

Cat. #541-542
EdvoCycler™ 2

OPERATION MANUAL



Features:

- 48 wells for 0.2 ml PCR Tubes
- Heated Lid with secure latch
- 7" Vivid full-color touchscreen
- Programmable PCR protocols
- Pre-programmed for all Edvotek PCR experiments
- Temperature Range: 4 – 99° C
- Maximum Ramp Rate: 3.5° C/sec
- Instant Incubate option
- Dimensions: 34 x 20 x 20 cm
- 3 Year Warranty

- 24V system
- 120-24- VAC in.
- Power requirements = 110 or 220 outlet

1.800.EDVOTEK
www.edvotek.com

EDVOTEK®

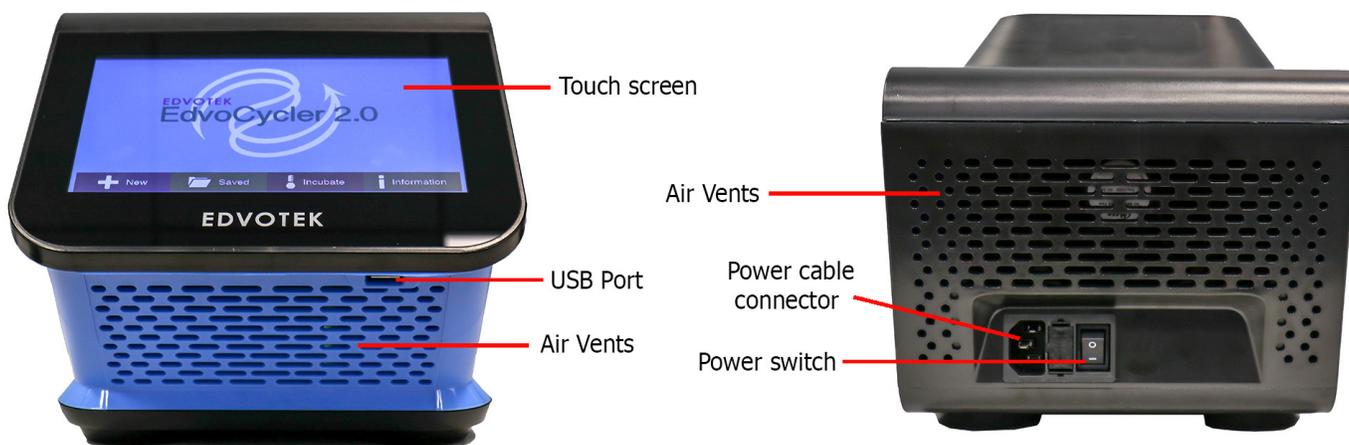


Table of Contents

INTRODUCTION	2
OPERATOR SAFETY and WARNINGS	3
INSTALLATION	3
USER MAINTENANCE	3
GUARANTEE AND CONTACT INFORMATION	4
HOME SCREEN OVERVIEW	5
CREATING A NEW PROGRAM	6
LOADING A SAVED PROGRAM	8
RUNNING A PCR PROTOCOL	10
USING THE INSTANT INCUBATION FUNCTION	11
SYSTEM INFORMATION	12

Introduction

The EdvoCycler 2 is a 48-well thermal cycler designed for ease of use, accuracy, and experimental reproducibility. The sample block is compatible with standard sized 0.2 mL individual or strip PCR tubes, and PCR volumes between 15-100 μ L. Please read all the information in this booklet before using the unit.



Operator Safety

It is important that only suitably trained personnel operate this equipment, in accordance with the instructions contained in this manual and with general safety standards and procedures. If the equipment is used in a manner not specified by EDVOTEK® the protection provided by the equipment to the user may be impaired. All EDVOTEK® units have been designed to conform to international safety requirements.

Warnings

HIGH TEMPERATURES ARE DANGEROUS: they can cause serious burns to operators and ignite combustible material. EDVOTEK® has taken great care in the design of these units to protect operators from hazards, but users should pay attention to the following points:

- USE CARE AND WEAR PROTECTIVE GLOVES TO PROTECT HANDS.
- DO NOT put hot objects on or near combustible objects.
- DO NOT operate the unit close to flammable liquids or gases.
- DO NOT place any liquid directly into your unit.
- At all times, USE COMMON SENSE.
- When you have finished processing samples, remember that parts of the unit – the tubes, blocks and associated accessories – may be very hot. Take precaution to avoid potential burns.

