

MERCURY 1000

User Guide

v2.1.1

DRAFT MANUAL · Contents Subject to Change

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WELCOME

1.1 About your controller

The Mercury 1000 is a replacement for the two factory control units that ship with the Venus 2000. It replaces both the electronic speed control box and the pneumatic air valve controller in a single unit, connecting to the same ports and fittings on the Venus 2000 without tools or modifications. The Venus 2000's motor, diaphragm, hoses, and receiver, and internal control board are completely unchanged.

Compared to the stock controllers, the Mercury 1000 adds continuously adjustable electronic speed control, real-time pressure and stroke monitoring, automatic motor management, wireless connectivity, and over-the-air firmware updates.

The Venus 2000 is not included. The Mercury 1000 is a replacement control module only; you will need a Venus 2000 to use this product.

Edging sessions require the Edge-o-Matic 3000 (sold separately). The Mercury 1000 does not have edging detection. When the two devices are used together, the Mercury 1000 is the output device and the Edge-o-Matic 3000 provides adaptive speed control based on its sensor data. The vibration intensity on the Edge-o-Matic 3000 is mapped to the oscillation speed of the Venus 2000 via the Mercury 1000.

Wow, these products sure have a lot-o-thousands!

1.2 What's in the box

- Mercury 1000 control module
- Accessory Link Cable
- Instruction booklet
- Safety Card
- Warranty Card
- 2.5 Amp Fuse (Important!)

Do not eat the desiccant pack.

1.3 Key features at a glance

- **Plug and play** installs in minutes with no tools or modifications needed.
- **Continuously adjustable speed** provides electronic speed control for software and complicated sessions.
- **Smart Motion Control** includes an automatic kickstart which finds the right starting speed, and monitors stroke motion during use for anomalies and stalls.
- **Hold Point** enables automatic pressure maintenance, which prevents the receiver from drifting or falling off during use.
- **Real-time monitoring** includes depth, stroke rate, and pressure displayed live and broadcast to connected devices.
- **Bluetooth®** pairs with the Maus-Tec app for wireless control.
- **WiFi** connects to your home network for remote control and over-the-air firmware updates.
- **Over-the-air updates** allow firmware updates over WiFi to receive bug fixes and new features.
- **USB serial** is an advanced port for software control, diagnostics, and firmware recovery.
- **Maus-Link remote control (*coming soon*)** will enable full internet remote control via a simple key exchange using our relay server infrastructure to eliminate port forwarding hassles.
- **Plugin system (*coming soon*)** will provide event-based automation and third-party integrations.

1.4 How to use this guide

This guide covers the Mercury 1000 (SKU: M1K) targeting firmware v2.1.1 and later. Some chapters (Basic Operation, Connectivity, Firmware Updates) are shared with the Tremble-Me-Not (SKU: TRMCTL) controller or other items in the Mercury product line, and may reference those devices.

Installation instructions are in the separate **Mercury 1000 Installation Guide**. For known issues and in-development features, see **Release Notes & Known Limitations**. For technical specifications, developer commands, and advanced settings, see the appendices. For help with problems, see the **Troubleshooting Guide**.

KNOWING YOUR CONTROLLER

2.1 Controls and indicators



- ① LCD Display: Main device screen
- ② Accessory Jack: connects Maus-Bus accessories (**not** an Ethernet port)
- ③ Air Out button: vent air (home screen); back / cancel (menus)
- ④ Speed Knob: turn to adjust speed or scroll; short press to confirm; long press to open menu
- ⑤ Air In button: draw air (home screen); show field help (inputs)
- ⑥ USB-C port: serial data, diagnostics, and remote control; does not supply power
- ⑦ Ventilation openings (both sides): keep clear; do not insert objects or allow liquid ingress

Speed Knob

Turn clockwise Increase speed (home screen); scroll down in menus; increase value in inputs.

CONTROLS

Controls

Turn counter-clockwise Decrease speed (home screen); scroll up in menus; decrease value in inputs.

Short press Stop Request (home screen); confirm or select (in menus); save value (in inputs). A second short press while a Stop Request is pending triggers Immediate Stop.

Long press Open main menu (home screen only).

Stop Request vs. Immediate Stop:

Stop Request The controller completes the current stroke and stops at peak suction; this prevents the receiver from slipping off when the machine stops moving. The display shows S and the status label changes to STOP.

Immediate Stop The motor cuts off instantly, regardless of stroke position. Activated by a second short press while a Stop Request is already in progress.

Air Out button (left button)

Hold (home screen) Opens the air-out valve, venting air from the system (shallower stroke, less suction).

