

LCI3 Local Control Interface *Including LCI2 Version 2*

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1

About the LCI3

This document is intended for use by contractors, building operators, and other persons responsible for defining daily building environmental control activities. Readers should have a basic understanding of HVAC concepts and intelligent building automation.

This document describes the basic operation of the Local Control Interface (LCI3) and the LCI2 version 2. For simplicity and ease of reading, only the LCI3 is called out in this document but all LCI3 references also pertain to the LCI2 version 2 unless otherwise noted. The LCI3 is used to configure iWorx® system controllers, including set-points and other associated parameters as well as selected third party controls. It may be accessed locally using the touchscreen interface or remotely via a TCP/IP-based network.

LCI3

The Local Control Interface (LCI3) is the master controller for the iWorx® product series. In one single device, it provides an integrated control center for all the HVAC controls, radiant controls, and metering on a network. It has a touch screen for on site configuration and can be remotely accessed and configured over the Internet as well.

Overview

The LCI3 is a backlit LCD touch screen interface and system configuration tool used to communicate with controllers over a LONWORKS® network. All controllers can be completely configured and commissioned through the operator interface.

The LCI3 fully integrates the HVAC iWorx® system. The LCI3 enables an administrator to add and configure devices on the iWorx® system and then send the information to the devices over the LONWORKS network. The entire iWorx® system can be commissioned and modified using the LCI3.

The LCI3 software runs within a Windows CE.net operating system and is fully upgradable.

Features

- Color touch screen interface for navigation and input
- Self-configuring upon connection to the network
- Configurable user interface options
- View and configure up to 63 controllers
- Administrator and user level access
- Password protection
- Ethernet communications for remote access
- User configuration data is stored in non-volatile memory (Flash)
- Two-part connectors to facilitate installation
- Trending
- Data logging
- Database maintenance

Representations and Warranties

This Document is subject to change from time to time at the sole discretion of Taco Electronic Solutions, Inc. All updates to the Document are available at www.taco-hvac.com. When installing this product, it is the reader's responsibility to ensure that the latest version of the Document is being used.

iWorx® products shall only be used for the applications identified in the product specifications and for no other purposes. For example, iWorx® products are not intended for use to support fire suppression systems, life support systems, critical care applications, commercial aviation, nuclear facilities or any other applications where product failure could lead to injury to person, loss of life, or catastrophic property damage and should not be used for such purposes.

Taco Electronic Solutions, Inc. will not be responsible for any product or part not installed or operated in conformity with the Document and instructions or which has been subject to accident, disaster, neglect, misuse, misapplication, inadequate operating environment, repair, attempted repair, modification or alteration, or other abuse. For further information, please refer to the last page of this Document for the company's Limited Warranty Statement, which is also issued with the product or available at www.taco-hvac.com.

Installation and Tasks

This chapter covers installation of the LCI3 and common tasks that are performed by installers, engineers, and users. This information covers installation instructions, specifications, how to mount the device and troubleshooting tips.

The *iWorx® LCI3 Installation Guide* will contain this information as well.

Precautions

General



This symbol is intended to alert the user to the presence of important installation and maintenance (servicing) instructions in the literature accompanying the equipment.



WARNING: Electrical shock hazard. Disconnect **ALL** power sources when installing or servicing this equipment to prevent electrical shock or equipment damage.

Make all wiring connections in accordance with these instructions and in accordance with pertinent national and local electrical codes.

Static Electricity

Static charges produce voltages that can damage this equipment. Follow these static electricity precautions when handling this equipment.

- Work in a static free area.
- Touch a known, securely grounded object to discharge any static charge you may have accumulated.
- Use a wrist strap when handling printed circuit boards. The wrist strap must be secured to earth ground.

Location

Avoid locations where corrosive fumes, excessive moisture, vibration or explosive vapors are present.

Avoid electrical noise interference. Do not install near large contactors, electrical machinery, or welding equipment.

This equipment is intended for indoor use only. Operate where ambient temperatures do not exceed 113 °F (45 °C) or fall below 32 °F (0 °C) and relative humidity does not exceed 80%, non-condensing.

FCC Compliance

This equipment has been tested and found to comply with Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference. This equipment can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to a power source different from that to which the receiver is connected.
- Consult the equipment supplier or an experienced radio/TV technician for help.

You are cautioned that any changes or modifications to this equipment not expressly approved in these instructions could void your authority to operate this equipment in the United States.

Before Installing

About this Document

The instructions in this document are for the Local Control Interface module which provides interfacing and scheduling of iWorx® HVAC controllers.

Inspecting the Equipment

Inspect the shipping carton for damage. If damaged, notify the carrier immediately. Inspect the equipment for damage. Return damaged equipment to the supplier.

What is Not Included with this Equipment

- A power source for the equipment electronics and peripheral devices.
- Tools necessary to install, troubleshoot and service the equipment.
- The screws needed to mount the device.
- Peripheral devices, such as sensors, actuators, etc.
- Cabling, cabling raceway, and fittings necessary to connect this equipment to the power source, FTT-10A network and peripheral devices.

Equipment Location



Abide by all warnings regarding equipment location provided earlier in this document.

The equipment should be installed in a secure area like an office or lockable closet.

The Local Control Interface should be mounted where all operators can easily access it and should not under any circumstances be mounted outside. The Local Control Interface should not be mounted where it is subjected to excessive heat, moisture, corrosive or hazardous materials. To ensure that operators of all sizes can easily access the Local Control Interface, mounting should be approximately 4 feet (1.2 meters) from the floor. Note that product mounting may be subject to local and national persons with disabilities acts.

Selecting a Power Source

This equipment requires a UL recognized external Class 2 power source (not supplied) to operate. The Local Control Interface power input requires a voltage of 28 to 36 volts DC or 24 volts AC.

Installation



Warning: Electrical shock hazard. To prevent electrical shock or equipment damage, disconnect **ALL** power sources to controllers and loads before installing or servicing this equipment or modifying any wiring.

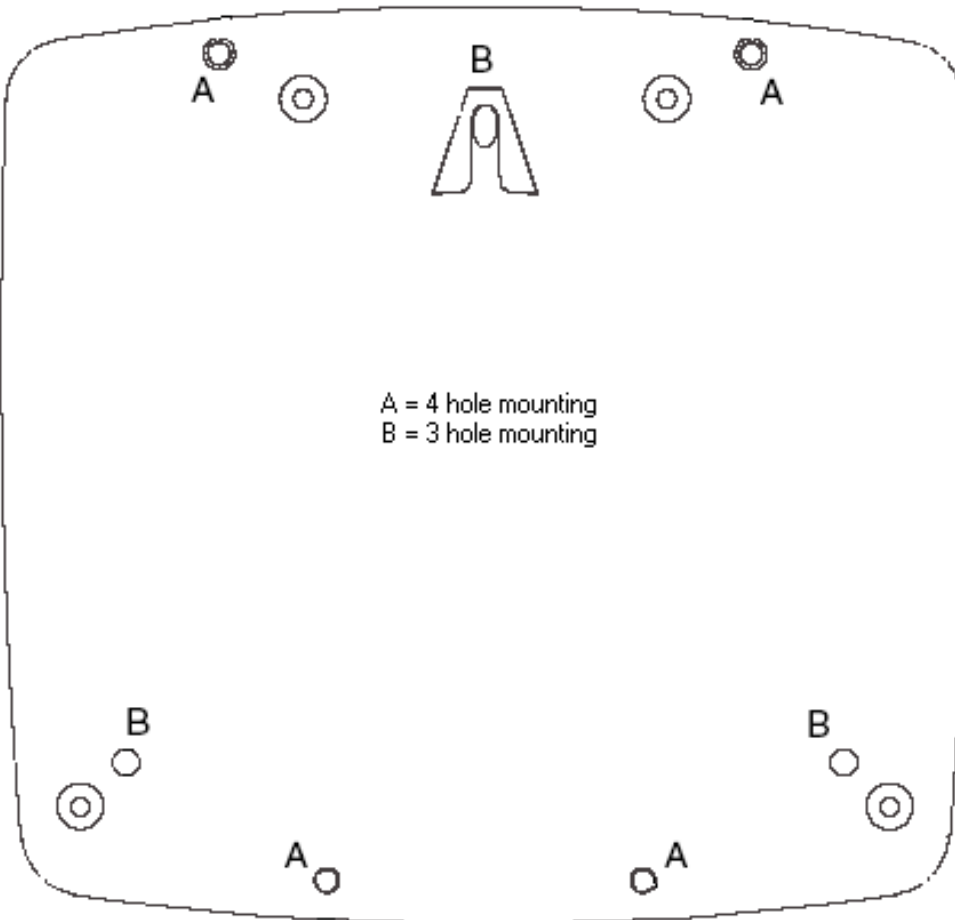
Mounting the Device

The LCI3 can be either 3-point mounted (on a wall) or 4-point mounted (on a panel).

The 3-point method uses M4, 5, 6 or No. 10 or 12 screws. A ramped keyhole slot in the top back center of the unit slips over a screw head and as the unit is lowered the unit clamps onto the wall creating a seal around the rear aperture. Then, the two lower fixing holes can be used to spot their fixing positions.

The 4-point method uses 4 off M4 x 16 mm screws with a maximum panel thickness of 10 mm.

Figure 2.1 Mounting



Device Connections

The Local Control Interface functions as part of a LonWorks Network using the integral FTT-10 Free Topology communications transceiver. Connections are on the bottom of the Local Control Interface.

Power

The LCI3 requires class 2 power supply: 24 Vac, 50/60 Hz, or 28 to 36 Vdc. The maximum consumption is 13 VA. Use a separate power source—do not use a controller's auxiliary supply output.

NOTE You must ground the Local Control Interface using a supply earth terminal.

Figure 2.2 Power

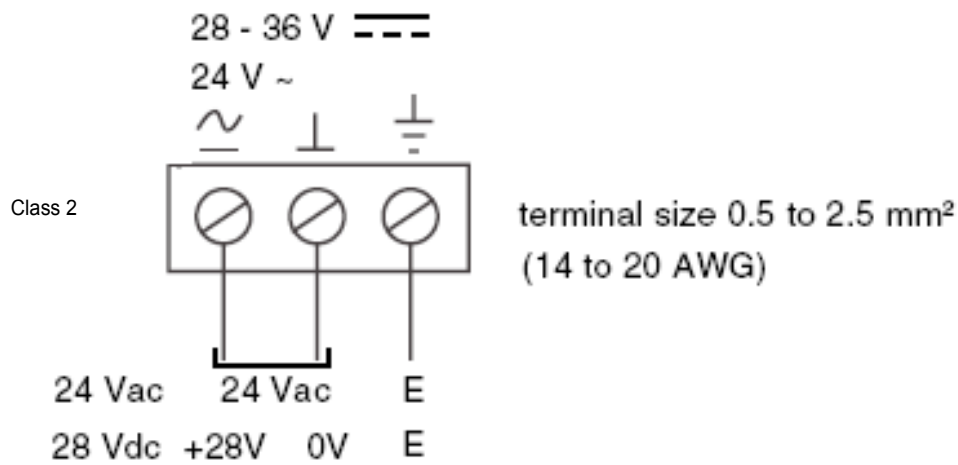
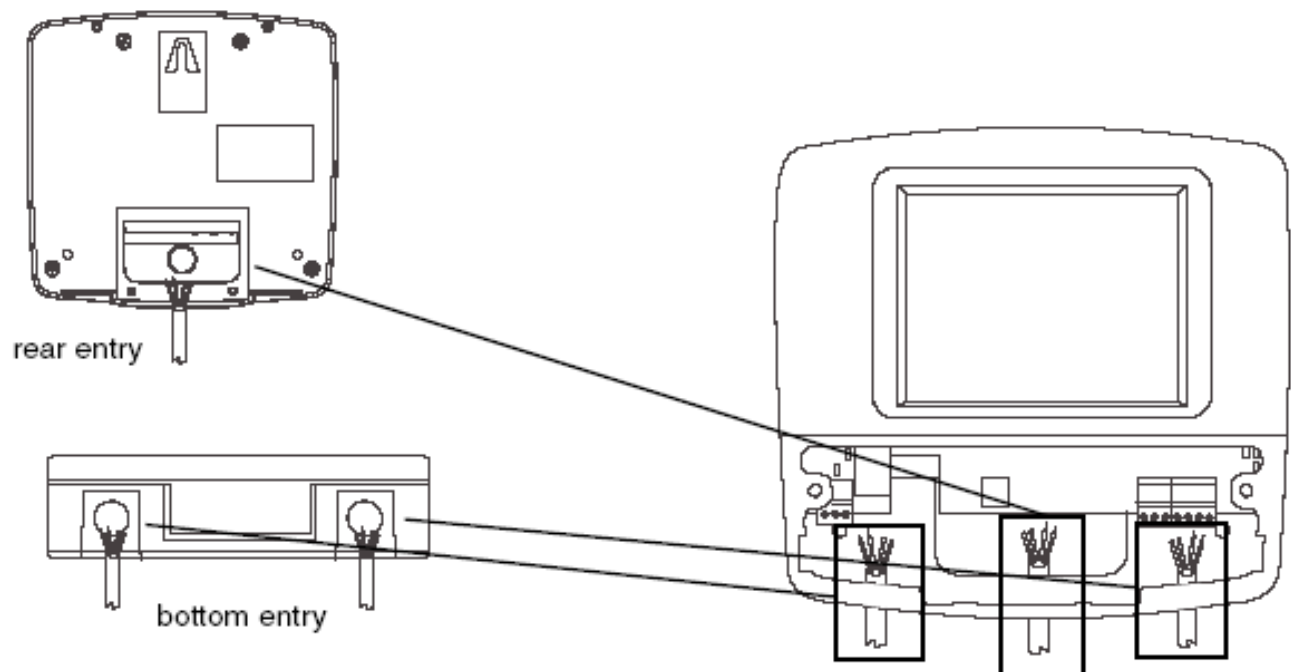


Figure 2.3 Routing cables



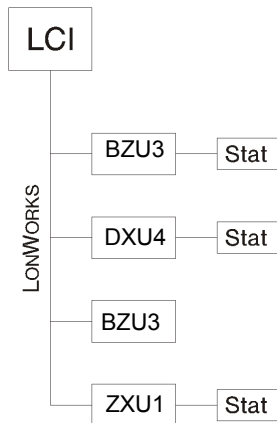
Ethernet (LAN)

The Local Control Interface uses a standard RJ-45 jack for connection to 10BaseT or 100Base TX (10/100Mb) Ethernet. Plug the LAN connector into the RJ-45 receptacle on the bottom of the Local Control Interface.

