Hybex®

Microsample Incubator

USER MANUAL

Cat. #1057-30-0 (115V) and 1057-30-2 (230V)

FOR RESEARCH USE ONLY

1287 Reamwood Avenue, Sunnyvale, CA 94089 USA • Tel 408-733-7337 • Fax 408-733-7336 • techserv@scigene.com

Warranty

SciGene warrants that the Hybex® Microsample Incubator described in this manual shall be free of defects in materials and workmanship for a period of 12 months from date of delivery. This warranty does not cover removable blocks or accessories. In the event of a defect during the warranty period, SciGene's limit of liability will be to, at its sole discretion, provide replacement parts or replace the product. The foregoing warranty is void in the event the unit was abused or modified or used in a manner inconsistent with its intended purpose. SciGene makes no other warranty, expressed or implied including warranties of merchantability and fitness for a particular purpose. In no event shall SciGene be liable for any direct, indirect, special, incidental or consequential damagers or for any damages resulting from loss arising out of or in connection with the sale, use or performance of the product.

Copyright

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I. SAFETY NOTICES

A. Intended Use

The Hybex Microsample Incubator is intended for the heating and incubation of laboratory samples. The instrument should only be used according to the instructions provided in this manual. If the equipment is used in a manner not specified by the manufacturer (SciGene), the protection provided by the equipment may be impaired.

La Hybex système est destiné pour le chauffage d'échantillons biologiques. L'instrument ne devrait servir que selon les instructions fournies dans ce manuel de l'utilisateur et d'autres documents techniques de SciGene. Si l'équipement est utilisé de manière non spécifiée par le fabricant, la protection assurée par l'équipement peut être compromise.

B. Instrument Safety

Before operating the instrument, read the information in this section concerning hazards and potential hazards. Ensure that anyone involved with the instrument's operation is instructed in both general safety practices for laboratories and specific safety practices for the instrument.

Avant le fonctionnement de l'instrument, lisez les renseignements dans cette section concernant les risques et les dangers potentiels. S'assurer que toute personne impliquée avec le fonctionnement de l'instrument est instruit dans les pratiques générales de sécurité pour les laboratoires et les pratiques de sécurité spécifiques pour l'instrument.

C. Symbols and Conventions

The following chart is an illustrated glossary of the electrical symbols that are used on the Hybex Microsample Incubator. Whenever such symbols appear on instruments, please observe appropriate safety measures.

Le tableau suivant est un glossaire illustré des symboles électriques qui sont utilisées sur le système. Chaque fois que ces symboles apparaissent sur les instruments, veuillez observer les mesures de sécurité appropriées.

1. Electrical Symbols

This symbol indicates that this is a protected ground terminal that must be connected to earth ground before any other electrical connections are made to the instrument.

Ce symbole indique qu'il s'agit d'un terminal de terrain protégé qui doit être connecté à la terre avant que toutes les autres connexions électriques sont apportées à l'instrument.

CAUTION: This symbol alerts you to consult this Operator's Manual for further information and to proceed with caution.

ATTENTION: Ce symbole vous avertit à consulter ce guide de l'utilisateur pour plus d'informations et de procéder avec prudence.

CAUTION: This symbol alerts you to an electrical hazard. Consult this Operator's Manual for further information and proceed with caution.

ATTENTION: Ce symbole vous avertit d'un risque électrique. Consultez ce guide de l'utilisateur pour plus d'informations et de procéder avec prudence.

This symbol indicates the OFF position of the main POWER switch.

Ce symbole indique la position OFF de l'interrupteur principal.

This symbol indicates the ON position of the main POWER switch.

Ce symbole indique la position ON de l'interrupteur principal.

2. **Non-Electrical Symbols**

CAUTION: This symbol illustrates a heat hazard. Proceed with caution when working around these areas to avoid being burned by hot components.

ATTENTION: Ce symbole illustre un danger pour la chaleur. Faire preuve de prudence lorsque vous travaillez autour de ces zones pour éviter d'être brûlé par les composants du chauds.

CAUTION: This symbol alerts you to consult this Operator's Manual for further information and to proceed with caution.

