



Owner's Manual

Software Version 2.5.0.0

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Introduction

Congratulations on your purchase of the “Drained” module for your Multimorphic P³! I hope it brings you much enjoyment while you own it.

As you would expect from For Amusement Only Games, Drained is unlike many other games on the market. Aside from the unique layout, Drained features the return of a feature from the E.M. era: the gobble hole.

Gobble holes traditionally function as a secondary drain on the playfield itself. There is no way to fully bypass this feature, but there is a way to alter the difficulty. This setting will be detailed in the “Settings” section.

The game difficulty can also be modified by reducing the number of balls to play. For each ball removed from the balls to play, an additional target will be spotted at the start of each ball.

Additionally, this game includes a replay function. It can be set to award a credit or one-time increase to the players’ score. If set to award credits, it will award a full credit regardless of the number of coins per credit set.

Finally, the game’s design utilizes the lower flippers only. The default flipper pulse/reflip strength is 20. Any adjustments should be made in very small increments to avoid damaging plastics or creating unneeded airballs.

This manual will help you care for your Drained module, and will include a detailed breakdown of rubber rings, lamps, switches, and warranty/parts ordering information.

Thank you again for your purchase, and enjoy your time in the castle!

A handwritten signature in black ink, appearing to read "Nick Baldridge". The signature is stylized and fluid, with the first name "Nick" being more prominent than the last name "Baldridge".

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Gameplay Adjustments

There are several adjustments to help tailor your gameplay experience and provide enjoyment for players of all skill levels.

Settings

Settings->Credits

1. Free Play (Yes/No)
 - a. Yes - override credit settings to allow play without currency.
 - b. No - use credit settings
2. Bonus Credits - Number of credits awarded for exceeding the Credit Points Before Bonus threshold.
3. Credit Points Before Bonus - Number of credit points before the Bonus Credits are awarded
4. Credit Points for Right Coin Switch
5. Credit Points for Left Coin Switch
6. Credit Points for Bill Acceptor - These settings allow you to use different coin mechanisms in each coin slot. For example, you may wish to award more credit points for a fifty-cent piece as compared to a quarter.
7. Credit Points Per Game - Number of credit points before a game can be started.
8. Credits - Number of available credits. Increment this number to add credits without adding coins, or decrement to remove credits as needed.
9. Max Credit Points - Credit points above this threshold will not register.

Settings->General

1. Ball Search
 - a. Initial Inactivity Time - Number of seconds before first search begins with no switch activity.
 - b. Subsequent Inactivity Time - Number of seconds after initial search before the next search begins.
 - c. Searches Before Launch - Number of searches before a ball is launched to resume play.
 - d. Enable Chase Ball Launch - Y/N - Turn chase balls on or off to prevent improper scoring in a tournament setting.

2. GI
 - a. Speaker Panel Brightness - For P³s with lighted speaker panels, this setting will increase or reduce the brightness.
3. Max Players Per Game - 1-4 (default 4)
4. Allow Player Removal
 - a. Yes - Players can be removed with a long (2s) press of the start button
 - b. No - Players cannot be removed once added
5. Balls Per Game - 1-5 (default 5) - Reducing this number will award more spotted targets at each ball start.
6. Soft Restart Enabled
 - a. Yes - Holding start when a single player is added will return the game to attract mode.
 - b. No - Holding start when a single player is added will not return the game to attract mode.
7. Detect Cheaters
 - a. Never - Tilting is not detected.
 - b. Physical Game Only - The tilt bob status will be reported.
 - c. Always - Multiple methods of cheat detection are used.
8. Exit Requires Coin Door - this is a global setting, affecting all apps when changed.
 - a. Yes - Exiting the app requires that the coin door remain open while the start button is held..
 - b. No - Exiting the app does not require that the coin door remain open. Hold start and launch to exit the app.

Settings->Profile System

1. Profile System Enable
 - a. Yes - Users may select a profile when starting a game from the feature menu.
 - b. No - Users may not select a profile.
2. Allow Setting a Default Profile
 - a. Yes - Users may set a default profile, which will automatically be used on each game start.
 - b. No - Users may not set a default profile.
3. Change Profile Allowed
 - a. Yes - Profile can be changed once selected.
 - b. No - Profile cannot be changed once selected.
4. Manage Profiles Allowed
 - a. Yes - Users can create/delete profiles.

- b. No - Users cannot create/delete profiles.
- 5. Team Games Allowed
 - a. Yes - Users can start Team Games.
 - b. No - Users cannot start Team Games.
- 6. Allow User to Edit this Profile
 - a. Yes - Users can rename and change options per profile.
 - b. No - Users cannot rename or change options per profile.