Network (LON)

The Local Control Interface requires twisted pair network wire. When connecting the FTT-10A network to connector, connect the twisted pair to pins NB and NA. These positions are Network B and Network A respectively. Polarity is not an issue since an FTT-10A network is used for communications.

Figure 2.4 Simple architecture



Grounding the Device



The COM pin must be securely connected to earth ground. Failure to properly ground this equipment may increase the risk of electrical shock and may increase the possibility of interference to radio/TV reception.



Connecting the device common to earth ground will also connect the power source to earth ground.

Specifications

Electrical

Power

Power Requirements

- 28 to 36 Vdc, or 24 Vac +/- 10%, 50 to 60 Hz (requires a class 2 external supply)

Power Consumption

- 13 VA

Fusing

- Input supply is protected by a 1.6 A self-resetting electronic circuit breaker.

Battery

- 3V Lithium for SRAM Backup

Display

- 256 color LCD display (320 x 240 pixels) with touch screen and digital contrast.

Backlight

- Electroluminescent (CCFL) with auto-dimming feature. Life of 50 Khrs at 20 °C (68 °F).

Ethernet

- One RJ45 connector, unshielded or shielded twisted pair (UTP or FTP) cable.

FTT-10A Network

- Speed: 78KBPS
- 42.4 Volts DC max
- Cabling: Maximum node-to-node distance: 1312 feet (400 meters)
- Maximum total distance: 1640 feet (500 meters)

Cable Type	Pairs	Details	Taco Catalog No.
Level 4 22AWG (0.65mm)	1	Unshielded, Plenum, U.L. Type CMP	WIR-022

For detailed specifications, refer to the *FTT-10A Free-Topology Transceiver User's Guide* published by Echelon Corporation (www.echelon.com/support/documentation/manuals/transceivers).

Mechanical**Housing**

- Dimensions: 8.94" (227mm) x 8.58" (218mm) x 2.36" (60mm).
- Weight: 1lb 5 oz. (.6 kg)
- ABS

Environmental

- Temperature: 32 to 113 degrees F (0 to 45 degrees C)
- Humidity: 0 to 80 percent, non-condensing

Agency Listings

- UL Listed for US and Canada, Energy Management Equipment PAZX and PAZX7

Agency Compliances

- FCC Part 15

Working with the LCI3

The Local Control Interface is the user interface device used to configure all of the devices on the network. The LCI3 has a backlit LCD panel that is touch-sensitive. Enter and access all information by pressing the buttons displayed on the LCI3 touch screen. Or, when accessing the controls using a web browser, simply click on the buttons using your computer's mouse or touch pad.

SITE NAME		09:49	PREV	HOME
Controllers	LZones	Remote LCI3s	Alarms (None)	
Schedules	Groups	Holidays	Utilities	
Data Logs	Trends	Log Out		

Figure 2.5 Home screen for the LCI3

Many of the screens on the LCI3 have common features. The top line of the screen usually has the following features (from left to right):

- The name of the current screen (or the name of the LCI3 if viewing the Home screen)
- The current time displayed in 24-hour (military) format
- A button labeled PREV returns the LCI3 to the previous screen
- A button labeled HOME returns the LCI3 to its home screen

NOTE Other buttons are discussed in later sections along with the screens on which they appear.

Logging on

Once an LCI3 is installed on the network, you need to log in to the LCI3 to bring the controllers online and configure them. You must be logged on under one of the two built-in accounts: Admin or User. Default passwords are set at the factory for both accounts. You can change these passwords after initially logging on.

The “Admin” login enables you to view and configure all controller parameters. The “User” login allows you to view and configure basic comfort settings and delete (acknowledge) alarms. You must log in initially as Admin to configure the controllers.

NOTE Most of the LCI3 features described in this manual are accessible only from the Admin login.

When the LCI3 is initially powered up, it displays the Login screen.



iWorx™
by Taco Electronic Solutions

Site : SITE NAME

Enter Password:

Enter

Figure 2.6 LCI3 Login screen

► **To log in**

1. Press the Enter Password field to display the numeric keypad.
2. Use the keypad to enter the Admin password. The default password for the "Admin" using an LCI2 version 2 is LCI2. For an "admin" using an LCI3, the default password is LCI3.

NOTE If you make a mistake, press Clear (Clr) to start over. After logging on the first time, change the password to something more secure. See "Setting the Admin Password" on page 24 for instructions.

3. Press Save to return to the Enter Password screen.
4. Press Enter.

Logging on as an Administrator

When you log on to the LCI3 with the Admin password, you can perform a number of different operations. These include (but are not limited to):

- Configuring all of the individual controllers on the iWorx® network.
- Grouping related controllers
- Setting up schedules for the different groups of controllers
- Defining holidays
- Setting up LCI3 features
- Acknowledging alarms
- Connecting to other LCI3s on the network
- Trending
- Data Logging
- Database Management
- Alarms with Auto Archiving

SITE NAME		09:49	PREV	HOME
Controllers	LZones	Remote LCIs	Alarms (None)	
Schedules	Groups	Holidays	Utilities	
Data Logs	Trends	Log Out		

Figure 2.7 Home screen after an administrator logs in

Logging on as a User

The default password for a "user" having an LCI2 version 2 is LCI2user. The "user" default password for an LCI3 is LCI3user. An operator logged in as a "user" is limited to the following actions:

- Modifying existing schedules
- Setting an override temperature setpoint
- Viewing outside air temperature, outside humidity, and water temperature if an auxiliary sensor module is used
- Checking the status of a lighting zone
- Overriding occupancy status of a lighting zone
- Acknowledging alarms
- Viewing inputs and outputs
- Connecting to other LCI3s on the network
- Logging off

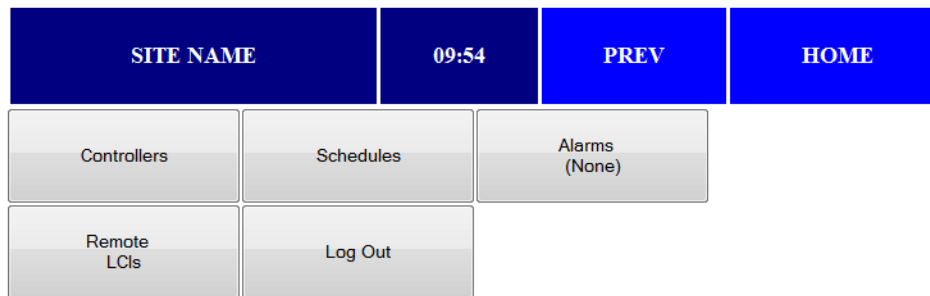


Figure 2.8 Home screen after a user logs in

Logging off

When you have finished setting the LCI3 or controller parameters, log off to prevent unauthorized access to the LCI3.

► To log off

1. Press Home to return to the Home screen.
2. Press Log Out.

NOTE Administrators can configure the LCI3 to automatically log off after a pre-defined period of user inactivity. See "Setting Login Parameters" on page 23 for instructions.

Connecting remotely

In addition to using the LCI3 touchscreen to control your building equipment, you can also connect to the LCI3 using a web browser such as Internet Explorer, Firefox, Safari and other common browsers.

With the Web interface, you have most of the same features and functionality available to you from the touchscreen. The only exception is that you cannot set up or edit the system passwords.

Additionally, with the Web interface, the buttons for the graphics and text items are clicked using the computer mouse or touch pad, instead of pressed, as when accessing the LCI3 touch screen.

Before you can connect to an LCI3 remotely, you must configure the LCI3 for your network. See “Ethernet Setup” on page 27 for instructions.

3

Configuring the LCI3

This chapter covers configuration of the LCI3 and common tasks associated with setting up the controller for appropriate use. This information includes set up of date and time, unit login, display settings, network parameters and preferred communication channels.

After logging on to the LCI3 for the first time, configure the LCI3 using the Utilities screen.

Features available through this screen include:

- Setting LCI3 parameters
- Database functions (see “Maintenance” on page 81 for more information)
- Configuring the network
- Viewing the Debug Log (see “Maintenance” on page 81 for more information)

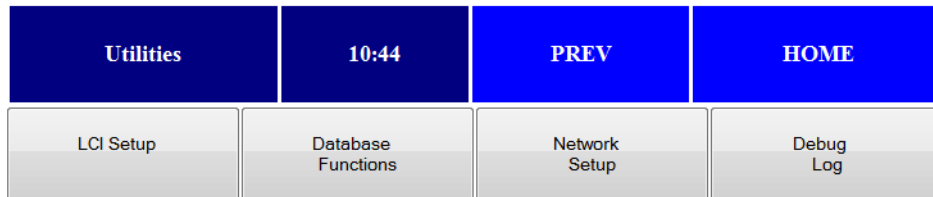


Figure 3.1 Utilities screen

► **To access the Utilities screen**

- On the Home screen, press Utilities.

NOTE Press HOME at the top of any screen to return to the Home screen.

Setting Up the LCI3

All LCI3 parameters are configured using the LCI3's touchscreen interface. These parameters include:

- Setting the time and date
- Setting the units used for temperature display (°F or °C)
- Enabling or disabling Optimum Start
- Restarting the system (see “Maintenance” on page 81 for instructions)
- Setting Login Parameters (user and admin passwords and session timeout value)
- Calibrating the LCI3 display
- Turning touchscreen (key click) sounds off or on
- Adjusting the screen contrast
- Displaying the LCI3's firmware version

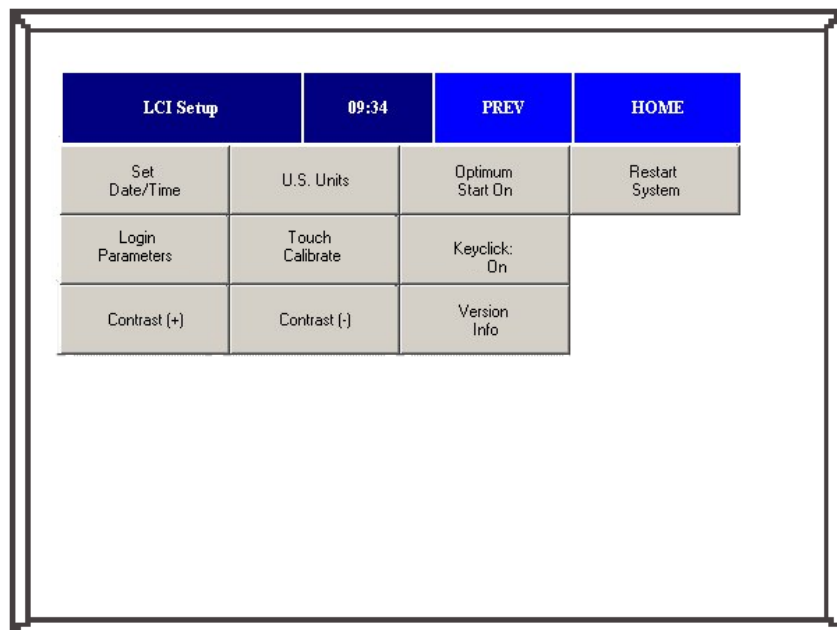


Figure 3.2 LCI Setup Screen

► **To access the LCI3 Setup screen**

- On the Utilities screen, press LCI Setup.

NOTE Login Parameters, Touch Calibrate, and Keyclick are not displayed when accessing via web browser.

Setting the Time and Date

All controllers use schedules based on the time kept by the LCI3. The LCI3 sets various parameters on the controllers, based on the current time and date and the schedule defined for that controller.

► To set the current time and date

1. On the Utilities screen, press LCI Setup.
2. On the LCI Setup screen, press Set Date/Time.

Year	Month	Day
2013	3	14
Hour	Min	Sec
14	39	43
Daylight Savings?		No ▾

Figure 3.3 Set Date/Time screen

3. Press the text box of the parameter to change. The current year, month, day, hour, minute, and second can all be set.
4. Use the numeric keypad that appears to enter the new value.
5. Press Save.
 - If you decide not to save the changes, press Quit.
6. When all of the parameters on the screen are set correctly, press Save on the Set Date/Time screen. If you decide not to save the changes, press PREV to return to the Utilities screen.

► To enable or disable daylight savings

1. On the Utilities screen, press LCI Setup.
2. On the LCI Setup screen, press Set Date/Time.
3. Press the Daylight Savings? drop down text box to select a new value. Select Yes to enable or No to disable Daylight Savings.
4. Press Save.

If you decide not to save the changes, press PREV to return to the Utilities screen.

Setting the Temperature Units

On the Utilities screen, set the LCI3 to display temperatures in either SI (°C) or U.S. (°F) units. By default, temperatures are displayed in U.S. units. Press the button to toggle between U.S. and SI settings.

