



CYPRESS
ENVIROSYSTEMS



Blue Box Server

User Manual

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1.0 Introduction

Thank you for purchasing the Cypress EnviroSystems Blue Box Server (BBS), a core component of the Cypress EnviroSystems Monitoring System. Please read this manual thoroughly before using the BBS.

2.0 Safety Precautions

- Do not expose the BBS to water.
- Do not try to repair yourself as it contains no user-serviceable parts. Contact a qualified service technician for repairs. See Section 10.0, Support, for details.

3.0 Description of BBS

The Cypress EnviroSystems Blue Box Server, BBS, is a flexible industrial server that collects wireless data from various Cypress EnviroSystems field devices and enables access to the readings from a variety of user interfaces. The BBS can be used as part of an overall existing infrastructure or as a stand alone station.



Figure 1. Blue Box Server

Through industry standard protocols, the data can be connected to your existing plant systems. The data can also be viewed from any computer on the intranet using a standard web browser.

3.1 Cypress Envirosystems Monitoring System

The Cypress Envirosystems Blue Box Server is part of the Cypress Envirosystems Monitoring System. This system can be setup one of two ways:



Figure 2. Cypress Envirosystems Monitoring System Setup Options

For users with existing plant databases and operator stations, the BBS can forward data seamlessly integrating with existing plant SCADA or IT infrastructure. This can be accomplished using a variety of open communication protocols (e.g. OPC, BACnet, web services). This configuration is depicted above as Option A.

For users who do not need to connect to an existing infrastructure, the BBS can also serve as a standalone Web Server and Text Message Server, shown as Option B. Standard PC workstations can become operator stations simply by using any standard web browser. Alarm notifications can be sent via email or SMS to cell phones.

3.2 Related Products

Blue Box Servers can be used to communicate with the following Cypress Envirosystems field devices:

- Wireless Gauge Readers (WGRs)
- Wireless Transducer Readers (WTRs)
- Wireless Steam Trap Monitors (WSTM)
- Wireless Freezer Monitors (WFM)
- Wireless Battery Monitors (WBM)
- Wireless Range Extenders (WREs)

4.0 Setup Instructions

4.1 Components

The BBS comes with the following components:



Connect the antennas to the back of the BBS as shown below. Then connect the power cord. To turn on the BBS press the rocker switch highlighted below.



Figure 3. BBS Power Switch Location

To change the receiver channel frequency, set the DIP switches accordingly.

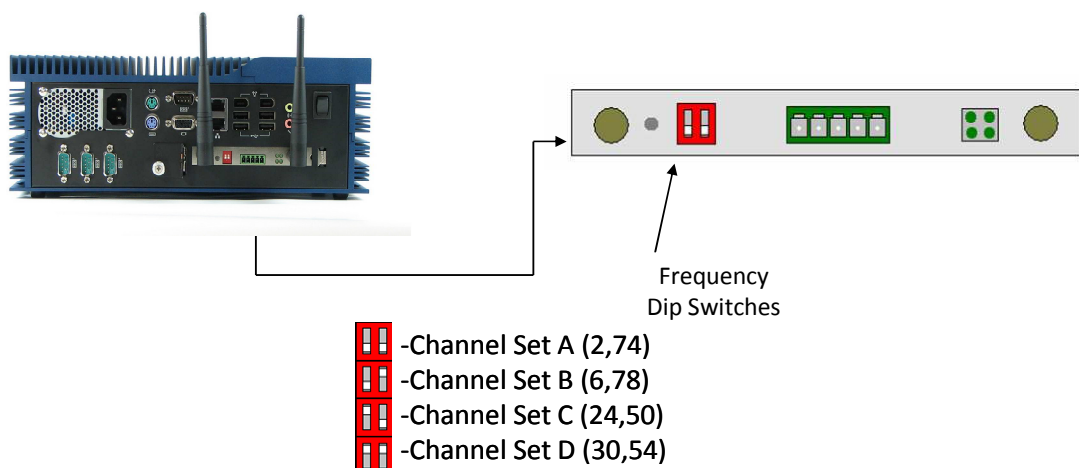


Figure 4. BBS Channel Frequency Configuration

5.0 Web Console

The Cypress EnviroSystems Web Console is a browser-based program that enables you to remotely monitor, configure, and review data from wireless field devices. This section explains how to read and edit data points, set up alerts and notifications, graph and export data, and troubleshoot common problems.

5.1 Starting the Program and General Navigation

To start the Cypress EnviroSystems Web Console, open a Web browser and type in the IP address or name of the Blue Box Server and click **Enter**.



Figure 5. Cypress EnviroSystems Web Console Main Menu Bar

Once the web page loads, the application opens to the **READINGS** page (by default), where you can find information on every data point, or *node*, in the system.

At the top of the **READINGS** page and every page in the application is a Main Menu bar with tabs that enable you to navigate through the different pages in the program. The BBS may be set up to receive data from multiple types of field devices. If so, there the various field devices will have their own pages. See Figure 6 below.

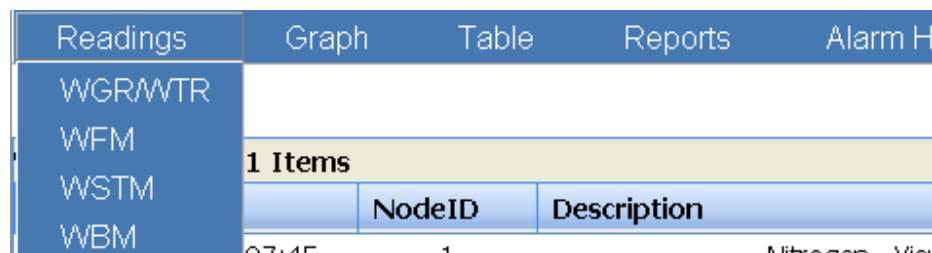


Figure 6. Cypress EnviroSystems Web Console Main Menu Bar

5.2 Readings Page

The **READINGS** page enables you to check the summary of node readings. It also provides other detailed information, such as the time of the reading, as well as the upper and lower control limits and the status of a particular node. Figure 7 below shows a sample **WGR AND WTR READINGS** page.



Readings

Graph

Table

Reports

Alarm History

Status

Configuration

Site Settings

Help

Export

Alarm Status

WGR Readings: 21 Items

Timestamp	NodeID	Description	Reading	Units	LCL	UCL	Status
07/24/2010 06:07:45	1	Nitrogen - Viewing Area	100.0	PSI	80	190	OK
07/24/2010 06:07:52	2	Process Vacuum - Viewing Area	-25	" Hg	-30	-10	OK
07/24/2010 06:07:53	3	ASML Lens purge, He/O2, Left Cylinder, Outlet	100	PSI	80	105	OK
07/24/2010 06:09:25	4	ASML Lens purge, He/O2, Left Cylinder, Inlet	2,456	PSI	300	3000	OK
07/24/2010 06:08:16	5	ASML Lens purge, He/O2, Right Cylinder, Outlet	100	PSI	80	105	OK
07/24/2010 06:07:13	6	ASML Lens purge, He/O2, Right Cylinder, Inlet	956	PSI	300	3000	OK
07/24/2010 06:08:10	7	C14, BCL3, Outlet	8	PSI	4	10	OK
07/24/2010 06:07:30	8	LPCVD, Burn Box, Exhaust	-1	Inches of Water	-15	1.5	OK
07/24/2010 06:10:07	9	Nitrogen	106	PSI	85	160	OK
07/24/2010 06:07:31	10	Argon	65	PSI	60	200	OK
07/24/2010 06:08:33	11	Oxygen	78	PSI	70	200	OK
07/24/2010 06:07:38	12	Hydrogen	128	PSI	80	200	OK
07/24/2010 06:07:36	13	UHP Nitrogen	59	PSI	57	90	OK
07/24/2010 06:02:40	14	House CDA	116	PSI	85	130	OK
07/24/2010 06:09:21	15	Compressed Air-Viewing Area	115	PSI	0	200	OK
07/24/2010 06:08:08	16	C10A,Chlorine,Outlet	20	PSI	-15	30	OK
07/24/2010 06:07:34	17	C10A,Chlorine,Inlet	61	PSI	0	200	OK
07/24/2010 06:07:50	18	C10B,HBr,Outlet	14	PSI	-15	100	OK
07/24/2010 06:09:26	19	C10B,HBr,Inlet	248	PSI	0	1000	OK
07/24/2010 06:07:27	20	ASML Tool Purging Pressure,Outlet	59	PSI	59	6.1	OK
07/24/2010 06:07:41	21	EPI reactor,Exhaust Burn Box,Hydrogen	41	PSI	0	100	OK

Figure 7. WGR and WTR READINGS page

5.2.1 Get Node Readings

To check your node readings, click on **READINGS** in the Main Menu. The **READINGS** page appears with the following information:

- **Timestamp:** Time when the last reading was taken. This time is based on the BBS system clock.
- **NodeID:** Identification number that your service representative originally assigns to a node.
- **Description:** A brief description of the node, for example, "Emergency Generator" or "Water Inlet Pressure."
- **Reading:** Most recent reading taken from the node. Your service representative configures the update rate when the system is installed.
- **Units:** Unit of measurement that applies to the reading.
- **LCL:** Lower control limit. When a node reading falls below this value, the systems signals an alert. (See Section 5.6, Setting Up the Alarm)
- **UCL:** Upper control limit. When a node reading rises above this value, the system signals an alert. (See Section 5.6, Setting Up the Alarm)
- **Status:** Indicates the status of the node, for example, whether it is okay, inactive, or below or above acceptable limits. Values are: OK, Inactive, Error, Lower Ctl Limit, Upper Ctl Limit.

Based on the status, individual rows are also highlighted to provide an extra visual cue. See Table 1 for a detailed description of each status and the highlighted color.

Error	Reported by WGR. Row is highlighted in red
Verify	If Node readings have not changed in past 2 days the row is highlighted in yellow. By default this feature is disabled. To enable this feature contact Cypress EnviroSystems field service group by sending an email to cys_support@cypress.com
Upper Ctr Limit (UCL)	If the reading for the UCL limit exceeds the limit for the node set by the user, the row is highlighted in orange
Lower Ctr Limit (LCL)	If the reading for the UCL drops below the limit for the node set by the user, the row is highlighted in orange
Low Battery	This status will show if a batteries are low. Please contact cys_support@cypress.com to schedule battery replacements. Row will be highlighted in Yellow.
No Data	This status is displayed if a Field Device has been configured on the BBS, but no data has ever been sent from that field device. The Row will be highlighted in gray.
OK	This is the default status of the Node. The row is not highlighted
Inactive	This status is displayed if a field device has stopped sending data to the BBS. Row will be highlighted in blue.

Table 1. Status Column Details

Tip: Similar to standard web pages, the Cypress EnviroSystems Web Console pages are static. To get a new value on a reading, you must reload the page by clicking **F5** on your keyboard or the **Reload** button on your browser.

5.2.2 Sort Readings

You can sort a column of readings by ascending or descending value by simply clicking on any column heading that is underlined. The system does not save sorts, however, and reverts back to the default view when the page reloads.

5.3 Other Readings Pages

Depending on the field device, the readings page may look a little different. WGRs and WTRs share the same page and the data is displayed as seen above in Figure 7.

Figure 8 and Figure 9 show other examples of what the readings page will look like.

