

Thermo Electron Corporation

**Hospital for Sick  
Children CatX  
Workstation**

**LOR772 System User Guide**

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# Preface to This Guide

This guide describes how to operate the Hospital for Sick Children CatX Workstation when it is in the POLARA configuration. See “[Workstation Configurations](#)” on [page 1-4](#) for a descriptions of the configurations.

## Who Uses This Guide

This guide is for operators of the Hospital for Sick Children CatX Workstation. This guide assumes the reader has been trained on the safe operation of the system by Thermo Electron Corporation Laboratory Automation and Integration. This guide is not intended as a self-teaching tool.

## How to Use This Guide

This manual is task-based and uses navigational aids to help you quickly find the topics and information you need.

Before following instructions in a section, read the entire section first.



**Note:** Throughout this manual warnings are marked by a "!" symbol in the left margin. Failure to comply with these warnings can result in system errors, memory loss, damage to the robot and its surroundings, or injury to personnel. ▲

This guide consists of the following chapters:

- “[Introducing the System](#)” which introduces the system and provides an overview of its basic components.
- “[Safe Use of the System](#)” which describes safety directives with which you and all operators of the system must be familiar.
- “[Using the System](#)” which describes requirements that must be met and tasks that must be performed outside of the POLARA operating environment.
- “[Maintaining the System](#)” which describes periodic inspection, cleaning, and maintenance.

- “[Troubleshooting](#)” which describes system-level troubleshooting procedures, instructions for contacting Thermo Electron customer support, and references to other documentation.
- “[Index](#)” which contain an index to subjects in this guide.

## Units Used in This Manual

Throughout this manual, measurements are given in Metric SI units.

## For More Information

This manual contains the information you need to operate the system as a whole. For details on using the POLARA software to develop methods, and schedule and perform runs, see the POLARA 2.3 user guides.

### Training

We offer courses at our facility in Burlington, Ontario Canada, or on-site at your facility. For more information, contact the Thermo Electron Customer Support Group.

### Contacts

You can contact Thermo LAI personnel in any of the following ways.

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Burlington, Ontario L7L 6A6  
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1-800-365-7587 (voice: toll free in Canada and United States)  
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### E-Mail

Sales: [sales.labautomation@thermo.com](mailto:sales.labautomation@thermo.com)  
Customer Support and Training: [services.labautomation@thermo.com](mailto:services.labautomation@thermo.com)  
General: [info.labautomation@thermo.com](mailto:info.labautomation@thermo.com)

### World Wide Web

[www.thermo.com](http://www.thermo.com)

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# Chapter 1 Introducing the System

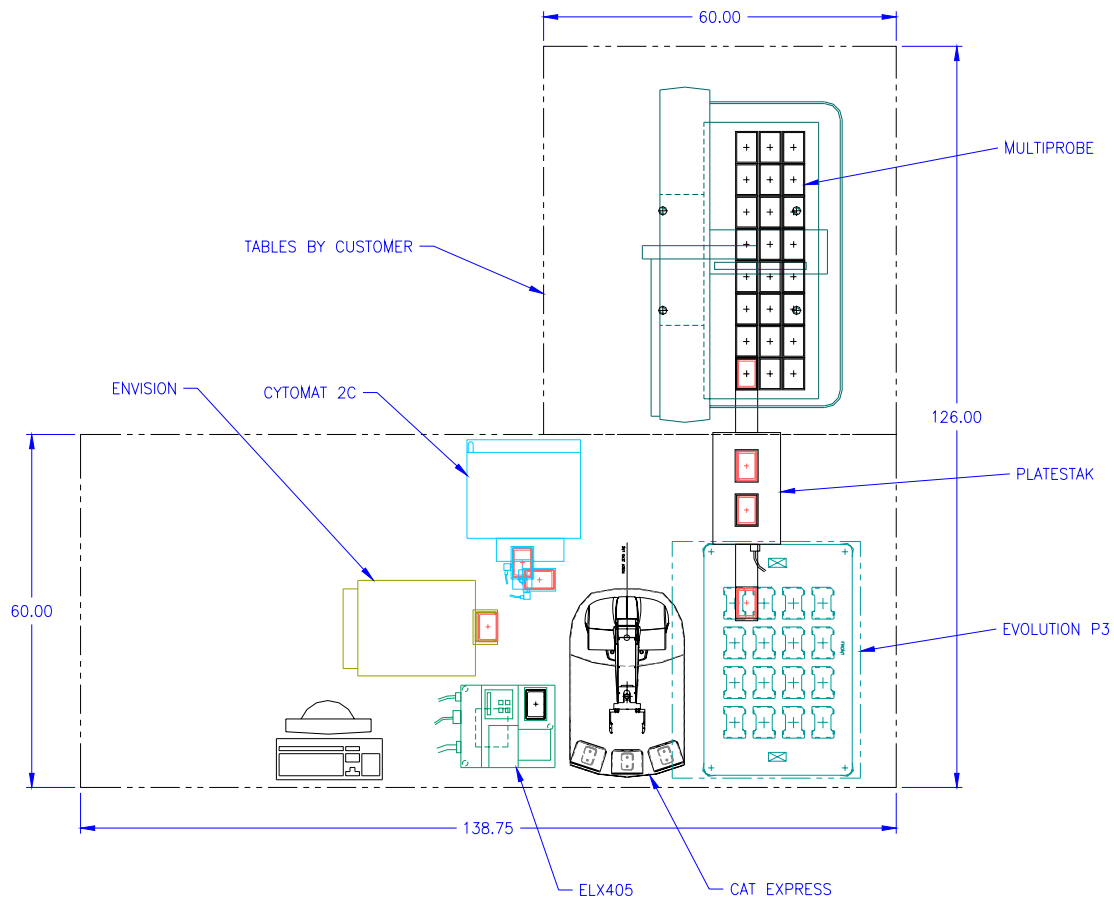
The Hospital for Sick Children CatX Workstation station is a modular and expandable system for high throughput screening.