Enabling and Disabling Optimum Start

The optimum start (OS) feature enables the system to calculate how early it should begin heating or cooling to achieve the occupied setpoint by the time occupancy is schedule to begin.

Initially, the OS feature is enabled. To disable this feature, press Optimum Start until the button displays OFF. Pressing the button repeatedly toggles this feature on and off globally. To disable or configure OS for specific devices, see “Special Setup for HVAC Controllers” on page 38.

Setting Login Parameters

All of the necessary login parameters have default settings. After initial login, the Administrator should change these settings for security purposes.

Please note when **Save** is pressed on the **Set Login Parameters** page, the LCI3 performs a soft reset.

Set Login Parameters		09:35	PREV	HOME
Save				
Admin Password	LCI2			
User Password	LCI2user			
Session Timeout	10	Min		
HTTP Port	80			

Figure 3.4 Set Login Parameters screen

Setting a Session Timeout

By default, the *Session Timeout* is set to “10” minutes. This means that after 10 minutes of user inactivity, the current user is automatically logged out of the LCI3.

This feature helps to ensure that unauthorized persons do not have access to the LCI3 databases.

► To set or edit the session timeout value

1. On the Utilities screen, press LCI Setup.
2. On the LCI Setup screen, press Login Parameters.
3. Set the *Session Timeout* from 1 to 60 minutes.
4. Press Save to save your changes and return to the LCI Setup screen.

Setting the User Password

The “user” operator is allowed to change a limited number of controller parameters and to delete alarms. Initially, the password for a “user” with an LCI2 is LCI2user. For a “user” with an LCI3, the password is LCI3user.

NOTE Passwords are case-sensitive.

► **To change the user password**

1. Log on with the Admin password.
2. On the Utilities screen, press LCI Setup, and then press Login Parameters.
3. Press User Password to display the numeric keypad.
4. Press Clear (Clr) to delete the old user password (displayed below the keypad).
5. Enter a new user password. The password must be between 1 and 20 characters. If you make a mistake, press Clear (Clr) to start over or use the arrows (< >) to make corrections.
6. Press Save.

NOTE The User password and the Admin password may not be the same.

7. On the Login Parameters screen, press Save.

Setting the Admin Password

The Admin login is allowed to configure all controller parameters. Initially, the Admin password is set to LCI2 for LCI2 controllers, and it is set to LCI3 for LCI3 controllers.

NOTE Passwords are case-sensitive.

► **To change the admin password**

1. Log on with the Admin password.
2. On the Utilities screen, press LCI Setup, and then press Login Parameters.
3. Press Admin Password to display the keypad.
4. Press Clear (Clr) to delete the old admin password (displayed above the keypad).
5. Enter a new Admin password. The password must be between 1 and 20 characters. If you make a mistake, press Clear (Clr) to start over or use the arrows (< >) to make corrections.
6. Press Save.

NOTE The User password and the Admin password may not be the same.

7. On the Login Parameters screen, press Save.

Changing the HTTP Port

The HTTP Port is set by default to 80 and can be changed if the local firewall or ISP restrictions need to be accommodated.

► **To change the http port:**

1. Log on with the Admin password.
2. On the Utilities screen, press LCI Setup, and then press Login Parameters.
3. Press HTTP Port to display the keypad.
4. Press Clear (Clr) to delete the old HTTP Port (displayed above the keypad).
5. Enter a new HTTP Port. The Port number must be between 1 and 65000. If you make a mistake, press Clear (Clr) to start over or use the arrows (< >) to make corrections. It is recommended to chose a port above 5000

since ports below this number are used for commonly used applications and can interfere with the correct function.

6. Press Save. The LCI reboots after you press save.

NOTE To determine which HTTP Port works best with your local firewall, consult your IT department. The LCI3 needs to be introduced into the local security schema and an IP address NATing needs to be programmed into the firewall. The URL for a LCI3 with a HTTP Port other than 80 looks like:

Http://64.106.135.200:5000/LCI3/firstpage

where 64.106.135.200 is an example of an Internet IP address, 5000 is the Port number and LCI3/firstpage is the path to the LCI3 home page.

Calibrating the Display

Calibrate the screen to recognize the pressure that you normally use when touching the screen.

► To re-calibrate the touchscreen

1. On the Utilities screen, press Touch Calibrate.
2. When you are prompted to confirm you have physical interaction with the touchscreen, press Yes. A series of cross-hairs are displayed on the screen.
3. As the LCI3 displays each cross-hair, press and hold the center of the cross-hair with a normal amount of pressure.
4. Repeat step 3 as the cross-hair moves to different positions on the screen. A message appears when calibration is complete.
5. Tap the screen to save your changes and return to the LCI Setup screen.

NOTE If you do not tap the screen, your changes are lost.

Turning Touchscreen Sounds Off or On

By default, the LCI3 does not beep when you press a button. To enable this feature, press KeyClick until the button displays ON. Pressing the button repeatedly toggles this feature on and off, and the LCI3 automatically resets for the change to take effect.

Adjusting the Screen Contrast

Use the Contrast (+) and the Contrast (-) buttons on the LCI3 Setup screen to increase or decrease the screen contrast. Your changes appear immediately.

WARNING Be careful when adjusting the contrast for the touchscreen interface from the Web Interface. Your changes will not be visible through the Web Interface and can make the touchscreen interface unviewable.

Viewing Version Information

Use the Version Info button to check the version of firmware installed on your LCI3 and to track resource issues by viewing memory usage.

Modifying Network Settings

The Network Setting page is used to set up the Ethernet and Internet addresses, and email information.

NOTE You can also use the Network Setup screen to view Active Sessions. See “Maintenance” on page 81 for more information.

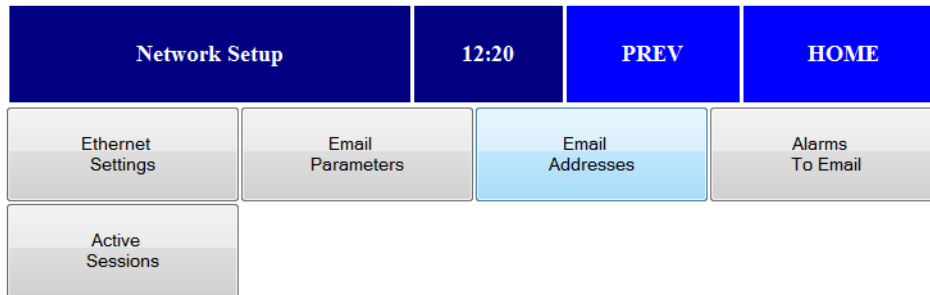


Figure 3.5 Network Setup screen

► To access the Network Setup screen

1. On the Home screen, press Utilities.
2. Press Network Setup. The LCI3 displays the Network Setup screen.

Ethernet Setup

The Ethernet IP settings need to be properly set before you can access the LCI3 over a standard Ethernet connection.

- Site Name
- DHCP (enable or disable)
- IP Address
- Subnet Mask
- Default Gateway
- Primary DNS
- Secondary DNS
- External Gateway

Site Name

The site name is used to describe your LCI3 on the network. Enter a description of up to 15 characters.

NOTE If you want to be able to find this LCI3 using DNS, be sure the site name is unique on the network.

DHCP

Choose whether to enable DHCP (non-static IP addresses) or disable DHCP (use static IP addresses). If DHCP is enabled but the LCI3 cannot locate the DHCP server, the LCI3 will attempt to contact the DHCP server every 10 minutes.

NOTE See your network system administrator if you have any questions.

IP Address

When DHCP is disabled, you must enter a unique IP address for the LCI3. This must be obtained from the system administrator for the network to which the server is attached. An IP address will always be structured as four sets of numbers, each with a value between 0 and 255, separated by periods.

Example: 192.10.1.50

NOTE The IO address is the internal IP address in case you have a router/firewall provided by your local ISP. Please refer to “Changing the HTTP Port” on page 24.

Subnet Mask

When DHCP is disabled, enter a subnet mask obtained from the system administrator for the network to which the LCI3 is attached. This number, combined with the IP address, identifies which network the LCI3 is on. The subnet mask is structured as four numbers separated by periods.

Example: 255.255.255.0

Default Gateway

When DHCP is disabled, enter the address of the default gateway used to forward packets to other networks or subnets. The address will be provided by the system administrator for the network to which the LCI3 is attached. The subnet mask is structured as four numbers separated by periods.

Example: 192.10.1.1

Primary DNS

When DHCP is disabled, enter the IP address for the primary DNS server. The DNS server is used to resolve pre-mapped host names to their assigned IP addresses.

Example: 192.10.1.11

Secondary DNS

If necessary, enter a secondary DNS server to use when the primary DNS server is unavailable.

Example: 192.10.1.12

External Gateway

The external Gateway address is only needed if the network contains more than one LCI3 and only one Static IP address to connect from the outside to one of the LCI3s in the network is available. The external IP Address is the static IP address assigned from the ISP to the internet connection.

Email Setup

The LCI3 can send email using simple mail transfer protocol (SMTP) and authenticated SMTP.

You can also define an IP address or site name (if using DHCP) for a proxy emailer. This is an LCI3 that acts as an email proxy for other LCI3s on the network. This means that only one LCI3 requires a direct Internet connection because the LCI3s without one can pass their emails through the proxy LCI3.

Email Addresses

You can enter up to three (3) email addresses for recipients you want notified any time the LCI3 sends out emails. Emails, for example, can be automatically sent when there is an alarm condition.

Example: jsmith@mycompany.com

You can also define a proxy server to use when sending out emails.

Alarms to Email

There are 139 email alarms available for the LCI3. All alarms are enabled by default. You can disable non-critical alarms as necessary. For example, disable alarms that do not require immediate attention.

Alarm Email Setup	12:34	PREV	HOME
Smoke Detected			Enabled
Fan Failed			Enabled
Mixed Air Lo Limit			Enabled
Thermostat Failed			Enabled
Filter Dirty			Enabled
Unit Maintenance			Enabled
Space Temp. Hi Limit			Enabled
Space Temp. Lo Limit			Enabled
Space Temp. Normal			Enabled
Equipment Failed			Enabled
Next 129			Bottom

Figure 3.6 Alarm Email Setup screen

► To enable or disable an alarm

1. On the Home screen, press Utilities.

2. Press Network Setup.
3. Press Alarms to email. Email alarms are listed with either Enabled or Disabled to indicate their status.
4. Press the text Enabled or Disabled to toggle the status.

4

Controllers

This chapter covers the controllers of the LCI3 and how they are setup. Specific relevant information includes adding, deleting, renaming, resetting and viewing controller details. Additionally described is how to view and override a temperature setpoint and how to upgrade or replace a controller. Finally, this chapter enumerates how specific HVAC controller set up interacts with the HVAC system. These tasks are performed by installers, engineers and users of the LCI3.

The Controllers screen shows a list of all devices recognized by this LCI3. The list consists of the name of each device and the parameters relevant to that device.

For HVAC controllers, the parameters are:

- Current temperature
- Effective temperature setpoint

If the device is not working properly or no values are received, “Communications Failed” is displayed for the parameter values and the device is shown in red. Other types of devices display different parameters.

► **To access the Controllers screen**

- On the Home screen, press “Controllers”.

Controllers	12:45	PREV	HOME
Unit_1_SMZ1	Outputs On On On On On On On On		
Unit_2_DXU3	Temp: 72.2°F Setp: 71.0°F		
Unit_3_BZU3	Zones On: None		

Figure 4.1 Controllers screen

Working with Controllers

If you are logged on as Admin, there are a number of actions you can perform on the available devices. For all devices on the network, these actions include:

- Viewing controller inputs and outputs
- Renaming controllers
- Deleting controllers
- Resetting controllers
- Viewing the LONWORKS details for controllers

You can also:

- Change any of an HVAC controller’s setpoints, including the temperature setpoint
- View alarms specific to a controller

Adding and Deleting Controllers

The LCI3 manages all of the controllers on the network. Use the Controllers screen to watch as you add a controller, view the current status of a controller and change its parameters, or delete a controller.

A controller remains on the Controllers screen until you remove it. Even if the device is physically removed from the network, it still shows up in the Controllers screen, but with “Communications Failed” in place of the displayed parameters since there are no valid readings for those parameters.

► To use the LCI3 to monitor as you add a new controller

1. From the Home screen, press “Controllers”.
2. Press the Service Pin button on a controller. The controller is added to the list displayed on the Controllers screen.

NOTE If pressing a controller’s service pin does not add it to the list, check the power and communications wiring and try again.

► To remove a controller from the Controllers list

1. On the Controllers screen, press the controller in the list. The LCI3 displays the controller’s menu screen.
2. Press Delete. Press Yes when prompted to confirm the action. All references to the controller are removed from the LCI3 (groups, etc.).

You may delete controllers that have been physically removed from the network, or controllers that are still connected to the network. If you delete a controller that is still connected to the network, the LCI3 no longer sets occupancy or parameter values for that controller. The controller operates using the last set values for its parameters and according to its backup schedule.

Viewing/changing the Override Temp Setpoint

You can use the Controllers screen to view and change override temperature setpoints. This is useful during commissioning or any other time when you need to force the unit into heating or cooling mode.

► To change the override temperature setpoint for a controller

1. On the Controllers screen, press the controller in the list. The LCI3 displays the controller’s menu screen.

Edit Controller		12:50	PREV	HOME	
Save	Delete	Replace	Details	Upgrade	Reset
Name	Unit_2_DXU3				
Setpoint	71.0 °F				
Override	<input type="text"/> °F				
All Settings	Inputs	Outputs		Alarms	
HVAC Setup	Reset Runtimes				

2. Press the “Override” field to display a numeric keypad.

3. Type a new setpoint, and then press “Save” to return to the Edit Controller screen.
4. Press “Save” to keep the new override settings and return to the Controllers screen.