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Readings Graph Table Reports Alarm History Status Configuration Site Settings Help

Export Alarm Status

WSTM Readings: 36 Items

Timestamp	ID	Name	Manufacturer	Size	Inlet Temp	Outlet Temp	Battery	Condition
02/18/2010 17:08:44	112	T-110 2 (815-2")	Unknown	0.03125 "	589.7	589.7	OK	Blowing
11/19/2009 14:22:33	115	T-119 1 (800-1/2")	Unknown	0.03125 "	157.5	117.1	OK	Blowing
11/19/2009 14:31:40	106	T-107 3 (815-2")	Unknown	0.03125 "	99.3	87.6	OK	Flooded
11/19/2009 14:29:23	130	T-115 B 2 (815-2")	Unknown	0.03125 "	95.1	76.8	OK	Flooded
11/19/2009 14:22:17	133	T-115 B 3 (815-2")	Unknown	0.03125 "	52.8	18.8	OK	Flooded
11/19/2009 14:17:45	136	HX 206 1 (800-1/2")	Unknown	0.03125 "	96.2	101.6	OK	Flooded
11/19/2009 14:23:27	163	T-117 A 2 (800-1/2")	Unknown	0.03125 "	88.7	72.4	OK	Flooded
11/19/2009 14:23:59	166	T-117 B 1 (815-2")	Unknown	0.03125 "	81.3	54.5	OK	Flooded
11/19/2009 14:24:57	169	T-117 B 2 (800-1/2")	Unknown	0.03125 "	100.1	153.9	OK	Flooded
11/19/2009 14:31:00	172	T-111 1 (815-2")	Unknown	0.03125 "	101.8	78.8	OK	Flooded
11/19/2009 14:26:58	181	HX 103 B,3 (GB-2")	Unknown	0.03125 "	69.1	85.4	OK	Flooded
11/19/2009 14:18:35	100	T-107 1 (815-2")	Unknown	0.03125 "	225.8	172.0	OK	Good

Figure 8. The Wireless Steam Trap Monitor (WSTM) Readings Page

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Readings Graph Table Reports Alarm History Status Configuration Site Settings Help

Export Alarm Status

WFM Readings: 1 Items

Timestamp	NodeID	Description	LowStageCurrent	HighStageCurrent	Temperature	DoorSwitch
08/19/2010 08:48:59	234	LowStage	0.02 -OK	0.02 -OK	39.50 -Upper Ctl Limit	CLOSE

Figure 9. Wireless Freezer Monitor (WFM) Readings Page

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Readings Graph Table Reports Alarm History Status Configuration Site Settings Help

UPS BANK BATTERY Alarm Status

ALL ALL ALL BATT1 BATT2 BATT3 Display Export

WBM Readings: 3 Items

Timestamp	NodeID	Description	Voltage(mV)	Temperature(C)	Resistance(mOhms)
08/19/2010 07:24:41	9	UPS1_BANK1_BATT3	12214 -OK	26 -OK	NOT TAKEN
08/16/2010 13:55:09	5	UPS1_BANK1_BATT2	4920 -Inactive	24 -Inactive	NOT TAKEN
08/19/2010 07:52:35	1	UPS1_BANK1_BATT1	12115 -OK	26 -OK	9.163

Figure 10. Wireless Battery Monitor (WBM) Readings Page

5.3.1 WSTM Readings Page

Users can specify which WSTM columns they would like to see in **READINGS** page by selecting columns from the **SITE SETTINGS** WSTM Tab. The column selections will be saved as a browser cookie to the local computer so users from different computers may select different columns to view.

WSTM Readings

<input checked="" type="checkbox"/> Time Stamp	<input checked="" type="checkbox"/> Type	<input checked="" type="checkbox"/> Model	<input checked="" type="checkbox"/> Outlet Temp	<input checked="" type="checkbox"/> RSSI
<input checked="" type="checkbox"/> ID	<input checked="" type="checkbox"/> Application	<input checked="" type="checkbox"/> Size	<input checked="" type="checkbox"/> Battery	<input checked="" type="checkbox"/> Cold Junction Temp
<input checked="" type="checkbox"/> Name	<input checked="" type="checkbox"/> Pressure	<input checked="" type="checkbox"/> Inlet Temp	<input checked="" type="checkbox"/> Delta Temp	<input checked="" type="checkbox"/> Condition
<input checked="" type="checkbox"/> Location	<input checked="" type="checkbox"/> Manufacturer			

Figure 11. Available WSTM fields (found in the Site Settings page)

In addition to the status fields detailed in Table 1 above, WSTMs will report the following in the condition column based on the alarm profile set in the **CONFIGURATION** page.

Blowing	The trap is blowing steam. The row is highlighted in red.
Leaking	The trap is starting to blow steam. The row is highlighted in orange.
Flooded	The trap is building up condensate on the inlet. The row is highlighted in red.
Out of Service	There is no steam going to the trap. It is not being used in the system. The row is highlighted in blue.
Offline	The WSTM is not reporting data to the BBS. The row is highlighted in yellow.
No Data	The WSTM has never reported any data to the BBS. The row is highlighted in yellow.
Good	This is the default status of the Node. The row is not highlighted.

Table 2. WSTM Condition Field

5.4 Configuring Nodes

You can add, delete, and edit node configurations by going to the **CONFIGURATION** page. This page is password restricted, so that only the system administrator can access it. If multiple devices have been setup to communicate with the BBS, each device will have a separate configuration page

5.4.1 Access Node Configurations

To access the Node Configuration screen:

1. **Click CONFIGURATION in the Main Menu.**

A dialog box, shown in Figure 12, appears asking for a user name and password.

Enter your User Name and Password to access protected pages.



WGR Server Login

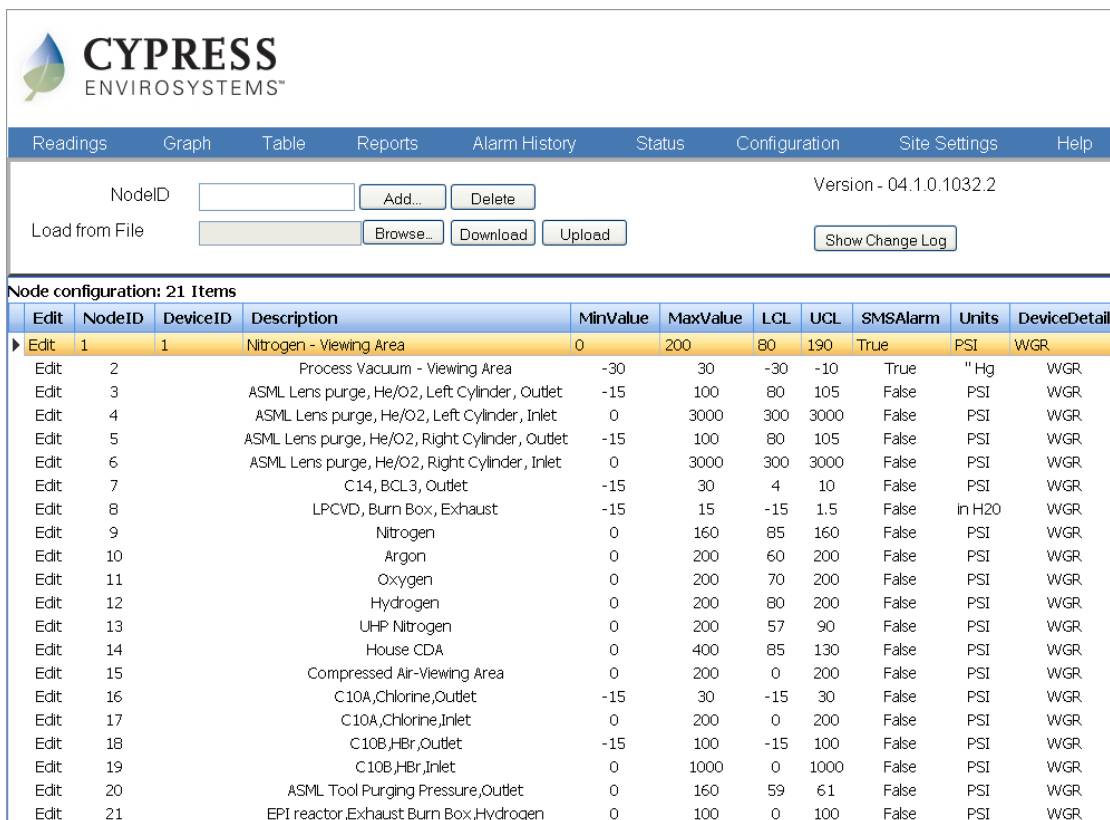
User Name:

Password:

Figure 12. Administrator login page

2. In the dialog box, enter a user name and password, and click Log In.

The configuration page appears, as shown in Figure 13 below. It has two clearly defined sections: a top section, where you can add and delete individual or multiple nodes, and a bottom section that displays all the nodes in the system that are visible to the server.



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Readings Graph Table Reports Alarm History Status Configuration Site Settings Help

NodeID

Load from File

Version - 04.1.0.1032.2

Node configuration: 21 Items

	Edit	NodeID	DeviceID	Description	MinValue	MaxValue	LCL	UCL	SMSAlarm	Units	DeviceDetail
▶	Edit	1	1	Nitrogen - Viewing Area	0	200	80	190	True	PSI	WGR
	Edit	2		Process Vacuum - Viewing Area	-30	30	-30	-10	True	" Hg	WGR
	Edit	3		ASML Lens purge, He/O2, Left Cylinder, Outlet	-15	100	80	105	False	PSI	WGR
	Edit	4		ASML Lens purge, He/O2, Left Cylinder, Inlet	0	3000	300	3000	False	PSI	WGR
	Edit	5		ASML Lens purge, He/O2, Right Cylinder, Outlet	-15	100	80	105	False	PSI	WGR
	Edit	6		ASML Lens purge, He/O2, Right Cylinder, Inlet	0	3000	300	3000	False	PSI	WGR
	Edit	7		C14, BCL3, Outlet	-15	30	4	10	False	PSI	WGR
	Edit	8		LPCVD, Burn Box, Exhaust	-15	15	-15	1.5	False	in H2O	WGR
	Edit	9		Nitrogen	0	160	85	160	False	PSI	WGR
	Edit	10		Argon	0	200	60	200	False	PSI	WGR
	Edit	11		Oxygen	0	200	70	200	False	PSI	WGR
	Edit	12		Hydrogen	0	200	80	200	False	PSI	WGR
	Edit	13		UHP Nitrogen	0	200	57	90	False	PSI	WGR
	Edit	14		House CDA	0	400	85	130	False	PSI	WGR
	Edit	15		Compressed Air-Viewing Area	0	200	0	200	False	PSI	WGR
	Edit	16		C10A, Chlorine, Outlet	-15	30	-15	30	False	PSI	WGR
	Edit	17		C10A, Chlorine, Inlet	0	200	0	200	False	PSI	WGR
	Edit	18		C10B, HBr, Outlet	-15	100	-15	100	False	PSI	WGR
	Edit	19		C10B, HBr, Inlet	0	1000	0	1000	False	PSI	WGR
	Edit	20		ASML Tool Purging Pressure, Outlet	0	160	59	61	False	PSI	WGR
	Edit	21		EPI reactor, Exhaust Burn Box, Hydrogen	0	100	0	100	False	PSI	WGR

Figure 13. Main Configuration page

5.4.2 Add or Delete a Node

The dialog box in the top section of the **CONFIGURATION** page enables you to add or delete nodes, as shown in Figure 14 below.