WARNING!

The heated lid will get very hot. Use extreme caution to avoid getting burned.

Installation

The 541/542 package contains the EdvoCycler 2 unit, power cord, and instruction manual.

1. Plug the supplied power supply adapter into the power cable connector on the rear of the unit and then into an appropriate electrical outlet.
2. Place the unit on a dry, suitable bench or flat workspace, ensuring that all air vents are free from obstruction and liquid.
3. Turn on the EdvoCycler 2 using the power switch on the rear of the unit. The unit will turn on and display the home screen.

User Maintenance

NOTE - THIS EQUIPMENT SHOULD ONLY BE DISMANTLED BY PROPERLY TRAINED PERSONNEL. REMOVING THE SIDE, FRONT OR REAR PANELS EXPOSES POTENTIALLY LETHAL MAINS VOLTAGES. THERE ARE NO USER MAINTAINABLE PARTS WITHIN THE EQUIPMENT.

In the unlikely event that you experience any problems with your unit that cannot easily be remedied, you should contact EDVOTEK® to explain the problem and obtain a Return Goods Authorization #. After obtaining the RGA #, return the unit if necessary and include any details of the fault observed. Remember to return the unit in its original packing. EDVOTEK® accepts no responsibility for damage to units that are not properly packed for shipping.

1. **Cleaning**
Before cleaning your unit ALWAYS disconnect from the power supply and allow to cool below 50° C. The unit can be cleaned by wiping with a lightly damp, soapy cloth. Care should be exercised to prevent water from running inside the unit. Do not use abrasive cleaners.
2. **Fuses**
The unit is protected by one fuse. This fuse should only be changed by suitably qualified personnel. If the fuse blows persistently, a serious fault is indicated and you may need to return the unit for repair. The fuse is located in the back of the unit in the AC adapter.

Guarantee

The unit is guaranteed against any defect in material or workmanship for **three years**. Please fill out the warranty card as soon as possible to ensure proper warranty coverage. The warranty period is from the date of receipt, and within this period all defective parts will be replaced free of charge provided that the defect is not the result of misuse, accident or negligence. Servicing under this guarantee should be obtained from EDVOTEK. Notwithstanding the description and specification(s) of the units contained in the User's Manual, EDVOTEK hereby reserves the right to make such changes as it sees fit to the units or to any component of the units. This Manual has been prepared solely for the convenience of EDVOTEK customers and nothing in this Instruction Book shall be taken as a warranty, condition or representation concerning the description, merchantability, fitness for purpose or otherwise of the units or components.

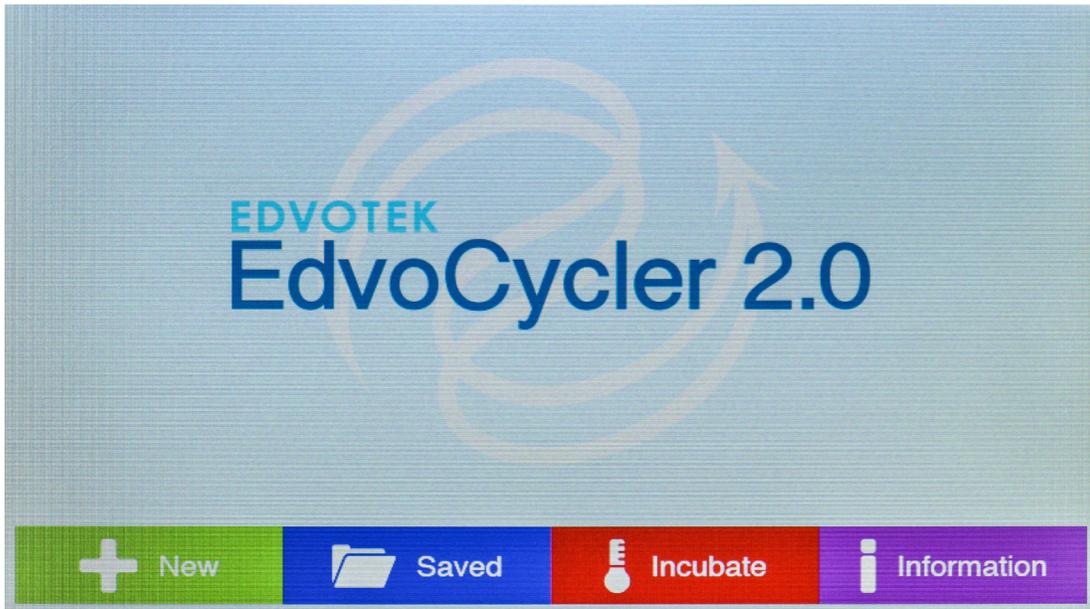
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EdvoCycler 2 Home Screen Overview