Renaming a Controller

Rename a controller to give it a name that more clearly indicates its location in the building or function on the network. It is easier to remember which part of the building is served by “Engineering” than to remember which part of the building is served by “Unit 03 DXU3.” Controller names can have a total of 20 characters, including spaces.

► To change the name of a controller

1. On the Controllers screen, press the controller you want to rename.
2. Press the Name field to display the keypad and enter a new name for the controller.
3. Press “Save” to save the new name and return to the previous screen. To return to the previous screen without saving changes, press “PREV”.
4. On the Edit Controller screen, press “Save”.

Resetting a Controller

Changing some of the settings on certain controllers requires that the controller be reset before those changes can take effect.

You may also have to reset a controller to recover from a critical alarm, such as freeze, smoke, or fan failure.

Press “Reset” from the Edit Controller screen to perform a Neuron reset of that device.

Viewing Controller Details

To view details for a controller, press “Details” on the Edit Controller screen. The LCI3 displays the Neuron ID, Device Type, and Version for this device. These values cannot be changed. It may be necessary to report these values to a support technician during troubleshooting.

Copying and Pasting the Setpoints

Once you have configured the setpoints for a controller, you can copy the values of those setpoints and use those values to set up other controllers of that type.

► To copy setpoints to another controller

1. On the Edit Controller screen, press “All Settings”.
2. On the All Settings screen, press “Paste”.
3. On the Clone Settings screen, select the controller(s) to which you want to copy the settings.

NOTE Only controllers of the same type are listed.

4. Press “Paste” to copy the settings to the selected controller.
-OR-
Press “Paste All” to copy the settings to all of the controllers in the list.

Upgrading Firmware in a Controller

Occasionally, new firmware releases are available to upgrade a controller. An upgrade may be implemented locally at the touchscreen interface or remotely using the iWorx Networking Tool and a web browser. Use caution performing an upgrade, as downloading incorrect firmware type may result in improper operation of the controller. To confirm correct controller type, go to the details view of the controller at the LCI, or alternately view the label on the printed circuit board which references the type.

Locally Upgrading Firmware

► To locally upgrade using the CF card

1. Remove power to the LCI and then remove the CF card. Using a PC, copy the firmware to the root directory of the CF card. Reinsert the CF Card and then reapply power. **Important:** Do not remove or insert CF card with the LCI powered up.
2. On the Controllers screen, press the controller that you want to upgrade.
3. On the Edit Controller screen, press Upgrade.
4. Press the name of the firmware file you want to install, and then press Download.
5. When the upgrade successfully completes, press OK to return to the Controllers screen.

► To locally upgrade using the SD card

1. Copy the firmware to the root directory of the SD card.
2. Place the SD card in the LCI3.
3. Select that application file stored on the SD card.
4. When the upgrade successfully completes, press OK to return to the Controllers screen.
5. Remove the SD card.

Remotely upgrading firmware

► To remotely upgrade the firmware

1. Using the iWorx Networking Tool, download the firmware to the LCI3.
2. With a web browser, access the LCI3.
3. On the Controllers screen, clicks the controller that you want to upgrade.
4. On the Edit Controller screen, select Upgrade.
5. Click the name of the firmware file you want to install, and then select download.
6. When the upgrade successfully completes, click OK to return to the Controllers screen.

Replacing a Controller

► To replace a controller

1. From the home screen, select Controllers.
2. From the list of controllers, select the controller that is faulty and needs to be replaced.
3. On the Edit Controller screen, press Replace. Note: after pressing replace, the user again sees the list of controllers.
4. Swap out the hardware and depress the service pin on the new controller; when the LCI receives the service pin signal, it replaces the faulty controller with the new one.
5. All references to groups, trend, and all controller settings should be maintained; however, they should be verified.

Viewing Alarms

You can view alarms specific to a controller from the Edit Controller screen.

► To view controller specific alarms

- On the Edit Controller screen, press “Alarms”.

Viewing Inputs and Outputs

From the controller’s menu screen, you can access the current input and output values of a device. None of these values can be changed, but viewing them may be helpful in determining proper operation of the device.

To access these values, press “Inputs” or “Outputs” from the Edit Controller screen. The LCI3 displays a list containing all of the inputs or outputs of the controller and their current values.

Viewing and Changing Other Settings

To view or change available settings for a particular controller, access that device’s All Settings screen.

The contents of the screen vary depending on what type of device you are configuring, but from this screen, you can access all configured setpoints, copy and paste settings for use with other controllers, and access a list of all the controller’s configurable settings.

NOTE The most important settings for HVAC controllers are the Occupied and Unoccupied Time settings. If the controller loses contact with the LCI3, it will use these values as a backup schedule. Make sure to set these values to assure the comfort of building occupants in the event of a network problem.

► To view or change controller settings

1. Press the controller name on the Controllers screen.

2. Press “All Settings”. The LCI3 displays the controller’s Settings screen.

Unit_2_D XU3 Settings	13:03	Paste	PREV	HOME
Thermostat				More...
Setpoints				More...
Staged Cooling				More...
Modulated Cooling				More...
Floating SP Cooling				More...
Staged Heating				More...
Modulated Heating				More...
Floating SP Heating				More...
Fan Type				Auto
Economizer				More...
Next 9				Bottom

Special Setup for HVAC Controllers

You must configure a number of unique parameters specifically for HVAC unit controllers. This section describes these parameters.

Using HVAC Setup Shortcuts

Temperature Setpoints Shortcut

This shortcut displays the occupied and unoccupied temperature setpoints for the HVAC controllers connected to the LCI3. If available, the economizer setpoint is also displayed.

Unit_2_D XU3 Temperature Setpoints		13:34	Save	PREV	HOME
Setpoint	71.0	°F			
Cooling offset	1.0	°F			
Heating offset	1.0	°F			
SP adjust limit	2.0	°F			
Unocc cooling	82.0	°F			
Unocc heating	60.0	°F			

► To change any of the setpoints

1. Press the temperature setpoint you want to change.
2. Press Clear (“Clr”) to delete the old setpoint value.
3. Use the numeric keypad to enter a new value.
4. Press “Save”.

Runtime and Limits Shortcut

If a device has associated equipment with recommended run-time limits, the LCI3 keeps track of the equipment run times and generates maintenance alarms when run-time limits are exceeded.

Set the run-time limit for each piece of equipment to the recommended maintenance interval for that piece of equipment. If you replace or repair a piece of equipment, it may be appropriate to reset the current run time to zero.

► To set run-time limits

1. On the controller’s HVAC Setup screen, press “Runtimes and Limits”.
2. Press the value you want to change.
3. Press Clear (“Clr”) to delete the old value.
4. Use the numeric keypad to enter a new value.
5. Press “Save”. This sets the value and returns to the HVAC Setup screen.

► **To reset a run time**

1. Press the current run time.
2. Press “Reset”. The LCI3 displays a confirmation screen.
3. Press “Yes” to continue, or “No” to cancel. If you press “Yes”, the run time is reset to zero. In either case the LCI3 returns to the HVAC Setup screen.

Backup Schedule Shortcut

Use this feature to define a backup schedule to use when communications with the LCI3 are lost. A backup schedule goes into effect 10 minutes after communications are lost.

Other Settings Shortcut

Use this shortcut to set the economizer type, free cooling setpoint, economizer drybulb setpoint, minimum fresh air settings, and the fan type.

Optimum Start Shortcut

Use this shortcut to configure the LCI3’s non-adaptive optimum start (OS) feature to enable morning warm up and cool down for this device. The feature modifies the scheduling of the controller to account for the heating and cooling factors of the system. For instance, if the space is five degrees cooler than the setpoint, and the device has a heating factor of one degree per minute, the device will begin warming the space five minutes before the scheduled occupancy time to bring the space up to a comfortable temperature before occupancy begins.

The current values are displayed on the buttons. Set these values equal to the number of degrees per minute that the system is capable of modifying indoor air temperature.

► **To change the heating and cooling factors**

1. On the Controllers screen, press the name of the controller you want to edit.
2. On the Edit Controller screen, press “HVAC Setup”.
3. Press “Optimum Start”.
4. Press the factor to change. The LCI3 displays the numeric keypad.
5. Enter the new value for the factor, and press Save. The LCI3 displays the new value on the button.

To use this feature when a VPU2 is the “master” controller for a number of zone devices, one of the zone controllers (VAVs) must be set as the “reference zone”. To disable optimum start for this device, set the heating or cooling factor to zero. To disable the LCI3’s optimum start feature for the entire system, see “Enabling and Disabling Optimum Start” on page 23.

Associating Controllers

Controllers of certain types can be associated to share a demand or setpoint. There are three types of associations:

- Air to Air
- Air to Hydronic
- Hydronic to Hydronic

The process of associating controllers is the same in all three types:

► **To associate controllers**

1. Select the Master controller from the controllers List
2. Locate the “Members” button. In Air controllers the “Members” button may also be called “Zone Members” and can be located in the HVAC Setup screen.
3. Press the “Members” button.
4. Select the controller that shall be associated and dependent upon the master controller. When pressing the gray field with the controller name, the field will turn red and display the name of the Master controller.
5. Press the “Save” button. A message box will announce, if the association was successfully communicated to the controllers.

► **To disassociate controllers**

1. Navigate to the Members Screen of the Master controller
2. Press the red field of the controller to disassociate the device. The button turns gray.
3. Press the “Save” button.

The following associations are possible:

Table 1:

	Master	Dependent Controller	Maximum Connections
Air	VPU2	VAV1, VAV2	56
	MPU2	VAV1, VAV2	32
	MPU3	VAV1, VAV2	32
	CCU2	DXU3, DXU4, HPU2, HPU3, FCUx	60
	LHP2	HPU2, HPU3	60
Air - Hydronic	BZU3	DXU3, DXU4	1
	BZU2	DXU3, DXU4	1
	CHB1	VAVD-1, VAVD-2, VAVI-1, VAVI-2	?
	CHB2	VAVD-1, VAVD-2, VAVI-1, VAVI-2	?
Hydronic	BLMC	BZU3, BZU2, ZXU1, SMZ1	24*
	HPM1	CHB1, CHB2, DXU3, DXU4, SMZ1, BZU2, BZU3, HPU2, HPU3, FCUx	32

*A BLMC may be associated to one controller type of itself, as well as to a mix of BZU and ZXU1 controllers. However, the maximum number of associated controllers cannot exceed 24.

5

Alarms

This chapter covers alarms and the context of an alarm signal as well as the interaction between the controller and user. Specific to this information is how to view, work with and acknowledge an alarm signal.

All controllers on the network send text-based alarms to the LCI3 to indicate abnormal conditions. The LCI3 displays the number of alarms on the alarm button. If you press the alarm button, the LCI3 displays a list of all alarms, by date and time.

Alarms	08:01	PREV	HOME
Date/Time	Controller	Alarm	
03/14/2013 07:59:23	Unit_4_MPU2	Smoke Detected	
03/14/2013 07:58:59	Unit_2_DXU3	Filter Dirty	
03/13/2013 13:57:36	Unit_1_SMZ1	Comm. Failed	
03/13/2013 12:46:22	Unit_3_BZU3	Sensor Alarm	

Working with Alarms

Alarms are displayed with the controller name, time and date of occurrence, and up to 40 characters of text describing the alarm. Alarms are shown by order of occurrence, newest first. The LCI3 stores up to 250 alarms. If the 250 alarm limit is reached, the LCI3 automatically archives the first 75 alarms. These alarms may be retrieved at the LCI3 under "Home" > "Utilities" > "Database Functions" > "Retrieve All Logs" button or with the iWorx® Networking Tool.

Acknowledging Alarms

To acknowledge any alarm, simply delete it. It will then be removed from the list.

CAUTION If you acknowledge an alarm and the alarm condition for that controller has not been corrected, the LCI3 no longer shows the alarm, but the controller itself remains in alarm. It is good practice to correct any alarm conditions before acknowledging the resulting alarms.

► To acknowledge an alarm

1. Press the description of the alarm you want to acknowledge.

2. Press Delete. This acknowledges the alarm and removes it from the list.

NOTE To clear all alarms without reviewing them, use the Clear All Alarms function on the Utilities screen. See “Clearing all Alarms” on page 86 for instructions.

6

Schedules

This chapter covers how to work with schedules inside the context of operation for the LCI3. Information covered here includes adding, modifying and deleting a schedule as well as how to rename one.

Schedules define when devices should be in the occupied and unoccupied states. Schedules can be assigned to any number of controller groups. Use the LCI3 to create up to 16 schedules.

Schedules	10:27	PREV	HOME
Schedule_1			Unoccupied
Schedule_2			Unoccupied
Schedule_3			Unoccupied
Schedule_4			Unoccupied
Schedule_5			Unoccupied
Schedule_6			Unoccupied
Schedule_7			Unoccupied
Schedule_8			Unoccupied
Schedule_9			Unoccupied
Schedule_10			Unoccupied
Next 6			Bottom

Working with Schedules

Schedules are implemented by the LCI3, and consequently they only take effect when there is good communication between the LCI3 and the controllers on the network. Some controllers can be programmed with a backup schedule to use if it loses contact with the LCI3. Program a backup schedule through the All Settings option on the Edit Controller screen. See “Working with Controllers” on page 32 for more information.

Adding and Modifying a Schedule

The most common way to set a controller state to occupied is through a schedule.

► To define a schedule

1. On the Home screen, press Schedules. The LCI3 displays a list of defined schedules and occupancy status of each.
2. Press Add New. A new schedule with a generic name is added to end of the list.

