Axiom II Program Installation Procedures

03/04/2014 Mike Ghan

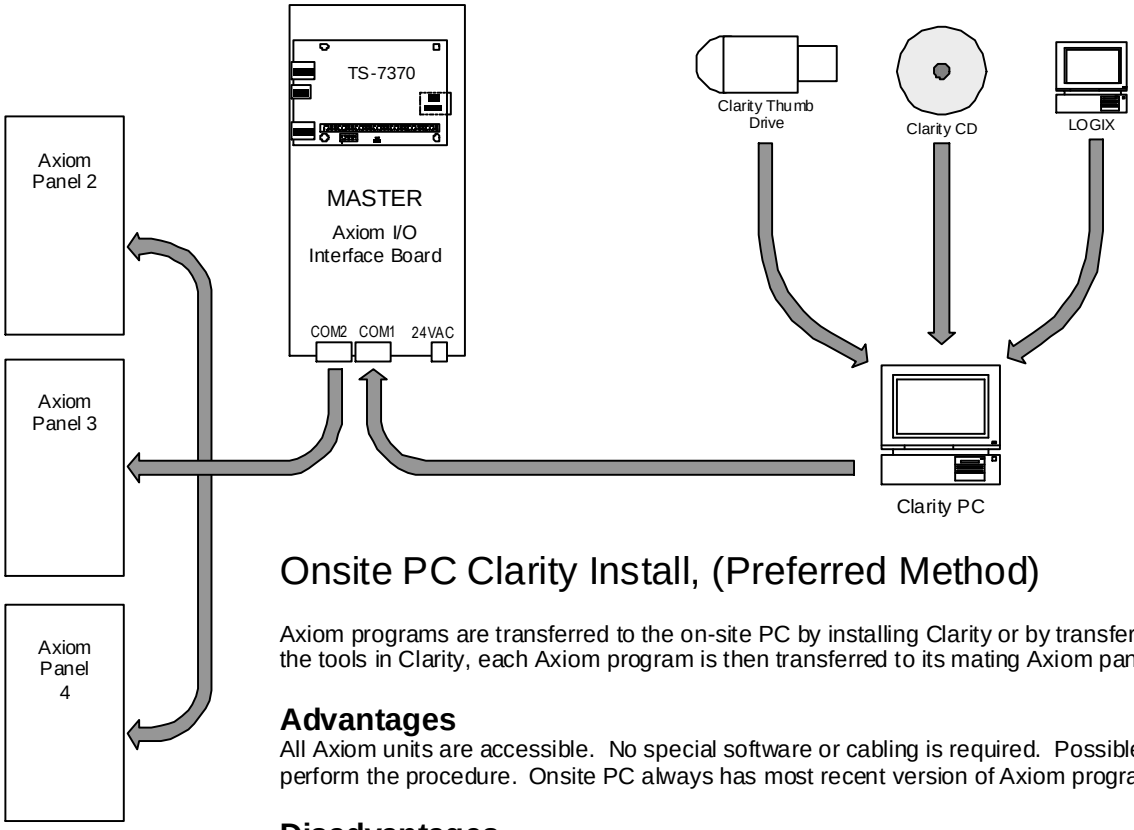
Overview

Each Axiom II panel features “Flash” memory in which the panel’s program is stored. Flash memory is a proven technology which retains its contents even when power is removed. The Axiom controller is very flexible and allows for multiple methods in which to install programs into its flash memory.

Typically Method 1 (*Download from On-site Clarity PC*) is used to update Axiom programs. Method 2 (*Axiom On-site Recovery Mode*) is used primarily to install the Axiom Master’s program for the first time. Method 3 (USB Flash Drive) allows sending an Axiom program update to a stand-alone Axiom panel (ex Axiom panel without Modem or PC communications).

Each installation method is accompanied by a diagrams depicting the “flow” or movement of the Axiom program into the Axiom’s flash memory. For example, Method 1 (*Download from On-site Clarity PC*) depicts the Axiom program(s) moving from the Clarity CD, into the on-site PC, into the Master Axiom, and, for remote Axiom programs, finally into the remote panels.