Press (in menus or inputs) Returns to the previous menu level. In an input, closes the input and returns to the enclosing menu.

Hold (in menus or inputs) Closes all menus immediately and returns to the home screen.

Air In button (right button)

Hold (home screen) Opens the air-in valve, drawing air into the system (deeper stroke, more suction).

Press (in inputs) Shows help text for the current input field, if available.

Air valves are effective only while the motor is running, the same as the manual controls on the stock Venus 2000 controller. At rest, the most they can do is equalize the chamber pressure.

Accessory Jack

The RJ45 connector on the faceplate is the Maus-Bus accessory port, **not** an Ethernet port. This is for hardwired connection to other Maus-Bus accessories, such as the Edge-o-Matic 3000 (not included) or remote control pendants.

Only connect authorized Maus-Tec accessories to the Maus-Bus port. A certified accessory development kit is coming soon (see *Section 5.6*).

USB-C port

The USB-C port is a serial data, diagnostic, and remote control port. It does not provide power or charging to the device. The port can operate in different modes depending on your needs, configurable in the device menu.

See *Section 5.5* and *Appendix A: Technical Reference* for more information about this port and its control systems.

2.2 Physical connections (rear)

The **6-pin XLR cable** carries mains voltage and provides all operating power to the Mercury 1000. It also delivers the motor control signal to the Venus 2000.



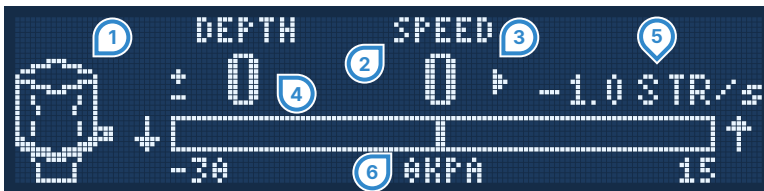
Important: This cable carries mains voltage (110–240 VAC). Always unplug the Venus 2000 from the wall outlet before connecting or disconnecting it.

The **air tube** connects to the Venus 2000 air port. It provides Air In / Air Out control as well as pressure monitoring for movement and position analysis. It must be connected for the Venus and Mercury to operate.

2.3 Faceplate ventilation

The ventilation openings on the faceplate allow airflow to the internal pressure check valves. Keep these openings clear and do not insert foreign objects into any vent or data port. Prevent liquid from entering the vents during use.

2.4 Understanding the display



- ① Stroke animation: real-time visual feedback of chamber pressure
- ② Status label: current motion state (SPEED, STABLE, STOP, FAULT)
- ③ Speed number: current speed setting (0–50); shows S during Stop Request
- ④ **DEPTH**: peak-to-peak pressure delta in kPa; shows IN/OUT while valves are open

CONTROLS

- ⑤ **STR/s:** strokes per second; shows -1 when uncertain or motor is stopped
- ⑥ **Pressure bar graph:** live air pressure with peak-minimum and peak-maximum markers

The home screen displays all operational information across three areas.

Left: stroke animation

The stroking animation icon provides real-time visual feedback of the pressure within the stroking chamber. It's not important, but we felt the need to include it for some additional whimsy.

Center: speed and status

Status label Indicates current motor state.

Speed number Current speed setting on a scale from 0–50.

- Shows S when a Stop Request is in progress
- Shows 50+ if speed exceeds the display scale
- Left and right arrows indicate whether speed can be decreased or increased

DEPTH Peak-to-peak pressure delta in kPa; indicates stroke depth and travel.

- Shows IN while the Air In valve is open
- Shows OUT while the Air Out valve is open

STR/s Strokes per second.

- Shows -1 STR/s when the reading is uncertain or the motor is stopped

Bottom: pressure bar graph

A horizontal bar graph centered at zero kPa displays the live air pressure waveform. The left half represents vacuum (negative pressure); the right half represents positive pressure. The display range is approximately -30 to $+15$ kPa, with a center mark at 0 kPa. The filled bar shows current real-time pressure. Vertical markers show the peak minimum and peak maximum and update continuously during operation.