ATTENTION : Ce symbole vous avertit à consulter ce guide de l'utilisateur pour plus d'informations et de procéder avec prudence.

D. Warnings

Failure to comply with the following warnings that are affixed to the product can lead to possible personal injury or death.

Défaut de respecter les avertissements suivants qui sont apposées sur le produit peut conduire à possibles lésions corporelles ou la mort.

This symbol on the rear of the instrument indicates the presence of the fuse box. **Warning: For Continued Protection Against Fire, Replace Only with Same Type Rating of Fuse.** Always disconnect the power cord before attempting to replace the fuse.

Ce symbole sur l'arrière de l'instrument indique la présence de la boîte de fusibles. ***Avertissement : Pour le maintien de la Protection contre l'incendie, remplacer uniquement avec la même cote de Type de fusible.*** *Toujours débrancher le cordon d'alimentation avant d'essayer de remplacer le fusible.*

This symbol indicates the presence of hazardous voltage. Always disconnect the power cord before servicing.

Ce symbole indique la présence d' une tension dangereuse. Toujours débrancher le cordon d'alimentation avant l'entretien.

E. Cautions

Failure to comply with the following cautionary statement affixed to the product may lead to possible personal injury.

Omission de se conformer à la mise en garde suivante apposée sur le produit peut entraîner des blessures possibles.

This symbol located both on and in front of the lid indicates the potential presence of a Hot Surface. Use care when working in this area to avoid being burned.

Ce symbole situé sur et devant le couvercle indique la présence possible d'une Surface chaude. Faire preuve de diligence lorsqu'il travaille dans ce domaine pour éviter d'être brûlé.

F. Compliance

CE

1. European Conformity (CE)

This symbol indicates the instrument is in compliance with all applicable European Union Electromagnetic Compatibility and Low Voltage Directives.

2. Waste Electrical & Electronic Equipment Directive (WEEE)

WEEE is a European Community directive that became European Law in February 2003. The crossed out wheelie bin symbol on a product or its packaging indicates that it must NOT be disposed of with standard waste at the end of its lifetime. Instead, it is your responsibility to return it to a designated collection point for electronic equipment recycling. Contact your local SciGene distributor for information on drop off locations.

RoHS

3. Restriction of Hazardous Substances (RoHS)

The RoHS directive was adopted in February 2003 by the European Union. It restricts (with exceptions) the use of six hazardous materials (including lead and mercury) in the manufacture of various types of electronic equipment. All SciGene instruments carrying the CE mark are also RoHS compliant.

4. Laboratory Equipment Standards

This symbol indicates the instrument meets Laboratory Equipment standards UL 61010-1:2012 R04.16 and CAN/CSA-C22.2 61010-1:2012 + GI1 + GI2 as certified by TÜV Rheinland of North America, Inc.

5. Electromagnetic Compatibility (EMC)

The Hybex System is a Class A digital device under FCC Title 47 Part 15B and designated as Class A electrical equipment for measurement, control, and laboratory use (EN61326).

Note regarding Canadian EMC compliance: Le present appareil numerique n'emet pas de bruits radioelectrique depassant les limites applicables aux appareils numeriques de class A prescrites dans le reglement sur le brouillage radioelectrique edicte par le Ministere des Communications du Canada.

II. UNPACKING AND SET UP

A. Unpacking the Heating Base

The Hybex Microsample Incubator heating base is shipped on its side within the interior carton. Remove any packing material around the unit and lift the unit out; taking care not to damage the hinged cover. Carefully inspect the heating unit for damage. Heat blocks and other accessories are packaged separately from the heating base.

If there is evidence of damage, retain the shipping materials and contact SciGene (custserv@scigene.com) or your local distributor for assistance.