Method 1 (Preferred): Download from On-site Clarity PC



Onsite PC Clarity Install, (Preferred Method)

Axiom programs are transferred to the on-site PC by installing Clarity or by transfer from Logix. Using the tools in Clarity, each Axiom program is then transferred to its mating Axiom panel.

Advantages

All Axiom units are accessible. No special software or cabling is required. Possible for an end-user to perform the procedure. Onsite PC always has most recent version of Axiom programs.

Disadvantages

Since an Axiom program must be running on the Axiom master panel, this method can not be used for the very first install of a new system - only for subsequent program updates. May not be pratical if on-site PC can not be setup (contruction delays etc).

Description

All Axiom programs are first transferred to the on-site PC by installing Clarity or by transfer from Logix. When Clarity is installed, a copy of each Axiom's program is also installed in Clarity's Data directory. For example an Axiom Master program's file name is `C:\Logix\Albertson's_Portland_OR\DATA\ALPOMAST.BIN`. Using the tools in Clarity, each Axiom program is then transferred to its mating Axiom panel. This method requires the Axiom Master to have a functioning program. Use Method 2 (*Axiom On-site Recovery Mode*) to install the Axiom Master's program for the first time.

Advantages

All Axiom panels are accessible. No special software or cabling is required. Possible for an end-user to perform the procedure. This method insures the on-site PC always has most recent version of each Axiom program for installation at a later date, if required.

Disadvantages

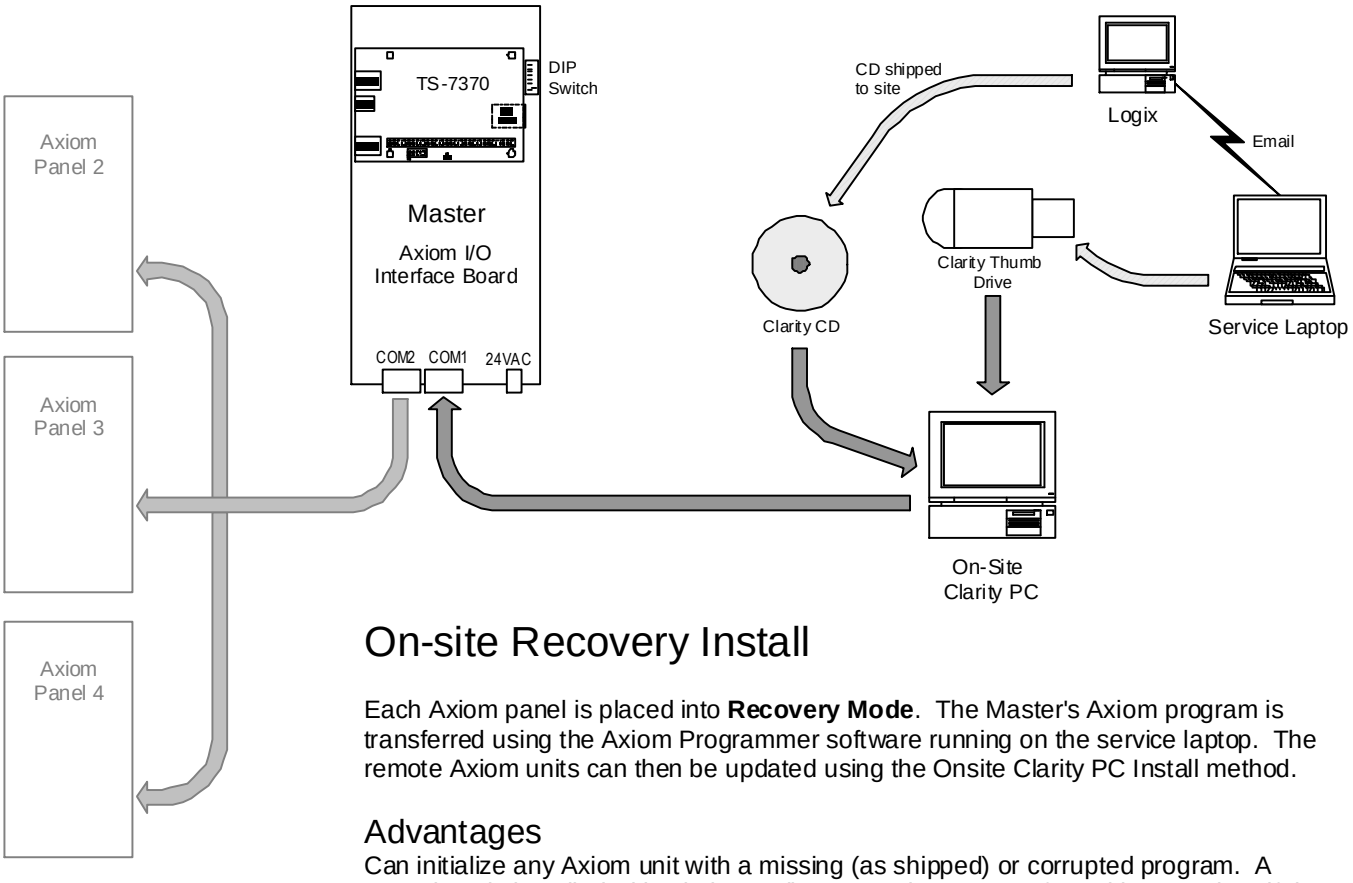
Since an Axiom program must be running on the Axiom Master panel for Clarity to connect, this method can not be used for the very first install of the Axiom Master program in a new system - only for subsequent program updates. Use Method 2 (*Axiom On-site Recovery Mode*) for the initial installation of the Master Axiom program. Also, this method may not be practical if on-site PC can not be setup (construction delays etc).

