I will analyze the video and create a structured user manual for your automatic beer cleaning machine. The manual will include a step-by-step guide on how to use it, safety precautions, maintenance instructions, and troubleshooting tips. I will notify you once the document is ready for review.

Automatic Beer Line Cleaning Machine – User Manual

Introduction

Draft beer systems require regular cleaning to maintain beer quality and hygiene. Dirty beer lines can accumulate bacteria, mold, yeast, and mineral deposits (beer stone) that cause off-flavors, foul odors, and foaming. Traditionally, bar staff or service technicians must manually clean each beer line every couple of weeks. The **Beer Automatic Smart System Sanitizer (BASIS)** is an automatic beer line cleaning machine designed to eliminate this manual work. It is a *"unique, innovative smart solution for the draft beer industry"*, intended for anyone who owns or operates a draft beer dispensing system in the hospitality sector (Basis - Beer Automatic Smart System Sanitizer - By Cool Beer).

BASIS **cleans beer lines automatically without human intervention** (Basis - Beer Automatic Smart System Sanitizer - By Cool Beer). By automating the line sanitation process, it **ensures consistent cleaning cycles and guaranteed beer quality** while *"excluding the human factor"* that can lead to errors or. With BASIS, bar owners no longer need to wait for third-party service companies to clean the lines – the machine can be programmed to do it on a set schedule, ensuring your beer is always served fresh from clean lines (Maicatech – AI&IoT Controllers). This not only protects the flavor and aroma of your beer, but also saves time and maintenance costs in the long run. In this manual, we will cover the features and components of the BASIS cleaning system, guide you through setup and operation, outline maintenance routines and troubleshooting tips, and highlight important safety precautions. Follow these instructions to get the most out of your automatic beer line cleaning machine and to keep your draft beer pouring perfectly pint after pint.

(image) *Figure: A demonstration of the automatic beer line cleaning system in a bar setup. On the left, the BASIS control panel/interface is shown (with the BASIS logo), and in the center is a draft beer dispenser connected to the system. The machine is designed to integrate with standard beer tap units, allowing bar staff to initiate and monitor line cleaning with minimal effort. By automating the cleaning process, the system helps maintain top-quality beer service without the frequent manual labor traditionally required.*

Features & Components

The BASIS automatic beer line cleaning machine is a sophisticated device composed of several key components and offers numerous features to simplify draft system maintenance. Below is an overview of its main features and components:

- **Automated Cleaning System:** At the core of BASIS is a pump and valve system that flushes cleaning solution through your beer lines on a programmed schedule. It *"cleans beer lines automatically"* without manual pumping or disassembly. This ensures that lines are cleaned at consistent intervals (e.g. weekly or bi-weekly) as recommended by industry standards keeping your beer fresh and safe.
- **Multi-Line Cleaning Capability:** The machine is capable of cleaning multiple beer lines in one cycle. You can connect several draft lines (for example, up to 2 lines or more) to the BASIS unit at the same time, allowing efficient simultaneous cleaning of all taps. The system conducts a thorough cleaning process for each line, including flush, soak, and rinse phases, **tailored for draft beer lines** to remove residue effectively. This means even bars with many taps can be cleaned quickly and uniformly.
- **Control Unit with Display/Interface:** BASIS includes an electronic control unit that manages the cleaning cycles and system settings. This may be a built-in digital panel or a separate touchscreen interface. The control interface allows you to start or stop cleaning cycles and adjust parameters. During operation, the unit provides status indicators (e.g. **Power**, **Cleaning in Progress**, or error alerts) so you can monitor the process at a glance. Some systems also allow control via a smartphone app or web portal for convenience, and BASIS supports such connectivity for monitoring and control.
- **Programmable Cleaning Cycles:** You can set your own cleaning schedule and parameters with BASIS (Maicatech – AI&IoT Controllers). Through the interface or connected app, configure how often the lines should be cleaned (for example, schedule an automatic clean every 7 days, or specify exact days/times for cleaning when the bar is closed). You can also adjust cycle parameters like the cleaning duration, number of rinse cycles, and even cleaning solution concentration if applicable. Once programmed, the machine will automatically execute the cleaning routine as scheduled, ensuring *"cleaning cycle parameters"* are consistent and recorded (Maicatech – AI&IoT Controllers).
- **Cleaning Solution Reservoir and Injector:** The system uses a dedicated reservoir or inlet for the beer line cleaning solution. Typically, you will fill a tank or attach a container with the approved line-cleaning chemical (alkaline detergent for routine cleaning, and optionally an acid cleaner for periodic deep cleaning of

beer stone). The machine automatically mixes the chemical with water to the proper concentration and pumps it through the lines. A metering system ensures precise dosing of cleaner – using "dosage technology" to prepare the cleaning solution optimally for each cycle. After the cleaning phase, the machine will flush the lines with fresh water to rinse out the chemical.

