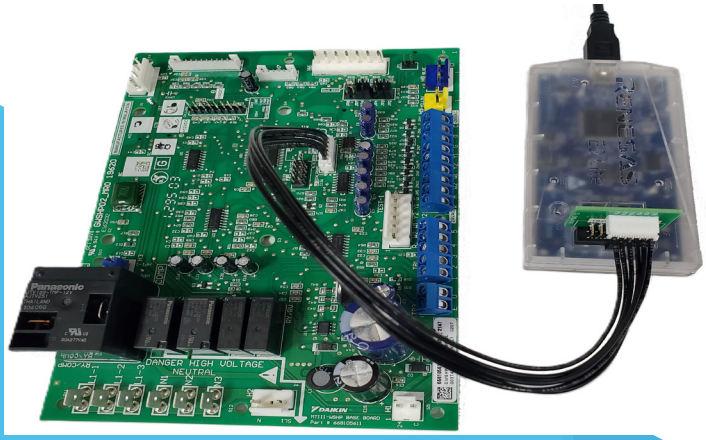
OM 1085-9
JULY 2024

MICROTECH® III WATER SOURCE HEAT PUMP UNIT CONTROLLER

MTIII WSHP SOFTWARE DOWNLOAD AND CONFIGURATION

- WSHP UNIT CONTROLLER
- I/O EXPANSION MODULE
- BACNET® AND LONWORKS® COMMUNICATION MODULE



- MODELS: GSH/GSV, GTH/GTV, GCV SMARTSOURCE® SINGLE AND TWO STAGE COMPRESSOR
- CCH/CCW, LVC/LVW, MHC/MHW, VFC/VFW, VHC/VHF ENFINITY® SINGLE STAGE COMPRESSOR
- CCH/CCW AND LVC/LVW ENFINITY® LARGE TWO COMPRESSOR

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General Information

Description

This manual describes how to download and configure the MicroTech® III water source heat pump (WSHP) unit controller, I/O expansion module, and network communication software. It also explains what programming tools are needed to install and verify that the correct software has been installed correctly.

It is assumed that the unit controller and optional modules have been installed and are functioning properly. If necessary, refer to the Reference Documents section for installation manual details.

This guide is organized into four main sections:

1. WSHP Unit Controller and I/O Expansion Module
2. BACnet Communication Module
3. LonWorks Communication Module
4. Troubleshooting Guide and FAQ
5. Appendix: Legacy Programmers

Hazardous Information Messages

DANGER

Danger indicates a hazardous situation, which will result in death or serious injury if not avoided.

⚠ WARNING

Warning indicates a potentially hazardous situations, which can result in property damage, personal injury, or death if not avoided.

⚠ CAUTION

Caution indicates a potentially hazardous situations, which can result in minor injury or equipment damage if not avoided.

NOTICE

Notice indicates practices not related to physical injury.

NOTE: Indicates important details or clarifying statements for information presented.

Reference Documents

Number	Company	Title	Source
OM 931	Daikin Applied	MicroTech III Water Source Heat Pump Enfinity Single Stage Compressor Unit Controller Operation and Maintenance Manual	www.DaikinApplied.com
OM 1149		MicroTech III Water Source Heat Pump SmartSource Single & Two Stage Compressor (Series2) Unit Controller Operation and Maintenance Manual	
OM 1239		MicroTech III Water Source Heat Pump Enfinity Large Two Compressor (SS2C) Unit Controller Operation and Maintenance Manual	
OM 1254		Daikin Applied System Manager Operation Manual	
IM 927		MicroTech III Water Source Heat Pump LonWorks Communication Module Installation Manual	
IM 928		MicroTech III Water Source Heat Pump BACnet Communication Module Installation Manual	
ED 15103		MicroTech III Water Source Heat Pump Unit Controller Protocol Information Manual	

Terminology

- **MicroTech III Unit Controller:** The baseboard attached to the WHSP which is downloaded with the most current version of application software for unit operation. The terms **MicroTech III or MTIII** are also used to reference the I/O expansion module and communication modules in addition to the baseboard.
- **I/O Expansion Module:** Optional daughter board that provides additional input/output capability for secondary compressor, multiple speed fan, secondary heating, and dehumidification control. The I/O expansion module is attached directly to unit controller when these options have been selected with the unit.
- **Custom Interface Cables***:* Two different cable kit assemblies have been designed by Daikin for use with the programming tools needed to download software to the baseboard part number 668105611 or I/O expansion module part number 668105711. One cable assembly supports the Renesas E2 Lite/E1 programmer. A separate (but similar) cable assembly supports the Renesas E8a programmer. Each custom cable assembly includes a small PCB with 14-pin port for connection to the Renesas programmer and either a 6-pin or 10-pin port (depending on WSHP controller hardware version) for connection to the baseboard or I/O expansion module.
- **JTAG:** The hardware interface required for downloading older versions of unit controller and I/O expansion module software. JTAG refers to both the connector port attached to the unit controller as well as the cable used to download software to the BACnet communication module.

- **Renesas Flash Programmer (RFP) Tools:** The software used with the Renesas E2-Lite or E1 hardware. The RFP is used to program the R5F101FE MCU on WSHPs with hardware PNs 668105611 and 668105711.
- **.rpj File:** The project file type used used to specify the RFP software configuration settings.
- **Renesas Flash Development Toolkit (FDT):** The software used with the Renesas E8a hardware to program the obsolete 740 family of Renesas microcontrollers. The FDT supports the M38507F8A MCU used on WSHPs with hardware PNs 668105601 and 668105702.
- **Segger Flasher Tools** (Obsolete): The software used with the Segger Flasher5 hardware to program the 740 family of legacy Renesas microcontrollers. Flasher5 supports the M38507F8A MCU used on WSHPs with hardware PNs 668105601 and 668105702.
- **Segger J-Link / Atmel SAMBA Tools**: The software used with the Segger J-Link / Atmel SAM-ICE hardware to program the BACnet communication module microcontroller used on FCU/WSHP hardware PN 668105901.
- **.hex File**: The unit controller baseboard or I/O expansion module software file. A separate .hex file is required for each board.
- **.mot File**: The unit controller baseboard or I/O expansion module software file. A separate .mot file is required for each board.
- **.bin File:** The BACnet communication module firmware**.**
- **.nxe File**: The LonWorks communication module firmware.
- **U-10:** The network inteface hardware used for LonWorks communication module software downloading.
- **MCU:** Refers to the microcontroller unit chip. It uses embedded Flash memory to store and execute the application.

Getting Started

This section describes the hardware and software tools needed to download and configure a MicroTech III WSHP unit controller. These instructions are based on downloading the latest version of SmartSource® WSHP code. The same tools and set-up procedures apply to Enfinity® and Enfinity Large Two-Compressor WSHPs; the only difference is the software application file. Refer to Table 1 for hardware and software part numbers and Table 2 for specifications.

NOTE: The controls hardware/software part numbers are described as "Legacy" for the older versions and "Current" for the latest (and final) MicroTech III software version.

Table 1: MicroTech III WSHP Part Numbers

	Unit Controller (Baseboard)	IO Expansion Board
Current Unit Controls		
Hardware	668105611	668105711
Software		
Enfinity	2508085–01–1	2508086–01–0
SmartSource	2508078–01–1	2508079–07–0
Enfinity Large Two-Compressor	2508088–01–1	2508089–01–0
Legacy Unit Controls		
Hardware	668105601	668105702
Software		
Enfinity	2506900–03–2	2506901–03–0
SmartSource	2508060–06–2	2508061–06–2
Enfinity Large Two-Compressor	2508069-01–1	2508070–01–0

Table 2: Specifications

MT III WSHP (Current) PN: 668105611	MT III WSHP (Legacy) PN: 668105601
Renesas Programmer Device	
Renesas RL78/G13 Family MCU	Renesas 740 Family MCU
Model R5F101FE with 64KB Flash, 4KB RAM	Model M38507F8A with 32KB Flash, 1KB RAM
Use Renesas E2 Lite or E1 (discontinued) programmer and USB supplied with kit. USB driver requires the Renesas Flash Programmer (RFP) software as described in Table 7	Use Renesas E8a programmer and USB supplied with kit. USB driver requires the Flash Development Toolkit Basic software as described in Table 7
Interface Cable	
Programming requires an additional interface cable as shown in	Programming requires an additional interface cable as shown in Figure 9
Interface cable is custom supplied by board manufacturer	Contact the ATS Technical Response Team at 315-282-6434 to acquire additional interface cable
Power	
Unit controller baseboard: 24 VAC	
General Notes	
CN_PGRM port located on baseboard and I/O expansion board is used only for programming	JTAG port on baseboard and I/O expansion board is used only for programming and service serial port diagnostics
SERVICE port on baseboard and I/O expansion board is used only for serial port diagnostics	
Program/Run jumper not used	Program/Run jumper is used

MicroTech III WSHP Software Compatibility

There are four WSHP unit models supported by MicroTech III controls. The software application is specific to the unit model. See Table 3 - Table 6 for compatibility among the unit models, hardware part numbers, and software versions. Figure 1 (Enfinity) and Figure 2 (SmartSource) show the software label as it is applied on two different vintages of the unit controller. This label indicates the version of factory-installed code.

Table 3: Software Compatibility – Enfinity Single Speed Compressor Models

WSHP Unit Controller Models MHC/MHW, CCH/CCW (5-Ton or Less), VFC/VFW, VHC/VHFW											
			Baseboard - Current Software: 2508085 Hardware: 668105611	Baseboard - Legacy Software: 2506900 Hardware: 668105601							
Auxiliary Board	**Part Number**	**Version**	**v1.1**	**v2.5**	**v2.6**	**v2.7**	**v2.8**	**v2.9**	**v3.0**	**v3.1**	**v3.2**
I/O Expansion Module	**Legacy Software: 2506901 Hardware: 668105702**	v2.4	No	Yes	No	No	No	No	No	No	No
		v2.6	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		v2.8	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		v3.0	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Current Software: 2508086 Hardware: 668105711	v1.0	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BACnet Module	**Software: 2506903 Hardware: 668105901**	v2.5[1]	Yes[4]	Yes	Yes	Yes	Yes	Yes	Yes	Yes[4]	Yes[4]
		v2.7[1]	Yes[4]	Yes	Yes	Yes	Yes	Yes	Yes	Yes[4]	Yes[4]
		v2.8[1]	Yes[4]	Yes	Yes	Yes	Yes	Yes	Yes	Yes[4]	Yes[4]
		v3.0[1]	Yes[4]	Yes[3]	Yes[3]	Yes[3]	Yes[3]	Yes[3]	Yes	Yes[4]	Yes[4]
		v3.1[1]	Yes	Yes[3]	Yes[3]	Yes[3]	Yes[3]	Yes[3]	Yes	Yes	Yes
		v3.2[1]	Yes	Yes[3]	Yes[3]	Yes[3]	Yes[3]	Yes[3]	Yes	Yes	Yes
		v3.3[1]	Yes	Yes[3]	Yes[3]	Yes[3]	Yes[3]	Yes[3]	Yes	Yes	Yes
		v3.4	Yes	Yes[3]	Yes[3]	Yes[3]	Yes[3]	Yes[3]	Yes	Yes	Yes
LonWorks Module	**Software: 2506902 Hardware: 668105801**	v2.5[2]	Yes[4]	Yes	Yes	Yes	Yes	Yes	Yes	Yes[4]	Yes[4]
		v2.7[2]	Yes[4]	Yes	Yes	Yes	Yes	Yes	Yes	Yes[4]	Yes[4]
		v2.8[2]	Yes[4]	Yes	Yes	Yes	Yes	Yes	Yes	Yes[4]	Yes[4]
		v3.0[2]	Yes[4]	Yes	Yes	Yes	Yes	Yes	Yes	Yes[4]	Yes[4]
		v3.1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

1. BACnet software v3.4 or greater is recommended for optimal network communications performance.
2. LonWorks software v3.1 or greater is recommended for optimal network communications performance.
3. WSHP unit controller and BACnet software versions are fully compatible. Note that the heat pump number (HP), which is visible at the top of the BACnet Configuration Menu, from the BAS, or other BACnet application, may appear as an invalid number between 0 and 255 when the BACnet software version is newer than the unit controller software version. Although visible, the HP number shown does not impact the unit or network communication performance.
4. Low Entering Water Temperature (EWT) alarm is not supported by the communication module.

Table 4: Software Compatibility – SmartSource Single and Two Speed Compressor (Series2) Models

WSHP Unit Controller Models GSH/GSV, GTH/GTV, GCV, GCH, Enfinity CCH/CCW (5-Ton or Less), VFC/VFW, MHC/MHW							
			Baseboard - Current Software: 2508078 Hardware: 668105611	Baseboard - Legacy Software: 2508060 Hardware: 668105601			
Auxiliary Board	**Part Number**	**Version**	**v1.1**	**v5.0**	**v6.0**	**v6.1**	**v6.2**
I/O Expansion Module	**Legacy Software: 2508061 Hardware:668105702**	v5.0	Yes[2,3]	Yes	Yes[2]	Yes[2]	Yes[2,3]
		v6.0	Yes[3]	Yes	Yes	Yes	Yes[3]
		v6.1	Yes[3]	Yes	Yes	Yes	Yes[3]
		v6.2	Yes	Yes	Yes	Yes	Yes
	Current Software: 2508079 Hardware: 668105711	v1.0[5]	Yes	Yes	Yes	Yes	Yes
		v7.0	Yes	Yes	Yes	Yes	Yes
BACnet Module	**Software: 2508062 Hardware: 668105901**	v5.0[1]	Yes	Yes	Yes	Yes	Yes
		v6.0[1]	Yes	Yes	Yes	Yes	Yes
		v6.1[1]	Yes	Yes	Yes	Yes	Yes
		v6.2[1]	Yes	Yes	Yes	Yes	Yes
		v6.3[1]	Yes	Yes	Yes	Yes	Yes
		v6.4	Yes	Yes	Yes	Yes	Yes
LonWorks Module	**Software: 2508063 Hardware: 668105801**	v5.0[4]	Yes	Yes	Yes	Yes	Yes
		v6.0	Yes	Yes	Yes	Yes	Yes

1. BACnet software v6.4 or greater is recommended for optimal network communication performance.
2. The I/O expansion module does not support Hydronic Heating.
3. The I/O expansion module does not support Hydronic Cooling (WSE).
4. LonWorks v6.0 or greater is recommended for optimal network communication performance.
5. Hydronic Heating/Cooling not supported by the I/O expansion module.

Table 5: Software Compatibility – Enfinity Large Two Compressor (SS2C) Models

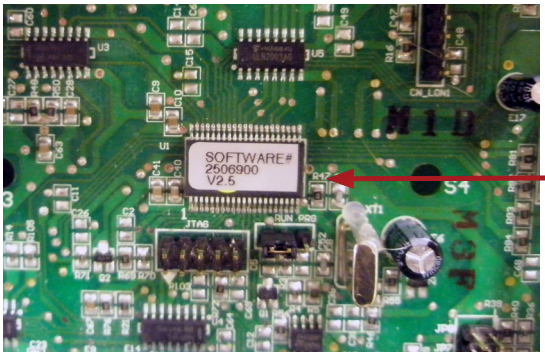
WSHP Unit Controller Models CCH/CCW (6-Ton or Greater), LVC/LVW						
			Baseboard - Current Software: 2508088 Hardware: 668105611	Baseboard - Legacy Software: 2508069 Hardware: 668105601		
Auxiliary Board	**Part Number**	**Version**	**v1.1**	**v1.0**	**v1.1**	**v1.2**
I/O Expansion Module	**Legacy Software: 2508070 Hardware: 668105702**	v1.0	Yes	Yes	Yes	Yes
	Current Software: 2508089 Hardware: 668105711	v1.0	Yes	Yes	Yes	Yes
BACnet Module	**Software: 2508071 Hardware: 668105901**	v1.0[1]	Yes	Yes	Yes	Yes
		v1.1[1]	Yes	Yes	Yes	Yes
		v1.2[1]	Yes	Yes	Yes	Yes
		v1.3	Yes	Yes	Yes	Yes
LonWorks Module	**Software: 2508072 Hardware: 668105801**	v1.0[2]	Yes	Yes	Yes	Yes
		v1.1	Yes	Yes	Yes	Yes

1. BACnet software v1.3 or greater is recommended for optimal network communications performance.
2. LonWorks software v1.1 or greater is recommended for optimal network communications performance.

Table 6: Software Compatibility – Enfinity Two Speed Compressor, Multi-Fan Speed (Series1) Models

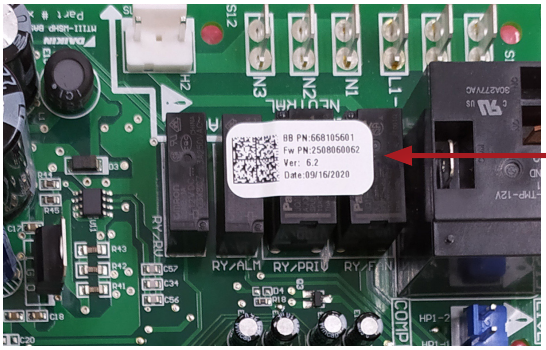
WSHP Unit Controller Models C2H/C2W						
		Baseboard - Legacy Software: 2508051 Hardware: 668105601				
Auxiliary Board	**Part Number**	**Version**	**v1.0**	**v1.1**	**v1.2**	**v1.3**
I/O Expansion Module	**Legacy Software: 2508052 Hardware: 668105702**	v1.0	Yes	Yes	Yes	Yes
		v1.1	Yes	Yes	Yes	Yes
BACnet Module	**Software: 2508053 Hardware: 668105901**	v1.0	Yes	Yes	Yes	Yes
		v1.1	Yes	Yes	Yes	Yes
LonWorks Module	**Software: 2508054 Hardware: 668105801**	v1.0	Yes	Yes	Yes	Yes
		v1.1	Yes	Yes	Yes	Yes

Figure 1: Legacy WSHP Unit Controller Software Revision Label (Enfinity)



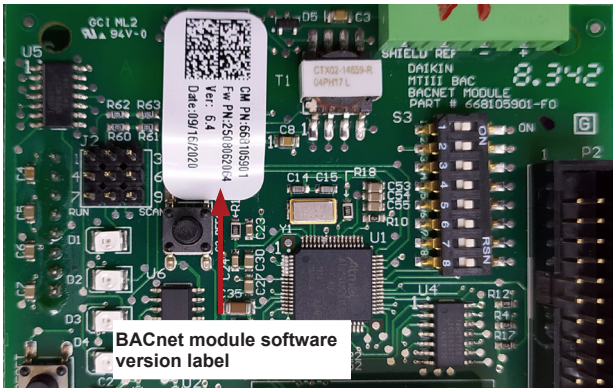
Unit controller software version label. Note this is shown for reference only, and may not reflect the most current version of code.