3. Press the name of the new schedule. The LCI3 displays a set of buttons, corresponding to the days of the week, and a list of the start and finish times for the two schedule times available for each day of the week. There is also a holiday listing and schedule time for the holiday.

Schedule_1		10:30	PREV	HOME
Save		Delete		
Name		Schedule_1		
Sunday 0:0-0:0, 0:0-0:0		Monday 0:0-0:0, 0:0-0:0		
Tuesday 0:0-0:0, 0:0-0:0		Wednesday 0:0-0:0, 0:0-0:0		
Thursday 0:0-0:0, 0:0-0:0		Friday 0:0-0:0, 0:0-0:0		
Saturday 0:0-0:0, 0:0-0:0		Holiday 0:0-0:0, 0:0-0:0		

4. Press the button for the day of the week to set. The LCI3 displays a screen that enables you to set the hours and the minutes for the start and finish time for the occupied schedules on that day. You may schedule two separate occupied periods for each day.

Schedule_1 Monday		10:32	PREV	HOME			
Clear	Save	Save (M-F)	Save (All)				
Period 1	0	:	0	to	0	:	0
Period 2	0	:	0	to	0	:	0

5. Press the Hour and Minute fields to display a numeric keypad and define the new values. Time is set in military format (That is, 6:00 PM is 18:00 hours).
6. Press Save after you enter each new value.
7. You have three choices when saving the schedule.
- Press Save to use this schedule only for the day of the week shown.
 - Press Save (M-F) to use this same schedule for Monday through Friday.
 - Press Save (All) to use this schedule every day (including weekends and holidays).

Renaming a Schedule

Rename a schedule to more clearly indicate its use. For example, if the shipping area of the building runs on a separate schedule from administrative areas, you can name these schedules “Shipping” and “Admin” so that it is easier to keep them straight.

► To rename a schedule

1. On the Home screen, press Schedules.
2. Press the name of the schedule you want to edit.
3. Press the name field to display a keypad.
4. On the keypad, press Clear (Clr) to delete the old name and then enter a new one.
5. Press Save.

Deleting a Schedule

If you no longer want to use a schedule, press the name of that schedule from the Schedules screen. When the details of the schedule are displayed, press Delete at the top of the screen. That schedule and all references to it are deleted.

Groups

This chapter covers how groups are utilized within the LCI3. Covered information includes how to create, modify, rename and delete a group as well as how groups interact with the scheduling system. Groups can also be used to perform energy monitoring and efficiency calibration and this chapter describes that functionality.

The LCI3 enables you to create up to 16 occupancy groups for controllers on the network. If you want to control a device or a logic zone with a schedule, you must assign it to a group with an operating schedule.

Groups	10:34	PREV	HOME
Group_1			Unoccupied
Group_2			Unoccupied
Group_3			Unoccupied
Group_4			Unoccupied
Group_5			Unoccupied
Group_6			Unoccupied
Group_7			Unoccupied
Group_8			Unoccupied
Group_9			Unoccupied
Group_10			Unoccupied
Next 6			Bottom

Working with Groups

Use the Groups screen to create and modify groups on your system. You can add devices or logic zones to the group, view the devices/zones in the group, set an occupancy schedule for the group, manually force the group to be in occupied mode, delete the group, rename the group, set the override time for the group, and set up load shedding for the group.

Creating and Modifying a Group

As your needs change, you can use the LCI3 touchscreen to quickly add or modify groups in your system, for example, if office occupancy times change.

Edit Group		08:12	PREV	HOME
Save	Delete	Members	Manual Override	
Name	<input type="text" value="Group_1"/>			
Load Shed	<input type="text" value="Disabled"/> ▼			
Override Time	<input type="text" value="120"/> Minutes			
Schedule	<input type="text" value="No Schedule"/> ▼			

► To add or modify a group

1. On the Home screen, press Groups. The LCI3 displays a list of the groups that currently exist, each followed by its occupancy status.
2. Press Add New, or press the name of the group to modify.

If you select Add New, a new numbered group is added to the end of the groups list.

Adding Devices and/or Logic Zones to a Group

As new devices or logic zones are added to the system, you can quickly assign them to an existing group, for example, if you expand your offices (add new spaces and controllers).

Group_1 Members	08:23	PREV	HOME
Unit_2_DXU3	Group: Group_1		
Unit_3_BZU3	Not associated		
Unit_4_MPU2	Not associated		
Unit_5_BLMC	Not associated		

► To add a device or logic zone to the group

1. On the Home screen, press Groups. The LCI3 displays a list of the groups that currently exist, each followed by its occupancy status.
2. Press the name of the group to which you want to add a device or logic zone.
3. Press Members. The LCI3 displays a list of devices and logic zones, indicating which ones are included in the group.

NOTE The color of the entry also indicates group assignment. For example, a red entry is assigned to a group while a blue entry is not assigned.
4. Press the name of a device or logic zone to include or exclude it from the group.
5. When finished adding devices to the group, press PREV to return to the Edit Group screen.

NOTE A device or logic zone can be assigned to one group only.

► To view devices and zones in a group

1. On the Home screen, press Groups. The LCI3 displays a list of the groups that currently exist, each followed by its occupancy status.
2. Press the name of the group for which you want to view devices and zones.

3. Press Members. The LCI3 displays a list of devices and logic zones, indicating which ones are included in the group.

Set or Clear a Schedule

At any time, you can assign a schedule to a group or clear the current schedule from a group.

► To set or clear a schedule

1. On the Home screen, press Groups. The LCI3 displays a list of the groups that currently exist, each followed by its occupancy status.
2. Press the name of the group for which you want to set or clear a schedule.
3. Press the name of the current schedule. A list of schedules that can be assigned to this group are displayed.
4. Press the name of the schedule you want to assign to the current group or press No Schedule.
5. Press Save.

Deleting a Group

When you delete a group, all of the devices in that group are returned to the unassigned device list. If you delete groups that are connected to the network and actively controlling equipment, they revert to the unoccupied mode.

CAUTION It is not advisable to delete a group if the group's controllers are actively controlling equipment.

► To delete a group

- Press Delete on the Edit Group screen.

Renaming a Group

You can rename a group to more clearly indicate its members. For example, if all of the controllers in a group are controlling equipment in the shipping area of the building, name this group "Shipping."

► To rename a group

1. On the Home screen, press Groups. The LCI3 displays a list of the groups that currently exist, each followed by its occupancy status.
2. Press the name of the group you want to edit.
3. Press the name field to display a keypad.
4. Press Clear (Clr) to delete the current name and then use the keypad to enter a new name.
5. Press Save.

Setting up Load Shedding

If a controller in the network is performing energy monitoring functions and informing the LCI3 when there is excessive energy consumption, you can mark the group for load shedding by setting the group's load shed feature.

► To set the load shed

1. On the Home screen, press Groups. The LCI3 displays a list of the groups that currently exist, each followed by its occupancy status.

2. Press the name of the group for which you want to set a load shed.
3. Press Disabled or set the load shed to level 1 or level 2.
 - **Level 1** - assigns this group as a primary target for load shedding. If a level one load alarm is reported, all groups assigned a load shed of 1 are set to unoccupied. These groups continue to control their unoccupied setpoints until the alarm returns to normal.
 - **Level 2** - assigns this group as a secondary target for load shedding. If the level one alarm is raised to level two, groups with load sheds of both 1 and 2 are set to unoccupied. These groups continue to control their unoccupied setpoints until the alarm returns to normal.

Logic Zones

If there is a logic control unit on the network, use the LCI3 to configure the logic. If multiple units are present, the LCI3 coordinates information between units. The Logic Zones screen is the front end for all system-wide logic control settings.

► **To display the Logic Zones screen**

- Press **LZones** on the Home screen.

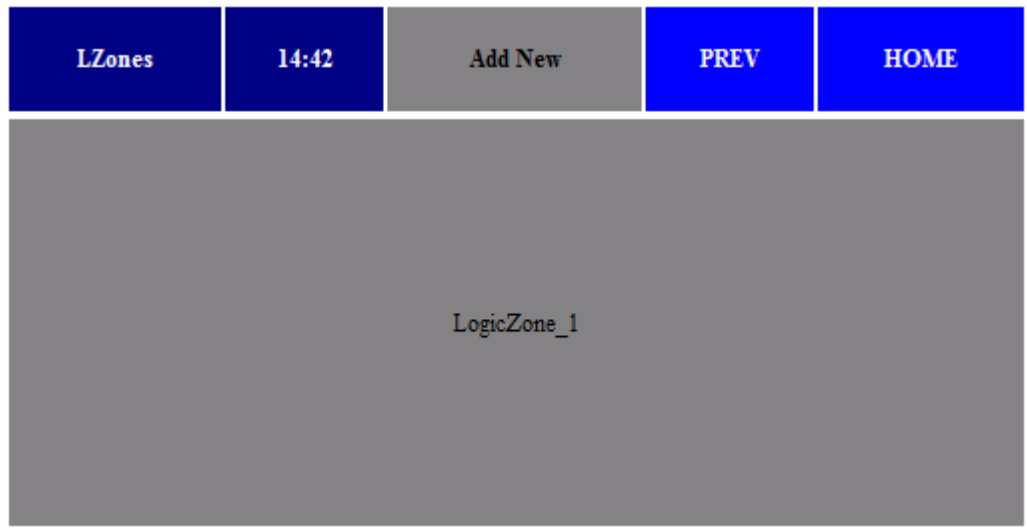


Figure 8.1 Logic Zones screen

Working with Logic Zones

Logic zones allow you to group one or more outputs from one or more LCU2 logic controllers into a single control unit. All of the outputs within the logic zone are controlled by the schedule of the group to which the zone is assigned, or by the override controls assigned to the zone.

Logic Zones

Zones are virtual groupings of inputs and outputs that are an abstract way of looking at the physical hardware that makes up the logic system. Inputs and outputs that are connected to separate LCU2s can be linked together by grouping them into zones. When a zone changes status from occupied to unoccupied, all of the logic outputs assigned to that zone turn OFF. Any physical override input assigned to a zone can override the occupancy of the zone. Inputs and outputs can also be assigned to multiple zones.

NOTE: After initial zone setup or when changing an existing zone, you must press **Save** for the changes to take affect.

Adding Logic Zones

A system can contain up to eight logic zones per each LCI.

► To add a new logic zone

1. On the Home screen, press **LZones**.
2. On the Logic Zones screen, press **Add New**. A new, numbered logic zone is added to the list. New zones are unoccupied by default until they are configured. See “Setting up Logic Zones” for more information.

Scheduling Logic Zones

You can schedule a logic zone for occupancy by adding the logic zone to a scheduled group. For more information about adding devices and logic zones to a group, see “Adding Devices and/or Logic Zones to a Group” on page 52.

Use any existing group to schedule logic for your facility. If an appropriate group does not exist, create a new group, add the logic zone to it, and then schedule it.

Setting up Logic Zones

Once a logic zone is selected from the Logic Zones screen, the LCI3 displays the Edit Logic Zone screen. From this screen, you can modify which points are contained in the zone, set up zone attributes, rename the zone, delete the zone, and temporarily override the zone’s occupancy status.

Edit LZone		14:42	PREV	HOME
Save		Delete		Points
Name	LogicZone_1			
Mode	Energy Saving ▾			
Override Time	2 hours ▾			
Backup Schedule	0 : 0 to 0 : 0			

Figure 8.2 Edit Logic Zone screen

Adding Points

Adding points to a virtual group creates a zone. Add as many points as necessary to achieve the desired level of control. The system is flexible, in that points can be added to multiple zones.

► To add a point

1. On the Edit Logic Zone screen, press **Points**. The LCI3 displays a list of all logic controllers on the network.
2. Press the name of the logic controller you want to work with. All the points for that controller are listed.
3. Press the names of the points you want to add. Points that have been added to the virtual group appear red while other points appear green or blue.
4. Press **PREV** to return to the Edit Logic Zone screen.
5. Before exiting the Logic Zone screen, you must press **Save** for the changes to take affect.

Configuring a Zone

Once a zone contains points, it can be configured. You can define the backup schedule and an override time for the logic zone, as well as change the zone's name or mode.

Defining the Backup Schedule

The backup schedule controls the occupancy of the zone if the LCI3 is not available. If the control method is set to "Photosensor," the backup schedule is also used to indicate hours that the photosensor is active. Outside of those hours, the zone is unoccupied even if the photosensor indicates that it is dark. Use this feature to have photosensor-controlled logic zones turn off in the middle of the night.

► To set the logic zone's backup schedule

1. On the Home screen, press **LZones**.
2. Press the name of the zone you want to configure.
3. Press the Hours and Minutes fields to display the numeric keypad and enter time values. Time is set is 24-hour format (For example, 6:00 PM is 18:00 hours).
4. Press **Save**.

Setting the Override Time

The override time determines how long the occupancy status of the logic zone is overridden when a switch is pressed during unoccupied periods or when the zone is overridden from the LCI3.

► To set the override time

1. On the Home screen, press **LZones**.
2. Press the name of the zone you want to configure.
3. Press the current override time field to select a new value. You can also disable the override time.
4. Press **Save**.

Setting the Logic Zone's Mode

The mode determines how you select a control method for the zone.

- **Scheduled** - turn on lights when the zone is scheduled to be occupied, and turn lights off when the zone is scheduled to be unoccupied.
- **Energy Saving** - enable lights when the zone is scheduled to be occupied, but do not turn on until a switch is pressed; they then stay on until the zone is scheduled to be unoccupied.
- **Photosensor** - turn on when the photosensor indicates that it is dark, and off when the photosensor indicates that it is light. This can be modified by the schedule, described above.

