GOBLEND OPERATING MANUAL

Operating Manual ©2021

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CONTENTS

1. WHAT IS THE GOBLEND ?

Blending wines to achieve subtlety and balance is an age-old expression of the winemakers art. All wines are to some degree or another blended. Classic French wines were always the product of blending various wines to achieve the desired flavor profile. The varietals used in the blend were of no concern. Successful blending requires the evaluation of the wines available to blend. Then various mixtures are evaluated to produce the desired wine. Amounts and the wines used are adjusted and it not uncommon for even very small changes to make a large difference in the final blend.

However, the practical methods of making blend samples is archaic and tedious. Typically, samples are measured out using graduates; mixed together and tasted. This method is slow, and only a few blends can be evaluated an hour. The labor-intensive process often results in the winemaker accepting a blend that could be vastly improved by just a few more adjustments. An automated blending device could help the winery make better wines.

GOBlend is a laboratory instrument that can automatically make blends of up to 4 different wines. The winemaker places samples of the component wines into the machine. Then, using the GOBlend app on the supplied Android tablet decides the percentage of each wine in the blend. With a click – the machine generates the blend in seconds. The accuracy on any component is +/- 1ml. Sample volume can be set from 50 to 200ml. The wine maker can then judge the sample, and make adjustments – say increase the amount of wine 3 to 15% and lower wine 2 by 15%. A simple click on the app and the new sample is made. Blend recipes can be stored and recalled later so the winemaker can remake an older blend to evaluate in minutes. Blend characteristics such as, color, body, can be recorded. Blend recipes can be sent by email to the winery or exported to excel. All data is securely kept in the app and only accessible to the user. No internet connection is needed by the GOBlend device.
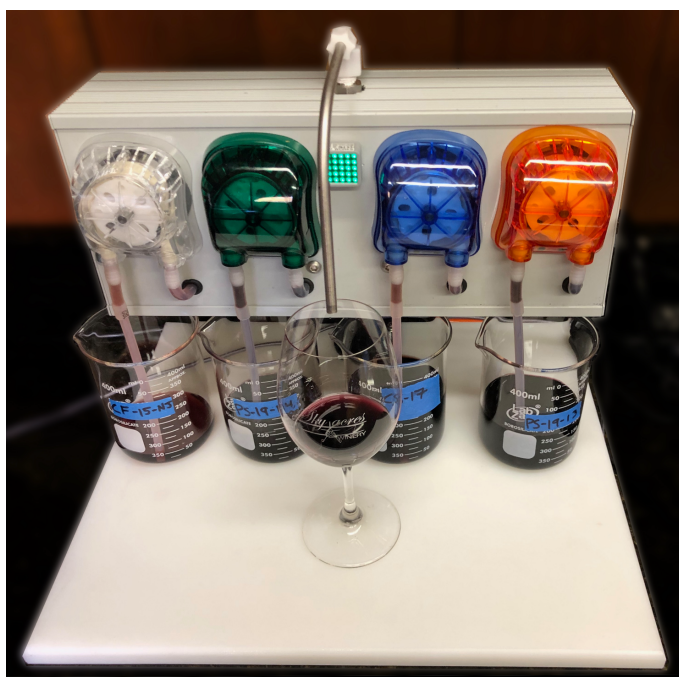
2. QUICK START

Refer to Appendix A2 to assemble the GOBlend unit and connect it to the GOBlend app. Once the equipment is ready and the app is connected you are ready to make blends.

GOBlend makes blends of up to 4 wines. The GOBlend not only makes physical blends quickly, but the app provides a management system to keep track of blends and the wines used.

In making a blend, the first thing is to evaluate the wines that will be incorporated into the blend. Each wine needs to be described so it can be rationally combined. For example, a wine that is acidic is noted as such and then when a blend needs more acidity, this is the wine to add in. It is very much like painting. First, we need to establish our palette – what colors do we have.

With GOBlend the first step is to tell it what wines we have and their characteristics. Bring up the **WINES** tab and click the **NEW** button. Enter a wine name into the name box. It can be anything, but the app will require it to be unique and refuse to accept a duplicate name. Next, you can enter some optional information – a comment, cost, and alcohol content. The cost and alcohol content as used to estimate the blend cost and alcohol. It is useful to enter some sensory characteristics. In GOBlend these are formalized by eight sliders. For example, the first slider is "Body". The slider by default is positioned in the middle (average). Moving it to the right implies superior "Body". Going left means less than average. The scale is -5 to +5. The descriptor here is "Body", but this is just the default term. If you click on the descriptor you can edit it to anything you want. You could rename "Body" to "Sweetness". You can in this manner redefine any of the 8 descriptors. These terms are saved on a wine-by-wine basis so you can make your own wine profiles.

Click on **ADD** to add this wine to your wine list. You can edit the wine data later by selecting the wine on the dropdown and then clicking on **EDIT**. You cannot however change the wine name. It can only be deleted.