Figure 2: Current WSHP Unit Controller Software Revision Label (SmartSource)



Unit controller software version label. Note this is shown for reference only, and may not reflect the most current version of code.

Figure 3: BACnet and LonWorks Communication Module Software Version Labels



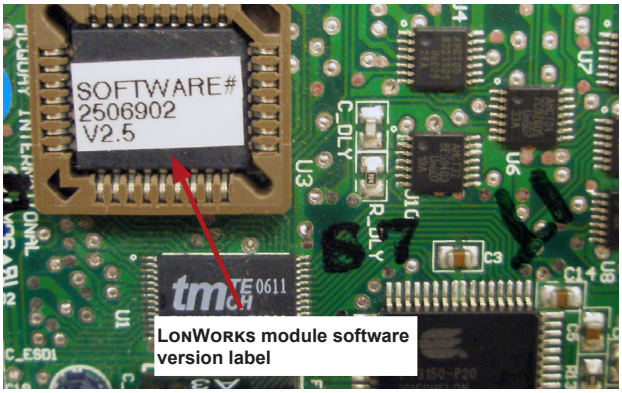


Table 7: MicroTech III WSHP – Overview of Programming Tools

MicroTech III WSHP Programming Tools for Current and Legacy Unit Controls	
Unit Controller Hardware (Current): 668105611 I/O Expansion Board Hardware (Current): 668105711	Unit Controller Hardware (Legacy): 668105601 I/O Expansion Board Hardware (Legacy): 668105702
Hardware	
Renesas E2 Lite or E1 programmer available at www.renesas.com/us/en/products/software-tools/tools/emulator/e2-emulator-lite.html	Renesas E8a programmer, available at www.renesas.com/us/en/products/software-tools/tools/emulator/e8a.html The original Segger Flasher5 programmer can also be used to program legacy boards. However, it is no longer available from the supplier for purchase. Instructions are provided in previous versions of OM 1085
New (2024) custom 6-pin interface cable (Figure 6) that connects the unit controller to the Renesas programmer cable. *This cable is not included in Renesas E2 Lite or E1 programmer kit when ordered from Renesas.* Contact the ATS Technical Response Team at 315-282-6434 to request this cable. Reference PN 250808701	Legacy custom 10-pin interface cable that connects the unit controller JTAG port to Renesas E8a programmer. *This cable is not included in Renesas E8a programmer kit when ordered from Renesas.* Contact the ATS Technical Response Team at 315-282-6434 to request this cable
Software	
Renesas Flash Program (RFP) software available at www.renesas.com/us/en/software/D3017334.html	Renesas Flash Development Toolkit software available at www.renesas.com/us/en/products/software-tools/tools/programmer/flash-development-toolkit-programming-gui.html
Unit controller software, which is a ".hex" file type and needs to be saved to your hard drive. Contact the ATS Technical Response Team at 315-282-6434 to request a copy of this file	Unit controller software, which is a ".mot" file type and needs to be saved to your hard drive. Contact the ATS Technical Response Team at 315-282-6434 to request a copy of this file
No Program/Run jumper is used	Program/Run jumper is used
BACnet Communication Module (Applies to all MicroTech III WSHP Unit Controllers)	
Hardware	
BACnet communication module installed on the WSHP baseboard	
1. Segger J-Link programmer, available at www.segger.com or 2. ATMEL SAM-ICE programmer, available at www.DigiKey.com. Reference AT91SAM-ICE-ND or equivalent	
Software	
Segger J-Link software and documentation pack for Windows available at www.segger.com/downloads/jlink/#J-LinkSoftwareAndDocumentationPack	
SAM-BA v2.18 software free download available at www.microchip.com/DevelopmentTools/ProductDetails/PartNO/SAM-BA%20In-system%20Programmer	
BACnet .bin file is available by contacting the Controls Customer Support group at 866-462-7829	
LonWorks Communication Module (Applies to all MicroTech III WSHP Unit Controllers)	
Hardware	
LonWorks communication module installed on the WSHP baseboard	
Twisted pair cable with 3-pin connector: Echelon TP/FT-10 to USB network interface, U10 or similar	
Software	
XIF/NXE files - www.DaikinApplied.com or www.lonmark.org	
LonWorks application such as OpenLNS CT, or CT available from Echelon at www.echelon.com	

Download and Configuration

Unit Controller and I/O Expansion Module

The following describes how to download and verify the WSHP unit controller and I/O expansion module software.

There are two sets of unit controller (baseboard) and companion I/O expansion module hardware part numbers.

The software loaded on the boards varies depending on the WSHP model (SmartSource, Enfinity, etc.)

NOTE: Before proceeding, refer to Table 3 - Table 6 in order to confirm which version of board(s) you have, and thus which tools to use. Figure 1 and Figure 2 show where to find the sticker labels on each board.

Downloading to Baseboard #668105611 or I/O Expansion Module #668105711 with Renesas E2 Lite or E1 Programmer

Getting Started

You will need the following:

- WSHP unit controller baseboard with hardware part number 668105611 or I/O expansion board with hardware part number 668105711.
- Renesas E2 Lite or E1 programmer hardware. Note that the ribbon cable is not needed when using the new custom cable described below.
- New custom interface cable. Contact the ATS Technical Response Team at 315-282-6434 to request this cable. Reference part number 250808701. See Figure 6 and Figure 7.
- Renesas Flash Programmer (RFP) software. The RFP includes the Renesas Project File (.rpj) used for determining the configuration settings. Specifications and links to the Renesas website are in Table 7 and Note below.
- Computer with a Windows-compatible operating system. Refer to www.renesas.com for more information.
- WSHP unit controller and I/O expansion module .hex file. See Note below.

NOTE: Contact the ATS Technical Support Team at 315-282-6434 to request a copy of the .hex and/or .rpj file. These files can also be downloaded from the Daikin Applied website at www.daikinapplied.com/resources/application-software.

Installing the Renesas E2 Lite or E1 Programmer

The instructions below apply to downloading the WSHP unit controller or I/O expansion board using the Renesas E2 Lite programmer (Figure 4).

The Renesas E1 programmer can also be used but is no longer supported. The differences are noted where necessary.

1. Acquire the Renesas E2 Lite programmer and interface cable as described in Table 7.
2. Download the latest Renesas Flash Programmer (RFP) software from the Renesas website at www.renesas.com/us/en/software/D3017334.htm.

NOTE: It is important that you install the Flash Programming software before connecting the programmer to the USB port on your computer. The USB driver is automatically installed.

3. Connect the E2 Lite programmer to the USB port on your computer using the USB interface cable.
    a. Connect the mini-B plug of the USB interface cable to the USB I/F connector of the E2 Lite.
    b. Connect the A plug of the USB interface cable to the USB port on your computer.

NOTE: The E2 Lite is active once connected to the USB interface cable.

4. Power down the unit controller.
5. Connect the E2 Lite programmer to the MCU:
    a. Insert the 14-pin connector of the new custom interface cable assembly into the user-side connector pins of the E2 Lite programmer (Figure 7).
    b. Connect the 6-pin connector to the CN_PGRM port on the control board (Figure 8).
6. Apply power to the unit controller.

NOTE: Do not remove power from the unit controller or unplug the USB interface cable during this process. The power supplied from the board to the programmer could possibly damage the hardware.

7. Open the Renesas Flash Programmer (RFP) software.
8. Click Open Project from the File menu.
9. Browse to the Renesas Programmer Project file (.rpj file type) and click Open. See the Note at the end of the Getting Started section if you do not have this file.
10. Click Browse in the Project File section to select the Baseboard or IO Expansion Board (.hex file type) and click Open. See the Note at the end of the Getting Started section if you do not have this file.
11. If using the E1 programmer, follow steps 11a-b. Otherwise, if using the E2 Lite programmer, go to Step 12.
    a. From the Connect Settings tab, set the Communication Tool to E1.
    b. Click the Operation tab.
12. Click Start to begin programming the board. A pop-up message appears and indicates progress during the programming process.
13. Programming is successful when the green OK message appears.
14. Power down the board and disconnect the 6-pin E2

Lite interface cable from the CN_PGRM port of the baseboard or IO expansion board.

15. Close the RFP software.

Programming is now complete and the board is ready for use.

Figure 4: Renesas E2 Lite/E1 Programmer, USB Connector and Ribbon Cable

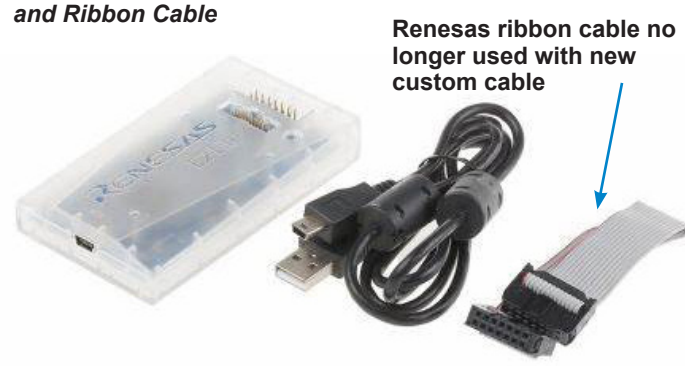


Figure 5: MicroTech III Baseboard Programming Port

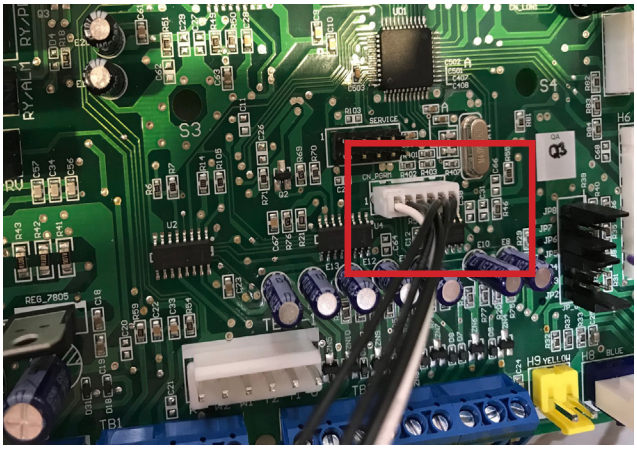


Figure 6: New Custom Interface Cable for Renesas E2 Lite/ E1 Programmer

Figure 7: Inserting New Custom Cable Assembly 14-pin Connector to the Renesas E2 Lite/E1 Programmer

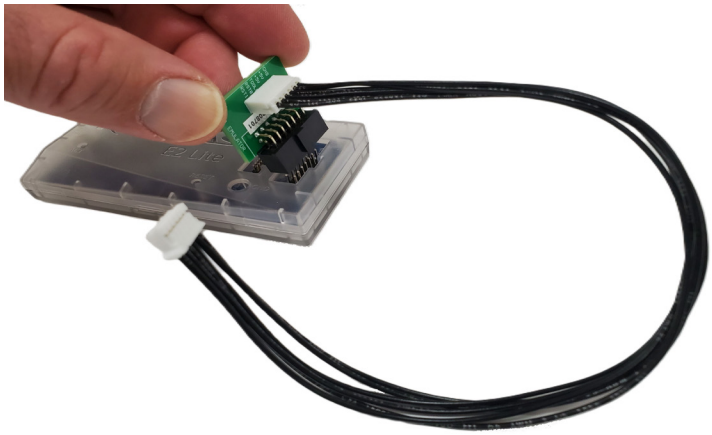


Figure 8: Renesas E2 Lite/E1 Programmer 6-Pin Connector Inserted Into the CN_PGRM Port on Controller Board

Downloading to Baseboard #668105601 or I/O Expansion Module #668105702 with Renesas E8a Programmer

Getting Started

You will need the following:

- WSHP unit controller baseboard with hardware part number 668105601 or I/O expansion board with hardware part number 668105702.
  - Renesas E8a programmer hardware and software development kit. Specifications and links to the Renesas website provided in Table 7.
  - Computer with a Windows-compatible operating system. Refer to www.renesas.com for more information.
  - WSHP unit controller or I/O expansion module ".mot" file saved to your hard drive. Contact the ATS Technical Support Team at 315-282-6434 to request a copy of this software file.

Installing the Renesas E8a Programmer

1. Acquire the Renesas E8a programmer and interface cable as described in Table 7.
2. Download the latest Renesas Flash Development Toolkit software available at www.renesas.com/us/en/products/software-tools/tools/programmer/flash-development-toolkit-programming-gui.html.

NOTE: It is important that you install the Flash Development Toolkit software before connecting the programmer to the USB port on your computer. The USB driver is automatically installed.

3. Connect the E8a programmer to the USB port on your computer using the USB interface cable.
   a. Connect the mini-plug of the USB interface cable to the USB I/F connector of the E8a.
   b. Connect the plug of the USB interface cable to the USB port on your computer.

NOTE: The E8a programmer is active once connected to the USB interface cable.

4. Power down the unit controller.
5. Connect the E8a programmer to the MCU:
   a. Connect the interface ribbon cable to the user-side connector of the E8a programmer (Figure 9).
   b. Carefully insert the Renesas E8a 14-pin connector to the interface cable PCB header pins labeled "E8a Emulator" (Figure 10).
   c. Connect the 10-pin connector to the JTAG port on the control board.
   d. Place the RUN/PRG jumper in the PRG position (Figure 25).
6. Apply power to the unit controller.

Figure 9: Renesas E8a Programmer with USB and Interface Ribbon Cable Connected

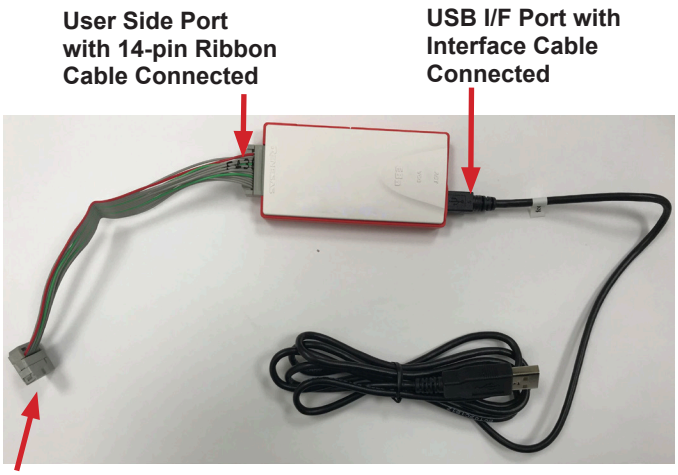
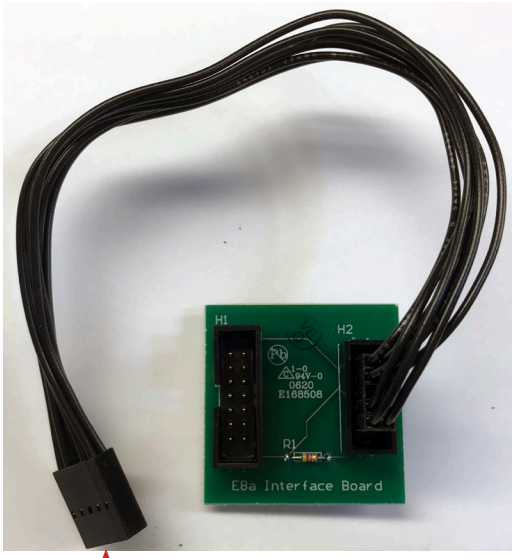


Figure 10: Custom Interface Cable for Renesas E8a Programmer



NOTE: Do not remove power from the unit controller or unplug the USB interface cable during this process. The power supplied from the board to the programmer could possibly damage the hardware.

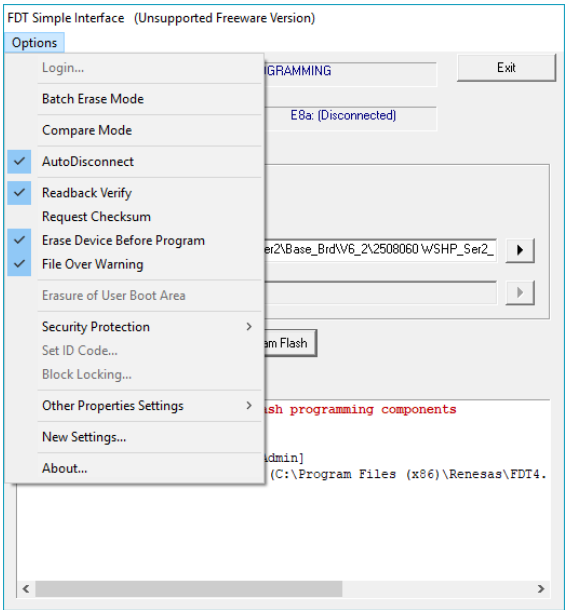
7. Open the Renesas Flash Development Toolkit (FDT) software using the "Flash Development Toolkit 4.09 Basic" (or newer) shortcut. The software must be configured if using the FTD software for the first time to download to the unit controller. Proceed to the next step to complete this process. Otherwise, skip to Step 20.

From the Options tab:

8. Select Auto Disconnect, Readback Verify, Erase Device Before Program, and File Over Warning (Figure 11).

NOTE: The following screen shots and instructions may vary slightly with newer sotware versions.

