

Thermo Scientific
This update applies to all iSeries Model 51i
Firmware Version 03.00.00.195

*****WARNING*** ***WARNING*** ***WARNING*** ***WARNING*****

iPort Software version 01.04.02 (latest included installation image with this software update) or greater is required to install this update. Earlier versions of iPort could cause the instrument to lock up during the installation process and require the processor board to be replaced.

OVERVIEW

The firmware for the Model 51i is loaded into the instrument's FLASH memory at the factory, but it may be necessary to load updated firmware into the instrument as new features become available.

This release includes two files, 51i030000.bin and 51i030000.cramfs, which can be used to update the Model 51i only.

Before attempting to upgrade the firmware, it is advisable to check that the instrument is a model supported by this update and that it is currently running an upgradable version of firmware. This information may be viewed by going to the DIAGNOSTICS > PROGRAM VERSION(S) screen. Make sure that the PRODUCT field matches one of the models listed above and the VERSION field matches one of the following versions:

“01.00.12.158”
“01.06.00.166”
“02.00.00.188”
“02.02.00.192”
“02.02.01.193”

If the instrument is not running a version listed above, it is not field upgradable using this procedure. Contact our Technical Support for special upgrade instructions or specific information regarding changes to any firmware versions.

The entire firmware update process should take about 20 minutes at 115,200 baud over serial or 5 minutes over Ethernet. There are two steps to upgrading the firmware:

- A. Backup configuration/calibration data onto PC
- B. Upgrade firmware

Note: It may be convenient to print this file (README.TXT) out before continuing with the firmware upgrade.

A. BACKUP CONFIGURATION/CALIBRATION DATA

Thermo highly recommends backing up configuration and calibration data before performing a firmware update. If this information is somehow lost or corrupted during the update, then a complete recalibration of all sensors and outputs would be required if this data was not saved.

This procedure assumes that Thermo iPort has already been installed onto a PC and has been configured to communicate with the instrument (over serial or Ethernet). Before updating the firmware, the instrument's current settings should be saved to a data file on a PC.

This procedure is described below:

1. Run iPort. Bring up the connection to the instrument using Instrument > Poll Serial or TCP Connect.
2. Once the instrument's window is displayed and selected, select Instrument > Backup/Restore > Backup Config to back up the configuration from the currently selected instrument to a file on the PC.
3. In the Open dialog box, select the appropriate folder and type in a filename for the backup file, then click Open to retrieve the data from the instrument and save it to the file.

B. UPGRADE FIRMWARE

Below is a procedure for loading the firmware into FLASH memory. The firmware update file transfer process should take about 30 minutes at 57,600 baud. It is assumed that iPort is already talking to the instrument and the instrument window is currently open.

NOTE: DO NOT TURN OFF THE INSTRUMENT AT ANY TIME DURING THIS UPDATE

If the instrument is turned off while burning the new image to the FLASH, it may require replacement of the CPU board, motherboard, I/O expansion board, and/or measurement interface board. To reduce this risk, make sure the instrument is running on clean and stable power before performing this update.

1. Close all instrument windows.
2. From the iPort menu, select Instrument > Update Firmware. Select TCP/IP or Serial, depending on the connection.
3. In the Update Instrument Firmware Program dialog box, enter the instrument ID (if using serial port) or the TCP/IP address (if using TCP/IP).
4. In the Open File dialog box, select the firmware update file, then click the Open button.
5. File transfer progress can be monitored by looking at the transferred blocks in the lower left corner of the iPort window as well as on the instrument's display.

6. Once the file transfer is complete, the instrument will automatically reboot. There may be some error messages regarding configuration and calibration files that are displayed, this is normal after a firmware update. At this time, the bootloader and application code in each of the low-level processors will be updated to the latest version.
7. To verify all updates were successful, go to the ALARMS menu and make sure the board status alarms at the bottom of the menu all show "OK". If any board status alarms show "FAIL", try rebooting the instrument and checking the ALARMS menu again. If they still show "FAIL", contact technical service.

RELEASE NOTES

Version 03.00.00 changes from version 02.02.01:

1. Remove telnet support.
2. Fix boot issue on new iSeries+ processor boards.
3. Fix streaming protocol so the instrument doesn't hang on Ethernet port scan.
4. Invert signs in time zone labels to match the actual functionality and change "GMT" to just "UTC".
5. Fix static gateway address setting so it's saved between power cycles when DHCP is off and update gateway when changed by user (no longer requires instrument reboot).
6. Fix RS-485 user serial port communications.
7. Update logo on splash screen.
8. Fix Modbus write coil error to respond with data error instead of address error if the wrong data is written to the coil.
9. Add MODBUS support for date and time correction
10. Fix CLINK "mb read registers" and "mb read coils" commands.
11. Improve CLINK protocol communication over serial port.

Version 02.02.01 changes from version 02.02.00:

1. Fix logged data averaging where the sum was divided by 'n + 1' instead of 'n' seconds, yielding a possible 1.6% error in logged concentration data for 1-minute logging or 0.03% error in hourly concentration data.
2. Fix handling of IP addresses with 3 digits in each of the four fields in INSTRUMENT CONTROLS> COMMUNICATIONS> TCP/IP SETTINGS> IP ADDRESS screen.
3. Fix "set format", "set lrec format", "set srec format", and "set erec format" CLINK commands to save the new setting if the source of the command is serial.
4. Fixed "set program bootloader procboard" CLINK command so that it no longer causes iSeries+ units to hang.
5. The "host name" CLINK command now responds with a <space> if no host name is found. If "set host name" data does not pass validation, it now responds with "data not valid" instead of "bad command".

Version 02.02.00 changes relative to version 02.00.00:

1. Change default oven temperature from 175 to 200 for Model 51iHT to match test spec.

2. Fix sample mode digital output so it's not active during purge mode.
3. Fix version string in cramfs image used by iPort during a firmware update so iPort will report the file's version correctly.
4. Fix softkey assignment screen to always show SAVING message for three seconds after the enter key is pressed.
5. Add support for new processor board revision 1.5T.

Version 02.00.00 changes relative to version 01.06.00:

1. Add "reset user cal defaults" CLINK command
2. Fix possible lockup during analog input initialization
3. Increase precision of 'diag volts' CLINK commands
4. Update concentration precisions in output list so ASCII LREC/SREC/EREC data is reported to 0.001
5. Add message to cycle power when changing NTP server IP address
6. Set alarm when communication with MIB is lost and clear it when it's re-established

Version 01.06.00 changes relative to version 01.00.12:

1. Fix LCD driver initialization problem and add a CLINK command "set program bootloader procboard" to perform a bootloader update on the main processor board.
2. Improved files read and saving to prevent possible data corruption.
3. Lengthen warm-up times in HT model.
4. Oven now reports it has reached the set point based on the lower of 190 degrees C or the actual set point.
5. Add "flag" type output list items, external alarm output list item now a "flag" type.
6. Modify CLINK "version" command to report raw Arcturus bootloader string and report MSP430 bootloader version correctly.
7. Add option to OR together status bits in flags (upper 16 bits) over the datalogging interval.
8. Fix to INSTRUMENT CONTROLS > DATALOGGING SETTINGS > VIEW LOGGED DATA screen for the case when there's only 1 logged data record.
9. Fixed display of zero and span concentrations in zero and span check alarm screens.
10. Analog input user point screen now allows values between -999.999999 to 999.999999.