

# Automated Thermal Cycler (ATC) System

## Installation and Use

**Catalog Numbers** A30207, A30208, A31486, A31487, A31488, A31489, A31490, A31491, A33976, A33977, A33978, A33979, A33980, A33981, and A33982

**Pub. No.** MAN0016422 **Rev.** A.0

**Note:** For safety and biohazard guidelines, see the “Safety” appendix in the *Automated Thermal Cycler (ATC) System User Guide* (Pub. no. MAN0014558). Read the Safety Data Sheets (SDSs) and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves.

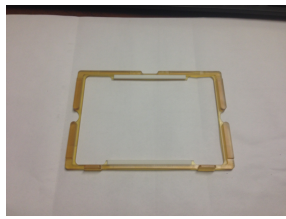
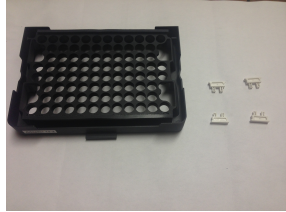
## Product information

### Product description

The Automated Thermal Cycler (ATC) System is designed for integrating with laboratory automation products of other equipment manufacturers (OEM) for use in automation workflows. The ATC System can also be used as a stand-alone device in conjunction with desktop software.

### Package contents

| Item                                    | Description                                                                                                                                                                                                                                                                             | Quantity |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| <b>Modules</b>                          |                                                                                                                                                                                                                                                                                         |          |
| ATC block module                        |  <p>You will receive one of the following:</p> <ul style="list-style-type: none"> <li>• ATC 96 well block module (Cat. No. A30207)</li> <li>• ATC 384 well block module (Cat. No. A33976)</li> </ul> | 1        |
| ATC control module<br>(Cat. No. A30208) |                                                                                                                                                                                                      | 1        |

| Item                                            | Description                                                                                                                                                                                                   | Quantity |
|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| <b>Computer</b>                                 |                                                                                                                                                                                                               |          |
| CMPTR, DELL<br>E6540 RC<br>(PN A25621)          |                                                                                                                            | 1        |
| <b>Plates</b>                                   |                                                                                                                                                                                                               |          |
| Full-skirted adaptor plate<br>(Cat. No. A33045) |                                                                                                                           | 1        |
| Semi-skirted plate adaptor<br>(Cat. No. A33044) |                                                                                                                          | 1        |
| <b>Cables</b>                                   |                                                                                                                                                                                                               |          |
| Connector cable                                 | <p>You will receive one of the following:</p> <ul style="list-style-type: none"> <li>• 10 cm cable (Cat. No. A31485)</li> <li>• 1 m cable (Cat. No. A31482)</li> <li>• 3 m cable (Cat. No. A31483)</li> </ul> | 1        |
| Ethernet cable                                  | —                                                                                                                                                                                                             | 1        |
| AC power cable                                  | —                                                                                                                                                                                                             | 1        |

## Location of power points and ports

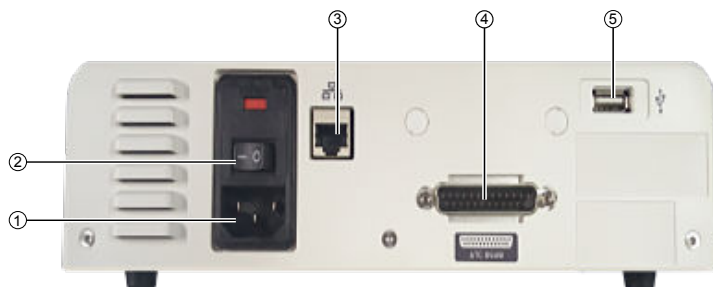


Figure 1 Back panel of the ATC control module

- ① Power port
- ② Power button
- ③ Ethernet port
- ④ Automated Thermal Cycler (ATC) System DSUB
- ⑤ USB port



Figure 2 Back panel of the ATC block module

- ① Automated Thermal Cycler (ATC) System DSUB

## Connect the hardware

1. Connect the connector cable into the insertion points on the ATC block (Figure 1, item 4) and base module (Figure 2, item 1)

**Note:** Ensure the DSUB connector is securely fastened.

2. Connect the power cable into the back of the ATC control module (Figure 1, item 1)
3. Connect the ethernet cable into the control module (Figure 1, item 3) and into the computer/network that you will be using to control the ATC.
4. Power on the ATC.