- **Sensors and Telemetry:** BASIS is equipped with sensors to monitor the cleaning process. Flow sensors confirm that cleaning fluid is moving through each line, and pressure sensors ensure the lines are filled properly. These sensors, along with temperature monitors (if the cleaning solution is heated or if the beer cooler's temperature affects cleaning), provide data to the control unit. The system *"shows telemetry for the entire system"* and *"tracks cleaning history"* (Maicatech – AI&IoT Controllers). All cleaning events are logged – including date, time, duration, and completion status for each line – so you have a complete record of maintenance. This information can usually be accessed on the machine's interface or through a connected app/cloud service.
- **IoT Connectivity (Cloud Monitoring):** One of the advanced features of BASIS is its Internet-of-Things connectivity. The machine is **"always online with GSM (2G/4G LTE)"** connectivity (Maicatech – AI&IoT Controllers), meaning it has a built-in cellular module (and/or Wi-Fi) that connects to cloud servers. This allows remote monitoring and management of the cleaning system. Authorized users (such as a brewery's quality control team or the bar owner) can receive reports of each cleaning cycle, get alerts if a scheduled cleaning was missed or if any issue arises, and adjust settings remotely. The device's precise location can be tracked via Wi-Fi positioning (WPS) or GPS, which is useful for management of multiple units across different venues (Maicatech – AI&IoT Controllers). In short, the IoT features ensure *complete traceability and transparency* of draft line sanitation routines.
- **Quality Assurance Features:** By automating line sanitation, BASIS helps maintain consistently high beer quality. Clean lines mean the beer tastes as the brewer intended, without contamination. The regular, automated schedule prevents the buildup of residues that can harbor bacteria or wild yeasts. The manufacturer touts *"guaranteed beer quality"* as a key outcome. Additionally, because the process is standardized, it eliminates human error (such as using the wrong concentration or forgetting a step). Many machines (including BASIS) have failsafe checks – for example, they won't finish a cycle until lines are properly rinsed, ensuring no cleaning chemical remains to spoil the next brew. This consistency protects your reputation and your customers' experience.
- **Enclosure and Build:** The BASIS machine is built with durable, food-grade materials suitable for commercial use. All components in contact with beer or

cleaning solution (tubing, connectors, valves) are made of stainless steel or beer-safe plastics to prevent corrosion and contamination. The outer housing is typically powder-coated metal or high-strength plastic, protecting the internal components from splashes or accidental damage. Despite its capabilities, the unit is compact – roughly on the order of a small cooler box. *(For example, one automated cleaner measures about **500 mm x 450 mm x 350 mm** in size and includes connection ports for power, water, and beer lines*. This compact footprint makes it easy to install the machine in a bar cooler area or equipment room. Setups are **portable** (weighing under ~25 kg), meaning the unit can be moved between different draft systems if needed, while others can be **permanently installed** in-line. BASIS offers flexibility in installation: it can be retrofitted into almost any existing beer dispensing system without major modifications, thanks to its standard fitting connectors and flexible hoses.

- **Connectors and Accessories:** The machine comes with a set of connectors to interface with your draft system. Typically, these include **keg coupler adapters** (to attach the machine's cleaning lines to the beer lines that normally connect to kegs) and possibly **faucet attachments** or return hoses (if the system is configured to recirculate or to collect waste fluid). The connectors are usually standard for the industry (e.g. fitting US Sankey or European coupler types, depending on your system), making it easy to integrate. In use, you will disconnect your beer keg and connect the line to the cleaning machine's output coupler – a straightforward plug-and-play action The package may also include a **drain hose** to carry used cleaning solution to a bucket or drain, and a **water inlet hose** if the machine is plumbed into a water source. Every component is designed for quick setup and teardown, often taking just a few minutes to connect or disconnect.