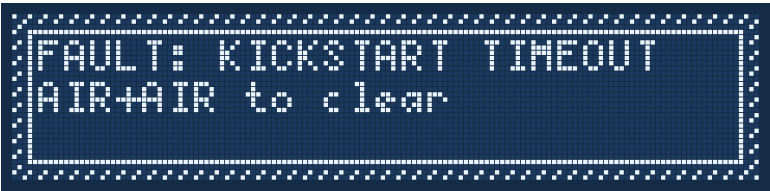
Status labels

CONTROLS

Label	Meaning
SPEED	Motor running; speed adjustable
KICK	Kickstart in progress: controller searching for minimum start speed
STOP	Stop sequence in progress
STABLE	Motor running with confirmed stroke motion detected
FAULT	Fault condition: see fault overlay for type and recovery

Fault overlay

When a fault is detected, a message overlays the home screen:



Fault types displayed:

Displayed text	Cause
KICKSTART TIMEOUT	Motor did not start; kickstart exhausted all retry attempts
SENSOR FAILURE	No stroke motion detected while motor was running
FREQUENCY UNLOCK	Stroke rate deviated outside the expected range during operation

To clear any fault: press the Air In and Air Out buttons simultaneously.

Connectivity status

WiFi and Bluetooth connection status icons are planned for the home screen. They are not displayed in the current firmware. Connection status is currently visible only within the menu system. This section will be updated when the feature is available.

BASIC OPERATION

3.1 Starting your machine

Follow the installation and connection instructions first. Once connected:

1. Plug the Venus 2000 into a wall outlet.
2. The Mercury 1000 powers on automatically with the machine. The splash screen shows the firmware version, then transitions to the home screen in about four seconds.
3. The machine is ready when the home screen is displayed.
4. Turn the **Speed Knob** clockwise to set a speed above 0 to start the motor.
5. The controller enters the kickstart phase automatically if Smart Motion Control is enabled. See *Section 3.2*.
6. Once motion is detected, the status transitions to STABLE and the machine runs at the requested speed.

3.2 Smart Motion Control and kickstart

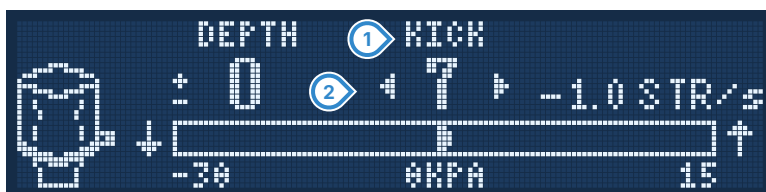
The Smart Motion Control system manages the motor automatically. Because the stroking machine motor can stall at low starting speeds or under heavy suction, the controller includes a **Kickstart** feature that finds the minimum working speed without requiring manual adjustment. Smart Motion Control also includes fault detection, which will alert you if pressure tracking is lost or if the device stalls.

Smart Motion Control may be disabled by default. See Section 4.5 on how to configure it. Smart Motion Control is a preview feature and we are still collecting data on how this performs across various hardware configurations.

How kickstart works

When you request a non-zero speed and the motor is not running, the controller enters KICK state. It progressively increases the motor speed until stroke motion is detected in the air pressure sensor. Once motion is detected, it reduces speed back to your requested value. The status label changes from KICK to STABLE when the machine is running normally.

This replaces the manual process of turning the original speed knob up until the motor starts and then adjusting back down.



- ① Status label shows KICK while the controller searches for minimum start speed
- ② Speed number: current kickstart target speed; not yet at your requested value

If kickstart fails

If motion is not detected after all kickstart attempts (three retries by default), the controller enters a KICKSTART TIMEOUT fault. See the Troubleshooting Guide for causes and remedies, including adjusting air volume and checking connections. If kickstart is consistently unreliable on your machine, you can adjust kickstart parameters or disable Smart Motion Control entirely in Detection Settings. See *Section 4.5* and *Appendix B*.

Motion monitoring during use

While running, the controller continuously monitors stroke motion via the pressure sensor. If motion is lost unexpectedly (for example, if an air hose comes loose), a fault is triggered. This behavior can be adjusted in Detection Settings or disabled if it interferes with normal operation.

If Smart Motion Control causes unexpected faults on your machine, disable it and send a support report. Your data helps improve the system for all users.

3.3 Adjusting speed

Turn the **Speed Knob** clockwise to increase speed (0 to 50) and counter-clockwise to decrease it. Speed is continuously adjustable; the number displayed is a 0 to 50 scale, not RPM or strokes per second. The actual speed response is tuned so finer control is available at lower settings. The STR/s reading on the display shows actual strokes per second during operation.

3.4 Stopping your machine

Stop request (homing stop)

Short press the **Speed Knob** from the home screen to request a stop. The controller waits for the current stroke to reach peak suction before cutting the motor, which positions the receiver correctly and prevents it from slipping off when the machine stops. The display shows S and the status changes to STOP while the stop sequence is in progress.