B. Items Provided

The following items are included with the Hybex heating base within the re-closable plastic bag:

- Power cord
- User Manual

C. Environmental Requirements

Ensure that the area where the incubator is installed meets the following conditions, for reasons of safety and performance:

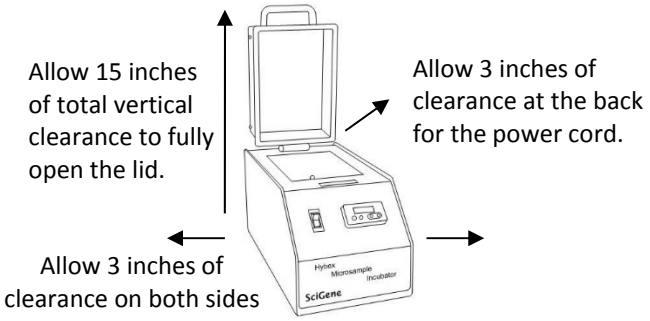
Ambient temperature	+15 to +32°C (58 to 90°F)
Relative humidity	15 to 80% RH non-condensing
Air flow clearance	3 inches (8 cm) minimum on both sides

D. Installing the Instrument

1. Place the unit on a level surface within a few feet of the power source. Ensure the lid can be opened completely without interference and leave 3 inches of clearance along the back and sides for air circulation.
2. Plug the provided power cord into the back of the unit and then to a properly grounded outlet. Use only the power cord provided.

Do NOT operate the system without a block inserted into the base unit!
Ne pas faire fonctionner le système sans un bloc insérée dans l'unité de base!

See **Section VII. ORDERING INFORMATION** for a list of available accessories and **Section III. B. Handling Tube Blocks and the Waterbath Insert** for how to insert and remove blocks.

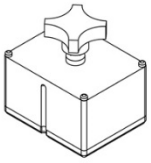


III. USING YOUR HYBEX SYSTEM

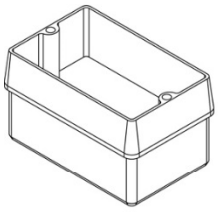
A. Components, Controls and Accessories

Name	Function
Power Switch	Turns on main power to unit
Temperature Controller	Used to set and observe block temperature
Heated Lid	Heats the sealed air around the block
Temperature Probe	Senses the temperature of the block
Heat Block	Holds tubes or plates for heating
Microarray Incubation Chamber*	For array hybridization (2 needed for operation)
Waterbath Insert*	For heating buffers or water
Digital Thermometer*	For calibrating system temperature

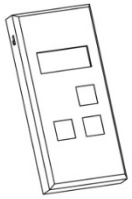
**Optional accessories*



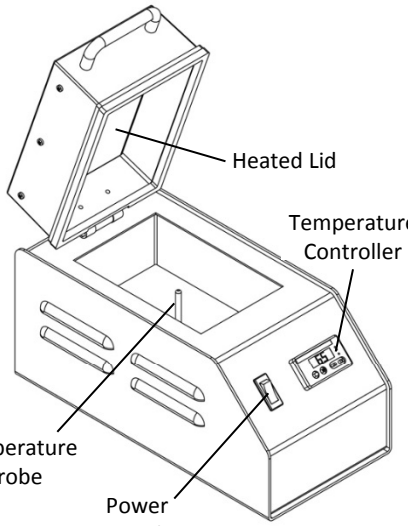
Microarray Incubation Chamber
Cat. #1057-38-0 (2/Kit)

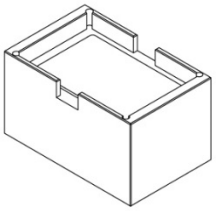


Waterbath Insert
Cat. #1057-35-0

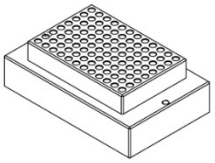


Digital Thermometer
Cat. #1051-52-0

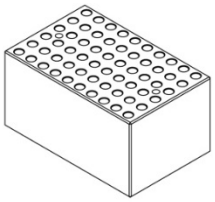




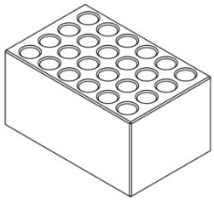
Heat Block for Flat Bottom Microplate
Cat. #1057-39-0



Heat Block for 0.2 ml Tubes or Plate
Cat. #1057-31-0



Heat Block for 0.6 ml Tubes
Cat. #1057-33-0



Heat Block for 1.5 ml Tubes
Cat. #1057-34-0

B. Handling Tube Blocks and the Waterbath Insert

Tube heating blocks and the waterbath insert are placed and removed from the heating unit with the aid of two bolts (provided) that act as handles.