Procedure

WARNING: Do Not Remove Power or Reset the Axiom Panel During Software Update or the Axiom Program will Become Corrupted and the Axiom Panel will Cease to Operate.

1. If necessary, stop all controlled equipment in an orderly fashion.
2. Record all current operating setpoints for re-entry after software installation. If the new program code includes certain setpoint additions or deletions, those operating parameters will be erased.
3. Install updated Clarity software or coordinate on-line update with Logix.
4. Initiate the Axiom Program Download and Flash sequence for the Axiom Master by selecting the menu item **`Additional>Master Diagnostics>Controller Diagnostics>Download and Flash Program`**.
   a. During the first step of the automatic sequence, the Axiom program will be transferred from the Clarity PC to the Axiom panel. A status window will indicate the progress of the transfer.
   b. During the next step of the automatic sequence, the Axiom program will be stored into the panel's Flash device. During this phase, the Axiom Alive LED will remain illuminated and will not blink until the program is stored into the Flash device. A status window will display the Flash status.
   c. During the last step of the automatic sequence, the Axiom panel will restart (reboot) to execute the newly downloaded program.
   d. While uncommon, if any errors are indicated during this procedure, simply repeat the procedure.
5. Verify the microcontroller resumes normal operation by observing the **ALIVE** LED near the left edge of the Axiom main board: it should blink steadily once second on, one second off.
6. Verify all setpoints. Some or all may have been reset to factory defaults.
7. Repeat step 4 through 6 for each Axiom remote panel by selecting the menu item **`Additional>Panel # - (description)>Diagnostics/Other>Controller Diagnostics>Download and Flash Program`**.

Method 2: Axiom On-site Recovery Mode



On-site Recovery Install

Each Axiom panel is placed into **Recovery Mode**. The Master's Axiom program is transferred using the Axiom Programmer software running on the service laptop. The remote Axiom units can then be updated using the Onsite Clarity PC Install method.

Advantages

Can initialize any Axiom unit with a missing (as shipped) or corrupted program. A menu item is installed with Clarity to allow an end-user to perform this procedure if the Axiom master becomes corrupted or is replaced.

Disadvantages

Complicated procedure.

Description

All Axiom panels are shipped without a program and must be initially programmed using Axiom's *Recovery Mode*. To initially install the Axiom's program during commissioning or to recover from program corruption, an Axiom panel can be configured with a DIP switch to execute a *Recovery* operation. The procedure differs between Master and Remote Axiom panels. A Master panel must have its normal Axiom program operational before a Remote panel can perform a *Recovery* operation. In Recovery Mode, an Axiom panel simply waits for its program to be downloaded and written to its Flash memory. Special **Axiom Programmer** software is run on the on-site PC. The on-site PC utilizes the same physical network connection as Clarity (Clarity must be shutdown during this procedure).