In summary, the BASIS automatic cleaning machine combines smart technology with robust hardware to simplify draft beer maintenance. It automatically handles the dirty work of line cleaning while providing you with data and control. With features like scheduled cleaning, remote monitoring, and multi-line capability, you can ensure every pint is served through impeccably clean lines with minimal manual effort.

Step-by-Step Instructions

This section provides detailed instructions on how to **set up the BASIS machine**, **operate a cleaning cycle**, and **clean/maintain the machine itself**. Follow these step-by-step guidelines for safe and effective use of your automatic beer line cleaning system.

A. Setup – Initial Installation and Configuration

Before first use, you need to set up the machine and integrate it with your draft beer system. Ideally, initial installation is done when the bar is closed or during a maintenance window, as you'll need to disconnect kegs and possibly stop beer service during setup.

Step 1: Unpack and Inspect – Carefully unbox the BASIS machine and all included components. You should have the main cleaning unit, power cable, connector hoses (beer line adapters), and any accessories (e.g. chemical container, drain hose). Inspect everything for any shipping damage. Verify that the power specifications on the unit match your local supply (e.g. 110–120V or 220–240V). **Do not plug in the machine yet.**

Step 2: Position the Machine – Place the BASIS unit in a suitable location near your beer dispensing system. Typically, this is in the keg cooler or as close as possible to where your keg couplers are. The machine should sit on a stable, flat surface, and be protected from excessive heat, moisture, or dust. Ensure there is enough space around the unit for ventilation and access to connectors. Many bars install the machine inside the keg cooler or under the bar counter. If your model is portable, it may be on wheels or a small stand – lock the wheels if present, so it won't move during operation.

Step 3: Connect Beer Lines to BASIS – Identify the beer lines that will be cleaned by the machine. Usually, each draft tap has a line running from the keg coupler to the faucet. You will be connecting the machine in place of the kegs during cleaning. One by one, **disconnect each beer line from its keg coupler** (untap the keg as you normally would). Immediately attach that beer line (or coupler) to the corresponding **cleaning connector** from the BASIS machine. Depending on the model, there are a few possible configurations:

- If BASIS has built-in **keg adapter sockets** for each line, simply attach the keg coupler of each beer line onto the socket on the machine (just as you would tap a keg, but onto the machine's port. Ensure it locks in place.
- If BASIS uses **hoses with coupler fittings**, take the hose labeled for a specific beer line and connect its coupler end to the keg connector on your beer line. Secure it tightly (you may hear it click as it locks).
- Some systems use a **manifold**: a single connection point that leads to multiple beer lines. In that case, follow the product instructions to connect the manifold

between your beer lines and the machine. Make sure every beer line that you want to clean is now connected to the machine instead of a keg. **Tip:** Label the hoses or note which line goes to which tap to avoid confusion.

Step 4: Connect Water Supply– BASIS require a water source for rinsing and for diluting the cleaning chemical. If your machine is designed to be plumbed in, connect the provided **water inlet hose** to a nearby water tap or faucet. The connection is often a standard threaded fitting. Ensure the water is **potable (drinkable)** and the valve is turned off for now. If the machine has an internal water tank instead, fill the tank with clean water up to its indicated level. Check the manual for any specific water temperature requirements – typically room temperature or lukewarm water is fine unless the system includes a heating function.

Step 5: Add Cleaning Solution – Prepare the beer line cleaning solution as directed by the chemical manufacturer (if a concentrate, mix the correct ratio of cleaner and water, etc.). **Wear protective gloves and eyewear** when handling caustic cleaning chemicals. Attach machine's cleaning solution reservoir. Automatic systems have a pickup tube that you insert into a bottle or jug of cleaning concentrate. Ensure the solution container is secured and won't tip during operation. Close any reservoir caps firmly. **Note:** Use only the recommended type of beer line cleaner. Typically an **alkaline (caustic) cleaner** is used for routine line cleaning. If an **acid cleaner** is used periodically (for beer stone removal), flush the system of any alkali first to avoid chemical reactions. Always follow the guidelines for the cleaning agent.