This chapter introduces the system and provides an overview of its basic components. It includes the following topics:

- “System Instruments and Peripherals” on page 1-2
- “System Components” on page 1-6
- “Master Control Panel” on page 1-11
- “POLARA System Software” on page 1-13
- “CRS DataHandler Software” on page 1-14

## System Instruments and Peripherals

The Hospital for Sick Children CatX Workstation system includes the following instruments and peripherals:



**Figure 1-1.** Hospital for Sick Children CatX Workstation layout

- One Thermo CRS Regrip station (built in to CatX base)
- One Thermo CRS Lidder
- One Thermo Cytomat 2 incubator
- One MicroScan MS-3 Bar Code reader
- One PerkinElmer Evolution P3 liquid handler
- One PerkinElmer Envision reader
- One PerkinElmer Multiprobe pipettor (note: this instrument is not integrated into the POLARA workspace)

- One PerkinElmer PlateStak storage unit
- One Biotek ELx405 washer

The system uses an Articulated Robot mover controlled by the POLARA scheduling software, to move microtitre plates between instruments. For details on the components of the system, see [“System Components”](#) on [page 1-6](#).

For details on the operation of the instruments, refer to the user guides supplied with the instrument.

## Workstation Configurations

Thermo personnel have integrated this workstation into two configurations:

- A POLARA system consisting of all instruments except the PE Multiprobe.
- A WinPREP system consisting of the PE Evolution, Multiprobe, and PlateStak.

The instruments that can be used in each configuration are shown in [Table 1-1](#).

**Table 1-1.** Instrument usage by configuration

<b>POLARA only</b>	<b>Common instruments</b>	<b>WinPREP only</b>
Thermo Cytomat 2 incubator	PE Evolution	PE Multiprobe
PE Envision reader	PE PateStak	
Biotek ELx405 washer		
MicroScan MS-3 Bar Code reader		
Thermo CRS Lidder		
Thermo CRS Regrip station		

The two configurations can be used at the same time only when POLARA is running a method whose profile does not include the PlateStak and Evolution.

This document provides user information for operating the POLARA configuration only.

To setup a configuration, follow these procedures:

### To setup a POLARA configuration

1. If the PlateStak is in the profile selected for your POLARA method, change the PlateStak serial port switch so POLARA can communicate with the PlateStak.
2. If the Evolution is in the profile selected for your POLARA method, ensure that its scripts used in POLARA methods do not access the 4 nests closest to the PlateStak diving board.
3. Ensure the Evolution P3 pipe server is running on the Evolution computer.

4. Ensure the EnVision pipe server is running on the Envision computer.
5. Continue using the POLARA configuration as described in [Chapter 3: “Using the System”](#).

**To setup a WinPREP configuration**

1. If POLARA is running, ensure it is not running methods whose profile includes the PE Evolution and PlateStak.
2. Change the PlateStak serial port switch so that WinPREP can communicate with the PlateStak.
3. Continue using the WinPREP configuration on the WinPREP computer according to PerkinElmer requirements.

## System Components

Each system consists of the following main components:

- Tables, which are customer supplied.
- The **system computer**, which runs the POLARA software that provides high-level control of all hardware in the system and which collects the data gathered during runs. Each instrument on the table is connected to the system computer through a serial port or via the system LAN.

The system computer also runs application software provided by the manufacturers of the instruments in the system.

Some systems use one or more additional computers to run application software and to communicate with selected instruments. All computers are connected through a LAN.

- The container transport consists of the following components:
  - The Articulated Robot holds containers using gripper fingers and moves the containers between instruments. Articulated robots consist of 'linked joints' that rotate or slide to change the location of its gripper.
  - The C500C controller directs the motion of the robot arm and provides power and safety circuits. The controller is built into the base of the CataLyst Express.

