



# THR-1000

## Two-Channel Temperature and Relative Humidity Data Logger

### FEATURES

- Low-cost temperature and RH logger
- Easy to use
- No accessories required
- 5-year battery life
- User selectable sample method and rate
- NIST certificates available on special request



The TRH-1000 is a low-cost, easy-to-use temperature and relative humidity data logger. With its precision calibrated internal temperature and relative humidity sensor, simply place the logger in the field and leave it to record. Once the desired information has been recorded, plug the logger into your computer and begin downloading and viewing the logged data with ACR's TrendReader® Express software.

### PRODUCT SPECIFICATIONS

**Size:**  
25.4 mm x 58.4 mm x 81.3 mm (1" x 2.3" x 3.2")

**Weight:**  
74 g (2.6 oz)

**Case Material:**  
Cycloyl® (GE Plastics) C120 ABS + Polycarbonate

**Mounting:**  
Magnetic backing and security loop

**Operating Limits:**  
-40 to 70°C (-40 to 158°F) and 0 to 100% RH (non-condensing)

**Clock Accuracy:**  
+/- 2 seconds per day

**Battery:**  
3.6 volt Lithium, 1 Amp-Hour

**Battery Life:**  
5 years under normal use (factory replaceable)

**Memory Size:**  
64 KB (32,640 readings per channel)

**Sampling Methods\*:**  
1. Continuous (First-in, First-out)  
2. Stop when full (Fill-then-stop)  
*\*Option to delay start*

**Sampling Rates\*:**  
User selectable from 8 seconds to 34 minutes  
*\*Readings stored to memory can be spot or averaged over the sample interval (except for the 8 second interval)*

**Resolution:**  
8-bit (1 part in 256)

**PC Requirements:**  
PC running Windows 2000 SP4, Windows XP SP1 or Windows Vista 32 bit. PC must have one free serial or USB port depending on connection.

**Accessories:**  
USB to Serial adapter cable  
Red port protector cap

**Software Requirements:**  
TrendReader® Express (included, see page 33 for details) or TrendReader® 2 (optional, see page 32 for details)

**Certifications and Standards:**

- Certified to CE standard EN61326: 1997 + A1: 1998 (European Emissions and Immunity) covering ESD, RFI, EFT/B, Surge, Conducted Immunity, and Voltage Dips and Interruptions
- Meets FCC standard 47 CFR Part 15, Subpart B: 1999, Class B (US Radiated and Conducted Emissions)

### SENSOR SPECIFICATIONS

**Internal Temperature/Relative Humidity Sensor:**

Type: CMOSens® (by Sensiron)  
Temp Range: -40 to 70°C (-40 to 158°F)  
Temp Accuracy: +/- 0.6°C @ 25°C (+/- 1.0°F @ 77°F)  
+/- 2.0°C from -40 to 70°C  
(+/- 3.6°F from -40 to 158°F)

RH Range: 0 to 100% RH (non-condensing)  
RH Accuracy: +/- 4% RH between 20 and 80% RH; otherwise +/- 5%

**Calibration:**  
Factory calibration verification and NIST certificates are available upon special request.

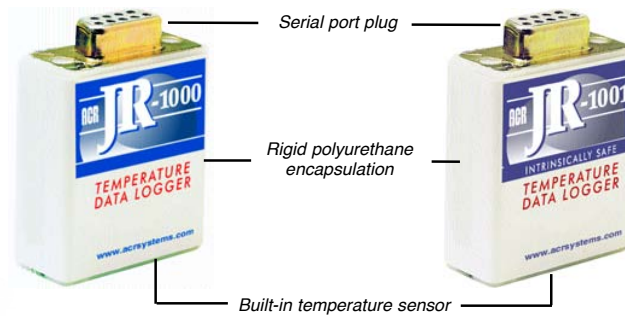
### Order Information

MODEL	DESCRIPTION	CATALOG #
TRH-1000-SP	TRH-1000 Starter Pack includes: TRH-1000 2-channel, 8 bit, 64 KB data logger (One ambient temperature and one ambient RH channel), TrendReader Express software, USB adapter cable and manual.	01-0194
TRH-1000	TRH-1000 2-channel, 8 bit, 64 KB data logger (One ambient temperature and one ambient RH channel). (Data logger only; no software or cable.)	01-0198



# JR-1000 / JR-1001 (Intrinsically Safe)

## Single Channel Temperature Data Logger



General Purpose

Intrinsically Safe

The JR-1000 series is the easiest to use temperature data logger available. With its precision calibrated internal temperature sensor, simply place the logger in the field and leave it to record. Once the desired information has been recorded, plug the logger into your computer and begin downloading and viewing the logged data with ACR's TrendReader® Express software.

