NOTIFIER®
by Honeywell



ONYXWorks®
NetLogic

Installation and Operation Manual

Document 52326
7/9/2015 Rev: C6
P/N 52326:C6 ECN: 15-0323

Fire Alarm & Emergency Communication System Limitations

While a life safety system may lower insurance rates, it is not a substitute for life and property insurance!

An automatic fire alarm system—typically made up of smoke detectors, heat detectors, manual pull stations, audible warning devices, and a fire alarm control panel (FACP) with remote notification capability—can provide early warning of a developing fire. Such a system, however, does not assure protection against property damage or loss of life resulting from a fire.

An emergency communication system—typically made up of an automatic fire alarm system (as described above) and a life safety communication system that may include an autonomous control unit (ACU), local operating console (LOC), voice communication, and other various interoperable communication methods—can broadcast a mass notification message. Such a system, however, does not assure protection against property damage or loss of life resulting from a fire or life safety event.

The Manufacturer recommends that smoke and/or heat detectors be located throughout a protected premises following the recommendations of the current edition of the National Fire Protection Association Standard 72 (NFPA 72), manufacturer's recommendations, State and local codes, and the recommendations contained in the Guide for Proper Use of System Smoke Detectors, which is made available at no charge to all installing dealers. This document can be found at http://www.systemsensor.com/appguides/. A study by the Federal Emergency Management Agency (an agency of the United States government) indicated that smoke detectors may not go off in as many as 35% of all fires. While fire alarm systems are designed to provide early warning against fire, they do not guarantee warning or protection against fire. A fire alarm system may not provide timely or adequate warning, or simply may not function, for a variety of reasons:

Smoke detectors may not sense fire where smoke cannot reach the detectors such as in chimneys, in or behind walls, on roofs, or on the other side of closed doors. Smoke detectors also may not sense a fire on another level or floor of a building. A second-floor detector, for example, may not sense a first-floor or basement fire.

Particles of combustion or "smoke" from a developing fire may not reach the sensing chambers of smoke detectors because:

- Barriers such as closed or partially closed doors, walls, chimneys, even wet or humid areas may inhibit particle or smoke flow.
- Smoke particles may become "cold," stratify, and not reach the ceiling or upper walls where detectors are located.
- Smoke particles may be blown away from detectors by air outlets, such as air conditioning vents.
- Smoke particles may be drawn into air returns before reaching the detector.

The amount of "smoke" present may be insufficient to alarm smoke detectors. Smoke detectors are designed to alarm at various levels of smoke density. If such density levels are not created by a developing fire at the location of detectors, the detectors will not go into alarm.

Smoke detectors, even when working properly, have sensing limitations. Detectors that have photoelectronic sensing chambers tend to detect smoldering fires better than flaming fires, which have little visible smoke. Detectors that have ionizing-type sensing chambers tend to detect fast-flaming fires better than smoldering fires. Because fires develop in different ways and are often unpredictable in their growth, neither type of detector is necessarily best and a given type of detector may not provide adequate warning of a fire.

Smoke detectors cannot be expected to provide adequate warning of fires caused by arson, children playing with matches (especially in bedrooms), smoking in bed, and violent explosions (caused by escaping gas, improper storage of flammable materials, etc.).

Heat detectors do not sense particles of combustion and alarm only when heat on their sensors increases at a predetermined rate or reaches a predetermined level. Rate-of-rise heat detectors may be subject to reduced sensitivity over time. For this reason, the rate-of-rise feature of each detector should be tested at least once per year by a qualified fire protection specialist. Heat detectors are designed to protect property, not life.

IMPORTANT! Smoke detectors must be installed in the same room as the control panel and in rooms used by the system for the connection of alarm transmission wiring, communications, signaling, and/or power. If detectors are not so located, a developing fire may damage the alarm system, compromising its ability to report a fire.

Audible warning devices such as bells, horns, strobes, speakers and displays may not alert people if these devices are located on the other side of closed or partly open doors or are located on another floor of a building. Any warning device may fail to alert people with a disability or those who have recently consumed drugs, alcohol, or medication. Please note that:

- An emergency communication system may take priority over a fire alarm system in the event of a life safety emergency.
- Voice messaging systems must be designed to meet intelligibility requirements as defined by NFPA, local codes, and Authorities Having Jurisdiction (AHJ).
- Language and instructional requirements must be clearly disseminated on any local displays.
- Strobes can, under certain circumstances, cause seizures in people with conditions such as epilepsy.
- Studies have shown that certain people, even when they hear a fire alarm signal, do not respond to or comprehend the meaning of the signal. Audible devices, such as horns and bells, can have different tonal patterns and frequencies. It is the property owner's responsibility to conduct fire drills and other training exercises to make people aware of fire alarm signals and instruct them on the proper reaction to alarm signals.
- In rare instances, the sounding of a warning device can cause temporary or permanent hearing loss.

A life safety system will not operate without any electrical power. If AC power fails, the system will operate from standby batteries only for a specified time and only if the batteries have been properly maintained and replaced regularly.

Equipment used in the system may not be technically compatible with the control panel. It is essential to use only equipment listed for service with your control panel.

Telephone lines needed to transmit alarm signals from a premises to a central monitoring station may be out of service or temporarily disabled. For added protection against telephone line failure, backup radio transmission systems are recommended.

The most common cause of life safety system malfunction is inadequate maintenance. To keep the entire life safety system in excellent working order, ongoing maintenance is required per the manufacturer's recommendations, and UL and NFPA standards. At a minimum, the requirements of NFPA 72 shall be followed. Environments with large amounts of dust, dirt, or high air velocity require more frequent maintenance. A maintenance agreement should be arranged through the local manufacturer's representative. Maintenance should be scheduled monthly or as required by National and/or local fire codes and should be performed by authorized professional life safety system installers only. Adequate written records of all inspections should be kept.

Limit-D-1-2013

Installation Precautions

Adherence to the following will aid in problem-free installation with long-term reliability:

WARNING - Several different sources of power can be connected to the fire alarm control panel. Disconnect all sources of power before servicing. The control unit and associated equipment may be damaged by removing and/or inserting cards, modules, or interconnecting cables while the unit is energized. Do not attempt to install, service, or operate this unit until this manual is read and understood.