Once we have our wines defined, we can proceed to make a blend:

1. Click on the **SET NEW WINES** button. This will bring up the 4 pumps. At this point the wine on each pump is set to NONE and the percentages will be to set to zero.
2. Place samples of the wines to be used in the blend under each respective pump. Make sure each pump inlet tube dips into the wine. You can use up to 4 wines – one under each of the 4 pumps.
3. For each pump in use select the name of the wine on this pump using the dropdown wine menu.
4. Since you just put in new wines you need to make sure that all the tubing is full of wine. For this you need to prime the pumps:
   a. Place a collection container under the sample delivery tube.
   b. Go to the **UTILITY t**ab and click on **Prime1, Prime 2**… etc for all the pumps in use. This will cause the respective pump to come on for 15 seconds. Verify that each pump delivers wine into the collection container. This step ensures that all lines are full of the new wines.
5. Select the percentage of each wine you want by keying into the individual numeric percentage boxes. The percentages must add up to 100% to be valid. Clicking the **adjust to 100%** button under a pump will adjust that percentage automatically to make the blend 100% if possible.

6. Once the blend is valid (sum=100%) the green *START* button will appear. Click *START* and the pumps will make the blend.
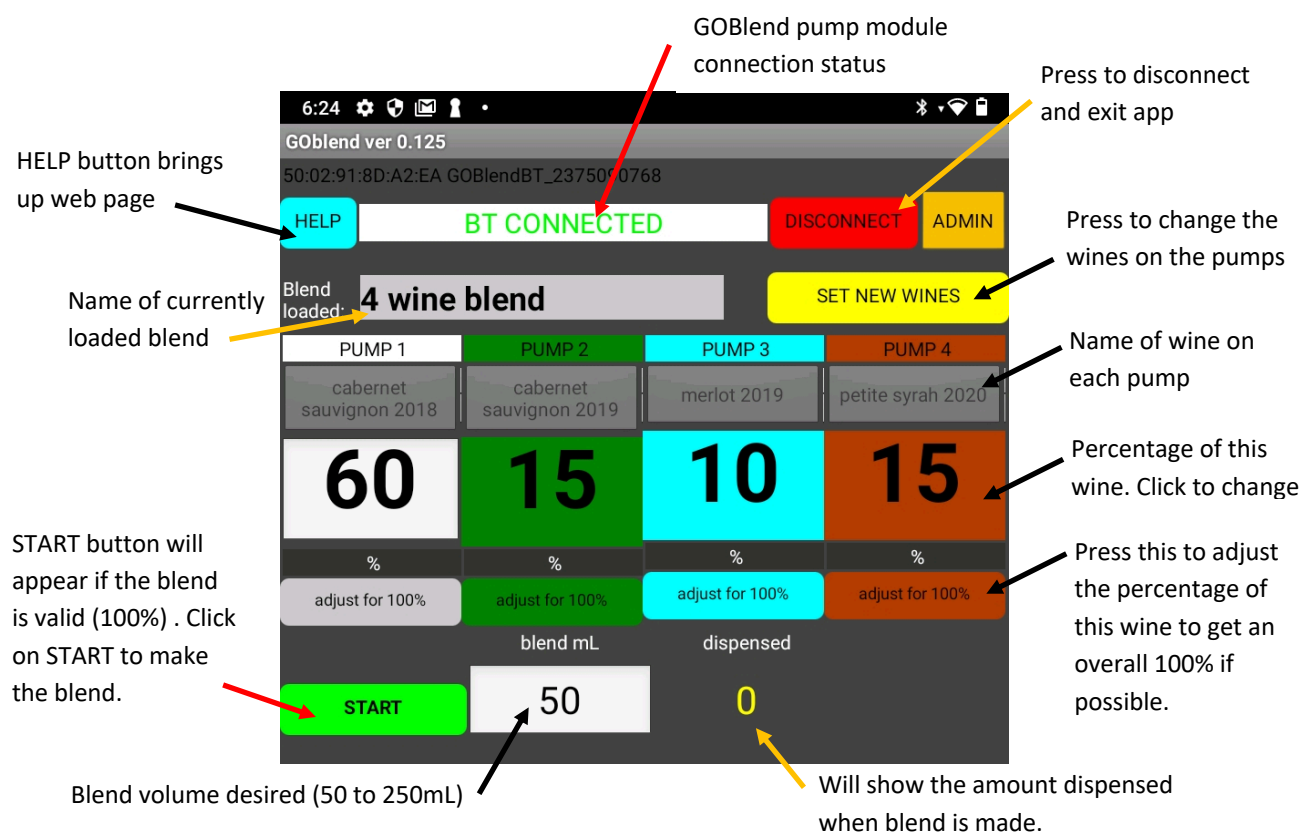
You have successfully made a blend using GOBlend. The next section goes into more detail on adjusting blends and saving and communicating your work.

3. OPERATION

The **GOBlend** is designed with vertical tabs to reduce clutter. The top tab is the PUMPS tab. It is always visible. Other tabs are BLENDS, WINES, UTILITY, and ARCHIVE. Scroll down to the desired tab. Click on a tab header to expand the tab to show underlying information. For example, clicking the BLENDS tab will show the details of the blend. Clicking it again will hide the information.

3.1 PUMPS

The *PUMPS* TAB is used to make blends.

GOBlend pump module connection status

Press to disconnect and exit app

HELP button brings up web page

Name of currently loaded blend

Press to change the wines on the pumps

Name of wine on each pump

Percentage of this wine. Click to change

START button will appear if the blend is valid (100%) . Click on START to make the blend.

Press this to adjust the percentage of this wine to get an overall 100% if possible.

Blend volume desired (50 to 250mL)

Will show the amount dispensed when blend is made.

The currently loaded blend name is shown on the top line. On startup, the last used blend is loaded automatically. Another blend can be loaded from the *BLENDS* tab

The composition of this blend (name of wines used and percentages) is shown on each of up to 4 pumps used to make the blend.