Immediate stop

Short press the **Speed Knob** a second time while a Stop Request is already in progress to stop the motor instantly, regardless of stroke position. Use this if you need the machine to stop right away.

After stopping

When the motor stops, the air valves remain in their last state and the total air volume in the system is preserved. Air valves cannot be operated while the motor is stopped, the same as with the stock Venus 2000 controls. To add or remove air, restart the motor first, then use **Air In** or **Air Out**. If air valves are actuated while the system is stopped, the best they can do is bleed air in or out until equilibrium pressure is reached.

3.5 Adjusting air pressure (depth)

Manual air adjustment

Hold the **Air In** button to open the air-in valve, drawing air into the system. This increases the air volume, which pushes the receiver further off the body (reduces suction). Hold the **Air Out** button to open the air-out valve, venting air from the system. This decreases air volume, moves the receiver lower (deeper stroke), and increases peak suction. Release either button to close the valve and hold the current air volume.

The DEPTH reading updates in real time as the air volume changes. The associated Air In / Air Out LEDs illuminate when the air valves are operating.

Understanding the depth reading

Depth shows the peak-to-peak pressure delta across one stroke cycle, measured in kPa. A higher Depth value indicates larger stroke travel. The correct depth is entirely based on personal preference and receiver size; there is no universally correct value. Depth also varies with receiver size, hose length, and machine wear.

The depth reading is the best tracking metric for total air volume in the system. Because of this, the Hold Point feature (*Section 3.6*) is based on maintaining a consistent Depth reading.

3.6 Hold point (automatic pressure maintenance)

What it does

Over time, the Venus 2000 air system can develop slow air leaks at hose fittings, valve seats, or the receiver seal. These leaks gradually change the air volume in the chamber. As air volume increases, the receiver drifts toward the end of the body part and eventually loses suction.

The Hold Point feature monitors pressure waveform drift and automatically opens valves to compensate. If air volume increases (receiver drifting off), the Air Out valve vents briefly to restore suction. If air volume decreases, the Air In valve draws in air to return to the set point.

How it works

The controller periodically checks whether pressure has drifted from the target. When it detects drift, it briefly opens the appropriate valve to compensate. The system makes up to five adjustment attempts before timing out. It works most reliably when the machine is running at a consistent speed.

Setting a hold point

1. Start the machine and adjust to your preferred Depth.
2. Long press the **Speed Knob** and select **Set Hold Point** from the Main Menu. This menu item only appears while the motor is running.
3. The controller records the current pressure waveform mean as the target and begins automatic regulation.

Manual override behavior

Pressing **Air In** or **Air Out** while a Hold Point is active temporarily suspends automatic maintenance. After releasing the button, the controller waits a few seconds for pressure to stabilize, then resumes maintaining the new level.

Clearing a hold point

Go to Main Menu > **Clear Hold Point**. The Hold Point also clears when the device is powered off or restarted.

The Hold Point setting is kept while the device remains powered, including through stop and start cycles. It clears on restart.

3.7 Fault recovery

If a fault occurs:

1. The display shows a fault overlay: FAULT: [fault type] and AIR+AIR to clear.
2. Address the underlying cause (see the Troubleshooting Guide).
3. Press **Air In** and **Air Out** simultaneously to clear the fault and return to normal operation.

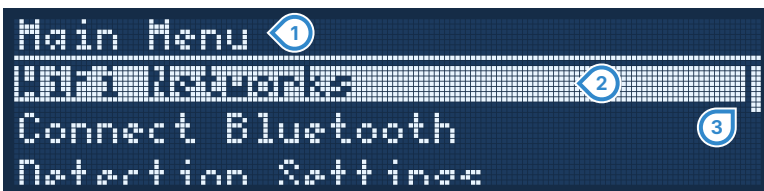
Menu

MENUS AND SETTINGS

4.1 Opening and navigating the menu

Long press the **Speed Knob** from the home screen to open the Main Menu. Once inside:

- Turn the **Speed Knob** to scroll through menu items.
- Short press the **Speed Knob** to select an item.
- Press **Air Out** to go back to the previous menu level.
- Hold **Air Out** to close all menus and return to the home screen.



