

# NAFEM Gateway

## User's Manual

For Watlow part numbers NGW0-0000-0000, NGW0-0000-2400, NGWC-0000-0000, NGWC-0000-2400



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# NAFEM Gateway

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## **Introduction**

This manual is intended for the user who is already familiar with the NAFEM protocol, Ethernet and Modbus RTU. For more information see:

NAFEM Data Protocol User Manual located at:

<http://www.nafem.org/resources/tech/DataProtocol.cfm>

MODBUS RTU Standard located at:

<http://www.modicon.com/techpubs/toc7.html>.

RFCs located at: <http://www.ietf.org/>

## **Product Overview**

The NAFEM Gateway has three physical connectivity points to the physical world; the device's EIA-485 serial communication port, the RJ45 Ethernet network communication port (10BaseT) and the power supply jack.

The NAFEM Gateway is a protocol converter that connects Modbus devices to the NAFEM protocol using an Ethernet connection. The requirements are set forth by the selected protocols of register based Modbus RTU for control devices and NAFEM Data Protocol [NDP] using digital signal connectivity.

This Gateway device performs these tasks with the use of six firmware components; Poll Engine, Alarm Module, SNMP v1 Agent, Web Server, TFTP Client, and a Device Protocol Driver. In addition, a database resides within the Gateway that contains the NAFEM Objects. This is where the information is exchanged between the NAFEM and Modbus elements.

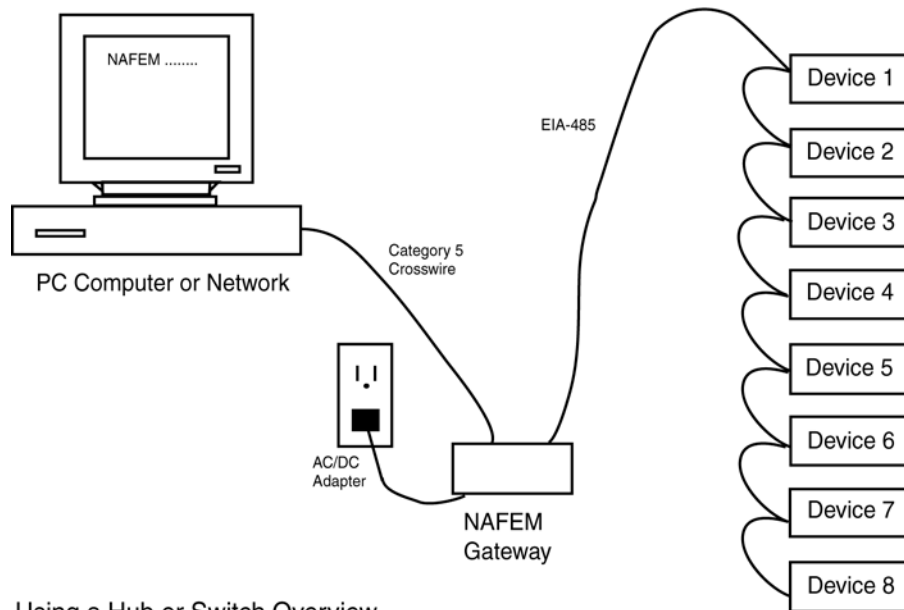
The function of the Gateway is to receive request for reads and writes of NAFEM Objects. These objects are the registers within the devices. This request comes to the Gateway in the format of the NAFEM protocol. The Gateway converts the request into the appropriate Modbus RTU packet and forwards the information to the device. Up to 8 devices may be connected to the serial port. The Gateway can access up to 64 registers divided between these devices. The information returned to the Gateway from the device is converted into the NAFEM protocol and sent to the SNMP Manager or to the Web browser. The Trivial File Transfer Protocol (TFTP) is used when program updates are sent to the Gateway or to a device capable of flash re-programming.

## **Network Services**

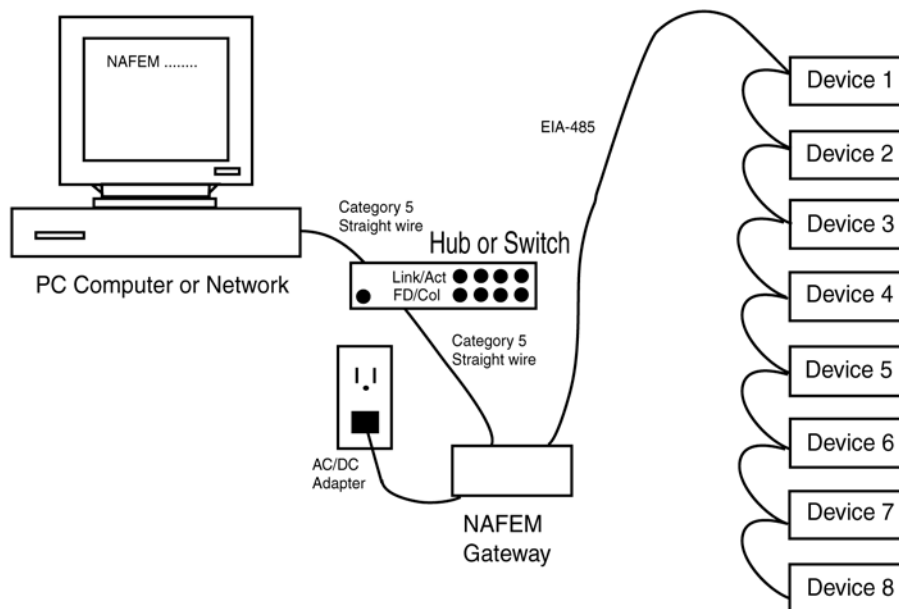
The NAFEM Gateway supports DHCP client, AutoIP, and static IP for address assignment. Normally you will not need to make any changes. The user is able to configure preferences as to which services are used if available. Intelligence is employed within the Gateway to revert to backup IP assignment methods if the primary method is unavailable.

## Ethernet Gateway Architecture

### Direct Connection to PC Overview



### Using a Hub or Switch Overview



## Ethernet Wiring

Connect the RJ-45 Ethernet jack to a Hub or Switch with standard CAT5 cable. The Gateway is a 10BaseT device, so a switch is the best solution for a multi-speed network. The device can be connected directly to a computer's Ethernet jack with a crossover cable.

### **Authentication and registration**

Authentication and registration of the Gateway to the Ethernet is accomplished via a DHCP Client to a system DHCP service if available. This may take up to 1 minute. The result of the DHCP method will define the device's Internet Protocol address, SubNet mask and Default gateway. The Microsoft AutoIP scheme is employed to address possible networking environments where DHCP services are not available.

The Ethernet interface is designed to work without user intervention on most networks. Just connect to an Ethernet network and browse the device. In order for the Gateway to communicate over an Ethernet network, an address must be established and registered.

### **Program Upgrades for Connected Devices**

Internal TFTP client protocol services will provide program upgrades over the network communications port to a system TFTP server. This provides support for:

- Flash update of Gateway code
- Flash update of Modbus RTU code for products that support field firmware update
- File Transfer of multiple register RTU

### **Alarm Notification**

This functioning and behavior is provided by the internal Firmware Alarm module and utilizes the Trap function of the SNMPv1 Agent. Alarms are defined within the NAFEM PROTOCOL USER MANUAL along with the behavior for acknowledgement and retries. All alarms specified and enabled by the user follow this scheme. The Alarm notification supports:

- Clear                *Reset Alarm Action*
- Bypass            *Disable Alarm Action*

### **Supervisory Control and Data Acquisition**

The Poll Engine reads parameters from the connected equipment and records the readings into the Data Value of the assigned NAFEM Object Group for retrieval and review by the user via the SNMP Agent services. Upon the modification of parameters via the SNMP v1 Agent by the user, the Poll Engine will write parameters to the connected device.

### **Poll Engine**

When the Poll Engine attempts to read from a remote device and an error occurs, the Poll Engine will immediately retry to read from the remote device. If all retries have failed, then the Poll Engine shall increment the protocol read message failure count by one and attempt the next poll attribute. If all active attributes for a single device fail, then the poll engine shall disengage the device from the poll cycle.