SETTING THE SAMPLE VOLUME:

Click on the blend mL entry box and type in the sample volume (50 to 250 mL) desired. The last sample volume used is loaded automatically on app startup.

MAKE A NEW BLEND:

If you need change the wines you need to reset the machine as follows:

1. Click on the **SET NEW WINES** button
2. This will set all the assigned wines on each pump to NONE and all percentages to 0%.
3. Using the WINES drop down on each pump assign a wine. Up to 4.
4. Place wine in containers under each respective pump to be used to make the blend. Prime the pumps.
5. Now assign a percentage to each wine. The blend must add to 100%. Use the autoadjust buttons make the math easier.
6. The **START** button will appear and click this to make the physical blend. You can save this blend for future use by clicking **NEW** in the **BLENDS** tab.

SAVE A BLEND:

Once you have made a blend you can save it for future use. Go to the BLENDS tab and click on NEW. Enter the blend name and description and click ADD. Refer to the BLENDS section in this manual for more detail.

LOADING A SAVED BLEND:

Expand the BLENDS tab by clicking on BLENDS and use the BLENDS LIST drop down box the load the saved blend you want. It will automatically be loaded into the PUMPS tab. Click START to ake this blend (assuming f that the physical wines are placed under each respective pump !).

ADJUSTING A BLEND:

It is easy to make quick changes to a blend for evaluation by changing the percentage of the individual wines used in a loaded blend.

1. Click in the a pump percentage box and key in the new percentage.
2. The **START** button will now show **INVALID** if the wine percentages do not add up to 100%.
3. Adjust the wines until 100%. You will now see the green **START** button indicating the blend is valid.
4. You can now make the physical blend by clicking the **START** button.
5. You can save this new blend by clicking on the **NEW** button in the **BLENDS** tab

> TIP! Click on the adjust for 100% button under any of the pumps to cause that wine percentage to autoadjust so the blend is 100%

YOU CANNOT CHANGE THE WINES ON ANY OF THE PUMPS. THESE WERE SET BY THE BLEND LOADED. TO USE OTHER WINES YOU MUST click on SET NEW WINES and define the wine on each pump using the dropdowns.

3.2 BLENDS

The **BLENDS** TAB is used to manage the blends database. Click on **BLENDS** to expand:

Click to get a dropdown of all blends in the ACTIVE list.

Click on a blend in the drop down to show details:

Click EDIT to edit the loaded blend

Click NEW to add a new blend. NEW button will only show if the blend on the PUMPS is valid = 100%

Composition of this blend.

BLENDS

BLENDS LIST

EDIT   NEW

4 wine blend

60_%	cabernet sauvignon 2018
15_%	cabernet sauvignon 2019
10_%	merlot 2019
15_%	petite syrah 2020

Name — 4 wine blend

Comment — ps really helps

Created — 02/07/21 18:23

EST. COST/LIT — 1.17

EST % ALC — 0

MAX VOL liters — 14.08

Descriptor   POOR -5<-   AVG   -> +5 GOOD

Body
Dry
Color
Nose
Fruit
Acidity
Tannic
Score

LOAD A BLEND:

1. Select the blend you want to load from the BLENDS LIST dropdown box.
2. The blend composition will appear next to the blend name
3. Blend information including comment and descriptor/sliders will be shown.
4. The blend will also be loaded into the **PUMPS** tab. This is now the current Blend.
5. Two buttons will appear: **EDIT** and **NEW**.

EDIT A BLEND:

1. Select the blend you want to edit from the BLENDS LIST dropdown box.
2. Now click the **EDIT** button.
3. You can edit the following information;
   a. Comment.
   b. Descriptors and slider values.
4. Click **SAVE** to update the blend data or **ESC** to cancel.

   YOU CANNOT EDIT THE BLEND NAME. You can make it INACTIVE (see **ARCHIVE** tab) and then DELETE it.

ADD A BLEND:

1. On the **PUMPS** tab make a valid blend by assigning a wine name to each pump in use. Next assign percentages of each wine to be used in the blend. Percentages must add up to 100%.
2. The **NEW** button will ONLY appear if a valid blend (total percentage = 100%) .
3. Enter a UNIQUE blend name in the blend name box.
4. You can add optional information;
   a. Comment.
   b. Descriptors and slider values.

5. Click **ADD** to add this blend to the ACTIVE blend list or **ESC** to cancel.

3.3 WINES

The **WINES** TAB is used to manage the wines database. Click on **WINES** to expand:

Click EDIT to edit the loaded wine

Click to get a dropdown of all wines in the ACTIVE list.

Click on a wine in the drop down to show details:

Click NEW to add a new wine.

ADD NEW WINE:

1. Click on **NEW** button.
2. Enter a new Wine name in the wine name entry box. The wine name must be unique.
3. You can enter optional information;
   a. Comment
   b. Cost per liter. This is used to estimate the cost of a blend using this wine.
   c. Alcohol %. This is used to estimate the alcohol content of a blend using this wine.

      d.   Volume available for blending.

4. Next you can enter optional wine characteristics by moving the sliders"
    a. Mid-position is average. Moving left is poorer than average. Right is better than average.
    b. Each slider has descriptor. For example, the default first descriptor is BODY. You can change any descriptor to how you want to characterize the wine. For example, you could change BODY to SWEET. Just click on the descriptor and type in the new term you want. Descriptors are saved individually for EACH wine.
5. Click **ADD** to add this new wine to the wine list. Click **ESC** to cancel out.