To properly install a block or insert:

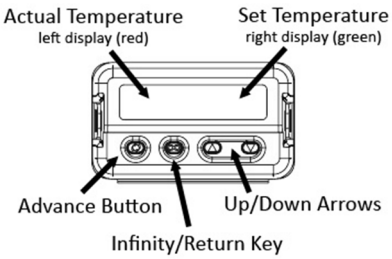
1. Thread the two bolts several turns into the block.
2. Grasp the ends of the bolts, lift the block, and then carefully lower it into the unit; guiding it over the temperature probe. The opening in the bottom of the block should fit over the probe.
3. Remove the threaded bolts before using the system.

Do not operate the system without a block inserted into the base unit!
Ne pas faire fonctionner le système sans un bloc insérée dans l'unité de base!

When using a waterbath insert do NOT leave the heated lid in down position for more than 90 minutes. Excess condensation will form that may damage the heating base.
Lors de l'utilisation d'un insert de bain-marie ne pas laisser le couvercle chauffant en position basse pendant plus de 90 minutes. L'excès de la condensation se forme qui peut endommager la base chauffante.

C. Using the Temperature Controller

The Hybex Microsample Incubator is equipped with an EZ-Zone temperature controller that has been calibrated at the factory to provide accurate block temperatures from 35 to 99°C. The controller has two LED displays and four push buttons. The left display shows ACTUAL block temperature in red. The right display shows the SET temperature in green.



To program the temperature controller:

1. Turn on the instrument.
2. Program the desired SET temperature by pressing the up or down arrow buttons:
   - Press the up arrow button to increase the current SET temperature
   - Press the down arrow button to decrease the current SET temperature.
3. Verify the new SET temperature is shown in the green display on the right. The instrument will now adjust the block heater until the SET temperature is attained.

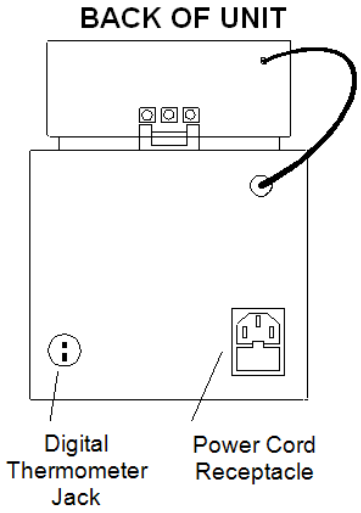
SciGene recommends checking calibration according to your laboratory schedule. See section **III. D. Calibrating the Temperature Controller** for details.

D. Calibrating the Temperature Controller

The temperature controller is calibrated at the factory to provide accurate block temperatures from 35 to 99°C. Calibration is required only if the controller displays a block temperature which differs by more than one degree (1°C) from a NIST calibrated T-type digital thermometer (sold separately, SciGene cat. #1051-52-0). Contact SciGene Customer Service (custserv@scigene.com) or your local distributor to purchase a thermometer.

To calibrate the temperature controller:

1. Insert a block into the Hybex incubator, turn ON the instrument and set the controller to 65°C. Allow 15 minutes for temperature to stabilize.
2. Using the cable provided with the digital thermometer (cat. #1051-52-0), plug one end into the blue receptacle found on the back panel of the Hybex incubator and the other end into the thermometer.
3. Turn on the thermometer. Allow 1 minute for thermometer to stabilize. The actual temperature of the block will be displayed.
4. Calculate the difference between the digital thermometer and the temperature controller to determine the adjustment value. For example, if the thermometer reads 63.9°C while the controller reads 65°C, then the adjustment value is -1.1°C.