**Note** The container transport also includes an E-Stop circuit into which instruments can be integrated. ▲

- The **serial expander** provides an interface through which instruments can perform serial communications with the system computer.
- The **GPIO expander** provides an interface through which the system computer can control digital outputs and respond to digital inputs. For example, an instrument with automatic doors can be interfaced through the GPIO expander, enabling the system computer to open and close the doors, and determine when the doors are open or closed.
- The **Master Control Panel** provides the system operator with an E-Stop button with which to cut power to the moving components in an emergency, and system and motor power status and reset buttons.

Your AR system may also include the following components:

- A **system LAN hub**, into which the network interfaces of the controllers, the system computer, and possibly some instruments are connected.
- A **Belkin KVM Switch** that enables the system keyboard and display to operate computers in the system LAN.
- **Uninterruptible power supplies** (UPS), which provide continuous power to the system. If an interruption occurs in the main power supply, the UPSs maintain power for up to 30 minutes.
- **Guarding**, consisting of plexiglass barriers that block access to moving parts of the transport.

For details about Dimension4 components, see the following topics:

- [“Power Input Requirements”](#) on page 1-8
- [“Fuse and Circuit Breaker Requirements”](#) on page 1-9
- [“Environmental Conditions”](#) on page 1-10

## Power Input Requirements

Controllers require the power inputs listed in [Table 1-2](#).

**Table 1-2.** Controller input power ratings

Description	Rating
Input voltage	110/115/230 VAC, $\pm 10\%$
Line frequency	50-60 Hz



**WARNING** The controller must be grounded! The AC cord supplied with the controller provides the proper grounding terminal. Do not cut off the third terminal from the AC cord set. ▲

## **Fuse and Circuit Breaker Requirements**

Refer to the *C500C Controller User Guide* or the *CataLyst Express User Guide* for fuse and circuit breaker requirements of AR controllers.

## Environmental Conditions

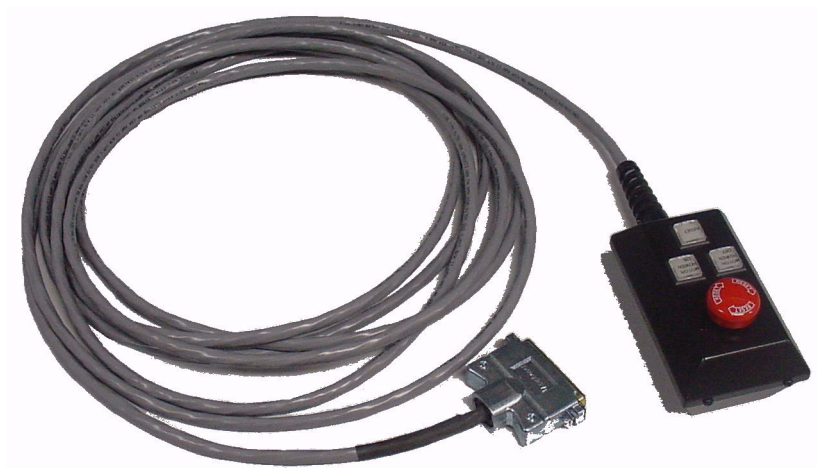
The CatX requires the environment conditions shown in [Table 1-3](#).

**Table 1-3.** CatX environmental requirements

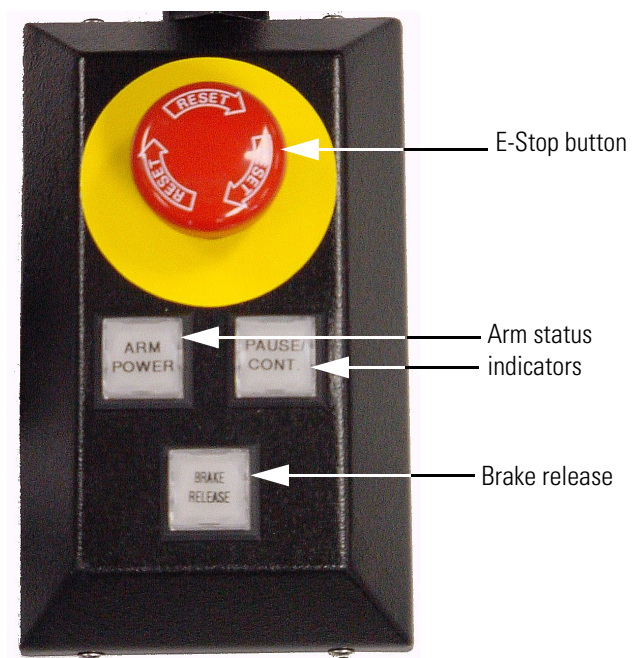
Environment Condition	Requirement
Relative humidity	Below 50%, non-condensing
Temperature	10-40 °C
Ventilation	A minimum of 11.5 cm (4.5 in.) clearance between the grills at the rear of the controller and your enclosure
Atmosphere	Clean, low dust; dry office/lab environment
Installation location	for INDOOR use only

## Master Control Panel

You use the Master Control Panel (MCP) to control power to the .  
The MCP consists of a small metal box connected to the .