NodeID <input style="width: 80px;" type="text"/> <input style="margin-left: 10px;" type="button" value="Add..."/> <input style="margin-left: 10px;" type="button" value="Delete"/>	Version - 04.1.0.1032.2
Load from File <input style="width: 80px;" type="text"/> <input style="margin-left: 10px;" type="button" value="Browse..."/> <input style="margin-left: 10px;" type="button" value="Download"/> <input style="margin-left: 10px;" type="button" value="Upload"/>	<input style="margin-left: auto;" type="button" value="Show Change Log"/>

Figure 14. The upper dialog box in the CONFIGURATION page

Every field device is associated with a NodeID. Field devices are configured by the handheld device and start transmitting data, but the BBS must be configured to collect data for that device. To add a node, enter the new Node ID and press the Add button. This will bring up a pop-up dialog box. See Figure 15 below. This dialog box will allow you to edit the node settings. Please see below in the section “Edit a Node” for details.

5.4.2.1 WGR and WTR Configuration Parameters

WGR/WTR

Available Node List

136

>>

NodeID 1

Device ID 1

OK

Close

Refresh

Name

Unit

☒ Units

PSI

☐ Binary

0-TRUE/FALSE

☐ Node Math function

-

Decimal Precision

1

Sample Rate(Sec)

600

☒ **Enable Alarm**

Alarm Excursion #

3

Alarm Thresholds

Min

80

Max

190

☒ **WGR Configuration**

Min

0

Max

200

☐ **WTR Configuration**

☐ Log Scale

Device Type

WTR

☐ **Sensor Responsivity**

Sensor Type

0-5V

Volts or mA 1

Value1

Volts or mA 2

Value2

☐ **One point Calibration**

Value Measured

Value Desired

Cold Junction

Figure 15. Node Configuration pop-up dialog box for WGRs and WTRs

Available List	Node	Nodes that can be seen by the BBS but have not been configured.
NodeID		NodeID of the Cypress Envirosystems field device
Device ID		A unique identifier for a WTR device. If the user does not input a value, the default is the NodeID number.
Name		A basic description of the node.
Unit		Unit of measurement for each Gauge. The user will either specify the type of measurement such as PSI, H2O, Inch, LBS, or a binary type (TRUE/FALSE, ON/OFF or ACTIVE/INACTIVE). In case of Binary unit type the Unit column display is empty in the Readings page. For WTRs with Device Type = Thermocouples or Thermistors the this field can be either "C" for Celsius or "F" for Fahrenheit
Node Detail		If a binary value was used in the "Unit" column, the type of binary is displayed in this column. Additionally, in applications requiring a delta reading between two existing nodes a virtual delta node can be configured. Values for the delta nodes are computed based on the delta logic specified and are updated whenever the existing nodes change.
Node Math function		Select this for the Steam Trap node. Enter Node1 and Node2 that will be used to calculate the reading for new node. E.g. Node3 = Node1-Node2
Precision		Precision is used to set the number of decimal places to display on the readings page. If no precision is used, decimal places will be displayed depending on how large or small the reading value is at the time.
Update Rate		Update rate as it has been configured on the field device (duration of time between samples). This is used to determine if the field device is inactive (no wireless data). Changing this value does not change the update rate on the field device.
Enable Alarm		This field must be checked for the SMS alarm to be activated for the node. If a limit is exceeded, and the SMS Alarm box is checked for the node, an SMS Text message and/or email will be sent to all SMS Alarm recipients.
Alarm Excursion #		This is the number of consecutive times the node data limit has is exceeded before an SMS and/or Email notification is sent. (Only works when SMS Alarm is checked)
Min Alarm Threshold		This is a specified lowest allowable value. If the node reading drops below this number, an alarm condition is created.
Max Alarm Threshold		This is a specified highest allowable value. If the node reading rises above this number, an alarm condition is created.
WGR Configuration		Select this radio button if configuring a WGR

WGR Configuration - Min	Minimum gauge value for the WGR
WGR Configuration - Max	Maximum gauge value for the WGR
WTR Configuration	Select this radio button if configuring a WTR type node. Use this for WFM and WSTM nodes as well
WTR Configuration – Log Scale	Select this check box if the reading needs to be calculated in Log scale
WTR Device Type	Select the proper WTR type for the device
WTR Sensor Type	Select this for to specify the right sensor type. Based on the readings select the sensor type. E.g. in case of Freezer WTR, reading1 is current sensor1 and sensor type is OPT1-2, Reading2 is current sensor2 and the sensor type is OPT1-2, Reading3 is Thermocouple and sensor type is Thermocouple Type-K, Reading4 is Door switch, can be set to OPT1-2. For Binary unit type sensor type is ignored.
Sensor Responsivity - Volts or mA1, Volts or mA2, Value1, Value2	Select this to calculate slope and intercept values in $y = mx + B$ Enter these readings for calculating the slope and intercept. This will be used later to calculate the Min and Max values and engineering reading. These can be either noted down from the data sheet or the actual reading from the device. E.g. For WTR type 0-10 V, Volts1 = 0, Volts2 = 10.35, Value1 = 0.0001, Value2 = 1000
WTR One-Point Calibration	Check this box if a 1 point calibration can be done. This is typically used for calibrating thermocouples.
One Point Calibration – Value Measured , Value desired, Cold junction	Use this to apply the offset correction value to the ADC readings. . e.g. Temp measured might be 40 C. And user might say the right temp is 45C. Then enter the inputs here to calculate the gain constant (correction factor) that is used internally for the correction
Ok	Save data, but keep window open
Close	Don't save any data, just close dialog
Refresh	Get the latest data from the database

Table 3 describes the node configuration parameters for the WGR and WTR. After adding the parameters, the **Ok** button must be clicked to save the data. Each WGR and each channel of a WTR must be configured separately. For 2 channel WTRs, use the Node ID assigned when configuring the device with a

Available Node List	Nodes that can be seen by the BBS but have not been configured.
NodeID	NodeID of the Cypress Envirosystems field device
Device ID	A unique identifier for a WTR device. If the user does not input a value, the default is the NodeID number.

Name	A basic description of the node.
Unit	Unit of measurement for each Gauge. The user will either specify the type of measurement such as PSI, H2O, Inch, LBS, or a binary type (TRUE/FALSE, ON/OFF or ACTIVE/INACTIVE). In case of Binary unit type the Unit column display is empty in the Readings page. For WTRs with Device Type = Thermocouples or Thermistors the this field can be either "C" for Celsius or "F" for Fahrenheit
Node Detail	If a binary value was used in the "Unit" column, the type of binary is displayed in this column. Additionally, in applications requiring a delta reading between two existing nodes a virtual delta node can be configured. Values for the delta nodes are computed based on the delta logic specified and are updated whenever the existing nodes change.
Node Math function	Select this for the Steam Trap node. Enter Node1 and Node2 that will be used to calculate the reading for new node. E.g. Node3 = Node1-Node2
Precision	Precision is used to set the number of decimal places to display on the readings page. If no precision is used, decimal places will be displayed depending on how large or small the reading value is at the time.
Update Rate	Update rate as it has been configured on the field device (duration of time between samples). This is used to determine if the field device is inactive (no wireless data). Changing this value does not change the update rate on the field device.
Enable Alarm	This field must be checked for the SMS alarm to be activated for the node. If a limit is exceeded, and the SMS Alarm box is checked for the node, an SMS Text message and/or email will be sent to all SMS Alarm recipients.
Alarm Excursion #	This is the number of consecutive times the node data limit has is exceeded before an SMS and/or Email notification is sent. (Only works when SMS Alarm is checked)
Min Alarm Threshold	This is a specified lowest allowable value. If the node reading drops below this number, an alarm condition is created.
Max Alarm Threshold	This is a specified highest allowable value. If the node reading rises above this number, an alarm condition is created.
WGR Configuration	Select this radio button if configuring a WGR
WGR Configuration - Min	Minimum gauge value for the WGR
WGR Configuration - Max	Maximum gauge value for the WGR
WTR Configuration	Select this radio button if configuring a WTR type node. Use this for WFM and WSTM nodes as well

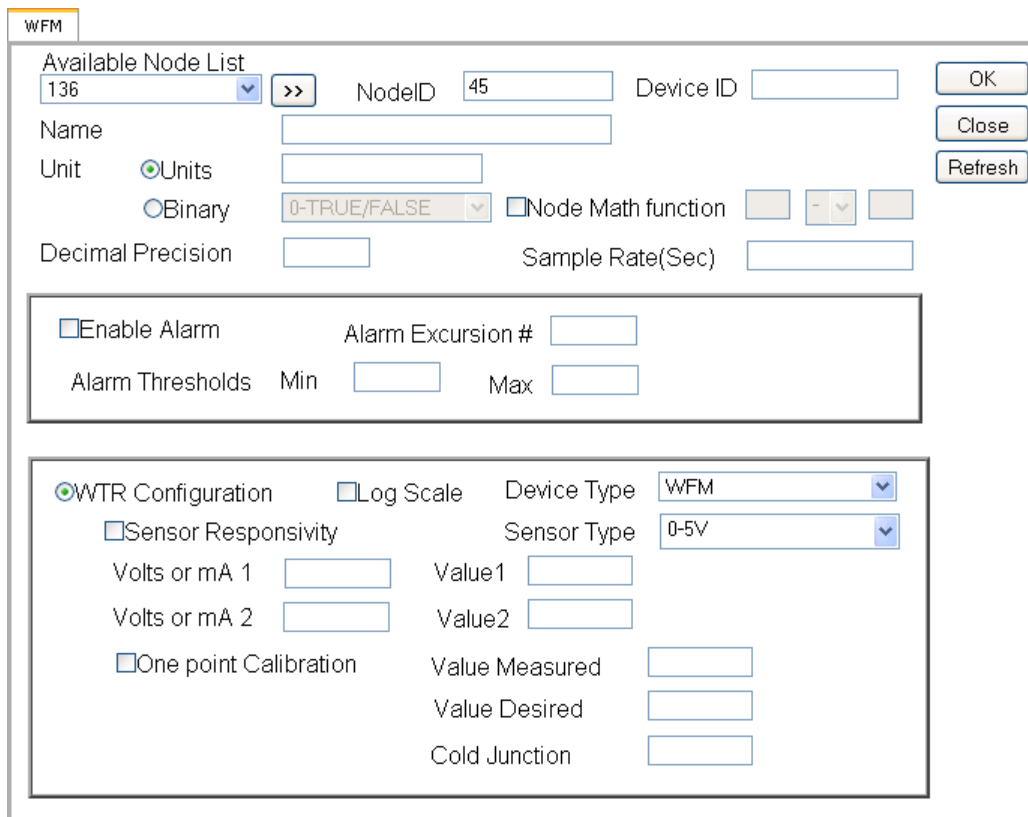
WTR Configuration – Log Scale	Select this check box if the reading needs to be calculated in Log scale
WTR Device Type	Select the proper WTR type for the device
WTR Sensor Type	Select this for to specify the right sensor type. Based on the readings select the sensor type. E.g. in case of Freezer WTR, reading1 is current sensor1 and sensor type is OPT1-2, Reading2 is current sensor2 and the sensor type is OPT1-2, Reading3 is Thermocouple and sensor type is Thermocouple Type-K, Reading4 is Door switch, can be set to OPT1-2. For Binary unit type sensor type is ignored.
Sensor Responsivity - Volts or mA1, Volts or mA2, Value1, Value2	Select this to calculate slope and intercept values in $y = mx + B$ Enter these readings for calculating the slope and intercept. This will be used later to calculate the Min and Max values and engineering reading. These can be either noted down from the data sheet or the actual reading from the device. E.g. For WTR type 0-10 V, Volts1 = 0, Volts2 = 10.35, Value1 = 0.0001, Value2 = 1000
WTR One-Point Calibration	Check this box if a 1 point calibration can be done. This is typically used for calibrating thermocouples.
One Point Calibration – Value Measured , Value desired, Cold junction	Use this to apply the offset correction value to the ADC readings. . e.g. Temp measured might be 40 C. And user might say the right temp is 45C. Then enter the inputs here to calculate the gain constant (correction factor) that is used internally for the correction
Ok	Save data, but keep window open
Close	Don't save any data, just close dialog
Refresh	Get the latest data from the database

Table 3. WGR and WTR Node configuration details

5.4.2.1.1 Configuring 2 Channel WTRs

For 2 channel WTRs, the first channel shall receive the NodeID that was given to the device via the handheld during the WTR setup. The second channel shall receive the NodeID of the first channel + 1, and the device ID must be equal to the NodeID of channel 1. i.e. if a 2 channel WTR was configured with the handheld with NodeID 35, when adding the nodes to the Web Console, channel 1 will have NodeID = 35 and DeviceID = 35, and channel 2 will have NodeID = 36 and DeviceID = 35.