If you add a wine by mistake, you can delete it. Go to **ARCHIVE** – select this wine on the ACTIVE LIST. Click **make Inactive** to send it to the INACTIVE list. Then click on it in the INACTIVE list and click **DELETE**.
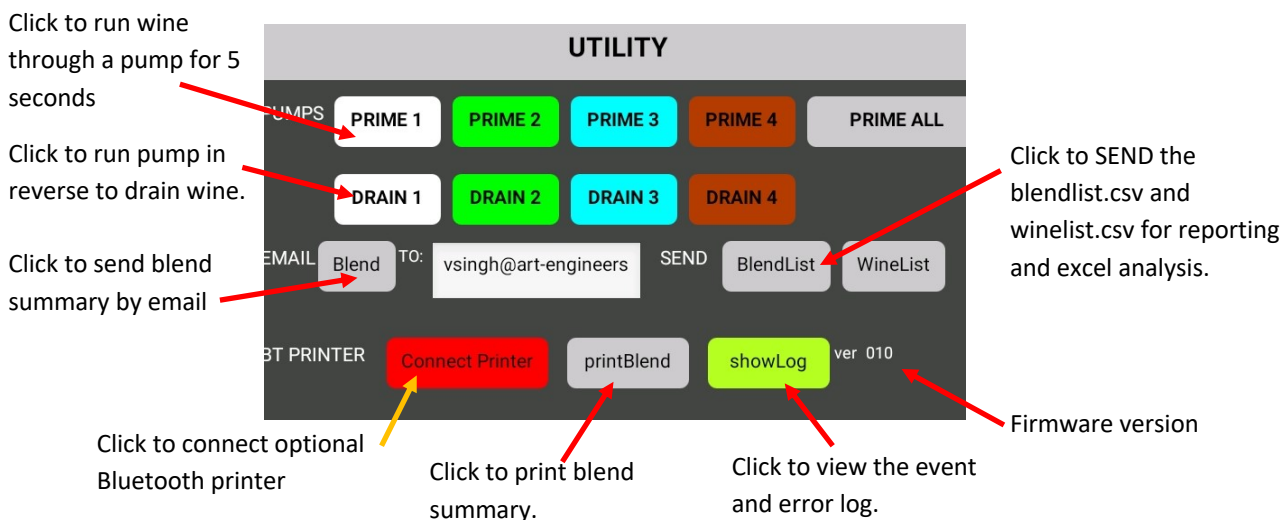

EDIT A WINE:

1. Select the wine you want to edit from the WINES LIST dropdown box.
2. Now click the **EDIT** button.
3. You can edit the following information;
    a. Comment
    b. Cost per liter. This is used to estimate the cost of a blend using this wine.
    c. Alcohol %. This is used to estimate the alcohol content of a blend using this wine.
    d. Volume available for blending.
    e. Descriptors and slider values.

4. Click **SAVE** to update the wine data or **ESC** to cancel.

YOU CANNOT EDIT THE WINE NAME. To get rid of a wine name that may have been entered by mistake you can make it INACTIVE (see **ARCHIVE** tab) and then **DELETE** it.

The *UTILITY* TAB has various useful tools. Click on *UTILITY* to expand:

Click to run wine through a pump for 5 seconds

Click to run pump in reverse to drain wine.

Click to send blend summary by email

Click to SEND the blendlist.csv and winelist.csv for reporting and excel analysis.

UTILITY

| UMPS | PRIME 1 | PRIME 2 | PRIME 3 | PRIME 4 | PRIME ALL |

| | DRAIN 1 | DRAIN 2 | DRAIN 3 | DRAIN 4 |

EMAIL Blend TO: vsingh@art-engineers   SEND   BlendList   WineList

BT PRINTER   Connect Printer   printBlend   showLog   ver 010

Click to connect optional Bluetooth printer

Click to print blend summary.

Click to view the event and error log.

Firmware version

PRIME PUMPS:

All wine pumps must be full of wine before making blends. Any air in the lines will lead to inaccurate blends. Pumps should be PRIMED whenever the individual wine containers are replaced. Press the PRIME button for each pump to initiate the prime. The pump will run for about 5 seconds. Verify that wine is flowing out of the dispense nozzle. Repeat the prime if needed.

Instead of the PRIME button you can use the corresponding DRAIN buttons to reverse the flow and drain the wine back into the source containers. This is useful when changing a wine or when cleaning.

EMAIL FUNCTIONS:

You can email from the app. For this to work, the Android tablet MUST be connected to the internet and a valid email account must be active. GMAIL is the easiest solution and you can easily make a new gmail account if you do not have one.

EMAIL BLEND:

Clicking the *Blend* button sends an email with all information about the current LOADED blend. The sending email account must established on the Android tablet. The destination email(s) should be entered into the email box. A draft of the email is shown before sending and any notes to the cellar master etc can be added in manually.

SEND BLENDLIST/WINELIST:

Clicking the **BlendList** button will send out the entire blendlist (ACTIVE and INACTIVE) in a csv format. This is suitable for import into Excel. This invokes the SHARE procedure in Android and GMAIL can be used to send the csv file to any email destination. Clicking the **WineList** button works the same way except the entire winelist (ACTIVE and INACTIVE) is sent out as a csv attachment. Appendix A1 provides details of the CSV format so that it can be easily opened using Excel. You can use this to keep a backup of your data and also for printing reports from your PC/Mac.