## Use ATC plate adaptors

The plate adaptor helps to ensure that the supported consumables (full skirt and semi-skirt plates) are ejected properly, and that the temperature is kept uniform. The Automated Thermal Cycler comes factory configured with a full-skirted adaptor (amber color) already installed.

**Note:** ATC plate adaptors are only installed/required on the 96-well block. Adaptors are not required for the 384-well block.



Figure 3 Automated Thermal Cycler 96-well block with full-skirted plate adaptor installed

- To uninstall the full-skirted adaptor, follow the instructions in Figure 4.



Figure 4 Uninstall the full-skirted plate adaptor

- ① Slightly push the tabs highlighted in red.
- ② Grab the bottom of the adaptor, and tilt up.
- ③ Remove the adaptor.
- To install full-skirted plate adaptor follow the instructions in Figure 5.

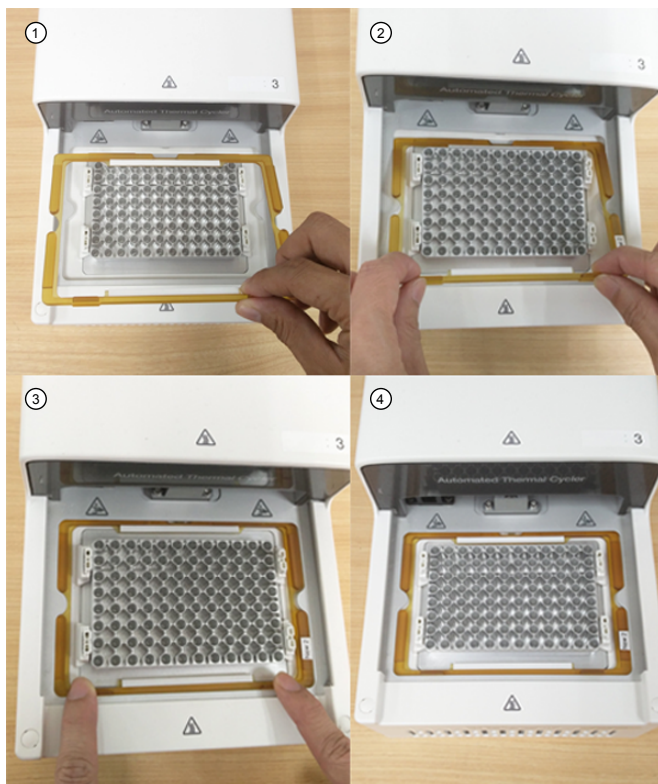


Figure 5 Install full-skirted plate adaptor

- ① Remove half skirted adaptor, if any. place full skirted adaptor by tilting an angle allowing the front to insert under the frame.
- ② Push the two tabs allowing it to be inserted into the frame.
- ③ Ensure the full-skirted plate adaptor sits freely under the frame.
- ④ Full-skirted plate adaptor is installed.

- To install the semi-skirted plate adaptor, follow the instructions in Figure 6.

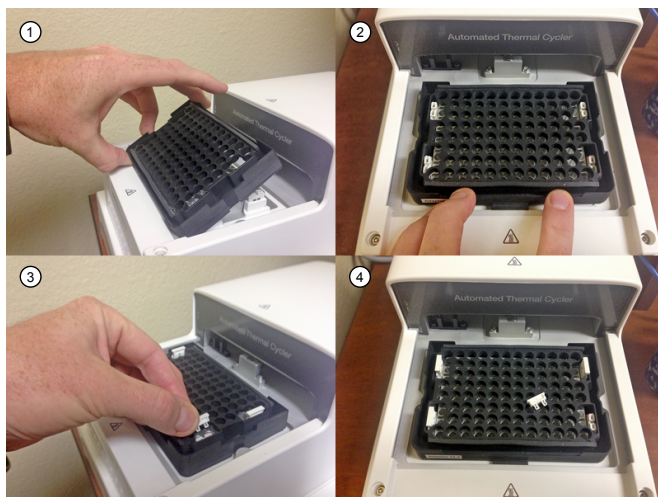


Figure 6 Installation of semi-skirted plate adaptors and ejector buttons

- ① Slot the semi-skirted plate adaptor to the gap between the Alu top plate and drip pan.
- ② Slot in the adaptor and center it.
- ③ Snap fit the ejector buttons.