CAUTION - System Reacceptance Test after Software Changes. To ensure proper system operation, this product must be tested in accordance with NFPA 72 after any programming operation or change in site-specific software. Reacceptance testing is required after any change, addition or deletion of system components, or after any modification, repair or adjustment to system hardware or wiring.

All components, circuits, system operations, or software functions known to be affected by a change must be 100% tested. In addition, to ensure that other operations are not inadvertently affected, at least 10% of initiating devices that are not directly affected by the change, up to a maximum of 50 devices, must also be tested and proper system operation verified.

This system meets NFPA requirements for operation at 0°C to 49°C (32°F to 120°F) and at a relative humidity 93% ± 2% RH (non-condensing) at 32°C ± 2°C (90°F ± 3°F). However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and all peripherals be installed in an environment with a nominal room temperature of 15-27° C/60-80° F.

Verify that wire sizes are adequate for all initiating and indicating device loops. Most devices cannot tolerate more than a 10% I.R. drop from the specified device voltage.

Like all solid state electronic devices, this system may operate erratically or can be damaged when subjected to lightning-induced transients. Although no system is completely immune from lightning transients and interferences, proper grounding will reduce susceptibility. Overhead or outside aerial wiring is not recommended, due to an increased susceptibility to nearby lightning strikes. Consult with the Technical Services if any problems are anticipated or encountered.

Disconnect AC power and batteries prior to removing or inserting circuit boards. Failure to do so can damage circuits.

Remove all electronic assemblies prior to any drilling, filing, reaming, or punching of the enclosure. When possible, make all cable entries from the sides or rear. Before making modifications, verify that they will not interfere with battery, transformer, and printed circuit board location.

Do not tighten screw terminals more than 9 in-lbs. Over-tightening may damage threads, resulting in reduced terminal contact pressure and difficulty with screw terminal removal.

Though designed to last many years, system components can fail at any time. This system contains static-sensitive components. Always ground yourself with a proper wrist strap before handling any circuits so that static charges are removed from the body. Use static-suppressive packaging to protect electronic assemblies removed from the unit.

Follow the instructions in the installation, operating, and programming manuals. These instructions must be followed to avoid damage to the control panel and associated equipment. FACP operation and reliability depend upon proper installation by authorized personnel.

FCC Warning

WARNING: This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual may cause interference to radio communications. It has been tested and found to comply with the limits for class A computing devices pursuant to Subpart B of Part 15 of FCC Rules, which is designed to provide reasonable protection against such interference when devices are operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user will be required to correct the interference at his or her own expense.

Canadian Requirements

This digital apparatus does not exceed the Class A limits for radiation noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de la classe A prescrites dans le Reglement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada.

HARSH™, **NIS™**, **NOTI•FIRE•NET™**, **eVance™**, and **SWIFT™** are all trademarks; and **Acclimate® Plus**, **FlashScan®**, **FAAST Fire Alarm Aspiration Sensing Technology®**, **Intelligent FAAST®**, **NOTIFIER®**, **ONYX®**, **ONYXWorks®**, **VeriFire®**, and **VIEW®** are all registered trademarks of Honeywell International Inc.

Microsoft® and **Windows®** are registered trademarks of the Microsoft Corporation.

Chrome™ and Google™ are trademarks of Google Inc.

© 2015 by Honeywell International Inc. All rights reserved. Unauthorized use of this document is strictly prohibited.

Software Downloads

In order to supply the latest features and functionality in fire alarm and life safety technology to our customers, we make frequent upgrades to the embedded software in our products. To ensure that you are installing and programming the latest features, we strongly recommend that you download the most current version of software for each product prior to commissioning any system. Contact Technical Support with any questions about software and the appropriate version for a specific application.

Documentation Feedback

Your feedback helps us keep our documentation up-to-date and accurate. If you have any comments or suggestions about our on-line help or manuals, please e-mail us at FireSystems.TechPubs@honeywell.com.

On-Line Help – Please include the following information:

- Product name and version number (if applicable)
- Topic title
- The content you think should be corrected/improved
- Detailed suggestions for correction/improvement

Documents – Please include the following information:

- Document part number and title
- Page number and paragraph
- The content you think should be corrected/improved
- Detailed suggestions for correction/improvement

Please Note: If you have any technical issues, please contact Technical Services.

Manual Usage

This manual is written with the understanding that the user has been trained in the proper operations and services for this product. The information provided in this manual is intended to assist the user by describing the configurations and how they affect operations.

Table of Contents

Section 1 About NetLogic 7
1.1: Agency Listings 7
1.1.1: Compliance 7
National Fire Protection Association 7
Underwriters Laboratories 7
Underwriters Laboratories Canada 7
1.1.2: Installation 7
Local 7
National Fire Protection Association 7
Underwriters Laboratories 7
Underwriters Laboratories Canada 7
Canada 8
1.2: Environmental Requirements 8
1.3: Workstation Mode Compatibility 8

Section 2 NetLogic Configuration 9
2.1: NetLogic Description 9
2.2: ONYXWorks Fire System Database 9
2.3: Automatic Updates 9
2.4: About NetLogic Startup 9
Figure 2.1 NetLogic Equation Solver Window 10
2.5: NetLogic Equations Configuration 11
2.5.1: Conditions Tab Descriptions 11
Figure 2.2 The Equation Editor Conditions Tab 11
1. Equation Name 11
2. Enabled 11
3. Condition Modifier Buttons 12
4. Condition Buttons 12
5. Level Buttons 13
6. Condition Statement 13
7. Comments Field 13
8. Condition Tester 13
9. Condition Grid 13
10. Application Buttons 13
2.5.2: Building the Condition 14
Elements 14
Boolean Operators 15
Using Parentheses 15
2.5.3: Testing the Condition 16
2.5.4: Actions Tab Descriptions 17
Figure 2.3 The Equation Editor Actions Tab 17
1. Equation Name 17
2. Enabled 17
3. Editing Buttons 17
4. Action Grid 18
5. Interaction List 18
6. Application Buttons 18
7. Comments Field 18
2.6: Boolean Equations Basics 19
2.6.1: About Boolean Equations 19
AND 19
OR 19
NOT 19
Precedence 19