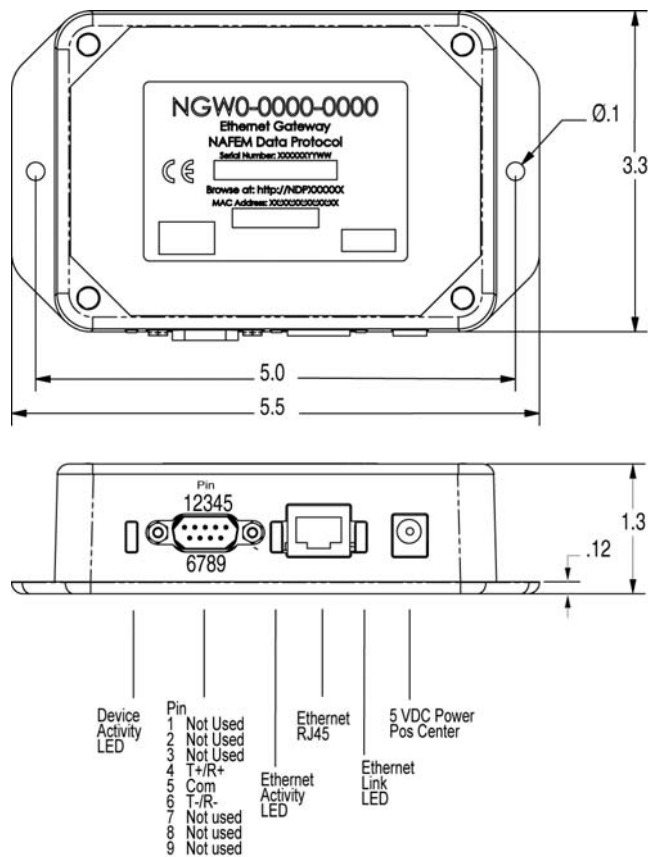
When the Poll Engine attempts to write to a remote device and an error occurs, the Poll Engine will immediately retry writing to the remote device. If all retries have failed, then the Poll Engine shall increment the protocol write message failure count by one and reset the programmable attribute for the write operation to the previous write value.

### **Device Protocol**

Register based MODBUS RTU device protocol is used for communication between remote devices and the Gateway with the Gateway acting as the communication MASTER. The following functions are supported:

- Register Read
- Register Write
- Block Read
- Block Write
- Diagnostics
- Loop Back

## Installation & Wiring



Dimensions are in inches

Connect the T+/R+ to the devices' T+/R+ terminals, the T-/R- to the devices' T-/R- terminals and the Com to the devices' Com terminal in a daisy chain fashion.

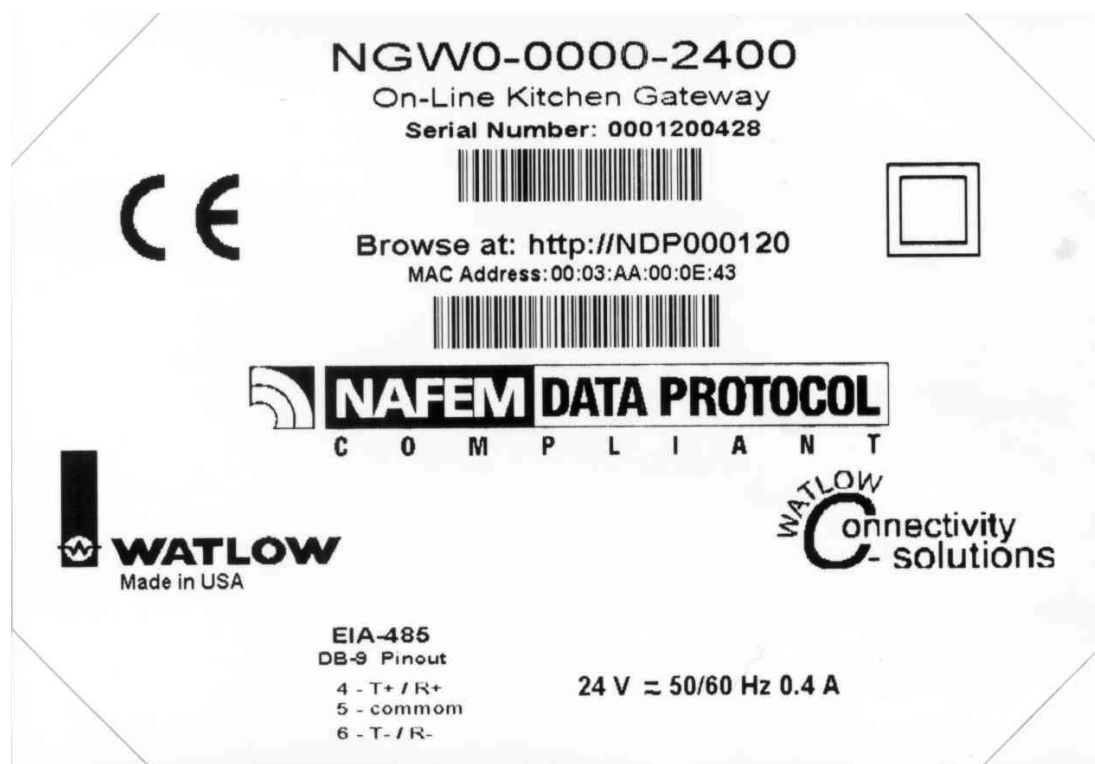
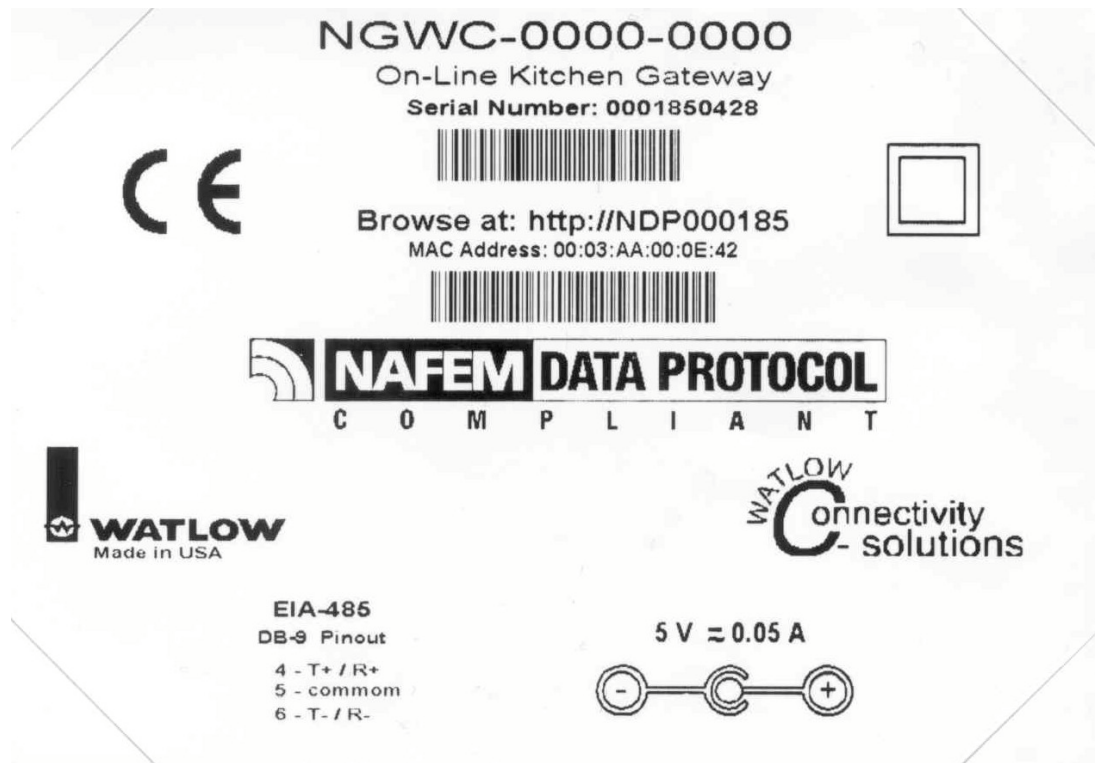
Plug in an RJ45 Category 5 straight wired cable to an Ethernet switch / hub.  
If you are connecting directly to a PC, you will need to use an RJ45 Category 5 cross-wired cable.

For Models NGWC-0000-0000 and NGW0-0000-0000, connect the 5-volt power supply plug to the power supply jack. The inner terminal of the coaxial plug is positive.

For Models NGWC-0000-2400 and NGW0-0000-2400, connect the 24-volt power supply plug to the power supply jack. The inner terminal of the coaxial plug is positive.

**Note:** Use proper ESD handling procedures when making connections to unit. A UL Class 2 and CE approved power supply is required for compliance.

## Sample Decals





## **Configuration Overview**

Two services are available within the Gateway or configuration. Either an HTTP browser or an MIB browser may be used for configuration. An MIB browser and compiler is available from MG-SOFT Corp. @ web site <http://www.mg-soft.com>.