- ④ There are four ejector buttons.

## Operate the ATC as a stand alone instrument using a computer

Make sure all hardware connections are completed “Connect the hardware” on page 2.

1. Download the ATC desktop software at [thermofisher.com](http://thermofisher.com) and follow the installation instructions found in the software release notes.

**Note:** To fully install the software, the computer will need to be connected to the internet. Once the software is fully installed, disconnect the computer from the internet for best performance with the ATC desktop software.

2. Once the software is installed, click on the ATC Demo icon to launch the software.

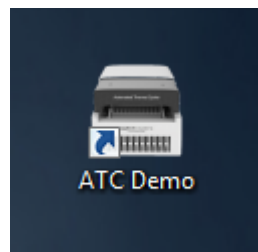


Figure 7 Desktop icon of ATC Demo software

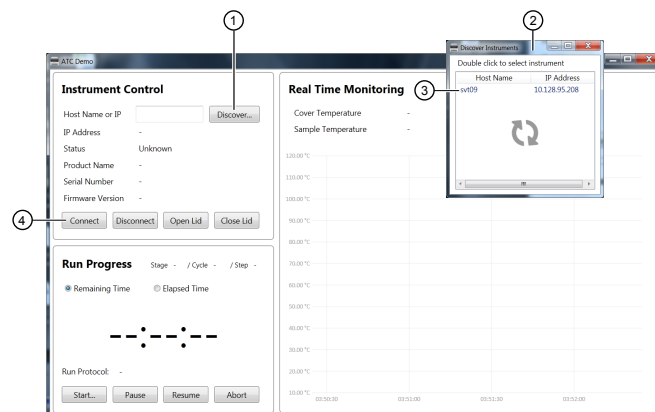


Figure 8 ATC Demo software initial screen

- ① **Discover**
- ② A pop up window
- ③ Identified instrument name
- ④ **Connect**

3. Make sure the ATC is powered on and connected via ethernet cable to your computer.

**Note:** It will take approximately 1.5 minutes for the ATC to initialize before it can connect to the software.

4. Once the ATC instrument has initialized, click **Discover** to identify all devices connected to the same local network.

A pop up window will appear.

5. Double click on the identified instrument name.



## 6. Click **Connect**.

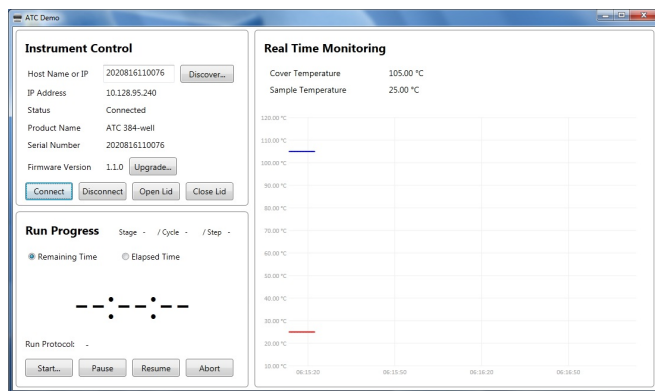


Figure 9 ATC Demo software connected to the ATC instrument

## 7. Hover mouse over the real time monitoring temperature curves to see black window legend with graph related information.