► To set the mode

1. On the Home screen, press **LZones**.
2. Press the name of the zone you want to configure.
3. Press the current Mode field.
4. Select the new mode of operation.
5. Press **Save**.

Changing a Zone's Name

You can rename a logic zone to give it a more descriptive name. For example, it's easier to remember which lights are part of a zone with the name Entrance or Parking Lot than it is to remember which lights are part of a zone named Logic Zone 08.

► To change the name of a zone

1. On the Home screen, press **LZones**.
2. Press the name of the zone you want to configure.
3. Press the current zone name.
4. Press Clear (**Clr**) to delete the current name and then use the keypad to enter a new name for the zone. Logic zone names can have a total of 20 characters, including spaces.
5. Press **Save**.

Deleting a Zone

You can delete a zone when you no longer need it. For example, if you remodel your building and redesignate zones.

► To delete a zone

- On the Edit Logic Zone screen for the logic zone you want to remove, press **Delete**.

Logic Controller Setup Examples

This section provides several examples of common logic configurations for the LCI3 with one or more LCU2 controllers.

Quick Setup for Scheduled Exhaust

This example shows how to set up the LCU2 to turn exhaust fans on and off.

Due to the size of the table the points have been abbreviated as described below. If there is an X in the column, the point is part of the Logic Zone in the left column.

Table 1: Point Reference for LCU2

LCU2 Terminal Reference	Example Point Description
IN1	Exhaust Fans OR
IN2	not used
IN3	not used
IN4	not used
IN5	not used
IN6	not used
IN7	not used
IN8	not used
L1	Exhaust Fan 1
L2	Exhaust Fan 2
L3	Exhaust Fan 3
L4	Exhaust Fan 4
L5	not used
L6	not used
L7	not used
L8	not used
PHIN	not used

Table 2: Logic Zone Configuration

	IN1	IN2	IN3	IN4	IN5	IN6	IN7	IN8	L1	L2	L3	L4	L5	L6	L7	L8	Mode
LZ1	x								x	x	x	x					Sched

Creating Logic Zone 1 (LZ1)

From the home screen on the LCI3, select *LZones* and then press **Add New**. A Logic Zone is created and is named Logic Zone 1 by default. Select the newly created Logic Zone. Once selected, press **Points** and add the inputs (Exhaust Fans OR) and outputs (Exhaust Fans 1 thru 4) found in the table. Since these exhaust fans will follow a schedule, select the **Mode** field and choose the *SCHED* option. The Logic Zone has now been configured, so press **Save**.

Creating a Schedule for the Exhaust Fans

From the home screen on the LCI3, select **Schedule** and then press **Add New**. A schedule is created and is named Schedule 1 by default. Select the newly created Schedule. Once selected, press **Monday** and add your desired occupied times for the fans. Press **Save M-F** to set the schedule for the fans for Monday through Friday. Press **Save** again.

Creating a Group for the Exhaust Fans

A group is a collection of iWorx® controllers and Logic Zones that follow a common schedule.

From the home screen on the LCI3, select *Groups* and then press **Add New**. A Group is created and is named Group 1 by default. Select the newly created Group. Once selected, press **Members** and add Logic Zone 1. You will notice the Logic Zone is now shown in red in the list. Press **Prev** and then **Schedule**. From the list of schedules, select the “schedule 1” that was previously created. Press **Save**.

LZ1 operation

Logic Zone 1 takes care of the Exhaust fans and has its mode defined as scheduled. When the current time matches the scheduled start time, the exhaust fans will automatically turn on. Likewise, when the current time matches the scheduled end time, the exhaust fans will automatically turn off. If the exhaust fans are currently off and desired to be on, the occupant may switch the Exhaust Fans OR button to activate the fans for the amount of time defined in the Logic Zones Override time. If the occupant desires to turn the Fans off prior to the override expiring, the Exhaust Fans OR may be switched once again canceling the OR. If the Fans are desired to be off during scheduled occupancy, the occupant may switch the Exhaust Fans OR and the fans will be turned off until the Exhaust Fans OR is switched again (turning the fans back on) or until the next scheduled start time.

Quick Setup for a Multi-Controller Logic Zone

This example shows how to set up the LCU2 to turn ON/OFF points from several controllers. Please refer to the above sections detailing how to create a Logic Zone, Schedule and Group.

Due to the size of the table, the points have been abbreviated as described below.

If there is an X in the column, the point is part of the Logic Zone in the left column. The LCU2 terminal reference below differentiates between controllers using the notation Cx, where x identifies each separate controller. IN1_C1 represents input 1 on controller 1; L1_C2 represents Logic Output 1 on Controller 2.

Table 3: Point Reference for LCU2 #1

LCU2 Terminal Reference	Example Point Description
IN1_C1	Office Light Switch
IN2_C1	Hall Light Switch
IN3_C1	Mfg Light Switch
IN4_C1	Lighting and Fan OR Switch
IN5_C1	not used
IN6_C1	not used
IN7_C1	not used
IN8_C1	not used
L1_C1	Office Lights Zone 1
L2_C1	Office Lights Zone 2
L3_C1	Office Lights Zone 3
L4_C1	Hall Lights
L5_C1	Reception Lights
L6_C1	Mfg Main Lights
L7_C1	Mfg Night Lights
L8_C1	Toilet Exhaust Fan
PHIN_C1	not used

Table 4: Point Reference for LCU2 #2

LCU2 Terminal Reference	Example Point Description
IN1_C2	Fan Only OR
IN2_C2	not used
IN3_C2	not used
IN4_C2	not used
IN5_C2	not used
IN6_C2	not used
IN7_C2	not used
IN8_C2	not used
L1_C2	Receiving Area Fan
L2_C2	Mfg Fan 1
L3_C2	Mfg Fan 2
L4_C2	Hall Lights
L5_C2	not used
L6_C2	not used
L7_C2	not used
L8_C2	not used
PHIN_C2	not used

Table 5: Logic Zone Configuration

LZ1																	Mode
																	Sched
C1	IN1	IN2	IN3	IN4	IN5	IN6	IN7	IN8	L1	L2	L3	L4	L5	L6	L7	L8	
	x			x					x	x	x	x	x	x	x	x	
C2	IN1	IN2	IN3	IN4	IN5	IN6	IN7	IN8	L1	L2	L3	L4	L5	L6	L7	L8	
									x	x	x						

LZ1 operation

Logic Zone 1 takes care of the Lights (controller 1), Toilet Exhaust Fans (controller 1), Receiving Area Fan (controller 2), and Mfg Fans 1 & 2 (controller 2) and has the mode defined as scheduled. When the current time matches the scheduled start time, the outputs will automatically turn on and when the current time matches the scheduled end time, the outputs will automatically turn off.

If the outputs are currently off and desired to be on, the occupant may toggle the Lighting and Fan OR switch to activate the outputs for the amount of time defined in the Logic Zones Override time. If the occupant desires to turn the outputs off prior to the override expiring, the Lighting and Fan OR switch may be toggled once again to cancel the OR. If the outputs are desired to be off during scheduled occupancy, the occupant may toggle the Lighting and Fan OR switch and the fans will be turned off until the OR is toggled again (turning the outputs back on) or until the next scheduled start time.

9

Holidays

This chapter covers how holidays are scheduled within the LCI3. Relevant information includes how the user works with holidays as well as their creation, modification and deletion.

You can have a separate occupancy schedule that runs on defined holidays. There can be up to 50 defined holidays. During holidays, only schedules that have holiday hours defined are set to occupied mode; all other schedules remain in unoccupied mode, regardless of the day of the week.

Holidays	09:04	Add New	PREV	HOME
January 1,		2013		Single Day
July 4,		2013		2 Days
November 24,		2013		2 Days

Working with Holidays

When you add a new holiday to the LCI3, it is created with the date of January 1 of the current year by default. You can define holidays for the current year, the next year, or for all years. You can also edit or delete holidays if necessary. When you add a new holiday, you can set a duration. This is useful when setting up school holidays such as, Spring and Winter breaks.

Define Holiday	09:09	PREV	HOME
Save	Delete		
Month	January ▾		
Day	1		
Year	2013 ▾		
Duration	1 Days		

Creating and Modifying a Holiday

You can add new holidays to the LCI3 at any time. For example, if you are notified of a day when the facility must be closed for maintenance. You can also edit holidays as they change from year to year. For example, Thanksgiving does not fall on the same day each year.

► To create or modify a holiday

1. From the Home screen, press Holidays. The LCI3 displays a list of current holidays.
2. Press the holiday that you want to change, or press Add New to create a new holiday.
3. Press the Year, Month, and Date fields to display a numeric keypad and enter new values.
4. Press the current Duration (default of 1 day) to change it, if necessary.

5. Once the date is set correctly, press Save.

Deleting a Holiday

If you no longer need a holiday, you can delete it. For example, at the beginning of a new year, you can remove holidays that don't apply in the new year.

► **To delete a holiday**

1. From the Home screen, press Holidays. The LCI3 displays a list of current holidays.
2. Press the holiday that you want to delete.
3. From the Define Holiday screen, press Delete to remove the holiday.

10

Trends and Data Logs

This chapter covers working with trends and data logs within the LCI3. Trend data identifies empirical operational patterns. Covered topics include how to create, work with, rename and define points within a trend. Also covered are graphing options for visual representation of identified data points.

Trend data helps you troubleshoot problem areas and identify critical operating trends in your system. You can define a total of four trends. Use trends to accumulate sample data values from data points at a regular interval.

Trends	09:14	Add New	PREV	HOME
Trend_1				
Trend_2				
Trend_3				

Working with Trends

There are up to eight trends with 3 channels each available in the system. By default, no trend is defined. At installation time trends have to be created for your custom setting.

Adding a New Trend

When you create a trend, you identify a trend name, a rate at which you want to collect samples, the time to start collecting samples, and 1 to 3 points from which you want to collect the data.

You must also define whether you want to log samples continuously. That is, when the maximum number of samples is reached, the oldest data will be automatically overwritten.

Edit Trend		09:18	PREV	HOME
Save	Delete	Graph All		
Name	<input type="text" value="Trend_1"/>			
Continuous?	<input type="text" value="No"/> ▼			
Sample Rate	<input type="text" value="1 minute"/> ▼			
Start Time	<input type="text" value="Click to set..."/>			
Point 1	<input type="text" value="Not Used"/>			
Point 2	<input type="text" value="Not Used"/>			
Point 3	<input type="text" value="Not Used"/>			

► **To add a new trend**

1. On the Home screen, press Trends.
2. Press Add New. A new trend is added to the bottom of the list.

► **To set up a trend to run continuously**

1. On the Home screen, press Trends.
2. Press the name of the trend for which you want to continuously log samples.
3. Press the drop down list next to the Continuous field. Select Yes or No.
4. Press Save to return to the Trends screen.

Renaming a Trend

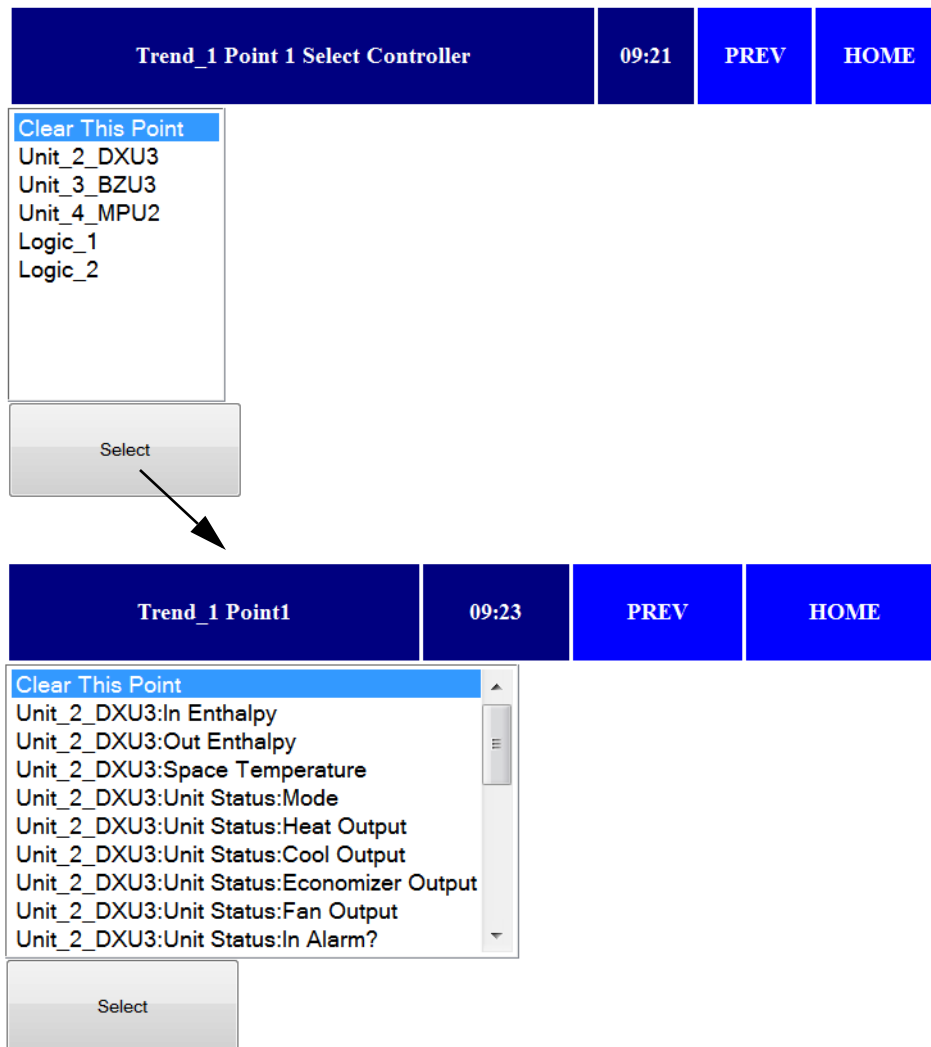
The Edit Trend screen allows you to modify the trend name.