Step 6: Check Valves and Lines – Verify that all valves on the machine are in the correct position for operation. For instance, if there are manual shut-off valves on the inlet or drain lines, make sure the **water inlet is open** (to allow water flow) and the **drain valve is closed** (if the machine will build pressure to circulate). If the machine will expel solution to an external drain, position the drain hose into a waste bucket or floor drain securely. Make sure beer tap faucets are closed at this stage (most cleaning cycles do not require faucets to be open, as the fluid often recirculates or returns via the machine, but check if your system expects faucets open to drain – if so, place a bucket under each faucet and open them as instructed). Typically, automated systems handle flow internally, so faucets remain closed.

Step 7: Power On and Initial Configuration – Plug the BASIS machine into a suitable electrical outlet. Turn on the power switch (often labeled **PWR** or a general on/off switch). The unit's control panel should light up. The first time you power it, it may run a self-check. Follow any prompts on the display. You might be asked to select a language or confirm the network connection. If the device has IoT connectivity, this is a good time to ensure it's getting signal (for GSM, check that the antenna is attached and the SIM card (if user-provided) is inserted; for Wi-Fi, you may need to configure it via a mobile

app or the touchscreen). Refer to the quick-start guide for any one-time setup steps like connecting to an app or service.

Step 8: Set Date, Time, and Schedule – Using the control interface (touchscreen or buttons), set the current date and time on the machine (this ensures the cleaning schedule runs accurately). Navigate to the **Schedule Settings** or **Cleaning Cycle Settings** menu. Program your desired cleaning interval – for example, you might set the machine to automatically clean **every Monday at 4:00 AM**, or **every 14 days** at a chosen time. You can also set how many cycles to run if the machine supports multiple sequential cycles (some users do two cycles back-to-back for a very thorough clean). The interface should allow adjusting the cleaning duration if needed (commonly a 10–20 minute cycle per line). Enter these settings and save them. If the machine is connected to a cloud system, you might alternatively set the schedule through a web dashboard or mobile app – in that case, ensure you sync those settings to the device.

Step 9: Prime the System (if required) – Some machines may require an initial priming to remove air from the lines. To prime, you might start a **rinse cycle** or a short manual operation that draws water/solution into all lines without doing a full clean. Check the manual for a *Prime* or *Manual Pump* function. If available, run the prime on each line until you see fluid (water or cleaner) just begin to appear at the faucets or return line, then stop. This means the lines and machine are filled with fluid and ready for a full cleaning cycle. This step ensures there are no air locks that could hinder flow during the real cleaning.

Step 10: Inspection Before First Use – Double-check everything: all connections should be tight (no leaks at hose fittings or couplers), the cleaning solution is loaded, the water is on (or tank filled), and the machine indicates it's ready. Also ensure no one will try to use the beer taps during the cleaning process – you may post a notice or inform staff that the system is in cleaning mode. Now you are ready to operate the automatic cleaning cycle.

B. Operation – Running a Cleaning Cycle

Operating the BASIS system is straightforward once it's installed. You can run cleaning cycles either **automatically (scheduled)** or **manually (on-demand)**. This section describes both, as well as what happens during the cleaning process.

Automatic Scheduled Cleaning: If you have programmed a schedule (Step 8 above), the machine will execute the cleaning at the set time. Ensure that prior to that time, the system is set up (beer lines connected to the machine, etc., as done in setup) and that the necessary supplies (cleaner, water) are available. Many venues will schedule cleaning during overnight hours or downtime. The machine's internal clock will count down to the next cleaning and start it without further user action. It will typically give a

notification (a light or message) shortly before starting (e.g. “Cleaning starting in 1 minute”) – this is your cue to make sure no beer is being poured and everything is ready.

Manual Cleaning Cycle: You can also start a cleaning cycle on demand, which is useful for an unscheduled maintenance or after replacing kegs. To initiate manually, access the control interface. Depending on your model, either press the **“Start Cleaning”** button on the touchscreen, or use the physical button/switch labeled for starting a cycle. Some systems might require navigating a menu (e.g. select which lines to clean, then press *Start*). If the device is connected via a smartphone app or cloud, you could also trigger the cleaning from there – for example, an app might have a “Clean Now” command. Confirm that you indeed want to start, and the machine will begin the cycle.