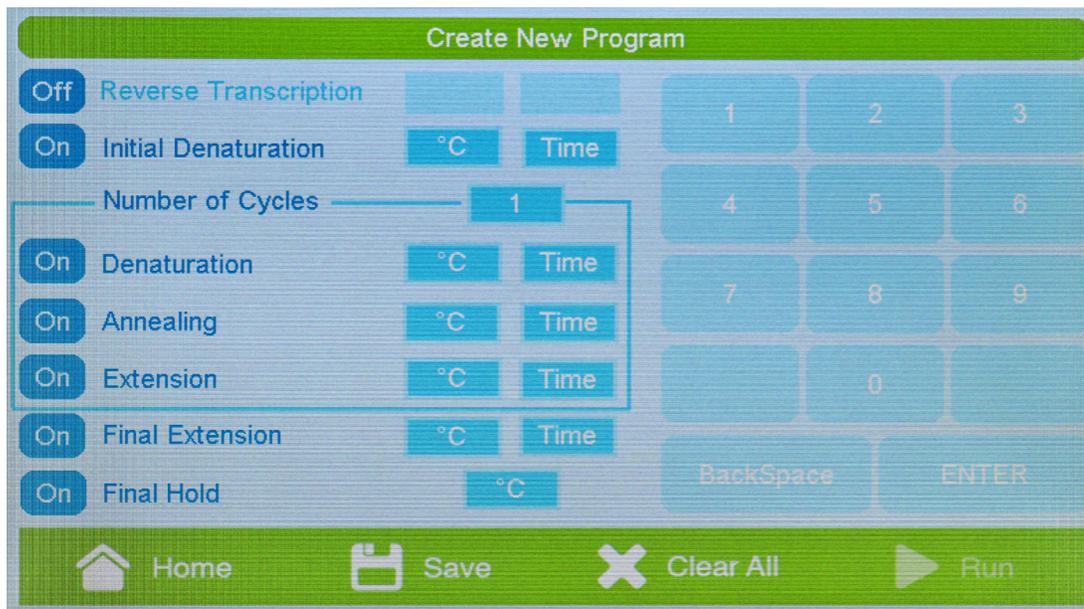
The Home Screen gives users access to the main features of the EdvoCycler 2:

- **New**
Allows you to create and save a new PCR protocol.
- **Saved**
Load previously created PCR protocols to edit or run, including all Edvotek PCR experiment protocols.
- **Incubate**
Setup and run an instant incubation.
- **Information**
View information on the EdvoCycler 2 unit and update the Edvotek PCR protocols

Tapping on any of the buttons will load the corresponding menu.

Creating a new PCR Program

To create a new PCR protocol tap on the “New” button on the home screen.



The Create New Program page allows you to edit, save, and run a new program. Note: the “Run” button will not be selectable until a program has been saved.

Every protocol will utilize a standard set of parameters:

- **Steps**

Up to seven selectable steps, including 3 steps that can be repeatedly cycled. These steps are pre-labeled as:

- Reverse Transcription
 - Initial Denaturation
 - Denaturation
 - Annealing
 - Extension
 - Final Extension
 - Final Hold
- } Will be cycled

The Denaturation, Annealing, and Extension steps will be repeated for the number of times indicated in the “Number of Cycles” field. Each step in the program can be turned on or off by tapping the button to the left of each step. When disabled, the button will display “off”, the font will fade, and the temperature and time options will be disabled.