### PRODUCT SPECIFICATIONS

#### Size:

33 mm x 43 mm x 20 mm (1.3" x 1.7" x 0.75")

#### Weight:

35 g (1.23 oz)

#### Case Material:

Polyurethane

#### Mounting:

Magnetic backing (JR-1000 only)

#### Operating Limits:

-40 to 85°C (-40 to 185°F) and 0 to 95% RH (non-condensing)

#### Clock Accuracy:

+/- 2 seconds per day

#### Battery:

3.6 volt Lithium, 0.45 Amp-Hour

#### Battery Life:

5 years under normal use

#### Memory Size:

32 KB (capable of storing up to 244,800 data points when data compression is selected)

#### Sampling Methods\*:

1. Continuous (First-in, First-out)
2. Stop when full (Fill-then-stop)

\*Option to delay start

#### Sampling Rates\*:

User selectable rates from 8 seconds to 34 minutes

\*Readings stored to memory can be spot or averaged over the sample interval (except for the 8 second interval)

#### Resolution:

8-bit (1 part in 256)

#### PC Requirements:

PC running Windows 2000 SP4, Windows XP SP1 or Windows Vista 32 bit. PC must have one free serial or USB port depending on connection.

#### Software Requirements:

TrendReader® Express (included with Starter Pack, see page 33 for details) or TrendReader® 2 (optional, see page 32 for details)

#### Accessories:

USB to Serial adapter cable

Red port protection cap

#### Certifications and Standards:

- Certified to CE standard EN61326: 1997 + A1: 1998 (European Emissions and Immunity) covering Radiated Electromagnetic Field, ESD and RFI
- Meets FCC standard 47 CFR Part 15, Subpart B: 1999, Class B (US Radiated and Conducted Emissions)

#### Product Approvals (JR-1001 only):

- UL approved Intrinsically Safe for use in Class I, Division 1, Groups A, B, C & D, Class II, Division 1, groups E, F & G, Class III, Division I Hazardous Locations T3C

#### Resistance to X-Rays:

- Tested for protection against a 160kV dose @ 5mA for 30 seconds (150mA-sec) @ 38 inches F.F.D. (about 100 times that of an airport x-ray machine)
- Tested for protection against Gamma Ray (equivalent to 0.137-1.38 mega volts) IR 192 - 28 curies @ 30 second exposure source to object distance 5"

#### INTERNAL TEMPERATURE SENSOR

##### Type:

Negative Temperature Coefficient Thermistor  
10,000 ohms @ 25°C (77°F)

##### Range:

-40 to 85°C (-40 to 185°F)

##### Accuracy:

+/- 0.2°C over the range of 0 to 70°C (+/- 0.3°F over the range of 32 to 158°F)

##### Resolution:

0.4°C (0.7°F) @ 25°C; better than 1°C (1.8°F) between -25 and 70°C (-13° and 158°F); better than 2.0°C (3.6°F) between -40 and -25°C (-40°F and -13°F)

#### Order Information

MODEL	DESCRIPTION	CATALOG #
JR-1000-SP	JR-1000 Starter Pack includes: JR-1000 (General Purpose) single channel, 8 bit, 32 KB data logger, TrendReader Express software, USB adapter cable and manual.	01-0192
JR-1000	JR-1000 single channel, 8 bit, 32 KB data logger. (Data logger only; no software or cable.)	01-0196
JR-1001	JR-1001 (Intrinsically Safe) single channel, 8 bit, 32 KB data logger. (Data logger, TrendReader Express software and manual only; USB adapter cable not included.)	01-0193

### FEATURES

- Low-cost logger
- Intrinsically Safe version available (JR-1001)
- 5-year battery life
- User configurable
- Data compression capability - store up to 244,800 readings
- No accessories required
- Extremely durable