Menus

- 1 Title bar: identifies the current menu
- 2 Selected item: highlighted row; short press the Speed Knob to select
- 3 Scroll indicator: shows relative position within the full menu list

4.2 Main menu reference

Items in the main menu appear dynamically based on the system state when the menu was opened:

Menu item	When shown
Set Hold Point	Motor running and no Hold Point is active
Clear Hold Point	Motor running and a Hold Point is active
Connect to saved WiFi	WiFi not connected; saved credentials exist

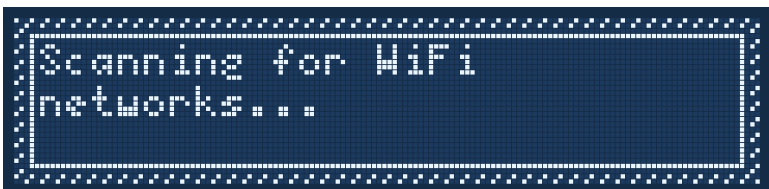
MENUS

Menu item	When shown
Scan for WiFi Networks	WiFi not connected
Connect to Maus-Link Server	WiFi connected; not on Maus-Link (<i>coming soon</i>)
Disconnect Maus-Link	Connected to Maus-Link
View Maus-Link Device Key	Connected to Maus-Link
Check for Updates	WiFi connected
Install Firmware Updates	WiFi connected and update available
Connect Bluetooth	Bluetooth not currently paired
Disconnect Bluetooth	Bluetooth currently paired
Detection Settings	Always
Plugin Settings	Always
System Settings	Always
Diagnostics	Always
System Information	Always

4.3 WiFi setup

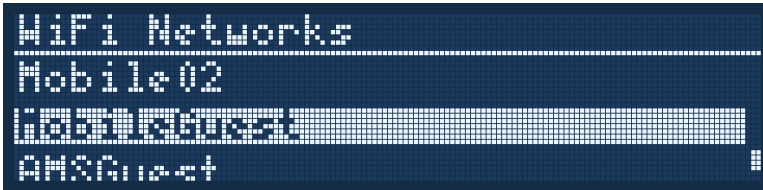
Scanning for networks

1. Open Main Menu > **Scan for WiFi Networks**.
2. A "Scanning..." message appears while searching.
3. Available networks are listed.
4. Select your network to proceed to password entry.



MENUS

Then, after some period of waiting around while the device scans for available networks, the results are displayed as shown below.



Entering a password

- The display shows a character selection interface.
- Turn the Speed Knob to cycle through characters (a–z, A–Z, 0–9, symbols).
- Short press the Speed Knob to confirm the current character.
- Press Air Out / Back to delete the last character.
- Turn the Speed Knob to select [OK] and short press to save and connect.

Menus

Connecting to a saved network

If you have previously connected to a network, select **Connect to saved WiFi** from the Main Menu.

In v2.1.1, WiFi credentials may not be saved correctly between power cycles. You may need to re-enter your network information after each restart. A firmware patch is planned to fix this. See *Release Notes & Known Limitations* for details.

4.4 Bluetooth

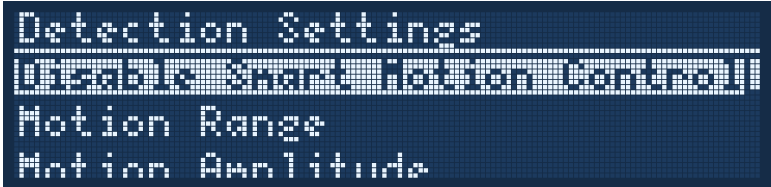
To pair, go to Main Menu > **Connect Bluetooth**. The device enters pairing mode. Scan from your phone or compatible device and select **Mercury Control** (or whatever your Bluetooth display name was set to). Bluetooth does not enable automatically on boot to prevent nearby devices from seeing yours, so pairing must be initiated each time via the menu.

The default advertised name is **Mercury Control**.

The ability to change the Bluetooth device name from the menu is not available in the current firmware. The name can be changed via serial configuration. See *Release Notes & Known Limitations* for details.

To disconnect, go to Main Menu > **Disconnect Bluetooth**, or disconnect from within the connected app.

4.5 Detection settings



Menus

The Detection Settings menu (Main Menu > **Detection Settings**) controls the Smart Motion Control system. Most users will not need to adjust these values. If the kickstart or motion fault system is behaving unexpectedly on your machine, check the Troubleshooting Guide first, then use these settings to tune behavior.

The most important setting is at the top: **Disable Smart Motion Control** turns off kickstart and motion fault detection entirely, so the motor responds to speed commands directly with no automatic management. Use this option only if Smart Motion Control cannot be tuned to work reliably with your machine. If disabling it resolves your issue, please report it to support.

For a full description of each parameter, see *Appendix B: Detection Settings Reference*.

4.6 Plugin settings

The Plugin Settings menu will list installed plugins and allow their configuration.

