



HUMBLE + BAZOOKA



SATURN BT
BLUETOOTH FOR THE SEGA SATURN

INSTRUCTION MANUAL

BLUE RETRO





About the Saturn BT

The Saturn BT is a low latency Bluetooth adapter that allows you to connect multiple Bluetooth controllers and devices to your Sega Saturn game consoles.

Before using your adapter, please read this instruction manual carefully. Familiarize yourself with the proper use of the adapter and its features. Always operate your Saturn BT according to these instructions.

Always read the original Sega Saturn user manual before using any new peripheral with your console.

Features

- Low Latency
- Use modern Bluetooth controllers and devices
- Connect up to 7 devices
- 3D Analog Mode
- Keyboard and Mouse support
- Robust button mapping feature
- Apply Turbo to any button with varying speeds
- Firmware updatable

Thanks and Acknowledgements

First and foremost, **thank you** for buying the Saturn BT adapter!

A big thanks to Jacques Gagnon "Darthcloud64" for creating the amazing BlueRetro project!

Finally, thanks to **Derek (ateam)** and **GamingNJncos** for helping test the Saturn BT!

BlueRetro GitHub

<https://github.com/darthcloud/BlueRetro>

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<https://www.humblebazooka.com>

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Adapter Buttons and LED Status

Physical Buttons

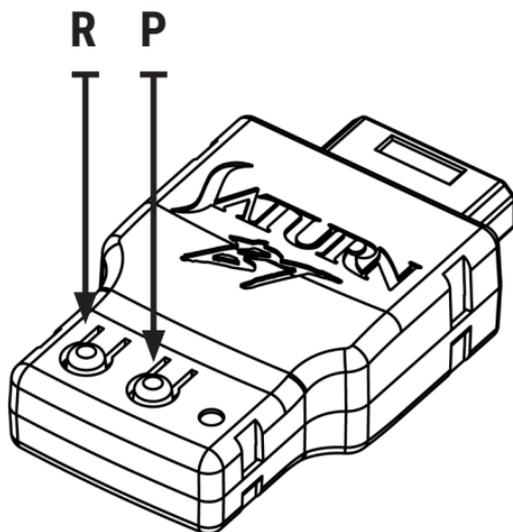
“R” Button: Resets the adapter

“P” Button:

- **Short press (outside BT inquiry mode):** Disconnect all Bluetooth devices from the adapter.
- **Short press (BT inquiry mode):** Cancel Bluetooth inquiry mode (new pairing).
- **3 sec hold:** Enable Bluetooth inquiry mode (new pairing). This is used to connect more than one device. (i.e. connecting more than one controller)
- **10 sec hold:** Factory resets the adapter to default configuration and clears BT pairing keys.

LED Status

- **Solid:** An error occurred (**TIP:** rebooting the adapter with the “R” button).
- **Pulsing:** Bluetooth inquiry mode enabled (new pairing).
- **Off:** No errors, Bluetooth inquiry mode disabled, controller connected.



Pairing Devices

When you power on the Saturn with the Saturn BT plugged in, the adapter will automatically be in “inquiry” mode with the LED pulsing, ready for pairing either an already paired device or new device.

Additional information can be found here:

<https://github.com/darthcloud/BlueRetro/wiki/Controller-pairing-guide>

Pairing Process

- 1 With the Saturn BT plugged in, power on the Sega Saturn.

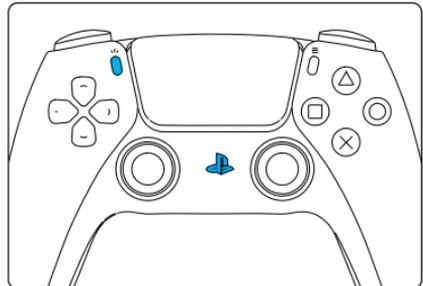
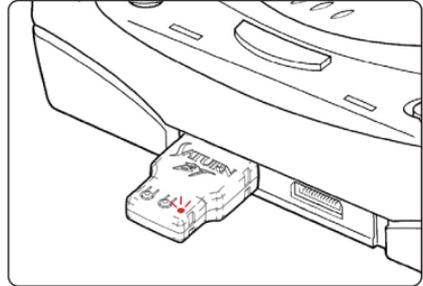
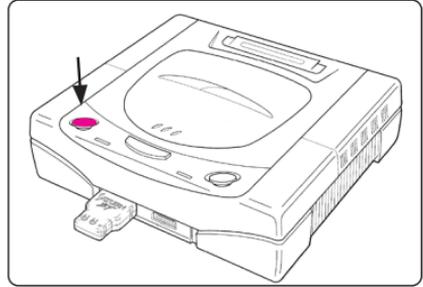
⚠️ Caution: The Sega Saturn’s manual says not to connect or disconnect any peripheral during gameplay as it may result in malfunction.