**Figure 1-2.** The Master Control Panel (MCP)



**Figure 1-3.** MCP controls

The MCP provides the following system power functions:

## Introducing the System

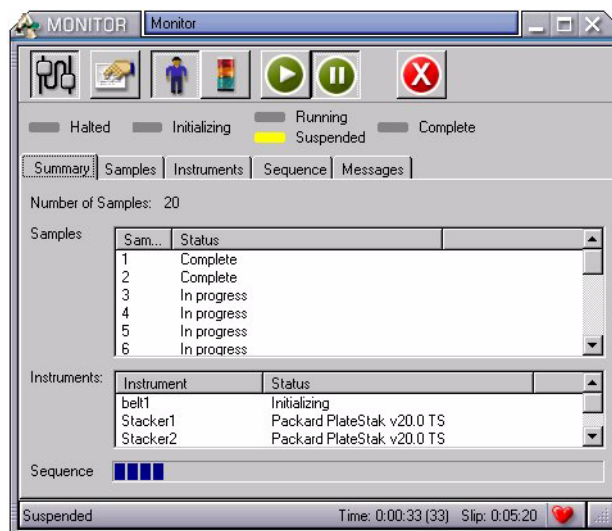
### Master Control Panel

- An **EMERGENCY STOP** (E-Stop) button that, when pressed, immediately cuts power to the robot arm (but not necessarily to the instruments)

To understand the Arm status indicators and Brake release button, refer to the “Using the E-Stop Control” section in your *Catalyst Express User Guide*.

## POLARA System Software

POLARA is an application for Microsoft Windows that provides Hospital for Sick Children CatX Workstation users with an easy to use graphical interface for operating and managing the system, and for developing and scheduling methods.



**Figure 1-4.** POLARA provides a graphical user interface to operate the system.

For details about using POLARA, read the POLARA user guide or choose **Contents** in the POLARA **Help** menu to display POLARA's online help.

## **CRS DataHandler Software**

The Hospital for Sick Children CatX Workstation system includes a Windows application called DataHandler that reads the data log.

Before a run in POLARA, go to the Site Parameters and ensure the correct validation and results directories are entered. See [“Starting a Run”](#) on [page 3-7](#).

## Chapter 2 Safe Use of the System

Before using the Hospital for Sick Children CatX Workstation, ensure that you and all operators of the system are familiar with the safety directives in this chapter.



**CAUTION** This manual describes the safe use of Thermo Electron components of the Hospital for Sick Children CatX Workstation system. Refer to the manufacturer's instructions for all other Instruments and devices in your system. ▲

For details, see the following topics:

- “Built-in Safety Features” on page 2-2
- “Ensuring Safe Use of the System” on page 2-3
- “Operating the System Safely” on page 2-5
- “Triggering an E-Stop” on page 2-7
- “Adding E-Stops to the System” on page 2-9

## **Built-in Safety Features**

The following safety features are standard for all POLARA Systems:

- Emergency Stop (E-Stop) buttons enable you to immediately halt container transport motion.
- The run-time Monitor window displays information during the progress of a run, including error messages and warnings.
- If POLARA detects that operator intervention is required during a run (for instance, if a non-standard container needs to be repositioned or removed), it suspends the run and alerts the operator.

The Hospital for Sick Children CatX Workstation system also includes the following safety features:

- Automatic telephone and e-mail paging notifies system personnel of error conditions that occur during a run.

## Ensuring Safe Use of the System

Before using the system, you must be trained in its safe use by Thermo Electron.

You must also have a thorough understanding of the following subjects:

- The operation of the POLARA software
- How to perform a run and monitor its progress
- How to safely operate the DM container transport
- How to safely operate each of the instruments on the table
- How to respond to warnings and error messages
- How to use E-Stop buttons
- How to recover the system after an E-Stop is triggered or a container mover error occurs

The user guides supplied with your system provide the information you need to understand these subjects. Read all of it before using a POLARA lab system.



**CAUTION** The AR container transport is not designed to handle volatile or flammable agents. Perform a risk analysis before the system is installed and determine whether your site requires safety measures (such as ventilation or guarding) in addition to those described in the following sections. ▲

When using the system, you must observe the following safety guidelines:

- **Do not allow untrained persons to control the system.**
- Any person who is authorized to operate the container transport must be fully trained in container transport safety and the use of container transport motion commands.
- Train any person who uses the laboratory system in the dangers and risks associated with each instrument and with the laboratory system as a whole.
- If the biological or chemical process that you are investigating involves hazardous materials, ensure that operators are aware of the dangers and take appropriate measures to minimize risks.

