



# Gyro™ S / Gyro™ Max

Variable Speed Microcentrifuge

## USER'S GUIDE

## PRODUCT OVERVIEW

The miniPCR bio™ Gyro S and Gyro Max are compact tabletop microcentrifuges designed for use in life science research and educational laboratory settings.

## FEATURES

|                                   |                                                                                                             |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>SPEED</b>                      | Gyro S: fixed 7,000 RPM. Gyro Max: adjustable up to 12,000 RPM.                                             |
| <b>AUTOMATIC SAFETY STOP</b>      | The rotor stops automatically when the lid is opened during operation.                                      |
| <b>COMPACT FOOTPRINT</b>          | Small bench-top profile conserves valuable laboratory workspace.                                            |
| <b>LOW OPERATING NOISE</b>        | Noise level does not exceed 47 dB(A) under normal operating conditions.                                     |
| <b>MULTIFUNCTION ROTORS</b>       | The 2-in-1 rotor accepts the most common microtube and PCR strip formats.                                   |
| <b>UNIVERSAL VOLTAGE</b>          | AC 100–240 V / DC 24 V, 50/60 Hz. No voltage converter is required for international use.                   |
| <b>DIGITAL DISPLAY (GYRO MAX)</b> | LCD shows current speed, elapsed time, and temperature. Programmable memory stores multiple parameter sets. |

## SPECIFICATIONS

| SPECIFICATIONS         | GYRO S                                                                          | GYRO MAX                            |
|------------------------|---------------------------------------------------------------------------------|-------------------------------------|
| CONTROL MODE           | Fixed speed                                                                     | Variable speed.                     |
| LCD DISPLAY            | No                                                                              | Yes                                 |
| MAXIMUM SPEED          | 7,000 RPM                                                                       | 12,000 RPM                          |
| MAXIMUM RCF            | 3,286 × g                                                                       | 9,660 × g                           |
| ROTOR CAPACITY         | 2-in-1 rotor: 12 × 0.2 / 0.5 / 1.5 / 2.0 ml tubes + 4 × PCR strips (8 × 0.2 ml) |                                     |
| NOISE LEVEL            | ≤ 47 dB(A)                                                                      | ≤ 47 dB(A)                          |
| POWER CONSUMPTION      | 25 W                                                                            | 45 W                                |
| INPUT VOLTAGE          | AC 100–240 V / DC 24 V,<br>50/60 Hz                                             | AC 100–240 V / DC 24 V,<br>50/60 Hz |
| OPERATING TEMPERATURE  | 18–35 °C                                                                        | 18–35 °C                            |
| OPERATING HUMIDITY     | ≤ 80 % RH (non-condensing)                                                      | ≤ 80 % RH (non-condensing)          |
| DIMENSIONS (W × D × H) | 185 × 180 × 135 mm                                                              | 270 × 160 × 105 mm                  |
| WEIGHT                 | 1.6kg                                                                           | 2.0kg                               |

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Contact miniPCR bio™ technical support if any item is missing or damaged.

| ITEM                               | QUANTITY |
|------------------------------------|----------|
| GYRO S OR GYRO MAX MICROCENTRIFUGE | 1        |
| 2-IN-1 ROTOR                       | 1        |
| ADAPTERS FOR 0.2 ML TUBES          | 12       |
| ADAPTERS FOR 0.5 ML TUBES          | 12       |
| POWER CABLE                        | 1        |
| USER'S GUIDE                       | 1        |

## SAFETY PRECAUTIONS

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Read and understand all safety instructions before operating the centrifuge. Failure to observe these precautions may result in personal injury, equipment damage, or voiding of the warranty.

### ELECTRICAL SAFETY

-  **WARNING** Never connect or disconnect the power cable with wet hands.
-  **WARNING** Do not unplug the power cord while the instrument is in operation.
-  **WARNING** Do not service or clean the instrument while it is connected to power.
-  **WARNING** Use only the supplied power cable and a compatible voltage source.

### OPERATING SAFETY

-  **WARNING** Do not operate the centrifuge on an uneven, swaying, or vibrating surface.
-  **WARNING** Do not move the centrifuge while the rotor is spinning.
-  **WARNING** Do not touch the rotor until it has come to a complete stop.
-  **WARNING** Do not force tubes into the rotor. Insert tubes gently and ensure they seat fully.
-  **WARNING** Always load and balance tubes symmetrically across the rotor before starting a run.
-  **WARNING** Do not use explosive, corrosive, or flammable materials in the centrifuge.
-  **WARNING** Keep solvents and flammable substances away from the instrument at all times.
-  **WARNING** Confirm that the rotor is fully seated and secured on the base before each use.