- 2 The LED on the adapter will pulse indicating it’s ready to pair to.

i TIP: If this is the first time powering on the adapter, there may be a 30 second delay in seeing the LED pulse.

- 3 Put your device into pairing mode (use your device’s manual to find out how to do this).

The LED on the adapter will turn off once the device is paired to it.



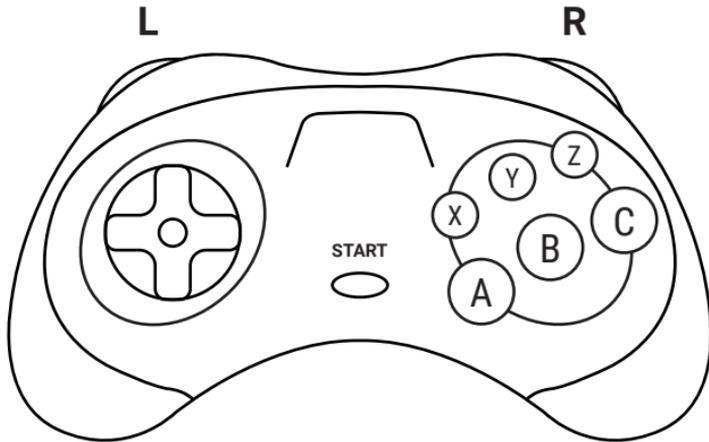
Pairing Multiple Controllers

- 1 Press and hold the “P” button on the Saturn BT for 3 seconds or until the LED pulses. The Saturn BT is now in inquiry mode ready to be paired to.
- 2 Put your device into pairing mode. The LED on the adapter will turn off once the device is paired to it.
- 3 Repeat this process for each device.

Default Button Mapping

Use the below table to reference the default mapping between the Saturn and modern Bluetooth controllers. You can remap any of these buttons by following the guided "Button Mapping" section in this manual.

For more controller references, visit: <https://tinyurl.com/bde43mbm>



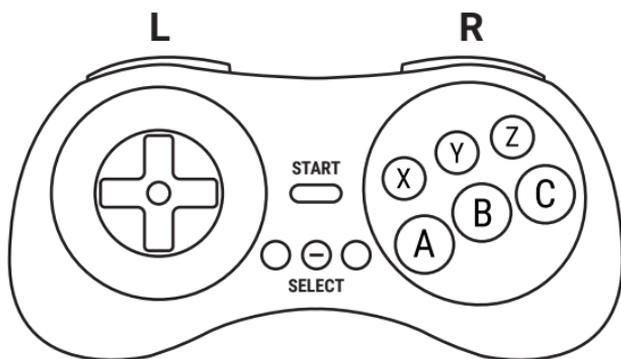
Dst	Source (Bluetooth Controller)				
SATURN	PS5	XBOX	Switch Pro	8Bitdo M30	8Bitdo Sat. DIY
+	+	+	+	+	+
+	+	+	+	+	+
+	+	+	+	+	+
+	+	+	+	+	+
A	□	X	Y	A	A
B	○	B	A	B	B
C	×	A	B	C	C
X	L1	LB	L	X	X
Y	△	Y	X	Y	Y
Z	R1	RB	R	Z	Z
L	L2	LT	ZL	L	L
R	R2	RT	ZR	R	R
START	OPTIONS	MENU	+	START	START

Setting up an 8BitDo DIY Mod Kit or 8BitDo M30

8BitDo controllers typically have a few input and d-pad modes but having them in the wrong modes will cause issues with BlueRetro. The best way to tell if an 8BitDo controller is in the wrong mode is if you're having trouble pairing the controller or the d-pad isn't functioning. Luckily, it's a very simple procedure to getting them setup correctly and your setup is saved each time you power on the controller.