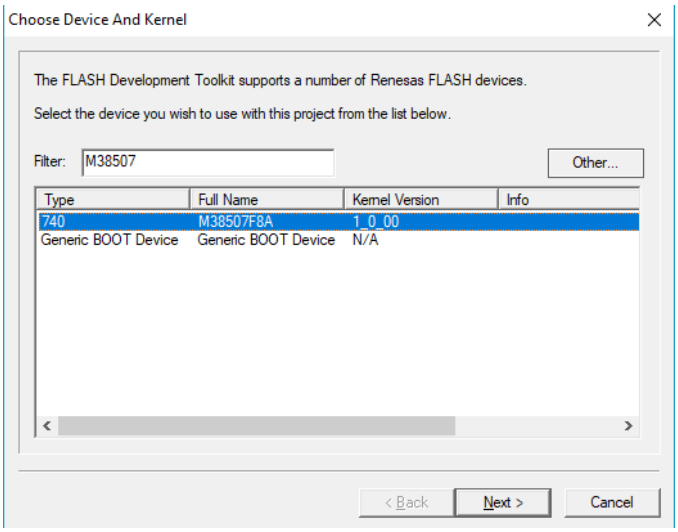
Figure 11: Select Options



From the Options tab:

9. Select New Settings.
10. Enter M38507 from the Choose Device and Kernel menu\Filter section type field (Figure 12).
11. Select 740 – M38507F8A and click Next.

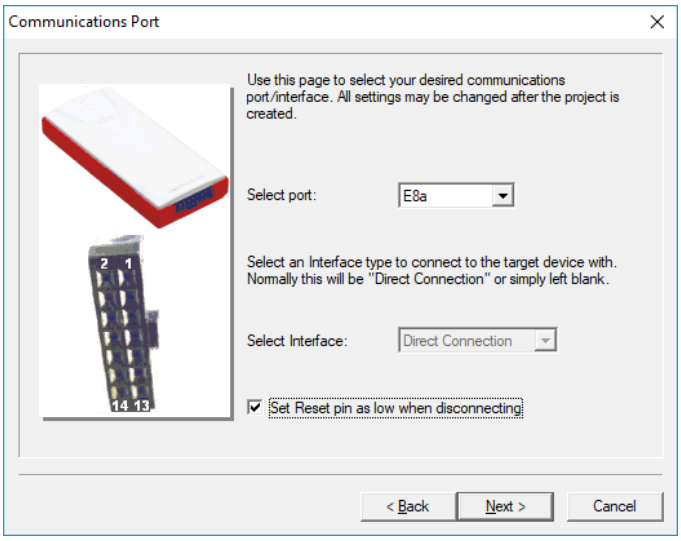
Figure 12: Select Device



From the Communications Port screen (Figure 13):

12. Select E8a from the Select Port drop-down menu.
13. Check “Set Reset pin as low when disconnecting.”
14. Click Next.

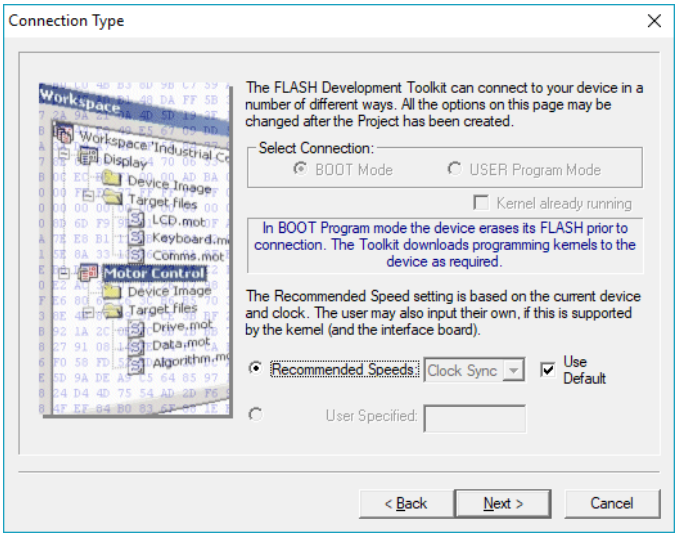
Figure 13: Communications Port



From the Connection Type menu (Figure 14):

15. Verify that Recommended Speeds and Use Default are checked.
16. Click Next.

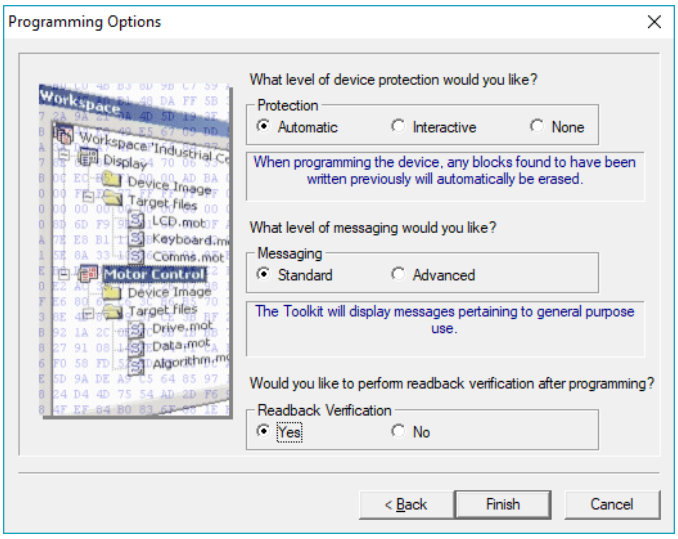
Figure 14: Connection Type



From the Programming Options menu (Figure 15):

17. Select Automatic Protection and Standard Messaging.
18. Select Yes for Readback Verification.
19. Click Finish.

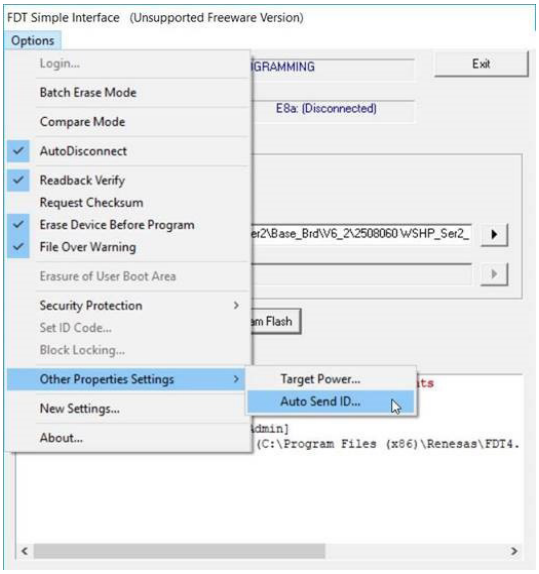
Figure 15: Programming Options



From the Options tab (Figure 16):

20. Select Other Properties Settings\Auto Send ID.

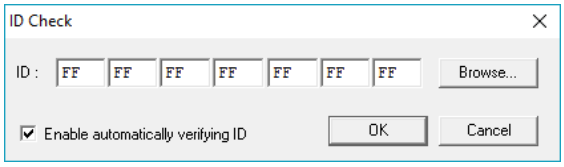
Figure 16: Other Properties



From the ID Check menu (Figure 17):

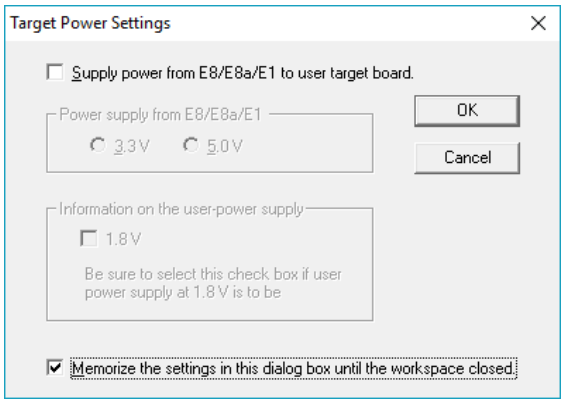
21. Set all the ID bytes to FF.
22. Verify Enable Automatically Verifying ID is checked.
23. Click OK.

Figure 17: ID Check



24. Select Other Properties Settings\Target Power.
25. Click “Memorize the settings in this dialog box until the work space is closed” and then click OK (Figure 18).

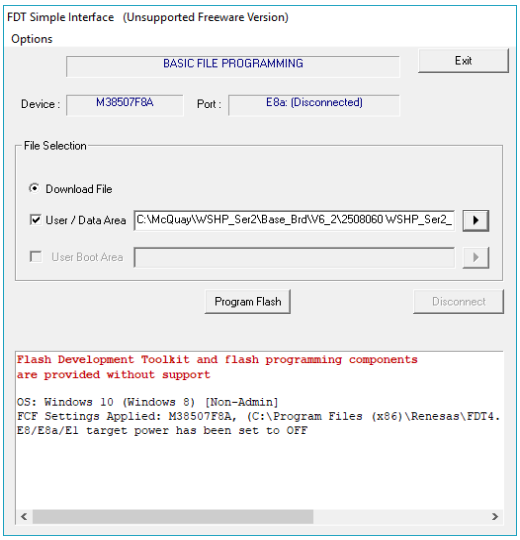
Figure 18: Target Power Settings



In the File Selection area (Figure 19):

26. Confirm Download File and User/Data Area are both selected.
27. Click on the right arrow then Browse to choose the Baseboard or IO Expansion Board controller binary software file (.mot file type). Contact the ATS Technical Support Team at 315-282-6434 to request a copy of this software file.
28. Click Open.
29. Click on the Program Flash button.

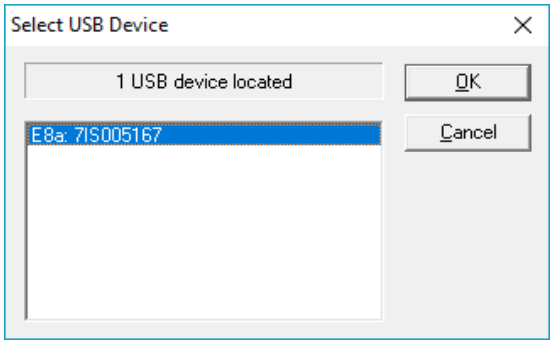
Figure 19: Select File for Download



From the Select USB Device menu (Figure 20):

30. Select the E8a interface and then click OK.

Figure 20: Select USB Device



The download process begins and messages appear in the status area at the bottom of the screen.

31. Verify the Image Written to Device and Verification OK messages are displayed. These messages indicate a successful download.
32. Close the Renesas Flash Development Toolkit Simple software.
33. Power down the unit controller.
34. Disconnect the E8a programming cable from the board.
35. Place the RUN/PRG jumper in the RUN position.

Programming is now complete, and the board is ready to use.

Downloading to Baseboard #668105601 or I/O Expansion Module #668105702 with Segger Flasher5 Programmer

The following section describes how to download the unit controller baseboard or I/O expansion module using the Flasher5 (legacy) programming tool.

Getting Started

You will need the following:

- WSHP unit controller baseboard with hardware part number 668105601 or I/O expansion board with hardware part number 668105702.
  - Segger Flasher5 programmer hardware and software.
  - Computer with Windows-compatible operating system. Refer to www.segger.com for more information.
  - WSHP unit controller or I/O expansion module ".hex" file saved to your hard drive. Contact the ATS Technical Support Team at 315-282-6434 to request a copy of this software file.

Installing Segger Flasher5 Software

If the software has not been previously installed and configured, follow steps 1-5 below. Otherwise, skip to step 1 of the next section:

1. Download the most recent version of Flasher5 software from www.segger.com/downloads/flasher.
2. Save the application to your hard drive.
3. Open the SetupFlasher application; click Next from the Welcome screen.
4. Click Next from the Choose Destination Location screen (Figure 21) to choose the default hard drive location.
5. Check all three boxes for available options as shown in Figure 23 and click Next.

NOTE: The JTAG hardware and software tools referenced here are manufactured by Segger Microcontroller Systems. However, there are other manufacturers of JTAG-supported programming tools that would also be acceptable.

Figure 21: Choose Destination

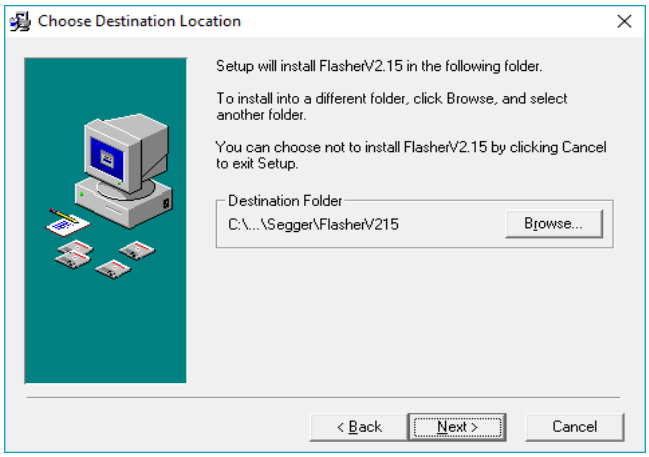
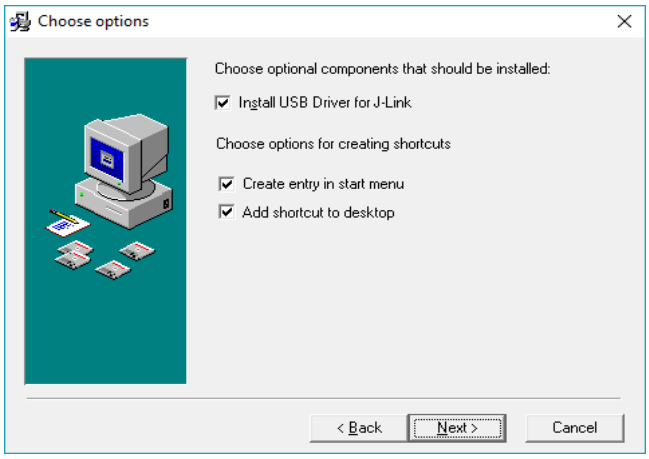


Figure 22: Choose Options



Once the Flasher software has been installed, follow the steps below to download the unit controller and I/O expansion module. The unit controller and I/O expansion module have different software files and must be downloaded separately.

NOTE: New unit controller software may be installed over an existing version. It is not necessary to uninstall software prior to loading a newer version.

1. Refer to Table 3 - Table 6 to verify the latest version of software.
2. Remove power to the unit controller and the BACnet or LonWorks communication module (if attached).
3. Download the unit controller software, which is a ".hex" file type and save to the hard drive. To request a copy of the software file, contact the ATS Technical Response Team at 315-282-6434.
4. Connect the Flasher5 hardware between the serial port on the computer (or a USB to serial converter) and the 10-pin connector on the unit controller or I/O expansion module. The Pin1 triangle on the Flasher cable (brown wire) must line up with the Pin1 triangle on the board. Refer to Figure 23 and Figure 24.
5. Connect power to the Flasher5 hardware.
6. If a room or return air sensor connected to TB1 or H9 on the unit controller, and jumper JP6 is shorted, remove this jumper.
7. If a thermostat is connected to TB2 on the unit controller and jumper JP6 is not shorted, short-jumper JP6 to prevent the unit from running during the download process.
8. Switch the Programming Jumper from the RUN position to the PRG position on the board being downloaded (unit controller baseboard or I/O expansion module) as shown in Figure 25.
9. If there is an I/O expansion module connected to the unit controller being downloaded, verify that the Programming Jumper on the I/O expansion module is in the RUN position.
10. If the I/O expansion module is being downloaded, verify that the Programming Jumper on the unit controller is in the RUN position.
11. Prior to launching Flasher, check the communication port (i.e. COM1 or COM2) to which the Flasher5 hardware is connected. The port number is required for Step 13. Follow these steps to determine the port number:

Figure 23: Flasher Cable Orientation and Programming Jumper

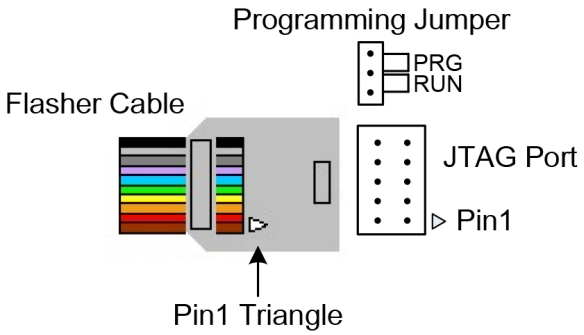


Figure 24: Flasher Cable Connected to JTAG Port

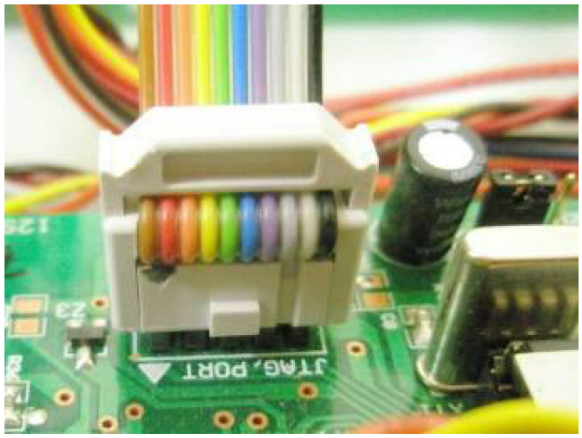
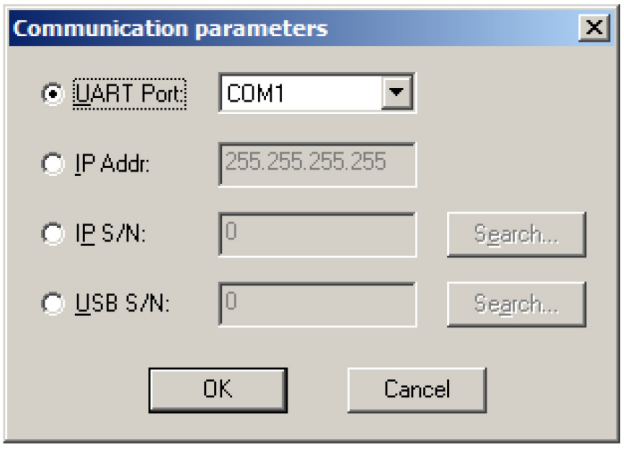


Figure 25: Programming Jumper in the PRG Position

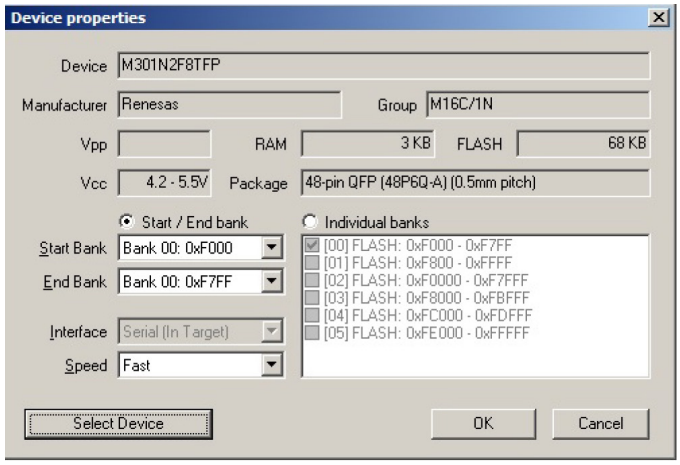
12. Navigate to the Control Panel and select System/ Hardware/Device Manager/Ports.
13. Verify the communication port shown (i.e. COM1, COM2, etc).
14. Launch the Flasher program from the desktop shortcut icon.
15. If this is the first time downloading to the unit controller since installing the Flasher program, it is necessary to configure the software. If this has already been done, proceed to Step 24. Otherwise, follow Steps 16-23.
16. Go to the Options menu and select Communications. Select the communications port (as determined from Step 13) as shown in Figure 26 and then click OK.