5.4.2.2 WFM Configuration Parameters



The image shows a 'WFM' configuration dialog box. At the top, there's an 'Available Node List' with a dropdown showing '136' and a '>>' button. To the right are fields for 'NodeID' (containing '45') and 'Device ID', followed by 'OK', 'Close', and 'Refresh' buttons. Below these are fields for 'Name', 'Unit' (with radio buttons for 'Units' and 'Binary'), and 'Decimal Precision'. The 'Binary' option is selected, showing a dropdown for '0-TRUE/FALSE'. There's also a 'Node Math function' section with a minus sign and a dropdown. A 'Sample Rate(Sec)' field is also present. A section titled 'Enable Alarm' contains an 'Alarm Excursion #' field and 'Alarm Thresholds' with 'Min' and 'Max' fields. The bottom section, 'WTR Configuration', includes a 'Log Scale' checkbox, 'Device Type' (set to 'WFM'), 'Sensor Responsivity' checkbox, 'Sensor Type' (set to '0-5V'), 'Volts or mA 1' and 'Value1' fields, 'Volts or mA 2' and 'Value2' fields, a 'One point Calibration' checkbox, and fields for 'Value Measured', 'Value Desired', and 'Cold Junction'.

Figure 16. Node Configuration pop-up dialog box for WFMs

Available Node List	Nodes that can be seen by the BBS but have not been configured.
NodeID	NodeID of the Cypress EnviroSystems field device
Device ID	A unique identifier for a WTR device. If the user does not input a value, the default is the NodeID number.
Name	A basic description of the node.
Unit	Unit of measurement for each Gauge. The user will either specify the type of measurement such as PSI, H2O, Inch, LBS, or a binary type (TRUE/FALSE, ON/OFF or ACTIVE/INACTIVE). In case of Binary unit type the Unit column display is empty in the Readings page. For WTRs with Device Type = Thermocouples or Thermistors the this field can be either "C" for Celsius or "F" for Fahrenheit
Node Detail	If a binary value was used in the "Unit" column, the type of binary is displayed in this column. Additionally, in applications requiring a delta reading between two existing nodes a virtual delta node can be configured. Values for the delta nodes are computed based on the delta logic specified and are updated whenever the existing nodes change.

Node Math function	Select this for the Steam Trap node. Enter Node1 and Node2 that will be used to calculate the reading for new node. E.g. Node3 = Node1-Node2
Precision	Precision is used to set the number of decimal places to display on the readings page. If no precision is used, decimal places will be displayed depending on how large or small the reading value is at the time.
Update Rate	Update rate as it has been configured on the field device (duration of time between samples). This is used to determine if the field device is inactive (no wireless data). Changing this value does not change the update rate on the field device.
Enable Alarm	This field must be checked for the SMS alarm to be activated for the node. If a limit is exceeded, and the SMS Alarm box is checked for the node, an SMS Text message and/or email will be sent to all SMS Alarm recipients.
Alarm Excursion #	This is the number of consecutive times the node data limit has is exceeded before an SMS and/or Email notification is sent. (Only works when SMS Alarm is checked)
Min Alarm Threshold	This is a specified lowest allowable value. If the node reading drops below this number, an alarm condition is created.
Max Alarm Threshold	This is a specified highest allowable value. If the node reading rises above this number, an alarm condition is created.
WTR Configuration	Select this radio button if configuring a WTR type node. Use this for WFM and WSTM nodes as well
WTR Configuration – Log Scale	Select this check box if the reading needs to be calculated in Log scale
WTR Device Type	Select WFM as the device.
WTR Sensor Type	Select this to specify the right sensor type. For the first node ID, select OPT1-2, for the second Node ID select OPT1-2, for the third Node ID select Thermocouple Type-K and for the fourth Node ID the sensor type is ignored since this is a binary On/Off device.
Sensor Responsivity - Volts or mA1, Volts or mA2, Value1, Value2	Select this to calculate slope and intercept values in $y = mx + B$ Enter these readings for calculating the slope and intercept. This will be used later to calculate the Min and Max values and engineering reading. These can be either noted down from the data sheet or the actual reading from the device. E.g. For WTR type 0-10 V, Volts1 = 0, Volts2 = 10.35, Value1 = 0.0001, Value2 = 1000

WTR One-Point Calibration	Check this box if a 1 point calibration can be done. This is typically used for calibrating thermocouples.
One Point Calibration – Value Measured , Value desired, Cold junction	Use this to apply the offset correction value to the ADC readings. . e.g. Temp measured might be 40 C. And user might say the right temp is 45C. Then enter the inputs here to calculate the gain constant (correction factor) that is used internally for the correction
Ok	Save data, but keep window open
Close	Don't save any data, just close dialog
Refresh	Get the latest data from the database

describes the node configuration parameters for the WFM. After adding the parameters, the **Ok** button must be clicked to save the data. For each WFM, 4 consecutive Node IDs must be created all with the same Device ID. For example if a WFM was configured with the handheld as NodeID = 1, the following would be set up:

Node ID	Device ID	Name	Units	Device Type	Sensor Type	Volts or mA1 – Value 1	Volts or mA2 – Value2
1	1	Low Stage Compressor Current	A	WFM	Opt 1-2	Volts = 0 Value = 0	Volts = 5, Value = 20
2	1	High Stage Compressor Current	A	WFM	Opt 1-2	Volts = 0 Value = 0	Volts = 5, Value = 20
3	1	Freezer Temp	C or F	WFM	Thermocouple Type-K	N/A	N/A
4	1	Door Switch	Binary: On/Off or Off/On	WFM	N/A	N/A	N/A

Table 4. WFM Configuration parameter example

Available Node List	Nodes that can be seen by the BBS but have not been configured.
NodeID	NodeID of the Cypress EnviroSystems field device
Device ID	A unique identifier for a WTR device. If the user does not input a value, the default is the NodeID number.
Name	A basic description of the node.
Unit	Unit of measurement for each Gauge. The user will either specify the type of measurement such as PSI, H2O, Inch, LBS, or a binary type (TRUE/FALSE, ON/OFF or ACTIVE/INACTIVE). In case of Binary unit type the Unit column display is empty in the Readings page. For WTRs with Device Type = Thermocouples or Thermistors the this field can be either “C” for Celsius or “F” for Fahrenheit
Node Detail	If a binary value was used in the “Unit” column, the type of binary is displayed in this column. Additionally, in applications requiring a delta reading between two existing nodes a virtual delta node can be configured. Values for the delta nodes are computed based on the delta logic specified and are updated whenever the existing nodes change.

Node Math function	Select this for the Steam Trap node. Enter Node1 and Node2 that will be used to calculate the reading for new node. E.g. Node3 = Node1-Node2
Precision	Precision is used to set the number of decimal places to display on the readings page. If no precision is used, decimal places will be displayed depending on how large or small the reading value is at the time.
Update Rate	Update rate as it has been configured on the field device (duration of time between samples). This is used to determine if the field device is inactive (no wireless data). Changing this value does not change the update rate on the field device.
Enable Alarm	This field must be checked for the SMS alarm to be activated for the node. If a limit is exceeded, and the SMS Alarm box is checked for the node, an SMS Text message and/or email will be sent to all SMS Alarm recipients.
Alarm Excursion #	This is the number of consecutive times the node data limit has is exceeded before an SMS and/or Email notification is sent. (Only works when SMS Alarm is checked)
Min Alarm Threshold	This is a specified lowest allowable value. If the node reading drops below this number, an alarm condition is created.
Max Alarm Threshold	This is a specified highest allowable value. If the node reading rises above this number, an alarm condition is created.
WTR Configuration	Select this radio button if configuring a WTR type node. Use this for WFM and WSTM nodes as well
WTR Configuration – Log Scale	Select this check box if the reading needs to be calculated in Log scale
WTR Device Type	Select WFM as the device.
WTR Sensor Type	Select this to specify the right sensor type. For the first node ID, select OPT1-2, for the second Node ID select OPT1-2, for the third Node ID select Thermocouple Type-K and for the fourth Node ID the sensor type is ignored since this is a binary On/Off device.
Sensor Responsivity - Volts or mA1, Volts or mA2, Value1, Value2	Select this to calculate slope and intercept values in $y = mx + B$ Enter these readings for calculating the slope and intercept. This will be used later to calculate the Min and Max values and engineering reading. These can be either noted down from the data sheet or the actual reading from the device. E.g. For WTR type 0-10 V, Volts1 = 0, Volts2 = 10.35, Value1 = 0.0001, Value2 = 1000

WTR One-Point Calibration	Check this box if a 1 point calibration can be done. This is typically used for calibrating thermocouples.
One Point Calibration – Value Measured , Value desired, Cold junction	Use this to apply the offset correction value to the ADC readings. . e.g. Temp measured might be 40 C. And user might say the right temp is 45C. Then enter the inputs here to calculate the gain constant (correction factor) that is used internally for the correction
Ok	Save data, but keep window open
Close	Don't save any data, just close dialog
Refresh	Get the latest data from the database

Table 5. WFM Node configuration details

5.4.2.3 WSTM Configuration Parameters

WSTM

NodeID Unit Decimal Precision SampleRate(Sec)

WSTM Trap Info

Name

Location

Manufacturer Model Number

Type Orifice Size

Application Pressure

Trap Alarm Profile

Profile Name

☒ Enable Alarm Excursion Limit

☐ **Channel Calibration**

Inlet Sensor Cal. Const Current Value Desired Value

Outlet Sensor Cal. Const Current Value Desired Value

Figure 17. Node Configuration pop-up dialog box for the WSTM

The WSTM configuration dialog box (seen in Figure 17) is slightly different than the other field devices' configuration dialog boxes. This is because users can enter steam trap specific information that will help better monitor their steam system and calculate steam loss. See Table 6 below for a description of each WSTM configuration parameter.