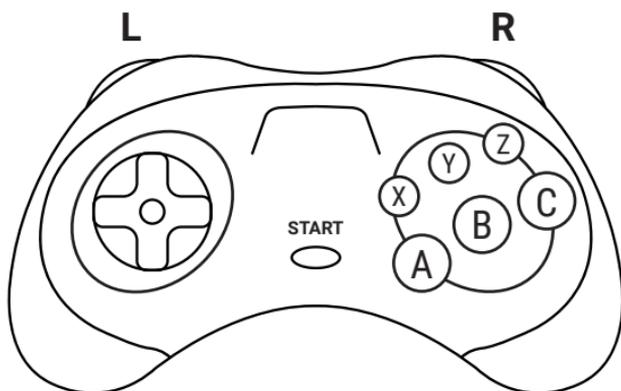
8BitDo M30 Setup

- 1 **Put the controller into "X Input" mode:** Press & hold **X + Start** when powering on the controller. If done correctly, two of the four M30 LEDs will be flashing.
- 2 **Put the controller into "D-Pad" mode:** Press & hold **Up + Select** for about 5 sec when the controller is powered on. If done correctly, the D-Pad is now reset into "D-Pad" mode.



8BitDo Sega Saturn DIY Mod Kit Setup

- 1 **Put the controller into "X Input" mode:** Press & hold **X + Start** when powering on the controller. If done correctly, the LED will flash twice.
- 2 **Put the controller into "D-Pad" mode:** Press & hold **Up + L + R** for about 5 sec when the controller is powered on. If done correctly, the D-Pad is now reset into "D-Pad" mode.



Web Config Overview

The Saturn BT allows you to customize and configure settings via a *Web Config* page. In order to connect to the Web Config, you will need:

- Chrome on a computer or mobile device with Bluetooth capabilities.
- No device should be paired to the adapter while trying to access the Web Config.

A full technical guide for the Web Config can be found here:

<https://github.com/darthcloud/BlueRetro/wiki/BlueRetro-BLE-Web-Config-User-Manual>

Web Config Index

The Web Config index has several links but this manual will focus on the following:

- [BlueRetro Advance config](#)
This page is where you'll be able to change the output type, button mapping, and setup turbo for any button.

- [BlueRetro Presets config](#)
This page is where you'll set presets like mouse support or predefined game presets.

- [BlueRetro OTA FW update](#)
This page is used to update the adapter's Firmware.



BlueRetro Web config

[Index](#) | [View on GitHub](#)

[BlueRetro System manager](#)

[BlueRetro Advance config](#)

[BlueRetro Presets config](#)

[BlueRetro OTA FW update](#)

[BlueRetro Files Manager](#)

[BlueRetro N64 controller pak manager](#)

Global Config

System:

Multitap:

Inquiry mode:

Memory Card Bank:

Output Config

Select output:

Mode: Accessories:

Mapping Config

[BlueRetro v1.4+ mapping reference \(legacy = \[v1.3 map here\]\(#\)\)](#)

Select Bluetooth device:

Config Selection

Current config: Global

Mapping Config

This mapping expect that the Output Config mode accessory.



BlueRetro OTA FW up

[Index](#) | [View on GitHub](#)

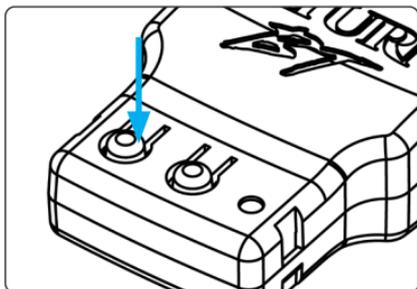
Connected to: BlueRetro_PARALL_FC72 (78:e3:6)

Select firmware: No file chosen

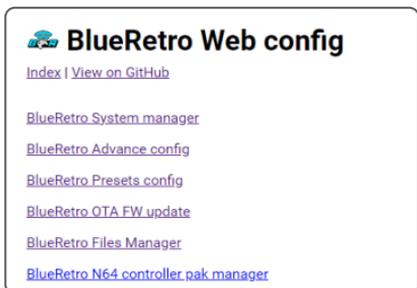
Live Output

Connecting to the Web Config

- 1 If a device is paired to the adapter, short press the "P" button to disconnect it.



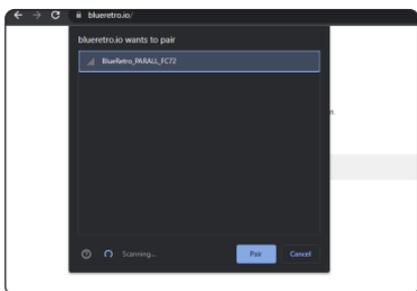
- 2 In Chrome, go to: <https://blueretro.io>
Choose one of the desired links from the index.