Settings->Mechs

- 1. Coils
 - a. Trough
 - i. Min Launch Pulse - Allows setting of minimum launcher pulse timings (in ms). Only launcher 3 and 5 are used on Drained. Increasing this setting may result in balls stuck on top of plastic light shields. Default 15.
 - ii. Max Launch Pulse - Allows setting of maximum launcher pulse timings (in ms). Only launcher 3 and 5 are used on Drained. Increasing this setting may result in balls stuck on top of plastic light shields. Default 15.
 - iii. VUK Drain Pulse Time - Pulse timing of the coil that reloads the trough. Default 16.
 - iv. VUK Drain Stack Pulse Time - Pulse timing of the coil that reloads the trough when multiple balls are stacked for reload. Default 20.
 - b. Slingshot Pulse Time - This setting impacts all slingshot coil pulse timings (in ms).
 - c. Slingshot Switch Activation Polarity - T/F - Drained should be set to True. This option should only be changed if switch closures are reporting incorrectly and mechanical issues have been ruled out.
 - d. Left Flipper Strength - This changes the initial pulse timing of the left flipper (in ms). Default 20.
 - e. Right Flipper Strength - This changes the initial pulse timing of the right flipper (in ms). Default 20.
 - f. Pop Bumper Pulse Time - This setting changes the strength of the pop bumper coil (in ms). Default 8.
 - g. Left Drop Target Reset Pulse Time - This setting changes the strength of the left drop target bank's reset coil (in ms). Default 50.
 - h. Right Drop Target Reset Pulse Time - This setting changes the strength of the right drop target bank's reset coil (in ms). Default 50.

- i. Kocker Pulse Time - This setting changes the strength of the knocker. Default 30.
 - j. Bell Pulse Time - This setting changes the strength of the bell. Default 8.
- 2. Tilt
 - a. Tilt Detection Enable
 - i. Yes - The game can be tilted if nudged too hard.
 - ii. No - The game cannot be tilted if nudged too hard.
 - b. Use Tilt Bob for Detection
 - i. Yes - The tilt bob touching the ring will register a tilt.
 - ii. No - The tilt bob will have no impact on tilting.
 - c. Tilt Warnings - Number of warnings given before the game tilts.
 - d. Time (in Seconds) Between Warning Detects - Setting this option higher will give a player more of a chance to recover after a hard nudge.
 - e. Settle Time (in Seconds) After Tilt - Will increase or reduce the time before the game can continue after tilting.
- 3. Switches
 - a. One-Handed Play - Remaps all buttons to a single button box.
 - b. Use Red Buttons for All Flippers - This setting allows games that use upper flippers to remap all flipper activations to the red buttons. Drained does not use the upper flippers.
- 4. Ball Tracking
 - a. Preset Configuration - 1-2 - Changes how the Ball Tracking optos are polled. Different P³s will require different presets. Try changing this option if there is no debris on the screen and screen detection seems to be malfunctioning.
- 5. LEDs
 - a. Brightness
 - i. Base P³
 - 1. Each LED in the cabinet can have a maximum brightness applied.
 - ii. Playfield Module
 - 1. Each LED in the Drained module can have a maximum brightness applied.
 - b. Use Custom Backbox LED Indexes - Y/N - When enabled, the custom indexes set in the options below are respected. Leave disabled unless advised by support.
 - c. First Backbox LED Index - This option sets the specific LED number to be the start of the backbox LED chain. Only respected if Use Custom Backbox LED Indexes is set to Yes.

- d. Last Backbox LED Index - This option sets the specific LED number to be the final LED in the backbox LED chain. Only respected if Use Custom Backbox LED Indexes is set to Yes.
- 6. Disable Physical Bell
 - a. True - The physical bell will no longer sound in game. It will be replaced with a virtual bell sound.
 - b. False (Default) - The physical bell will sound in game.
- 7. Disable Physical Knocker
 - a. True - The physical knocker will no longer sound in game. It will be replaced with a virtual knocker sound.
 - b. False (Default) - Physical knocker will sound in game.

Settings->Gameplay->General

- 1. Replays
 - a. Replay Feature Enabled
 - i. Yes - when in coin play, replays will be awarded based on thresholds defined.
 - ii. No - Replays will never be awarded.
 - b. Minimum Replay Score - Lowest value the score will return to if thresholds are not met over time.
 - c. Current Replay Score - Current score needed to achieve replay in coin play.
 - d. Dynamic Replay Increment Amount - Upon achieving a replay, the next game will increment the Current Replay Score by this amount.
 - e. Dynamic Replay Decrement Amount - if a replay is not achieved within the defined Number of Replay Misses, this amount will be subtracted from the Current Replay Score until the Current Replay Score meets the Minimum Replay Score.
 - f. Number of Replay Misses Before Adjusting - Number of games played without achieving a replay will apply the Dynamic Replay Decrement Amount (if above the Minimum Replay Score).
 - g. Replay Award
 - i. Credit - When selected, replays will award a free game, regardless of credit points needed. In free play, credits will be accrued, but not used.
 - ii. Points - When selected, replays will award a one-time increase to the player's score.

