



# High Power wireless Transmitters



**External Probes:  
Temperature,  
Humidity, and  
Barometric Pressure**

**Dual Thermocouple Input**



- ✓ Web Server
- ✓ Alarms by Email or Text Message
- ✓ No Special Software Required
- ✓ High Power, 1 Kilometer
- ✓ NEMA4/IP65 Enclosure

The rugged high-performance, high power **NEWPORT® wiSeries** wireless transmitters are compatible with the **NEWPORT zSeries** and **wiSeries** system for Web-based monitoring of Analog Voltage and Current, Temperature, Humidity, and Barometric Pressure.

The radio is a High Power IEEE 802.15.4 compliant transmitter operating at 2.4 GHz designed to transmit over greater distances and through more obstructions than the standard transmitter.

These wireless sensors transmit 1000 m (3280')—without obstructions or interferences—to a zSeries coordinator or wiSeries meter-controller. The coordinators and controllers connect directly to an Ethernet network and the Internet and serve active Web Pages to display and chart the data.

You can monitor and record Analog Voltage and Current, Temperature, Relative Humidity, and Barometric Pressure over an Ethernet network or the Internet without any special software—just your Web Browser.

These wiSeries wireless sensors are designed for demanding industrial applications indoors and harsh outdoor environments. The electronics are protected in a rugged weatherproof polycarbonate NEMA4 / IP65 rated housing. The rugged industrial sensors are supplied with ten feet of cable.



**Meter-Controller/  
Coordinator**

## WIRELESS TRANSMITTERS

Wireless transmitters are available with external probes appropriate for an almost unlimited variety of industrial and commercial applications.

NEWPORT offers a selection of end devices for a variety of applications. The high power end device supports one external sensor. The external sensors are designed for harsh environments such as outdoor weather, in HVAC ducts, in freezers and refrigerators.

NEWPORT offers wireless sensor/transmitters that run on either batteries or AC power. The battery version (zED-CCCELL) comes with two alkaline C-Cell batteries that can last for years. The AC version (zED-P, zED-LCD) comes with a 5 VDC universal AC adapter that operates on any voltage worldwide (110 to 240 VAC).

## ALARM AND EMAIL

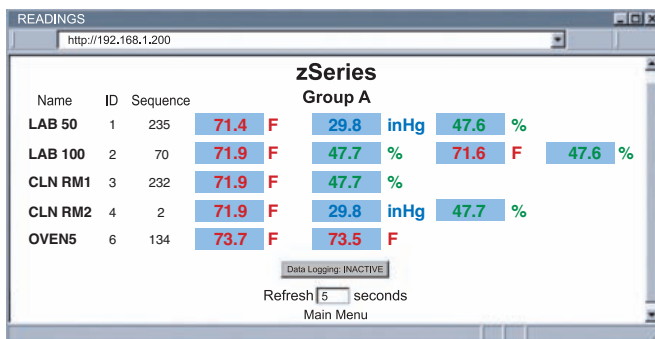
The wiSeries wireless sensor system can trigger an alarm if variables go above or below a set point that you determine. Your alarm can be sent by email to a single user or to a group distribution list, including text messages to cell phones and PDA's. The NEWPORT "MailNotifier" software is a free and easy program for this application. The meter-controller connects directly to an Ethernet Network or the Internet. Unlike an RS232 or USB device, it does not require a host computer.

## EMBEDDED WEBSERVER

The NEWPORT wiSeries wireless sensor system is easy to install, simple to operate, and features NEWPORT's award-winning iServer technology with an Embedded Web Server that requires no special software.

## CHARTS AND GRAPHS

The NEWPORT wiSeries system serves Active Web Pages to display real time readings and charts of Analog Voltage and Current, Temperature, Humidity, and Barometric Pressure. You can also log data in standard data formats for use in a spreadsheet or data acquisition program such as Excel or Visual Basic.



Name	ID	Sequence	Temp (F)	Temp (C)	Humidity (%)	Pressure (inHg)
LAB 50	1	235	71.4 F	29.8 C	47.6 %	inHg
LAB 100	2	70	71.9 F	47.7 C	71.6 %	47.6 %
CLN RM1	3	232	71.9 F	47.7 C		
CLN RM2	4	2	71.9 F	29.8 C	47.7 %	inHg
OVENS	6	134	73.7 F	73.5 C		

Data Logging: INACTIVE  
Refresh [5] seconds  
Main Menu

NEWPORT offers a free and easy to use program for logging data to Excel. The virtual chart viewed on the web page is a JAVA™ Applet that records a chart over the LAN or Internet in real time. With the NEWPORT wiSeries system there is no need to invest time and money learning a proprietary software program to log or chart the data.