- 3 Once you've clicked on the page you want to visit, click the "Connect BlueRetro" button.



- 4 A small window will pop up. Select the BlueRetro adapter name from the list of Bluetooth devices and click:



- i** **TIP:** If you get an error like "NetworkError", repeat the above steps again until it connects.



Advanced Configuration Overview

The Saturn BT's Advanced Configuration area of the Web Config allows you to make functional changes to the adapter.

More in depth information can be found here:

<https://github.com/darthcloud/BlueRetro/wiki/BlueRetro-BLE-Web-Config-User-Manual#2---advance-config-page>

Multitap Config

Under the Global Config, the Multitap drop-box lets you select the available Multitap modes.

- **Slot 1:** BlueRetro will emulate a Saturn Multitap with 6 devices on port 1 as configured in output config #1-6. BlueRetro will emulate the device selected in output config #7 on Saturn port 2.
- **Slot 2:** BlueRetro will emulate the device selected in output config #1 on Saturn port 1. BlueRetro will emulate a Saturn Multitap with 6 devices on port 2 as configured in output config #2-7.
- **Dual:** BlueRetro will emulate a Saturn Multitap with 6 devices on port 1 & 2 (Total 12 devices) as configured in output config #1-12.
- **Alt:** NA

Global Config

System:

Multitap:

Inquiry mode:

Memory Card Bank:

Output Config

- **Select Output:** The Select output drop-box lets you select the active wired output for which the setting will be saved to.
- **Modes:**
 - **GamePad:** Controller
 - **GamePadAlt:** 3D Analog
 - **Keyboard:** Keyboard
 - **Mouse:** Mouse
- **Accessories:** No effect

Output Config

Select output:

Mode Accessories

Mapping Config

[BlueRetro v1.4+ mapping reference](#) (legacy ≤ v1.4)

Select Bluetooth device:

Src label:

Dst label:

Src	Dest	Dest ID	Max	Thres
GP: L X Left	GP: L X Left	Output 1	100%	150%

TIP: You need to save for each modified setting

Using a Bluetooth Keyboard and/or Mouse

The Saturn BT supports using a Bluetooth Keyboard and/or Mouse.

i If using an Optical Disc Emulator (ODE), it's recommended that you launch the game first before switching to mouse or keyboard mode in the Web Config.

Using a Keyboard or Mouse

1 Connect to the Web Config using the "Connecting to the Web Config" section above and use the "**BlueRetro Presets config**" link on the index.

2 Once connected, click the "select preset" drop-down menu in the "Mapping Config" section, select "Default Mouse" or "Default Gamepad/Keyboard", and then click the save button.

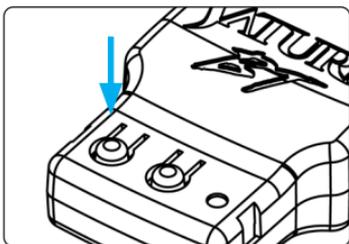
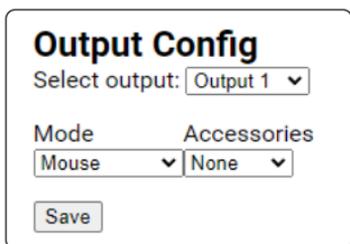
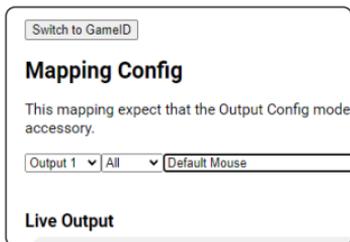
i **Tip:** Make sure to select a different output if using both a Keyboard and Mouse with two Saturn BT adapters.

3 Click the "index" link at the top of the page to return to the index. Click the "[BlueRetro Advance config](#)" link on the index.

4 Once connected again, scroll down to the "Output Config" section, click the "mode" drop-down, and select "Mouse" or "Keyboard" from the list.

5 Click the Save button. A message stating, "Config saved, power cycle BlueRetro adapter for Mode change to take effect" will appear under the section.

6 Press the "R" button on the adapter. The adapter is now in mouse or keyboard mode and ready for a Bluetooth mouse to be paired to it. Follow the "Pairing Devices" section in this manual if need be.