During the Cleaning Cycle: Once started (automatically or manually), BASIS takes over and runs through a sequence of steps to clean the lines thoroughly. A typical cleaning cycle includes:

1. **Pre-rinse:** The machine pushes fresh water through the beer lines to flush out any remaining beer. This water (and beer mix) will either go down the drain or into a waste container. This step clears the line so that the cleaning chemical isn’t immediately diluted by beer.

2. **Detergent Circulation:** The machine pumps the cleaning solution into the lines. It fills all attached beer lines with the caustic cleaner. In some systems, this solution is **circulated** back and forth in the lines (for example, using a pump that reverses direction periodically or an oscillation technique) to scrub the interior of the tubing. One advanced system uses a vibration to increase cleaning efficiency, putting pressure on the inner walls of the. BASIS ensures that the cleaning solution contacts all parts of the lines, faucets, and couplers.

3. **Soak Time:** Once the lines are filled with cleaning solution, the machine may pause and let the solution soak for a few minutes. Soaking gives the chemical time to dissolve biofilms, yeast, and beer stone deposits. The duration can be preset (commonly 5–10 minutes).

4. **Post-circulation/Rinse:** After soaking, the machine flushes the lines with water again to push out the used cleaning solution. It will run water until the lines are fully rinsed. Often, the system has sensors or a timer to ensure a complete rinse (for example, it might flush a volume of water at least 2–3 times the volume of the beer line). All wastewater and cleaner go out through the drain hose or faucets into a drain.

5. **Optional Sanitizer Cycle:** Depending on your cleaning regimen, you might also run a sanitizing rinse (some users flush with a sanitizing agent like an acid sanitizer or chlorinated sanitizer after the cleaner). If the BASIS machine allows

adding a sanitizer step, it will prompt you to add the sanitizer or it has a second reservoir. This is typically optional; many caustic cleaners also sanitize sufficiently if not rinsed completely, whereas others prefer a dedicated sanitizer after rinsing the caustic out.

6. **Final Flush with Beer (optional):** Some automated systems allow a brief reintroduction of beer into the lines at the very end to push out any remaining water so that the lines are primed for service. This would require the kegs to be reattached and a controlled amount of beer to flow. In most cases, this step is not automated – instead, once cleaning is done, the bartender will re-tap the kegs and pour off the first pint of beer from each line to clear any residual water.

While the cycle is running, **monitor the machine**. You will see status indicators on the display (e.g. "Cleaning in progress – Rinsing" etc.). Typically, no intervention is required. **Do not disconnect or touch any lines** during the cycle. The entire process usually completes in about 10–15 minutes per cycle (for standard 1/4" ID beer lines of typical length, cleaning solution contact time included). If BASIS is capable of cleaning multiple lines simultaneously, the overall time is roughly the same regardless of number of lines (they are done in parallel).

Step 1: Verify Cycle Completion – Once the machine finishes the cleaning cycle, it will indicate completion (a light may turn green or the display may read "Cleaning Complete"). An alarm or beeper might sound to notify you that it's done. Check that the machine's status shows all lines were successfully cleaned. Some systems generate a report or log entry at this point – if connected to a cloud, the cleaning record is uploaded automatically (Maicatech – AI&IoT Controllers).

Step 2: Shut Off the Machine (if needed) – After completion, you can turn off the machine or leave it idle depending on your usage. If you plan to immediately put the beer system back in service, you might power down the cleaning unit and disconnect it (described below). If the BASIS is permanently installed and simply switches modes, it may just return to a standby state awaiting the next scheduled cycle. In either case, ensure the machine is not actively pumping or pressurized before proceeding to disconnect anything.

Step 3: Dispose of Waste – The cleaning solution and rinse water should have been routed to a drain or container. Check the waste bucket or drain for any issues (be cautious – the expelled cleaning solution can be hot if heated and will be caustic; wear gloves when handling). If a bucket was used, carefully empty it into a proper drain and rinse the bucket with water. It's important not to leave caustic solution in open containers where someone might accidentally come into contact with it.

Step 4: Reconnect Beer Supply – Now it's time to put your draft system back to normal operation:

- **Close the Water Supply** if you had it open for the machine (to avoid any unwanted water flow).
- **Disconnect the Beer Lines from BASIS**: One by one, remove each beer line coupler from the machine's connector and reattach it to its corresponding beer keg. This is basically the reverse of Step 3 in setup. Ensure each keg is properly tapped and the coupler is locked. You should hear the beer line pressurize with CO_2 as it reconnects to the keg.
- If your machine was permanently inline (with diverter valves rather than manual swapping), then simply switch the valves back to "beer" mode. Some automated systems have an electronic or manual switch to toggle from cleaning mode to serving mode. Make sure any such switches are returned to the normal serving position so beer can flow from kegs to taps.