2. Ball Save - *Can be set per profile*
 - a. Ball Save Time - This is the total time for the ball save - including the Grace Period Time.
 - b. Ball Save Grace Period Time - This is the time after the ball save timer disappears that the ball will still be saved if drained.
 - c. Vampire Start Ball Save Time - This is the total time for the ball save that starts when a vampire battle has begun. Ball Save Grace Period Time is respected in this value.
 - d. Multiball Start Ball Save Time - This is the total time for the ball save that starts when a multiball begins. Ball Save Grace Period Time is respected in this value.
3. Side Targets - *Can be set per profile*
 - a. Side Target Difficulty - Increasing this value will make side target detection more difficult. Reducing this value will make side target detection easier.
 - b. Disable Side Targets - Yes/No - This option will remove the side target scoring and spotted targets upon completion.
4. Disable Gobble Until Mode Completed - Yes/No - *Can be set per profile* - This changes the behavior of the gobble hole, returning any ball shot into the gobble until a vampire battle is started. Default No.
5. Disable Lane Spotting - Yes/No - *Can be set per profile* - Lane rollovers can be disabled, which disables spotted targets upon lane completion. Default No.
6. Disable Multiball - Yes/No - *Can be set per profile* - Multiball is awarded on first S-T-A-K-E-S completion per ball. Setting this option to Yes will remove that portion of the award for completion. Points and bonus will still be awarded. Default No.
7. Max Bonus X - 1-100 - *Can be set per profile* - Bonus Multiplier, by default, is incremented with each completion of the Holy Water sequence. This setting allows a cap on the bonus multiplier award. Points and bonus for completion are still awarded regardless of setting. Default 100.
8. Max Playfield X - 1-100 - *Can be set per profile* - Playfield Multiplier, by default, is incremented with every 5 hits to the pop bumper. This setting allows a cap on the playfield multiplier award. Default 100.
9. Disable Date/Time Checks - Yes/No - *Can be set per profile* - Drained contains some functionality that runs at specific dates or times. If this additional functionality is desired, it can be enabled via this setting (however, please see note on page 15). Default Yes.
10. Set Date/Time Over Network - Yes/No - When enabled, will poll an NTP server periodically to ensure that Drained's internal clock matches your local time automatically. This change will not impact other P³ software. Default No.

11. Retain Current Vampire and Progress Between - Yes/No - When enabled, if you fail a vampire battle, the same vampire will be available on your next ball, and the game will retain the shots already completed in the vampire battle mode. Default No.
12. Use Same Vampire Order for All Players - Yes/No - When enabled, all players will follow the vampire order of the first player, selected at random on game start. Default No.
13. Autolaunch Balls After Set Time (seconds) - 30-600 - A game awaiting launch will automatically proceed with launch after the defined number of seconds to prevent endless idle time. Affects frequency of pre-launch callouts. Opening the coin door will reset the timer. Default 300s.
14. Enable Lane Change with Red Buttons - Yes/No - When enabled, red buttons will rotate the in/outlanes. This option can be set on a per-profile basis. Default No.

Settings->Twitch

1. Chat Window
 - a. Show ChatBot Window - Yes/No - This option will show the Twitch chat on the P³.
 - b. Chatbot Display - Backbox/Playfield - This option changes the monitor upon which the Twitch chat will be shown.
 - c. Other options change the position and appearance of the chat box.
2. Gameplay
 - a. Test Features
 - i. Test Blackouts During Gameplay - T/F - When enabled, the game will automatically run the blackout command every so many seconds. In this mode, the playfield monitor will be overlaid with a black image.
 - ii. Test Reverse Flippers During Gameplay - T/F - When enabled, the game will automatically run the reverse command every so many seconds. In this mode, the left and right flipper buttons are swapped.
 - iii. Test Invert Flippers During Gameplay - T/F - When enabled, the game will automatically run the invert command every so many seconds. In this mode, the flippers are automatically pulsed and held in the up position. Pressing the flipper button will lower the flipper.