- **Temperature**

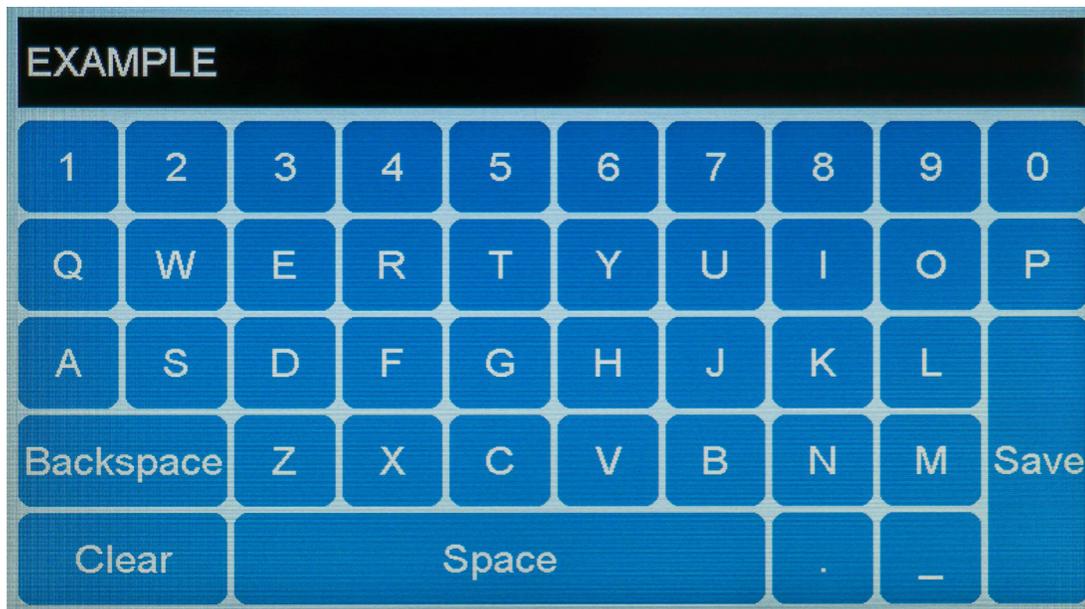
The temperature for each step can be set between 4-99° C. To select a temperature, tap on the temperature box for each step, then enter the desired value using the keypad.

Creating a new PCR Program, continued**Time**

To select a time, tap on the time hold box for each step, and then enter the desired value using the keypad. Time should be entered as minutes and seconds (mm:ss). Each step can be held for between 1 second (00:01) and 99 minutes, 99 seconds (99:99). The final hold will be held for an infinite length of time.

Saving a program

Tap on the "save" button to save a program. The save program screen will load and allow you enter in a name for the program. Programs are limited to a maximum of 15 characters. Hitting save will return to the Create New Program screen.

**Clear All**

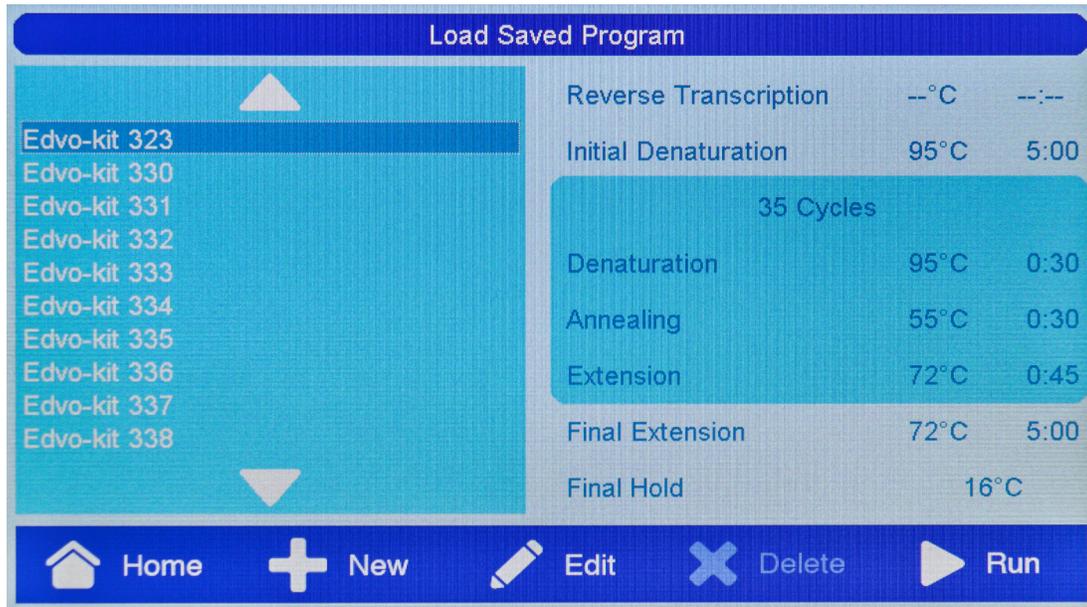
Clears all settings from the current program. Hitting this button will display a warning screen to confirm.