Chart scales are fully adjustable on the fly. For example, the chart can display one minute, one hour, one day, one week, one month or one year. Temperature and humidity can be charted across the full span (-40 to 125°C, and 0 to 100% RH) or within any narrow range such as (20 to 30°C). NEWPORT offers an OPC Server software that makes it easy to integrate the wiSeries wireless sensor system with many popular Data Acquisition and Automation programs offered by NEWPORT, Wonderware, iConics, Intellution, Rockwell Automation, and National Instruments, among others.

## SPECIFICATIONS

### RELATIVE HUMIDITY

**Accuracy/Range:** zED-THP-x, zED-THP2-x, zED-BTHP-x

±2% for 10 to 90%;

±3% for 5 to 10% and 90 to 95%;

±4% for 0 to 5% and 95 to 100%

**Hysteresis:** ±1% RH

**Non-linearity:** ±3%

**Repeatability:** ±0.1%

**Resolution:** 0.1%

## TEMPERATURE

**Accuracy/Range:** zED-TP1-x, zED-TP2-x

±0.5°C for 10° to 85°C (±0.9°F for 50° to 185°F)

±1°C for -40° to 10°C and 85° to 125°C

(±1.8°F for -40° to 50°F and 185 to 257°F)

**Accuracy/Range:** zED-THP-x, zED-THP2-x, zED-BTHP-x

±0.5°C for 5° to 45°C (±1°F for 41° to 113°F)

up to 1.5°C for -40° to 5°C and 45° to 124°C

(up to 2.7°F for -40° to 41°F and 113° to 255°F)

**Accuracy/Range:** zED-BTP-x

±0.8°C @ 20°C (±1.5°F @ 68°F)

±2°C for -40° to 85°C (±3.6°F for -40° to 185°F)

**Repeatability:** ±0.1°C for zED-THP-x, zED-THP2-x,

zED-BTHP-x

**Resolution:** 0.1°C

## BAROMETRIC PRESSURE

**Accuracy/Range:** zED-BTP-x, zED-BTHP-x

±2 mbar for 10 mbar to 1100 mbar (1 KPa to 110 KPa)

**Resolution:** 0.1 mbar

## PROBE SPECIFICATIONS

**Industrial Probe:** zED-BTP-x, -BTHP-x, zED-THP-x

SS housing, 137mm x Ø 16mm (5" x Ø 0.63")

**Short Probe, Quick Disconnect:**

SS 316 housing, 78mm x Ø 16mm (3.1" x Ø 0.63")

for zED-THP2-x

**Stick Probe:** zED-TP1-x

ABS tubing, 152.4 mm x Ø6.35 mm (6" x Ø 0.25")

**Lug Mounted Probe:** zED-TP2-x

Copper tubing, 53.4 mm x Ø 7.92mm (2.1" x Ø 0.312");

mounting hole Ø 4.72mm (Ø 0.186")

**Cable:** 3 m (10') long x Ø 2.62 mm (0.103"); -80° to 200°C

(-112° to 392°F) zED-TP1-x, -TP2-x, zED-THP-x

3 m (10') long x Ø 4.45 mm (0.175");