The plugin system is not yet publicly available. The Plugin Settings menu currently has no active content. See *Release Notes & Known Limitations* for details.

4.7 System settings

Accessed via Main Menu > **System Settings**:

MENUS

Setting	Options	Notes
Flip Screen	On / Off	Rotates display 180°. Useful if the unit is mounted inverted. Takes effect immediately.
Serial Mode	TSCODE / SLIP / DEBUG	Selects the USB-C serial protocol. Requires restart to take effect.

Serial Mode options:

TSCODE (default) uses the text-based TS-Code protocol. Use this with most third-party software and the Maus-Tec app. Full documentation is available at <https://github.com/MausTec/ts-code>.

SLIP uses a binary packet protocol that also enables file transfer. Use this with software written specifically for SLIP mode.

DEBUG outputs device diagnostic logs to the serial port. Use this mode when collecting logs for technical support.

4.8 Diagnostics

Main Menu > **Diagnostics** opens a three-page read-only display of internal system data:

- **Page 0:** Pressure readings, stroke frequency, detection confidence, motor state
- **Page 1:** Motor state, active fault type, fault retry counters, kickstart attempts, mean pressure
- **Page 2:** Live motion detection parameters

Turn the **Speed Knob** to navigate between pages. Press **Air Out** or long press the **Speed Knob** to exit.

This screen is primarily useful for technical support interactions and for users tuning Detection Settings.

4.9 System information

Main Menu > **System Information** displays a message with:

CONNECT

Mercury 1000
Firmware: v[version]
Serial: [serial number]

The serial number (format: M1K-XXXXXX) is also printed on the product label. It may be requested when contacting support or registering your product.

4.10 Notifications

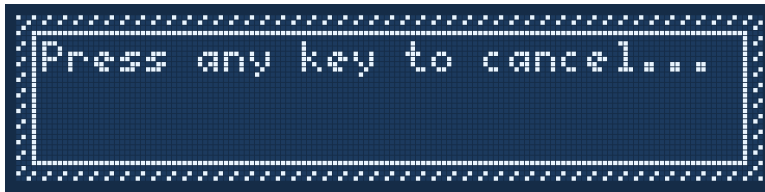
System messages appear as overlay notifications on the display. Some dismiss automatically after a short delay; others require a button press to acknowledge. Progress bars are shown during long operations such as a WiFi scan or firmware update. Examples include "Connecting to WiFi...", "Connected!", "Device is up to date", and "Update available".

CONNECTIVITY

5.1 Bluetooth

Pairing a device

1. Open Main Menu > **Connect Bluetooth**.
2. The controller enters pairing mode.
3. On your phone or computer, scan for Bluetooth devices and select **Mercury Control**.
4. A toast confirms successful pairing.
5. Press any button to cancel pairing if needed.



Connect

Device name

The device advertises as **Mercury Control** by default. You can change this name to avoid identifying the device to others nearby.

The ability to change the Bluetooth device name from the menu is not available in the current firmware. The name can be changed via serial configuration. See *Release Notes & Known Limitations* for details.

Compatible apps and devices

- **Maus-Tec Maus-Link app** (Android, iOS)
- **Edge-o-Matic 3000** via Accessory Port (BLE plugin under development, see *Section 5.4*)
- Any BLE app or custom software supporting the TS-Code protocol (see *Appendix A: Technical Reference*)

Disconnecting

Go to Main Menu > **Disconnect Bluetooth**, or disconnect from the connected app or device. Bluetooth does not enable automatically on power-up; pairing must be initiated each session via the menu.

5.2 WiFi

First-time setup

See *Section 4.3 (WiFi setup)* for the full SSID scan and password entry procedure.

Automatic reconnection

When credentials are saved and WiFi is enabled in settings, the device will automatically reconnect to your saved network on power-up.

In v2.1.1, WiFi credential persistence is currently being resolved. You may need to re-enter your network information after each restart. See *Release Notes & Known Limitations* for details.

What WiFi enables

- **Firmware updates** over-the-air (see *Chapter 6*)
- **Maus-Link remote control** (coming soon, see *Section 5.3*)
- Future: live telemetry and integrations

5.3 Maus-Link (remote control)

Maus-Link is currently under active development and is not yet available.

When released, Maus-Link will offer full remote control of your device over the internet from any location, using a simple key-exchange pairing system with no account or port forwarding required. You'll be able to share a session key with a partner to give them control.

The Maus-Link menu option is visible when WiFi is connected, but full functionality is not yet released. Do not rely on it in its current state.