Run

To run a program tap on the run button. Note: The run button will not be active until a program has been saved. See "Saving a Program" for more information.

Loading a Saved Program

To load a previously saved program, tap on the “Saved” button on the home screen.

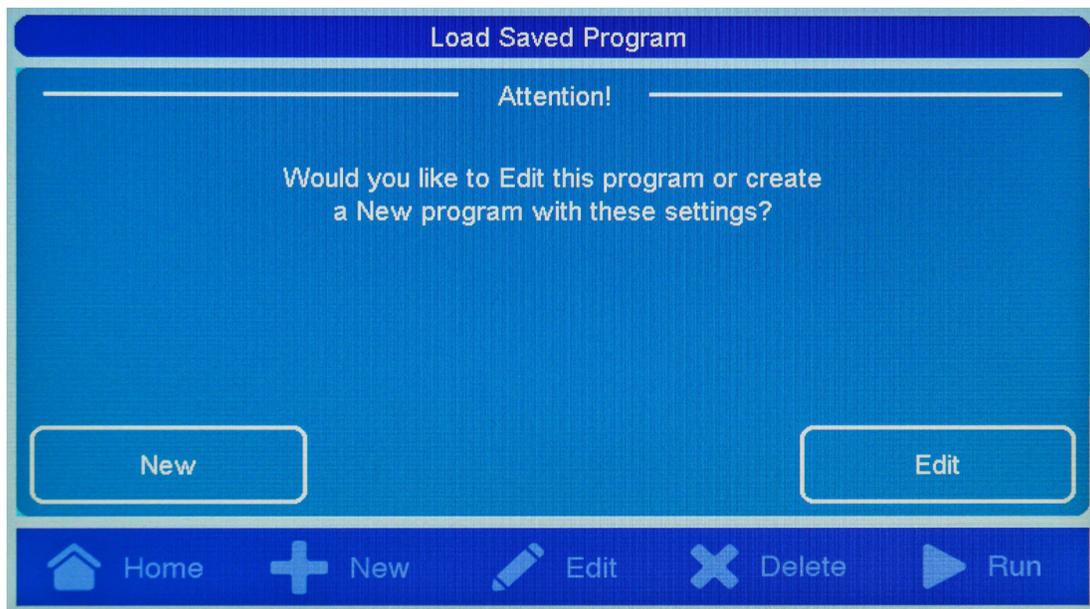


Selecting a protocol on the Load Saved Program screen will display information on the times and temperatures for each step. Disabled steps will be indicated by dashes in the temperature and time values. Tapping on the up and down arrows will allow you to scroll through additional programs.

- **Home**
Tapping on the home button will return you to the home screen
- **New**
Tap on the “New” button to create a new program. See [Creating a New Program] for more information.
- **Edit**
Tapping on the “Edit” button will allow you to edit the currently selected protocol. The program will be loaded and can be edited, saved, and run if desired.

Note: Standard Edvo-kit programs can be edited, but must be saved as a new program before running. It is not possible to overwrite the standard protocols.

Loading a Saved Program, continued



- **Delete**
To delete a program, select the desired protocol and tap the delete button. You will be prompted to confirm the deletion. This action cannot be undone. **Note: It is not possible to delete the standard Edvo-kit protocols.**
- **Run**
To run the currently selected program tap on the “Run” button. This will immediately start the PCR, so it is important to ensure your samples have been placed into the EdvoCycler 2 before hitting the “Run” button. See [Running a PCR Program] for more information.

Running a PCR Program

- **Loading Samples**

To load sample tubes into the EdvoCycler:

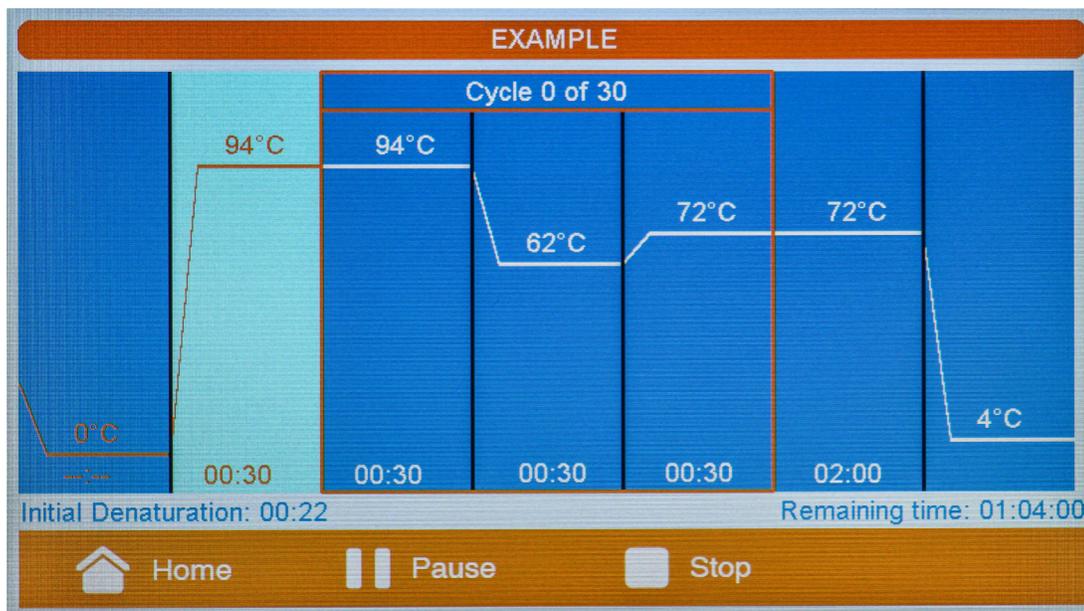
1. Press down on the lid release button to open the lid. Use caution if the EdvoCycler 2 unit has recently been used as the lid may be hot.
2. Load sample tubes into the EdvoCycler 2 block. Individual tubes or strip tubes may be used. (**Note: Always ensure that the lids on the tubes have been closed tightly before loading them into the EdvoCycler 2.**)
3. Close the lid by pressing down firmly until an audible click is heard.

- **Running a PCR Protocol**

There are two methods to run a PCR protocol:

- Create a new protocol, save, and hit the run button.
- Load a saved protocol from the Load Saved Program screen and hit the run button.

The run screen will show a graphical representation of the protocol and the status of the EdvoCycler 2. The program will start with an initial 3 minute hold, which will be displayed in the bottom left corner of the screen. During this hold, the EdvoCycler 2 will prepare for the PCR program and heat the lid of the unit.



Information will be displayed during the run to indicate the current status of the run.

- The current step will be highlighted and the time remaining in that step will be displayed in the bottom left corner of the screen.
- The bottom right information box will display the time remaining in the protocol and the current temperature of the block during transitions between steps.

At the completion of a run, the EdvoCycler 2 will infinitely hold at the specified "final hold" temperature.

Using the Instant Incubation Function

The EdvoCycler 2 can serve as an incubator using the Instant Incubate function. To access the incubation menu select the “Incubate” option from the Home Screen.

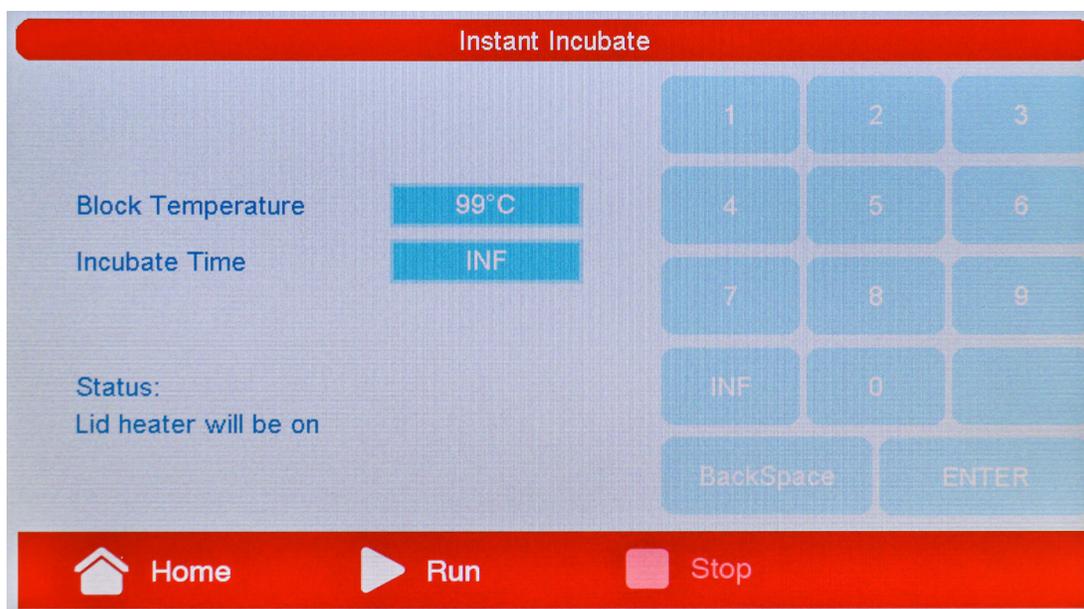
The Instant Incubate feature allows you to set the temperature and time for the incubation.