-55° to 105°C (-67° to 221°F) for zED-BTP-x, -BTHP-x

## THERMOCOUPLE INPUT

**Temperature Range:** refer to Thermocouple Chart

**Temperature Accuracy:** refer to Thermocouple Chart

**Temperature Stability:** 0.08°C/°C

**Temperature Coefficient:** ±25 ppm/°C

**Thermocouple Cold End Tracking:** 0.1°C/°C

**Thermocouple Lead Resistance:** 100 ohm max.

**Thermocouple Type (ITS 90):** J, K, T, E, R, S, B, C, N, L (DIN J)

**Warm-Up to Rated Accuracy:** 30 minutes

## ANALOG INPUT

**Voltage Input:** Differential; bipolar; ±100 mV, ±1 V, ±10 V

**Input Impedance:** 400 K ohm for voltage

**Current Input:** Differential; bipolar; ±20 mA (5 Ohm load)

**Accuracy:** ±1% Full Range @ 25°C

**Reading Rate:** Periodic (1 sample/update) or continuous (20 samples/second)

**A/D Conversion:** Sigma-Delta

**Resolution:** 16 bits

**Temperature Coefficient:** ±50 ppm/°C

**Common Mode Rejection:** 105 dB

**Normal Mode Rejection:** 98 dB

**Warm-Up to Rated Accuracy:** 30 minutes

# High Power Wireless Transmitters

## WIRELESS COMMUNICATION

**Standard:** IEEE 802.15.4, DSSS  
**Frequency:** 2.4 GHz (2400 to 2483.5 MHz), 16 channels

**Network Topology:** Star Topology

**Range:** Up to 1000 m (3280 ft) without obstructions or interference

## POWER (zED-x-P, zED-x-LCD)

**Power Input:** 5 Vdc  
**Consumption:** 0.8 W max  
**Safety Qualified AC Power Adapter (included)**

**Nominal Output:** 5 Vdc @ 0.6 A

**Input:** 100 to 240 Vac, 50/60 Hz

**Power Adapter**

**Operating Temperature:**

0° to 40°C (32° to 104°F)



Safety Qualified Universal AC Power Adapter, included with zED-x-P, zED-x-LCD

## Lithium Back-up Battery:

One 3.6 Vdc, supplied

**Lifetime:** Estimate of 2 years with frequency of 1 reading per 2 minutes (7 months with -TC/-VI option)

## POWER (zED-x-CCELL)

**Alkaline Battery:** Two C-cell 1.5 Vdc, supplied

**Lifetime:** Estimate of 7 years with frequency of 1 reading per 2 minutes

## ENVIRONMENTAL

**Operating Temperature:**

-20° to 70°C (-4° to 158°F),

90% RH non-condensing for **zED-x-P**

-18° to 55°C (-0.4° to 131°F),

90% RH non-condensing

for **zED-x-CCELL**

-10° to 60°C (14° to 140°F),

90% RH non-condensing for **zED-x-LCD**

## PACKAGING

**Enclosure Material:** Polycarbonate

**Enclosure Protection:** NEMA4/IP65

**Enclosure Dimensions:**

135.9 L x 82 W x 39 mm D

(5.35 L x 3.23 W x 1.56" D)