Using a Network Browser Client with the on board Web Server provides the ability to configure the NAFEM Gateway. Various HTML formatted pages are embedded within the device to provide a Graphical User Interface (GUI) for configuration and review of the Gateway device.

A maximum of 8 devices may be connected to the EIA-485 port of the NAFEM Gateway. You will need to configure the baud rate and Modbus addresses of the devices from the face of the devices. The choices for baud rate are either 9600 or 19200. All devices must be set to the same baud rate. The addresses can be set from 1 to 247. Each device must have a unique address.

### **Getting Started**

Perform these steps;

1. Connect the NAFEM Gateway to your computer's Ethernet port using a cross wired RJ45 cable or connect the Gateway to a hub or network using a straight wired RJ45 Category 5 cable. The Gateway is limited to a 10BaseT connection and will not work on an Ethernet port set for 100BaseT only. Use of a 10/100 hub will overcome this issue if your PC has only a 100BaseT port.
2. Wire the temperature devices to the Gateway's EIA-485 port.
3. Attach the appropriate power supply (5-volt or 24-volt DC) to the Gateway. The center pin is positive.
4. Configure each device to the same baud rate (9600 or 19200) from the front panel of the device. Set each device's Modbus address to a unique number. As an example, set the first device to address 1, the second to address 2 and so on.
5. Power up the Gateway, devices and PC.
6. Start your Internet browser. Enter the TCP/IP address of the Gateway into the browser's address field. Two different addresses may be used to access the Gateway. Either NDPxxxxxx, where xxxxxx is the first six digits of the serial number, or WATxxxxxx, where xxxxxx is the last six digits of the Gateway's MAC address. The MAC address is printed on a decal in the form xx:xx:xx:xx:xx:xx.
7. Select the Configuration, Gateway setup Page.
8. Configure the Serial Channel Entry, Serial Device Entry, and Serial Point Entry indexes.

The Gateway supports DNS client and Netbios name resolution. Configuration information may be entered at the Configuration, Administration, Administration Network page.

## **Password**

Enter Network Password each time.

The default is:

User Name = new

Password = new



A Windows-style dialog box titled "Connect to ndp000191". The title bar includes a question mark icon and a close button. The dialog has a blue header bar with a key icon. Below the header, the text "/gateway.htm" is displayed. There are two input fields: "User name:" with a dropdown menu showing "new" and a user icon, and "Password:" with a masked input field showing three dots. Below the password field is a checkbox labeled "Remember my password". At the bottom right are "OK" and "Cancel" buttons.

You may change these on the Security User screen.

## View

### Monitor Alarm

Select Monitor, Alarm to access Monitor Alarm information.

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

The screenshot shows the 'NPD Gateway' web interface. At the top left is the 'WATLOW' logo. The main header area has 'NPD Gateway' in a large blue font. Below the header, there's a navigation sidebar on the left and a main content area on the right. The sidebar has a 'View' section with a tree view containing 'Monitor' (expanded), 'Alarm' (selected with a red arrow), 'Configuration', 'Data', and 'Notification'. Below this are sections for 'Configuration' (with expandable items like Administration, Asset Management, Bulk Transfer, Clock/Calendar, Inventory, Maintenance, Notify, Security, Utility, Email, Gateway) and 'System Info' (with expandable item Diagnostics). At the bottom of the sidebar is the 'WATLOW Connectivity solutions' logo. The main content area has a title bar 'Monitor Alarm' and a message 'This page was loaded from NDP000106 on Wed Oct 27 10:02:01 2004'. Below this is a form for configuring alarm settings. At the top of the form is 'Object Instance' with a dropdown set to '1' and a 'Go' button. The settings include: 'Index' (1), 'Critical High Limit' (500), 'Critical Low Limit' (400), 'Warning High Limit' (490), 'Warning Low Limit' (410), 'Deviation' (0), 'Clear' (False), and 'Bypass' (False). At the bottom of the form are 'Submit' and 'Reset' buttons.

WATLOW

NPD Gateway

Object Instance: 1 Go

**Monitor Alarm**

*This page was loaded from NDP000106 on Wed Oct 27 10:02:01 2004*

Index: 1

Critical High Limit: 500

Critical Low Limit: 400

Warning High Limit: 490

Warning Low Limit: 410

Deviation: 0

Clear: False

Bypass: False

Submit Reset

WATLOW Connectivity solutions

## Monitor Configuration

Select Monitor, Configuration to access Monitor Configuration information.

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

**WATLOW** *NPD Gateway*

Object Instance:

**View**

- Monitor
  - Alarm
  - Configuration** ←
  - Data
  - Notification

**Configuration**

- Administration
- Asset Management
- Bulk Transfer
- Clock/Calendar
- Inventory
- Maintenance
- Notify
- Security
- Utility
- Email
- Gateway

**System Info**

- Diagnostics

**Monitor Configuration**

*This page was loaded from NDP000106 on Wed Oct 27 10:04:25 2004*

Index:

Item Name:

Units:

Description:

Location:

Lot ID:

**WATLOW** *Connectivity solutions*

## Monitor Data

Select Monitor, Data to access Monitor Data information.

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

**WATLOW**

*NPD Gateway*

Object Instance:

### Monitor Data

*This page was loaded from NDP000106 on Wed Oct 27 10:05:41 2004*

Index:	1
Value:	0
Status:	Critical
Time Stamp:	00000000T000000

**View**

- ☒ Monitor
  - [Alarm](#)
  - [Configuration](#)
  - [Data](#) ←
  - [Notification](#)

**Configuration**

- ☒ Administration
- ☒ Asset Management
- ☒ Bulk Transfer
- ☒ Clock/Calendar
- ☒ Inventory
- ☒ Maintenance
- ☒ Notify
- ☒ Security
- ☒ Utility
- ☒ Email
- ☒ Gateway

**System Info**

- ☒ Diagnostics

**WATLOW**  
connectivity  
-solutions

## Monitor Notification

Select Monitor, Notification to access Monitor Notification information.

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

**WATLOW** *NPD Gateway*

Object Instance:

**View**

- ☐ Monitor
  - [Alarm](#)
  - [Configuration](#)
  - [Data](#)
  - [Notification](#) ←
- Configuration**
  - ☐ Administration
  - ☐ Asset Management
  - ☐ Bulk Transfer
  - ☐ Clock/Calendar
  - ☐ Inventory
  - ☐ Maintenance
  - ☐ Notify
  - ☐ Security
  - ☐ Utility
  - ☐ Email
  - ☐ Gateway
- System Info**
  - ☐ Diagnostics

**Monitor Notification**

*This page was loaded from NDP000106 on Wed Oct 27 10:07:03 2004*

**Monitor Notify Messages**

Index: 1

Message:

Code: 0

Time Stamp: 00000000T000000

Enable:

**Monitor Acknowledgement**

Index: 1

Ack:

Interval:

Retries:

Response:

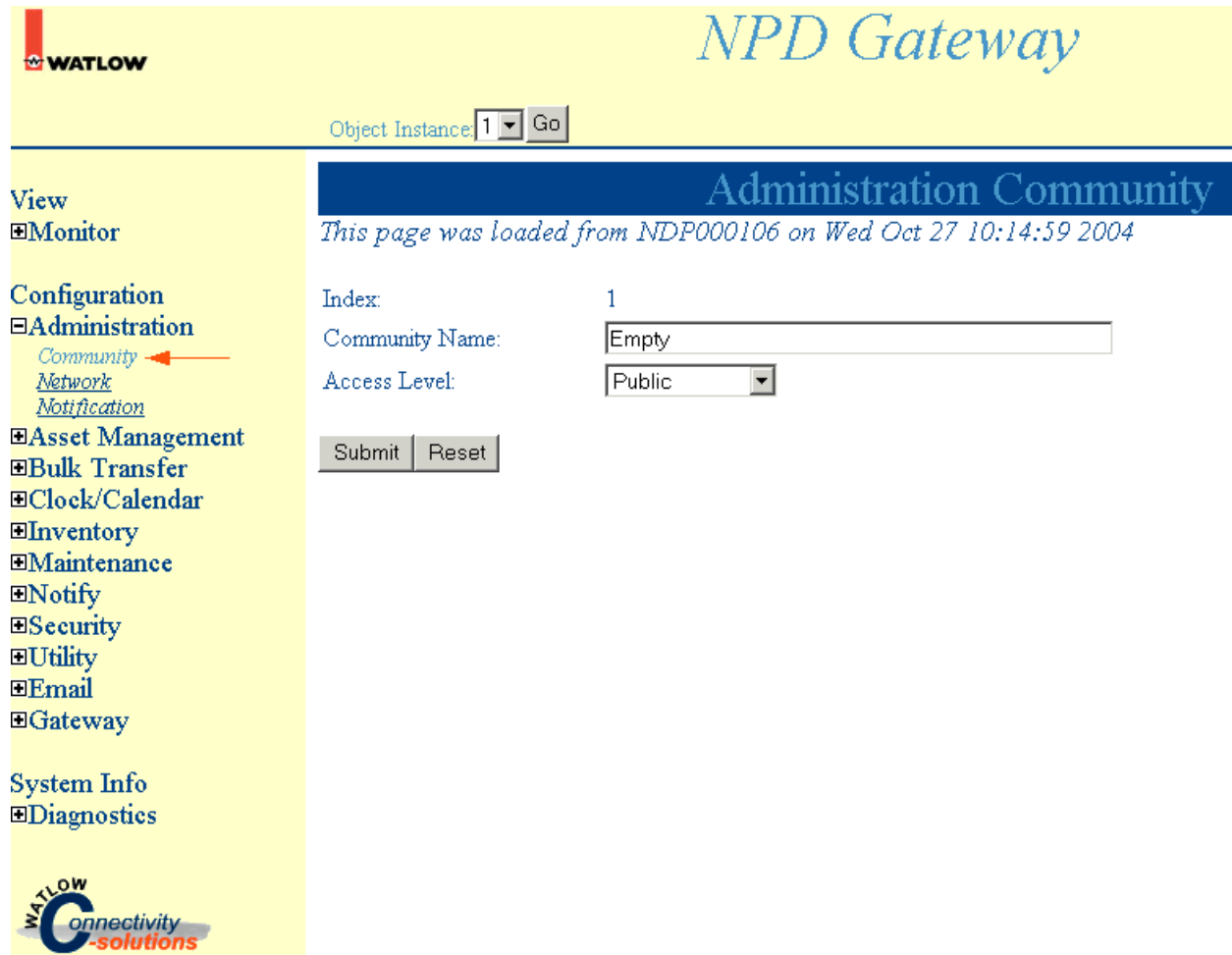
**WATLOW** *connectivity solutions*

## Configuration

### Administration Community

Select Administration, Community to access Administration Community information.

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.



The screenshot shows the NPD Gateway web interface. At the top, the WATLOW logo is on the left and "NPD Gateway" is on the right. Below the logo is a yellow navigation bar with "Object Instance: 1" and a "Go" button. The main content area has a blue header "Administration Community" and a timestamp "This page was loaded from NDP000106 on Wed Oct 27 10:14:59 2004". On the left is a yellow sidebar with a tree view. Under "Configuration", "Administration" is expanded, and "Community" is selected with a red arrow. Other options include "Network" and "Notification". Below "Configuration" are "Asset Management", "Bulk Transfer", "Clock/Calendar", "Inventory", "Maintenance", "Notify", "Security", "Utility", "Email", and "Gateway". Under "System Info" is "Diagnostics". At the bottom left is the "WATLOW connectivity solutions" logo. The main content area contains form fields: "Index:" with value "1", "Community Name:" with an empty text box, and "Access Level:" with a dropdown menu showing "Public". At the bottom are "Submit" and "Reset" buttons.

WATLOW

NPD Gateway

Object Instance: 1 Go

View

- Monitor

Configuration

- Administration
  - Community
  - Network
  - Notification
- Asset Management
- Bulk Transfer
- Clock/Calendar
- Inventory
- Maintenance
- Notify
- Security
- Utility
- Email
- Gateway

System Info

- Diagnostics

WATLOW connectivity solutions

Administration Community

This page was loaded from NDP000106 on Wed Oct 27 10:14:59 2004

Index: 1

Community Name: Empty


Access Level: Public

Submit Reset

## Administration Network

Select Administration, Network to access Administration Network information.

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

*NPD Gateway*

Object Instance:

View

☒ Monitor

Configuration

☒ Administration

[Community](#)

[Network](#) ←

[Notification](#)

☒ Asset Management

☒ Bulk Transfer

☒ Clock/Calendar

☒ Inventory

☒ Maintenance

☒ Notify

☒ Security


☒ Utility

☒ Email

☒ Gateway

System Info

☒ Diagnostics



Administration Network

*This page was loaded from NDP000106 on Wed Oct 27 10:19:53 2004*

Index:

Agent Name:

Host Manufacturer Name:

Agent Software Version:

SNMP Version:

Agent IP Address:

Subnet Mask Value:


Default Gateway IP Address:



## Administration Notification

Select Administration, Notification to access Notification Network information.

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

NPD Gateway


Object Instance:

View

☒ Monitor

Configuration

☒ Administration

- Community
- Network
- Notification 

☒ Asset Management

☒ Bulk Transfer

☒ Clock/Calendar

☒ Inventory

☒ Maintenance

☒ Notify

☒ Security

☒ Utility

☒ Email

☒ Gateway

System Info

☒ Diagnostics

Administration Notification

This page was loaded from NDP000106 on Wed Oct 27 10:20:46 2004

Administration Notify Messages

Index:

Message:

Code:

Time Stamp:

Enable:

Administration Acknowledgement

Index:

Ack:

Interval:

Retries:


Response:



## Asset Management Component Part ID

Select Asset Management, Component Part ID to access Asset Management Component Part ID information.

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

*NPD Gateway*

Object Instance:

View

⊕ Monitor

Configuration

⊕ Administration

⊕ Asset Management

*Component Part ID*

*Equipment ID*

⊕ Bulk Transfer

⊕ Clock/Calendar

⊕ Inventory

⊕ Maintenance

⊕ Notify

⊕ Security


⊕ Utility

⊕ Email

⊕ Gateway

System Info

⊕ Diagnostics



Asset Management Component Part ID

*This page was loaded from NDP000106 on Wed Oct 27 10:26:06 2004*

Index:

Manufacturer:

Device Name:

Serial Number:

Model Number:


Software Version:

Contact Name:

## Asset Management Equipment ID

Select Asset Management, Equipment ID to access Asset Management Equipment ID information.

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

NPD Gateway

Object Instance:

View

☒ Monitor

Configuration

☒ Administration

☒ Asset Management

☐ Component Part ID

☒ Equipment ID

☒ Bulk Transfer

☒ Clock/Calendar

☒ Inventory

☒ Maintenance

☒ Notify

☒ Security

☒ Utility

☒ Email

☒ Gateway

System Info

☒ Diagnostics

Asset Management Equipment ID

This page was loaded from NDP000106 on Wed Oct 27 10:26:58 2004

Index: 1

Manufacturer: Watlow

Equipment Type: Gateway

Serial Number: 0001060232

Model Number: NGW000002400

Manufacture Date: 21000821

Installed Date:

Software Version: 2.0.42

NAFEM Version: 2.0


Contact Name: wintechsupport@watlow.com



## Bulk Transfer File Items

Select Bulk Transfer, [File Items](#) to access Bulk Transfer, File Items information.

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

NPD Gateway

Object Instance:

View

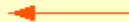
☒ Monitor

Configuration

☒ Administration

☒ Asset Management

☒ Bulk Transfer

[File Items](#) 

[File Transfer](#)

[File Transfer Notify](#)

☒ Clock/Calendar

☒ Inventory

☒ Maintenance

☒ Notify

☒ Security

☒ Utility

☒ Email

☒ Gateway

System Info

☒ Diagnostics

Bulk File Items

*This page was loaded from NDP000106 on Wed Oct 27 10:27:45 2004*

Index: 1

Name:

Accessed: 00000000T0000000

Created: 00000000T0000000

Modified: 00000000T0000000

Version:

Size:


Status: False



## Bulk Transfer File Transfer

Select Bulk Transfer, [File Transfer](#) to access Bulk Transfer, File Transfer information.