2.6.2: Boolean Equation Troubleshooting 20
Figure 2.4 History Screen 20
Section 3 NetLogic Equation Solver Reference 21
3.1: NetLogic Interface Descriptions 21
Current Operator: 21
Current Time/Date: 21
LED 21
3.1.1: File Menu 21
Login 21
Exit 21
3.1.2: View Menu 21
History 21
Networks 21
3.1.3: Configure Menu 22
Equations 22
Evaluate Conditions on Connect 22
3.1.4: Help Menu 22
About 22
Index 23

Section 1 About NetLogic

1.1 Agency Listings



NOTE:
UL 864, 9th Edition—ONYXWorks systems work with products that have been UL 864, 9th Edition listed as well as products that have not received UL 864, 9th Edition certification. Operation of systems that are comprised of equipment that is UL 864, 9th Edition listed together with products that are not UL 864, 9th Edition listed requires the approval of the local Authority Having Jurisdiction (AHJ).
CAN/ULC-S559-04, 1st Edition—ONYXWorks systems work with products that have been CAN/ULC S559-04, 1st Edition listed as well as products that have not received CAN/ULC S559-04, 1st Edition certification. Operation of systems that are comprised of equipment that is CAN/ULC S559-04, 1st Edition listed together with products that are not CAN/ULC-S559-04, 1st Edition listed requires the approval of the local Authority Having Jurisdiction (AHJ).

1.1.1 Compliance

This product has been investigated to, and found to be in compliance with the following standards.

National Fire Protection Association

- **NFPA 72**—National Fire Alarm Code

Underwriters Laboratories

- **UL 864**—Control Units for Fire Alarm Systems, Ninth Edition
- **UL 1076**—Proprietary Burglar Alarm Units and Systems, Fifth Edition
- **UL 2017**—General-Purpose Signaling Devices and Systems, First Edition

Underwriters Laboratories Canada

- **CAN/ULC S527-99**—Standard for Control Units for Fire Alarm Systems, Second Edition
- **CAN/ULC S559-04**—Equipment for Fire Signal Receiving Centres and Systems, First Edition

1.1.2 Installation

This product is intended to be installed in accordance with the following regulatory agencies.

Local

- **AHJ**—Authority Having Jurisdiction

National Fire Protection Association

- **NFPA 70**—National Electrical Code
- **NFPA 72**—National Fire Alarm Code
- **NFPA 101**—Life Safety Code

Underwriters Laboratories

- **UL 1076**—In certified applications, the unit shall be installed in accordance with Proprietary Burglar Alarm Units and Systems, Fifth Edition

Underwriters Laboratories Canada

- **CAN/ULC S524-06**—Standard for the Installation of Fire Alarm Systems, Fifth Edition

Canada

- **CSA C22.1**—Canadian Electrical Code, Part I, Safety Standard for Electrical Installations



WARNING: Installation
Improper installation, maintenance, and lack of routine testing could result in system malfunction.

1.2 Environmental Requirements

This product must be installed in the following environmental conditions:

- Temperature range of 0°C to 49°C (32°F - 120°F).
- 93% humidity non-condensing at 30°C (86°F).

1.3 Workstation Mode Compatibility

NetLogic does not function with an ONYXWorks Workstation running in Protected Premises Control Unit mode. Refer to the ONYXWorks *Workstation Installation and Operation Manual* (LS10050-000NF-E) for further information.

Section 2 NetLogic Configuration

2.1 NetLogic Description

NetLogic is a system tool that provides automated response to events based on user-defined conditions. It is a background application residing on an ONYXWorks system. Utilizing device databases from an ONYXWorks Workstation, it runs as a client of the ONYXWorks system, monitoring all events as they occur on the network. An ONYXWorks system may be comprised of one or more UL-listed computers. For additional workstation information, refer to the ONYXWorks *Workstation Manual* (*LS10050-000NF-E*).

When running, NetLogic receives messages from the ONYXWorks system and compares that data in user-defined conditions. When a match is found to a condition, the appropriate action is taken.

Once configured, NetLogic requires no operator control or intervention. However, to perform its tasks, NetLogic must be running on the ONYXWorks system.

2.2 ONYXWorks Fire System Database

NetLogic uses the ONYXWorks fire system database to communicate with nodes, points and networks identified in NetLogic equations.

CAUTION: Changes In Fire System Database
Changing or deleting referenced nodes, points or networks in the fire system database can cause NetLogic equations to fail. Any time you make changes to nodes, points or networks in your fire system database using the ONYXWorks Configuration Tool, be sure to check your NetLogic equations and change them as necessary.

2.3 Automatic Updates

NOTE: Automatic Updates must be turned **OFF** for NetLogic to function correctly.

To verify automatic updates are turned off, follow the path: Start > Control Panel > Security Center > Automatic Updates.

You may still update your Windows operating system manually. To manually update Windows, open a web browser and go to http://www.update.microsoft.com/microsoftupdate/v6/default.aspx?.

2.4 About NetLogic Startup

NOTE: The Workstation or NetLogic software applications must be logged into before any of its settings can be configured. A User that has the access level to configure settings needs to login to change an existing setting. The factory defined User “Admin” has such an access level. Information in this document is written assuming that a User with the equivalent access level of the “Admin” User will be performing the procedures in this document.

To perform any configuration or programming tasks a user with the appropriate access privileges must log in.

Step 1. Start the NetLogic application by selecting Start >Programs >Facilities Monitoring >NetLogic. The NetLogic icon is added to the Windows System Tray.

Step 2. Double click on the NetLogic icon. The NetLogic Equation Solver window displays.

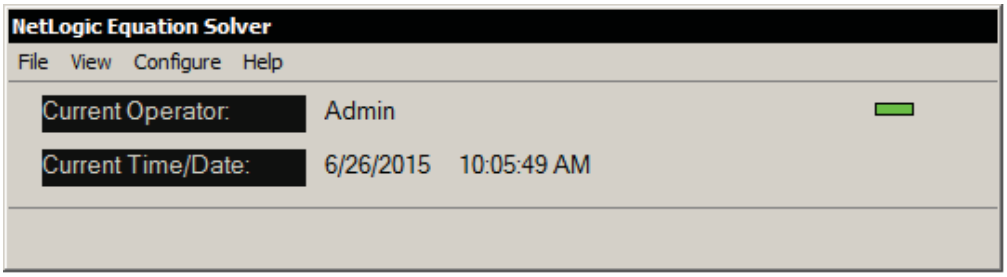


Figure 2.1 NetLogic Equation Solver Window

2.5 NetLogic Equations Configuration

NetLogic is programmed by writing equations. Equations in NetLogic are logical statements where different elements are joined by logical operators (See "Boolean Equations Basics" on page 19). Each equation is made up of two main parts, conditions and actions.