- iv. Test Bats During Gameplay - T/F - When enabled, the game will automatically run the bat command every so many seconds. This command will automatically start a bat hurry up.
 - v. Test Spotting Targets During Gameplay - T/F - When enabled, the game will automatically spot a target every so many seconds.
 - vi. Test Removing Tilt Warnings During Gameplay - T/F - When enabled, the game will automatically remove tilt warnings every so many seconds.
 - vii. Test Adding Tilt Warnings During Gameplay - T/F - When enabled, the game will automatically add tilt warnings every so many seconds.
- b. Time Between Viewer Features - Seconds - Number of seconds after a command succeeds before another command can be input.
 - c. Blackouts Enabled - Y/N - When enabled, allows the "blackout" chat command.
 - d. Bits for Blackout - Number of bits required to execute a "blackout" command, if the user's Twitch account is partnered or affiliated.
 - e. Time for Blackouts - Number of seconds a "blackout" command lasts.
 - f. Reverses Enabled - Y/N - When enabled, allows the "reverse" chat command.
 - g. Bits for Reversed Flippers - Number of bits required to execute a "reverse" command, if the user's Twitch account is partnered or affiliated.
 - h. Time for Reversed Flippers - Number of seconds a "reverse" command lasts.
 - i. Inverts Enabled - Y/N - When enabled, allows the "invert" chat command.
 - j. Bits for Inverted Flippers - Number of bits required to execute an "invert" command, if the user's Twitch account is partnered or affiliated.
 - k. Time for Invert Flippers - Number of seconds an "invert" command lasts.
 - l. Bats Enabled - Y/N - When enabled, allows the "bat" chat command.
 - m. Bits for Bats - Number of bits required to execute a "bat" command, if the user's Twitch account is partnered or affiliated.
 - n. Time for Bats - Number of seconds a "bat" command lasts.
 - o. Spots Enabled - Y/N - When enabled, allows the "spot" chat command.
 - p. Bits for Spots - Number of bits required to execute a "spot" command, if the user's Twitch account is partnered or affiliated.
 - q. Time for Spots - Number of seconds a "spot" command lasts.
 - r. Tilt Warning Removal Enabled - Y/N - When enabled, allows the "removetilt" chat command.

- s. Bits for RemoveTilt - Number of bits required to execute a “removetilt” command, if the user’s Twitch account is partnered or affiliated.
 - t. Time for RemoveTilt - Number of seconds a “removetilt” command lasts.
 - u. Tilt Warning Addition Enabled - Y/N - When enabled, allows the “addtilt” chat command.
 - v. Bits for AddTilt - Number of bits required to execute an “addtilt” command, if the user’s Twitch account is partnered or affiliated.
 - w. Time for AddTilt - Number of seconds an “addtilt” command lasts.
3. Login
 - a. Password - OAuth password (see <https://twitchapps.com/tokengen/>)
 - b. Username - Twitch username.
 - c. Channel - Twitch channel. *
 4. ChatBot Enabled - Y/N - When enabled, the chatbot will announce commands that are available, as well as when new commands can be entered.
 5. Enable Gameplay Feature Control - Y/N - When enabled, commands will be accepted from Twitch chat on the channel specified under [c. Login].
 6. Channel Status in Chatbox - Y/N - When enabled, some basic information about the channel is displayed on the P³’s chatbox, such as the number of participants.
 7. Channel Status Read Intervals - Number of seconds between polls of the channel’s status for presentation in the P³’s chatbox.
 8. Enable Features Requiring Bits - Y/N - If enabled, bit values will be respected. These can only be accepted if the user’s Twitch account is partnered or affiliated. When set to No, all features will be available for free without specifically setting the bit values to zero.

* **Note:** Exit and restart Drained after saving your login information to prevent issues communicating with Twitch.

Settings->Info

1. Logging Level
 - a. All - All errors and informational notices are logged.
 - b. Warning - All informational notices are logged.
 - c. Exception - All informational notices and exceptions are logged.
 - d. Error - All informational notices and errors are logged.
 - e. None - Nothing is logged.
2. Other data in this menu is presented for informational purposes only.

Audio

1. Volume of Background Music - This changes the volume of background music compared to sound effects and voice callouts.
2. Bass Gain - Increases or decreases the amount of bass throughout the application.
3. Attract Music Disabled - Y/N - Prevents all music playback during attract mode.
4. Bluetooth System Enable - Y/N - When enabled, allows Bluetooth headphone, headset, or speaker connections through the Feature Menu.

Base Settings Menu

1. Feature Menu Enable - Y/N - When enabled, allows the user to access the feature menu by holding a red flipper button and pressing start.

Statistics

Statistics->Money

1. Last Collection
 - a. Date of Last Collection (YYYY M D) - Date last collection was reset.
 - b. Total Left Mech Coins at Last Collection
 - c. Total Right Mech Coins at Last Collection
 - d. Total Bill Acceptor Coins at Last Collection
 - e. Number of Coins Collected at Last Collection
2. Reset Current Collection - Y/N - Choosing Yes and confirming the selection will immediately reset the Current Collection statistic and set the value back to "No". This will not change the Total Coins Added statistic, and only resets "Current Collection Amount".
3. Add Service Credits - Changing this number and confirming the selection will immediately add service credits to the game. Service credits will increment the Total Service Credits Added statistic.
4. Coins Added Through Left Mech - The total number of coins that have passed through the left coin mechanism.
5. Coins Added Through Right Mech - The total number of coins that have passed through the right coin mechanism.
6. Coins Added Through Bill Acceptor - Total number of virtual coins added through the bill acceptor. Note that the value of bills in virtual coins can be modified by changing Settings->Credits->Credit Points for DBA.
7. Total Coins Added - The total number of coins (virtual and real) that have passed through the game. Note this statistic only tracks the coins for Drained.
8. Current Collection Amount - The number of coins earned since the last collection reset via Statistics->Money->Reset Current Collection.
9. Total Service Credits Added - This number tracks the number of credits added to the game via the operator menu.
10. Total Replays Awarded - This number shows the number of free games awarded. Replays that award points are not included in this total.