Button Mapping

The Saturn BT has a robust button mapping feature that can be a little confusing at first but is actually not difficult once you understand it. You will want to familiarize yourself with the default mapping reference spreadsheet to help setup corresponding source and destination buttons: <https://tinyurl.com/bde43mbm> or follow the "Default Button Mapping" section above.

Remapping the Buttons

- 1 Connect to the Web Config using the "Connecting to the Web Config" section above and use the "[BlueRetro Advanced Config](#)" link within the Web Config.
- 2 Once loaded, scroll down to the "Mapping Config" section of the page.
You will notice there are quite a few drop downs in this area of the page. We'll be focusing on the following:

Src label: This represents the Bluetooth controller (i.e. 8Bitdo M30).

Dst label: This represents the target controller (i.e. Saturn).

Src: This column represents the various buttons from the **Src Label** controller.

Dest: This column represents buttons from the **Dest Label** controller.

Turbo: Speed settings based on frames if you want turbo on any given button.

- 3 We'll use the 8Bitdo M30 as the source controller example. Select **8Bitdo M30** for the **Src Label** drop-down and **Saturn** from the **Dst Label** drop-down.

Src label:	8bitdo M30	▼
Dst label:	Saturn	▼

- 4 Let's say you wanted to change the M30's **Minus** button to be the Saturn's **Start** button.

In the **Dest** column, select the drop-down next to the **Minus** button in the **Src** column and select **Start**.

Src	Dest
Start ▼	Start ▼
Minus ▼	▼
Changes to...	
Start ▼	Start ▼
Minus ▼	Start ▼

- 5 Make sure to click the **save** button beneath the Mapping Config section. The new button mapping is immediately updated on the adapter once you click the save button.

Turbo / Autofire

The Saturn BT has a robust turbo feature. It allows for 50 possible turbo options where you can choose the rate and duty cycle.

The rate is based on the console's controller polling rate which is most likely 60hz. Here's a few examples. Selecting "1/2 frames" pulses the button at 30Hz, so 1 frame on, 1 frame off. Selecting "2/4 frames" pulses a button at 15Hz, so 2 frames on, 2 frames off.

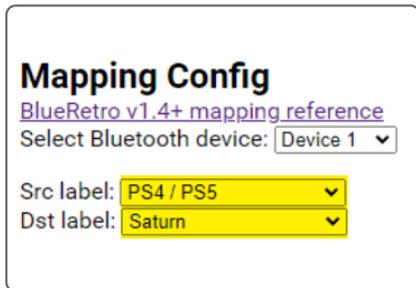
You can also select the duty cycle. "1/4 frames" will still provide a button pulsing at 15Hz but it will be 1 frame on and 3 frames off. This allows you to tweak the turbo to work well in any game.

You can also set the turbo on an axis, in this case the axis will toggle between it's neutral value (off) and it's current position (on).

You can map the same buttons multiple time with different turbo settings as well.

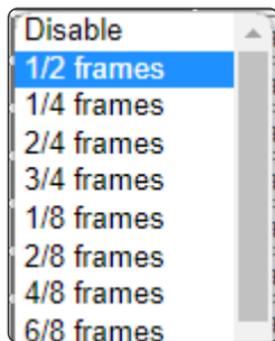
Setting up Turbo

- 1 Using the PS5 DualSense as our source controller example and the Saturn as our destination controller example, let's apply Turbo to **Square (A)** and **Circle (C)**.

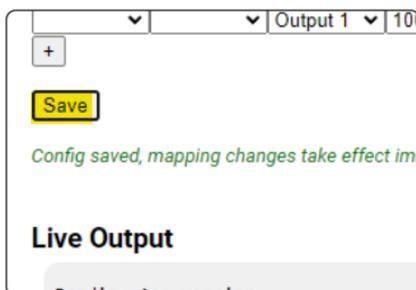


- 2 Set the turbo speed for **Square** and **Circle** by selecting a rate from the drop down. Choose one for each button.

- i** **TIP:** Remember the rate is based on the console's controller polling rate which is most likely 60hz. Here's a few examples. Selecting "1/2 frames" pulses the button at 30Hz, so 1 frame on, 1 frame off. Selecting "2/4 frames" pulses a button at 15Hz, so 2 frames on, 2 frames off.



- 3 Once you've set the Turbo rate, make sure to click the save button after any changes. You can now pair your controller and your turbo rate is set on the buttons you've mapped.