## 8. Click **Start** to open Protocol Editor

# Program and execute a run on the ATC

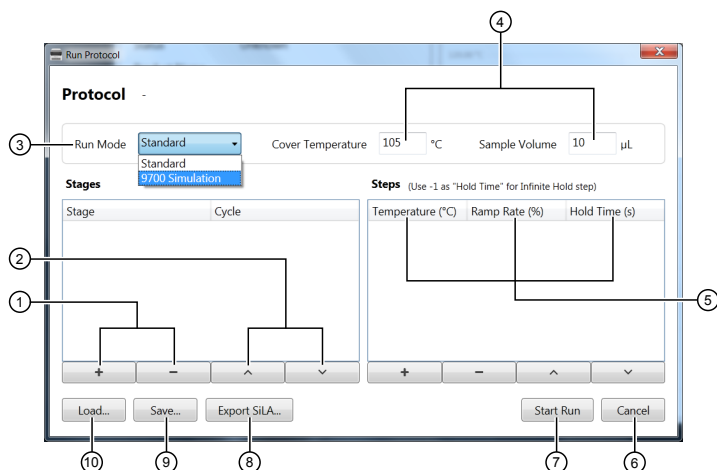


Figure 10 Run Protocol

- ① Add (+), Remove (-) stages
- ② Remove and arrange order
- ③ Run Mode drop down
- ④ Cover Temperature and Sample Volume
- ⑤ Temperature, Ramp Rate, Hold Time
- ⑥ Cancel
- ⑦ Start Run
- ⑧ Export SiLA
- ⑨ Save
- ⑩ Load

1. In **Stages**, add or remove protocol stages with the plus and minus signs.
2. Click up and down arrows to arrange the sequence of stages.  
Specify the number of cycles required for the particular stage.

## 3. In the **Steps** field, specify the temperature set points, ramp rate, and duration.

The ramp rate is indicated as a % where 100% corresponds to a peak block ramp rate of 3.5C/s.

Type in -1 in the **Hold Time** field to achieve an infinity hold time.

## 4. Enter cover temperature and sample volume.

## 5. Click **Start Run** to start immediately, or **Save** for future use.

## 6. Press **Load** to display previously protocols.

**Note:** An empty protocol cannot be saved.

## 7. Click **Export SiLA** to export protocol for integration with SiLA based software or scheduler.

**Note:** Although SiLA exported protocol is an .xml file it should be opened using a text editor in order to see the content, otherwise they might appear empty if opened with a default browser application. When exporting to SiLA format, no white space is allowed in stage label and protocol file name. Only alpha numeric characters and "-", "\_", "." are accepted.

**Note:** A message will notify the user if the Protocol Editor is started while the instrument is already running (Edit Only mode). User can still edit and export a protocol while the software control and monitor the instrument running, without interfering with the current run.

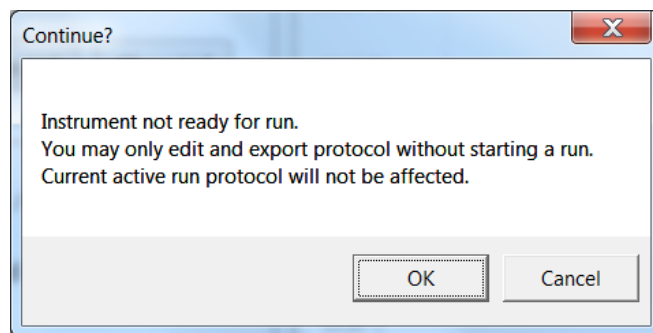


Figure 11 Instrument not ready for run warning

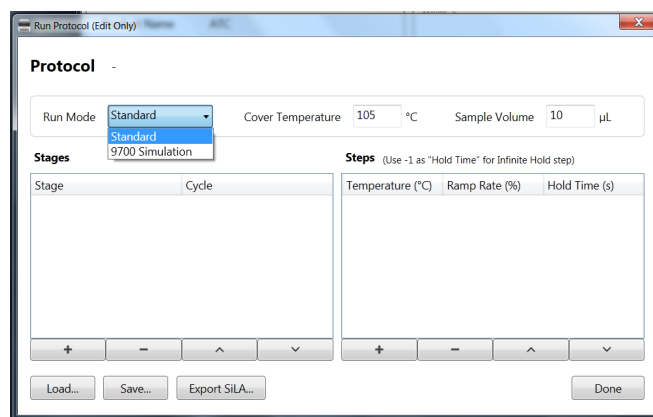


Figure 12 Run Protocol (Edit Only) mode



A run in progress will show the following display:

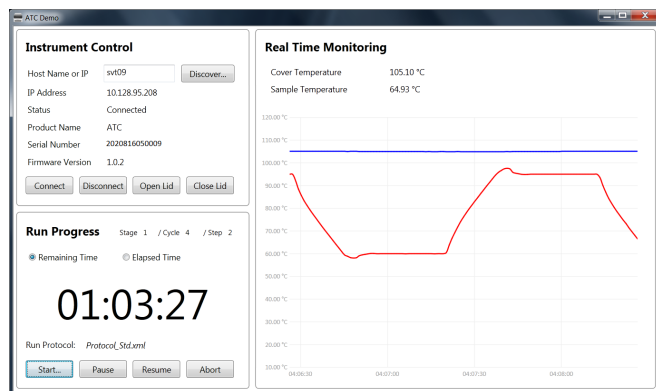


Figure 13 ATC Demo software –Run in progress monitoring

If the lid is opened while a run is in progress a warning message will open.

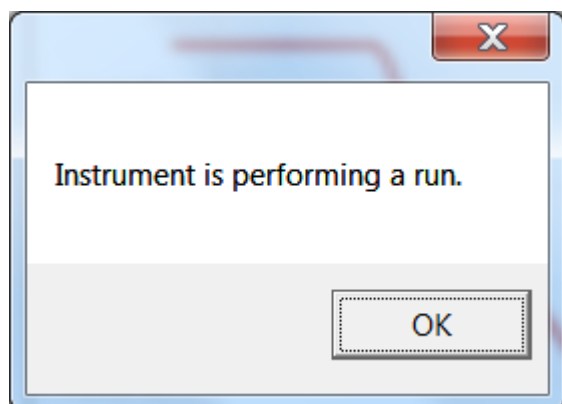


Figure 14 Alert of run in progress

8. Click **Abort** to end the run.

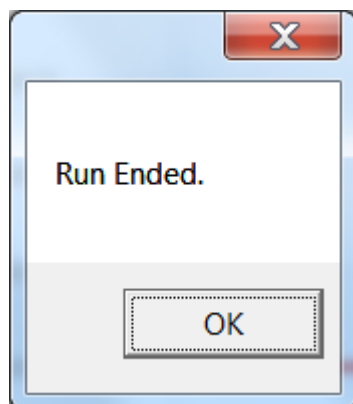


Figure 15 Run ended notification

## Connect to multiple instruments using the desktop software

1. Connect multiple ATC instruments via ethernet cable to your ethernet network, or directly into your computer using a multiport ethernet/network switch.

Each ATC will be assigned its own IP address by the network.

2. To control multiple ATC instruments, open multiple instances of the ATC Demo software by repeatedly double clicking on the software shortcut. In each software instance, discover and connect to a different ATC.

3. To launch a number of instances of the ATC Demo software at the same time, double click the ATC Demo desktop icon (FigureX) repeatedly to open multiple windows of the application. and then select from each specific application window (using Discovery button) the instrument you want to connect to.

4. Click **Discover** in each specific application window to identify the instrument that you want to connect to.

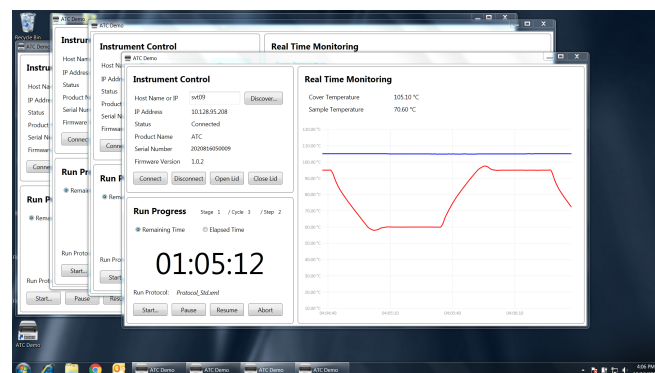


Figure 16 Parallel ATC instruments control and monitoring through multiple instances of ATC Demo software

**Note:** We recommend that you use one computer to control multiple ATC instruments, and we do not recommend that a single ATC is connected to multiple computers.