Figure 26: Communications Parameters Menu



17. Navigate to the Options menu
    a. Click on Device.
    b. Click Select Device in the Device Properties window. See Figure 27.

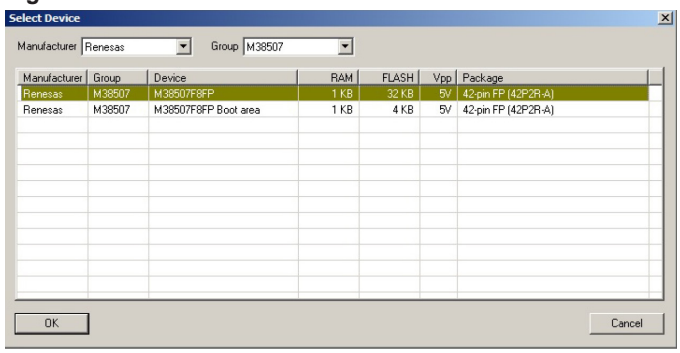
Figure 27: Device Properties



When the Select Device window shown in Figure 28 appears:

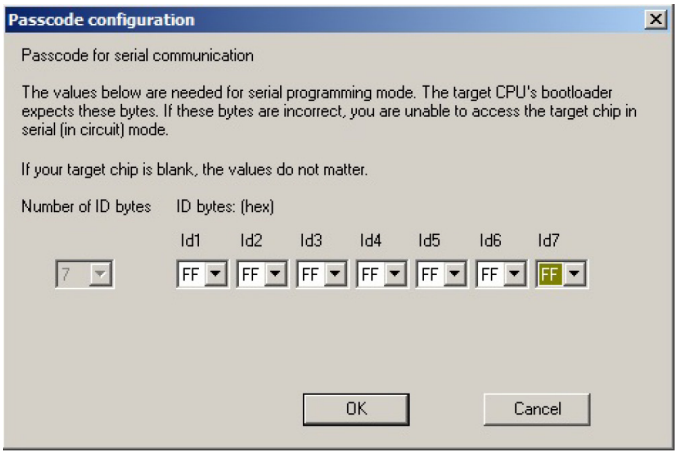
18. Select Renesas in the Manufacturer drop-down box.
19. Select M38507 in the Group drop-down box.
20. Highlight the device M38507F8FP with 1KB RAM and 32KB FLASH and then click the OK button twice.
21. Navigate to the Options menu and select Passcode.

Figure 28: Select Device



22. Verify that all seven fields are set to FF as shown in Figure 29.
23. Click the OK button.

Figure 29: Passcode Configuration Menu



24. Apply power to the unit controller. The Target VCC field should change to approximately 5.0 Volts as shown in Figure 30. If it does not, check the connection between the Flasher5 hardware and unit controller to verify that the cable is installed properly.
25. Prepare the software file for downloading.
    a. Go to the File menu and select Open.
    b. Browse to the appropriate file and click OK. The screen should populate as indicated in Figure 30.
26. To begin the download, select the Target menu and click Program and Verify. After a successful download, the screen shown in Figure 31 appears.

Figure 30: Unit Controller when Applying Power and Hex File is Loaded

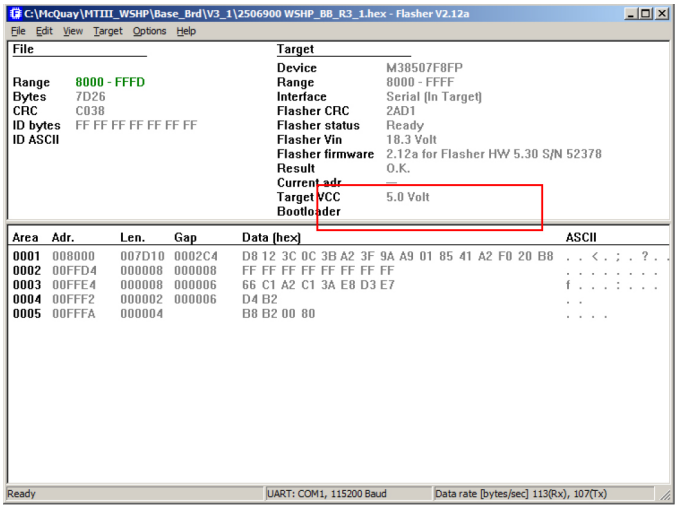
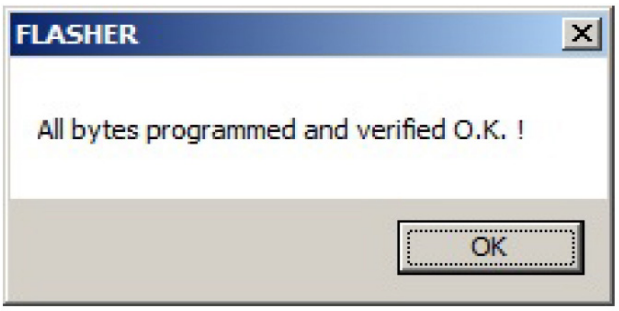


Figure 31: Flasher Successful Download Screen



27. Remove power from the unit controller and disconnect the Flasher5 hardware.
28. Switch the programming jumper back from the PRG position to the RUN position.
29. Repeat steps 1-28 to complete this process for the I/O expansion module, if one is attached.
30. After both the unit controller and I/O expansion module have been programmed, return the unit controller baseboard JP6 configuration jumper to the state it was in before step 6.
31. Set the unit controller configuration properties to default values and calibrate the brownout reference setpoint as described in steps a-f. Applies only to the following unit controller software versions:
    - Enfinity Single Stage Compressor with software PN 2506900 and 2506901
    - SmartSource Single and Two Stage Compressor (Series2) with software PN 2508060 and 2508061
    - Enfinity Large Two Compressor (SS2C) with software PN 2508069 and 2508070

NOTE: Only perform the following calibration procedures if the unit controller 24VAC voltage is within normal operating parameters.

a. Place the unit in the Service Mode by shorting the unit controller JP1 configuration jumper.
b. Tie a jumper wire from a ground connection to the unit controller unoccupied input ('U' terminal).
c. Apply power to the unit controller and wait for 15 seconds.
d. Remove power from the unit controller.
e. Remove the ground wire from the unit controller unoccupied input ('U' terminal).
f. Place the unit in the Normal Operating Mode by removing the JP1 configuration jumper.

NOTE: It is recommended that these steps are performed each time new software is loaded in order to verify proper brownout calibration.

32. Apply power to the unit controller for a minimum of 30 seconds to confirm that the configuration has been saved properly.
33. If a "Serial EEPROM Corrupted" message appears, cycle power to the unit controller to clear the alarm.

BACnet Communication Module

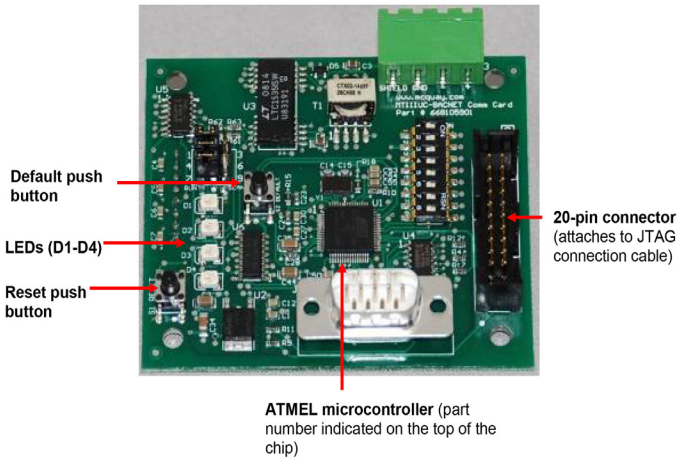
This section describes how to do the following:

1. Install the programming tools needed for downloading BACnet communication module software.
2. Install and configure the BACnet communication module software

There are two programming tools compatible with the BACnet communication module. Both are referenced in Table 7. The instructions provided here support the J-Link hardware and J-Flash ARM software supplied by Segger Microcontroller. The second tool is the SAM-BA® boot programmer. SAM-BA is considred obsolete and is no longer supported. Refer to a previous version of this document (OM 1085-5 or older) for download and configuration using SAM-BA.

Figure 32 shows the important programming features of the BACnet communication module for reference during the configuration process.

Figure 32: BACnet Communication Module Main Components



Downloading Segger J-Flash ARM Software and J-Link Hardware

You must first configure the J-Flash/J-Link programming tools for use with the BACnet communication module. Once complete, follow the steps to download the BACnet communication module software.

Getting Started

You will need the following:

- BACnet communication module hardware PN 668105901 installed on the WSHP unit controller

- The latest Segger J-Link hardware (J-Link Plus bundle, which includes JTAG ribbon cable and licensed hardware) from www.segger.com/products/debug-probes/j-link/models/j-link-plus/
- The latest Segger J-Link Software and Documentation pack for Windows from www.segger.com/downloads/jlink/#J-LinkSoftwareAndDocumentationPack
- Computer with a Windows-compatible operating system. Refer to www.segger.com for more details
- BACnet ".hex" file

Contact the ATS Technical Support Team at 315-282-6434 to receive the file

Installation and Setup

If the software has not been previously installed, follow steps 1- 7 below. Otherwise skip to the next section.

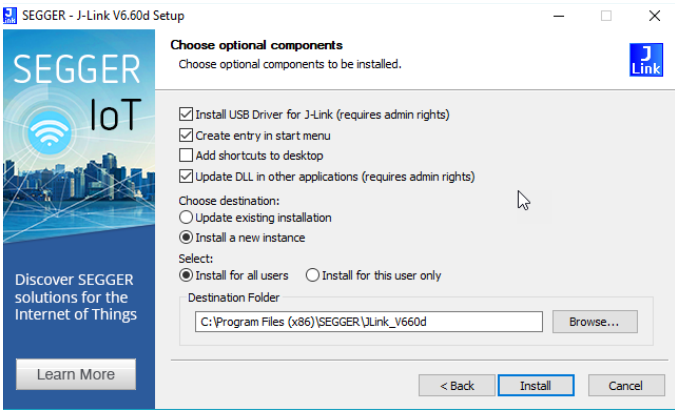
1. Download the most recent version of J-Link Software and documentation pack for Windows from www.segger.com/downloads/jlink/#J-LinkSoftwareAndDocumentationPack

NOTE: Purchase the J-Link Plus bundle package to make sure the hardware is properly licensed for use with J-Flash software.

NOTE: The following screen shots and instructions may vary slightly with newer sotware versions.

2. Open the JLink_Windows application and click Next from the welcome screen.
3. Review the terms of the license agreement and click I Agree.
4. Choose the optional component settings as shown in Figure 33.

Figure 33: J-Link Setup: Optional Component Settings



5. Click Install.
6. Click Finish when prompted. Installation is now complete
7. Proceed to the next section.

Launch and Configure the J-Flash ARM Software

Follow the steps below to launch and configure J-Flash ARM.

NOTE: Performing the following configuration steps returns all BACnet network parameters to default values. Record any previously configured settings before proceeding.

1. Connect the J-Link hardware between the USB port on the computer and the 20-pin connector on the BACnet communication module. The notch on the J-Link cable fits into an opening on the 20-pin connector on the BACnet communication module (Figure 32).
2. Launch J-Flash ARM software. The screen shown in Figure 34 appears.

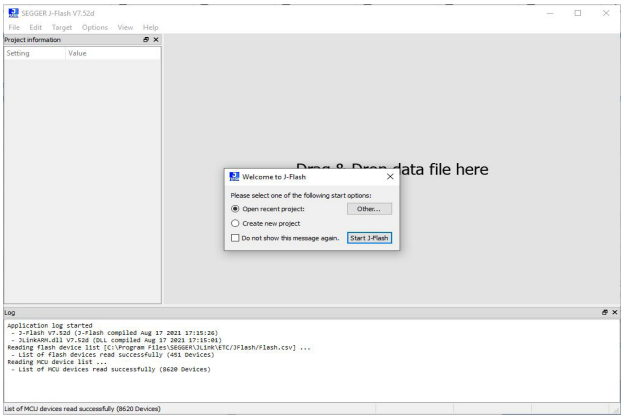
NOTE: These instructions are based on J-Flash v7.52x. The interface and configuration steps may vary slightly if using a different version of the software.

NOTE: It is not necessary to create a new project if using J-Flash v7.54x or newer. In this case, skip this section and go to Configure J-Link Hardware.

3. Select one of the two options from this screen and click Start J-Flash.

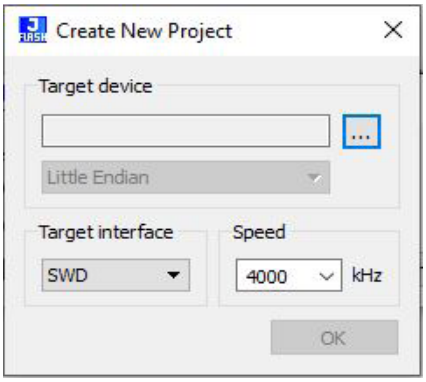
   A project must be opened or created before J-Flash can proceed to the project settings screen.

Figure 34: J-Flash ARM Welcome Screen



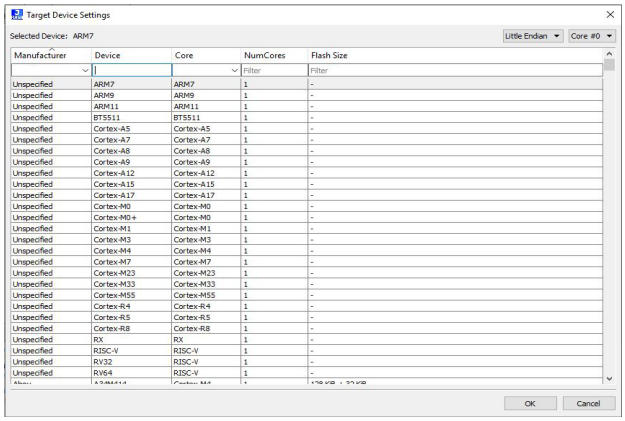
4. The Create New Project screen appears (Figure 35). Select the "..." to the right of the empty Target device field. This opens the Target Device Settings screen (Figure 36).

Figure 35: Create New Project



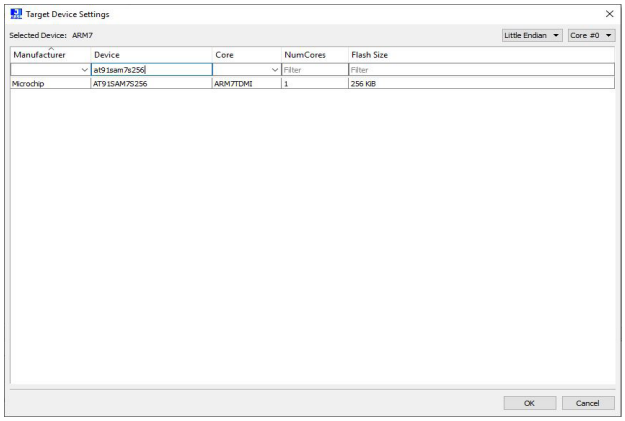
5. Locate the device number from the BACnet communication module's ATMEL chip (Figure 32).

Figure 36: Target Device Settings



6. Find this number in the Device column, double-click on the row and click OK (Figure 37). The device disappears from this list once it has been located.

Figure 37: Target Device Search



7. The name of the Target device appears in the Create New Project screen (Figure 38). Click OK.

Figure 38: Create New Project - Device Found

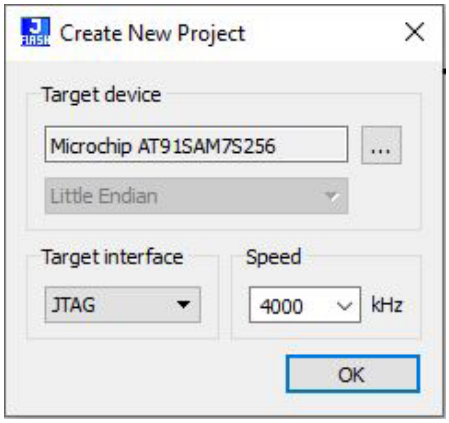
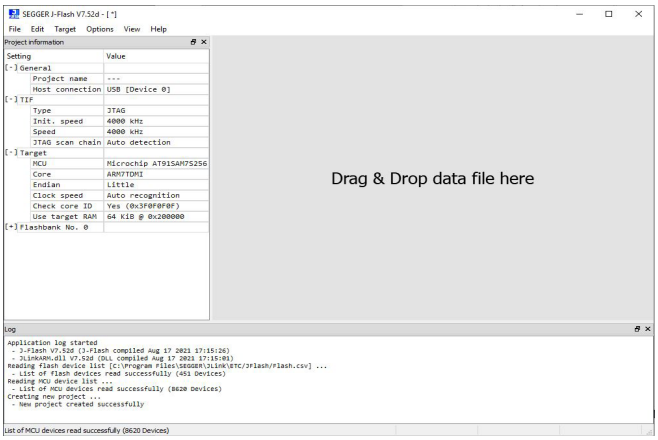


Figure 39: Project Information

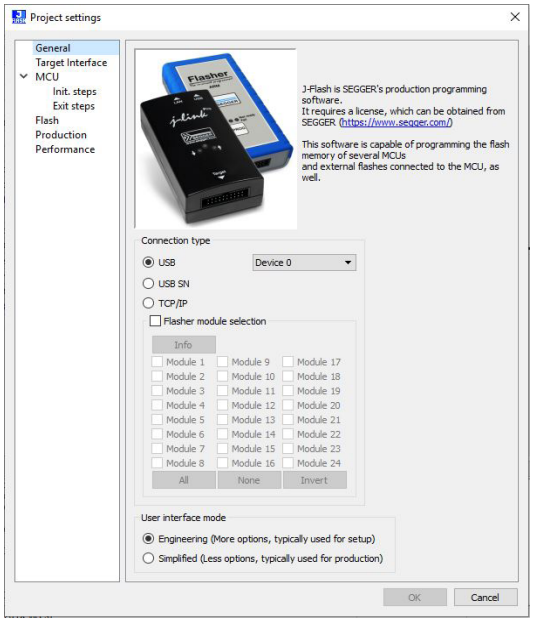


Configure J-Link Hardware

Follow these steps to establish the correct hardware settings if J-Flash ARM has not been previously configured.