Updating the Firmware (OTA)

The Saturn BT adapter is updatable via the Web Config. The process is very simple but takes around 5 - 10 minutes on a computer and much longer on a mobile device, so we recommend using a computer.

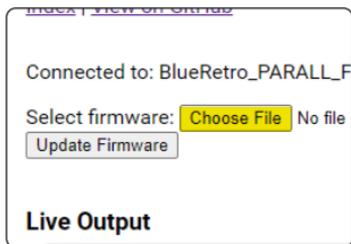
Downloading the firmware package

- 1 First, we'll need to download the latest update firmware package from: <https://darthcloud.itch.io/blueretro>
- 2 Click the "Download Now" button. A pop up will appear where you can either donate to Jacques Gagnon, the creator of BlueRetro or click "No thanks, just take me to the downloads" to be taken to the download page.
- 3 Select the latest firmware package with "HW1" in the name.
- 4 Once downloaded, unzip the package somewhere you'll remember.

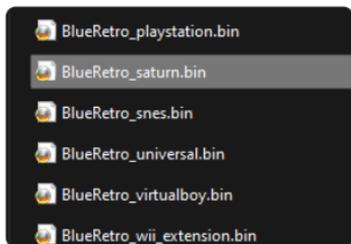
Flashing the OTA bin file

- 5 Connect to the Web Config using the "Connecting to the Web Config" section above for reference and click the "[BlueRetro OTA FW update](#)" link within the Web Config.

- 6 Click the button next to the "Select firmware" text and locate the unzipped firmware folder.



- 7 Inside the folder you should see several bin files but the one we want is called **BlueRetro_saturn.bin**. Open the bin file.



- 8 Now click the "Update Firmware" button and allow the firmware to update. This typically takes around 5 - 10 minutes on a PC and much longer on a mobile device.

Your adapter firmware is now updated!

Troubleshooting

Problem	Possible Solution
8bitdo bluetooth controller pairs but buttons don't work	<ul style="list-style-type: none">• Make sure to put the controller into X-Input mode. Typically, this is done by pressing Start + X to power on the controller.• Please read the controller's user manual for further info.
8bitdo controller D-Pad isn't working	<ul style="list-style-type: none">• Press Select + D-Pad Up to put the controller into "D-Pad" mode.• Please read the controller's user manual for full macros.
LED is solid when powering on the console.	<ul style="list-style-type: none">• Hit the "R" button on the adapter.• If the LED is still solid, unplug and plug the adapter back into the console.
The Web Config displays "Argh! NetworkError"	<ul style="list-style-type: none">• Try connecting again.• Hit the "R" button on the adapter and try connecting again.• This may take a few tries.
Issues connecting to the Web Config	<ul style="list-style-type: none">• Make sure you're using Chrome browser.• Hit the "R" button on the adapter and try connecting again.
My controller, mouse, or keyboard isn't working as expected	<ul style="list-style-type: none">• Make sure the device is a Bluetooth device• Some Bluetooth controllers, mice, keyboards, etc don't work out of the box and require a FW update. Here's a list of tested bluetooth devices: https://tinyurl.com/yc8njmn6• Follow these directions to help get your device supported: https://tinyurl.com/mr3uexyf
Buttons are acting strange in a game	<ul style="list-style-type: none">• Some games poll the controller differently, which can cause issues for the adapter. Please open a ticket on the BlueRetro GitHub so we can track and possibly fix the issue. <p>Games with known issues:</p> <ul style="list-style-type: none">• Golden Axe: The Dual

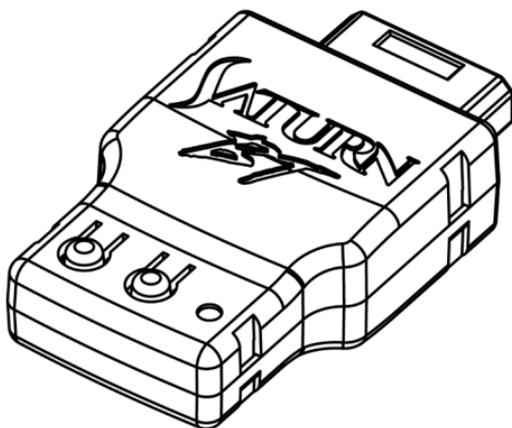
If you have issues not listed here, please use our website's contact form for support.

You can also discuss issues on the BlueRetro GitHub:

<https://github.com/darthcloud/BlueRetro/discussions>

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SATURN BT



Made for Sega Saturn
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