## Safe Use of the System

### Ensuring Safe Use of the System

- Any person who can approach the container transport hardware must be aware of the following rules:
  - Never place any body part within the reach of a mover when mover power is on. The mover can move unexpectedly at high speeds.
  - Do not touch automated components when the system is running.
  - Never operate the system if you believe any substance has dripped into or otherwise entered the container transport hardware.
- If the system is being serviced or modified, or is acting abnormally, ensure that it is clearly labeled as “Out of Service” to prevent accidental use.
- Following any change in lab system hardware, thoroughly test the changes and perform a sample run before making the system available for use.

## Operating the System Safely

Observe the following precautions when operating or approaching the system.



**This symbol, which is placed at several locations on the system, indicates pinch point hazards.** Avoid placing any part of your body near these locations when the system is online. ▲



**This symbol indicates a burn hazard.** There is a hot surface inside. Allow to cool before servicing. ▲

- Wear safety glasses when in the immediate vicinity of the system. These protect users from possible splashing of the contents of the microplates.
- When cleaning the waste chute, wear appropriate protective personal equipment, such as gloves, safety glasses, a lab coat, and a breathing apparatus.
- Keep loose clothing and long hair away from moving parts.
- Remove jewelry, such as rings, bracelets, and necklaces, before operating the system.

## **Understanding Warnings and Error Messages**

During runs, the system issues warnings and error messages when it encounters a condition that should be noted or corrected.

**Note** For details on how to respond to specific warnings and error messages, see “Setting Up and Performing a Run” in the POLARA online help or user guide. ▲

### **Warnings**

The system issues a warning when it encounters a condition that should be noted and reported but is not serious enough to warrant suspending the run. It alerts operators to a warning in the following ways:

- A warning appears in the Messages tab of the POLARA Monitor window and the Monitor warning status indicator turns yellow.

### **Error Messages**

The system suspends a run when it encounters an error that requires intervention. It alerts operators in the following ways:

- Depending on the type of error, a message box may appear on the screen.
- An error message appears in the Messages tab of the Monitor window and the Monitor error status indicator turns red.

## Triggering an E-Stop

In case of emergency, operators can quickly halt all container transport motion by triggering an emergency stop.



**WARNING** Other instruments may not stop moving when you trigger an E-Stop. Before you operate your POLARA system, ensure that you know how each instrument responds to an E-Stop. ▲

### To stop the system in case of emergency

- Strike the E-Stop button on the Master Control Panel.

The container transport halts, indicating that the system is waiting for manual intervention. When POLARA detects that a mover is no longer responding to commands, it suspends the run and displays a message to the operator.

You then have the option to abort the run or attempt recovery.

### To recover from an E-Stop

1. Inspect the system components. If any are physically damaged, recovery is not possible. Click **Abort** in the message box presented by POLARA.
2. Verify that it is safe for the run to continue:
  - Clean up any spills. If any containers have been misplaced or dropped, replace them as needed.
  - Check the integrity of the run. Some processes are extremely sensitive to temperature changes or contaminants. If necessary, take note of any samples which might have been affected.
  - Make sure the container transport work space is free of obstructions.
3. Twist the E-Stop button to reset it.
4. Press the ARM POWER button on the front panel of the CatalySt Express. The ARM POWER indicators on the front panel and the E-Stop control light.

## Safe Use of the System

### Triggering an E-Stop

5. At the system computer, click **Retry** (or any other option that will allow you to proceed). The run continues.

## **Adding E-Stops to the System**

To improve safety within your workcell, you can connect additional E-Stops. Refer to your *Catalyst Express User Guide* chapter “Catalyst Express Ports”.



## Chapter 3 Using the System

You perform runs on the Hospital for Sick Children CatX Workstation using POLARA. However, there are some requirements that must be met and tasks that must be performed outside of the POLARA operating environment. For details, see the following topics:

- “System Requirements” on page 3-2
- “Bringing the System Online” on page 3-3
- “Taking the System Offline” on page 3-5
- “Selecting the Computer to Operate” on page 3-6
- “Starting a Run” on page 3-7

## System Requirements

The Hospital for Sick Children CatX Workstation system requires specific levels of air pressure, electrical power, and user capabilities to function safely and reliably.

For details, see the following topics:

- [“Air Supply”](#) on page 3-2
- [“Electric Power”](#) on page 3-2
- [“User Capabilities”](#) on page 3-2

### Air Supply

The system requires an air supply of 80-100 psi.

### Electric Power

This system does not include UPSs monitored by POLARA so POLARA cannot warn users when power is failing. Users must monitor the site location power supply. To halt a run, see the “Halting a Run” section in the “Setting Up and Performing a Run” chapter of your *POLARA User Guide*.

### User Capabilities

Before operating this system, you must be trained in its safe use by Thermo Electron. For details on training offered by Thermo Electron, see [“Training”](#) on page 2 in the Preface.