Each of these parts are set up on a grid. Each grid is accessed by selecting the related tab on the Equation Editor form. These tabs are described below.

2.5.1 Conditions Tab Descriptions

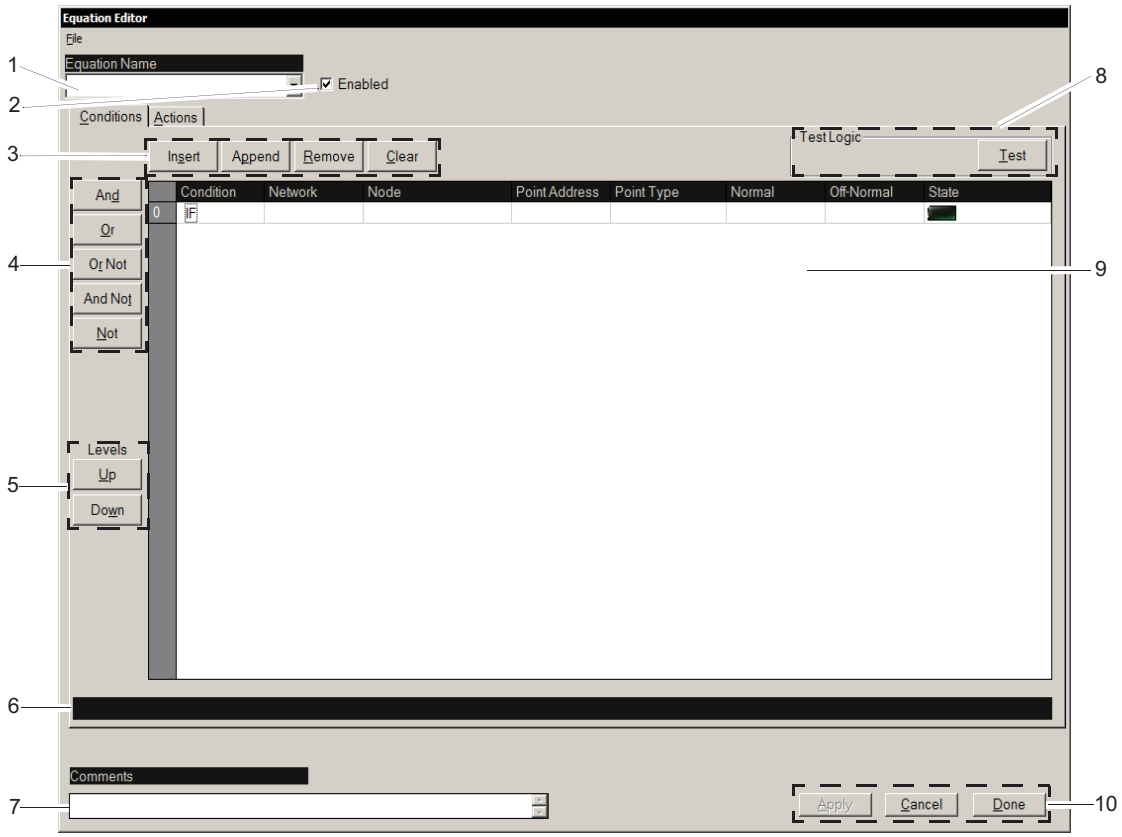


Figure 2.2 The Equation Editor Conditions Tab

1. Equation Name

This field allows the assignment of a unique name to the equation to easily identify it for future editing. This name can be up to 50 characters in length.

2. Enabled

This function allows the disabling of defined conditions. Using this feature, multiple conditions can be defined and tested over time without activating them and without interfering with other activated conditions. The default value is "enabled".

3. Condition Modifier Buttons

These buttons are used to add and remove lines (elements) to the grid. They function as follows:

■ Insert

Inserts a new element into the condition. Highlight any element except the first. Click on the Insert button followed by a condition operator button (see below). A new, blank element is added above the highlighted element.

■ Append

Adds a new element to the end of the current element list in the grid.

■ Remove

Click to remove a highlighted element.

■ Clear

Click to clear the condition grid of all elements.

4. Condition Buttons

Operator buttons are used to add or modify the logical operator of an element. Click an operator button before inserting or appending a new element to the grid to assign that operator to new elements. If an existing element is highlighted, clicking an operator button will cause its operator to be changed to that button's operator. The operator buttons are defined as follows:

■ Condition Operators

And - Both joined elements must be true for the condition to be true.

Or - Only one element of the joined elements must be true for the condition to be true.

And Not - The first element must be true and the second element must be false for the condition to be true.

OrNot - Either the first element must be true or the second element must be false for the condition to be true.

■ Condition Modifiers

Not The Not button is a toggle switch for operators in existing elements. Highlight an element and click the Not button to modify an operator to include it. If Not is already present in the highlighted operator, then pressing the Not button will remove it from the operator.

When applying Not to a condition, the first time it is toggled it is applied to the highlighted condition only. It will appear in the condition column as >NOT. The second time it is toggled it is assigned to the highlighted condition and any subordinate conditions. It will appear as NOT>. If there are no subordinate conditions, the Not parameter is removed. If there are subordinates, toggle the Not button again to remove the Not parameter.

Example: Using the equation (A or B or C)

Highlight the condition A and toggle the Not button. The condition column is amended to appear as A>NOT. The Condition Statement Display appears as:

(NOT A or B or C)

Only the first condition is affected by the Not parameter. Toggle the Not button again and the condition column is amended to appear as A NOT>. The Condition Statement Display appears as:

NOT (A or B or C)

Now all subordinate conditions are affected by the Not parameter.

5. Level Buttons

Level buttons control the indenting of operators in the condition. An indentation or level represents the placement of parentheses in the condition and controls the order in which elements are evaluated, or precedence, in other words. NetLogic allows an item to be indented, or nested in two sets of parentheses. For more information on the use of parentheses and operator precedence, refer to Heading "Building the Condition", and to Section 2.6, “Boolean Equations Basics”, on page 19.

■ Up

Moves a highlighted element one place to the left or up one level for each click.

■ Down

Moves a highlighted element one place to the right or down one level for each click.