PRINTING:

The current blend can be printed to an optional thermal Bluetooth printer. These are commonly used by cashier machines. A suitable printer is available at GOfermentor.com/   .

To use:

1. Make sure the printer is powered on and paired to the GOBlend Android tablet.
2. Click on **Connect Printer**.
3. Select the correct device from the Bluetooth list.
4. Connect Printer button should turn green.
5. Now click **printBlend** to generate a printout.

LOG:

A timestamped log of all important events and errors is maintained. Click on **showLog** to see the log. The log can be erased by ->ARCHIVE-> **ClearLog**. A cleared log CANNOT be restored. The log is an important tool for troubleshooting and diagnostics.

The *ARCHIVE* tab has many useful functions to manage the blend and wine data.:

Click BACKUP to save a .csv file of the blend and wine database.

Click to clear the LOG file.

Click RESTORE to replace the blend and wine database using the saved .csv files

Click here to get a dropdown list of all blends in the INACTIVE blend list.

Clicking on a blend will show you the composition of the blend. Clicking *makeActive* will make this blend ACTIVE.

Clicking on a blend will show you the composition of the blend. Clicking *makeInActive* will make this blend INACTIVE.

Same functionality but uses the wine list.

ARCHIVE

| BACKUP | RESTORE | ClearLog | | deleteBlendDB | deleteWineDB |

1   in active blend list   1   in inactive blend list

| cab blend 2 ▼ | make inactive- > | cab blend ▼ |

cabernet sauvignon 2018	75	< make active	cabernet sauvignon 2018	58
cabernet sauvignon 2019	25		cabernet sauvignon 2019	42
NONE	0		NONE	0
NONE	0		NONE	0

delete

4   in active wine list   0   in inactive wine list

| NONE ▼ | make inactive > | NONE ▼ |

< make active

delete

DATA BACKUP FUNCTIONS:

BACKUP: Clicking this button will make backup CSV files of the wine (winelist.csv) and blend (blendlist.csv) databases. These files are stored in the Android device and can be used to restore the data if it is inadvertently erased or lost. Data is only backed up on request and a reminder is shown if the backup is more than 30 days old. It is the user's responsibility to backup data periodically. Clicking on *BACKUP* will OVERWRITE any previous backup.

RESTORE: Clicking this button will erase the loaded wine and blend data and replace it with the last stored BACKUP version. CAUTION: This operation CANNOT be undone.

CLEAR LOG: A log is maintained of all GOBlend operations. Clicking this button will erase the log. This action CANNOT be undone.

DATA MANAGEMENT:

GOBlend provides a blend management system. Blends and wines are maintained in 2 categories – ACTIVE and INACTIVE. ACTIVE wines and blends are shown in the BLEND and WINE selection dropdowns. Blends and wines can be set to be INACTIVE so they do not clutter up the selection menus. The inactive blends are not deleted and can made ACTIVE again if needed.

BLENDS LIST:

ACTIVE <> INACTIVE

Clicking on the ACTIVE BLEND LIST dropdown will show the blends that are currently in the ACTIVE blend list. Clicking any blend in this list will show the composition of this blend (i.e. the percentage of each wine in this particular blend). Clicking on the *make inactive* button will make this blend INACTIVE and it will be removed from the ACTIVE list and now show up on the INACTIVE list. It will also not appear on the BLEND dropdown selection in the **BLENDS** tab.

Any blend on the INACTIVE list can be restored to the ACTIVE list by simply selecting it on the INACTIVE list and clicking on the *make active* button. Any wines that were used in this blend will be made ACTIVE automatically.

DELETING A BLEND:

A blend can be deleted by first moving it to the INACTIVE list as described earlier and then selecting it from the INACTIVE list. Now click the *delete* button. If you select DELETE, the blend will be PERMANENTLY deleted. This action CANNOT be undone.

WINES LIST:

ACTIVE <> INACTIVE:

Clicking on the ACTIVE WINE LIST dropdown will show the wines that are currently in the ACTIVE wine list. Clicking on the *make inactive* button will first show you any blends that use this wine. If you decide to make the selected wine INACTIVE, it will be removed from the ACTIVE list and will now show up on the INACTIVE list. It will no longer appear in the WINES dropdown selection on the **WINES** tab. It will also not be selectable on any pump. Any blends that use this wine will also be automatically moved to the INACTIVE blends list and will no longer show up on the BLENDS dropdown selection.(made red to highlight importance)

Any wine on the INACTIVE list can be restored to the ACTIVE list by simply selecting it on the INACTIVE list and clicking on the *make active* button. Any INACTIVE blends that use this wine will however NOT be restored to the ACTIVE blend list. You can make the blends ACTIVE manually.

DELETING A WINE:

A wine can be deleted by first moving it to the INACTIVE list as described earlier and then selecting it from the INACTIVE list. Now click the *delete* button. A wine CANNOT be deleted if it is used in an ACTIVE blend. If you want to delete this wine, you must manually first move all associated blends to INACTIVE. If the wine to be deleted is used in any INACTIVE blends they will also be deleted. If you select *delete*, the wine and any associated INACTIVE blends will be PERMANENTLY deleted. This action CANNOT be undone.