- **Block Temperature**

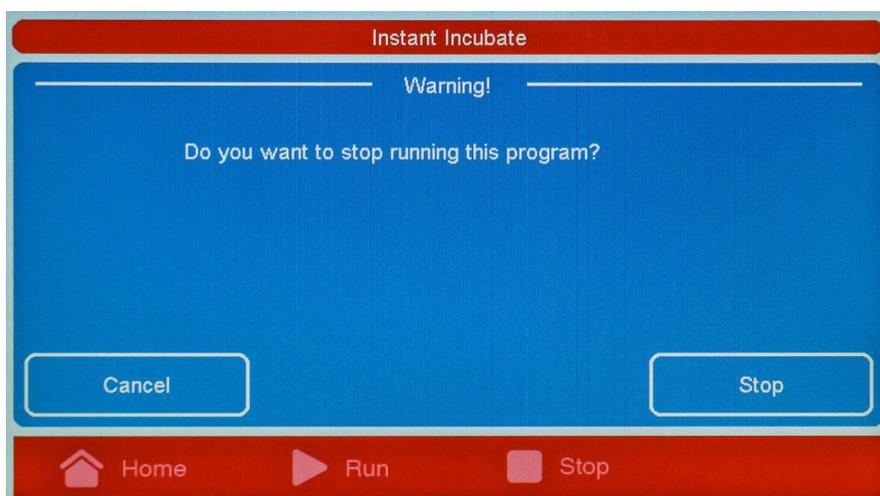
The temperature for the incubation can be set between 4-99 °C. To select a temperature, tap on the block temperature box and enter the desired value using the keypad. Note: The lid heater will automatically turn on for any block temperature above 39 °C.

- **Incubate Time**

To select a time, tap on the time hold box for each step, and then enter the desired value using the keypad. Time should be entered as minutes and seconds (mm:ss). The incubation can be held for between 1 second (00:01) and 99 minutes, 99 seconds (99:99). For an infinite hold, tap on the INF button.



Once you have set the parameters for the hold, hit the Run button to start the incubation. After the block has reached the set temperature a timer will start to indicate the remaining time. During an incubation the options to Pause or Stop the incubation will become selectable. Tapping the Pause button will allow you to pause and then resume an incubation. The stop button will terminate an incubation.



System Information

The system information screen displays the model number and installed software version of the EdvoCycler 2 unit. Additionally, the System Information screen allows you to update the standard Edvo-kit programs. To access the system information screen tap on the Information button on the home screen.

- **Updating Edvo-kit Programs**

It is possible that the standard Edvotek programs will need to be updated from time to time. To update the machine you will need a portable USB flash drive. Note: Updating the standard protocols will overwrite the pre-loaded Edvotek programs but will not change any user created programs.

1. Visit www.edvotek.com/541-542 to download the latest version of the PCR programs.
2. Unzip the files and drag all files to the root (base) directory of the flash drive.
3. Insert the flash drive into the USB port on the front of the EdvoCycler 2 unit.
4. Press the "Information" tab and then press "Update Edvo-kit programs" to update the programs. After a few seconds, the USB flash drive can then be removed.

- **Updating EdvoCycler 2 Firmware**

To update the firmware on the EdvoCycler 2 you will need a USB flash drive.

1. Visit www.edvotek.com/541-542 to download the latest version of the EdvoCycler 2 firmware.
2. Unzip the files and drag all files to the root (base) directory of the flash drive.
3. Insert the flash drive into the USB port on the front of the EdvoCycler 2 unit while the unit is powered off.
4. With the USB drive inserted, turn on the power to the unit. The update will take approximately 30-90 seconds, during which the unit will be unresponsive. Do not turn off the instrument while a firmware update is in progress.
5. Once the update has progressed the Home Screen will be displayed. At this time the EdvoCycler 2 is ready to use and the flash drive can be removed.