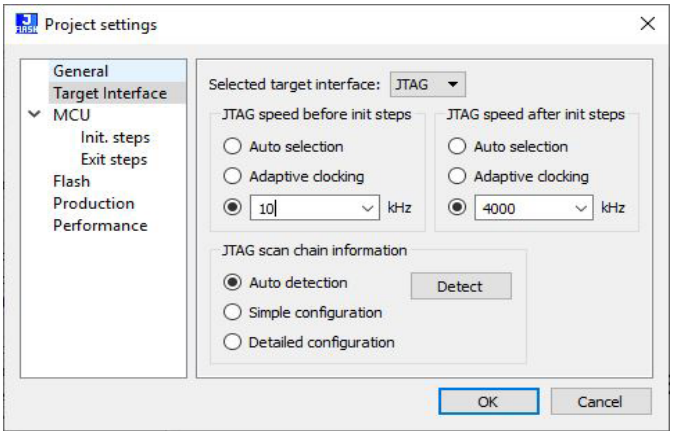
1. Navigate to the Options menu and select Project Settings.
2. Select USB Device 0 from the General tab (Figure 40).
3. Select Engineering for the User interface mode, then click OK.

Figure 40: Project Settings – General Tab



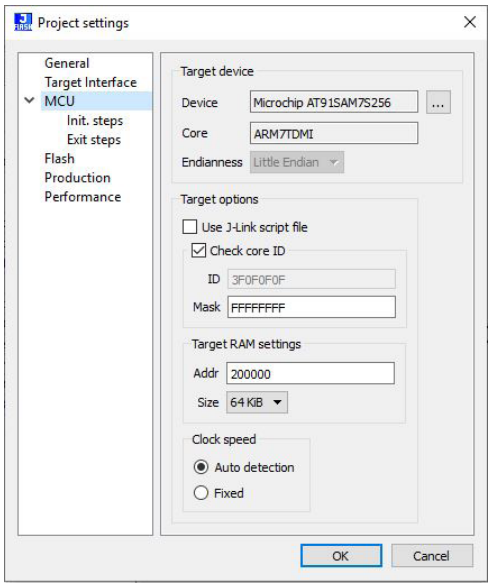
4. Click on the Target Interface tab (Figure 41).
    a. Select JTAG from the drop-down box.
    b. Select 10kHz from theTAG speed before init steps section drop-down box.
    c. Choose Auto detection from JTAG scan information.
    d. Select 4000 kHz from JTAG speed after init steps section drop-down box.
    e. Click OK when all selections have been made.

Figure 41: Target Interface Tab



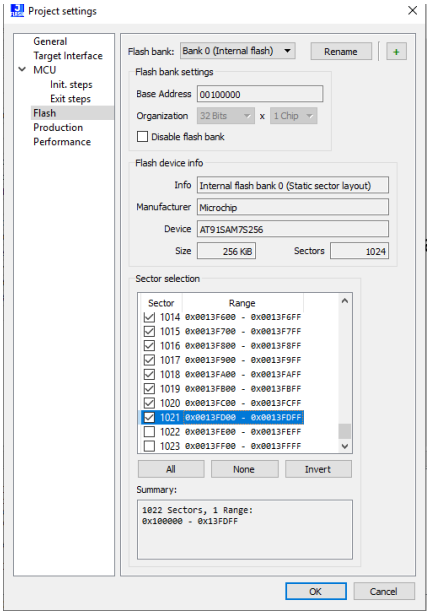
5. Click on the MCU tab (Figure 42).
6. The Device inforormation should automatically display. If not, click on the "..." button in the Device area to select the Atmel device, AT91SAM7S256.
7. Verify the following options are selected and click OK when finished:
    a. The Check core ID box is selected.
    b. 200000 is in the Addr box.
    c. 64KB is selected from the drop-down menu.
    d. Clock speed is set to Auto detection.

Figure 42: MCU Tab



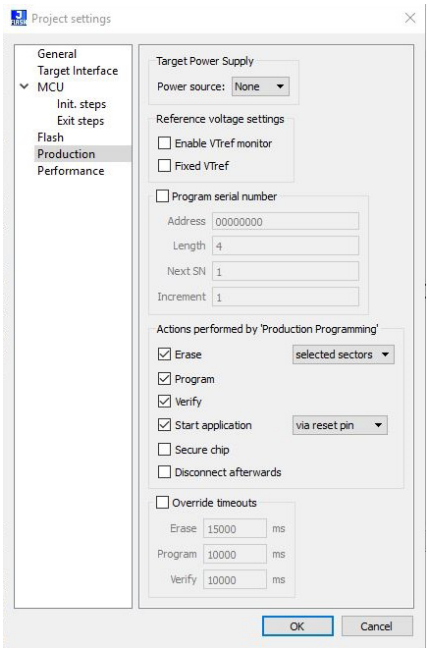
8. Click on the Flash tab (Figure 43) and verify the following:
    a. Flash bank = 0 (Internal flash)
    b. Base Address = 00100000
    c. Organization = 32
    d. Bits x = 1 Chip
    e. In the Sector selection, scroll down to the bottom of the list and do the following:
        i. Check Sector[10211]: 0x0013FD00 - 0x0013FDFF
        ii. Uncheck the last two address ranges:
            - Sector[1022]: 0x0013FE00 - 0x0013FEFF
            - Sector[1023]: 0x0013FF00 - 0x0013FFFF
    f. Click OK when all selections have been made

Figure 43: Flash Tab



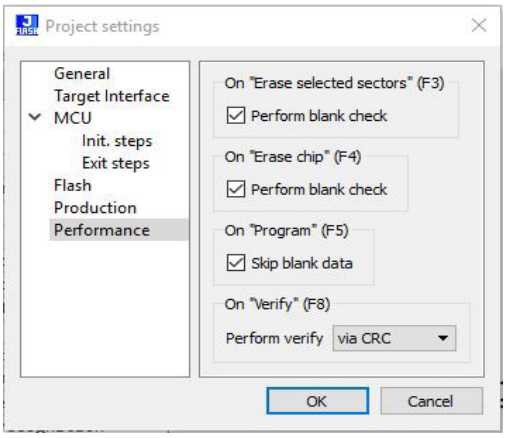
9. Click on the Production tab (Figure 44) and verify the following:
    a. Erase, Program, Verify, and Start application boxes are checked.
    b. Selected sectors appears in the drop-down box next to Erase.
    c. Via reset pin appears in the drop-down box next to Start application.

Figure 44: Production Tab



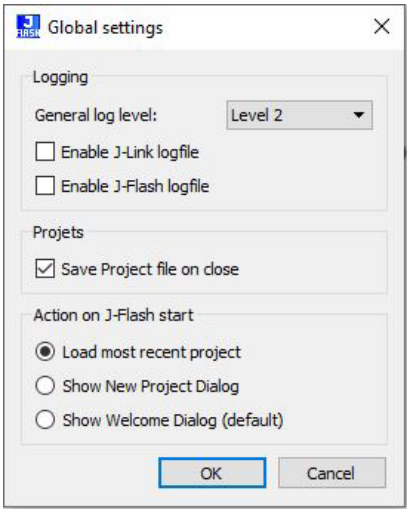
10. Click on the Performance tab and verify the following selections those displayed in Figure 45.
11. Click OK to exit the Project Settings menu.

Figure 45: Performance Tab



12. Navigate to the Options menu. Select the Global Settings tab (Figure 46) and verify the following:
    a. The General log level is set to Level 2.
    b. The Save Project file on close is checked.
    c. The Load most recent project is selected.
13. Click OK to exit the Global Settings menu.

Figure 46: Global Settings



Downloading BACnet Communication Module Software with J-Flash ARM

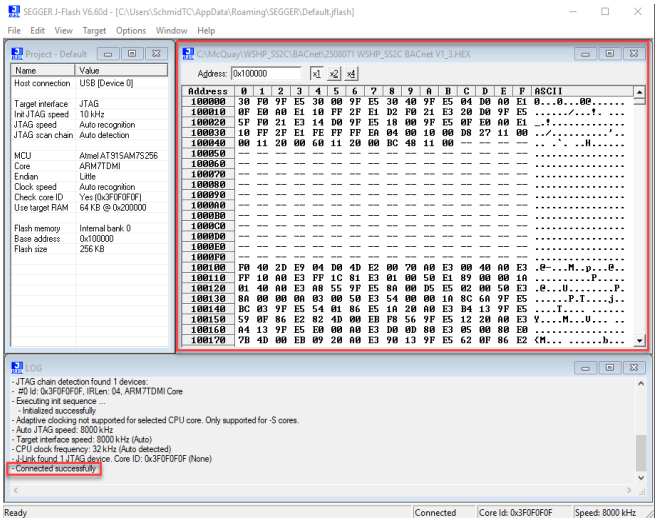
⚠ CAUTION

The following procedure returns all BACnet parameters to factory default values. It is recommended that existing parameters are saved prior to starting this process. See the Appendix in the MicroTech III WSHP BACnet Communication Module Installation Manual, IM 928, and MicroTech III WSHP Protocol Document, ED 15103 (both available on www.DaikinApplied.com) for additional information.

Follow these steps to use J-Flash ARM to download the BACnet communication module's .hex software file:

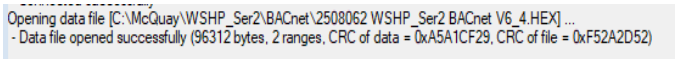
1. Apply power to the unit controller.
2. Navigate to Target and select Connect from the main J-Flash screen.
3. Verify connection by viewing the log message at the bottom of the screen that indicates Connected Successfully.
4. Close any open data files like the one highlighted in red (Figure 47).
5. Select Open data file… from the File menu.

Figure 47: Successful Connection Message



6. Browse to the location on the hard drive where the BACnet communication module .hex file has been saved.
7. Click on the ".hex" file and select Open.
8. Verify that the Log screen message indicates the data file has opened successfully (Figure 48).

Figure 48: Successful Data File Open Message



9. Remove (if connected) the jumper from pin 1 and pin 2 on J2 of the BACnet communication module.
10. Press the F7 key to begin production programming.

NOTE: If this does not work, another option is to use Production Programming from the Target Interface menu.

11. Click OK when the screen shown in Figure 49 appears and programming is complete.

Figure 49: Target Erased, Programmed, and Verified Successful

12. Remove power from the unit controller.
13. Remove the JTAG cable connection from the BACnet communication module.
14. Press and hold the Default and Reset push buttons on the BACnet communication module as shown in Figure 32.
15. Apply power to the unit controller.
16. Release the Reset push button, and continue to hold the Default push button until all four BACnet communication module LEDs (D1 to D4) are on steady (Figure 32).
17. Verify that application is operating correctly by observing the following LED activity:
    a. LED D1 flashes on and off approximately every half second. This indicates that the application is running.
    b. LED D2 flashes in bursts approximately every half second. This indicates communication between the unit controller and the BACnet communication module.
    c. LED D3 flashes for each message transmitted to the MS/TP network.
    d. LED D4 flashes for each message received from the MS/TP network.

All BACnet communication parameters have now been returned to default settings. Reconfigure network values as required. See ED 15103 (www.DaikinApplied.com) for further details.

NOTE: Refer to the Troubleshooting Guide and FAQ section. If necessary, contact the Controls Customer Support group at 866-462-7829 for technical assistance.

LonWorks Communication Module

The following section describes how to download and commission the LonWorks communication module software files (XIF - eXternal Interface File and NXE file) for the WSHP unit controller. This is done using industry-standard LonWorks-specific software such as Echelon® LonMaker. It is assumed that the user has the application installed and is familiar with the use of LonMaker or equivalent software.

Getting Started

You will need the following:

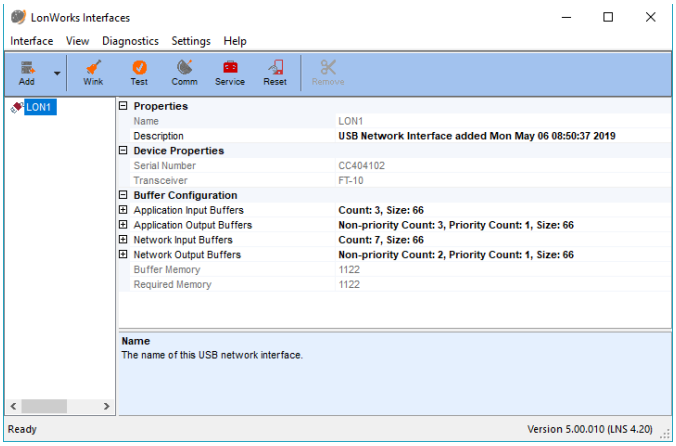
- LonWorks communication module installed on unit controller with PN 668105801
- XIF/NXE files for the LonWorks communication module, available on www.DaikinApplied.com or www.lonmark.org
- LonWorks application such as Echelon® CT (Commissioning Tool), available at, available at www.echelon.com.

  Note that a 32-bit version of Visio software and also .NET v4.8 Windows framework is needed. It is also recommended that .NET v3.5 remain installed in order to support other PC applications not related to the Echelon CT Tool.
- Twisted pair shielded cable with 3-pin connector
- Echelon TP/FT-10 to USB network interface, U10 or similar
- Computer with Windows-compatible operating system Refer to www.echelon.com for details
- Standard web browser for access to www.DaikinApplied.com

Installation and Setup

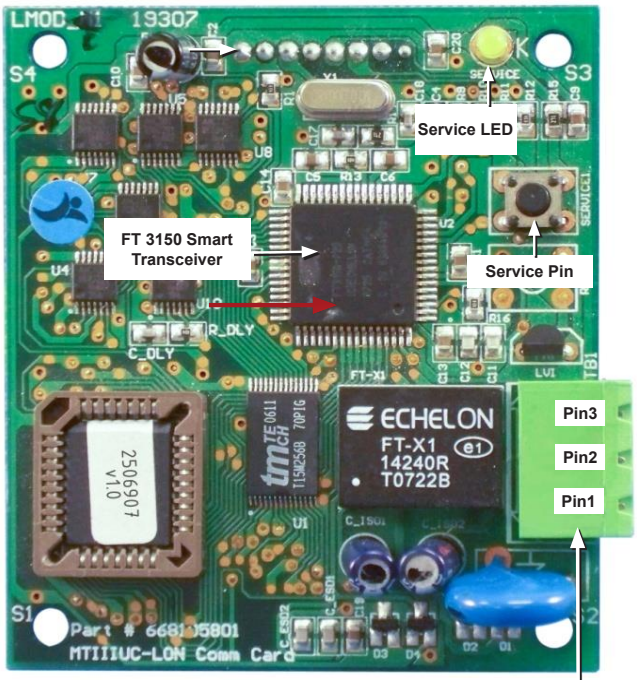
1. Verify that LonWorks software such as LonMaker SR4 or CT is installed.
2. Verify that a LonWorks communication module is properly installed on the unit controller. Refer to IM 927, available on www.DaikinApplied.com.
3. Download the LonWorks communication module XIF/NXE files to your hard drive. Refer to www.DaikinApplied.com or www.lonmark.org.
4. Connect TP/FT-10 network channel to the computer using the USB network interface.

FIGURE 50: LONWORKS INTERFACE NAME



5. Determine the LonWorks Interface name for later reference. Do this by navigating to Control Panel/ LonWorks Interfaces (Figure 50).
6. Insert the other end of the TP/FT-10 connector to the LonWorks communication module pins A and B (Figure 51).
7. Apply power to the unit controller.

FIGURE 51: COMMUNICATION MODULE MAIN COMPONENTS



LonWorks Software Version Label

TB1 Network Connector
Pin3: No Connection
Pin2: Signal B / -
Pin1: Signal A / +

NOTE: If device has not been commissioned, the yellow Service LED flashes ON/OFF once every half second. See Troubleshooting Guide and FAQ.

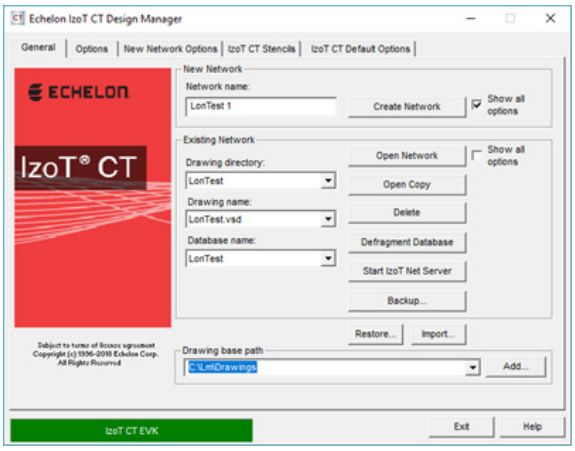
Configuring the LonWorks Communication Network

The following section describes how to create a LonWorks communication network drawing and import the WSHP Device Template into the network using CT.