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

NPD Gateway

Object Instance:

View

☒ Monitor

Configuration

☒ Administration

☒ Asset Management

☒ Bulk Transfer

[File Items](#)

[File Transfer](#)

[File Transfer Notify](#)

☒ Clock/Calendar

☒ Inventory

☒ Maintenance

☒ Notify

☒ Security

☒ Utility

☒ Email

☒ Gateway

System Info

☒ Diagnostics

Bulk File Transfer

This page was loaded from NDP000106 on Wed Oct 27 10:29:44 2004

Index:

1

Device Enable:

Erase Required:

False

Command:

Source File:

Destination File:

CRC Type:

Server Address:

Erase Status:

Success

Copy Status:


Success

Execute:



## Bulk File Transfer Notification

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

NPD Gateway

Object Instance:

View

⊞Monitor

Configuration

⊞Administration

⊞Asset Management

⊞Bulk Transfer

[File Items](#)

[File Transfer](#)

[File Transfer Notify](#)

⊞Clock/Calendar

⊞Inventory

⊞Maintenance

⊞Notify

⊞Security


⊞Utility

⊞Email

⊞Gateway

System Info

⊞Diagnostics



Bulk File Transfer Notification

*This page was loaded from NDP000106 on Wed Oct 27 10:38:07 2004*

**Bulk Transfer Messages**

Index:

Message:

Code:

Time Stamp:

Enable:

**Bulk Transfer Acknowledgement**

Index:

Ack:


Interval:

Retries:

Response:

## Clock/Calendar Clock

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

*NPD Gateway*

Object Instance:

View

☒ Monitor


Configuration

☒ Administration

☒ Asset Management

☒ Bulk Transfer

☒ Clock/Calendar

*Clock* 

☒ Inventory

☒ Maintenance

☒ Notify

☒ Security


☒ Utility

☒ Email

☒ Gateway

System Info

☒ Diagnostics



Clock

*This page was loaded from NDP000106 on Wed Oct 27 10:39:55 2004*

Index:


Time of Day:

Date:

Time Zone:

## Inventory Configuration

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

NPD Gateway

Object Instance:

View

⊞ Monitor

Configuration

⊞ Administration

⊞ Asset Management

⊞ Bulk Transfer

⊞ Clock/Calendar

⊞ Inventory

[Configuration](#)

[Data](#)

[Notification](#)

[Storage](#)

⊞ Maintenance

⊞ Notify

⊞ Security


⊞ Utility

⊞ Email

⊞ Gateway

System Info

⊞ Diagnostics



Inventory Configuration

*This page was loaded from NDP000106 on Wed Oct 27 10:40:59 2004*

Index:

Item Name:

Description:

Units:


Vendor Number:

Item Code:



## Inventory Data

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

NPD Gateway

Object Instance:

View

⊕Monitor

Configuration

⊕Administration

⊕Asset Management

⊕Bulk Transfer

⊕Clock/Calendar

⊖Inventory

[Configuration](#)

[Data](#) ←

[Notification](#)

[Storage](#)

⊕Maintenance

⊕Notify

⊕Security


⊕Utility

⊕Email

⊕Gateway

System Info

⊕Diagnostics



Inventory Data

*This page was loaded from NDP000106 on Wed Oct 27 10:55:36 2004*

Index: 1

Current Usage: 0


Total Usage: 0

Status: Ok

Time Stamp: 00000000T000000

## Inventory Notification

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

NPD Gateway

Object Instance:

View

☒ Monitor

Configuration

☒ Administration

☒ Asset Management

☒ Bulk Transfer

☒ Clock/Calendar

☒ Inventory

[Configuration](#)

[Data](#)

[Notification](#) ←

[Storage](#)

☒ Maintenance

☒ Notify

☒ Security

☒ Utility

☒ Email

☒ Gateway

System Info

☒ Diagnostics

Inventory Notification

*This page was loaded from NDP000106 on Wed Oct 27 11:26:06 2004*

**Inventory Messages**

Index:

Message:

Code:

Time Stamp:

Enable:

**Inventory Acknowledgement**


Index:

Ack:

Interval:


Retries:

Response:



## Inventory Storage

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

NPD Gateway

Object Instance:

View

☒ Monitor

Configuration

☒ Administration

☒ Asset Management

☒ Bulk Transfer


☒ Clock/Calendar

☒ Inventory

[Configuration](#)

[Data](#)

[Notification](#)

[Storage](#) 

☒ Maintenance

☒ Notify

☒ Security

☒ Utility

☒ Email

☒ Gateway

System Info

☒ Diagnostics

Inventory Storage

*This page was loaded from NDP000106 on Wed Oct 27 12:31:59 2004*

Index:


Forecasted Volume:

On Hand Volume:

Minimum Desired Stock Level:


Clear:

Bypass:



## Maintenance Notification

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

NPD Gateway

Object Instance:

View

☒ Monitor

Configuration

☒ Administration

☒ Asset Management

☒ Bulk Transfer

☒ Clock/Calendar

☒ Inventory

☒ Maintenance

[Notification](#)

[Process Item](#)

[Scheduled Item](#)

[Unscheduled Item](#)

☒ Notify

☒ Security


☒ Utility

☒ Email

☒ Gateway

System Info

☒ Diagnostics



Maintenance Notification

*This page was loaded from NDP000106 on Wed Oct 27 12:53:43 2004*

Maintenance Messages

Index: 1

Message:

Code: 0

Time Stamp: 00000000T000000

Enable:

Maintenance Acknowledgement

Index: 1

Ack:


Interval:

Retries:

Response:

## Maintenance Process Item

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

NPD Gateway

Object Instance:

View

⊞Monitor

Configuration

⊞Administration

⊞Asset Management

⊞Bulk Transfer

⊞Clock/Calendar

⊞Inventory

⊞Maintenance

[Notification](#)

[Process Item](#)

[Scheduled Item](#)

[Unscheduled Item](#)

⊞Notify

⊞Security

⊞Utility

⊞Email

⊞Gateway

System Info

⊞Diagnostics

Maintenance Process Item

*This page was loaded from NDP000106 on Wed Oct 27 12:55:15 2004*

Index: 1

Item Name:

Units:

Equipment:

Location:

Target Value:

Actual Value: 0

Status: Ok

Time Stamp: 00000000T000000

Trigger Condition:


Clear:

Bypass:



## Maintenance Scheduled Item

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

NPD Gateway

Object Instance:

View

☒ Monitor

Configuration

☒ Administration

☒ Asset Management

☒ Bulk Transfer


☒ Clock/Calendar

☒ Inventory

☒ Maintenance

[Notification](#)

[Process Item](#)

[Scheduled Item](#) 

[Unscheduled Item](#)

☒ Notify

☒ Security


☒ Utility

☒ Email

☒ Gateway

System Info

☒ Diagnostics



Maintenance Scheduled Item

*This page was loaded from NDP000106 on Wed Oct 27 13:24:27 2004*

Index: 1

Item Name:

Units:

Equipment:

Location:

Date of Scheduled Maintenance:


Date of Last Scheduled Maintenance:

Status: Alarm

Current Date-Time of Scheduled Maintenance: 00000000T000000

## Maintenance Unscheduled Item

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

NPD Gateway

Object Instance:

View

☒ Monitor

Configuration

☒ Administration

☒ Asset Management

☒ Bulk Transfer

☒ Clock/Calendar

☒ Inventory

☒ Maintenance

[Notification](#)

[Process Item](#)

[Scheduled Item](#)

[Unscheduled Item](#)

☒ Notify

☒ Security


☒ Utility

☒ Email

☒ Gateway

System Info

☒ Diagnostics



Maintenance Unscheduled Item

*This page was loaded from NDP000106 on Wed Oct 27 13:25:16 2004*

Index: 1

Item Name:

Units:

Equipment:

Location:

Maximum Count:


Accumulated Count: 0

Status: Alarm

Time Stamp: 00000000T000000

## Notify Host

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

*NPD Gateway*

Object Instance:

View

☒ Monitor

Configuration

☒ Administration

☒ Asset Management

☒ Bulk Transfer

☒ Clock/Calendar

☒ Inventory

☒ Maintenance

☒ Notify

☒ Host

☒ Event Log

☒ Security

☒ Utility

☒ Email

☒ Gateway

System Info

☒ Diagnostics

WATLOW  
Connectivity  
-solutions

Notify Host

*This page was loaded from NDP000106 on Wed Oct 27 13:26:20 2004*

Index: 1

Name:


Address:

Group:



## Notify Event Log

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

*NPD Gateway*

Object Instance:

View

☒ Monitor

Configuration

☒ Administration

☒ Asset Management

☒ Bulk Transfer

☒ Clock/Calendar

☒ Inventory

☒ Maintenance

☒ Notify

[Host](#)

[Event Log](#) ←

☒ Security


☒ Utility

☒ Email

☒ Gateway

System Info

☒ Diagnostics



Notify Event Log

*This page was loaded from NDP000106 on Wed Oct 27 13:27:35 2004*

Index: 1

Date: 20041009

Time: 122004.0000

Name: Tom's Computer

Group: Administration


Message: On Line

Code: 7001006

Detail:

## Security User

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

NPD Gateway

Object Instance:

View

☒ Monitor

Configuration

☒ Administration

☒ Asset Management

☒ Bulk Transfer

☒ Clock/Calendar

☒ Inventory

☒ Maintenance

☒ Notify

☒ Security


☒ Utility

☒ Email

☒ Gateway

System Info

☒ Diagnostics



Security User

*This page was loaded from NDP000106 on Wed Oct 27 13:29:05 2004*

Index:

User Name:

User Password:

User Tampered: ☐ False


User Deleted: ☐ False

User Changed: ☐ False

User Reset:

## Utility Alarm

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

NPD Gateway

Object Instance:

View

☒ Monitor

Configuration

☒ Administration

☒ Asset Management

☒ Bulk Transfer

☒ Clock/Calendar

☒ Inventory

☒ Maintenance

☒ Notify

☒ Security

☒ Utility

Alarm

[Configuration](#)

[Data](#)


[Notification](#)

☒ Email

☒ Gateway

System Info

☒ Diagnostics



Utility Alarm

*This page was loaded from NDP000106 on Wed Oct 27 13:30:33 2004*

Index:

Critical High Limit:

Critical Low Limit:

Warning High Limit:

Warning Low Limit:


Deviation:

Clear:

Bypass:

## Utility Management Configuration

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

NPD Gateway

Object Instance:

View

☒ Monitor

Configuration

☒ Administration

☒ Asset Management

☒ Bulk Transfer

☒ Clock/Calendar

☒ Inventory


☒ Maintenance

☒ Notify

☒ Security

☒ Utility

[Alarm](#)

[Configuration](#) 

[Data](#)


[Notification](#)

☒ Email

☒ Gateway

System Info

☒ Diagnostics



Utility Management Configuration

*This page was loaded from NDP000106 on Wed Oct 27 13:32:06 2004*

Index: 1

Name:

Type:


Description:

Rated Value:

Units:

## Utility Management Data

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

NPD Gateway

Object Instance:

View

⊕Monitor

Configuration

⊕Administration

⊕Asset Management

⊕Bulk Transfer

⊕Clock/Calendar

⊕Inventory

⊕Maintenance

⊕Notify

⊕Security

⊖Utility

[Alarm](#)

[Configuration](#)

[Data](#) ←


[Notification](#)

⊕Email

⊕Gateway

System Info

⊕Diagnostics




Utility Management Data

*This page was loaded from NDP000106 on Wed Oct 27 13:32:59 2004*

Index:	1
Measured Value:	0
Status:	Ok
Time Stamp:	00000000T0000000

## Utility Notification

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

NPD Gateway

Object Instance:

View

Monitor

Configuration

Administration

Asset Management

Bulk Transfer

Clock/Calendar

Inventory

Maintenance

Notify

Security

Utility

[Alarm](#)

[Configuration](#)

[Data](#)


[Notification](#)

Email

Gateway

System Info

Diagnostics



Utility Notification

*This page was loaded from NDP000106 on Wed Oct 27 13:47:11 2004*

**Utility Notify Messages**

Index: 1

Message:

Code: 0

Time Stamp: 20041009T122004

Enable:

**Utility Acknowledgement**

Index: 1

Ack:


Interval:

Retries:

Response:

## Email Configuration

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.




# NPD Gateway

Object Instance:

View

- Monitor
- Configuration
  - Administration
  - Asset Management
  - Bulk Transfer
  - Clock/Calendar
  - Inventory
  - Maintenance
  - Notify
  - Security
  - Utility
  - Email
    - Configuration ←
  - Gateway
- System Info
  - Diagnostics



Best Viewed In IE 5.0+, NN 7.0+, or Mozilla 1.0.2+

## Email Configuration

*This page was loaded from NDP000106 on Wed Oct 27 13:49:25 2004*

### Electronic Notification

Emails triggered (by alarms, test button etc.) before the SMTP Server IP is resolved are not sent.

Send Email With SNMP Traps:	<input type="text" value="No"/>	
SMTP Server IP Resolution:	<input type="text" value="Get Server IP From Server Name"/>	
SMTP Server Name:	<input type="text"/>	Example: smtp.company.com
SMTP Server Fixed Address:	<input type="text" value="0.0.0.1"/>	Example: 127.0.0.1
Email Subject:	<input type="text"/>	
Source Email Address:	<input type="text"/>	Example: joe_service@company.com
Email Recipient 1:	<input type="text"/>	Example: 3125554444@pager.com
Email Recipient 2:	<input type="text"/>	Example: anyone@yahoo.com
Email Recipient 3:	<input type="text"/>	Example: Fun@WorkToday.com
Email Recipient 4:	<input type="text"/>	Example: Leave blank if unused

When the SMTP server IP address has been resolved a button will appear below to send a test email to all recipients.

**Static information - [Click here to refresh page.](#)**

## Gateway Serial Channel Entry

- Select Configuration, Gateway, Serial Channel, and Object Instance 1 to access this page. Configure each serial channel entry. The baud rate, parity data bits, stop bits and protocol must match the devices on the bus.

**Note:** *Submit* changes to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

The screenshot shows the 'NPD Gateway' web interface. At the top, there's a yellow header with the 'WATLOW' logo on the left and 'NPD Gateway' in blue script on the right. Below the header, a navigation bar contains 'Object Instance: 1' and a 'Go' button. The main content area has a blue header 'Gateway Serial Channel Entry' and a message: 'This page was loaded from NDP000106 on Wed Oct 27 13:50:21 2004'. On the left, a sidebar menu lists various categories: 'View' (with 'Monitor' expanded), 'Configuration' (with 'Administration', 'Asset Management', 'Bulk Transfer', 'Clock/Calendar', 'Inventory', 'Maintenance', 'Notify', 'Security', 'Utility', and 'Email' expanded), 'Gateway' (with 'Serial Channel' selected and highlighted by a red arrow, and 'Serial Device Entry' and 'Serial Point Entry' as sub-links), and 'System Info' (with 'Diagnostics' expanded). The main configuration area on the right contains fields for: 'Index' (1), 'Name' (RS-485), 'Baud Rate' (9600), 'Parity' (None), 'Data Bits' (8), 'Stop Bits' (1), 'Protocol' (MODBUS RTU), 'Frame Time Out' (30), 'Process Time Out' (3000), and 'Retries' (1). At the bottom of this area are 'Submit' and 'Reset' buttons. The footer of the sidebar features the 'WATLOW connectivity solutions' logo.

**WATLOW**

*NPD Gateway*

Object Instance: 1 Go

### Gateway Serial Channel Entry

*This page was loaded from NDP000106 on Wed Oct 27 13:50:21 2004*

View  
☒ Monitor

Configuration  
☒ Administration  
☒ Asset Management  
☒ Bulk Transfer  
☒ Clock/Calendar  
☒ Inventory  
☒ Maintenance  
☒ Notify  
☒ Security  
☒ Utility  
☒ Email  
☒ Gateway  
    Serial Channel  
    Serial Device Entry  
    Serial Point Entry

System Info  
☒ Diagnostics

**WATLOW**  
connectivity  
solutions

Index: 1

Name: RS-485

Baud Rate: 9600

Parity: None

Data Bits: 8

Stop Bits: 1

Protocol: MODBUS RTU

Frame Time Out: 30

Process Time Out: 3000

Retries: 1


Submit Reset



## Gateway Serial Device Entry

- Select Configuration, Gateway, Serial Device Entry, and Object Instance 1 to access this page. Configure a serial device entry for each device. A maximum of 8 devices can be configured.
- Enter a Name for reference. Set the Assignment Port to 1.
- Engaged must be set to Engage to have the device active.
- Enter the Address of the Modbus device. The range is 1 to 247.
- Set Port Delay, Health Check Rate and ID Check Rate to 0.
- Write and Read Count indicates the number of attempted write and read instructions to this device.
- The Write Error and Read Error Count are the number of failed attempts at writing and reading to this device. The CRC Error Count is the number of packets returned with corrupted data within the packet.