You must also have a thorough understanding of the following subjects:

- How to use the POLARA software that controls the system. For details, see the POLARA user guide.
- How to safely operate each of the instruments on the table. For details, see the user guide supplied with each instrument.
- How to safely operate the container transport: the robot arm and its controller. For details, see [“Safe Use of the System”](#) on page 2-1.

## Bringing the System Online

Bringing the system online readies it for performing runs. To bring the system online, make the instruments and computers ready and test the Emergency Stops.

### To make instruments and computers ready

1. Confirm that the uninterruptible power supplies (if any) are receiving power from the main AC supply, as described in their documentation.
2. Turn on the air supply, if present, by rotating the air regulator valve clockwise until it reads “SUP”.
3. Power on the POLARA computer and all other instrument computers.
4. Power on all instruments.

### To test the Emergency Stops

1. Test the E-Stop chain by taking the following steps:
  - a. Press the E-Stop button on the Master Control Panel (MCP).
  - b. Inspect the movers. All mover power beacons should be OFF.



**CAUTION** If any mover power beacon remains lit when the E-Stop button has been pressed, do not finish bringing the system online! Inform all system users that the system is unavailable and contact Thermo Electron Customer Support immediately, as described in [“Contacting Thermo Electron Customer Support”](#) on [page 5-7](#). ▲

2. Reset the E-Stop button by twisting it clockwise until it pops up.
3. Press and hold the RESET button on the MCP until it turns green.
4. Press and hold the MOTOR POWER ON button on the MCP until it turns green.

5. Inspect the movers. All mover power beacons should be ON.



**CAUTION** If any mover power beacon remains OFF when MOTOR POWER ON button is green, do not operate the system! Inform all system users that the system is unavailable and contact Thermo Electron Customer Support immediately, as described in [“Contacting Thermo Electron Customer Support”](#) on [page 5-7](#). ▲

The system is now ready to perform POLARA runs.

**Note** Some runs require you to perform additional setup of some instruments. For details, see the setup instructions displayed by POLARA before each run. ▲

## Taking the System Offline

Taking the system offline brings it to a state in which only the UPSs (if any) remain powered.

### To take the system offline

1. Confirm that the system has completed all POLARA runs.
2. Exit POLARA by choosing Exit in the POLARA File menu.



**CAUTION Do not exit POLARA by shutting it down in the Windows Task Manager!** Doing so leaves some POLARA mover control components still running. ▲

3. Shut down each instrument as described in its documentation.
4. Remove all microtiter plates and other sample containers from the system.
5. Shut down the system and instrument computers.
6. Power off each controller by switching the POWER button to its '0' position.



**CAUTION If you disconnect the controller's AC power supply before all indicator LEDs on the controller are dark, you might corrupt the controller's system files!** The POWER button does not immediately remove power to the controller; it simply commands the controller to perform a shutdown. ▲

7. Turn off the system air supply by turning the air regulator valve counter-clockwise to the "OFF" position.

## Selecting the Computer to Operate

Some systems use additional, non-POLARA, computers to communicate with instruments and to run instrument software.

The Hospital for Sick Children CatX Workstation system has 2 additional computers connected in a LAN:

- Envision computer
- Evolution computer

The Belkin KVM Switch enables a single keyboard and display to operate the computers used in the system LAN. Each computer is connected to one of Port Numbers.

A computer must be powered on and correctly connected to select it. See the Belkin documentation for operation details. In brief, you can use any of following methods to select a computer Port Number:

- Press a front panel button on the Belkin KVM switch.
- Press the keyboard Scroll Lock twice and the Up or Down arrow key to switch to the previous or next Port Number, respectively.
- Press the keyboard Scroll Lock twice and a number key to select a specific Port Number.
- Press the keyboard Scroll Lock twice and the space bar to display a list of Port Numbers from which you can select a specific Port Number.

The computers are connected to Belkin Port Numbers as shown in [Table 3-1](#).

**Table 3-1.** Computer and Belkin Port Number mapping

Computer	Belkin Port Number
POLARA	1
Envision	2
Evolution	not connected to Belkin switch

## Starting a Run

To access POLARA, use the Belkin KVM switch to select the POLARA computer on Port Number 1 (see “[Selecting the Computer to Operate](#)” on [page 3-6](#)).

When the system is online, start the POLARA application and prepare the instrument software. To perform runs, refer to your *POLARA Guide*.