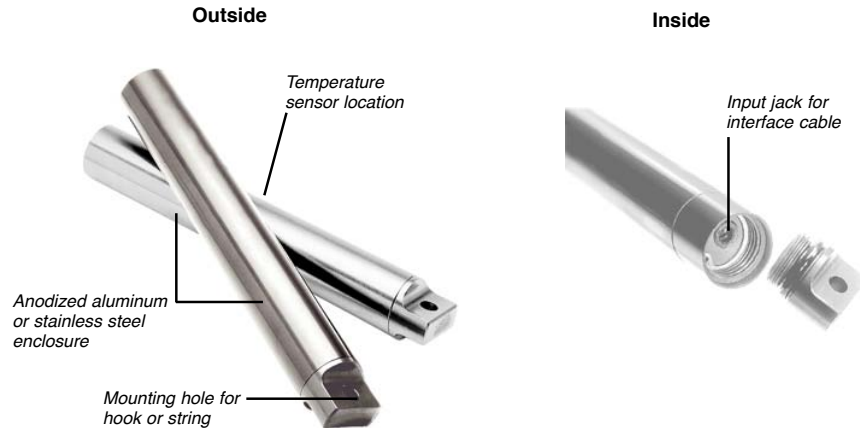


# Nautilus85 / Nautilus135

## Single Channel, Waterproof, Temperature Data Loggers

### FEATURES

- Monitor temperature in water, food or other liquids
- Available in stainless steel or aluminum
- Extremely durable and robust
- 10 year battery life
- Data compression capability
- Holds over 500 days of data
- User selectable sample methods and rates



The Nautilus85 and 135 are durable, robust data loggers that can monitor temperature in a variety of applications, but they are particularly well suited for the food and beverage, biomedical, pharmaceutical, and industries with hostile or "wet" environments (i.e. wastewater treatment plant). Housed in a stainless steel or aluminum casing, they can withstand virtually any environment and with an operating pressure range up to 2000 PSI, they are ideal for monitoring temperature in any type of water including oceans, ponds, rivers, streams and wastewater.

### PRODUCT SPECIFICATIONS

**Size:**  
18 mm x 127 mm (0.7" x 5.0")

**Weight:**  
Aluminum case: 51 g (1.8 oz)  
Stainless steel: case: 112 g (4.0 oz)

**Case Material:**  
Anodized aluminum or stainless steel

**Mounting:**  
Locking hole on cap

**Operating Limits:**  
Nautilus85: -40 to 85°C (-40 to 185°F) and waterproof  
Nautilus135: 10 to 135°C (50 to 275°F) and waterproof

**Operating Pressure Range:**  
Up to 2000 PSI

**Clock Accuracy:**  
+/- 2 seconds per day

**Battery:**  
3.6 volt Lithium, 0.95 Amp-Hour

**Battery Life\*:**  
Nautilus85: 10 years under normal use  
Nautilus135: 3 years under normal use  
*\*Batteries factory replaceable in both models*

**Power Consumption:**  
5 to 10 micro amps (continuous)

**Memory Size:**  
32KB (up to 244,800 readings with data compression)

**Sampling Methods\*:**  
1. Continuous (First-in, First-out)  
2. Stop when full (Fill-then-stop)  
*\*Option to delay start*

**Sampling Rates\*:**  
User selectable from 8 seconds to 34 minutes  
*\*Readings stored to memory can be spot or averaged over the sample interval (except for the 8 second interval)*

**Resolution:**  
8-bit (1 part in 256)

**PC Requirements:**  
PC running Windows 2000 SP4, Windows XP SP1 or Windows Vista 32 bit. PC must have one free serial or USB port depending on connection.

**Software Requirements:**  
TrendReader® 2 (optional, see page 32 for details) or TrendReader® Express (required, see page 33 for details)

**INTERNAL TEMPERATURE SENSOR**

**Type:**  
Negative Temperature Coefficient Thermistor  
10,000 ohms @ 25°C (77°F)

**Range:**  
Nautilus85: -40 to 85°C (-40 to 185°F)  
Nautilus135: 10 to 135°C (50 to 275°F)

**Sensor Accuracy:**  
Nautilus85: +/- 0.2°C over the range of 0 to 70°C  
(+/- 0.3°F over the range of 32 to 158°F)  
Nautilus135: +/- 0.5°C (+/- 0.9°F)