1. Open the Echelon IzoT Commissioning Tool. The Design Manager screen appears (Figure 52).

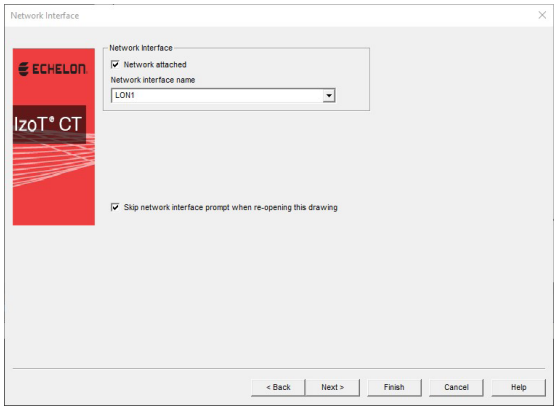
NOTE: The following screen shots and instructions may vary slightly with newer sotware versions.

Figure 52: IzoT Commissioning Tool Design Manager



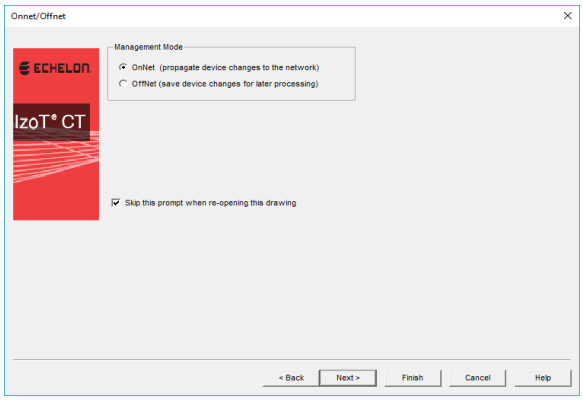
2. Either create a new network or select an existing network.
   a. To select an existing network:
      i. Select the network from the Drawing directory drop-down menu.
      ii. Click on Open Network.
      iii. Proceed to the Commissioning the LonWorks Communication Module section.
   f. To create a new network:
      i. Enter a name in the Network name field and then click Create Network.
3. Select the Network Interface Name (Figure 53) as determined from step 5 of the Installation and Setup section (Figure 50).

Figure 53: LonWorks Interface Name



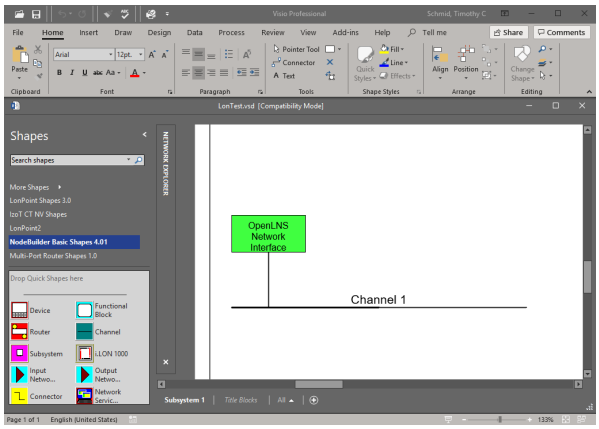
4. Click Next.
5. Verify the Management Mode is OnNet and click Finish (Figure 54).

Figure 54: Management Mode



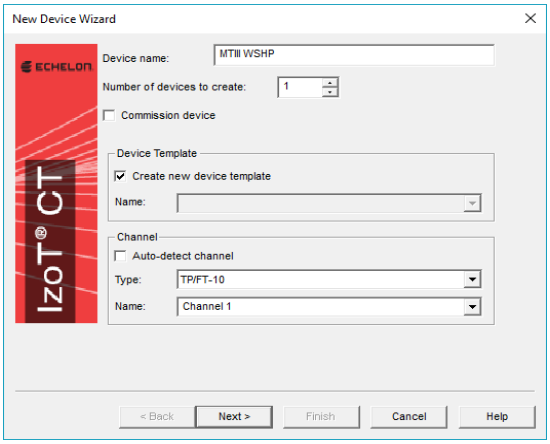
6. A screen similar to Figure 55 appears.
7. Drag the Device icon (shown on the left-hand side of the image in Figure 55) to the center of the screen.

Figure 55: LNS Network Interface Screen



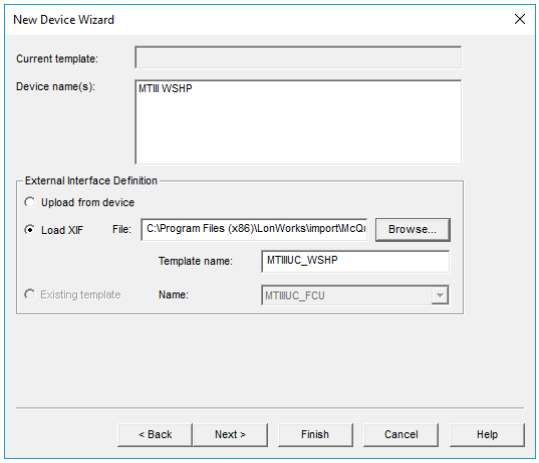
8. The New Device Wizard then opens (Figure 56).
9. Provide a Device name and then select Create new device template.
10. Click Next. The screen shown in Figure 57 appears.

Figure 56: New Device Template



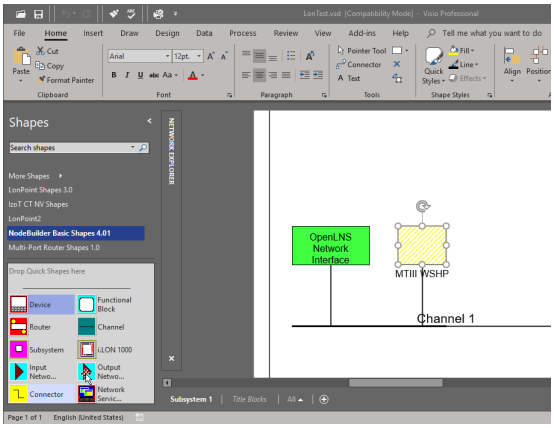
11. Ensure that Load XIF is selected.
12. Click Browse to locate the LonWorks communication module XIF file from the hard drive and then click Finish.

Figure 57: XIF Definition



13. The network drawing screen now displays the new device (Figure 58).
14. The MTIII WSHP LonWorks device appears in yellow, indicating the device is decommissioned.

Figure 58: Network Drawing



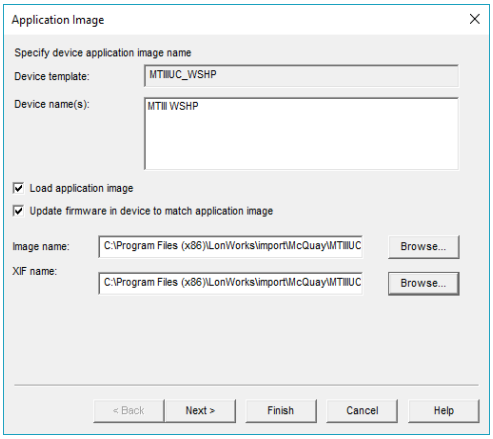
Commissioning the LonWorks Communication Module

The LonWorks communication module is ready for network commissioning after the Device Template has been properly loaded into CT using the XIF file and the WSHP device exists in the network drawing area (Figure 58).

Follow these steps to begin the commissioning process:

1. Right click on the decommissioned LonWorks device and select Commissioning and then left click on Commission.
2. Select both Load application image and Update firmware in device to match application image (Figure 59).

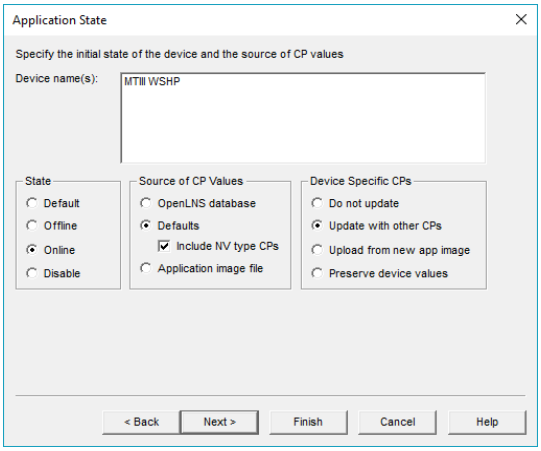
Figure 59: Application Image Details



3. Click Browse to locate the LonWorks communication NXE Image file from where it was saved and then click Next.

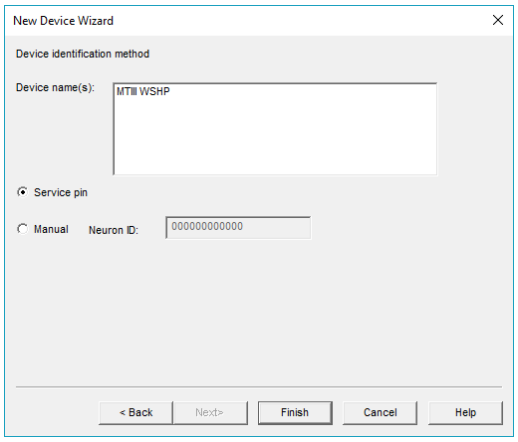
4. Verify that the following are all selected from the screen shown in Figure 60:
   - State setting = Online
   - Source of CP Values setting = Defaults and Include NV type CPs
   - Device Specific CPs setting = Update with other CPs
5. Click Next.

Figure 60: Device Details .



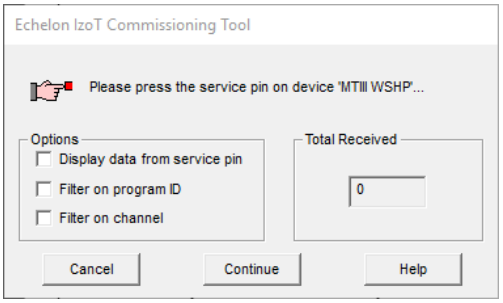
6. Verify that Service pin is selected and then click Finish (Figure 61).

Figure 61: Service Pin Screen



7. The screen in Figure 62 appears.
8. Press the service pin button on the LonWorks communication module. Refer to Figure 51 for the location of the service button.

Figure 62: Service Pin Entry



At this point, the application image starts loading the LonWorks communication module. This process takes approximately one minute (Figure 63).

The MTIII WSHP device changes color to green which indicates successful commissioning (Figure 64).

Figure 63: Loading Application

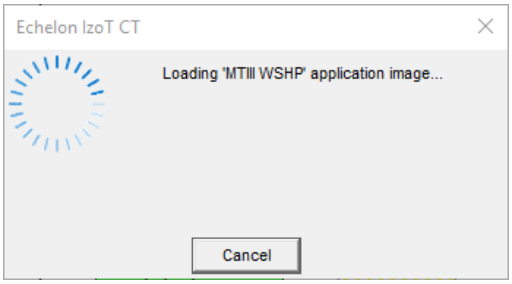
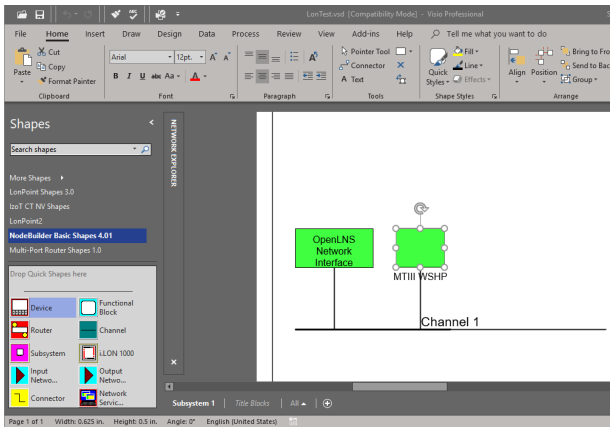


Figure 64: LonWorks Communication Module – Commissioned



In order to program another LonWorks device, it is necessary to first decommission the existing device by following these three steps:

1. Right click on the commissioned LonWorks device
2. Select Commissioning
3. Left click on Decommission

Troubleshooting Guide and FAQ

The following Troubleshooting Guide is intended to be a helpful reference and source of supplemental information. It provides answers to common questions about the controls subjects covered in previous sections of this manual. The troubleshooting topics are organized into five categories: WSHP equipment configuration, unit controller and I/O expansion modules, BACnet or LonWorks communication modules, Flasher tools, and finally J-Link tools.

WSHP Equipment Configuration

This section describes the equipment options for each model. Table 8 - Table 19 show the hardware jumper settings used by the unit controller and I/O expansion module and summarize the valid configuration options by model.

Enfinity Single Stage Compressor Control

Table 8: Unit Controller Configuration Jumpers for Enfinity Single Stage Compressor

Unit Controller Option	Hardware Jumpers	Setting	Description
Normal / Test Mode	JP1	JP1 = Open	Normal Operation
		JP1 = Shorted	Service / Test Mode
Fan Operation	JP2	JP2 = Open	Continuous Fan Operation (ON)
		JP2 = Shorted	Cycling Fan Operation (AUTO)
Loop Fluid	JP3	JP3 = Open	Water Loop Fluid
		JP3 = Shorted	Glycol Loop Fluid
Alarm “A” Terminal Polarity Select (v3.1 & Newer)	JP4	JP4 = Open	Fault de-energizes alarm output to 0VAC.
		JP4 = Shorted	Fault energizes alarm output to 24VAC.
Room Sensor Setpoint Adjust Range	JP5	JP5 = Open	Short Range: -3 to +3 ºF (-1.67 to +1.67 ºC)
		JP5 = Shorted	Long Range: 55 to 95 ºF (12.78 to 35 ºC)
Thermostat / Room Sensor	JP6	JP6 = Open	Thermostat Control
		JP6 = Shorted	Room Sensor Control
Not Used	JP7	JP7 = Open	—
Not Used	JP8	JP8 = Open	—

Table 9: I/O Expansion Module Configuration Jumpers for Enfinity Single Stage Compressor

I/O Expansion Module Option	Hardware Jumpers	Setting	Description
Number of Compressors	JP1	JP1 = Open	Single Compressor
		JP1 = Shorted	Dual Compressor
Dehumidification	JP2	JP2 = Open	None
		JP2 = Shorted	HGR Dehumidification
Secondary Heating	JP3 & JP4	JP3 = Open	None
		JP4 = Open	
		JP3 = Shorted	Supplemental Electric Heat
		JP4 = Open	
		JP3 = Open	Boilerless Electric Heat
		JP4 = Shorted	
Fan Speed Selection	JP5 & JP6	JP5 = Open	Single Speed Fan
		JP6 = Open	
		JP5 = Shorted	Two Speed Fan
		JP6 = Open	
		JP5 = Open	Three Speed Fan
		JP6 = Shorted	
Not Used	JP7	JP7 = Open	—
Lead Compressor Select (v3.1 & Newer)	JP8	JP8 = Open	Compressor #1 is Lead
		JP8 = Shorted	Compressor #2 is Lead (Dual Compressor Models Only)

Table 10: Model Types and Options for Enfinity Single Stage Compressor

Model Number	Number of Compressors	1 Speed Fan	2 Speed Fan	3 Speed Fan	HGR Dehumid	Supplemental Electric Heat	Boilerless Electric Heat
1[1]	Single	X	—	—	—	—	—
2	Single	X	—	—	X	—	—
3	Single	X	—	—	—	X	—
4	Single	X	—	—	—	—	X
5	Single	X	—	—	X	X	—
6	Single	X	—	—	X	—	X
7	Single	—	X	—	—	—	—
8	Single	—	X	—	X	—	—
9	Single	—	X	—	—	X	—
10	Single	—	X	—	—	—	X
11	Single	—	X	—	X	X	—
12	Single	—	X	—	X	—	X
13	Single	—	—	X	—	X	—
14	Single	—	—	X	—	—	X
15	Single	—	—	X	X	X	—
16	Single	—	—	X	X	—	X
17	Dual	X	—	—	—	—	—
18	Dual	X	—	—	X	—	—

[1] Except for the Enfinity single-compressor WSHP with no other options selected, all Enfinity models require both the unit controller and I/O expansion module.
[2] An “X” means that option is available for the corresponding WSHP model.

SmartSource Single and Two Stage Compressor and SmartSource Compact

Table 11: Unit Controller Configuration Jumpers for SmartSource Single and Two Stage Compressor (Series2) and SmartSource Compact

Unit Controller Option	Hardware Jumpers	Setting	Description
Normal / Test Mode	JP1	JP1 = Open	Normal Operation
		JP1 = Shorted	Service / Test Mode
Fan Operation	JP2	JP2 = Open	Continuous Fan Operation (ON)
		JP2 = Shorted	Cycling Fan Operation (AUTO)
Loop Fluid	JP3	JP3 = Open	Water Loop Fluid
		JP3 = Shorted	Glycol Loop Fluid
Freeze Fault Protection	JP4	JP4 = Open	LWT Freeze Fault Protection is Disabled
		JP4 = Shorted	LWT Freeze Fault Protection is Enabled
Room Sensor Setpoint Adjust Range	JP5	JP5 = Open	Short Range: -5 to +5 ºF (-2.78 to +2.78 ºC)
		JP5 = Shorted	Long Range: 55 to 95 ºF (12.78 to 35 ºC)
Thermostat / Room Sensor	JP6	JP6 = Open	Thermostat Control
		JP6 = Shorted	Room Sensor Control
Compressor Heating Source	JP7	JP7 = Open	Allow Compressor Heating Mode Operation
		JP7 = Shorted	Disable Compressor Heating Mode Operation
I/O Expansion Module	JP8	JP8 = Open	I/O Expansion Module is Not Present
		JP8 = Shorted	I/O Expansion Module is Required

Table 12: I/O Expansion Module Configuration Jumpers for SmartSource Single and Two Stage Compressor (Series2) and SmartSource Compact

I/O Expansion Module Option	Hardware Jumpers	Setting	Description
Fan Row Selection (V6.2 & Newer)	JP1 & JP2	—	Fan row selection for the: FanOnly, Hydronic Heating, and Hydronic Cooling machine states.
Secondary Heating	JP3 & JP4	JP3 = Open JP4 = Open	None
		JP3 = Shorted JP4 = Open	Supplemental Electric Heat
		JP3 = Open JP4 = Shorted	Boilerless Electric Heat
		JP3 = Shorted JP4 = Shorted	Hydronic Heating (v6.0 & Newer)
Cooling / Dehumidification	JP5 & JP6	JP5 = Open JP6 = Open	None
		JP5 = Shorted JP6 = Open	HGR Dehumidification
		JP5 = Open JP6 = Shorted	Hydronic Cooling (Waterside Economizer)
Not Used	JP7	JP7 = Open	—
Compressor Capacity	JP8	JP8 = Open	Single Stage Compressor
		JP8 = Shorted	Dual Stage Compressor

Table 13: Model Types and Options for SmartSource Single and Two Stage Compressor (Series2) and SmartSource Compact[3]

Model Number	Compressor Type	Supplemental Electric Heat	Boilerless Electric Heat	Hydronic Heat[2]	HGR	Waterside Economizer
1[1]	Single Stage	—	—	—	—	—
2	Single Stage	—	—	—	X	—
3	Single Stage	—	—	—	—	X
4	Single Stage	X	—	—	—	—
5	Single Stage	X	—	—	X	—
6	Single Stage	X	—	—	—	X
7	Single Stage	—	X	—	—	—
8	Single Stage	—	X	—	X	—
9	Single Stage	—	X	—	—	X
10	Single Stage	—	—	X	—	—
11	Single Stage	—	—	X	X	—
12	Single Stage	—	—	X	—	X
13	Two Stage	—	—	—	—	—
14	Two Stage	—	—	—	X	—
15	Two Stage	—	—	—	—	X
16	Two Stage	X	—	—	—	—
17	Two Stage	X	—	—	X	—
18	Two Stage	X	—	—	—	X
19	Two Stage	—	X	—	—	—
20	Two Stage	—	X	—	X	—
21	Two Stage	—	X	—	—	X
22	Two Stage	—	—	X	—	—
23	Two Stage	—	—	X	X	—
24	Two Stage	—	—	X	—	X

[1] Except for SmartSource Two Stage Compressor (Series2) WSHP with a single speed fan with no options selected, all other SmartSource Two Stage Compressor (Series2) WSHPs require both the unit controller and I/O expansion module.
[2] Hydronic heating is only available for unit controller software v6.0 and newer.
[3] An “X” means that option is available for the corresponding WSHP model.