Statistics->General

1. Games Started - Number of games started since the first version of the application was installed.
2. Games Completed - Number of games completed since the first version of the application was installed.

3. Games Aborted - Number of games that were stopped after starting by holding start for 2s.
4. Ball in Play Time - Total time balls were in play since the first version of the application was installed.
5. Balls Played - Total number of balls played since the first version of the application was installed.
6. Average Ball Time - Average time per ball taken from all balls played across all games since the first version of the application was installed.
7. Number of Replays Achieved - The total number of replays achieved since the first version of the application was installed. This number tracks all replay awards, be they points or credits.
8. Number of Tilts - Total number of tilts.

Statistics->Mechs

1. Right Flipper Activations
2. Left Flipper Activations
3. Right Slingshot Activations
4. Left Slingshot Activations

Base Statistics Menu

1. Enable High Score Display - T/F - When enabled, high scores will be displayed in attract mode.
2. Reset Scores to Defaults - Each application has a default set of high scores when shipped. Choosing this option will pop up a confirmation. Confirming this choice will reset the high scores to the defaults that were set in the application.
3. Clear High Scores - Choosing this option will pop up a confirmation. Confirming this choice will reset all high scores to zero.
4. Create an Event Profile - Selecting this option will pop up a text entry box to allow you to name a profile. Named profiles will track statistics as a superset of the main statistics listed. Each profile added will appear on the main statistics page and can be reviewed or deleted with a separate confirmation dialog from within the named event heading that appears.

Setting the Date/Time

Drained includes a variety of settings, disabled by default, which will execute certain special functions on certain days and times.

These optional settings can be enabled if desired.

Your machine's internal clock may be incorrect. There is not currently a way to force the game to use the correct time manually, but Drained includes a setting that allows for your P³ to retrieve the date and time automatically. If you wish to utilize this functionality, ensure that "Set Date/Time Over Network" is enabled, and that your P³ is connected to the internet.

Rubber Ring Chart

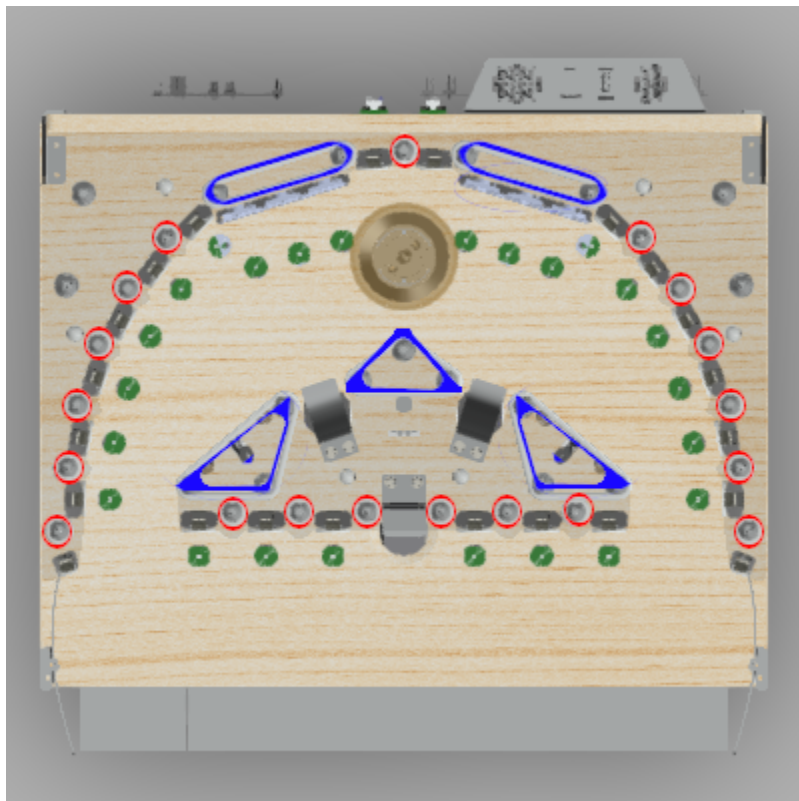
Sizes

1. 5/16" white rubber ring x 19 - Red circles in the below image
2. 1 1/2" white rubber ring x 5 - Blue circles/triangles in the below image

Changing Rubber Rings

To access the rubber rings and replace them, ensure that all acorn nuts have been removed from the plastic light shields covering the posts. Then, with both hands, carefully lift each of the three light shields until they are removed from all posts. Set the light shields aside, upside down so that the artwork printed on the underside is not scratched, ideally upon a soft cloth.