6. Condition Statement

Shows the existing condition in a simplified standard equation format with operators and parentheses, but replacing the elements with their line numbers. This display is dynamic, being updated as elements and operators are added or modified.

7. Comments Field

Up to 32,000 characters of text related to the equation may be entered.

8. Condition Tester

This button can be used to validate the logic of the current condition. For more information on this feature, refer to Heading “Building the Condition” on page 14.

9. Condition Grid

This is the work space to append, insert and edit elements of the current condition.



NOTE: Receivers Gateways may be chosen as part of a condition but no commands can be sent to it.

10. Application Buttons

■ Apply

Implements changes to the current equation without closing the form.

■ Cancel

Closes the form and discards any changes that were made.

■ Done

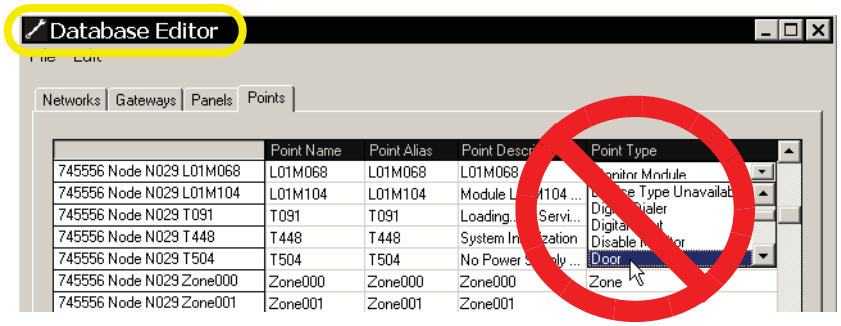
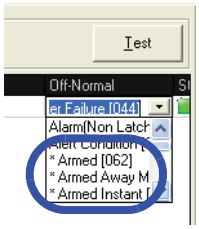
Implements changes to the current equation and closes the form.

2.5.2 Building the Condition

The condition portion of each equation is a collection of elements joined together by Boolean operators. When the result of the condition is true, then the related action portion of the equation will be executed.

Elements

Each element defined in a condition is made up of event criteria. These criteria consist of the following components:

Network	Identifies the Network on which the point resides.
Node	The assigned node number for the point on the network.
Point Address	The address of the point reporting the event.
Point Type	Defines what kind of point is being monitored such as a card reader or pull station. **CAUTION: Manually Defined Point Types** NetLogic equations evaluate point type information sent directly from devices being monitored. Even if a device is represented in a fire system database by a manually defined point type (for example, if the point type has been changed using the Workstation configuration tool), NetLogic recognizes each device by its physically assigned point type. **When designing an equation to respond to status changes in devices of a given point type, it is critical to provide the physically assigned point type of each monitored device, *not a manually defined point type*.** 
Normal	The point status description when it is in a normal state. Note: ANY is not available for the Normal status.
Offnormal	The point status description when it is in an offnormal state. **CAUTION: Single Sided Events** An asterisk beside a point status description in the element selection box denotes a single sided event.  A single sided event is cleared when it is acknowledged at the Workstation, even though the circumstances which triggered it may still be true. Therefore, **single sided events should not be used in compound conditions** (that is, conditions which include the condition operators AND or AND NOT). Otherwise, acknowledging an event at the Workstation could prevent an equation from triggering even though its criteria were true.
State	The LED in this field can be toggled off and on for use with condition tester described later in this section.

Each criterion is given a specific value selected from a drop down menu or the variable "ANY" may be assigned meaning any value for that item is valid.

Example: If Network is specified but "ANY" is used for all other criteria in that element, then any event that occurs for that Network would make that condition true.



NOTE: At least one criterion must have a specific value for that element to be valid.

Each criterion builds on its predecessor. For example, Network must be selected before a list of nodes can be provided. NetLogic uses the current database information that is imported from a system workstation.

Example: When Network is defined, the values found in Node are only those available for that Network. Once a node is specified, the only values available for points are those found in that node.

Point address can be typed in or chosen from the drop-down list.

Boolean Operators

The first field of each element titled "Condition" contains a Boolean operator. The condition field for the first element is always "IF." Refer to "Boolean Equations Basics" on page 19.

Each element after will begin with one of the following operators:

- AND
- OR
- OR NOT
- AND NOT
- NOT



CAUTION:
The operator NOT is more properly an element modifier and should be used with extreme caution. When NOT is used, any event from the specified device that is NOT the specified event will cause a TRUE result

Each element is added to the Condition grid by clicking on one of the operator buttons to the left of the grid. If no existing element is highlighted then a new element is added to the bottom of the grid using that operator. If an existing element is highlighted, then its operator will be changed.

Elements may be inserted into the condition list by highlighting the element below the location of the new element, clicking on the Insert button above the grid, then clicking on the desired operator button. Once an element is added, at least one criterion must be assigned a specific value.

Using Parentheses

The order in which a condition is evaluated within an equation is determined by the placement of parentheses. For parenthetical operations, the innermost set of parenthetical elements are executed first, working outward until the entire condition has been evaluated. In this application, parentheses are represented by Levels. Therefore, parentheses are placed by change the level of an operator in an element.

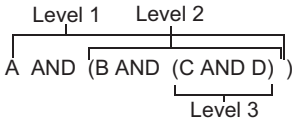
To group an element or elements in parentheses, highlight each element and click on the Down button under the Levels caption to the left of the grid. The operator will be indented to the right of the operator above it making it a descendant of the element above it. Every element that is descended from the same parent will be grouped with that parent.

In order to view the condition grid as a mathematical statement, a window is provided near the bottom of the form that provides a clear illustration of the equation. Each number in the equation corresponds to the row number for each element in the condition grid. For example, the condition grid in Figure 2.2 on page 11 is represented as follows:

(0 AND 1) or (2 AND 3) or (4 AND 5)

This window is updated as changes are made to the grid.

NOTE: NetLogic only supports up to three levels of nested parentheses.



2.5.3 Testing the Condition

The Equation Editor is provided with a condition testing tool. The condition tester allows the logical functionality of each equation to be tested manually. This provides the installer the means to check the validity of each equation.

NOTE: The condition tester tests the Boolean logic of the equation *only*. It does not check the actual real-time status of the devices in the condition.

WARNING:
The condition tester does not test for interaction between equations: that is, if another equation performs actions on the same output.