NodeID	NodeID of the WSTM.
--------	---------------------

Unit	Dropdown box containing the supported units for WSTMs.
Update Rate	Update rate configured to the WSTM. This is used to determine if the device has lost wireless connectivity. The WSTM update rate cannot be changed from the web application.
Name	A basic description of steam trap.
Location	A basic description of the location of the steam trap.
Manufacturer	Manufacturer of the steam trap. Dropdown list of user configured manufacturers. See the section on Site Settings – WSTM tab (Figure 26) for information on how to add or remove Manufacturers from the list.
Model Number	Model Number of the steam trap.
Type	Type of trap used. i.e bucket or thermostatic. Dropdown list of user configured types. See the section on Site Settings – WSTM tab (Figure 26) for information on how to add or remove types from the list.
Orifice size	Size of the orifice on the steam trap. Dropdown list of user configured orifice sizes. See the section on Site Settings – WSTM tab (Figure 26) for information on how to add or remove sizes from the list.
Application	User defined dropdown field to describe how the steam trap is used in the plant. See the section on Site Settings – WSTM tab (Figure 26) for information on how to add or remove applications from the list.
Pressure	Saturated steam pressure. Select the units from the dropdown.
Trap Alarm Profile	Profile to set temperature limits that control the trap condition on the readings page. A single trap profile can be created for all WSTMs, or individual profiles can be created for each trap. Choose from the list of created trap profiles or create a new one.
Enable Alarm	Checkbox to turn on and off SMS and email alarms for this WSTM.
Excursion Limit	Number of consecutive times the set points are tripped before an alarm is sent.
Inlet Temperature – Min Good Temp	Minimum inlet temperature which the steam trap is still considered in good condition.

Inlet Temperature – Max out of service temperature	Maximum inlet temperature where the trap is considered out of service. Above this value and below the Min Good temp, the trap is considered to be flooded. Below this value, the trap is considered to be out of service.
Outlet Temp – Max leaking temp	Maximum outlet temperature where the trap is considered to be leaking. Above this value, the trap is considered to be completely blown.
Outlet Temp – Max Good temp	Maximum outlet temperature where the trap is considered to be in good working condition. Above this value, the trap is considered to be leaking or blowing.
Outlet Temp – Max out of service temperature	Maximum outlet temperature where the trap is considered out of service. Above this value the Max Good temp, the trap is considered to be in good working condition. Below this value, the trap is considered to be out of service.
One Point Calibration – Value Measured, Value desired	Use this to apply the offset correction value to the ADC readings. . e.g. Temp measured might be 40°C. And user might say the right temp is 45°C. Then enter the inputs here to calculate the gain constant (correction factor) that is used internally for the correction.
OK	Save data, but keep window open.
Close	Do not save any data, just close dialog.
Refresh	Get the latest data from the database.

Table 6. WSTM Node configuration details

5.4.2.3.1 WSTM Alarm Profiles

The screenshot shows the 'WSTM Node Configuration Dialog Box with Alarm Profile'. At the top, there are fields for 'NodeID' (1), 'Unit' (°C), 'Decimal Precision' (1), and 'SampleRate(Sec)' (900). Below these are 'OK' and 'Close' buttons. The 'WSTM Trap Info' section includes fields for 'Name', 'Location', 'Manufacturer' (Unknown), 'Model Number', 'Type' (Unknown), 'Orifice Size' (0.03125"), 'Application' (Unknown), and 'Pressure' (psi). The 'Trap Alarm Profile' section has a dropdown for 'Default Profile', 'Edit', 'New', and 'Delete' buttons, a 'Profile Name' field (Default Profile), a checked 'Enable Alarm' checkbox, and an 'Excursion Limit' dropdown (2). The 'Inlet Temperature Limits (°C)' section shows 'Good' (105.00), 'Flooded', 'Max Out of Service Temp' (50.00), and 'Out of Service'. The 'Outlet Temperature Limits (°C)' section shows 'Blowing' (115.00), 'Leaking', 'Max Good Temp' (95.00), 'Max Out of Service Temp' (50.00), and 'Out of Service'. The 'Channel Calibration' section has checkboxes for 'Inlet Sensor Cal. Const' and 'Outlet Sensor Cal. Const', both set to 1.0, with 'Current Value' and 'Desired Value' fields.

Figure 18. WSTM Node Configuration Dialog Box with Alarm Profile

Each WSTM is assigned to an alarm profile in order to determine the condition of a trap. The default alarm profile may be modified, but not deleted. All WSTMs are required to be assigned to an alarm profile. If an alarm profile has been created, assigned to multiple WSTMs, then deleted, the default alarm profile will then be assigned. The selected alarm profile in the dropdown menu will be assigned to the WSTM.

5.4.2.3.1.1 Add/Edit/Delete Alarm Profiles

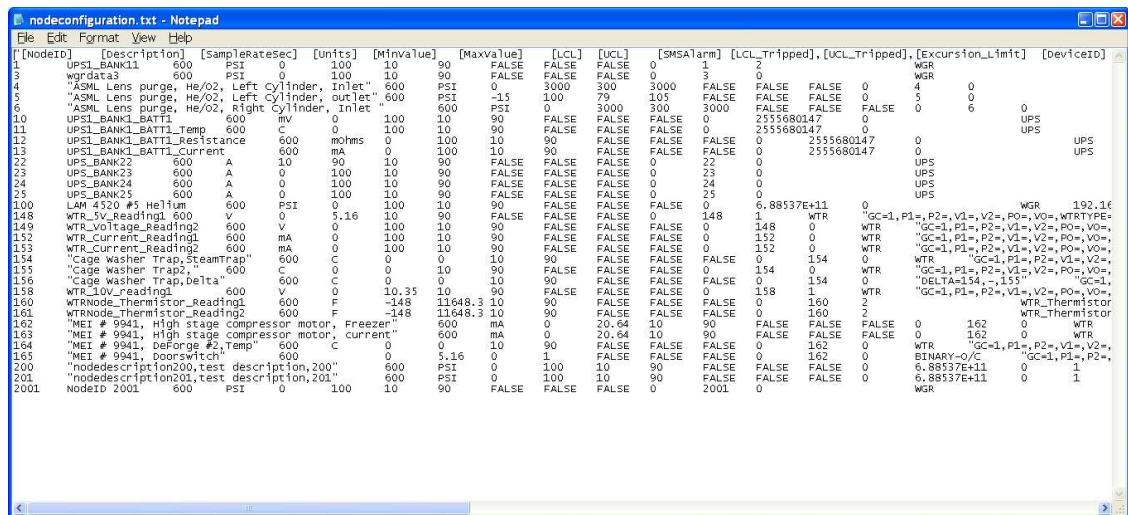
To add an alarm profile from the WSTM Node Configuration Dialog screen, click "New" and the alarm profile details will be displayed as seen in Figure 18. The alarm profile is saved along with the WSTM Node details when clicking the OK button.

To modify an alarm profile, select the profile from the dropdown, and click "Edit". Note that selecting a different profile from the dropdown list will assign that profile to the WSTM node being configured. The alarm profile is saved along with the WSTM node details when clicking the OK button.

To delete a profile, select the desired profile in the dropdown list, and click delete. Note that the default profile may not be deleted.

5.4.3 Upload Node Info from a File

An alternate method is available when you need to setup many nodes. To setup many nodes, it can be more convenient to edit a text file. Simply enter the information to the Nodeconfiguration.txt file. This file is a tab-separated text file that lists all the configuration parameters. An example file is shown in Figure 19. Use the Upload button to upload nodes and parameters from the configuration file.



[NodeID]	[Description]	[SamplerateSec]	[Units]	[Minvalue]	[Maxvalue]	[LCL]	[UCL]	[SMSAlarm]	[LCL_Tripped]	[UCL_Tripped]	[Excursion_Limit]	[DeviceID]
1	UPSL_BANK11	600	PSI	0	100	10	90	FALSE	FALSE	FALSE	0	WGR
3	wordata3	600	PSI	0	100	10	90	FALSE	FALSE	FALSE	0	WGR
4	"ASML Lens purge, He/O2, Left Cylinder, Inlet"	600	PSI	0	3000	300	3000	FALSE	FALSE	FALSE	0	0
5	"ASML Lens purge, He/O2, Left Cylinder, outlet"	600	PSI	-15	100	79	103	FALSE	FALSE	FALSE	0	5
6	"ASML Lens purge, He/O2, Right Cylinder, Inlet"	600	PSI	0	3000	300	3000	FALSE	FALSE	FALSE	0	6
10	UPSL_BANK1_BATT1	600	mv	0	100	10	90	FALSE	FALSE	FALSE	0	0
11	UPSL_BANK1_BATT1_Temp	600	C	0	100	10	90	FALSE	FALSE	FALSE	0	UPS
12	UPSL_BANK1_BATT1_Resistance	600	ohms	0	100	10	90	FALSE	FALSE	FALSE	0	UPS
13	UPSL_BANK1_BATT1_Current	600	mA	0	100	10	90	FALSE	FALSE	FALSE	0	UPS
22	UPS_BANK22	600	A	10	90	10	90	FALSE	FALSE	FALSE	0	UPS
23	UPS_BANK23	600	A	0	100	10	90	FALSE	FALSE	FALSE	0	UPS
24	UPS_BANK24	600	A	0	100	10	90	FALSE	FALSE	FALSE	0	UPS
25	UPS_BANK25	600	A	0	100	10	90	FALSE	FALSE	FALSE	0	UPS
100	LAM 4520 #5 Helium	600	PSI	0	100	10	90	FALSE	FALSE	FALSE	0	WGR
148	WTR_Voltage_Reading1	600	V	0	100	10	90	FALSE	FALSE	FALSE	0	WTR
149	WTR_Voltage_Reading2	600	V	0	100	10	90	FALSE	FALSE	FALSE	0	WTR
152	WTR_Current_Reading1	600	mA	0	100	10	90	FALSE	FALSE	FALSE	0	WTR
153	WTR_Current_Reading2	600	mA	0	100	10	90	FALSE	FALSE	FALSE	0	WTR
154	"Cage washer Trap, Steamtrap"	600	C	0	0	10	90	FALSE	FALSE	FALSE	0	WTR
155	"Cage washer Trap2"	600	C	0	0	10	90	FALSE	FALSE	FALSE	0	WTR
156	"Cage washer Trap, Delta"	600	C	0	0	10	90	FALSE	FALSE	FALSE	0	WTR
158	WTR_LOV_Reading1	600	V	0	10.35	10	90	FALSE	FALSE	FALSE	0	WTR
160	WTRNode_Thermistor_Reading1	600	F	-148	11648.3	10	90	FALSE	FALSE	FALSE	0	WTR
161	WTRNode_Thermistor_Reading2	600	F	-148	11648.3	10	90	FALSE	FALSE	FALSE	0	WTR
162	"MEI # 9941, High stage compressor motor, Freezer"	600	mA	0	20.64	10	90	FALSE	FALSE	FALSE	0	WTR
163	"MEI # 9941, High stage compressor motor, current"	600	mA	0	20.64	10	90	FALSE	FALSE	FALSE	0	WTR
164	"MEI # 9941, deForge #2, Temp"	600	C	0	10	90	FALSE	FALSE	FALSE	FALSE	0	WTR
165	"MEI # 9941, doorswitch"	600	C	0	5.16	0	1	FALSE	FALSE	FALSE	0	WTR
200	"nodesdescription200, test description, 200"	600	PSI	0	100	10	90	FALSE	FALSE	FALSE	0	1
201	"nodesdescription201, test description, 201"	600	PSI	0	100	10	90	FALSE	FALSE	FALSE	0	1
2001	NodeID 2001	600	PSI	0	100	10	90	FALSE	FALSE	FALSE	0	WGR

Figure 19. Example Nodeconfiguration.txt (tab-separated) file

To delete a node, enter the NodeID and click on the Delete button. Please note this action will delete the node and all associated data.