All rubber rings should now be accessible. Once the rubber rings have been replaced, ensure that the light shields are reinstalled, and that the acorn nuts are screwed back into place. Failure to replace the light shields could cause stuck balls, broken targets, or other issues during gameplay.



Switch Chart

Each P³ module implements its own switches. This chart does not include cabinet switches, such as start or launch. Drained uses the standard 3 button P³ button box, and the standard 3" P³ flipper/slingshot assembly

Drained uses three SW-16 boards, mounted on the back of the module. Switch numbers for Drained starts at 64. The chart below will show the address followed by the board, connector, and pin number.

64.	#1 - J2 - 2 - Upper Left Slingshot	87.	#2 - J2 - 9 - Unused (Reserved)
65.	#1 - J2 - 3 - Flaming	88.	#2 - J6 - 2 - Unused (Reserved)
66.	#1 - J2 - 4 - Silver	89.	#2 - J6 - 3 - Unused
67.	#1 - J2 - 5 - Vamp	90.	#2 - J6 - 4 - Unused (Reserved)
68.	#1 - J2 - 6 - Sword	91.	#2 - J6 - 5 - Unused (Reserved)
69.	#1 - J2 - 7 - Slay	92.	#2 - J6 - 6 - Unused (Reserved)
70.	#1 - J2 - 8 - Torch	93.	#2 - J6 - 7 - Unused (Reserved)
71.	#1 - J2 - 9 - Upper Right Slingshot	94.	#2 - J6 - 8 - Unused (Reserved)
72.	#1 - J6 - 2 - VUK 5 (right) Entrance	95.	#2 - J6 - 9 - Unused
73.	#1 - J6 - 3 - VUK 5 (right) Exit	96.	#3 - J2 - 2 - Stakes "E"
74.	#1 - J6 - 4 - Gobble Hole	97.	#3 - J2 - 3 - Stakes "K"
75.	#1 - J6 - 5 - VUK 3 (left) Entrance	98.	#3 - J2 - 4 - Stakes "A"
76.	#1 - J6 - 6 - VUK 3 (left) Exit	99.	#3 - J2 - 5 - Stakes "T"
77.	#1 - J6 - 7 - Mirror "R" (left drop target bank)	100.	#3 - J2 - 6 - Stakes "S" Left
78.	#1 - J6 - 8 - Mirror "I" (left drop target bank)	101.	#3 - J2 - 7 - Water
79.	#1 - J6 - 9 - Mirror "M" (left drop target bank)	102.	#3 - J2 - 8 - Pop Bumper
80.	#2 - J2 - 2 - Mirror "R" Left (right drop target bank)	103.	#3 - J2 - 9 - Holy
81.	#2 - J2 - 3 - Mirror "O" (right drop target bank)	104.	#3 - J6 - 2 - Left Outer Target
82.	#2 - J2 - 4 - Mirror "R" Right (right drop target bank)	105.	#3 - J6 - 3 - Garlic "G"
83.	#2 - J2 - 5 - Right Outer Target	106.	#3 - J6 - 4 - Garlic "A"
84.	#2 - J2 - 6 - Stakes "S" Right	107.	#3 - J6 - 5 - Garlic "R"
85.	#2 - J2 - 7 - Unused	108.	#3 - J6 - 6 - Garlic "L"
86.	#2 - J2 - 8 - Unused (Reserved)	109.	#3 - J6 - 7 - Garlic "I"
		110.	#3 - J6 - 8 - Garlic "C"
		111.	#3 - J6 - 9 - Unused

Lamp Chart

Each P³ module implements its own lamps. This chart does not include cabinet lamps, such as the side targets, or the wall and scoop lamps. Drained uses a mixture of General Illumination (GI) lamps driven as coils (bayonet and wedge-style miniature LED bulbs, found on the next page), and dedicated LED boards (displayed in the chart below).

There is one PD-LED in Drained. Addressing is standardized, and starts with the board number, followed by the red, green, and blue channels for each lamp. Each lamp attached to the PD-LED is RGB, and can display all of the colors that the lamps can display in the base P³. Drained's PD-LED is A9. All LEDs on this page are wired in parallel. If an individual LED stops working, no other lamps should be affected.

The chart below will show the address, RGB channel, then the connector number on the PD-LED, followed by the lamp name.