The tester functions by allowing the user to assign test states, true or false, to each element. This allows the user to create several scenarios to analyze the accuracy of the condition before using it in a real situation.

Click on the LED in the State column of the condition grid to change the state of an element: TRUE - green, or FALSE -black. When a state has been selected for each element of the condition, click on the Test button to evaluate the condition against the set states. The Test block LED will indicate if related actions would be executed.

NOTE: When analyzing a condition with several elements, it is advisable to test the elements in many combinations of states to determine if the condition produces the desired effect.

2.5.4 Actions Tab Descriptions

The action grid is similar to the condition grid in that it is used to identify the elements to be acted on when the related condition is true. Unlike the conditions tab, wild-cards are not permitted. That is, no ANYs. Every device must be fully defined. Like the condition grid, the value of each item is specified from a drop down list.

In addition to the elements of the action grid, several other features can be defined to control action execution including delays, durations and secondary inputs. Each feature is described below.

Select Configure >Equations, then click on the Actions tab to bring up this screen.

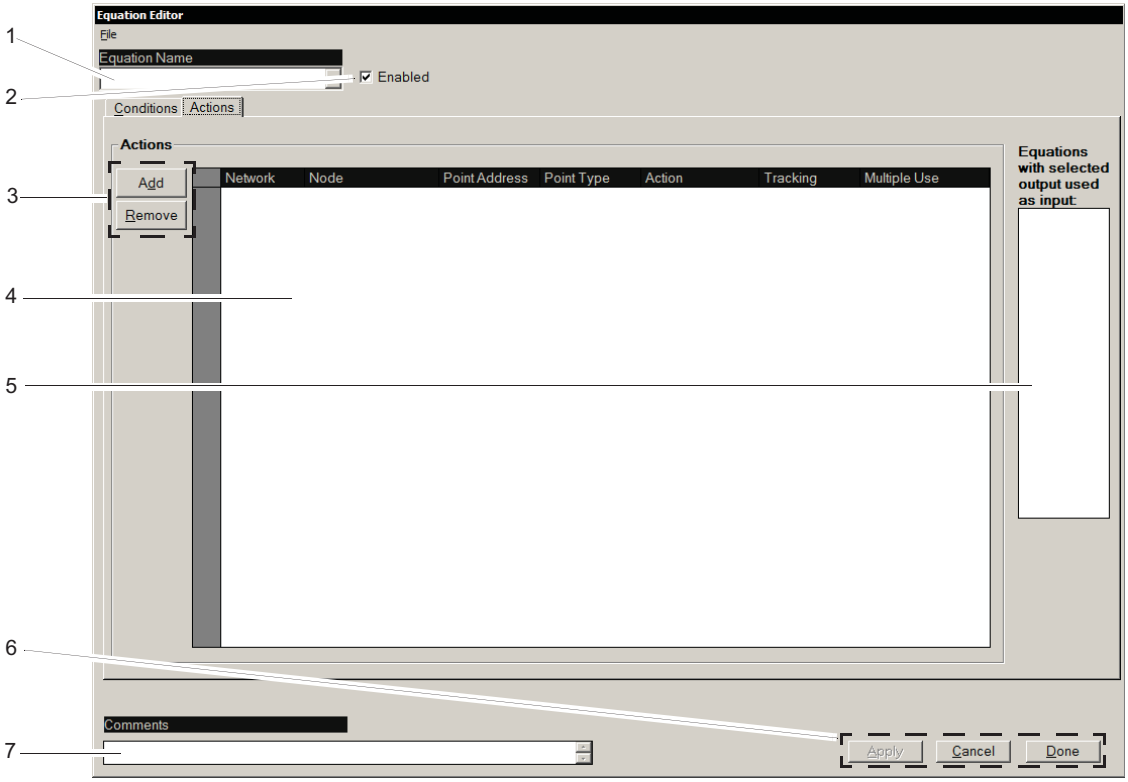


Figure 2.3 The Equation Editor Actions Tab

1. Equation Name

This field allows the assignment of a unique name to the equation to easily identify it for future editing. This name can be up to 50 characters in length.

2. Enabled

This feature allows the disabling of defined conditions. Using this feature, multiple conditions can be defined and tested over time without activating them and without interfering with other activated conditions. The default value is “enabled”.

3. Editing Buttons

■ Add

Click to add a new action element; a blank line will appear.

■ Remove

To remove a line, highlight the element and click on this button.

4. Action Grid

Each action element is defined in the action grid. Each item in an action element must have a specified value. The items to specify are as follows:

■ Network, Node, Point Type, and Point Address

Describe the output to be acted upon and all are required. Once the Add button is selected and a blank line appears, clicking in one of these boxes will provide a drop-down menu to choose from.



NOTE: Receivers Gateways may not be chosen from the Action grid.

■ Action

The command that will be sent to the device (output), either activate or deactivate, when a condition becomes true. The choice of available actions is determined by the point type.

■ Tracking

If tracking is set for a point, when the condition becomes false, the opposite command for that point will be sent. In that way, a device may be turned on when the condition is true, then automatically go back to normal when the condition becomes false. If another equation is acting on an output of an equation that has returned to normal, then tracking will defer to the active equation, and the tracking command will not be sent out. This feature cannot be linked to a timer.

■ Multiple Use

Checked automatically when another equation performs an action on the output defined on that line. When the check is present, the user can click on that cell and get a list of other equations that use the same output. This list is displayed in the Interaction list box on the right side of the form. It is important to be aware of interactions to avoid undesired responses.

5. Interaction List

Refer to “"Multiple Use"” under the “Action Grid” heading above.

6. Application Buttons

■ Apply

Implements changes to the current equation without closing the form.

■ Cancel

Closes the form and discards any changes that were made.

■ Done

Implements changes to the current equation and closes the form.

7. Comments Field

Up to 32,000 characters of text related to the equation may be entered.

2.6 Boolean Equations Basics

2.6.1 About Boolean Equations

Boolean equations are logical statements where different elements are joined by logical operators. These equations are always conditional: if condition, then result. The condition is either true or false. In NetLogic, each element of a condition refers to the status of the defined devices on the network, normal or off normal. NetLogic conditions are linked to actions. When the result of any condition is true, one or more actions is carried out. If it is false, the action is not executed.

Boolean equations can be based on the results of the status of a single element. However, complex and specific equations can be built by joining multiple elements using logical operators. The main operators used are:

AND

When AND is used, both elements must be true for the equation to be true.