If you delete a blend or wine by accident you can restore the original database by using RESTORE from the UTILITY. This will work provided you have not performed a backup after the deletions.

4. CLEANING

The GOBlend should be cleaned after use. All wine should flushed out and the lines allowed to dry.

Cleaning Procedure:

1. Use *UTILITY*->*DRAIN* to pump any wine in the tubes back into the wine containers.
2. Remove all containers of wine from the pump inlets.
3. Prepare containers of cleaning solution. Good safe option is 1% sulfite solution.
4. Place a waste collection container under the blend discharge tube.
5. Use the *UTILITY*->*PRIME* function to pump the cleaning solution. You can activate prime several times.
6. Now replace the cleaning solution with water and repeat the priming to rinse.
7. Use *UTILITY* -> *DRAIN* on each pump to remove any residual rinse water.
8. Device should be stored empty between uses to minimize any potential contamination.

5. LED STATUS INDICATOR

The square LED shows the status of the GOBlend hardware:

1. Magenta – internal failure call tech support
2. Yellow – unable to activate bluetooth
3. Blinking BLUE – waiting to connect to GOBlend app
4. Red cross – connected but blend is invalid (does not add up to 100%)
5. GREEN – valid – ready to make the blend
6. Green moving chevrons – wine flowing through flowmeter. The rate of movement of the chevrons is proportional to the flow rate.

APPENDIX

A1. Specifications

A2. Assembly Instructions

A3. Troubleshooting

A4. Tasting Room Option

A5. Warranty and Returns

A6. Firmware Upgrade

A1. SPECIFICATIONS

GOBLEND HARDWARE SPECIFICATIONS

PART #	GOBLEND
Description	GOBlend-4 pump control module
Dimensions (LxWxH)	16"x7"x3". Attaches to 14" x16" base plate via VESA mount
LED status display	5x5 RGB LED matrix display
Discharge rate	350 mL/minute
Dispense accuracy	50 to 250 mL sample accuracy+/-1 mL
Connectivity	Bluetooth
Data storage	Unlimited database storage on app
Power requirement	115 VAC/230 5A external 24VDC power supply.
RFID reader (optional)	Mifare Ultralight RFID tag reader

WINE DATABASE SPECIFICATIONS

Stored in CSV format. One row per wine. Each row record consists of:

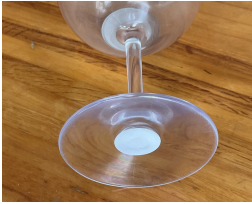| RECORD #	DESCRIPTION
1	Wine name (must be unique)
2	Status – ACTIVE or DEAD
3	Comment
4	Cost
5	Volume available to blend
6	Alcohol conc %v/v
7	unused
8	unused
9	unused
10	unused
11	name1 = Value of descriptor -5 to + 5
12	Descriptor name2 = Value of descriptor -5 to + 5
13	Descriptor name3 = Value of descriptor -5 to + 5
14	Descriptor name4 = Value of descriptor -5 to + 5
15	Descriptor name5 = Value of descriptor -5 to + 5
16	Descriptor name6 = Value of descriptor -5 to + 5
17	Descriptor name7 = Value of descriptor -5 to + 5
18	Descriptor name8 = Value of descriptor -5 to + 5

BLEND DATABASE SPECIFICATIONS

Stored in CSV format. One row per blend. Each row record consists of:

RECORD #	DESCRIPTION
1	Blend name (must be unique)
2	Status – ACTIVE or DEAD
3	Date blend was created
4	Comment
5	Wine Name – pump1
6	% of wine – pump1
7	Wine Name – pump2
8	% of wine – pump2
9	Wine Name – pump3
10	% of wine – pump3
11	Wine Name – pump4
12	% of wine – pump4
13	Calculated cost $/liter
14	Calculated alcohol conc % v/v
15	unused
16	unused
17	unused
18	unused
19	unused
20	unused
21	Descriptor name1 = Value of descriptor -5 to + 5
22	Descriptor name2 = Value of descriptor -5 to + 5
23	Descriptor name3 = Value of descriptor -5 to + 5
24	Descriptor name4 = Value of descriptor -5 to + 5
25	Descriptor name5 = Value of descriptor -5 to + 5
26	Descriptor name6= Value of descriptor -5 to + 5
27	Descriptor name7 = Value of descriptor -5 to + 5
28	Descriptor name8 = Value of descriptor -5 to + 5

STANDARD ACCESSORIES INCLUDED

PART#	DESCRIPTION	FUNCTION	
TABLET-08	8inch Android tablet for control and data management.	Tablet is used for all control and data management functions. It is supplied preloaded and paired with the GOBlend module. App can be updated online.	
BASE+STAND	Base with stand.	HDPE stain-resistant base with aluminum stand to mount GOBlend pump module.	
24 VDC power supply	Standard power supply	External power supply 110/230 volts AC input. 24 VDC 5A output. Plugs into GOBlend pump module.	

OPTIONALACCESSORIES

PART#	DESCRIPTION	FUNCTION	
RFID BASE	Baseplate with built-in RFID reader and ring LED.	For tasting room application. See Appendix A xx.	
RFID WRITER	Device enables RFID tags to be loaded with drink authorization	Can read number of drinks authorized in a RFID tagged glass. Can add drinks authorized to enable glass to be used on GOBlend tasting station.	
RFID TAGS	Tags to be affixed to glasses to enable Tasting room options	Any glass can be made RFID enabled by affixing a self-adhesive 25mm dia RFID to the base of the glass. Sold in packets of 500. Reusable.	
BTPRINTER	Bluetooth thermal roll printer	Quickly document blends.	