A9-R0-B1-G2 - J5 - Garlic "C"	A9-R12-G13-B14 - J9 - Launcher
A9-R3-B4-G5 - J5 - Garlic "I"	A9-R15-G16-B17 - J9 - Gobble
A9-R6-G7-B8 - J5 - Garlic "L"	A9-R18-G19-B20 - J9 - Stakes "S" Left
A9-R9-G10-B11 - J5 - Garlic "R"	A9-R21-G22-B23 - J9 - Stakes "T"
A9-R24-G25-B26 - J6 - Silver	A9-R36-G37-B38 - J10 - Water
A9-R27-G28-B29 - J6 - Flaming	A9-R39-G40-B41 - J10 - Mirror "R" Left
A9-R30-G31-B32 - J6 - Garlic "G"	(right bank)
A9-R33-G34-B35 - J6 - Garlic "A"	A9-R42-G43-B44 - J10 - Mirror "O" (right
A9-R48-G49-B50 - J7 - Torch	bank)
A9-R51-G52-B53 - J7 - Sword	A9-R45-G46-B47 - J10 - Mirror "R" Right
A9-R54-G55-B56 - J7 - Vamp	(right bank)
A9-R57-G58-B59 - J7 - Slay	A9-R60-G61-B62 - J11 - Mirror "M" (left
A9-R72-G73-B74 - J8 - Stakes "S" Right	bank)
A9-R75-G76-B77 - J8 - Stakes "E"	A9-R63-G64-B65 - J11 - Mirror "I" (left
A9-R78-G79-B80 - J8 - Stakes "K"	bank)
A9-R81-G82-B83 - J8 - Stakes "A"	A9-R66-G67-B68 - J11 - Mirror "R" (left
	bank)
	A9-R69-G70-B71 - J11 - Holy

Coil Chart

Each P³ module controls its own coils through one or more PD-16s. As you will see, Drained uses a mixture of traditional coils and wedge-based pinball LEDs. There is a single PD-16 in Drained.

The chart below will show the address/bank/logical driver, connector number, and pin number on the PD-16, followed by the coil name.

Each bank on the PD-16 is protected by a 4A slo-blow fuse.

A6-B0-0 - J7 - 1 - Klocker

A6-B0-1 - J7 - 3 - Bell

A6-B0-2 - J7 - 4 - Pop Bumper

A6-B0-3 - J7 - 5 - Sling Upper Right

A6-B0-4 - J7 - 6 - Sling Upper Left

A6-B0-5 - J7 - 7 - Drop Reset Left

A6-B0-6 - J7 - 8 - Drop Reset Right

A6-B1-7 - J7 - 9 - Unused (reserved)

A6-B1-0 - J11 - 1 - Pop Lamp

A6-B1-1 - J11 - 2 - Left Upper GI

A6-B1-2 - J11 - 4 - Left Lower GI

A6-B1-3 - J11 - 5 - Right Lower GI

A6-B1-4 - J11 - 6 - Right Upper GI

A6-B1-5 - J11 - 7 - Left Center GI

A6-B1-6 - J11 - 8 - Right Center GI

A6-B1-6 - J11 - 9 - Unused (reserved)

Troubleshooting

The P³ contains a very useful Diagnostics application, available in the Launcher app. There are several subcategories to help you find and fix any issues you might be having.

Switches

This category allows you to see switches that are currently closed as well as any switch activations while in the Switches. All P³ cabinet switches and the Drained module switches are shown on the same screen. Switches highlighted in blue are normally open. When closed, they will highlight in bright green.

Switches that are highlighted in light green are normally closed. When opened, they will highlight in brighter green.

Each switch closure/open will be displayed at the bottom of the screen as well, and can be used to help verify that switches are gapped appropriately and register only once per physical closure.

Coils/Flashers

This category allows you to test each coil and lamp attached to the PD-16s in the P³ overall, as well as on the Drained module. Pressing launch while the coils are highlighted will test fire the selected coil. Certain coils may not fire with the strength that they do in the Drained application itself. Do not be surprised if the drop targets cannot reset in Diagnostics, for example, but you should be able to use Diagnostics to verify wiring. When testing the reset coils, if you see the drop targets pulse quickly up and down, the electrical components are working as expected.

LEDs

The LEDs category will flash an individual LED in different colors (or on and off) when selected. All the cabinet LEDs in the P³ as well as the Drained module LEDs will appear in this section.

Walls/Scoops

This option allows you to interact with each wall and scoop in the P³'s wall/scoop assembly.

Ball Tracking

Selecting this option will make multiple criss-crossing diagonal lines appear on the playfield monitor. The lines will change color as your finger or a ball travels across them. If some lines appear in a different color when entering this category, either there is a foreign object touching the screen, or the preset configuration should be changed (see page 7 for more details).

Under Playfield

This option allows you to see and interact with the launchers and the trough. Each coil can be pulsed individually. Launchers 3 and 5 are installed in Drained.

Issues with Ball Launching

Your P³ may have or develop issues launching balls on Drained. Examine how the launch tubes are attached to the playfield and ensure the screws are tight. Your launchers should have enough power to reach the drop targets, but not so much that they land on top of the upper plastics. Typical settings are 15/16 for launcher 3/5.

Playfield Module

This category is intentionally empty in Drained.

Exit

Select this option to leave the Diagnostics app and return to the launcher.