Enfinity Large Two Compressor (SS2C)

Table 14: Unit Controller Configuration Jumpers for Enfinity Large Two Compressor (SS2C)

Unit Controller Option	Hardware Jumpers	Setting	Description
Normal / Test Mode	JP1	JP1 = Open	Normal Operation
		JP1 = Shorted	Service / Test Mode
Fan Operation	JP2	JP2 = Open	Continuous Fan Operation (On)
		JP2 = Shorted	Cycling Fan Operation (Auto)
Loop Fluid	JP3	JP3 = Open	Water Loop Fluid
		JP3 = Shorted	Glycol Loop Fluid
Freeze Fault Protection	JP4	JP4 = Open	LWT Freeze Fault Protection is Disabled
		JP4 = Shorted	LWT Freeze Fault Protection is Enabled
Room Sensor Setpoint Adjust Range	JP5	JP5 = Open	Short Range: -5 to +5 ºF (-2.78 to +2.78 ºC)
		JP5 = Shorted	Long Range: 55 to 95 ºF (12.78 to 35 ºC)
Thermostat / Room Sensor	JP6	JP6 = Open	Thermostat Control
		JP6 = Shorted	Room Sensor Control
Compressor Availability	JP7 & JP8	JP7 = Open JP8 = Open	Both Compressors Available (Automatic Compressor Fail Replace)
		JP7 = Shorted JP8 = Open	Lead Compressor Available (Lag Compressor is Off-Line)
		JP7 = Open JP8 = Shorted	No Compressors Available

Table 15: I/O Expansion Module Configuration Jumpers for Enfinity Large Two Compressor (SS2C)

I/O Expansion Module Option	Hardware Jumpers	Setting	Description
Not Used	JP1	JP1 = Open	—
Not Used	JP2	JP2 = Open	—
Secondary Heating	JP3 & JP4	JP3 = Open JP4 = Open	None
		JP3 = Shorted JP4 = Open	Supplemental Electric Heat
		JP3 = Open JP4 = Shorted	Boilerless Electric Heat
		JP3 = Shorted JP4 = Shorted	Hydronic Heating
Cooling / Dehumidification	JP5 & JP6	JP5 = Open JP6 = Open	None
		JP5 = Shorted JP6 = Open	HGR Dehumidification
		JP5 = Open JP6 = Shorted	Hydronic Cooling (Waterside Economizer)
Not Used	JP7	JP7 = Open	—
Lead Compressor Select	JP8	JP8 = Open	Compressor #1 is Lead
		JP8 = Shorted	Compressor #2 is Lead

Table 16: Model Types and Options for Enfinity Large Two Compressor (SS2C)[1,2]

Model Number	Supplemental Electric Heat	Boilerless Electric Heat	Hydronic Heating	HGR Dehumid	Waterside Economizer
1	—	—	—	—	—
2	X	—	—	—	—
3	—	X	—	—	—
4	—	—	X	—	—
5	—	—	—	X	—
6	X	—	—	X	—
7	—	X	—	X	—
8	—	—	X	X	—
9	—	—	—	—	X
10	X	—	—	—	X
11	—	X	—	—	X

[1] All Enfinity Large Two Compressor (SS2C) WSHP models require both the unit controller and I/O expansion module.
[2] An “X” means that option is available for the corresponding WSHP model.

Two Speed Compressor, Multi-Fan Speed (Series1)

Table 17: Unit Controller Configuration Jumpers for Two Speed Compressor, Multi-Fan Speed (Series1)

Unit Controller Option	Hardware Jumpers	Setting	Description
Normal / Test Mode	JP1	JP1 = Open	Normal Operation
		JP1 = Shorted	Service / Test Mode
Fan Operation	JP2[1]	JP2 = Open	Continuous Fan Operation (ON)
		JP2 = Shorted	Cycling Fan Operation (AUTO)
Loop Fluid	JP3	JP3 = Open	Water Loop Fluid
		JP3 = Shorted	Glycol Loop Fluid
Not Used	JP4	JP4 = Open	—
Room Sensor Setpoint Adjust Range	JP5	JP5 = Open	Short Range: -3 to +3 ºF (-1.67 to +1.67 ºC)
		JP5 = Shorted	Long Range: 55 to 95 ºF (12.78 to 35 ºC)
Thermostat / Room Sensor	JP6	JP6 = Open	Thermostat Control
		JP6 = Shorted	Room Sensor Control
Fan Speed Selection	JP7 & JP8	JP7 = Open	Single Speed Fan
		JP8 = Open	
		JP7 = Shorted	Two Speed Fan (User Selectable)
		JP8 = Open	
		JP7 = Open	Three Speed Fan (Automatic)
		JP8 = Shorted	

[1]JP2 setting applies only if: (1) there is a room sensor and (2) the room sensor does not have the Fan ON/AUTO switch input option wired.

Table 18: I/O Expansion Module Configuration Jumpers for Two Speed Compressor, Multi-Fan Speed (Series1)

I/O Expansion Module Option	Hardware Jumpers	Setting	Description
Compressor	JP1 & JP2	JP1 = Open	Single Compressor, Single Stage Capacity
		JP2 = Open	
		JP1 = Shorted	Single Compressor, Dual Stage Capacity
		JP2 = Open	
		JP1 = Open	Dual Compressor, Single Stage Capacity
		JP2 = Shorted	
Secondary Heating	JP3 & JP4	JP3 = Open	None
		JP4 = Open	
		JP3 = Shorted	Supplemental Electric Heat
		JP4 = Open	
		JP3 = Open	Boilerless Electric Heat
		JP4 = Shorted	
		JP3 = Shorted	Hydronic Heating
		JP4 = Shorted	
Dehumidification	JP5 & JP6	JP5 = Open	None
		JP6 = Open	
		JP5 = Shorted	HGR Dehumidification
		JP6 = Open	
		JP5 = Open	Half Stage Dehumidification
		JP6 = Shorted	
Not Used	JP7	JP7 = Open	—
Not Used	JP8	JP8 = Open	—

Table 19: Model Types and Options for Two Speed Compressor, Multi-Fan Speed (Series1)[2]

Model Number	Number of Compressors	Number of Compressor Capacity Stages	1 Speed Fan	2 Speed Fan (User)	3 Speed Fan (Auto)	Supplemental Electric Heat	Boiler-less Electric Heat	Hydronic Heat	HGR	Half Stage Cooling
1	One[1]	One	X	—	—	—	—	—	—	—
2	One	One	X	—	—	X	—	—	—	—
3	One	One	X	—	—	—	X	—	—	—
4	One	One	X	—	—	—	—	X	—	—
5	One	One	X	—	—	—	—	—	X	—
6	One	One	X	—	—	X	—	—	X	—
7	One	One	X	—	—	—	X	—	X	—
8	One	One	—	X	—	—	—	—	—	—
9	One	One	—	X	—	X	—	—	—	—
10	One	One	—	X	—	—	X	—	—	—
11	One	One	—	X	—	—	—	X	—	—
12	One	One	—	X	—	—	—	—	X	—
13	One	One	—	X	—	X	—	—	X	—
14	One	One	—	X	—	—	X	—	X	—
15	One	One	—	—	X	—	—	—	X	—
16	One	One	—	—	X	X	—	—	X	—
17	One	One	—	—	X	—	X	—	X	—
18	One	Two	X	—	—	—	—	—	—	—
19	One	Two	X	—	—	—	X	—	—	—
20	One	Two	X	—	—	—	—	X	—	—
21	One	Two	X	—	—	—	—	—	X	—
22	One	Two	X	—	—	—	X	—	X	—
23	One	Two	—	—	X	—	—	—	—	X
24	One	Two	—	—	X	—	X	—	—	X
25	One	Two	—	—	X	—	—	X	—	X
26	One	Two	—	—	X	—	X	—	X	—
27	Two	One	X	—	—	—	—	—	—	—
28	Two	One	X	—	—	—	—	—	X	—

[1] Except for Two Speed Compressor (Series1) WSHP with no options selected, all other Two Speed Compressor (Series1) WSHP model types require both the unit controller and I/O expansion module.
[2] An “X” means that option is available for the corresponding WSHP model.

WSHP Unit Controller and I/O Expansion Module

The following section describes common issues and the troubleshooting steps for the unit controller with or without an I/O expansion module. Refer to the applicable OM in the Reference Documents section, available on www.DaikinApplied.com, for complete details about LED activity, faults, and additional troubleshooting topics.

Q: ***Room Sensor LED does not come ON, or comes ON for a little while, then goes out***

A: This could be caused by incorrect voltage to the unit controller, incorrect wiring from the unit controller to the room sensor LED, defective hardware, or the unit is operating in the bypass occupancy mode.

- Verify that the programming jumper is *tightly* installed and in the RUN position and not PRG
- Verify that the unit controller has 24 VAC
- Verify that the unit is not operating in the bypass occupancy mode
- Verify if the unit runs/communicates when the LED is OFF
- If it runs properly without the LED, check the LED wiring connection
- Download application code to the unit controller
- Replace hardware, if necessary

Q: ***Unit has a room sensor and is constantly in cooling mode or the space temperature consistently reads higher than actual room temperature***

While the unit controller has separate connections for both return air and room temperature sensors, it is not possible for both to be used at the same time. If both sensors are connected, it causes the room temperature to read higher than the actual temperature.

A: Disconnect the return air sensor.

Q: ***Unit is experiencing nuisance high pressure trips***

A: High pressure trips can be caused by a faulty pressure switch, an improperly designed water system, or possibly a software error. High pressure switches can come loose, especially when the compressor is running. The connection could be compromised at the unit controller, a Molex connector in the middle of the switch wire, or where the wires land on the switch.

- Contact the **ATS Technical Support Team at 315-282-6434** to discuss any issues that may be related to the design of the water loop itself.
- Verify that the high pressure switch connection to the unit controller is secured tightly to the unit controller.
- If all the options have been explored, then the issue may be related to a condition in the Enfinity Single Stage Compressor software that creates nuisance high pressure alarms. This condition is seen approximately once every 1000+ compressor cycles.

NOTE: For Enfinity Single Stage Compressor units with software 2506900 (v2.6 or older) OR units with software 2506901 (v2.7 or older): update the unit controller to v3.2 or newer and I/O expansion module to v3.0 or newer.

BACnet and LonWorks Communication Modules

The following section describes issues and troubleshooting steps that apply to both BACnet and LonWorks communication modules.

Q: ***Cannot write to network setpoint or network space temp input and space temp reads 621.806 (Analog Null)***

A: The unit has been set up for thermostat control.

- Use a jumper to short JP6 on the unit controller to enable room sensor control.

Q: ***Cannot write to network setpoint input but space temp reads valid value***

A: The room sensor setpoint adjustment has been enabled. For LonWorks, set nciLocSetEnable to “Disable” or for BACnet, set MSV 14 to “1” (defaults are “Enable” and “2.”)

Q: ***Network inputting space temperature, but space temp fault indicated***

A: The Enfinity Single Stage Compressor unit controller, with software v2.8 or newer, always indicates a space temperature fault if there is an open or short on both the room sensor and the return air sensor inputs. This occurs regardless of a network input for the space temperature. In unit controller software v2.9 and newer, the network input can be used without a hardwired sensor connection.

- Install a 10K ohm resistor on either the room sensor input or return air sensor input
- Upgrade unit controller and I/O expansion module software to version to v2.9 or newer.

Q: ***Unit constantly gives an Invalid Jumper Configuration alarm***

A: A Two Speed Compressor, Multi-Fan Speed (Series1) unit installed with a room sensor may experience an alarm because the software does not support this configuration.

- Replace the unit controller software with v1.2 or newer. Refer to the General Information section to confirm current software version and compatibility among auxiliary boards, if attached.
- Change the unit to thermostat control by shorting the JP6 configuration jumper.
  - Until the replacement thermostats arrive or a newer version of the software is installed, configure the unit to run as a single-speed compressor unit by performing the following:

1. Disable two-speed compressor capacity by removing jumper JP1 on the I/O expansion module.
2. Disable half-stage cooling, if applicable, by removing jumper JP6 on the I/O expansion module.

BACnet Communication Module Only

The following section applies only to the BACnet MS/TP communication module.

Light Emitting Diodes (LEDs)

The BACnet communication module has four LEDs that indicate the status of the module, the connection to the unit controller and/or BACnet network. These LEDs are useful for verifying communication between the unit controller and the network, as well as diagnosing a potential problem. Table 20 provides a description of the LED activity. For more details, see IM 928, available on www.DaikinApplied.com.

Table 20: BACnet Communication Module - LED Activity

LED	Function	Description
D1	Program Running	Program main loop activity
D2	Unit Controller Message	SPI Activity, LED on during unit controller message
D3	MS/TP Transmit	Flashes on when transmitting a MS/TP message
D4	MS/TP Receive	Flashes on when receiving a MS/TP message

Q: ***No LEDs are lit***

A: The communication module may not be properly installed or may not have the BACnet application software loaded.

- Remove the communication module and then reinstall it, verifying that the connector lands on all of the pins (it is very easy to either miss just one pin or all of the pins even with the standoffs).
- If the communication module is properly installed, try it on a different, functioning unit. If the LEDs still do not function properly, replace the communication module.
- Re-download the BACnet software in the communication module. **Contact the Controls Customer Support group at 866-462-7829 before proceeding with this option.**

Q: ***All four LEDs are lit***

A: The BACnet application software has not been properly downloaded.

- Re-download the BACnet software in the communication module.
- Replace the BACnet communication module.

Q: ***Program LED (D1) never blinks***

A: The BACnet software is not running correctly in the communication module.

- Re-download the BACnet software in the communication module.
- Replace the BACnet communication module.

Q: ***SPI Comm LED (D2) never blinks***

A: The communication module is not communicating with the unit controller.

- Verify that the programming jumper on the baseboard is in the RUN position and not the PRG position.
- Verify that unit controller is controlling the water source heat pump unit.
- Re-download the unit controller application code.
- Re-download the BACnet software in the communication module.
- Install the communication module on a different, functioning unit to determine if the problem is associated with the unit controller or the communication module.

Q: ***RX LED (D4) never blinks***

A: The communication module is not communicating with the network.

- Verify the BACnet MS/TP settings through the serial port on the communication module (check baud rate and any potential addressing conflicts).
- Verify proper network wiring.
- Re-download the BACnet software in the communication module.
- If the network settings are correct and the application software is functioning properly, this could indicate a hardware defect. Replace the communication module, if necessary.

Q: ***CRC errors***

A: The BAS indicates “CRC errors” at the workstation.

- Upgrade the communication module to the newest version of BACnet software. It is not necessary to upgrade the unit controller or I/O expansion module software.

Q: ***Communication module cannot be configured through serial port***

A: This could be caused by an incorrect or defective cable used to configure the communication module, software installation error, a previous change in the serial port settings, or potentially defective hardware.

- Verify that the communication module is connected with a DB9 female-female (modem-modem) serial cross-over cable. Refer to the MicroTech III WSHP Unit Controller Protocol Document, ED 15103, available on www.DaikinApplied.com.
- Confirm that the serial terminal device application settings are correct. . Refer to the MicroTech III WSHP Unit Controller Protocol Document, ED 15103, available on www.DaikinApplied.com.
- Verify that the LED activity is normal. See Table 20.
- Try resetting the communication module back to original default settings.
- Re-download the BACnet software in the communication module.
- Replace the communication module, if necessary.

LonWorks Communication Module Only

The following section applies only to the LonWorks communication module.

The LonWorks communication module has a Service LED that indicates the status of the module itself and the LonWorks network. This LED is useful for verifying communication between the LonWorks communication module and the network, and for diagnostic purposes. Table 21 provides a description of the LED activity. Refer to the LonWorks Communication Module Installation Manual, IM 927, available on www.DaikinApplied.com.