A2. ASSEMBLY INSTRUCTIONS

GOBlend is shipped with:

1. No-stain heavy duty base (optional lighted RFID reader base)
2. Adjustable height stand
3. 4-pump module
4. Power supply
5. Preprogramed Android tablet
6. Accessory bag – discharge tube, 4 x inlet tubes

Minimal assembly is required:

1. Attach the stand to the base using the supplied 2 screws.
2. Attach the pump module to the stand using the supplied 4 screws.
3. Insert the short side of the sample discharge tube into the fitting on the pump module. Press in firmly.
4. Attach the 4 inlet tubes to the 4 pumps.
5. Connect the power supply to the pump module and plug it into AC power.
6. Power the pump module using the switch located next to the power inlet.
7. The LED on the pump module should starting flashing blue indicating it is ready to connect via Bluetooth.
8. The Android tablet provided is preprogrammed. Simply power it on and click on the GOBlend app icon. The tablet should connect automatically. If it unable to connect see the troubleshooting section (Appendix A3) or contact tech support.

A3. TROUBLESHOOTING ALARMS AND ERRORS

Solutions to common problems and questions.

Unable to connect app to GOBLEND pump module automatically	The app should connect automatically to the GOBlend pump module via Bluetooth. If is unable to connect, first check that the device is paired to the tablet. Next restart the app and Click on CONNECT. A list of available paired devices will be shown. Click on one that starts with GOBLENDBT_. The app should connect automatically on the next start.
Blend FAILED !	Most likely one of the pumps ran out of wine. Toss the blend away (or drink it) and start again. Make sure there is enough wine in each container and the inlet tubes are not sucking air.
LED stays magenta on power up	Recycle power. If not successful contact GOfermentor tech support
LED stays yellow on power up	Recycle power. If not successful contact GOfermentor tech support
Discharge line drips after pumps stop	Stainless discharge pipe is not seated firmly into top white outlet fitting. Press in firmly.
Green chevrons not moving when pumping.	Check that inlet wine containers are not empty.
Wine or Blend DB is missing	Use RESTORE on UTILITY tab to restore backed up database.

A4. OPTIONAL TASTING ROOM OPERATION

The GOBlend device can be operated in two modes: - PRO and TASTING. The PRO function is used to prepare and manage wine blends in the winery. The purpose is to create new blends easily, and document them. Blend compositions can be emailed to the cellar master to make the commercial blends. The TASTING mode converts GOBlend into a consumer tasting station for up to 4 different wines or blends. The differences are shown in the following table:

Parameter	PRO mode	TASTING mode
Select blends from dropdown	yes	yes
Add new blends	yes	yes
Edit blends	yes	yes
Select wine on pump	yes	no
Add or edit wines	yes	no
Utility tab	Full access	No access
Archive tab	Full access	No access
RFID reader	Not used	Required
RFID writer	Not used	Required

NOTE: The GOBlend TASTING OPTION utilizes RFID to authorize drinks. A wine glass is fitted with an RFID tag as shown. RFID tags must be purchased from GOfermentor.com.

RFID tag affixed to underside of stem
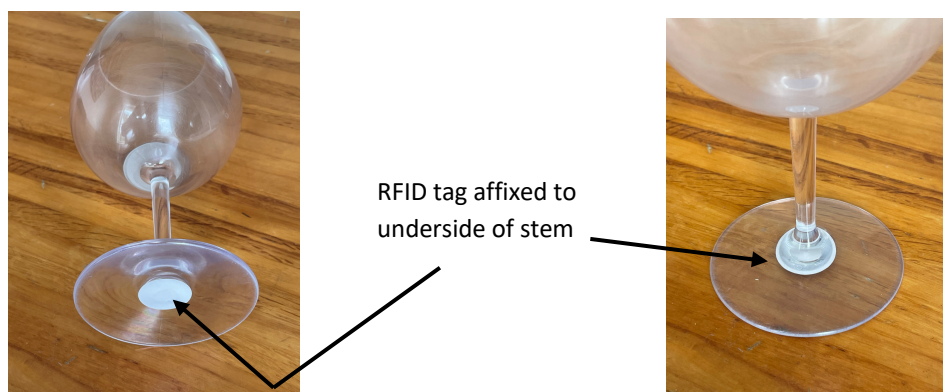
The number of drinks allowed is programmed into the RFID tag located under the glass using the optional GOBlend WRITER. A user ca n pre-buy any number of drinks (up to 99) and the WRITER will program this quantity into the particular tag. When the tagged glass is placed on the GOBlend base, the number of drinks available is read into the app and the user has the option of using one of these drink credits. After the drink is dispensed, the GOBlend updates the remaining drinks into the RFID tag. The user can then buy another drink on this GOBlend or any other GOBlend in the winery until the allowed drink count is zero. The user then buys more drinks from the cashier who reloads the tag using the GOBlend WRITER. All data is encrypted for security.

TASTING OPTION SETUP

The GOBlend must be fitted with an RFID reader to permit the TASTING option. If the unit is equipped with a RFID reader, a small yellow ADMIN button will show up on the upper right top of the app screen on power up. Clicking on this button will bring up a password entry box. Enter the password GO7777 and click OK.