► To rename a trend

1. On the Home screen, press Trends.
2. Press the name of the trend you want to modify.
3. On the Edit Trend screen, press the name field to display a keypad.
4. Press Clear (Clr) to delete the current name.
5. Use the keypad to enter a new name for the trend.
6. Press Save.

Defining Points for a Trend

At any time you can define or modify the points used for a trend. If you remove a point that was previously selected, all data that had been collected up to that point is automatically deleted from the trend.



► **To define points for a trend**

1. On the Home screen, press Trends.
2. Press the name of the trend for which you want to modify points.
3. On the Edit Trend screen, press the Point (Point 1, Point 2, or Point 3) you want to define. A list of controllers is displayed.

NOTE Press Clear This Point to remove a previously used point.

4. Press the name of the controller in which you want to browse for a point to use, and then press Select.
5. Press the name of the point you want to add to the trend.
6. Press Save.

Setting the Start Time

The Trend Setup page allows you to set the start time for data gathering. This allows you to capture data for a specific time frame.

► **To set a start time**

1. On the Home screen, press Trends.
2. Press the name of the trend for which you want to set a start time.
3. Press the current start time.
4. Press the value you want to edit (Year, Month, Day, Hour, Min, or Sec) and use the numeric keypad to enter a new value.

NOTE Press Start Now or Stop Now to start or stop the trend.

5. Press Save.

Defining a Frequency for Samples

The Trend Setup page allows you to set the frequency at which data is sampled. By default, the frequency is set to 1 minute. In certain instances, a sample every 15 minutes may be more appropriate. For example, when you trend temperatures.

► **To set the sample rate**

1. On the Home screen, press Trends.
2. Press the name of the trend for which you want to define a sample interval.
3. Press the current sample rate to display a list of available values.
4. Press the value you want to use for this trend.

NOTE the samples within one trend are sampled in one frequency selected under “Sample Rate”.

Deleting Trends

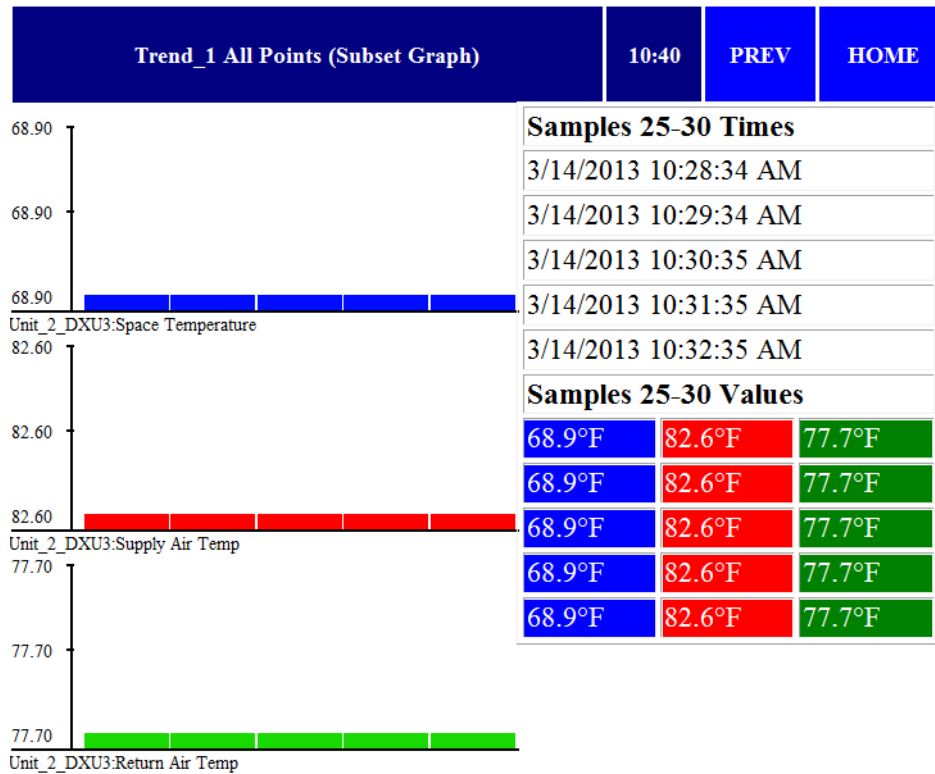
You can delete a trend when you no longer need it.

► **To delete a trend**

1. On the Home screen, press Trends.
2. Press the name of the trend you want to delete.
3. On the Edit Trends screen, press Delete to remove the trend from the system.

Graphing Trends

The LCI3 saves sampled values in records that you can graph for easy viewing.



► **To graph a trend**

1. On the Home screen, press Trends.
2. Press the name of the trend you want to graph.
3. Press Graph All.

NOTE Press anywhere on the graph when you need to zoom in and view more textual data. The values in the textual data are color coded to match the graph.

Working with Data Logs

In addition to Trends, data logs are an additional way to monitor system performance and troubleshoot any potential issues. Up to eight data logs with eight channels are available. By default, no data logs are defined, they are created at installation time and are custom to the particular system.

Data Logs	07:58	Add New	PREV	HOME
DataLog_1				
DataLog_2				
DataLog_3				
DataLog_4				
DataLog_5				
DataLog_6				
DataLog_7				
DataLog_8				

Adding a New Data Log

Creating a new Data Log consists of naming the log, selecting the rate at which samples are collected, setting the time to begin collecting samples, setting the number of samples, and selecting the points to be monitored (up to eight).

Edit DataLog	08:15	PREV	HOME
Save	Delete	Points	
Name	<input type="text" value="DataLog_1"/>		
Sample Rate	<input type="text" value="1 minute"/>		
Start Time	Click to set...		
Maximum Samples	<input type="text" value="0"/> (Unlimited)		

► **To add a new data log**

1. On the home screen, press data logs.
2. Press "Add New". A new log is added.

Renaming a Data Log

1. On the Home screen, press Data Logs.
2. Press the name of the log you want to rename.
3. On the edit Data Log screen, select the field of the log name. A keypad appears.
4. Press clear (CLR) to delete the current name.
5. Use the keypad to enter a new name.
6. Press Save.

Defining Points for a Data Log

At any time, data log points may be created or modified. If a point is removed that was previously selected, all data that had been collected for that point is automatically deleted from the log.

DataLog Points for DataLog_1		08:43	PREV	HOME
Point 1	Not Used			
Point 2	Not Used			
Point 3	Not Used			
Point 4	Not Used			
Point 5	Not Used			
Point 6	Not Used			
Point 7	Not Used			
Point 8	Not Used			

DataLog_1 Point 1 Select Controller	08:45	PREV	HOME
<div style="border: 1px solid black; padding: 5px;"> <p style="background-color: #007bff; color: white; margin: 0;">Clear This Point</p> <p>Unit_1_DXU3</p> <p>Unit_2_DXU3</p> <p>Unit_3_BZU3</p> <p>Unit_4_MPU2</p> <p>Logic_1</p> </div>			
<div style="background-color: #ccc; width: 100px; margin: 0 auto; padding: 5px;">Select</div>			

► **To define a point for a Data Log**

1. On the Home screen, press Data Logs
2. Press the name of the log for which the point(s) will be set or modified.
3. At the edit data log screen, select points. A new screen appears with a list of eight points.
4. Select the field of the point being defined.
5. A list of controllers is displayed.

NOTE Press "Clear this Point" to remove a previously defined point.
6. Highlight the controller in which the point being defined and press select.
7. Select the name of the point and then press "save".

Setting the Start Time

The edit Data Log page allows data to be captured as specific time frames.

1. On the Home screen, press Data Logs
2. Press the name of the log for which the time is being set.
3. Press the Start Time field.
4. Select the fields to be edited (Year, Month, Day, Hour, Min, Sec.) and use the keypad to enter the value.

NOTE Press "Start" or "Stop" now to begin or end the log.
5. Press Save.

Defining a Frequency of Samples

The frequency at which data is sampled may be set at the edit Data Log page. By default the frequency is set to 1 minute. In certain instances, such as temperature readings, a sample of 15 minutes may be more appropriate.

1. On the Home screen, press Data Logs
2. Press the name of the log for which you want to define the sample interval.
3. Press the Sample Rate field to view the available rates.
4. Press the value desired and then select "save".

NOTE Note: The samples within one data log are sampled in one frequency selected under "sample rate."

Deleting a Data Log

A log may be deleted if no longer needed.

1. On the Home screen, press Data Logs.
2. Press the name of the log to be deleted.
3. At the edit Data Logs screen, select "delete" to remove the log from the system.

Retrieving Data Logs

The data logs may be retrieved using the iWorx® Networking Tool or alternatively by removing the Compact Flash card from the LCI. The logs may then be exported to an excel spreadsheet.

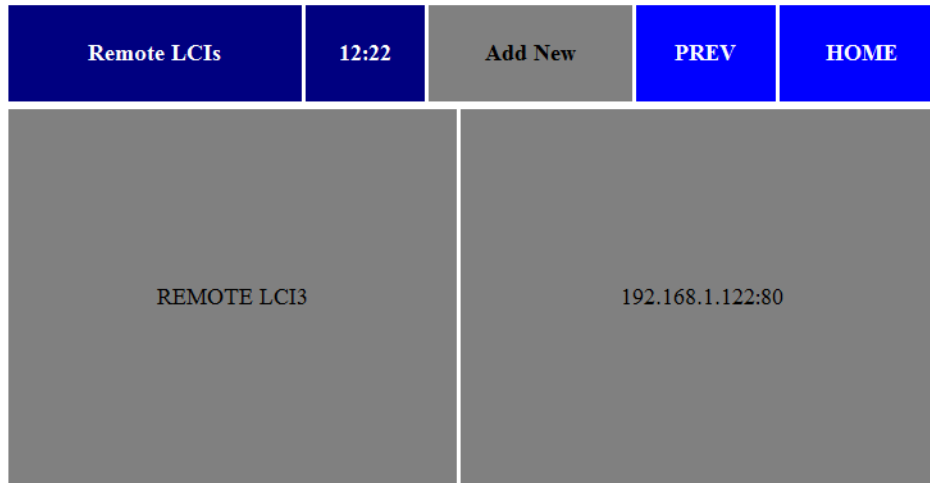
11

Remote LCI3s

This chapter covers the networking of multiple LCI3 controllers. Covered information includes how to work with remote LCI3 controllers and modifying or deleting the connections.

You can define remote LCIs to which you want to connect and view system information. This allows a user to access all the information in the remote system.

NOTE If you attach a broadband connection to an LCI3, you can have remote access to the system. See “Connecting remotely” on page 18.



Working with Remote LCIs

The LCI3 allows users to connect remotely to other LCI3s that are available on the LAN. They must be in the same Class to be accessible on the Ethernet. Please contact your IT department or the person responsible for the LAN to arrange the right IP address scheme. You can set up a Remote LCI one of two ways: using a TCP/IP address or a DHCP host name. If you define both settings for the remote LCI, the LCI3 uses the host name entry by default.

Adding a Remote LCI Connection

By default the LCI3 has no remote connections configured. At the time of installation Remote LCIs can be added. Press the Add button and a new screen appears.

Modifying Remote LCI Connections

Use the Edit Remote LCI screen to modify the IP address or DHCP host name for an LCI3 or to initiate remote access to an LCI3.

Edit Remote LCI		12:25	PREV	HOME
Save	Delete	Remote Access		
Site Name	REMOTE LCI3			
IP Address	<input type="text" value="192.168.1.122"/>			
HTTP Port	<input type="text" value="80"/>			
Host Name	<input type="text"/>			

► **To edit the IP address for a remote LCI3**

1. On the Home screen, press Remote LCIs. A list of all defined remote LCI3s is displayed.
2. Press the name or IP address of the LCI3 you want to modify.
3. Type a new IP address or host name for the LCI3, and then press Save. If you define both settings for the remote LCI, the LCI3 uses the host name entry by default.

NOTE The remote LCI3 appears with a Login Screen. Upon successful login, the “Home” button in the top right corner will be marked with an “*”. To disconnect from an LCI3 remotely logged onto, press the “Logout” button.

► **To access a remote LCI3**

1. On the Home screen, press Remote LCIs. A list of the defined remote LCI3s is displayed.
2. Press the name or IP address of the LCI3 you want to access.
3. From the Edit Remote LCI screen, press Remote Access.

Deleting Connections to Remote LCI3s

You can delete a connection to a remote LCI3 when you no longer need it. For example, if you’ve downsized a facility and removed equipment.

► **To delete a connection to a remote LCI3**

1. On the Home screen, press Remote LCIs. A list of the defined remote LCI3s is displayed.
2. Press the name or IP address of the LCI3 you want to delete.
3. From the Edit Remote LCI screen, press Delete.
4. Press Yes to confirm.

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Maintenance

This chapter covers maintenance activities relevant to the LCI3 controller. Upgrading, installation and restoring of system defaults are covered topics. How to work with and utilize the onboard database is additionally described.

Maintenance is an important part of your system. This protects your investment and ensures you get the full benefits of the systems you purchased.

For the most part, the LCI3 requires very little maintenance. However, from time to time, software updates that add new features and improve operation become available. Additionally, there may be times when you need to synchronize or clear databases.