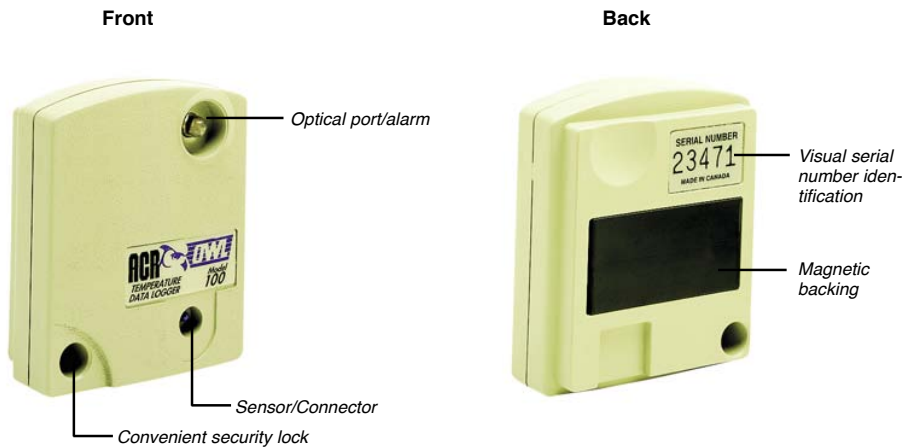
### Order Information

MODEL	TYPE	CATALOG #
NTL-100	Nautilus85 - Aluminum	01-0261
NTL-101	Nautilus85 - Stainless Steel	01-0262
NTL-102	Nautilus135 - Aluminum	01-0263
NTL-103	Nautilus135 - Stainless Steel	01-0264



# OWL - Common Specifications

## Single Channel, Configurable, 8-Bit Data Loggers



### FEATURES

- Single channel
- Monitor temperature, current, voltage or process signals
- 10-year battery life
- Flashing visual alarm
- Memory capacity of 32,767 readings
- Optical data transfer
- Fast sample capability

### PRODUCT SPECIFICATIONS

OWL data loggers share many common features. For further specifications on individual models, refer to pages 25-27.

**Size:**

60 mm x 48 mm x 19 mm (2.4" x 1.9" x 0.7")

**Weight:**

54 g (1.9 oz) - all models except OWL 100-Poly  
80 g (2.8 oz) - OWL 100-Poly (water-resistant model)

**Case Material:**

Noryl® plastic - all models except OWL 100-Poly  
Polyurethane - OWL 100-Poly (water-resistant model)

**External Connector:**

Removable snap type connector

**Mounting:**

Locking eyelet or magnetic backing

**Operating Limits:**

-40 to 70°C (-40 to 158°F) and 0 to 95% RH (non-condensing) on non-watertight models

**Clock Accuracy:**

+/- 2 seconds per day

**Battery:**

3.6 volt Lithium

**Battery Life:**

10 years under normal use (factory replaceable)

**Memory Size:**

32 KB (32,767 readings)

**Sampling Methods:**

- Delayed start or trigger start:
1. Continuous (First-in, First-out – not available with sample rates faster than 8 seconds)
  2. Stop when full (Fill-then-stop)

**Sampling Rates:**

User selectable rates from 5 per second to once every 12 hours

**Resolution:**

8-bit (1 part in 256)

**Communication:**

Optical - send/receive data from up to 1" between logger and interface cable (with no obstructions)

**Alarm Type:**

Optical - flashing red LED

**PC Requirements:**

PC running Windows 2000 SP4, Windows XP SP1 or Windows Vista 32 bit. PC must have one free serial or USB port depending on connection.

**Software Requirements:**

TrendReader® 2 (see page 32 for details)

**Certifications and Standards:**

- Certified to CE standard EN50082-1: 1992 (European Generic Immunity) covering ESD, RFI and EFT/B
- Meets CE standards EN55011 Class B: 1991 (European Radiated Emissions) and CISPR Class B: 1991 (International Radiated Emissions)

**Resistance to X-Rays:**

- Tested for protection against a 160kV dose @ 5mA for 30 seconds (150mA-sec) @ 38 inches F.F.D. (about 100 times that of an airport x-ray machine)
- Tested for protection against Gamma Ray (equivalent to 0.137-1.38 mega volts) IR 192 - 28 curies @ 30 second exposure source to object distance 5"



# OWL 100

## FEATURES

- Compact and small, monitor temperature virtually anywhere
- Water-resistant version available

## Single Channel Ambient Temperature Data Logger

The OWL 100 data logger records temperature in environments that typical data loggers cannot withstand. This model is also available in a water-resistant polyurethane enclosure (OWL 100-Poly) so it can be used in hostile environments where vibration or excess moisture is present.



### PRODUCT SPECIFICATIONS

<b>Thermistor Type:</b> NTC Thermistor (10K ohms @ 25°C) <b>Range:</b> -40 to 70°C (-40 to 158°F) <b>Total Accuracy:</b> +/- 0.5°C @ 25°C (0.9°F @ 77°F) <i>Can be increased by using narrow range feature</i> <b>Standard Resolution:</b> 0.5°C at 25°C (0.9°F @ 77°F); better than 1°C (1.8°F) between -25 and 70°C (-13 and 158°F); better than 2.0°C (3.6°F) between -40 and -25°C (-40 and -13°F) <i>Can be increased by using narrow range feature</i>	<b>Submergence Rating (OWL 100-Poly):</b> IP67 - 1 m depth (3.28 ft) in fresh water for 30 minutes <b>Memory Size:</b> 32 KB <b>Common Specifications:</b> See page 23 <b>Software Specifications:</b> See page 32
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#### Order Information