A set of options will appear below the ARCHIVE tab. You click on the PRO<->TASTING switch to convert the unit from PRO to TASTING OPERATION. You can also select the serving size - 2oz or 5oz.

Click LOGOUT so save the changes. Exit the app using the *DISCONNECT* button and restart it using the app icon.

TASTING OPERATION PREPARATION

The tasting room staff must perform a few steps to set up the GOBlend for consumer tastings:

1. First switch the unit to PRO mode as described in the previous section.
2. Press SET NEW WINES and select the wine on each pump from the dropdowns. Any new wine can be added to the wine list using the WINES tab and is then available on the pump dropdown lists.
3. Connect the tubing from each of the 4 wine containers to the inlet of the respective pumps. Prime each pump to ensure that wine is being pumped, and that the lines are full.
4. Go to the BLENDS tab and look at the Blends List dropdown. You should have the following blends:
   a. Blend should be **100% <wine name>** on pump1 (replace <wine name> with the actual wine name selected on pump1. Make this blend by entering 100 on pump 1 and 0 on all 3 others. This selection allows the consumer to get a serving of just the wine on pump1. This is essentially a dispensing "blend". ADD this blend so it shows up in the blends list.
   b. Repeat the same process on the other 3 pumps in turn. You should have 4 blends – each 100% of the wine on the respective pump.
   c. Now make a blend that uses all four pumps. You can put in any percentages you want as long as the total is 100%. This blend can be changed and edited by the consumer to make their own custom blends. ADD this blend.
   d. You should only have to do again if you CHANGE ANY OF THE WINES ON THE PUMPS.

5. On the UTILITY tab verify that your email address is in the EMAIL box. Consumer orders and emails will be sent to this email address.
6. Use the ARCHIVE tab to BACKUP the database.
7. Now click on ADMIN button (upper right top) and login. Select the serving size. Set unit to **TASTING** mode. LOGOUT and restart the app.

CONSUMER TASTING ROOM OPERATION

Check GOBlend is powered on. Start the app by clicking the icon. It should connect automatically and display the following screen:

The base should have red lighted ring in the center. This indicates that the unit is ready to read a RFID-tagged glass.

1. Place a RFID coded glass on the RED lighted ring.
2. The ring should turn GREEN indicating that valid RFID code has been read.
3. A *Would You Like a Drink?* Button will appear on the app screen.
4. Clicking this button will pop-up a dialog box:

5. Click *use a credit* to authorize a drink.

The consumer can select what blend they would like made. The first 4 blends are simply the 100% wines on each pump so by selecting any of these the consumer can get a serving of any of the 4 individual wines. The fifth blend is a combination of the 4 wines and the consumer can change the composition by editing the percentages. They can use the *adjust for 100%* button to help add everything to 100%.

6. If the blend is VALID, the green START button will appear. Press START and the blend will be delivered into the RFID coded glass.
7. If the operation is successful then one drink will be subtracted from the count saved in the RFID tag.
8. The consumer can save this blend with a personal name if they wish to make it again or to order it from the winery.
9. Once the filled glass is removed from the base it will revert to a lighted RED ring and wait for the next coded glass.

A5. WARRANTY, LIABILITY, AND RETURNS POLICY

The GOBlend hardware is warranted to be free of defects in material or workmanship for 12 months after delivery to the first purchaser for use, providing that the units have not been misused. Since we have no control over the operation, we cannot guarantee against failure or loss of product in the unit. Our obligations hereunder, at our option, are limited to the replacement, repair or refund of the purchase, and parts which upon examination prove to be defective within the warranty period.

In no circumstances are we liable for any product loss due to the use of our product. The user is cautioned that this is new technology and they agree to accept the risk inherent in using new technology.

RETURNS

- Call or email tech@gofermentor.com if you have any problems with the GOBlend. In most cases we can resolve the issue remotely.
- Email tech@gofermentor.com for a Return Material Authorization (RMA) number before returning any item.
- Put the RMA on the outside of the shipping label.

A6. FIRMWARE UPDATES

The GOBlend app can be updated at any time by downloading the latest version from our website www.GOfermentor.com/GOBlend or Google Play Store. The GOBlend device itself has embedded firmware that may need to be updated from time to time to fix bugs and add features. Firmware can be upgraded by the user. You will need: 1) Windows PC, and 2) a USB-C cable. You will need to download the GOBlendupdxxx.zip file (xxx is version#) which is available on the www.GOfermentor.com website.

1. Download the CP2104 driver from https://m5stack.com/pages/download. Extract and install the driver.
2. Download the **GOBlendupdxxx.zip** file.
3. Extract all files into a temporary folder.
4. Power off the GOBlend module. Connect the PC to the GOBlend device by carefully inserting the USB-C cable into the socket located below the 5x5matrix LED. Plug the other end into a PC USB port. Using the Control Panel - >*device manager* app verify that a COM port with this device is present.

USB-C socket

5. Open the **Command Prompt** app on the PC. Use the *cd* command to set the current directory to the directory into which you extracted the zip file.
6. In the Command Prompt window type `GOBlend_download COMx` (where COMx is the COM port the device is connected to – e.g GOBlend_download COM4) and the press *Enter*
7. Download progress will be shown in the Command Prompt window.
8. When complete, close the Command Prompt window and disconnect the USB-C cable.
9. Power up the GOBlend normally. Current firmware version is shown on UTILITY tab.

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