## Connect Automated Thermal Cycler to a robotic system

Please contact your robotic system manufacturer for information on software compatibility, physical mounting of the ATC on your robot, and licensing information. For the most recent information regarding robot compatibility, driver information, and the full instrument user guide please visit [thermofisher.com/atc](http://thermofisher.com/atc) or [thermofisher.com](http://thermofisher.com).

## Ordering information

Unless otherwise indicated, all materials are available through [thermofisher.com](http://thermofisher.com).

### ATC System

| Item                                     | Cat. No. |
|------------------------------------------|----------|
| ATC 96 WELL SYSTEM, LAPTOP, 1m cable     | A31486   |
| ATC 96 WELL SYSTEM, LAPTOP, 3m cable     | A31487   |
| ATC 96 WELL SYSTEM, LAPTOP, 10 cm cable  | A31488   |
| ATC 96 WELL SYSTEM, 1m cable             | A31489   |
| ATC 96 WELL SYSTEM, 3m cable             | A31490   |
| ATC 96 WELL SYSTEM, 10 cm cable          | A31491   |
| ATC, 96 WELL BLOCK                       | A30207   |
| ATC, 1m cable                            | A31482   |
| ATC, 3m cable                            | A31483   |
| ATC, 10 cm cable                         | A31485   |
| ATC, CONTROL BOX                         | A30208   |
| ATC, semi-skirted plate adaptor          | A33044   |
| ATC, full-skirted plate adaptor          | A33045   |
| ATC, 384 WELL BLOCK                      | A33976   |
| ATC 384 WELL SYSTEM, LAPTOP, 1m cable    | A33977   |
| ATC 384 WELL SYSTEM, LAPTOP, 3m cable    | A33978   |
| ATC 384 WELL SYSTEM, LAPTOP, 10 cm cable | A33979   |
| ATC 384 WELL SYSTEM, 1m cable            | A33980   |
| ATC 384 WELL SYSTEM, 3m cable            | A33981   |
| ATC 384 WELL SYSTEM, 10 cm cable         | A33982   |

## Recommended plastics

| Item                                                                           | Cat. No. | Quantity |
|--------------------------------------------------------------------------------|----------|----------|
| MicroAmp™ EnduraPlate™ Optical 96-Well Full-Skirted Plates with Barcode, Clear | A31732   | 500      |
|                                                                                | A31728   | 50       |
| MicroAmp™ EnduraPlate™ Optical 96-Well Full-Skirted Plates with Barcode, Red   | A31729   | 50       |
| MicroAmp™ EnduraPlate™ Optical 96-Well Full-Skirted Plates with Barcode, Blue  | A31727   | 50       |
| MicroAmp™ EnduraPlate™ Optical 96-Well Full-Skirted Plates with Barcode, Green | A31731   | 50       |
| MicroAmp™ EnduraPlate™ Optical 96-Well Blue Reaction Plates with Barcode       | 4483343  | 20       |
| MicroAmp™ EnduraPlate™ Optical 96-Well Green Reaction Plates with Barcode      | 4483349  | 20       |
| MicroAmp™ EnduraPlate™ Optical 96-Well Red Reaction Plates with Barcode        | 4483350  | 20       |
| MicroAmp™ EnduraPlate™ Optical 96-Well Clear Reaction Plates with Barcode      | 4483352  | 500      |
|                                                                                | 4483354  | 20       |
| MicroAmp™ EnduraPlate™ Optical 96-Well Multicolor Reaction Plates with Barcode | 4483355  | 5        |
|                                                                                | 4483356  | 500      |
| MicroAmp™ EnduraPlate™ Optical 96-Well Yellow Reaction Plates with Barcode     | 4483395  | 20       |

## Limited product warranty

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**Manufacturer's address:** Life Technologies Holdings Pte Ltd | Block 33 | Marsiling Industrial Estate Road 3 | #07-06, Singapore 739256

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**Revision history:** Pub. No. MAN0016422

| Revision | Date          | Description  |
|----------|---------------|--------------|
| A.0      | 11 April 2017 | New document |

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