CAUTION:
Using AND or AND NOT causes problems with equations involving single sided events. For more information, refer to the Elements table in Section 2.5.2, "Building the Condition", on page 14.

OR

When OR is used, only one element must be true for the equation to be true.

NOT

NOT is actually a modifier used with a single element. When NOT is associated with an element, then the monitored state of the element is reversed.

Example:

Input ON = TRUE is the same as NOT Input OFF = TRUE.

Care should be exercised when using the NOT operator because any event except the one specified will cause the condition to be true. For example, what if the Input in the above equation is in TROUBLE? The input is NOT OFF but should the action still be executed? These are the types of situations that must be considered. Generally NOT is used in conjunction with other elements.

Precedence

Precedence defines the sequence of how operations are carried out in an equation. That is, which parts are executed first, second, third, etc. For those familiar with computer programming and the concept of precedence in operators, AND and OR share equal precedence in this application. To ensure that equations are evaluated in a particular order, parentheses can be used. In that case, the equation will evaluate elements in parentheses first. If parentheses are "nested" then the innermost parentheses are evaluated first.

Consider the following examples:

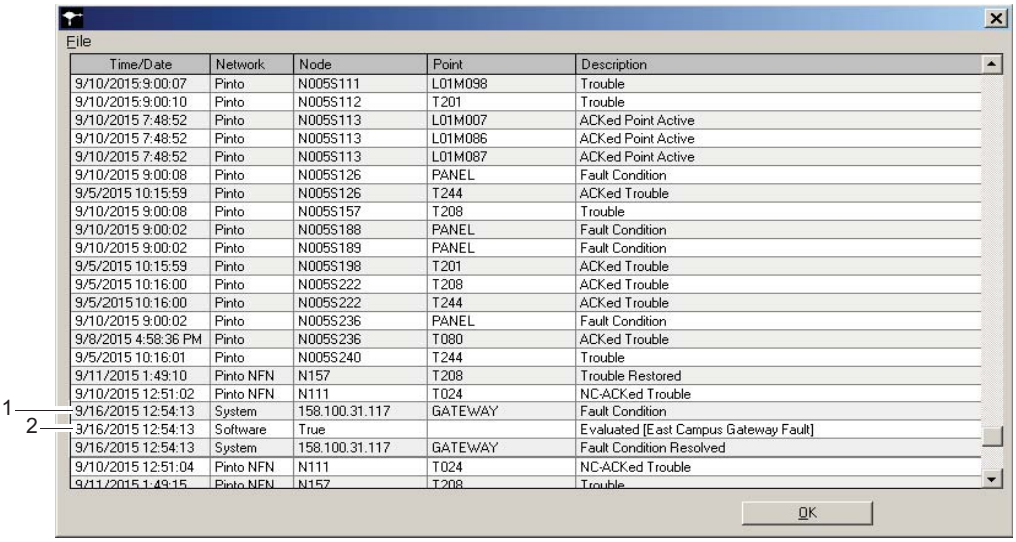
- A AND B AND C AND D - Each item is evaluated individually from left to right, first A, then B, then C, then D.
- (A AND B) and (C AND D) - First items A AND B are evaluated individually and compared with their operator. A result is obtained (true or false) for the set. Next, C AND D are evaluated in the same manner. Finally, the results of (A AND B) are Anded to the results of (C AND D) and a final result obtained.
- A AND (B AND (C AND D)) - First items C AND D are evaluated individually and compared with their operator. A result is obtained (true or false) for the set. Next, this result is evaluated with B. A result is obtained for that set. Finally, this result is evaluated with A for a final result.

2.6.2 Boolean Equation Troubleshooting

CAUTION: Single Sided Events
Using AND or AND NOT causes problems with equations involving single sided events. For more information, refer to the Elements table in Section 2.5.2, "Building the Condition", on page 14.

Careful planning is essential to obtain the desired results from the equations. While the equations are being constructed and tested, problems may occur that can usually be solved by following a few troubleshooting suggestions.

Generally, all troubleshooting will begin with the history. Selecting View >History displays the History screen for NetLogic. The events received by NetLogic are displayed along with the actions, if any, taken by NetLogic in the order in which they occurred. The most recent will appear at the bottom of the list.



Time/Date	Network	Node	Point	Description
9/10/2015 9:00:07	Pinto	N005S111	L01M098	Trouble
9/10/2015 9:00:10	Pinto	N005S112	T201	Trouble
9/10/2015 7:48:52	Pinto	N005S113	L01M007	ACKed Point Active
9/10/2015 7:48:52	Pinto	N005S113	L01M086	ACKed Point Active
9/10/2015 7:48:52	Pinto	N005S113	L01M087	ACKed Point Active
9/10/2015 9:00:08	Pinto	N005S126	PANEL	Fault Condition
9/5/2015 10:15:59	Pinto	N005S126	T244	ACKed Trouble
9/10/2015 9:00:08	Pinto	N005S157	T208	Trouble
9/10/2015 9:00:02	Pinto	N005S188	PANEL	Fault Condition
9/10/2015 9:00:02	Pinto	N005S189	PANEL	Fault Condition
9/5/2015 10:15:59	Pinto	N005S198	T201	ACKed Trouble
9/5/2015 10:16:00	Pinto	N005S222	T208	ACKed Trouble
9/5/2015 10:16:00	Pinto	N005S222	T244	ACKed Trouble
9/10/2015 9:00:02	Pinto	N005S236	PANEL	Fault Condition
9/8/2015 4:58:36 PM	Pinto	N005S236	T080	ACKed Trouble
9/5/2015 10:16:01	Pinto	N005S240	T244	Trouble
9/11/2015 1:49:10	Pinto NFN	N157	T208	Trouble Restored
9/10/2015 12:51:02	Pinto NFN	N111	T024	NC-ACKed Trouble
9/16/2015 12:54:13	System	158.100.31.117	GATEWAY	Fault Condition
9/16/2015 12:54:13	Software	True		Evaluated [East Campus Gateway Fault]
9/16/2015 12:54:13	System	158.100.31.117	GATEWAY	Fault Condition Resolved
9/10/2015 12:51:04	Pinto NFN	N111	T024	NC-ACKed Trouble
9/11/2015 1:49:15	Pinto NFN	N157	T208	Trouble

Figure 2.4 History Screen

1. An event is received by NetLogic.
2. This event caused an equation called "East Campus Gateway Fault" to be evaluated. Notice the status of "True" in Point Address/Status column.