5. On the controller, press the up and down arrows simultaneously for 3 seconds. The left display shows "**A1**" and the right display shows "**open**".
6. Press the Advance Button (green circle) 3 times until the right display shows "**i.CA**". The left display will show the offset value between the controller and thermometer when the unit was last calibrated.
7. Using the up or down arrows, add the adjustment value from step 4 above to the existing offset value shown on the controller. For example, if the adjustment value is -1.1°C and the current offset is -0.3°C then the new offset is -1.4°C.
8. Press the Infinity Key (∞) twice to exit calibration and return to the operation display. Verify that the temperature on the thermometer matches the display. Your incubator is now calibrated to provide accurate temperatures between 35 and 99°C.

IV. MAINTAINING YOUR HYBEX SYSTEM

A. Powering Off

Turn the power switch to the OFF position and unplug the power cord before performing any service procedure.

B. Cleaning the Instrument

Clean outer metal surfaces and the heated lid using a soft cloth and mild, detergent-based cleaner. Avoid abrasive cleaners that can scratch surfaces. Do NOT use caustic or strongly alkaline solutions (e.g., strong soaps, ammonia, or bleach).

If running radioactive or biohazardous reactions, consult your institution's radiation safety officer or biosafety office for assistance.

Turn the power switch to the OFF position and unplug the power cord before performing any service procedure!

Tournez le commutateur d'alimentation sur la position OFF et débranchez le cordon d'alimentation avant d'effectuer toute opération de service!

Remove liquid or condensation (wipe dry) while instrument is OFF and block is cool or at room temperature!

Enlever le liquide ou la condensation (essuyer), tandis que l'instrument est éteint et le bloc est frais ou à température ambiante!

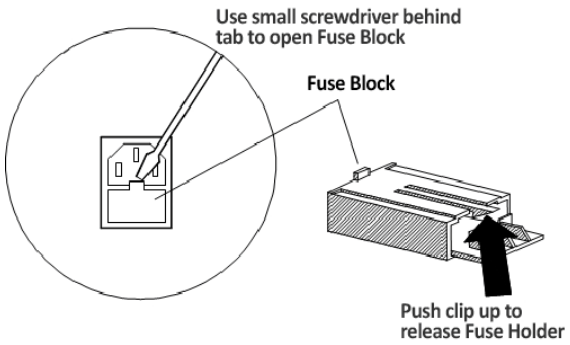
C. Checking and Replacing Fuses

There are two fuses located in a removable fuse block below the power cord receptacle on the back of the unit. A blown fuse appears dark. Always replace fuses with those of the same amperage and voltage as shown on the label below the fuse block.

Turn the power switch to the OFF position and unplug the power cord before performing any service procedure.

To remove fuses:

1. Insert a small, flat blade screwdriver into the tab recess just below the plug receptacle.
2. Push down to release the fuse block.
3. Slide fuse holder out from the fuse block while holding the retaining tab out of the way.
4. Gently pry out the fuses.



V. TROUBLESHOOTING

Symptom	Cause	Solution
Instrument does not turn on.	No power or blown fuse	Check power source and power cord connection. Replace fuse beneath power cord (on back of unit) if necessary.
Controller is not responding when buttons are pressed.	Controller is faulty or the settings have been corrupted.	Contact SciGene or your distributor to reset the controller to factory settings or replace the controller.

VI. SPECIFICATIONS

Electrical	
Cat. #1057-30-0	115V AC; 50/60 Hz; 3A
Cat. #1057-30-2	230V AC; 50/60 Hz; 1.6A
Dimensions	
Outside (H x W x D)	10 x 6 x 12 inches (21 x 15 x 30 cm) — cover closed
Weight	
Instrument	6 lbs (3 kg) — without block
Performance	
Temperature Range	Ambient +5°C to 99°C
Temperature Regulation	± 0.1°C
Controller	
Controller Type	Digital PID
Display	Four-line LED
Calibration Output	T-type Thermocouple
Environmental	
Ambient temperature	Operation: +15 to +32°C (58 to 90°F)
	Storage: -20 to +60°C (-4 to 140°F)
Relative humidity	Operation: 15 to 80% RH non-condensing
	Storage: 10 to 90% RH non-condensing