## PARTS OVERVIEW

| COMPONENT                      | DESCRIPTION                                                                                                                                            |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| TRANSPARENT LID                | Protective polycarbonate cover. The lid must be closed and locked before operation begins.                                                             |
| ROTOR                          | The 2-in-1 rotor accommodates multiple tube formats.                                                                                                   |
| POWER SWITCH                   | ON/OFF switch on the back of the instrument.                                                                                                           |
| OPEN MECHANISM                 | Gyro S: Press down the "PRESS" marking on the lid to release the latch.<br>Gyro Max: Press the OPEN button on the control panel.                       |
| LCD DISPLAY<br>(GYRO MAX ONLY) | Shows operating speed in RPM, countdown timer, and safety temperature threshold. Use the MENU, P, and START/STOP keys to navigate and adjust settings. |

## OPERATION

### Gyro S

The Gyro S operates at a single fixed speed and requires no programming. Follow the steps below for each use.

- 1\_ Set the power switch to the OFF position. Connect the power cable to the centrifuge and then to the electrical outlet.
- 2\_ Press the 'PRESS' marking on the lid to open the lid. The lid will release and pop open.
- 3\_ Insert tubes into the rotor. Distribute tubes symmetrically so that the rotor load is balanced. Opposing wells should be occupied by tubes of equal weight.
- 4\_ Close the lid firmly until you hear an audible click, confirming that the lid is locked.

- 5\_ Set the power switch to the ON position. The rotor will begin to spin and will accelerate to full operating speed automatically.
- 6\_ When the run is complete, set the power switch to the OFF position. Allow the rotor to come to a complete stop before proceeding.
- 7\_ Press the 'PRESS' marking on the lid and remove the tubes.

**NOTE:** Pressing the 'PRESS' marking on the lid while the centrifuge is running will activate the automatic safety stop and open the lid simultaneously. This feature may be used as an emergency stop at any time during operation.

## Gyro Max

The Gyro Max provides digital control over operating speed and run duration. Multiple parameter sets may be stored in onboard memory for rapid recall.

- 1\_ Connect the power cable to the centrifuge and to the electrical outlet. Press the power switch to turn on the instrument.
- 2\_ Press the OPEN button to open the lid. Load and balance tubes in the rotor. Close the lid firmly until it clicks into the locked position.
- 3\_ Press the MENU key to access and navigate the settings menu. Adjust the run time, speed (RPM), and safety temperature threshold as required for your protocol.
- 4\_ Press the START/STOP key to begin the run. The LCD will display the elapsed time and current speed in real time.
- 5\_ The instrument will decelerate and stop automatically when the programmed run time is up. To terminate the run early, press START/STOP at any time.
- 6\_ Up to nine programs can be saved. Press the P key and then the MENU key to set the parameters as in Step 3. To retrieve a saved program during a subsequent session, press the P key and use the Up and Down keys to scroll through programs P01-P09.

- 7\_ For gradient (speed-ramping) operation, press and hold the P key to access the two-speed ramp setting. Press the MENU key and follow the on-screen prompts to choose the two saved parameters (by pressing the up & down key) to configure the ramp profile.
- 8\_ Once the rotor has come to a complete stop, press the OPEN button to open the lid and remove the tubes.

**NOTE:** Samples must be loaded and balanced symmetrically on both the Gyro S and the Gyro Max. An unbalanced rotor will cause excessive vibration, which may damage the instrument and degrade centrifugation results.

## RPM / RCF CONVERSION TABLE

The table below provides approximate Relative Centrifugal Force (RCF) values for each speed setting of the 2-in-1 rotor. Consult this table when a protocol specifies centrifugal force rather than speed in RPM. Values are approximate.

| SPEED (RPM) | RCF — STANDARD WELLS (× g) | RCF — PCR STRIP SLOTS (× g) |
|-------------|----------------------------|-----------------------------|
| 1000        | 67                         | 61.4                        |
| 2000        | 268                        | 245.6                       |
| 3000        | 603                        | 552.6                       |
| 4000        | 1073                       | 983.5                       |
| 5000        | 1677                       | 1537                        |
| 6000        | 2414                       | 2212.8                      |
| 7000        | 3286                       | 3012                        |
| 8000        | 4293                       | 3935                        |
| 9000        | 5433                       | 4980                        |
| 10000       | 6708                       | 6149                        |
| 11000       | 8116                       | 7440                        |
| 12000       | 9660                       | 8855                        |

**NOTE:** The Gyro S is limited to a maximum of 7,000 RPM. Speed settings above 7,000 RPM apply to the Gyro Max only.

## MAINTENANCE

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All maintenance procedures must be performed with the instrument powered off and unplugged from the electrical outlet.