## GENERAL

**Agency Approval:** FCC Part 15C;

CE EMC; 2004/108/EC, LVD

2006/95/EC, RTT&E 1999/5/EC

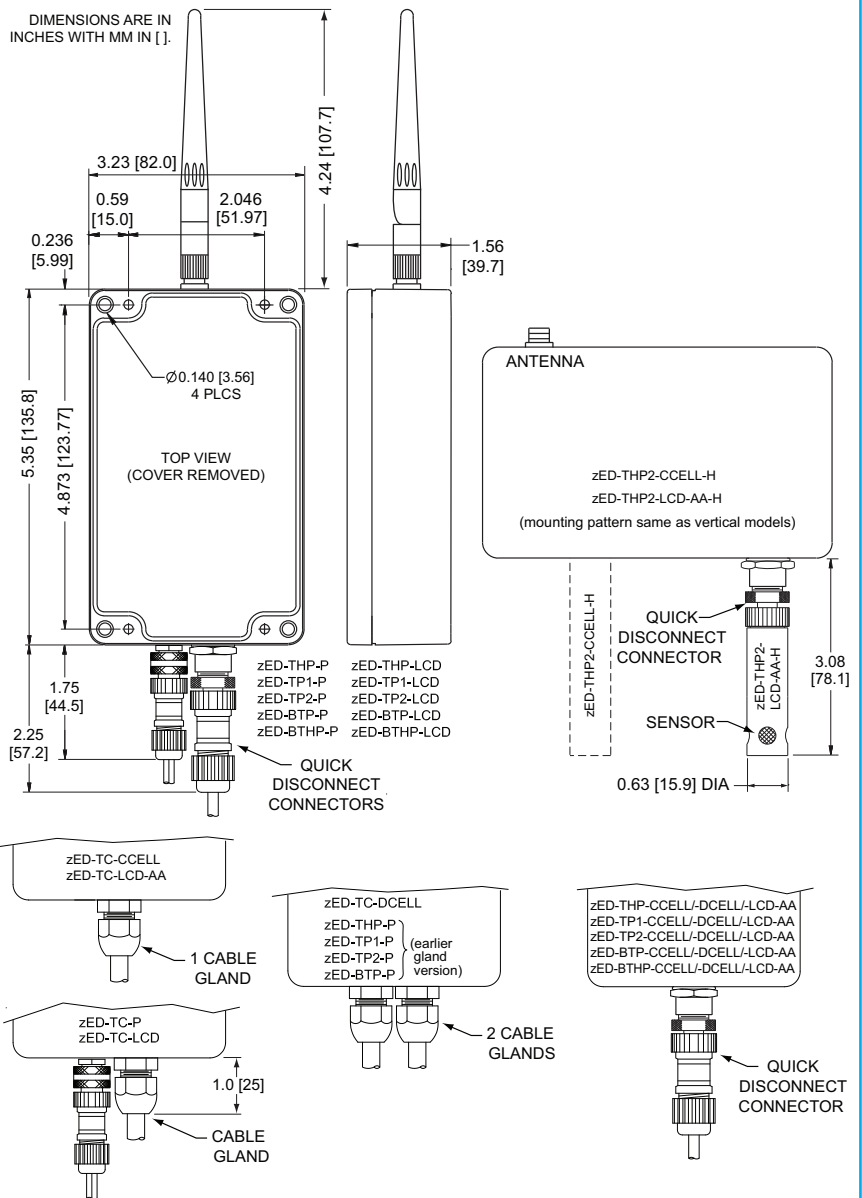
**Software:** iConnect (configuration

software for the Ethernet interface),

**iLog** (Excel-based software for

automatic data logging), and

**Mail Notifier** (email alarm notification software)



THERMOCOUPLE CHART			
	Input Type	Range	Accuracy
<b>J</b>	Iron - Constantan	-210 to 760°C / -346 to 1400°F	0.4°C / 0.7°F
<b>K</b>	CHROMEGA®- ALOMEGA®	-270 to -160°C / -160 to 1372°C -454 to -256°F / -256 to 2502°F	1.0°C / 0.4°C 1.8°F / 0.7°F
<b>T</b>	Copper - Constantan	-270 to -190°C / -190 to 400°C -454 to -310°F / -310 to 752°F	1.0°C / 0.4°C 1.8°F / 0.7°F
<b>E</b>	CHROMEGA®- Constantan	-270 to -220°C / -220 to 1000°C -454 to -364°F / -364 to 1832°F	1.0°C / 0.4°C 1.8°F / 0.7°F
<b>R</b>	Pt / 13%Rh-Pt	-50 to 40°C / 40 to 1768°C -58 to 104°F / 104 to 3214°F	1.0°C / 0.5°C 1.8°F / 0.9°F
<b>S</b>	Pt / 10%Rh-Pt	-50 to 100°C / 100 to 1768°C -58 to 212°F / 212 to 3214°F	1.0°C / 0.5°C 1.8°F / 0.9°F
<b>B</b>	30%Rh-Pt / 6%Rh-Pt	100 to 640°C / 640 to 1820°C 212 to 1184°F / 1184 to 3308°F	1.0°C / 0.5°C 1.8°F / 0.9°F
<b>C</b>	5%Re-W / 26%Re-W	0 to 2320°C / 32 to 4208°F	0.4°C / 0.7°F
<b>N</b>	Nicrosil - Nisil	-250 to -100°C / -100 to 1300°C -418 to -148°F / -148 to 2372°F	1.0°C / 0.4°C 1.8°F / 0.7°F
<b>L</b>	J DIN	-200 to 900°C / -328 to 1652°F	0.4°C / 0.7°F

A complete wireless system requires at least:

One (1) End Device **zED-x-P**, **zED-x-LCD**, or **zED-x-CCELL** (up to 8 End Devices)

One (1) Coordinator or Meter/Controller (Receiver) **zCDR**, **wi8xx-zT**, or **wiDRxx-zT**.