This section provides step-by-step instructions for common tasks.

Upgrading Firmware

This is the only procedure to update the LCI3 firmware. It requires a SanDisk USB SD Reader/Writer (or equivalent) and a 2 GB or smaller SD memory card.

NOTE You can use a larger capacity cards (128MB and greater), but the write and read access times are increased.

Complete the steps in the order they appear in this section. Ensure you have the following items before you begin:

- SanDisk USB SD memory card reader/writer
- 2 GB or smaller SD memory card
- sdtool.exe: SD memory card PC utility
- nk.bin: LCI3 WinCE application image

The following file is optional. You will only need it if you are instructed to upgrade the boot loader

- xboot.bin: XSTREAM platform boot loader image

Creating the LCI3 SD Card Image

You must copy the LCI3 firmware image to an SD card before you can upgrade the LCI3. Use the SDTOOL.EXE Windows application to format and transfer the LCI3 firmware image to the SD memory card.

WARNING The LCI3 cannot read the image if you copy and paste it using Windows Explorer. Additionally, if you attempt to read the card using Windows Explorer, you are prompted to format the card regardless of the image on it. Formatting the SD Memory card from Windows Explorer erases the LCI3 image from the card.

► To create the SD card image

1. Connect the SanDisk USB Reader/Writer to your PC.
2. Insert the SD memory card into the SD Reader/Writer.
3. Run the SDTOOL.EXE Windows application.
4. Select the USB SD memory card reader/writer device from the drop down box.
5. If the Format button is disabled, skip to step 8. Click Format to format the SD card for the XSTREAM proprietary format.
6. From the Format Card dialog, click Yes.
7. Click Write.
8. Ensure the WinCE check box is selected, browse to the correct directory, and then select the LCI3 firmware image (NK.BIN or NKXYZ.BIN).

NOTE If you are also updating the boot loader firmware, select the Bootloader check box, browse to the correct directory, and then select the boot loader firmware file (XBOOT.BIN).

9. Click OK, and then click Close when the operation is finished.

Installing New Firmware

After you copy the new LCI3 firmware image to the SD card, use the following procedure to transfer it to the LCI3.

NOTE You must remove the front cover of the LCI3 before you begin.

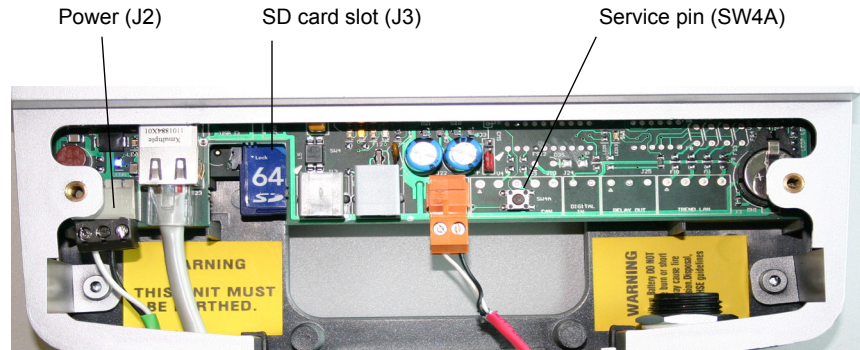


Figure 12.1 LCI3 with front cover removed

► To upgrade the LCI3 firmware

1. With the front access panel removed from the LCI3, insert the SD memory card into slot, J3. Slide the SD memory card with the shiny contacts on the bottom into the SD slot.

NOTE The SD memory card slot is located on the left side of the bottom PC board. It is located beside the Ethernet port on the PC board below the two ports (see Figure 12.1).
2. Push the SD memory card until it stops and is fully inserted into the SD slot. The LCI3 can be powered while inserting the SD memory card.
3. Remove power from the LCI3 by unplugging the power plug, J2. This plug is left of the Ethernet port (see Figure 12.1).
4. While pressing the Service Pin button on the LCI3 (SW4A), power on the LCI3 by plugging in the power plug, J2. The LCI3 will display the XStream Bootloader dialog box.
5. Press the Upgrade firmware button. The LCI3 will display the current version, card version, and required action for each file copied onto the SD card.
6. Press the start button to begin the upgrade process. The LCI3 will show the status of the update by displaying the following: Reading Card, Erasing Flash, and Writing Flash.

When the upgrade process is complete, the LCI3 will display Upgrade Complete – Remove Card.
7. Remove the SD card while the LCI3 is powered. The LCI3 will display the XStream Bootloader dialog box. This dialog box has three buttons: Reset to Factory Defaults, Upgrade Firmware, and Exit.
8. Press the Exit button to reboot the LCI3.

If the LCI3 is operating as expected, the upgrade process is complete. If the LCI3 is not working correctly, it will be necessary to restore the LCI3 to factory defaults (see “Restoring LCI3 Factory Defaults”).

Restoring LCI3 Factory Defaults

It may be necessary to restore the LCI3 to factory defaults. This is most common when upgrading to an incompatible LCI3 version or when you are instructed to upgrade the bootloader. The factory default settings are stored in the system registry. When you restore the factory defaults, you erase the existing non-conforming registry and replacing it with the new LCI3 registry. All previous LCI3 configuration settings will be lost, such as the configured IP address.

NOTE There is no existing utility for backing up or copying the system registry. Restoring the factory defaults has to be done before upgrading the firmware.

► To restore the LCI3 factory defaults

1. Remove the front access panel from the LCI3 (see Figure 12.1).
2. Remove power from the LCI3 by unplugging the power plug, J2. This plug is located to the left of the Ethernet port (see Figure 12.1).
3. Locate the LCI3 Service Pin Button, SW4A (see Figure 12.1).
4. While pressing the Service Pin Button, power on the LCI3 by plugging in the power plug, J2 (see Figure 12.1).

The LCI3 will display the XStream Bootloader dialog box. This dialog has three buttons: Reset to Factory Defaults, Upgrade Firmware, and Exit.

5. Press the Reset to Factory Defaults button. The LCI3 will display a confirmation dialog.
6. Select the Yes button. The LCI3 will begin restoring the factory defaults and will display a progress bar.
7. Press the Exit button to reboot the LCI3.

NOTE Please make sure that the power does not get switched off during the process of Upgrading Firmware or Restoring Factory Defaults.

Working with Databases

The LCI3 stores all information about the controllers on the network in databases. This includes schedules, groups, and alarms. Individual items can be edited with specific screens elsewhere in the LCI3, but database functions are useful for acting on entire databases at once.

Database Functions		12:29	PREV	HOME
Archive Databases	Restore Databases	Clear Databases	Clear Alarms	
Archive Job Settings	Restore Job Settings	Restore Factory Defaults	Load App Specific Settings	
Retrieve All Logs				

► To access the Database Functions screen

1. If the LCI3 is not displaying the Home screen, press Home.

2. Press Utilities.
3. Press Database Functions.

Archiving Databases

You can store LCI3 databases in XML format on a FAT-formatted SD card or on a CF card.

► **To archive the LCI3 databases**

1. Press Database Functions on the Utilities screen.
2. Press Archive Databases.
3. Select where to archive (/SD Card or /CF Card).

Restoring Databases

You can restore databases to the LCI3 from an SD card or CF card. Be sure to make a backup of the current databases before using the Restore Databases feature.

► **To restore the LCI3 databases**

1. Press Database Functions on the Utilities screen.
2. Press Restore Databases.
3. Select the location of the database to be restored (/SD Card or /CF Card).

Clearing the LCI3 Databases

Clearing all databases returns the LCI3 to a clean slate as if it has just been powered up for the first time. Clear the database to delete all of the devices, schedules, groups, cards, logs, and alarms in the LCI3.

► To clear the LCI3 database

1. Press Database Functions on the Utilities screen.
2. Press Clear Databases.
3. Press Yes to continue when prompted to confirm the action. Press No to cancel the action.

NOTE Registry settings are not deleted.

Clearing all Alarms

To view and acknowledge (delete) alarms individually, see “Acknowledging Alarms” on page 42.

► To delete all alarms from the LCI3

1. Press Database Functions on the Utilities screen.
2. Press Clear Alarms.
3. Press Yes to continue when prompted to confirm the action. Press No to cancel the action.

Viewing the Debug Log

Use this feature to monitor system or diagnostic activity for the current LCI3, for example, when a new controller was configured on the system. For each activity, the date, time, and operation performed are shown.

► To view or clear the debug log

1. On the Home screen, press Utilities.
2. Press Debug Log.
3. From the Debug Output screen, press Clear to delete all entries from the log.

Viewing Active Sessions

Use this feature to display a list of all the users currently logged into the LCI3 and determine whether they are connected locally or remotely.

▶ **To view active sessions**

1. On the Home screen, press Utilities.
2. Press Network Setup.
3. Press Active Sessions.

Restarting the System

Use this feature when the LCI3 stops responding or loses communications with the network. There are two available methods for restarting.

▶ **Method 1**

1. On the Home screen, press Utilities.
2. Press LCI Setup.
3. Press Restart System

▶ **Method 2**

1. Press the top left corner of the screen.
2. A message box appears to verify whether or not to restart.

▶ **You will need to log in again after either of these procedures are used.**

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Troubleshooting

This chapter describes how to troubleshoot the LCI3 and provides common problems and remedies for the controller.

Troubleshooting Tips

This section provides common problems and remedies for the controller.

Problem	Solution
Nothing appears on the LCI3 screen once it is powered up.	This is most likely related to the input power for the LCI3, ensure the following. A blue LED should be visible on the front of the unit, indicating that the power is on. <ul style="list-style-type: none"> – Is the power source turned on? – Is the LCI3 powered using 12-24 VDC or 24 VAC? – Is the power connected to the correct pins? – Is the contrast adjusted?
I can't log on to the LCI3, is there a default password?	The LCI3 has two (2) default passwords, one for the user and one for the administrator. The default user password is LCI3user and the default administrator password is LCI3. To reset the password, please read the Restore LCI3 factory defaults section. Be aware that ALL custom settings such as IP Address will also be reset.
I can't log on to the LCI2, is there a default password?	The LCI2 has two (2) default passwords, one for the user and one for the administrator. The default user password is LCI2user and the default administrator password is LCI2. To reset the password, please read the Restore LCI3 factory defaults section. Be aware that ALL custom settings such as IP Address will also be reset.
I can't communicate to any controllers on the network.	<ul style="list-style-type: none"> – Ensure that the communications cable is connected to the FTT-10A connector pins NA & NB. – Were the service pins on the controllers depressed after the network was configured? – Is the FTT-10A Network Resistor Termination Configuration Jumper set properly?
I am not receiving service pings at the LCI3.	<ul style="list-style-type: none"> – Ensure that the communications cable is connected to the FTT-10A connector pins NA & NB. – Were the service pins on the controllers depressed after the network was configured? – Is the FTT-10A Network Resistor Termination Configuration Jumper set properly?
After powering down the LCI3, the database has been cleared.	Check the battery voltage and ensure that it is above 2.7 VDC.
The screen seems too sensitive to my touch or is not sensitive enough for my touch.	From the main menu you need to select the Utilities: LCI Setup menu and configure the touch screen. When reconfiguring the screen you need to apply the pressure that you would normally use when using the LCI3.

Getting Help

Components within an iWorX controller, sensor, or power supply cannot be field repaired. If there is a problem with a unit, follow the steps below before contacting your local TES representative or TES technical service.

1. Make sure controllers, sensors, and power supplies are connected and communicating to desired devices.
2. Record precise hardware setup indicating the following:
 - Version numbers of application software.
 - Device and/or firmware version number.
 - A complete description of difficulties encountered.

Notes:

LIMITED WARRANTY STATEMENT

Taco Electronic Solutions, Inc. (TES) will repair or replace without charge (at the company's option) any product or part which is proven defective under normal use within one (1) year from the date of start-up or one (1) year and six (6) months from date of shipment (whichever occurs first).

In order to obtain service under this warranty, it is the responsibility of the purchaser to promptly notify the local TES stocking distributor or TES in writing and promptly deliver the subject product or part, delivery prepaid, to the stocking distributor. For assistance on warranty returns, the purchaser may either contact the local TES stocking distributor or TES. If the subject product or part contains no defect as covered in this warranty, the purchaser will be billed for parts and labor charges in effect at time of factory examination and repair.

Any TES product or part not installed or operated in conformity with TES instructions or which has been subject to accident, disaster, neglect, misuse, misapplication, inadequate operating environment, repair, attempted repair, modification or alteration, or other abuse, will not be covered by this warranty.

TES products are not intended for use to support fire suppression systems, life support systems, critical care applications, commercial aviation, nuclear facilities or any other applications where product failure could lead to injury to person, loss of life, or catastrophic property damage and should not be sold for such purposes.

If in doubt as to whether a particular product is suitable for use with a TES product or part, or for any application restrictions, consult the applicable TES instruction sheets or in the U.S. contact TES at 401-942-8000 and in Canada contact Taco (Canada) Limited at 905-564-9422.

TES reserves the right to provide replacement products and parts which are substantially similar in design and functionally equivalent to the defective product or part. TES reserves the right to make changes in details of design, construction, or arrangement of materials of its products without notification.

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THE ABOVE WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR STATUTORY, OR ANY OTHER WARRANTY OBLIGATION ON THE PART OF TES.

TES WILL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF ITS PRODUCTS OR ANY INCIDENTAL COSTS OF REMOVING OR REPLACING DEFECTIVE PRODUCTS.

This warranty gives the purchaser specific rights, and the purchaser may have other rights which vary from state to state. Some states do not allow limitations on how long an implied warranty lasts or on the exclusion of incidental or consequential damages, so these limitations or exclusions may not apply to you.

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