5.4 Edge-o-Matic 3000 integration

The Edge-o-Matic 3000 (EOM3K) is a separate Maus-Tec product, sold separately. It monitors stimulation and detects edging, generates a stimulation intensity signal, and the Mercury 1000 acts as the output device by adjusting

UPDATES

speed based on that signal. The EOM3K connects to the Mercury 1000 via the Accessory Port and sends speed commands based on its sensor readings.

For setup instructions, see the **Edge-o-Matic 3000 documentation**.

5.5 USB-C serial

The USB-C port provides a serial connection for advanced control and diagnostics. Select the protocol via Main Menu > **System Settings > Serial Mode** (see *Section 4.7*).

Baud rate	115200
Parity	None
Data bits	8
Stop bits	1

TSCODE (default) uses text-based commands compatible with most software. **SLIP** uses a binary packet protocol that also enables file transfer. **DEBUG** outputs diagnostic logs to the serial port for use with technical support.

The TS-Code protocol is documented at <https://github.com/maustec/ts-code>.

Updates

5.6 Accessory Jack (Maus-Bus)

The **Accessory Jack** is an RJ45 connector on the faceplate.

Important: This is not an Ethernet port. It uses the Maus-Bus accessory protocol (I²C-based). **Do not connect Ethernet cables or other devices.** Only use **Maus-Bus Certified** accessories to avoid damage.

Authorized Maus-Tec accessories are in development. For serious hardware integration inquiries, contact Maus-Tec directly.

FIRMWARE UPDATES

6.1 Checking for updates (WiFi)

Prerequisite: WiFi must be connected (see *Section 5.2*).

1. Open Main Menu > **Check for Updates**.
2. A toast shows the result:
 - **"Device is up to date"**: no action needed.
 - **"Updates available"**: proceed to *Section 6.2*.

Automatic update checks are planned as an opt-in setting for a future firmware version. Currently, update checks must be initiated manually. See *Release Notes & Known Limitations*.

6.2 Installing an update (WiFi)

1. After "Updates available" appears, **Install Firmware Updates** is shown in the Main Menu.
2. Select it to begin the download and installation.
3. A progress indicator appears on the display.
4. **Do not power off the device during an update.**
5. The device restarts automatically when the update is complete.
6. Verify the new version via Main Menu > **System Information**.

Updates

Safety: Firmware downloads to a separate flash partition. If the download is interrupted (for example, due to a power loss or WiFi dropout), the current firmware is unaffected and the device restarts normally. The update can be retried.

6.3 Updating via USB-C

Firmware can also be installed over the USB-C port using standard ESP flash tools, without a WiFi connection. This is useful for recovery when WiFi is not available, applying specific firmware versions, or factory re-flashing.

For instructions on flashing over USB, see the technical documentation at <https://support.maustec.io>.



Manually flashing data to the chip can erase important factory provisioning information and cause serious harm to your device, including bricking it. While recovery is possible, this likely falls outside warranty coverage and may require the device to be sent to Maus-Tec for service. Follow the instructions exactly and under the guidance of a Maus-Tec representative, and double-check every partition offset address before writing data.

6.4 What happens during an update

Firmware is downloaded over HTTPS from the Maus-Tec update server. The connection is certificate-verified; no account or login is required. During the check and download, your device's **serial number** and **current firmware version** are transmitted to the update server.

This data is used for version fleet monitoring and quality control tracking across hardware batches. It is not sold or shared with third parties. If you have registered your device, this information may be used to send you update notifications. For full details, see our Privacy Policy at <https://maus-tec.com/policies/privacy>.

Settings, configuration, and calibration are preserved across updates.

6.5 Verifying your current version

Go to Main Menu > **System Information**. The display shows the device name, firmware version (for example, v2.1.1), and serial number. The firmware version is also shown on the splash screen at startup.

SPECIFICATIONS

7.1 Mercury 1000 specifications

Physical

Dimensions (base unit)	5.5 in × 4.5 in × 1.25 in
Attached cable and hose length	42 in
Enclosure material	ABS plastic
Weight	15 oz / 0.95 lb / 430 g (approx. 4.5 Blue Jays or 1 common Crow)

Electrical

Power input	Via 6-pin XLR from Venus 2000 (110–240 VAC)
Controller power consumption	10 W
Total cable current	1.0–1.5 A typical; 2.5 A maximum
System fuse	2.5 A time delay (in Venus 2000 IEC inlet)

Display

Type	Monochrome LCD
Resolution	144 × 32 pixels
Backlight	Yes

SPECS

Wireless

Bluetooth	Bluetooth® Low Energy (BLE 4)
WiFi	802.11 b/g/n, 2.4 GHz band

Regulatory: This product is pending FCC, IC, and CE/UKCA authorization. Regulatory statements and compliance documentation will be added to Chapter 9 upon completion of certification testing.