### To start POLARA

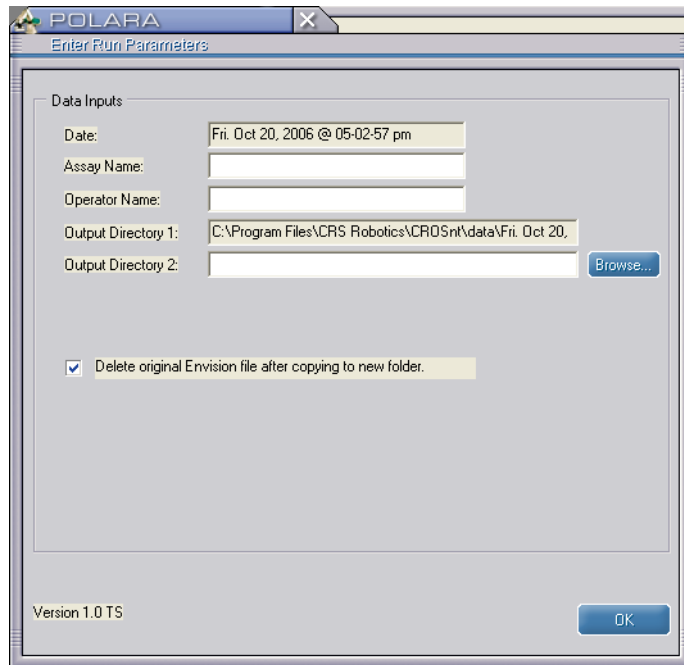
1. On the system monitor, use the Belkin switch to select the POLARA computer.
2. Use one of these methods to start POLARA:
  - In the Start Menu, choose Programs > CRS Robotics > POLARA V2.3.
  - Double-click the POLARA 2.3 icon on the Windows desktop.

**Tip** You can get help at any time in POLARA by choosing Contents in the POLARA Help menu. ▲

### To setup data validation

1. On the system monitor, use the Belkin switch to select the POLARA computer.
2. Start POLARA and in the **View** menu, choose **Options. . .** to display the **Options** dialog box.

3. Select the **General** tab to and click **Site Parameters** to display the Enter Site Parameters dialog box:



4. Enter or change the following information:
  - Assay Name
  - Operator Name
  - Output Directory 2, to put a copies of Envision output data files into another directory. Choose **Browse** to navigate to another directory.
5. Select **Delect original Envision file** to delete Envision data files between POLARA runs. The files are deleted only after they are copied to the output directories specified above.
6. Choose **OK**.

## Chapter 4 Maintaining the System

The system requires little daily maintenance other than inspection and cleaning. For system maintenance, see the *CataLyst Express User Guide* chapter called “Maintenance Procedures”.

For additional details, see the following topics:

- “Lockout/Tagout Procedures” on page 4-2
- “Monthly Maintenance” on page 4-3

## Lockout/Tagout Procedures

For electrical lockout, unplug the power cords from every instrument and controller.



**WARNING** Ensure your laboratory personnel use Lockout and Tagout procedures for air and electrical main connections during maintenance. ▲

For air lockout/tagout, turn off the air supply by rotating the air regulator valve. This also relieves the pressure in the system. Apply a lockout/tagout boot.

## Monthly Maintenance

Once every month, test the E-Stop chain to ensure that all movers and other components connected to the E-Stop chain have their power cut when the E-Stop is triggered.

### To test the E-Stop chain

1. Take the system off-line, as described in [“Taking the System Offline”](#) on [page 3-5](#).
2. Bring the system online, as described in [“Bringing the System Online”](#) on [page 3-3](#).



## Chapter 5 Troubleshooting

For troubleshooting procedures, see the “Troubleshooting” chapter in your *Catalyst Express User Guide*. For capturing problem data and error messages prior to getting help, see:

- “Recovering from a Mover Collision” on page 5-2
- “Getting Help” on page 5-3

## Recovering from a Mover Collision

If a mover collides with an object, its controller removes power to the mover. When POLARA detects that a mover is no longer responding to commands, it suspends the run and displays a message to the operator.

### To recover from a mover collision



**WARNING** Ensure containers are replaced or repositioned so that wells are correctly located. For example, if a dispenser fills wells differently by column, be sure to position the A1 well as required by your assay. ▲

1. Inspect the mover and other system components for physical damage.
2. **If any damage has occurred**, click **Abort** in the POLARA message window to abort the run. Contact Electron Customer Support as described in [“Getting Help”](#) on page 5-3.
3. If a container has become misaligned in the gripper, take the following steps:
  - a. Restore power to the arm.
  - b. Start CROSnt (see the topic “Starting CROSnt” in the “Defining Motion in AR Workspaces” chapter of your *POLARA Administrator Guide*).
  - c. Start ash for the instrument where the collision occurred.
  - d. With a trained user standing by to catch the container, open the gripper with the go command.
  - e. If necessary, move the arm away from the instrument so that the gripper is outside the instrument nest. Limp the arm or use joint commands very carefully to move the arm.
  - f. Move the arm to the instrument’s *safeloc* location.
  - g. Follow instructions in the POLARA message window for placing containers.
4. **If a container is out of position from its nest**, and if it is still eligible to be processed in the run, replace or reposition the container in the nest.
5. Click **Resume** in the POLARA message window to resume the run.

