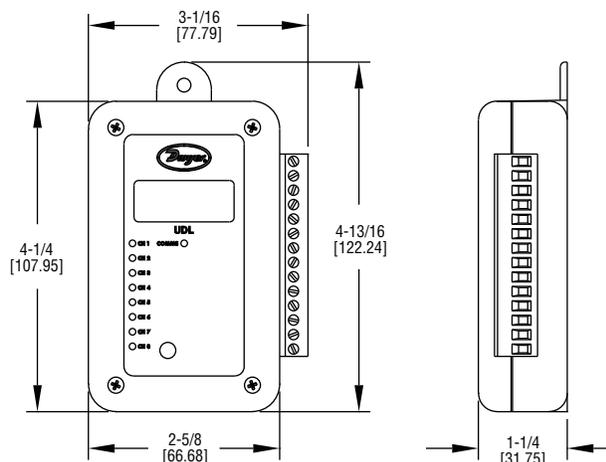




Series UDL Universal Input Data Logger

Specifications - Installation and Operating Instructions



The Series UDL Universal Input Data Loggers are available with 0, 2, or 4 universal inputs. Each universal input can be individually configured to accept a thermocouple, RTD, thermistor, voltage, or current input. All Series UDL data loggers have an internal temperature sensor and a digital input which can be used as a trigger to start logging or as a pulse counter for interfacing with flow meters or other sensors with a pulse output. Optional features include an internal humidity sensor, an LCD display, and an external humidity and temperature sensor. The Series UDL loggers interface to the USB port of a PC. The unit includes software, USB connection cable and installed battery.

SOFTWARE FEATURES

- Graphing of downloaded data
- Zooming function
- Temperature in °F or °C
- Up to two traces per graph
- Multiple traces per graph (Full Version Only)*
- Exporting to spreadsheet (Full Version Only)*
- Viewing the data table (Full Version Only)*
- Calculating Mean Kinetic Temperature (MKT) (Full Version Only)*
- Emailing graphs (Full Version Only)*

*In order to obtain the Full Version Only features, the software upgrade key must be purchased. To access the full version, the software key is inserted into a USB port on the PC and the full version features are automatically added onto the existing software.

SPECIFICATIONS

Inputs: RTD, Thermocouple, Thermistor, Current, Voltage, Slidewire.

Range: Internal temperature: -22 to 158°F (-30 to 70°C); Internal RH: 0 to 100%; External temperature: -22 to 158°F (-30 to 70°C); External RH: 0 to 100%.

Accuracy: Internal temperature: ±1°F (± 0.5°C); External temperature: ±1°F (±0.5°C) over 30 to 122°F (0 to 50°C), ±2°F (±1°C) over -30 to 32°F (-30 to 0°C) and 122 to 158°F (50 to 70°C); Internal/External RH: ±2.0%RH over 10%-90%, ±4.0%RH over 0-10% and 90-100%RH.

Memory Size: 0 or 2 universal inputs: 62,000 readings; 4 universal inputs: 128,000 readings.

Resolution: All universal inputs: 16 Bit; Internal & external temperature: 12 Bit; Internal & external RH: 8 Bit.

Sampling Method: Stop when full or continuous logging (wrap when full).

Sampling Rate: Selectable from 1 second to 24 hours.

Computer Requirements: Windows® 98, Windows® 2000, Windows® ME, Windows NT®, Windows® XP, and Windows Vista® operating system with 16 MB RAM, one free USB port.

Power Requirements: 3.6VDC lithium AA.

Battery Life: 6 years (approx.).

Alarms: Programmable high/low.

Interface: USB port (cable included).

Housing Material: ABS plastic.

Weight: 5.8 oz (165 g).

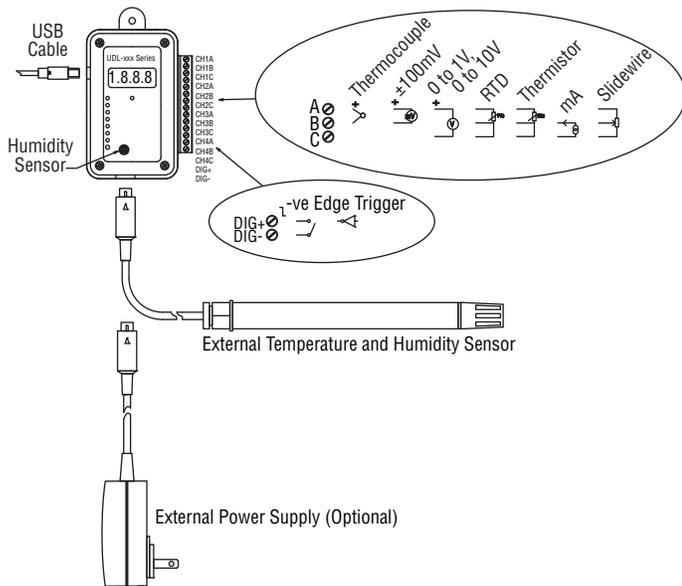
Agency Approval: CE, RoHS.