Wired interfaces

Interface	Connector	Protocol
Serial / Diagnostic	USB-C	UART 115200 8N1; TS-Code, SLIP, or DEBUG mode
Accessory Jack (Maus-Bus)	RJ45	Differential I ² C (not Ethernet) on custom wiring order

Sensors

Pressure sensor type	Absolute pressure
Sensor range	15–115 kPa
Displayed range	Approx. –90 to +20 kPa (normalized to atmospheric delta)

Processor

MCU	ESP32, dual-core
Firmware updates	Over-the-air (WiFi) or USB-C (ESP flash tools)
Storage	8 MB Flash

Compatible machines

- Venus 2000 (110–240 VAC compatible units)

7.2 Environmental and operating conditions

Operating temperature	0°C to 40°C (32°F to 104°F)
Storage temperature	−20°C to 60°C (−4°F to 140°F)
Location	Indoor use only
Moisture	Not rated for wet or damp locations
Ventilation	Ventilation openings on faceplate must not be blocked

LEGAL AND REGULATORY

8.1 Warranty

This product is covered by Maus-Tec's **1-Year Limited Warranty** from the date of original purchase. The full warranty terms are on the warranty card included with your product; this section is a summary for convenience. If there is any conflict between what is written here and what is on the warranty card, the warranty card is definitive.

What is covered: Manufacturing defects and component failures under normal use; firmware defects resolved via free firmware updates.

What is not covered: Damage from improper installation, misuse, abuse, or accidents; water or moisture damage; use with incompatible accessories; damage attributable to unauthorized plugins or firmware modifications; normal wear and tear.

This warranty **is transferable** to subsequent owners. Opening the enclosure for inspection or responsible repair does **not**, by itself, void the warranty.

To make a claim: Contact us at info@maustec.io or <https://support.maustec.io>. Include your proof of purchase, a description of the defect, and photographs or video. Your serial number (M1K-XXXXXX, on the product label) may be requested.

Products returned under warranty must be clean and hygienic. Maus-Tec reserves the right to assess a cleaning fee for items received in an unsanitary condition.

The full warranty terms are also available at <https://maus-tec.com/policies/warranty>.

This warranty is governed by the **laws of the State of Illinois, USA**. It gives you specific legal rights; you may have other rights that vary by state or country. **EU consumers retain all applicable statutory rights under national laws implementing EU Directive 2019/771.**

Legal

8.2 Intended use and age restriction

The Mercury 1000 is a replacement electronic controller designed for use with **compatible pneumatic training machines**, including Venus 2000-type and similar approved pneumatic actuator devices.

This product is intended **for use by adults aged 18 years or older only**.

This product is a controller only and must be used with a compatible host machine. It is not a standalone device and is not intended for any use other than described in this guide and the accompanying Installation Guide.

8.3 Trademark attributions

The following trademarks are the property of their respective owners and are used in this document solely for **compatibility identification** purposes. Maus-Tec LLC is not affiliated with, sponsored by, or endorsed by the manufacturers of the following products:

- **Venus 2000** — Sybian, Abco Research, et al.
- **Tremblr** — F-Machine, et al.

The following are trademarks or registered trademarks of **Maus-Tec LLC**:

- **Mercury 1000™, Tremble-Me-Not™, Edge-o-Matic®, Maus-Link™, Maus-Hub™**

The **Bluetooth®** word mark and logos are registered trademarks owned by **Bluetooth SIG, Inc.** Any use of such marks by Maus-Tec LLC is under license. All other trademarks are the property of their respective owners.

Wi-Fi® is a registered trademark of **Wi-Fi Alliance®**.

8.4 Regulatory compliance

Responsible party (FCC/USA): Maus-Tec LLC

2743 Curtiss St

Downers Grove, IL 60515

info@maustec.io

Disposal: Do not dispose of this product with household waste. Recycle in accordance with local e-waste / WEEE regulations.

8.5 Support and contact

Help portal	https://support.maustec.io
Email	info@maustec.io
Address	Maus-Tec LLC, 2743 Curtiss St, Downers Grove, IL 60515, USA

When contacting support, please have ready:

- Product name: Mercury 1000
- Serial number: M1K-XXXXXX (on the product label)
- Firmware version (Main Menu > System Information on the device display)
- Description of the issue and any troubleshooting steps already taken
- Photographs or video of the issue or defect