The Master's Axiom program is first transferred using the **Axiom Programmer** software running on the on-site PC. All the remote Axioms can then be updated using Method 1.

Advantages

Can initialize any Axiom panel without a program (as shipped) or with a corrupted program. A menu item is installed when Clarity is installed to allow an end-user to perform this procedure if the Axiom master becomes corrupted or is replaced.

Disadvantages

Somewhat complex procedure.

Procedure

An Axiom program is first transferred to the Axiom panel and then written to Axiom program Flash memory using the following procedure.

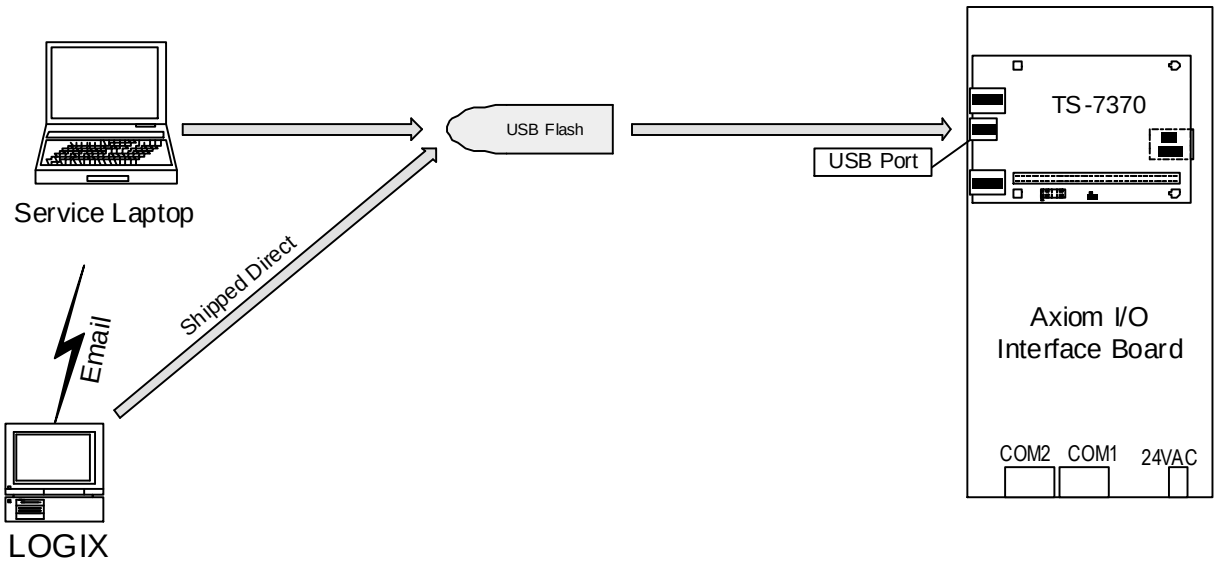
Master Recovery Procedure

1. Prepare the Master panel for Recovery mode by noting the current setting of the DIP switches on the Master Axiom I/O Interface board. Normally they are all **Off**.
2. Set the DIP switches on the Axiom I/O Interface board as follows: Turn all switches **Off** except switch 7 which should be **On**.
3. Reset the Master panel by pushing the Reset button located on the right edge on the Axiom I/O Interface board just below the battery. The Master panel will enter Recovery mode as indicated by the following "Alive" LED blink pattern: one long blink followed by 2 short blinks.
4. Restore the DIP switches on the Axiom I/O Interface board as noted in step 1 above.
5. Exit Clarity, if running, by selecting **File>Exit Program** from the main menu.
6. Start Axiom Programmer software. The Axiom Programmer software will be accessible through the Windows Start button:
   `Start>Programs>Logix Clarity (name)>Update Axiom Master Program`.
7. The **Logix Axiom Programmer** dialog will prompt for a communications port. This is often **COM1** but may vary by installation. If an incorrect comm port is selected, the dialog will alert you to reselect a different comm port.
8. The Axiom Master's program file will be automatically pre-selected. Use **Select Program File** to select a different Axiom program overlay file if required.
9. Select **Flash** to begin the Recovery operation. Do not interrupt the procedure once it has begun.
10. When the Recovery operation has completed, the **Logix Axiom Programmer** dialog will close automatically. This may take a minute or more. A status line in the dialog will display the current operation.
11. The Axiom Master should begin normal operation. After approximately 10 seconds, the **Alive** LED near the left edge Axiom I/O Interface board should blink steadily one second on, one second off. This indicates normal program operation.
12. Restart Clarity on the on-site PC. Communications between Clarity and the Axiom Master should be established within 15 seconds.