Table 21: LonWorks Communication Module - LED Activity

LED Activity	Description
LED flashes once when power has been applied, or comes ON when pressing the Service switch	Normal operation for a commissioned LonWorks communication module
LED is OFF continuously as soon as power is applied	Faulty hardware or power supply
LED is ON continuously, even when power is first applied	Faulty hardware or power supply
LED flashes when power is applied, goes OFF, then comes ON solid	Indicates the communication module does not have the application image (APB/NXE) and interface (XIF) files properly installed - reload application files, which can be found on www.DaikinApplied.com or www.lonmark.org
LED flashes briefly once every second	The communication module could be experiencing an error with the application software or possibly the hardware - reload application files, which can be found on www.DaikinApplied.com or www.lonmark.org
LED steadily blinks ON and OFF at ½ Hz Rate (1 Sec = ON; 1 Sec = OFF)	Normal operation if the communication module is decommissioned

Q: ***Service Pin LED does not light when pressed***

A: The communication module may not be installed properly, the hardware may be defective, or the LED itself may be defective.

- Remove the communication module and then re-install it, making sure the connector snaps into place on all four of the pins. Use caution as it is easy to either miss just one pin or all of the pins, even with the standoffs.
- Verify if the BAS recognizes the Neuron ID, even if the LED is not lit.
- If the communication module is properly installed but no Neuron ID is broadcast, remove the communication module and install it on a different unit. If the LED does not function correctly and/or the BAS still does not recognize the Neuron ID, replace the communication module.

Q: ***The BAS does not "see" some or all LonWorks Configuration Properties***

A: The communication module uses multiple User-defined Configuration Property Types (UCPTs) to pass Daikin-specific unit information to the BAS. If the BAS can access LonWorks network variables contained in the XIF file, then it is likely that the BAS is not allowing access to these user-defined configuration properties or has not properly implemented the Resource Files giving access to the direct memory read-write CPs.

- The controls integrator should contact his/her technical support to determine how to allow the BAS to access configuration properties.
- The complete set of LonWorks files required for BAS integration are available on www.DaikinApplied.com or www.echelon.com should it be necessary to reinstall them.

Factory-installed LonWorks communication modules are loaded with all application files required for network integration.

Segger Flasher5 Tools

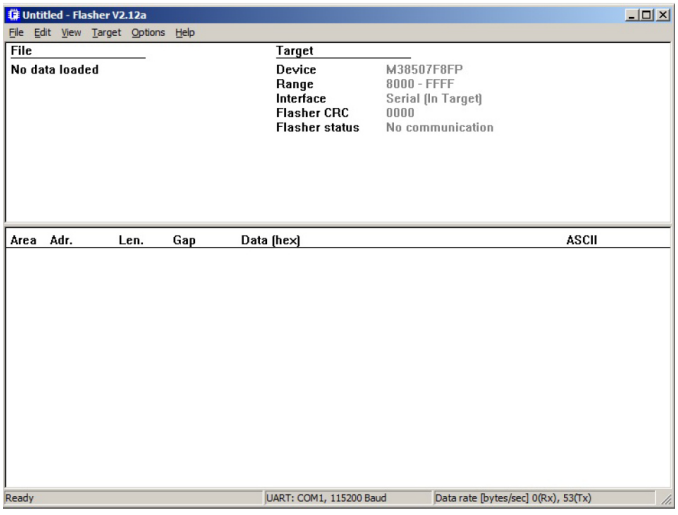
The following section summarizes common issues with Flasher tools and the corresponding solutions.

Q: ***The main screen does not populate with the proper Flasher information***

A: See Figure 65. This may indicate a problem with the connection between Flasher and the computer

- Verify that the Flasher tool has power and that the Flasher serial cable is connected to the computer.
- Additionally, check that the communications port selected in the 'Communications' section of the 'Options' menu is set to the correct port (i.e. the port to which the Flasher tool is connected).

Figure 65: Main Screen Does Not Populate



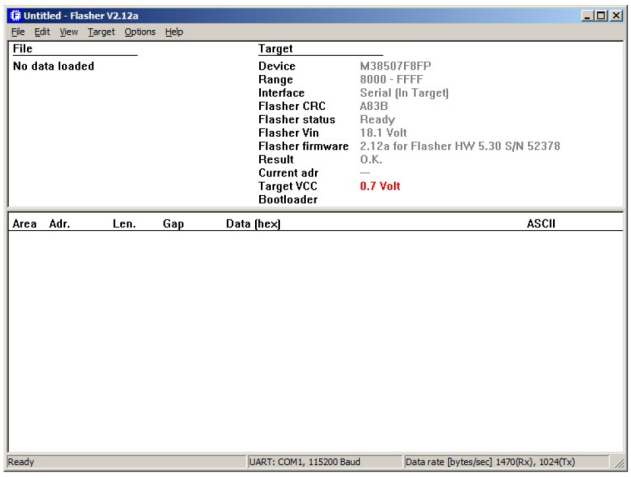
Q: ***The Flasher tool's LED is red***

A: Disconnect and remove power from Flasher. After a few seconds, reapply power to Flasher. Connect it to the unit controller again, verifying that the triangle on the 10-pin connector of Flasher is properly installed on the keyed connector on the unit controller's 10-pin JTAG port. See Figure 24 and Figure 24.

Q: ***After applying power, the Target VCC field changes to a value that is too low***

A: See Figure 66. This could indicate a communication error between Flasher and the unit controller. Verify that the Flasher 10-pin connector is properly connected to the keyed 10-pin JTAG connector port on the unit controller. Also verify that the unit controller is connected and powered properly. See Figure 24.

Figure 66: Incorrect Target VCC Value



Q: After preparing the file to be downloaded, the Range and/or Target VCC fields appear in red

A: If the screen shown in Figure 67 appears, this indicates that the device has not been properly selected. Repeat Steps 14-17 from the Flasher downloading procedure.

Figure 67: Incorrect Range and Target VCC Fields

Q: ***After selecting Download and Verify, a "Busy does not react" error message appears***

A: If the message shown in Figure 68 appears:

- Verify that the Flasher5 hardware is properly connected to the unit controller.
- Verify the programming jumper is in the "PRG" position (Figure 25).
- Apply power to the unit controller and perform the download again.

Figure 68: Download Error Message

Q: ***After selecting Download and Verify, a "supply voltage too low" error message appears***

A: If the message shown in Figure 69 appears, verify that the power supply is properly connected to the Flasher tool and that the power supply is plugged in to the power source.

Figure 69: Download Error Message

Q: ***After selecting Download and Verify, an "ID mismatch" error message appears***

A: If the message shown in Figure 70 appears, perform the following steps:

1. Verify that the passcode has been set correctly in Step 21 from the Flasher Download Procedure.
2. Remove power from the unit controller.
3. Apply power to the unit controller.
4. Repeat the Flasher download procedure.

NOTE: Replace the unit controller if this problem persists after repeating the programming process.

Figure 70: Download Error Message

Segger J-Link/J-Flash ARM

The following section summarizes common issues with J-Link tools and the corresponding solutions.

Q: ***"Failed to connect" error message appears***

A: If the message shown in Figure 71 appears, follow these steps:

1. Verify that the unit controller has power.
2. Select Auto from the J-Flash Target tab.
3. Click Yes if the message shown in Figure 72 appears.
4. If the message shown in Figure 73 appears, the BACnet communication module flash memory must be manually erased by continuing to Step 5 below. If this message does not appear, proceed to the Download BACnet Communication Module Software section.
5. Remove the jumper from pin 4 and pin 5 on J2 of the BACnet communication module, if connected (Figure 74).
6. With power applied to the unit controller, connect the jumper between pin 5 and pin 6 on J2 of the BACnet communication module as shown in Figure 32.
7. Remove power from the unit controller.
8. Remove the jumper from pin 5 and 6 on J2 of the BACnet communication module, replacing the jumper on pin 4 and pin 5 of the BACnet communication module, if previously connected.
9. Apply power to the unit controller. The flash memory has now been completely erased, so all configured settings return to default values.
10. Proceed to the Download BACnet Communication Module Software section.

Figure 71: Failed to Connect Error Message

Figure 72: Relocate Message

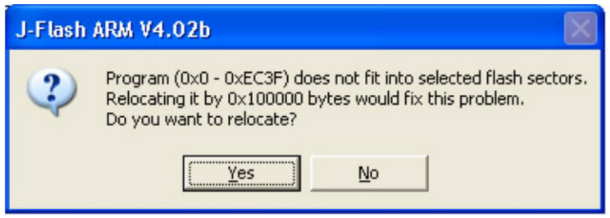


Figure 73: Locked Program Error Message

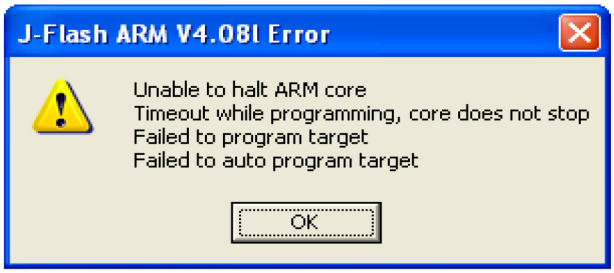
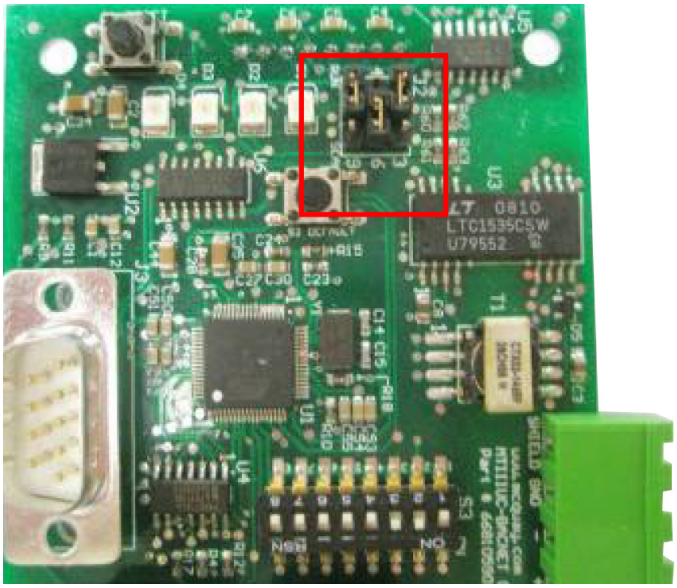


Figure 74: Manual Erase Jumpers



Appendix: Legacy Programmers

Downloading to Baseboard #668105611 or I/O Expansion Module #668105711 with Renesas E2 Lite or E1 Programmer

Installing the Renesas E2 Lite or E1 Programmer

The instructions below apply to downloading the WSHP unit controller or I/O expansion board using previous versions of the Renesas E1/E2 Lite programming hardware. The Renesas E1 programmer can also be used but is no longer supported. The differences are noted where necessary.

The custom interface cable assembly used with the Resesas programmer is no longer available and is referred to as the legacy cable (Figure 77).

1. It is assumed the user has the Renesas E2 Lite programmer and interface cable as described in Table 8 .
2. Download the latest Renesas Flash Programmer (RFP) software from the Renesas website at www.renesas.com/us/en/software/D3017334.htm.

NOTE: It is important that you install the Flash Programming software before connecting the programmer to the USB port on your computer. The USB driver is automatically installed.

3. Connect the E2 Lite programmer to the USB port on your computer using the USB interface cable.
    a. Connect the mini-B plug of the USB interface cable to the USB I/F connector of the E2 Lite.
    b. Connect the A plug of the USB interface cable to the USB port on your computer.

NOTE: The E2 Lite is active once connected to the USB interface cable.

4. Power down the unit controller.
5. Connect the E2 Lite programmer to the MCU:
    a. Connect the interface ribbon cable to the user-side connector of the E2 Lite (Figure 78).
    b. Carefully insert the Renesas E2 Lite or E1 programmer 14-pin connector to the interface cable PCB header pins labeled “E1 Emulator” (Figure 78 and Figure 79).
    c. Connect the 6-pin connector to the CN_PGRM port on the control board (Figure 76).

NOTE: It is important to identify the red cable wire is next to the arrow on the PCB (Figure 78). Figure 80 shows the final assembly inserted into the baseboard.

6. Apply power to the unit controller.

NOTE: Do not remove power from the unit controller or unplug the USB interface cable during this process. The power supplied from the board to the programmer could possibly damage the hardware.

7. Open the Renesas Flash Programmer (RFP) software.
8. Click Open Project from the File menu.
9. Browse to the Renesas Programmer Project file (.rpj file type) and click Open. See the Note at the end of the Getting Started section if you do not have this file.
10. Click Browse in the Project File section to select the Baseboard or IO Expansion Board (.hex file type) and click Open. See the Note at the end of the Getting Started section if you do not have this file.
11. If using the E1 programmer, follow steps 11a-b. Otherwise, if using the E2 Lite programmer, go to Step 12.
    a. From the Connect Settings tab, set the Communication Tool to E1.
    b. Click the Operation tab.
12. Click Start to begin programming the board. A pop-up message appears and indicates progress during the programming process.
13. Programming is successful when the green OK message appears.
14. Power down the board and disconnect the 6-pin E2 Lite interface cable from the CN_PGRM port of the baseboard or IO expansion board.
15. Close the RFP software.

Programming is now complete and the board is ready for use.

Figure 75: Renesas E2 Lite Programmer, USB Connector and Interface Cable

Figure 76: MicroTech III Baseboard Programming Port

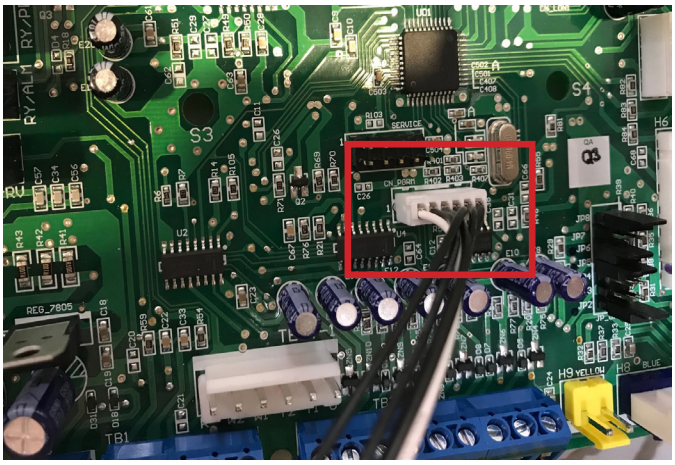


Figure 77: Legacy Custom Interface Cable for Renesas E2 Lite

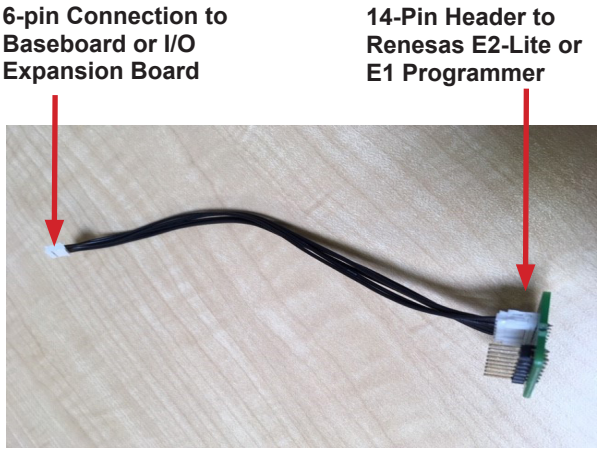


Figure 78: Legacy Renesas Programmer Attached to the 6-pin Connection Port of Interface Ribbon Cable

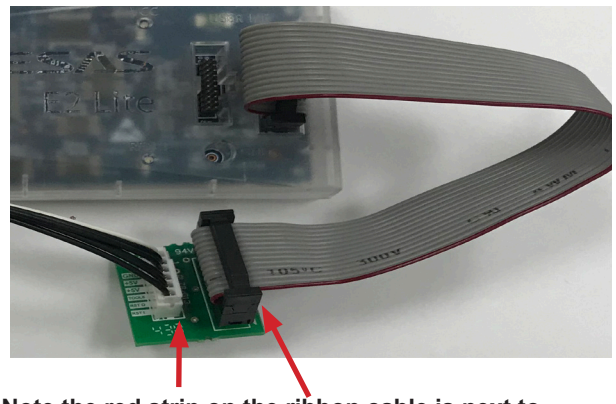


Figure 79: Inserting the Renesas E2 Lite Ribbon Cable to the PCB Board of the Legacy Custom Interface Cable

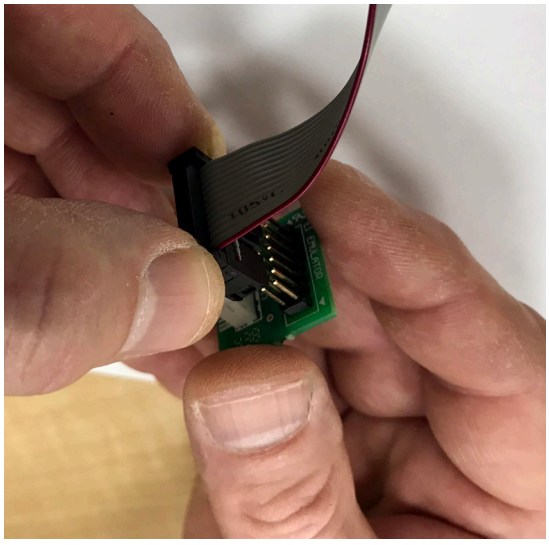
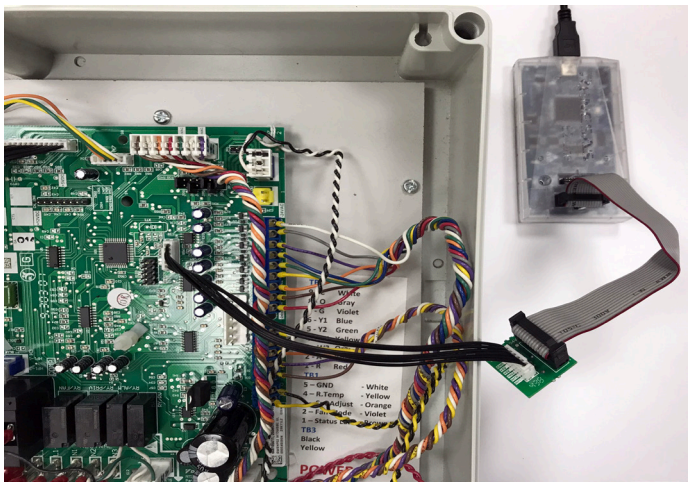


Figure 80: Programming Hardware Fully Connected



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