MODEL	CASE	CATALOG #
OWL-100 POLY	Water-resistant Poly	01-0050
OWL-100 PLASTIC	NORYL® Plastic	01-0250



# OWL 200

## FEATURES

- Monitor temperature virtually anywhere
- Use with a variety of different temperature probes:
  - General purpose
  - High temperature
  - Low temperature
  - Waterproof temperature
  - Oven temperature
  - Skin surface temperature
  - Pipe surface temperature

## Single Channel Temperature (Thermistor) Data Logger

The OWL 200 data logger can record temperature, resistance, or switch status. It can be placed in tight environments where typical data loggers cannot fit. Connect any one of ACR's ET series thermistor probes to the logger and begin recording. Monitor and record high temperature, low temperature, pipe surface, skin surface, or a variety of other temperatures.



### PRODUCT SPECIFICATIONS

<b>Range:</b> Varies depending on probe selected <b>Logger Accuracy:</b> +/- 1% of range <b>Memory Size:</b> 32 KB <b>Common Specifications:</b> See page 23	<b>Software Specifications:</b> See page 32 <b>Accessories:</b> ACR OWL ET Series Temperature Probes or any NTC thermistor probe
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#### Order Information

MODEL	CASE	CATALOG #
OWL-200 PLASTIC	NORYL® Plastic	01-0251



## OWL 300

### Single Channel AC Current Data Logger

The OWL 300 data logger records electric current in applications where typical data loggers cannot fit. Due to its small size, the OWL 300 can go directly into an electrical panel or even inside small electrical equipment allowing the user to record electric current in a safe, discreet, and convenient manner.



#### FEATURES

- Monitor a wide range of AC current
- Sense AC current from inside equipment

#### PRODUCT SPECIFICATIONS

**Frequency Ranges:**

60 Hz - with A60FL and A70FL current probes  
 50 Hz - with A65FL and A75FL current probes

**Current Ranges\*:**

5, 25, 100, and 250 Amps - With OWL A60FL and OWL A65FL current probes  
 10, 50, 250, and 500 Amps - With OWL A70FL and OWL A75FL current probes

\* Up to 3000 Amps with the ACR CT-50-2 current transformer

**Accuracy:**

+/- 4% F.S. above 10% of range

**Memory Size:**

32 KB

**Common Specifications:**

See page 23

**Software Specifications:**

See page 32

**Accessories:**

OWL AC Current Probes

*Order Information*

MODEL	CASE	CATALOG #
OWL-300-PLASTIC	NORYL® Plastic	01-0252



## OWL 400

### Single Channel Process Signal (DC Voltage) Data Logger

The OWL 400 is a rugged and versatile data logger that records DC voltage with ease and convenience. Ideal for monitoring (through commercially available transducers) a wide variety of measurement parameters. All voltage signals can be converted into custom engineering units using the simple equation editor in ACR's TrendReader® 2 software.



#### FEATURES

- Connect virtually any device that has an analog output between 0-40 V
- Record a variety of parameters (i.e. flow, level, pressure, etc.)

#### PRODUCT SPECIFICATIONS

**Input Range:**

0 to 38.4 Volts DC (software selectable ranges available)

**Input Impedance:**

Greater than 100K Ohm

**Accuracy:**

+/- 1% of full scale

**Memory Size:**

32 KB

**Common Specifications:**

See page 23

**Software Specifications:**

See page 32

*Order Information*

MODEL	CASE	CATALOG #
OWL-400 PLASTIC	NORYL® Plastic	01-0253



# OWL 500

## FEATURES

- Connect virtually any device that has a 4-20mA output
- Record a variety of parameters (i.e. flow, level, pressure, etc.)

## Single Channel Process Signal (4-20mA) Data Logger

The OWL 500 is a rugged and versatile data logger that records the popular 4-20mA process signal with ease and convenience. It is ideal for monitoring (through commercially available transducers) a wide variety of measurement parameters. All current process signals can be converted into custom engineering units using the simple equation editor in ACR's TrendReader® 2 software.



## PRODUCT SPECIFICATIONS

**Input Range:**

0 to 24 mA DC

**Input Impedance:**

100 Ohm

**Accuracy:**

+/- 1% of full scale

**Memory Size:**

32 KB

**Common Specifications:**

See page 23

**Software Specifications:**

See page 32

*Order Information*

MODEL	CASE	CATALOG #
OWL-500 PLASTIC	NORYL® Plastic	01-0254