## Getting Help

You can speed the resolution of any problems you might have with your system by performing the following steps:

- “Preparing to Contact Thermo Electron” on page 5-3
- “Gathering Problem Data” on page 5-4
- “Capturing System Error Messages” on page 5-5
- “Contacting Thermo Electron Customer Support” on page 5-7

## Preparing to Contact Thermo Electron

You can get your system back up and running more quickly if you can collect crucial information before contacting Thermo Electron Customer Support.

### To prepare to contact Thermo Electron Customer Support

1. Gather problem data. For details, see “Gathering Problem Data” on page 5-4.
2. E-mail any relevant files or information to `services.labautomation@thermo.com`
  - Include a description (or screen captures) of any errors or messages reported by the system. For details on how to capture messages, see “Capturing System Error Messages” on page 5-5.
  - Include a brief description of the circumstances surrounding the failure.

**Tip** E-mailing supporting information to Customer Support before telephoning can help them troubleshoot your problem more quickly. ▲

## Gathering Problem Data

By providing detailed information about the circumstances of the problem, you can help the Thermo Electron Customer Support Group to identify the cause more quickly, leading to a faster resolution.

### To gather problem data

1. Make a screen capture of any error messages that appear during system startup and shutdown. See “[Capturing Graphics](#)” on [page 5-6](#).

2. Try to repeat the problem and capture any error messages that occur.

**Tip** If you cannot engage arm power, make sure that all devices in your E-Stop chain are closed. If you still cannot engage arm power, it is likely that you have a mechanical problem with the mover. ▲

3. Make copies of the POLARA log files as described in your *POLARA User Guide* in section “Making Backup copies of POLARA Logs” in the chapter “Getting Help with POLARA”.
4. Use a compression package like WinZip or Stuffit to zip screen captured images, text files, and log files. They reduce the total file size, making it much easier to e-mail.

## Capturing System Error Messages

It can be useful to capture system error messages to provide a record of the problem.

For details, see the following topics:

- “Capturing Text” on page 5-5
- “Capturing Graphics” on page 5-6

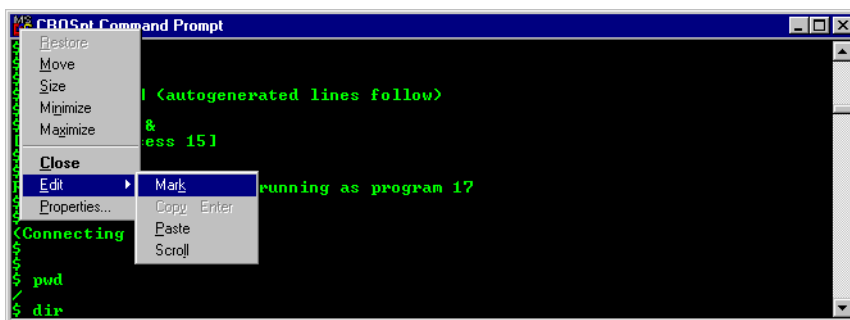
### Capturing Text

If the message is displayed as text in the CROSNt window, it is most convenient to copy it and paste it into a text editor such as Notepad.

**Tip** Saving a message as text makes it easier to read. The file size is also much smaller than for a graphic screen capture. ▲

### To capture text from CROSNt

1. Right-click in the title bar of the CROSNt window. You will see the following menu.



2. Choose **Edit > Mark**. Your cursor changes to a solid cursor. Scroll up to the top of the window, then click and drag with your mouse to highlight a section. When you have selected the text that you want, press **Enter**.
3. Open Notepad (or another text editor). In the **Edit** menu, choose **Paste** to paste the text from the CROSNt window.
4. Save the text file.

## **Capturing Graphics**

If the message is displayed as part of a dialog box or window, you can use Windows' print screen function to capture it and paste it into another program.

### **To perform a screen capture**

1. With the message box (or window) that you want to capture displayed on screen, press Ctrl+PrintScreen.
2. On the Windows Start Menu, choose Programs > Accessories > Paint to open the Microsoft Paint program.

**Tip** You can paste the image into any Microsoft program, including Microsoft Word and Outlook mail. Paint generally provides a smaller file, when zipped. ▲

3. In the Paint Edit menu, choose Paste. Do not stretch or re-size the image as this will make it hard to read.
4. In the Paint File menu, choose Save. Use the Save As dialog box to choose an appropriate directory and enter a filename for the image.

**Tip** To minimize file size, save it as a JPEG (.jpg) or use a compression package like WinZip or Stuffit to zip screen captured images. The latter reduces the file size by about 90%, making it much easier to e-mail. ▲

## **Contacting Thermo Electron Customer Support**

The Thermo Electron Customer Support Group can be reached by telephone, fax, or e-mail from 8 am to 5 pm, EST.

**To telephone** 1-905-332-2000 (voice)  
1-800-365-7587 (voice: toll free in Canada and United States)

**To fax** 1-905-332-1114 (facsimile)

**To e-mail** Customer Support: [services.labautomation@thermo.com](mailto:services.labautomation@thermo.com)



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