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INPUT TYPES AND CONNECTIONS

Inputs	Range	Accuracy
Pt100 EN60751	-328 to 1292°F (-200 to 700°C)	± 0.5°F (± 0.1°C) ± 0.1% rdg
Pt100 JISC	-148 to 854°F (-100 to 457°C)	± 0.5°F (± 0.1°C) ± 0.1% rdg
Ni100	-76 to 356°F (-60 to 180°C)	± 0.5°F (± 0.2°C) ± 0.1% rdg
Ni120	-112 to 446°F (-80 to 230°C)	± 0.5°F (± 0.2°C) ± 0.1% rdg
Cu10	-328 to 500°F (-200 to 260°C)	± 6°F (± 3°C) ± 0.5% rdg
Cu100	-148 to 500°F (-100 to 260°C)	± 0.5°F (± 0.2°C) ± 0.1% rdg
Thermocouple J	-328 to 2192°F (-200 to 1200°C)	± 1°F (± 0.5°C) ± 0.1% FSD
Thermocouple K	-328 to 2498°F (-200 to 1370°C)	± 1°F (± 0.5°C) ± 0.1% FSD
Thermocouple T	-328 to 752°F (-200 to 400°C)	± 1°F (± 0.5°C) ± 0.1% FSD
Thermocouple R	212 to 3200°F (100 to 1760°C)	± 1°F (± 0.5°C) ± 0.2% FSD
Thermocouple S	212 to 3200°F (100 to 1760°C)	± 1°F (± 0.5°C) ± 0.2% FSD
Thermocouple B	1292 to 3308°F (700 to 1820°C)	± 1°F (± 0.5°C) ± 0.2% FSD
Thermocouple N	-292 to 2372°F (-180 to 1300°C)	± 1°F (± 0.5°C) ± 0.1% FSD
Thermistor TH-001	-40 to 257°F (-40 to 125°C)	± 1°F (± 0.5°C)
Thermistor TH-002	-22 to 194°F (-30 to 90°C)	± 1.5°F (± 0.6°C)
Thermistor TH-003	-22 to 221°F (-30 to 105 °C)	± 1°F (± 0.5°C)
Current (4 to 20 mA)	0.1 to 21 mA	± 0.01% FSD
Voltage (±100 mVDC)	-110 mV to 110 mV	± 0.01% FSD
Voltage (0 to 1 VDC)	0 VDC to 1.1 VDC	± 0.01% FSD
Voltage (0 to 10 VDC)	0 VDC to 11 VDC	± 0.01% FSD
Slidewire	100 ohms to 10 kilo-ohms	± 0.02% FSD

The sensors are connected as shown below.



Having selected the correct sensor type, the appropriate connections can be made. The type of sensor used must be selected via the software prior to issue.

The inputs are isolated from the communications port but not from each other. Care should be taken to avoid ground loop problems.

CONFIGURATION

Once a password has been entered, the Configuration window will come up.

NOTICE

Whenever a new type of data logger is connected to the PC, the correct data logger will have to be selected from the Configuration window. From the Options menu, select Configuration to bring up the Configuration window.

In the Graph tab, choose the desired temperature units and other graph options.

In the Device tab, select the correct logger by clicking the button displaying the device icon matching the logger you are using.

To issue the logger, from the Logger Operations menu select UDL Network.

In the Explorer window that comes up, RIGHT CLICK on the device icon and select Configure.

Enter relevant parameters within the General, Input Setup, Manifest Text, and Input Trim buttons on the left. Click the Issue button when complete.

NOTICE

Issuing the parameters erases all data currently stored in the logger.

INITIAL SETTING

The first time a logger is set, you will be prompted to enter an Owners Manifest and a Passcode. This is the only time you will be asked for this information and it cannot subsequently be changed.

Owners Manifest is a label for the logger normally used to record details of the owner and/or details related to the logger such as date purchased, shipment, application, etc. (256 characters).

If the default Passcode is changed, and if it is lost, not even the factory can retrieve it. If this happens then the logger cannot be issued ever again. It is recommended that the Passcode NOT be changed.

DOWNLOAD DATA

Download data by connecting the logger to the PC.

From the Logger Operations menu select UDL Network.

In the Explorer window that comes up, RIGHT CLICK on the device icon and select Download. Data is then presented graphically. At this stage, data can be saved to the computer.

GENERAL BUTTON

Location allows a 12 character description to be entered.

Data Type defines the value that is stored to memory.

Point is when every sampled measurement is stored directly to memory.

Averaging is the average value per period stored.

Maximum is the maximum value per period stored.

Minimum is the minimum value per period stored.

Read Rate is the rate at which the sampling points are measured, or the period.

Log Interval is the time between when the sample points are stored.

Display Update is how often the LCD updates. This also defines the flash rate of the LEDs, so setting it to a longer interval will improve battery life.

Stop when Full means that when the logger's memory is full it will stop logging.

Wrap when Full means that when the logger's memory is full, it will overwrite the oldest data and continue to log.

Log Size sets the effective memory size in readings per channel. The Default option sets the memory size to the maximum available, while the Custom option means that a smaller maximum memory can be set.