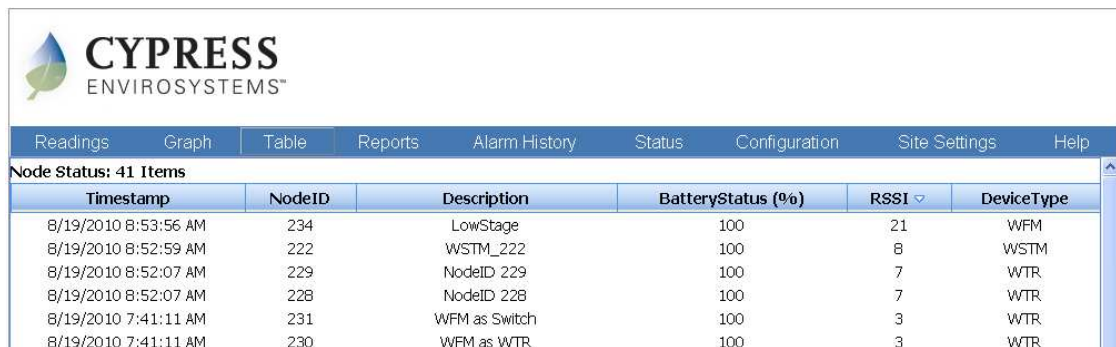
5.4.4 Edit a Node

To edit a node, go to the table in the lower half of the **CONFIGURATION** page. Click on the Edit button in the far right column next to the node. This will launch a Node Configuration pop-up dialog box as shown in Figure 15.

To see the change log of the nodes that have been added/deleted/edited, click on the Show Change Log button.

5.5 Battery and Signal Strength Status

The Cypress EnviroSystems wireless field devices will periodically transmit their battery status and signal strength back to the BBS. The battery status can be viewed by looking at the **STATUS** page. This read-only screen, shown in Figure 20, displays the status conditions of configured nodes on the server. The RSSI shows the signal strength of the last hop for each node.



Timestamp	NodeID	Description	BatteryStatus (%)	RSSI	DeviceType
8/19/2010 8:53:56 AM	234	LowStage	100	21	WFM
8/19/2010 8:52:59 AM	222	WSTM_222	100	8	WSTM
8/19/2010 8:52:07 AM	229	NodeID 229	100	7	WTR
8/19/2010 8:52:07 AM	228	NodeID 228	100	7	WTR
8/19/2010 7:41:11 AM	231	WFM as Switch	100	3	WTR
8/19/2010 7:41:11 AM	230	WFM as WTR	100	3	WTR

Figure 20. Battery and Signal Strength Status

5.6 Alarms

One of the benefits of Cypress EnviroSystems Web Console is it immediately alerts you to potential problems as they arise in your facility. The system triggers an alarm when a node reading climbs above an upper control limit, drops below a lower control limit, or the battery level goes below 70%. When an alarm is triggered, two things happen:

- The Alarm Status button turns red.
- The system sends out alerts via SMS text message and optionally email to everyone on the notification list.

You must have a device that is capable of receiving SMS text messages in order to receive a text alarm. Also keep in mind that once an alarm is triggered, you need to reset it before the system can send you another.

5.6.1 Configure Alarm Notifications

Alarm notifications alert you via text message and optionally email. Before setting up the notifications go into the **CONFIGURATION** page and do the following:

1. **Check the SMS Alarm box for the nodes you want to monitor.**
This tells the system to send you an email or text message only when these particular nodes go into an alarm state.
2. **Enter a value for AlarmCtrl Limit.**
Small fluctuations can cause readings to spike. This value sets the consecutive number of times a reading exceeds a limit before the system triggers an alarm.

Once those values are set, follow these steps to configure the system:

1. **Click SITE SETTINGS in the Main Menu.**
Dialog box appears asking for a user name and password. If you entered the user name and password in the last 20 minutes to access another page, you do not need to re-enter it here.
2. **Enter the admin user name and password, and click Log In.**
For Blue Box Servers that do not have an internet connection can be set up to send email ONLY alarms using the local SMTP server. To use the local SMTP server, select the “Use Local SMPT Server for Email Alarms” Check box and fill in the appropriate SMPT info.

Figure 21. You can change the name that appears in the right side of the menu bar and you can configure your server to send emails via the local SMTP Server

3. For Blue Box Servers that require a manual proxy server to connect to the internet, proxy server information may be entered in the “Proxy Server” text field. NOTE: not all networks require a manual proxy server to get internet access.
4. **In the “Recipients SMS Phone Numbers for Alarm Notification” box, enter a phone number, name, and email address, shown in Figure 22 below.**
Note, the phone number is a required field, so you cannot leave it blank. You must also include an area code and a “1” prefix.
5. **Click Add.**
System saves the data. The information displays below the dialog box.
6. **Repeat steps 6 & 7 to add additional names.**
You can set up the system to send alerts to several people.
7. **Click Edit or Delete next to an entry to make changes.**
By clicking edit, you can edit field directly.
8. **Click Update to save the changes.**

When done editing an alarm recipient, make sure to click Update at the left of the edit line to save the changes.

CYPRESS ENVIROSYSTEMS™

Readings Graph Table Reports Alarm History Status Configuration Site Settings Help

Site Details WSTM Settings Alarm Recipients Archived Data [Show Change Log](#)

Name: Add

Phone#: Delete

Email:

1

Alarm Recipients: 2 Items

Name	Phone#	Email
Test User 1	1555555553	test@test.com
Test User	1555555554	test@test.com

Figure 22. SMS Phone Numbers and emails for Alarm Notification dialog box

Tip: Click on the  icon in the “Recipients SMS Phone Numbers for Alarm Notification” box to view a log of recent changes in entries.

5.7 View Alarm History

To view a history of all past alarms in the system, click on the **ALARM HISTORY** menu item, or click the Alarm Status button to bring up the **ALARM HISTORY** page. By default the system shows the last two hours for all nodes. You can specify the time period and the nodes that you want to see an alarm history for by using the dialog box at the top of the page, as shown in Figure 23.

Start Date Time: List of Nodes:

End Date Time: ☒ Select All Nodes

Days:

[Alarm Reset](#) [Update](#) [Export To Excel](#)

Figure 23. Alarm History dialog box

To specify an alarm history:

- In the dialog box, shown in Figure 23, enter a value for Start Date Time and End Date Time.**
The format is m/dd/yyyy h:mm:ss AM/PM
- Select nodes to view.**
Use the pull-down menu in the List of Nodes field or check the box next to Select All Nodes. Once you select a node using the List of Nodes pull-down menu, you must click the small carot next to the field to accept the section. Select All Node enters all nodes in the system.
- Click Update to accept the changes.**
The alarm history displays at the bottom of the screen, shown in Figure 24.

4. If you want to export the data, click Export to Excel.

The system creates and downloads the data in an Excel format.

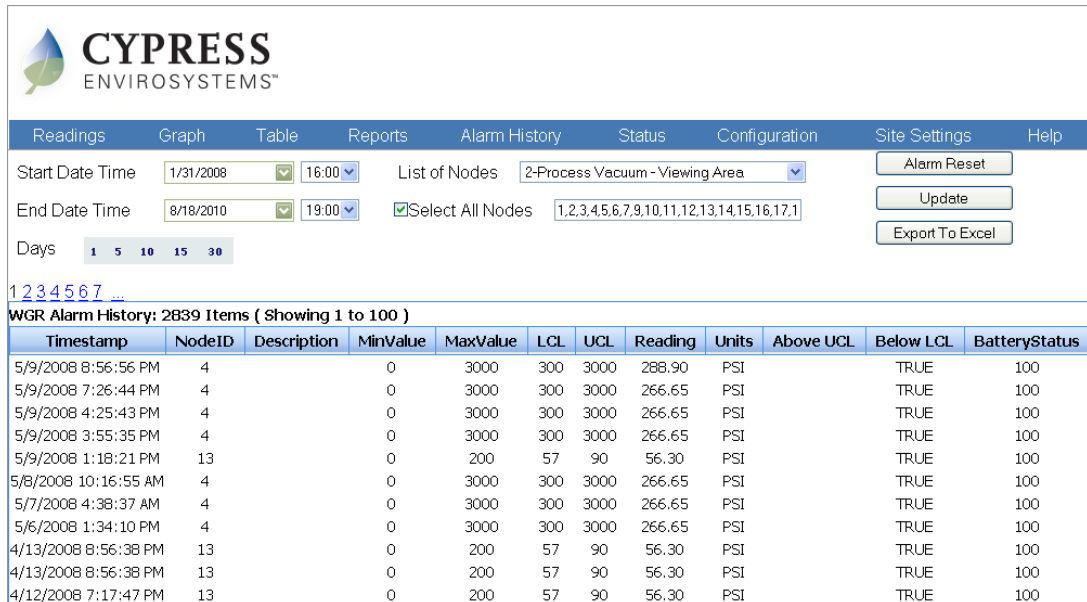


Figure 24. Alarm History page

5.7.1 Reset the Alarm

Once an alarm is triggered, you must reset it to receive new alarm messages. This is designed so that you don't continually receive alarm messages every time a new reading comes in.

To reset all alarms:

1. **Click the red Alarm Status button from any page in the Main Menu.**
This displays the Alarm History page. A green Alarm Reset button is located at the top of this page.
2. **Click the green Alarm Reset button.**
This will take you to the Alarm Reset page.
3. **Click the Reset All button.**
This will reset the alerts for all the nodes.

To reset alarms for individual nodes:

1. **Click the red Alarm Status button from any page in the Main Menu.**
This displays the Alarm History page. A green Alarm Reset button is located at the top of this page.
2. **Click the green Alarm Reset button.**
This will take you to the Alarm Reset page, shown in Figure 25.
3. **Find the node in the list and click the Reset button.**
This will reset both the upper and lower alarm limits.


										
Readings Graph Table Reports Alarm History Status Configuration Site Settings Help										
ResetAll										
Reset	NodeID	Description	MinValue	MaxValue	LCL	UCL	LCLTripped	UCLTripped	AlarmControlLimit	
Reset	1	Nitrogen - Viewing Area	0	200	80	190	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3	
Reset	2	Process Vacuum - Viewing Area	-30	30	-30	-10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3	

Figure 25. Alarm Reset page

5.8 Site Settings

In addition to setting up alarm information, the site settings tab allows the user to configure WSTM specific data as well as view archive data that is older than one year.

5.8.1 WSTM Specific information

WSTM specific settings can be updated on the WSTM Settings tab as seen in Figure 26. Each user can specify which columns they want to see on the WSTM readings tab by checking the boxes next to the column header names in the “WSTM Readings” tab.

For all the dropdown menus in the WSTM Node configuration dialog, the user can modify the entries from the WSTM Categories window on the WSTM Settings tab as seen in Figure 26. In order to provide an accurate estimation steam loss, the user can enter the cost of steam in the “Cost of Steam” text box seen at the bottom of Figure 26.