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

NPD Gateway

Object Instance:

View

⊕ Monitor

Configuration

⊕ Administration

⊕ Asset Management

⊕ Bulk Transfer

⊕ Clock/Calendar

⊕ Inventory

⊕ Maintenance

⊕ Notify

⊕ Security

⊕ Utility

⊕ Email

⊖ Gateway


[Serial Channel](#)

[Serial Device Entry](#) ←

[Serial Point Entry](#)

System Info

⊕ Diagnostics



Gateway Serial Device Entry


*This page was loaded from NDP000106 on Wed Oct 27 13:51:24 2004*

Index:	1
Name:	<input type="text" value="Watlow 988 1"/>
Assignment Port:	<input type="text" value="1"/>
Engaged:	<input type="text" value="Dis-Engage"/>
Address:	<input type="text" value="1"/>
Port Delay:	<input type="text" value="10"/>
Health Check Rate:	<input type="text" value="0"/>
ID Check Rate:	<input type="text" value="0"/>
Write Count:	0
Read Count:	0
Write Error Count:	0
Read Error Count:	21
CRC Error Count:	0

## Gateway Serial Point Entry

- Select Configuration, Gateway, Serial Point Entry, and Select Object Instance 1 to access this page. Configure each serial point entry. A serial point entry represents a data point or parameter of the device.
- Enter a Name to identify the data point. In this example it has been named Fryer Temp.
- Class is the location to copy the data to from the data point.
- Device is the index of the device where the data point resides.
- Scan Rate is the frequency to acquire this data point in milliseconds. This value is added to the maximum scan rate. A value of 5000 would add five seconds of time to the scan.
- Receive Type should be set to Signed 16 bit for Modbus register from Watlow devices.
- User Type determines the formatting of the data point for your application.
- The Register is the data point with in the device, entered as an absolute register number. Add 40001 to relative register numbers to obtain the absolute register number. See the appropriate device user's manual for a list of Modbus registers.
- Register Size is the length in bytes that are returned from the register.
- Gain Multiplier and Gain Divider are used to scale the returned data point value.
- Offset is used to shift the returned data point value in a positive or negative direction.

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

NPD Gateway

Object Instance:

View

☒ Monitor

Configuration

☒ Administration

☒ Asset Management

☒ Bulk Transfer

☒ Clock/Calendar

☒ Inventory

☒ Maintenance

☒ Notify

☒ Security


☒ Utility

☒ Email

☒ Gateway


[Serial Channel](#)

[Serial Device Entry](#)

[Serial Point Entry](#) 

System Info

☒ Diagnostics



Gateway Serial Point Entry

*This page was loaded from NDP000106 on Wed Oct 27 13:52:45 2004*

Index:

1

Name:

Class:

Device:

Scan Rate:

Access Type:

Receive Type:

User Type:

Register:

Register Size:

Gain Multiplier:

Gain Divider:

Offset:

Operation:

## System Info

### Diagnostics Defaults

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

The screenshot displays the NPD Gateway web interface. At the top, the WATLOW logo is on the left, and the text "NPD Gateway" is on the right. Below the logo, there is a header bar with "Object Instance: 1" and a "Go" button. The main content area is divided into two columns. The left column contains a navigation menu with sections: "View" (containing "Monitor"), "Configuration" (containing "Administration", "Asset Management", "Bulk Transfer", "Clock/Calendar", "Inventory", "Maintenance", "Notify", "Security", "Utility", "Email", and "Gateway"), "System Info" (containing "Diagnostics"), and "Diagnostics" (containing "Defaults", "Timing Analysis", "Timing Configuration", "Pool Memory", "TCP/IP Stack", and "Event Log"). The "Defaults" link is highlighted with a red arrow. The right column has a blue header "Defaults" and a message: "This page was loaded from NDP000106 on Wed Oct 27 13:58:19 2004". Below this is a section titled "Parameter Defaults" with a button that says "Click Here To Restore All Defaults". At the bottom left of the page is the WATLOW connectivity-solutions logo.

**WATLOW**

*NPD Gateway*

Object Instance: 1 Go

**View**

- Monitor

**Configuration**

- Administration
- Asset Management
- Bulk Transfer
- Clock/Calendar
- Inventory
- Maintenance
- Notify
- Security
- Utility
- Email
- Gateway

**System Info**

- Diagnostics
  - Defaults ←
  - Timing Analysis
  - Timing Configuration
  - Pool Memory
  - TCP/IP Stack
  - Event Log

**Defaults**

*This page was loaded from NDP000106 on Wed Oct 27 13:58:19 2004*


**Parameter Defaults**

Click Here To Restore All Defaults

**WATLOW**  
connectivity  
-solutions

## Diagnostics Timing Analysis

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.



# NPD Gateway

Object Instance:

**View**


- Monitor

**Configuration**

- Administration
- Asset Management
- Bulk Transfer
- Clock/Calendar
- Inventory
- Maintenance
- Notify
- Security
- Utility
- Email
- Gateway

**System Info**

- Diagnostics
  - Defaults
  - Timing Analysis ←
  - Timing Configuration
  - Pool Memory
  - TCP/IP Stack
  - Event Log



## Timing Analysis

*This page was loaded from NDP000106 on Wed Oct 27 14:01:40 2004*

[Click Here To Refresh](#)

**System Table**


Variable	Value
Time of Power on:	4294937295
Timing Enabled:	Yes
Timing Test Running:	Yes
Current Time:	533963481
Time of Test Start:	533963017
Time of Test Completion:	533993017
Time of Test Start Delay:	15000
Time of Sample:	464

**Task Table**

Name	Next Due Time	Interval Time	Number of Executions	Sum of Execution Time	Max of Exec. Time	Sum of Late Times	% Utilized
HalDisplay_Tick	533963422	100	5	0	0	5	0%
RealTimeManager_Tick	533963377	500	1	2	2	0	0.43%
GatewayManager_Tick	533963473	10	46	2	2	20	0.43%
DisplayHandler_Update	533963412	100	4	0	0	4	0%
EmailManager_Task	533963477	750	1	0	0	0	0%

## Diagnostics Timing Configuration

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

NPD Gateway

Object Instance:

View

☒ Monitor

Configuration

☒ Administration  
☒ Asset Management  
☒ Bulk Transfer  
☒ Clock/Calendar  
☒ Inventory  
☒ Maintenance  
☒ Notify  
☒ Security  
☒ Utility  
☒ Email  
☒ Gateway

System Info

☒ Diagnostics  


[Defaults](#)  
[Timing Analysis](#)  
[Timing Configuration](#) ←  
[Pool Memory](#)  
[TCP/IP Stack](#)  
[Event Log](#)

Timing Configuration

*This page was loaded from NDP000106 on Wed Oct 27 14:04:18 2004*


Delay Time Before Starting/ReStarting Timing Test:  Seconds

Time Duration of Test:  Seconds



## Diagnostics Pool Memory

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.

NPD Gateway

Object Instance:

View

☒ Monitor

Configuration

☒ Administration

☒ Asset Management

☒ Bulk Transfer

☒ Clock/Calendar

☒ Inventory

☒ Maintenance

☒ Notify

☒ Security

☒ Utility

☒ Email

☒ Gateway

System Info

☒ Diagnostics

[Defaults](#)


[Timing Analysis](#)

[Timing Configuration](#)

[Pool Memory](#) ←

[TCP/IP Stack](#)

[Event Log](#)



Pool Memory Information

*This page was loaded from NDP000106 on Wed Oct 27 14:05:55 2004*

[Click Here To Refresh](#)

Huge

Size = 2300

Qty = 4

Used = 2

Peak = 3

Lost = 0

Big

Size = 1600

Qty = 43

Used = 31

Peak = 32

Lost = 0

Mid

Size = 184

Qty = 98

Used = 37

Peak = 67

Lost = 0



Small

Size = 54

Qty = 126

## Diagnostics TCP/IP Stack

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.



Object Instance:

View

⊕ Monitor

Configuration

⊕ Administration

⊕ Asset Management

⊕ Bulk Transfer

⊕ Clock/Calendar

⊕ Inventory

⊕ Maintenance

⊕ Notify

⊕ Security

⊕ Utility

⊕ Email

⊕ Gateway

System Info

⊖ Diagnostics

[Defaults](#)


[Timing Analysis](#)

[Timing Configuration](#)

[Pool Memory](#)

[TCP/IP Stack](#) ←

[Event Log](#)



Stack Information

*This page was loaded from NDP000106 on Wed Oct 27 14:06:43 2004*

[Click Here To Refresh](#)

Note: The network addresses listed below are those retrieved from the stack directly.