INPUT SETUP BUTTON

Enabled channels are chosen from the tick boxes to the left of the channel numbers.

Visual On shows which channels will be displayed on the LCD.

Descriptor allows a 12 character description of the input to be entered.

Inputs for temperature and humidity are fixed. Universal inputs can be chosen.

Linearisation is different depending on the type of universal sensor chosen.

The **Input Scaling** section allows the inputs to be scaled in engineering units. If the Icon column is chosen to be NONE, then a unit can be entered in the Unit column. The chosen icon or the entered unit will appear on printouts, etc.

Channel 9 stores the number of counts per log interval for the frequency inputs, so channel 9 cannot be displayed on the LCD or on the LED indicators.

MANIFEST TEXT BUTTON

Owner Name is the Owners Manifest and is only set the first time the logger is issued.

User Manifest Text is a label for the logger that takes up to 256 characters and can be changed every time the logger is issued.

INPUT TRIM BUTTON

This allows span and offset corrections to be made. However, changing these will change the calibration which may result in inaccurate readings.

Changing these values is not often done. The limits for the span are 0.95 to 1.05 and the limits for the offset are ± 5 .

To change these, the password entered the first time the program was opened is required.

START LOGGING

There are multiple ways that the data logger can begin to log data.

Within the General button:

Delayed Start means the user can select a specific date and time when it starts logging.

Magnetic Start means the logger starts when the magnet is swiped across the appropriate place on the back of the logger. The orange LED will blink until the logger has been swiped.

Digital Start means the logger starts when an external digital signal triggers it.

Within the Input Setup button:

Trigger Setup allows a low and/or high value to be entered in engineering units. The logger only logs when the input value goes below the low value or exceeds the high value.

If none of these options are chosen, the logger will start as soon as the Issue button is pressed.

ALARM SETUP

Within the Input Setup button, the Alarm Setup section allows a high and low value to be entered per channel.

The **Time** column specifies how many times the high/low value can be crossed before an alarm is tripped.

The LED on the logger changes from flashing green to red when an alarm is tripped on that channel.

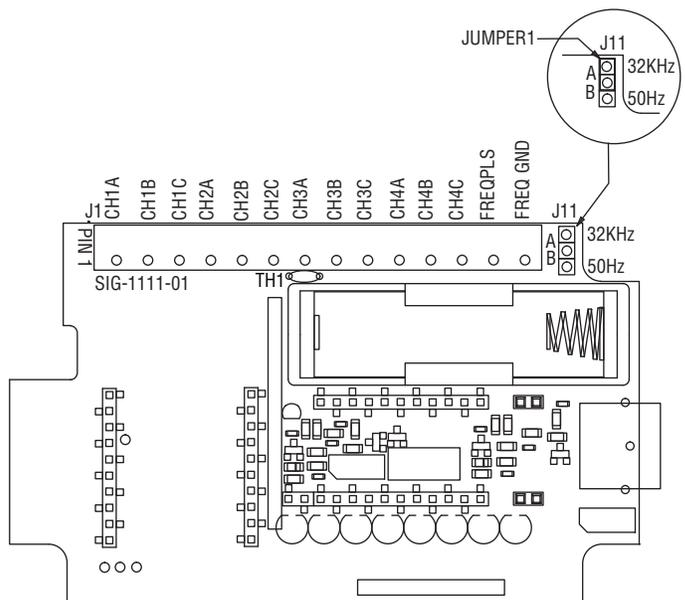
The alarms are armed the first time the input is in a non-alarm range. However, if Delayed or Trigger Start is enabled, then the alarms are armed as soon as it starts logging.

FREQUENCY INPUT

All loggers can measure frequency through the use of a digital input facility. The digital input can be either a Potential free contact, TTL, C MOS, or Open Collector transistor. It can measure frequencies of up to 32 KHz.

If the unit is measuring frequencies less than 50 Hz, then to prevent contact bounce that could give false readings, the internal filter should be activated. To activate, unscrew the 4 screws from the front of the unit and reposition the internal jumper ring so that the jumper will be in position B. The jumper is visible close to the edge connector.

It is not recommended that the internal filter should be activated for frequencies greater than 50 Hz and should thus be left in its initial position A.



REAL TIME DISPLAY

To display each channel's input value in real time electrical units, from the Logger Operations menu select UDL Network.

In the Explorer window that comes up, RIGHT CLICK the device icon and select Realtime.

The displayed value is initially scanned within one second of the issue, and then updates according to the Read Rate value.

MAINTENANCE

Upon final installation of the Series UDL Data Logger, no routine maintenance is required.

Fast logging will considerably shorten the battery life. To preserve battery life, it is recommended to use the longest practical sampling rate, and when the logger is not in use to set the sampling rate to the longest option.

A periodic check of the system calibration is recommended. The Series UDL is not field serviceable and should be returned if repair is needed (field repair should not be attempted and may void warranty). Be sure to include a brief description of the problem plus any relevant application notes. Contact customer service to receive a return goods authorization number before shipping.