### After Each Use

- **Inspect the rotor for cracks, warping, or debris. Remove any residue from tube wells. Do not operate the instrument with a damaged rotor.**
- **Wipe the interior of the rotor chamber and the rotor itself with a clean, damp, lint-free cloth. Allow the surface to dry completely before closing the lid.**
- **Remove any spilled or aerosolized liquid from the interior immediately to prevent corrosion and contamination of subsequent samples.**

### Weekly

- **Clean the exterior surfaces of the instrument with a mild laboratory-grade detergent and a damp cloth. Allow all surfaces to dry completely before reconnecting power.**
- **Inspect the power cable for cuts, fraying, kinks, or other signs of damage. Replace the cable immediately if any damage is observed.**

## Monthly or as Needed

- . Inspect the lid latch mechanism to confirm that it engages with a firm click and holds the lid securely closed throughout a full-speed run.
- . Verify that the rubber feet are intact and provide stable, non-slip contact with the bench surface.
- . If the instrument produces unusual noise or vibration at any point during operation, stop use immediately, power off, and contact miniPCR bio™ technical support before resuming operation.

## Cleaning Guidelines

- . Use only mild, non-abrasive cleaning solutions approved for laboratory use.
- . Do not apply solvents, bleach, or aerosol sprays directly to any part of the instrument.
- . Never immerse the instrument, rotor, or lid in liquid.
- . Do not autoclave the instrument or rotor.

## TROUBLESHOOTING

Consult the table below when the instrument does not behave as expected. If a problem is not resolved by the corrective action described, contact miniPCR bio™ technical support before continuing to operate the instrument.

| SYMPTOM                                                      | POSSIBLE CAUSE                                                                                                                                                                                      | CORRECTIVE ACTION                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>INSTRUMENT WILL NOT START</b>                             | Power cable not fully seated; lid not locked; power switch in OFF position.                                                                                                                         | Verify all cable connections. Close and lock the lid. Set the switch to ON.                                                                                                                                                                                        |
| <b>EXCESSIVE VIBRATION OR UNUSUAL NOISE DURING OPERATION</b> | Samples not balanced or placed symmetrically; tubes filled incorrectly; low-quality tubes damaged or ruptured; rotor not seated properly; rotor cracked or deformed; or loose/damaged rotor buckle. | Stop and power off immediately. Balance samples symmetrically with equal volumes (fill tubes between 30% and 80% capacity). Ensure high-quality tubes are used. Inspect the rotor chamber, verify rotor seating and ensure the rotor buckle is properly tightened. |
| <b>LID WILL NOT OPEN AFTER THE RUN</b>                       | Rotor still in motion; lid latch engaged due to safety interlock; or electromagnetic lock failure.                                                                                                  | Wait for the rotor to come to a complete stop, then press the PRESS/OPEN button. Do not attempt to force the lid open.                                                                                                                                             |
| <b>LCD DISPLAY UNRESPONSIVE (GYRO MAX)</b>                   | Power interruption during operation.                                                                                                                                                                | Power cycle the instrument.                                                                                                                                                                                                                                        |
| <b>OVERHEATING/SAFE INDICATOR FLASHING (GYRO MAX)</b>        | Chamber temperature limit exceeded during operation.                                                                                                                                                | The instrument will automatically shut down, open the lid, and trigger a 5-second buzzer alarm while flashing the SAFE indicator. Allow the chamber to cool down before resuming operation.                                                                        |

## LIMITED WARRANTY

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### miniPCR bio™ Limited Warranty

This Limited Warranty covers defects in materials and workmanship for a period of six (6) months from the date of purchase, subject to the conditions set forth below.

- . The warranty period begins on the date of purchase of the Gyro S or Gyro Max microcentrifuge (the “Product”).
- . This Limited Warranty covers the original purchaser of the Product only. It does not extend to third parties without the written agreement of Amplyus LLC (“Amplyus”), the manufacturer.
- . Coverage is limited to the Product and any original accessories shipped with it. Software, documentation, consumables, and related items are excluded.
- . The Limited Warranty is valid only when the Product is operated in the manner, environment, and with the care described in this User’s Guide.
- . This Limited Warranty is voided by unauthorized or improper maintenance, or by the use of power supplies or electrical adapters not supplied or authorized by Amplyus.
- . This Limited Warranty is voided by failure to observe the laboratory operating requirements described in this User’s Guide.

If Amplyus is unable to repair or replace the Product after a reasonable number of attempts, Amplyus’ sole liability under this Limited Warranty shall be limited to replacement of the Product or, at Amplyus’ sole discretion, a refund of the original purchase price.

This Limited Warranty does not cover wear and tear resulting from normal use, nor does it cover failures caused by misuse, negligence, unauthorized modification, or damage incurred during shipping following the customer’s initial receipt of the Product.

## CONTACT AND SUPPORT

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To report a warranty claim or to obtain technical assistance, contact miniPCR bio™ technical support through any of the following channels:

- . **Telephone:** (781) 990-8PCR
- . **Email:** [support@minipcr.com](mailto:support@minipcr.com)
- . **Website:** [www.minipcr.com](http://www.minipcr.com)

When contacting support, please have your invoice number or packing slip available. An official proof of purchase may be required to verify the warranty period and initiate a claim.

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