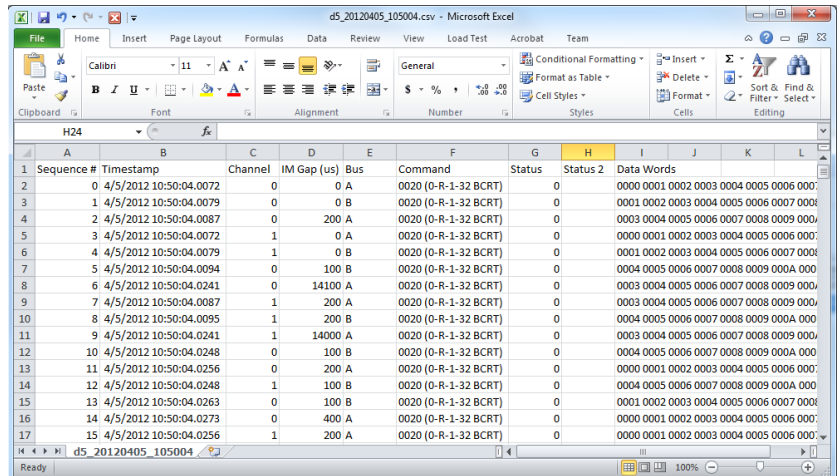
The latest version of the UEILogger supports logging from the MIL-STD-1553 avionics bus as well as the ARINC-429 bus. A number of the 1553 GUI screens are depicted here.



The MIL-STD-1553 filter GUI above allows you to select the RTs from which you'd like to log the data.



The MIL-STD-1553 configuration GUI above allows you to select the channels to log as well as to add message filters as desired.



The MIL-STD-1553 data is exported to a .CSV file, which is easily read by Microsoft Excel as shown to the right, or any other application capable of reading a delimited text file.

## RS-232/485, CAN-bus and ARINC-429 support

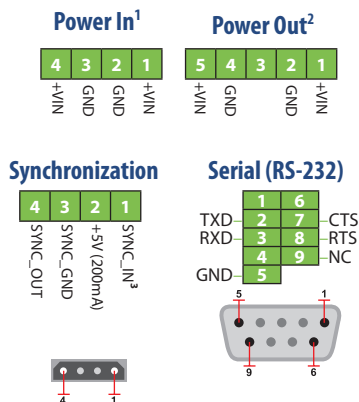
Almost all data loggers can acquire analog and digital input data and the UEILogger is no exception. In fact, the UEILogger offers more input types and a wider performance envelope than virtually anything on the market.

One of the truly unique capabilities of the UEILogger is its ability to log data from other interfaces. The previous page shows a variety of screen captures from the UEILogger's new MIL-STD-1553 support. However, the UEILogger is also capable of acquiring data from RS-232/422, the CAN-bus and the ARINC-429 bus. This makes the UEILogger ideal for use as a QAR (Quick Access Recorder) in avionics applications.

Many RS-232/422 and ARINC-429 devices are designed to provide data based on a query from a host computer. The UEILogger has a built-in scheduler that allows you send predetermined query strings to devices from which it needs to acquire data.

Often you don't want to acquire all data on an ARINC-429. The UEILogger also provides the capability to filter the traffic on the bus and only log data that meets the application's requirements..

### Pinout Diagrams:



<sup>1</sup> Mating connector available from Digikey, Molex PN 39-01-4040

<sup>2</sup> Mating connector available from Digikey, Molex PN 39-01-4050

Note: A version of the UEILogger is available with a 15-pin "D" connector instead of the Molex connectors mentioned above. This version has become popular in the flight test and other high shock/vibration applications.

### Technical Specifications:

Standard Interfaces	
To host computer	10/100Base-T, standard RJ-45 connector
Daisy chain output	10/100Base-T, standard RJ-45 connector
Config/general	RS-232, 9-pin "D"
I/O Slots Available	
UEILogger 600	6 slots
UEILogger 300	3 slots
Data Storage	
Storage media	Secure Digital (SD) Card
Storage capacity	32 Gigabyte (max), 8 Gbyte SD Card included
Data retrieval	Via logger Ethernet port or SD Card may be read directly with a standard SD Card reader
I/O Performance	
Max sample rate	up to 500 kS/S (16-bit) or 250 kS/S (18-24-bit) at least 320 kS/S (16-bit), 160 kS/S (18-24-bit).
I/O Boards	All PowerDNA analog/digital input boards
Processor	
CPU	Freescale MPC5200, 400 MHz, 32-bit
DDRAM	128 MB
On-board Flash	4 MB
Status LEDs	
On front panel	Attention, Read/Write, Power, Communications Active
Environmental	
Temp (operating)	Tested to -40 °C to 85 °C
Temp (storage)	-40 °C to 100 °C
Humidity	0 to 95%, non-condensing
Vibration	
(IEC 60068-2-64)	10-500 Hz, 5 g (rms), Broad-band random
(IEC 60068-2-6)	10-500 Hz, 5 g, Sinusoidal
Shock	50 g, 3 ms half sine, 18 shocks at 6 orientations; 30 g, 11 ms half sine, 18 shocks at 6 orientations
(IEC 60068-2-27)	
Altitude	70,000 feet, maximum
Power Requirements	
Input voltage	9-36 VDC. 120/240 VAC universal power supply included
Power consumption	3.5 Watt max, plus power required by I/O boards. Total power dissipation < 15 Watts
Physical Dimensions	
UEILogger 300	4.1" x 4.0" x 4.0"
UEILogger 600	4.1" x 4.0" x 5.8"

### Ordering Guide:

Part Number	Description
<b>Loggers (includes software, 8 Gbyte SD Card, universal AC power supply, serial and Ethernet cables)</b>	
UEILogger 300	3-Slot Version data logger/recorder
UEILogger 600	6-Slot Version data logger/recorder
<b>UEILogger options</b>	
DNX-CC	Conformal coating of all boards (minimum 8 boards coated per order)
UEILogger x00-15D	Optional configuration replaces plastic Molex 39-01 series power connectors with metal 15-pin female "D" connector.
<b>Accessories</b>	
DNA-SD8GB	8 Gigabyte SD Card (one 8 GB SD card included with the UEILogger)
DNA-SD32GB	32 Gigabyte SD Card
DNA-DR5/DR8	Rear-mount DIN rail clip for UEILogger 300/600 (respectively)
DNA-FLANGE	Bottom-mount flange assembly allows cube to be mounted to any flat surface
DNA-19RACKW	19" rackmount enclosure with DIN rail attached
DNA-CASE	Light-weight plastic carrying case for PowerDNA Cube