Stack Info Group 0 for iface 0

IP Address: 10.3.37.130

Subnet Mask: 255.255.224.0

Default Gateway: 10.3.63.250

DNS Server: 10.3.55.240

SMTP Server: 0.0.0.0

MAC Address: 00:03:AA:00:04:53

Receives: 1482128

Unicasts: 8826

Multicasts: 0

Broadcasts: 1466837

Rx Errors: 0

Rx Missed: 48870

Rx CRC Errors: 0

Rx Drops: 0

Transmits: 8779

Buffer Defers: 0

Tx Errors: 0

Tx Collisions: 0


Tx Collis OvFlow: 0

Tx FILO Errors: 0

Traffic Backoffs: 0

## Diagnostics Event Log

**Note:** Click *Submit* to save changes. *Reset* will return these settings to the previous values if you have not pressed the *Submit* button.



# NPD Gateway

Object Instance:

**View**


- ☒ Monitor

**Configuration**

- ☒ Administration
- ☒ Asset Management
- ☒ Bulk Transfer
- ☒ Clock/Calendar
- ☒ Inventory
- ☒ Maintenance
- ☒ Notify
- ☒ Security
- ☒ Utility
- ☒ Email
- ☒ Gateway

**System Info**

- ☒ Diagnostics
  - [Defaults](#)
  - [Timing Analysis](#)
  - [Timing Configuration](#)
  - [Pool Memory](#)
  - [TCP/IP Stack](#)
  - [Event Log](#) ←



## Event Log

*This page was loaded from NDP000106 on Wed Oct 27 14:07:49 2004*

[Click Here To Refresh](#)

Time Of Event: 4294942443 - Datastore initialization complete.  
Time Of Event: 424080839 - DS error Set Enum Tag 268  
Time Of Event: 424080861 - DS error Set Enum Tag 269  
Time Of Event: 424080883 - DS error Set Enum Tag 270  
Time Of Event: 424080947 - DS error Set Long Tag 1626  
Time Of Event: 424080969 - DS error Set Long Tag 1627  
Time Of Event: 424081011 - DS error Set Enum Tag 271  
Time Of Event: 424118421 - DS error Set Enum Tag 214  
Time Of Event: 424118847 - DS error Set Enum Tag 268  
Time Of Event: 424118869 - DS error Set Enum Tag 269  
Time Of Event: 424118891 - DS error Set Enum Tag 270  
Time Of Event: 424118955 - DS error Set Long Tag 1626  
Time Of Event: 424118977 - DS error Set Long Tag 1627  
Time Of Event: 424119021 - DS error Set Enum Tag 271  
Time Of Event: 444392271 - DS error Set Enum Tag 268  
Time Of Event: 444392293 - DS error Set Enum Tag 269  
Time Of Event: 444392315 - DS error Set Enum Tag 270  
Time Of Event: 444392379 - DS error Set Long Tag 1626  
Time Of Event: 444392399 - DS error Set Long Tag 1627  
Time Of Event: 444392443 - DS error Set Enum Tag 271



## **Specifications**

### **Operation**

Notification Handling per NAFEM PROTOCOL MANUAL for Alarm and Notification handling. The Alarm Module performs the checking of parameter status and trigger notification events within 500 milliseconds.

Gateway accommodates a reading of all 64 remote device attributes from a single device in one-second and all connected devices' attributes in four seconds.

SNMPv1Agent performs the interaction between the Gateway and the remote networked User's Application running an SNMP manager. The SNMP v1 Agent will respond to the remote manager (User application initiated) requests at a rate of 40 Hz - Reference RFC 1157.

TFTP Client - Reference RFC 1350.

Web Server performs the interaction between the Gateway and the remote networked User's Browser. The Web Server will serve web pages to the remote browser (User initiated) at a rate of one page every five seconds.

#### **Poll Engine**

The Poll Engine initiates communications between the Gateway and the remote devices. Individual SCAN RATES are user programmable in one-second intervals. The Poll Engine performs these polls in an asynchronous manner thereby eliminating the remote devices response time from time considerations of internal events. The poll rate of the Poll Engine is 10 Hz assuming a 20 Hz remote device response time, 19200-baud rate, and no retry requirement.

### **Real-time Clock**

The on board Real Time Clock circuit provides the Gateway with time reference and is read for Gateway time clock updates on a one-minute interval. Accuracy is  $\pm 4$  minutes per year and provides timing accuracy of  $\pm 0.5\%$  over a range of 0 to 999 seconds. Battery Backup provides a minimum of 6 years service.

### **Serial Communications**

Complies with EIA-485 standards - supports 19200 and 9600-baud rates.

### **Connectors**

RJ45 for Ethernet connection interface per IEEE 802.3

Coaxial power connector with positive center post

DB9 connector for Serial connection

### **Power**

Input Voltage Ratings

5VDC for Wall Transformer interface with coaxial plug

UL approved, Class II power supply required

Input Power Ratings 10 Watts Maximum

Real-time Clock backed by 3v-lithium battery – RAYOVAC BR1225

### **Environmental Conditions**

Operating temperature range: 0 to 60°C

Storage temperature range: -40 to 70°C

Operating and storage humidity: 0 to 90% non-condensing

# Declaration of Conformity

## Gateway Products



Watlow Winona, Inc.  
1241 Bundy Blvd.  
Winona, MN 55987 USA

Declares that the following product:

Model Numbers: EM(XX)-GATE-(XXXX), \*NGW(X)-(XXXX)-(XXXX) X = any number or letter  
Classification: Communications interface card, Installation Category I, Pollution degree II  
Rated Voltage: 24V $\approx$  (ac or dc) or 5V $\approx$  (dc)  
Rated Frequency: 50/60 Hz or dc  
Rated Power: 10VA maximum

*\*NGW with 5V power option requires use of a Ferrico NF130 Clamp on ferrite on all lines to pass Class B emissions. Depending on end use setup, this bead may or may not be necessary.*

Meets the essential requirements of the following European Union Directives by using the relevant standards show below to indicate compliance.

### **89/336/EEC Electromagnetic Compatibility Directive**

<b>EN 61326:1997 +A1:1998</b>	<b>Electrical equipment for measurement, control and laboratory use – EMC requirements (Industrial Immunity, Class B Emissions).</b>
EN 61000-4-2:1996 +A1, 1998	Electrostatic Discharge Immunity
EN 61000-4-3:1997	Radiated Field Immunity
EN 61000-4-4:1995	Electrical Fast-Transient / Burst Immunity
EN 61000-4-5:1995 +A1, 1996	Surge Immunity
EN 61000-4-6:1996	Conducted Immunity
EN 61000-4-11:1994	Voltage Dips, Short Interruptions and Voltage Variations Immunity
EN 61000-3-2:1995 +A1-3:1999	Harmonic Current Emissions
EN 61000-3-3:1995 +A1:1998	Voltage Fluctuations and Flicker

**Use of an appropriately approved class 2 power source is required for compliance.**

### **2001/95/EC General Product Safety Directive**

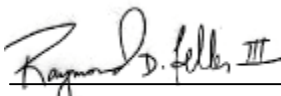
<b>EN 61010-1:2001</b>	<b>Safety Requirements of electrical equipment for measurement, control and laboratory use. Part 1: General requirements</b>
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Raymond D. Feller III  
Name of Authorized Representative

Winona, Minnesota, USA  
Place of Issue

General Manager  
Title of Authorized Representative

July, 2003  
Date of Issue

  
\_\_\_\_\_  
Signature of Authorized Representative

## **How to Reach Us**

### **Technical Assistance**

If you encounter a problem with your NAFEM Gateway, review all of your wiring and configuration information to verify that your selections are consistent with your application. If the problem persists after checking the above, you can get technical assistance from your local Watlow representative, or by dialing (507) 454-5300. An applications engineer will discuss your application with you.

### **Warranty**

This product is warranted free from defects in material and workmanship for 24 months after delivery to the first purchaser for use, providing that the units have not been misapplied. Since Watlow has no control over their use, and sometimes misuse, we cannot guarantee against failure. Watlow's obligations hereunder, at Watlow's option, are limited to replacement, repair or refund of purchase price, and parts that upon examination prove to be defective within the warranty period specified. This warranty does not apply to damage resulting from transportation, alteration, misuse or abuse.

### **Returns**

- Call or fax Customer Service for a Return Material Authorization (RMA) number before returning any product.
- Put the RMA number on the shipping label, and provide a written description of the problem.
- A restocking charge of 20% of the net price is charged for all standard units returned to stock.

### **Your Feedback**

Your comments or suggestions on this manual are welcome, please send them to: Technical Writer, Watlow Winona, 1241 Bundy Blvd., P.O. Box 5580, Winona, MN 55987-5580, Phone: (507) 454-5300, Fax: (507) 452-4507. Watlow Winona, Inc., ©, copyrights the NAFEM Gateway User's Manual February 2002, with all rights reserved. (2212)