										
Readings Graph Table Reports Alarm History Status Configuration Site Settings Help										
Site Details WSTM Settings Alarm Recipients Archived Data										
Show Change Log										
<div> <div> <div>WSTM Readings</div> <div> <input checked="" type="checkbox"/>Time Stamp <input type="checkbox"/>Type <input type="checkbox"/>Model <input checked="" type="checkbox"/>Outlet Temp <input type="checkbox"/>RSSI <input checked="" type="checkbox"/>ID <input type="checkbox"/>Application <input checked="" type="checkbox"/>Size <input checked="" type="checkbox"/>Battery <input type="checkbox"/>Cold Junction Temp <input checked="" type="checkbox"/>Name <input type="checkbox"/>Pressure <input checked="" type="checkbox"/>Inlet Temp <input type="checkbox"/>Delta Temp <input checked="" type="checkbox"/>Condition <input type="checkbox"/>Location <input checked="" type="checkbox"/>Manufacturer </div> </div> <div> <div>WSTM Categories</div> <div> Select a Category Application Add Remove Category Text <input type="text"/> Item List Process Coil Drip Tracer Unknown </div> </div> <div> Cost of Steam(\$) 15.0 per 1000 lbs </div> </div> <div> Update </div>										

Figure 26. WSTM Specific Settings

5.8.2 Archive Data

Data older than 1 year will automatically be archived. The archived data may be accessed from the Site Settings tab as seen in Figure 27 below. Archived data may be viewed in Graph form (by clicking on the Graph button) or Table form (by clicking on the Table Button). To export data to MS Excel, use the Table function.

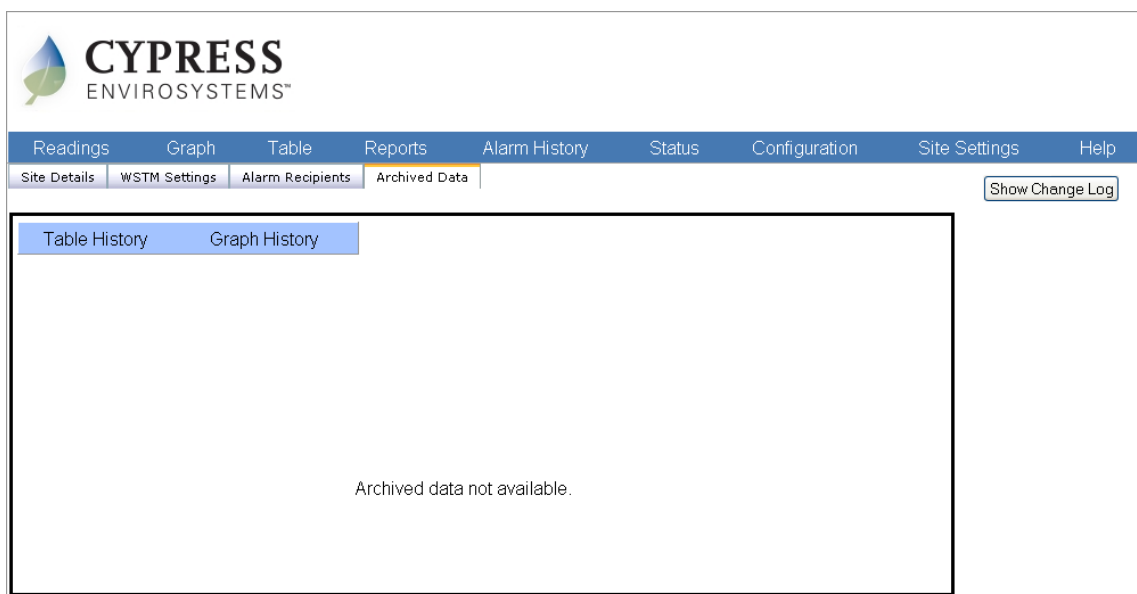


Figure 27. Archive Data

5.9 Querying the System Remotely

You can use your SMS text messaging device to remotely query data on the system or to reset the alarm for a particular node ID. Before you begin, you must first authorize your device by adding its phone number to the notification list on the **SITE SETTINGS** page. (See Section 5.6, Setting Up the Alarm.) Once the device is authorized, the BBS will recognize text messages from the device. Choose from the commands in Table 7 below to query the server, sending a text message to 32075 in the United States, or 447786204951 outside the United States.

Command	Function
CYWGR ?AS?SiteID#,NodeID	Find Node status for specified NodeID
CYWGR ?TR?SiteID#,NodeID	Get Node reading for specified NodeID
CYWGR ?AR? SiteID#,NodeID	Reset Alarm for specified NodeID
CYWGR ?TH? SiteID#,NodeID, hh	Get Node history for specified NodeID in Last hh Hour
CYWGR ??SiteID	SMS command Help

Table 7. SMS Query commands

5.10 Graphs

Graphs are a good way to present data and often make it easier to understanding large data sets or spot trends. The Cypress EnviroSystems Web Console enables you to easily extract information on node readings and plot them out on colored graphs.

5.10.1 Create a Graph

To generate a graph from one or more node readings:

1. **Click on GRAPHS in the Main Menu.**

The graph page appears. It includes two sections: a dialog box at the top, shown in Figure 28, and a graph portion at the bottom.


Figure 28. Graph Page dialog box

2. In the graph dialog box, enter values for Start Date Time and End Date Time.

The format includes both date and time as m/dd/yyyy hh:mm:ss AM or PM. By default, the system gives you the last two hours. You may also choose from 1, 5, 10, 15, and 30 days.

3. Specify the node IDs you want to graph in the “NodeID for Graph” field.

You can select nodes individually using the List of Nodes drop down list, enter node IDs manually, or check the box next to Select All Nodes. For example, the nodes can be listed as 1 or 1,2,5,9 or 1-5, 9, 20. Clicking Select All Nodes will load all the nodes into the **NodeID for Graph** field.

Tip: When selecting a node using the drop down list, click the small carrot button  next to the field to complete the selection.

4. Select from the following additional options:

Auto Scale	The graph will automatically scale based on values it depicts. By default, this is selected. To turn off auto scale, uncheck the checkbox, and the “Min” and “Max” fields will enable.
Min	If Auto Scale is turned off, the user must specify the min Y value on the graph.
Max	If Auto Scale is turned off, the user must specify the max Y value on the graph.
Y-Axis Zoom	Allows the user to zoom into data on both the x and y axis. By default zooming occurs only on the x axis
Tooltip	This allows the user to see the actual reading value on the graph by hovering the mouse pointer over a point on the graph. By default this option is turned off to speed up graphing time
Legend	This is checked by default, and will display the legend in the graph. Uncheck this to make more room for the graph.
Update	If graphing options have change, the user may click the “Update” button for the changes to take effect on the graph
Reset Zoom	Resets the graph back to the default view (no zoom)

5. Click Show Graph to display the graph.

A graph appears at the bottom of the page with several points that represent nodes and timestamps, shown in Figure 29.

Tip: If you click Clear Graph, all data in the dialog box clears, except for the nodes ID list. If you want to delete a node, you must look up the Node ID and then go into the list and delete it manually.

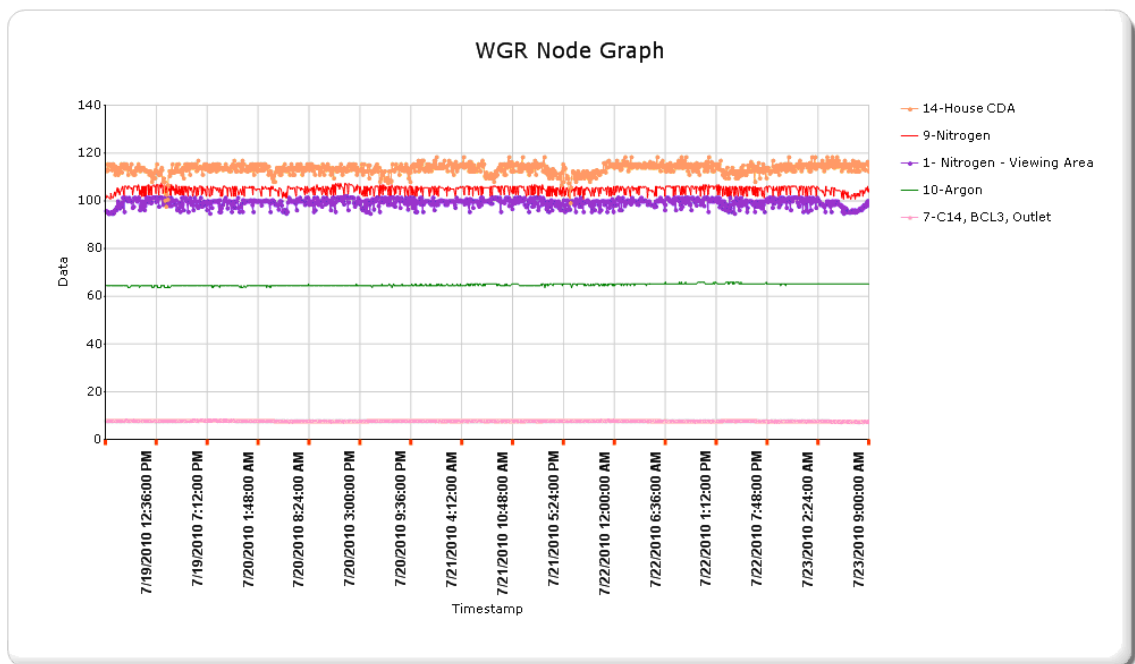


Figure 29. Sample Node Graph

When graphing multiple nodes, the legend will have the nodes listed from the highest reading value to lowest readings value. These values will be based on the first displayed value. To improve graphing performance, individual values may be removed for very large sets of data. To ensure all points are graphed, the user may need to adjust Start Date and End Date.

5.10.2 Identify a Point

To find what value a point is at on the graph, click on a point. The node ID number, the timestamp, and the value display on the top left corner of the graph.

5.10.3 Zoom

To zoom, hold down the left-click button on a point and drag the point. Release the left-click and the program zooms onto the point. Scroll left or right, and the system automatically scales the Y axis. By default, zooming occurs in the X direction only. To zoom in on the Y axis, the user must select “Y-Axis Zoom”.

5.11 Using Tables to Export Data

Exporting data into a spreadsheet gives you access to another large set of tools you can use to track and manipulate data. The Cypress EnviroSystems Web Console enables you to collect data in a table format that you can easily export into Excel.