For more details on Diagnostics, please see the Multimorphic Learning Series video "Testing P³ Features with the Diagnostics App" -

<https://www.youtube.com/watch?v=pybB3Mu-Ky0>

Update Procedures

Updating Drained is a simple process, but there are two ways to accomplish the update.

Wi-Fi

If your P³ is connected to Wi-Fi, each time the Launcher is started, an update check will occur automatically. If an update is available, a star will appear above the application encouraging you to update it in System Manager.

Upon entering System Manager, you can select to install the update over the Internet, from Multimorphic.com, Apps, and then selecting Drained. Choosing to install will start downloading the application, and will automatically install once the download is completed. You may also read the release notes directly on the P³'s playfield screen.

USB

If your P³ is not connected to Wi-Fi, or you prefer to install updates via USB, you may download the update directly from Multimorphic.com, and place it on a USB stick of your choosing.

With your P³ off, bring the stick to your P³ and plug it into the USB port inside your coin door, button box, or in the backbox, launch the System Manager app, and choose to install the update from a USB drive. This method is faster as it doesn't have to perform the initial download on the P³.

General Notes

The P³ will retain previous versions of any application update installed. Prior versions will appear in the Launcher in a dedicated "Older Versions" section. These older versions can be uninstalled in System Manager. System Manager will also display the remaining disk space on your P³'s hard disk.

Third Party Development

One of the strengths of the P³ is the ability for third parties to create games using existing playfield modules. Drained is no exception. The module definition file, Drained.json, contains the listing (and addressing) of each switch, coil, and lamp in the module.

In addition, there is a module driver. This driver handles (primarily) ball path handling for the gobble hole. If using the ball path hole subscription, a ball will automatically requeue for launch when hitting the gobble hole. If this behavior is not desired, do not subscribe to the ball paths. The primary playfield coils have special functionality exposed through events. These events will allow repeated pulsing of the bell or knocker taking into account the delay between pulses to make each pulse audible, and pulsing of the drop target reset coils without having to check the pulse timing for those items.

All coils, targets, and paths are described in DrainedModuleCapabilities, distributed with the module driver definition file.

If you have any questions, or if the Drained.json module definition has not yet been released as part of the P³ SDK, please email info@foramusementonlygames.com to receive a copy. This file will need to be placed in the .multimorphic directory. Verify that the P³ Sample App will load and run with the default module set before modifying your .multimorphic directory.

Warranty

For Amusement Only Games, LLC Factory Limited Warranty:

All warranties and their policies and terms are subject to revision by Seller at any time and without notice.

For Amusement Only Games, LLC (Seller) warrants that the items listed below are free from defects in material and workmanship in regards to function and cosmetics only, pursuant to the following terms and conditions, under normal use and service for the specified warranty period.

Drained Playfield module, all parts within the Drained playfield module, accessories, and circuit boards developed and sold by Seller specifically for use in a P³ Pinball Machine are warranted for the following period:

- Function: 24 months from the date the product is shipped from Seller to original Purchaser.
- Cosmetics: 2 weeks from the date original Purchaser or agent of original Purchaser takes receipt of the item.

The definition of defects in material and workmanship in regards to function and cosmetics are subject to revision by Seller at any time and without notice.

Exclusions and Liabilities:

This warranty does not apply to any parts damaged during shipment or due to improper handling, improper installation, improper usage, or alteration, nor does it apply to damage caused by external factors, such as, but not limited to, excessive electrical surges, liquids, fire, acts of God, and/or excessive externally applied forces.

This warranty does not cover damage, wear, and/or breakage not caused by defective materials or workmanship in regards to function and cosmetics.

This warranty does not apply to any parts damaged as a direct result of using or playing a P³ application and/or P³ game not developed by For Amusement Only Games, LLC.

Warranty is non-transferrable.

This warranty does not cover labor to diagnose or replace any item, nor does it cover shipping and handling charges associated with the return to Purchaser or replacement from Seller of any item.

In no event shall Seller, nor its directors or employees, be held liable for any indirect, special, consequential or punitive damages of Purchaser or any third party, including anticipated profits, loss of profits, loss of use, labor and materials, overhead costs or other loss or expenses incurred by Purchaser or any third party.

Disclaimer of Implied Warranty:

Other than the express warranty above and any modifications specifically provided in a written contract between Seller and Purchaser, no other warranties, express or implied, apply to items manufactured by or purchased from Seller.

Claims:

All claims must be submitted via email to support@foramusementonlygames.com. Seller will provide an RMA number for each approved claim. Unless other arrangements are documented in an agreement signed by both Seller and Purchaser, Purchaser must return items approved for warranty replacement, postage/freight pre-paid and packaged safely and securely, including the provided RMA number, before the RMA number expires. RMA numbers expire 4 weeks after claim approval.

Claim Resolutions:

Seller's sole liability shall be to, at its option, repair, replace, or provide compensation for all items listed in approved claims and received from Purchaser.