VII. ORDERING INFORMATION

Cat. #	Description	UoM
1057-30-0	Hybex Microsample Incubator, heating base, 115V.	EA
1057-30-2	Hybex Microsample Incubator, heating base, 230V.	EA
1057-31-0	0.2 ml tube block. Holds 96x0.2ml PCR tubes or single plate	EA
1057-33-0	0.6 ml tube block. Holds 60x0.6ml tubes	EA
1057-34-0	1.5 ml tube block. Holds 32x1.5ml microcentrifuge tubes	EA
1057-39-0	Flat-bottom heat block. Holds a microplate.	EA
1057-35-0	Waterbath Insert for Hybex Incubator	EA
1057-38-0	Hybex Microarray Chamber Kit.	EA
1051-52-0	Digital thermometer. Includes cable and NIST certificate	EA

VIII. APPENDIX A – Using and Calibrating a Watlow SD31 Controller

*** For selected Hybex incubators manufactured between 2005 and 2010.***

A. Using the Watlow SD31 Temperature Controller

The controller has a single LED panel with four buttons. The set temperature is displayed if the **SET** key is pressed and held otherwise the **ACTUAL** block temperature is displayed.

To set the block temperature:

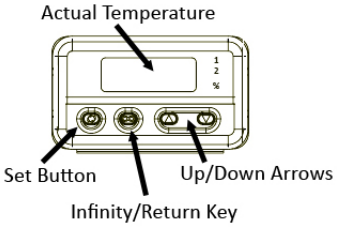
1. Hold in the **SET** button to view the previous set temperature.
2. While holding down the **SET** button, press the up or down arrow button until the desired set temperature is shown.
3. Release the buttons to display the actual temperature. The instrument will adjust block heating until the new temperature is attained.

B. Calibrating the Watlow SD31 Temperature Controller

Re-calibrating the Hybex temperature controller is recommended *only if* the display varies by more than one degree (1°C) to a connected NIST-certified T-type digital thermometer (SciGene cat. #1051-52-0).

To adjust the controller to achieve accurate temperatures:

1. Insert a block into the Hybex incubator, turn ON the instrument and set the controller to 65°C. Allow 15 minutes to stabilize.
2. Using the cable provided with the digital thermometer (cat. #1051-52-0), plug one end into the blue receptacle found on the back panel of the Hybex incubator and the other end into the digital thermometer.
3. Turn on the thermometer. Allow 1 minute for thermometer to stabilize. The actual temperature of the block will be displayed.
4. Calculate the difference in the temperature shown on the controller and the digital thermometer. For example, if the controller displays 52.5°C and the digital thermometer displays 51.0°C, the difference (offset) is 1.5°C.
5. On the temperature controller, press the Infinity Key (∞) for three seconds until “OPEN” appears.
6. Press the down arrow four times until “Cal” appears.
7. Press and hold the SET key. The existing offset value between the controller and digital thermometer is displayed.
8. Press and hold the SET key and use the up/down arrows to adjust the offset value to the temperature dHeaifference calculated in Step 4. For example, if the controller shows a temperature 1.5°C lower than the thermometer, adjust the offset by adding 1.5 to the value shown.
9. Press the Infinity Key (∞) to exit calibration and return to the operation display. Verify that the temperature on the thermometer matches the display. Your incubator is now calibrated to provide accurate temperatures between 35 and 99°C.



IX. DECLARATION OF CONFORMITY

Hybex Microarray and Microsample Incubation System

CE

SciGene
1287 Reamwood Avenue
Sunnyvale, CA 94089 USA

Declares that the above referenced product(s) meets the essential requirements of the following European Union Directives by using the relevant standards shown below to indicate compliance.

EMC Directive 2014/30/EU

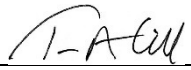
Standards:

EN 61326-1	2013	Electrical equipment for measurement, control and laboratory use to include:

LVD Directive 2014/35/EU

EN 61010-1	2010	Safety requirements for measurement, control and laboratory use 3rd Edition Part 1: General requirements

RoHS Directive 2015/863/EU

Terry Gill Name of Authorized Representative	Sunnyvale, California, USA Place of Issue
Director of Product Manufacturing Title of Authorized Representative	July 31, 2019 Date of Issue
 Signature of Authorized Representative	