Remote Recovery Procedure

1. Prepare the Remote Axiom panel for Recovery mode by noting the current setting of the DIP switches on the Axiom I/O Interface board.
2. Set the DIP switches on the Axiom I/O Interface board as follows: Turn switch 8 **off** and switch 7 **on**. Switches 1 through 6 are set according to the **Panel Datacomm Address** table (refer to page 9).
3. Reset the Remote panel by pushing the Reset button located on the right edge on the Axiom I/O Interface board just below the battery. The Remote panel will enter Recovery mode as indicated by the following "Alive" LED blink pattern: one long blink followed by 2 short blinks.
4. Restore the DIP switches on the Axiom I/O Interface board as noted in step 1 above.
5. Verify the Master Axiom panel is communicating with the Remote Axiom panel by observing activity on both the **COM2 Tx** and **COM2 Rx** LEDs located on the left edge on the Axiom I/O Interface board next to the **ALIVE** LED. Allow approximately 30 seconds after resetting panel.
6. Continue updating the remote program using Method 1.

Method 3: USB Flash Drive



USB Flash Drive Install

The panel's Axiom program is transferred using a USB Flash Drive.

Advantages

Standalone panels can be programmed. Can initialize any Axiom panel with a missing (as shipped) or corrupted program. Panels can be programmed before the Axiom networks are wired.

Disadvantages

Requires special software to load Axiom software onto USB Flash Drive. Not convenient.

Description

The panel's Axiom program is transferred using a USB Flash Drive (“Thumb Drive”).

Advantages

Standalone panels can be programmed. The USB Flash Drive can be loaded and shipped for installation by an end-user without the need of a laptop or PC. Can initialize any Axiom panel with a missing (as shipped) or corrupted program. Panels can be programmed before the Axiom networks are wired.

Disadvantages

Requires special software to load Axiom software onto USB Flash Drive. On-site PC (if any) will not have the most recent version of Axiom programs. Copying operation is time consuming.

Procedure to Update a USB Flash Drive with an Axiom II Program

Use this procedure to copy an updated Axiom II program to the USB Flash Drive in preparation for installation into an Axiom panel. The Axiom program is typically emailed by Logix to the job site.

1. Start Axiom Compact Flash Copy software accessible with the Windows Start button under **Start>Programs>Logix Axiom II Tools>Copy Axiom II Program to USB Drive**.
2. Insert the USB Flash Drive into the PC/Laptop's USB port.
3. Select Axiom Program file supplied by Logix.
4. Select USB Drive (ex E:) from dialog.
5. Select Copy to copy the file to the USB Flash Drive.
6. Using Windows Explorer, right click on drive icon and select "Eject" to prepare the USB Flash Drive for removal.
7. Remove USB Flash Drive from the USB port.
8. Continue with the next procedure to transfer the program from the USB Flash Drive to the Axiom panel.

Procedure to Install an Axiom Program using a USB Flash Drive

Once a USB Flash Drive is loaded with the Axiom program it is ready to be used to install the program into the Axiom panel.

1. Insert the USB Flash Drive into the Axiom II processor's USB slot. See diagram above.
2. Reset the Axiom II panel.
3. The processor card will recognize the USB Flash Drive and begin transferring the Axiom program on it to the Axiom's Flash memory.
4. Observe the amber LED on the bottom edge of the TS-7370 processor circuit board. Wait for a steady one second on, one second off blink pattern. This may take as long as one minute to occur. Do not interrupt the process or the flash memory will become corrupted rendering the Axiom panel inoperable.
5. Remove USB Flash Drive from the TS-7370 processor card.
6. The Axiom panel will restart automatically and run the updated Axiom program. Verify the Alive LED is blinking normally, one second on followed by one second off.