## To Order (Specify Model No.)

Model No.	Description
<b>zED-TP1-P</b>	Wireless end device: Temperature sensor with stick probe, AC powered
<b>zED-TP2-P</b>	Wireless end device: Temperature sensor with lug mount probe, AC powered
<b>zED-THP-P</b>	Wireless end device: Temperature and humidity sensor, AC powered
<b>zED-BTP-P</b>	Wireless end device: Barometric pressure and temperature sensor, AC powered
<b>zED-BTHP-P</b>	Wireless end device: Barometric pressure, temperature and humidity sensor, AC powered
<b>zED-TC-P</b>	Wireless end device: Dual thermocouple Input, AC powered
<b>zED-VI-P</b>	Wireless end device: analog input, AC powered
<b>zED-TP1-CCELL</b>	Wireless end device: Temperature sensor with stick probe, battery powered
<b>zED-TP2-CCELL</b>	Wireless end device: Temperature sensor with lug mount probe, battery powered
<b>zED-THP-CCELL</b>	Wireless end device: Temperature and humidity sensor, battery powered
<b>zED-BTP-CCELL</b>	Wireless end device: Barometric pressure and temperature sensor, battery powered
<b>zED-BTHP-CCELL</b>	Wireless end device: Barometric pressure, temperature and humidity sensor, battery powered
<b>zED-TC-CCELL</b>	Wireless end device: Dual thermocouple input, battery powered
<b>zED-VI-CCELL</b>	Wireless end device: Analog input, battery powered
<b>zED-THP2-LCD-AA-H</b>	Wireless end device: Temperature and humidity sensor, two AA alkaline batteries, with LCD display
<b>zED-THP2-CCELL-H</b>	Wireless end device: Temperature and humidity sensor, two C-cell alkaline batteries
<b>zED-TP1-LCD</b>	Wireless end device: Temperature sensor with stick probe, AC powered, LCD display
<b>zED-TP2-LCD</b>	Wireless end device: Temperature sensor with lug mount probe, AC powered, LCD display
<b>zED-THP-LCD</b>	Wireless end device: Temperature and humidity sensor, AC powered, LCD display
<b>zED-BTP-LCD</b>	Wireless end device: Barometric pressure and temperature sensor, AC powered, LCD display
<b>zED-BTHP-LCD</b>	Wireless end device: Barometric pressure, temperature and humidity sensor, AC power, LCD display
<b>zED-TC-LCD</b>	Wireless end device: Dual thermocouple input, AC powered, LCD display
<b>zED-VI-LCD</b>	Wireless end device: Analog input, AC powered, LCD display
<b>WIRELESS COORDINATOR AND METER CONTROLLER WITH COORDINATOR (RECEIVERS)</b>	
<b>zCDR</b>	Coordinator, which can support up to thirty-two (32) end devices
<b>zCDR-VI</b>	Coordinator, which can support up to thirty-two (32) analog input end devices
<b>wi833-zT</b>	Meter/Controller, which can support up to eight (8) temperature end devices, with 2 relays: Form "C" SPDT 3 A @ 120 Vac, 3 A @ 240 Vac, embedded ethernet, 90 to 240 Vac, 50/60 Hz
<b>wi853-zT</b>	Meter/Controller, which can support up to eight (8) temperature end devices, with analog output 0 to 10 Vdc or 0-20 mA @ 500 ohm max. and Form "C" SPDT 3 A @ 120 Vac, 3 A @ 240 Vac, embedded ethernet, 90 to 240 Vac, 50/60 Hz
<b>wiDR22-zT</b>	DIN rail monitor/controller, which can support up to eight (8) temperature end devices, with two solid state relays (SSR's): 0.5 A @ 120/240 Vac continuous, embedded ethernet, 90 to 240 Vac, 50/60 Hz
<b>wiDR44-zT-DC</b>	DIN rail monitor/controller, which can support up to eight (8) temperature end devices, with two pulsed 10 Vdc @ 20 mA (for use with external SSR), embedded ethernet, low power option 12 - 36 Vdc, 24Vac

**Ordering Example:** for two (2) high power end devices with an external temperature sensor in a lug mounting probe housing and a 10' cable **zED-TP2-P**, and one (1) coordinator **zCDR**.

For the meter/controllers, other output options are available, please contact our Sales Department.

## Calibration

<b>CAL-3-HU</b>	NIST traceable calibration certificate. Three humidity points: 25%, 50%, 75%, one temperature point 25°C (for new units)
<b>CAL-3-HU-P-T</b>	NIST traceable calibration certificate. Three humidity, barometric pressure, and temperature Points (for new units)
<b>CAL-3-P</b>	NIST traceable calibration certificate. Three barometric pressure points, and temperature 25°C (for new units)
<b>CT485B-CAL-KIT</b>	Calibration kit, 33% and 75% RH standards

**Ordering Example:** a NIST traceable calibration certificate for your new unit: **CAL-3-HU**.

**Note:** 2 type K thermocouples with 1m of 24 AWG PFA insulated wire with stripped lead termination included with WTC models.