Normally, an event will be received (item 1) which will cause the equation to be triggered (item 2). If the condition is met, then the action will be carried out in the form of an outbound message.

Problem	Resolution...
The event that should trigger the action is not found (Item 1).	• Make sure NetLogic is communicating with the network. • Make sure the desired event was actually sent.
The equation was not evaluated (Item 2).	• Something in the equation does not match the event. • Compare the event received information with what is specified in the condition. • Make sure the device has been programmed correctly.
The result of the equation is wrong.	• Re-examine the actions of the equation.
Both items are found, but the action is still not carried out.	• Make sure the address of the action is correct.

Section 3 NetLogic Equation Solver Reference

Once configured and running, NetLogic requires no operator control or intervention. However, there are operations-type functions as described below.

3.1 NetLogic Interface Descriptions

Current Operator:

This field displays the logged in user name.

Current Time/Date:

This field contains the current time/date.

LED

The Active LED flashes approximately once a second to indicate the NetLogic application is functioning normally.

3.1.1 File Menu

Login

The Workstation or NetLogic software applications must be logged into before any of its settings can be configured. A User that has the Security Profile to change a password needs to login to change an existing User's password or to add a User and their password. The factory defined User "Admin" has such an access level.

Factory default Workstation software application passwords have been created for the factory defined User profiles. Factory defined User profiles can not be deleted.

User Name	Password
Admin	admin
Default	default

Step 1. Select Start >Facilities Monitoring >NetLogic. The NetLogic window displays.

Step 2. From its menu select File > Login. The User Login window displays.

Step 3. Click-on to highlight a user name with that has appropriate user privileges.

Step 4. Type in that user's password into the Password field and then click OK.

Exit

Select to exit the NetLogic file.

3.1.2 View Menu

History

This database holds a record of all events and actions that have taken place. The history database holds a large amount of data and can become the largest of NetLogic's database files.

Networks

Select to display gateways connections.

3.1.3 Configure Menu

Equations

Select to bring up the Equation Editor window, which offers these tabs:

- Actions (Refer to "Action" on page 18)
- Conditions (Refer to "Conditions Tab Descriptions" on page 11).

Evaluate Conditions on Connect

Selecting this option will, at NetLogic startup, cause an immediate evaluation of system conditions and execution of any equations warranted by the conditions.

3.1.4 Help Menu

About

This choice allows the user to view the "About NetLogic" window. This window includes local computer name, IP address and site, as well as serial number, licensing information and software version.

Index

A

Actions
- Tab **17**

B

Boolean Operators **12, 15, 19**

C

Condition
- Building **14**
- Tab **11**
- Tester **16**

Configure
- Equations **11, 22**
- Networks **21**

Current operator **21**
Current time/date **21**

E

Elements **14, 19**
Equations
- Actions tab **17**
- Condition tab **11**
- to configure **22**
- Troubleshooting **20**

Evaluate Conditions on Connect option **22**

G

Gateway
- Receivers **13, 18**

H

Help menu **22**
History
- Database definition **21**

I

Installation
- Environmental Conditions **8**

L

LED **21**
Login **21**

M

Modifiers **12**

N

Networks
- To configure **21**

O

Operators
- Boolean **12, 15, 19**
- Current **21**

Optional Configuration Selections **22**

P

Parentheses, using to group elements **15**

R

Receivers Gateways **13, 18**

S

Software version **22**

T

Test Conditions **16**
Time/Date, current **21**
Troubleshooting Equations **20**

Manufacturer Warranties and Limitation of Liability

Manufacturer Warranties. Subject to the limitations set forth herein, Manufacturer warrants that the Products manufactured by it in its Northford, Connecticut facility and sold by it to its authorized Distributors shall be free, under normal use and service, from defects in material and workmanship for a period of thirty six months (36) months from the date of manufacture (effective Jan. 1, 2009). The Products manufactured and sold by Manufacturer are date stamped at the time of production. Manufacturer does not warrant Products that are not manufactured by it in its Northford, Connecticut facility but assigns to its Distributor, to the extent possible, any warranty offered by the manufacturer of such product. This warranty shall be void if a Product is altered, serviced or repaired by anyone other than Manufacturer or its authorized Distributors. This warranty shall also be void if there is a failure to maintain the Products and the systems in which they operate in proper working conditions.

MANUFACTURER MAKES NO FURTHER WARRANTIES, AND DISCLAIMS ANY AND ALL OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED, WITH RESPECT TO THE PRODUCTS, TRADEMARKS, PROGRAMS AND SERVICES RENDERED BY MANUFACTURER INCLUDING WITHOUT LIMITATION, INFRINGEMENT, TITLE, MERCHANTABILITY, OR FITNESS FOR ANY PARTICULAR PURPOSE. MANUFACTURER SHALL NOT BE LIABLE FOR ANY PERSONAL INJURY OR DEATH WHICH MAY ARISE IN THE COURSE OF, OR AS A RESULT OF, PERSONAL, COMMERCIAL OR INDUSTRIAL USES OF ITS PRODUCTS.

This document constitutes the only warranty made by Manufacturer with respect to its products and replaces all previous warranties and is the only warranty made by Manufacturer. No increase or alteration, written or verbal, of the obligation of this warranty is authorized. Manufacturer does not represent that its products will prevent any loss by fire or otherwise.

Warranty Claims. Manufacturer shall replace or repair, at Manufacturer's discretion, each part returned by its authorized Distributor and acknowledged by Manufacturer to be defective, provided that such part shall have been returned to Manufacturer with all charges prepaid and the authorized Distributor has completed Manufacturer's Return Material Authorization form. The replacement part shall come from Manufacturer's stock and may be new or refurbished. THE FOREGOING IS DISTRIBUTOR'S SOLE AND EXCLUSIVE REMEDY IN THE EVENT OF A WARRANTY CLAIM.

Warn-HL-08-2009.fm

NOTIFIER®
by Honeywell

World Headquarters
12 Clintonville Road
Northford, CT 06472-1610 USA
203-484-7161
fax 203-484-7118

www.notifier.com

ISO 9001
CERTIFIED
ENGINEERING & MANUFACTURING
QUALITY SYSTEMS