Axiom DIP Switch Definitions

Switch#		
8	7	Operation
Off	Off	Normal Operation, switches 1-6 can determine panel address. See the **Panel Datacomm Address** table below.
Off	On	Recovery Mode, switch 8 **Off**, switch 7 **On**, switches 1-6 **will** determine panel address. See the **Panel Datacomm Address** table below. Set switches 1-6 **Off** for Master Recovery.
On	Off	Set Defaults, switch 8 **On**, switch 7 **Off**, switches 1-6 determine type of operation: Set switches 1-6 **On** to set Factory Default Setting. Set switch 1 **Off**, switches 2-6 **On** to clear analog sensor calibration. Set switch 2 **Off**, switches 1, 3-6 **On** to set default digital logic type (reversed or normal). Set switches 1 and 2 **Off**, switches 3-6 **On** to initialize Service (OEM) Passwords. Set switch 3 **Off**, switches 1-2, 4-6 **On** to remove all screen password access overrides. Set switches 1 and 3 **Off**, switches 2, 4-6 **On** to set Default IP Address, Netmask and Gateway
On	On	XTL Programmer Link, switches 7 & 8 **On**, switches 1-6 can determine panel address. See the **Panel Datacomm Address** table below. For use by Logix only.

Axiom Panel Datacomm Address DIP Switch Positions 1-6

	DIP Switch Position							DIP Switch Position							DIP Switch Position							DIP Switch Position						
Panel#	6	5	4	3	2	1	Panel#	6	5	4	3	2	1	Panel#	6	5	4	3	2	1	Panel#	6	5	4	3	2	1
Master	Off	Off	Off	Off	Off	Off	17	Off	On	Off	Off	Off	On	33	On	On	Off	Off	Off	On	33	On	On	Off	Off	Off	On
2	Off	Off	Off	Off	Off	On	18	Off	On	Off	Off	Off	On	34	On	On	Off	Off	Off	On	34	On	On	Off	Off	Off	On
3	Off	Off	Off	Off	On	Off	19	Off	On	Off	Off	On	Off	35	On	On	Off	Off	On	Off	35	On	On	Off	Off	On	Off
4	Off	Off	Off	Off	On	On	20	Off	On	Off	Off	On	On	36	On	On	Off	Off	On	On	36	On	On	Off	Off	On	On
5	Off	Off	Off	On	Off	Off	21	Off	On	Off	On	Off	Off	37	On	On	Off	On	Off	Off	37	On	On	Off	On	Off	Off
6	Off	Off	Off	On	Off	On	22	Off	On	Off	On	Off	On	38	On	On	Off	On	Off	On	38	On	On	Off	On	Off	On
7	Off	Off	Off	On	On	Off	23	Off	On	Off	On	On	Off	39	On	On	Off	On	On	Off	39	On	On	Off	On	On	Off
8	Off	Off	Off	On	On	On	24	Off	On	Off	On	On	On	40	On	On	Off	On	On	On	40	On	On	Off	On	On	On
9	Off	Off	On	Off	Off	Off	25	Off	On	On	Off	Off	Off	41	On	On	On	Off	Off	Off	41	On	On	On	Off	Off	Off
10	Off	Off	On	Off	Off	On	26	Off	On	On	Off	Off	On	42	On	On	On	Off	Off	On	42	On	On	On	Off	Off	On
11	Off	Off	On	Off	On	Off	27	Off	On	On	Off	On	Off	43	On	On	On	Off	On	Off	43	On	On	On	Off	On	Off
12	Off	Off	On	Off	On	On	28	Off	On	On	Off	On	On	44	On	On	On	Off	On	On	44	On	On	On	Off	On	On
13	Off	Off	On	On	Off	Off	29	Off	On	On	On	Off	Off	45	On	On	On	On	Off	Off	45	On	On	On	On	Off	Off
14	Off	Off	On	On	Off	On	30	Off	On	On	On	Off	On	46	On	On	On	On	Off	On	46	On	On	On	On	Off	On
15	Off	Off	On	On	On	Off	31	Off	On	On	On	On	Off	47	On	On	On	On	On	Off	47	On	On	On	On	On	Off
16	Off	Off	On	On	On	On	32	Off	On	On	On	On	On	48	On	On	On	On	On	On	48	On	On	On	On	On	On