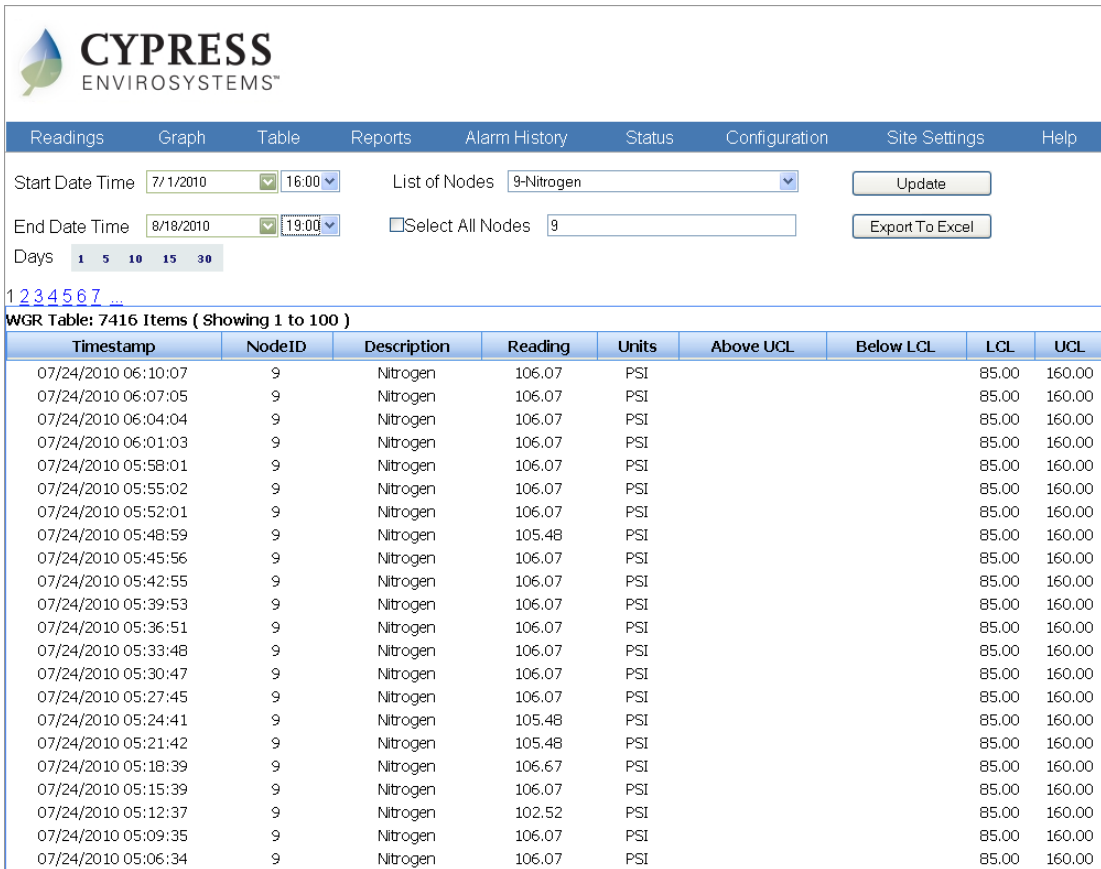


Figure 30. Sample Table page

5.11.1 Create a Table

To generate a table from several node readings:

1. **Click on TABLE in the Main Menu.**

The TABLE page displays. It looks similar to the graph page, with a dialog box on the top and a table at the bottom.

2. **In the dialog box, enter a Start Date and an End Date.**

The format includes both date and time as m/dd/yyyy hh:mm:ss AM/PM. By default, the system gives you the last two hours.

3. **Specify the node IDs you want to display.**

You can select nodes individually using the List of Nodes drop down list, or enter the node ID number manually, or check the box next to Select All Nodes. If you select a node using the drop down list, you must click the small carrot button next to the field to complete the selection.

4. **Click Show Table to display the table.**

The table appears at the bottom on the screen. The following parameters are displayed.

- * **Timestamp:** Timestamp of data reading
- * **Node ID:** The unique ID number of the field device
- * **Description:** The name of the node
- * **Reading:** The value read by the field device
- * **Units:** The units of the gauge (e.g. PSI)
- * **Above UCL:** Indicates if an over-limit alarm occurred

- * **Below LCL:** Indicates if a below-limit alarm occurred
- * **LCL:** The lower control limit (LCL) value
- * **UCL:** The upper control limit (UCL) value

5. Click **Export to Excel**.

The system creates an Excel file (.xls) and downloads it onto your computer.

5.12 Reports

An executive summary is available for WSTMs which gives an overall status of all the steam traps that are currently being monitored. An energy summary is calculated which shows amount of steam loss and money associated with the loss. This is based on the orifice sizes entered for each trap during configuration, as well the cost of steam entered on the Site Settings page (Figure 26). WSTMs statistics are also broken down by Condition, Trap Type, and Application.

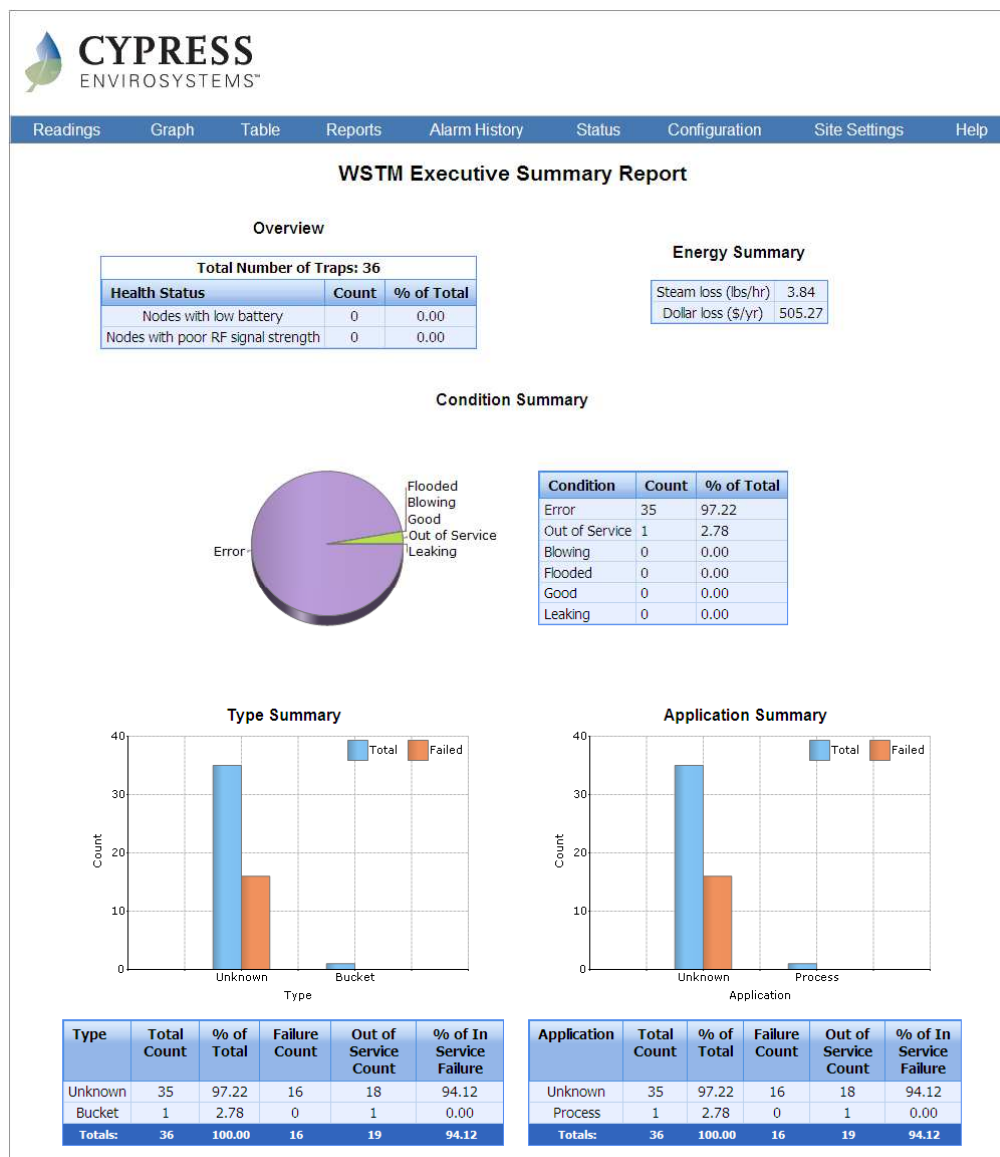


Figure 31. WSTM Executive Summary

6.0 OPC Interface

To interface to existing plant infrastructure, the BBS can communicate via industry standard OPC. The OPC Server is visible to OPC Clients as WGR.OPC.1.

The following OPC tags are available:

- **WGRNodeID**: The configured field device NodeID
- **WGRReading**: field device reading
- **WGRUnit**: Reading unit type (e.g. PSI, C, F)
- **WGRBatteryStatus**: Battery status reading (%)
- **WGRTemperature**: Internal temperature reading (C)
- **WGRRSSI**: Received Signal Strength Indicator (max = 31)
- **WGRTimestamp**: Timestamp when the data arrived
- **WGRFriendlyName**: WGR device friendly name

The OPC interface is an option that must be enabled by your service representative. Please contact them for further details.

7.0 Care and Maintenance

The database is backed up on a routine basis. Please contact your service representative for further details.

The Blue Box Server should be treated as an industrial PC. Please contact your corporate IT group to install and maintain anti-virus software or to configure the firewall as needed.

8.0 Troubleshooting

I get an error message when I try and enter an email address into the SMS Alert.

Phone number is a required field. If you do not enter a phone number first, the system does not accept the input.

The system is not saving my changes.

Anytime you make a change, you need to click on "Update" to keep the changes or else the system reverts back to the old settings.

I am not able to create a graph. When I click, "Show Graph," nothing happens.

Generally, this means no data was available. Check your start and end time to make sure that it includes data.

Sometimes the system asks me to enter an administrative password, and other times it doesn't.

You must enter a password to access the SMS ALARM page and the CONFIG NODE page. If you enter the password for one page, you do not need to enter it again until 20 minutes has passed.

The readings on the server do not match the readings on the device.

The readings are based on a percentage of full scale determined from the "MinValue" and "MaxValue". If the "MinValue" and "MaxValue" are not set up correctly on the WGR or BBS, the "Reading" value may be incorrect.

If you have additional problems, please contact us. See Section 10.0, Support, for details.

9.0 Technical Specifications

Server Capacity	Receives data from up to 255 Cypress Envirosystems field devices (typical)
Compatibility	PC or Macintosh
User Interface	Built in Web Server for easy browser access to data and trending
Available Data Protocols	OPC, BACnet, ODBC, ADO.NET, web services via plant Ethernet LAN
Mobile Access	Alarm notification and user queries via cell phone, PDA or email
Wireless Frequency	2.4GHz Direct Sequence Spread Spectrum, 100mW peak output
Wireless Range	Up to 1600 ft (488 m), high interference immunity, extendable with repeaters
Wireless Protocol	Cypress Semiconductor's highly optimized industrial DSSS radio and protocol. Integrates robust security, antenna and frequency diversity, optional encryption and minimal interference with existing wireless systems (for additional details, please see FAQ at www.cypressenvirosystems.com)
Approvals	FCC Class B compliant, RoHS, ETSI compliant
Power Supply	90-240VAC
Humidity	10-90% RH, non-condensing
Operating Temperature	32°F to 113°F (0°C to 45°C)
Storage Temperature	-4°F to 176°F (-20°C to 80°C)
Enclosure	Ruggedized aluminum and stainless steel chassis
Dimensions	4.1" x 8.3" x 11.8" (104.5mm x 210mm x 300mm)
Weight	13.9 lbs (6.3kg)

10.0 Support

For additional support, including configuration, maintenance and troubleshooting, please contact us.

Cypress Envirosystems
198 Champion Court
San Jose, CA 95134
+1 888 987 3210
Email: cys_support@cypress.com

11.0 Warranty Information

Every product comes with a full one-year parts and labor warranty. Cypress Envirosystems monitoring of battery status, product status, and potential communications packets are included during this period, so that proactive service can be provided to our customers.