Step 5: Flush Beer and Resume Service – With the kegs re-tapped, go to each faucet and **pour a small amount of beer** out (about 1-2 pints, or until the beer runs clear with no water). This flushes out any residual water in the line and also verifies that the line is properly reconnected and free of air. The first pour might be a bit foamy or water-mixed; discard this pour or use it for waste (some venues save this for cooking if it's mostly beer). Once you see steady beer, taste a sample if desired to ensure no soapy flavor – there should be none if rinsing was adequate. Now your draft lines are clean, recharged with fresh beer, and ready for service. Congratulations, the cleaning operation is complete!

On-Screen Prompts and Remote Confirmation: If using a smartphone or cloud system, you might receive a notification that the cleaning cycle finished successfully. Check the app for any notes (some systems will highlight if a line did not get proper flow, etc.). If any issues are indicated, do not serve beer from the affected line until you investigate (see Troubleshooting). Otherwise, you're all set to serve great-tasting beer with confidence that your lines are clean.

C. Cleaning the Machine & Post-Use Care (Optional)

After running the line cleaning cycles, it's important to also take care of the cleaning machine itself. This ensures longevity and hygiene of the unit. Here are steps to clean and store the BASIS machine after use (or periodically if it remains installed):

Step 1: Rinse Internal Lines of the Machine – Even though the beer lines are now clean, the machine's internal pump and hoses that carried the cleaning solution might still contain some chemical residue. It's good practice to flush the machine with fresh water. To do this, you can run a brief **rinse cycle** on the machine itself: fill the water reservoir (or reconnect water supply), but do not add more chemical. Manually start a short cycle or a dedicated rinse function if available. Let water circulate through the

machine's internals and out the drain, cleaning out any remaining detergent. Stop the cycle once the water runs clear. **Alternative:** If no built-in rinse mode, you can disconnect the machine from the beer lines, then connect the machine's output hoses together (forming a loop), and run a few minutes of water through that loop to flush the pump and valves.

Step 2: Clean/Replace Solution Reservoir – If the cleaning solution reservoir has leftover chemical, remove it and either seal it for next time (if the chemical can be reused and stored safely) or dispose of it according to the chemical instructions. Rinse the reservoir with water. If it's removable, wash it with warm soapy water, then rinse and dry. This prevents buildup of cleaner or contamination between uses. Similarly, wipe any pickup tubes or filters that sit in the solution.

Step 3: Wipe Down Exterior – Using a damp cloth and a mild detergent, wipe the outside of the BASIS unit to remove any drips or spills of beer or cleaner. Pay attention to areas around connectors and the control panel (but avoid excessive moisture near electronic displays). Keeping the exterior clean not only is hygienic but also helps you notice if there are any leaks (stains could indicate a leak point).

Step 4: Check Connectors and Hoses – After cleaning, inspect all the connectors, couplers, and hoses for any signs of wear or residue. If you see beer stone (white scale) or hop particles caught in couplers, clean those parts manually with a small brush. Make sure no O-rings or gaskets came loose during disconnection. If any gasket is damaged or stretched, replace it now so that next hookup is leak-free. Rinse hoses with water and drain them before storage.

Step 5: Dry and Store – If the machine is not going to be used until the next cleaning cycle (e.g. a week or two later), it's a good idea to drain any water from it to prevent mold or freeze damage (if in a cold environment). Many machines have a drain function to empty the internal tank – use that if available. Leave the reservoir cap off for a while to let moisture evaporate, then cap it to keep dust out. Coil up any external hoses neatly. If your unit is portable and you want to put it away, coil the power cord and store the machine in a clean, dry area. Make sure it's secured – avoid storing in a place where freezing temperatures could occur if water remains inside, as that could crack components.

Step 6: Prepare for Next Use – It's often convenient to set everything back up for the next cleaning so you don't have to redo it from scratch. This could mean leaving the machine in place with the beer line connectors ready (but not attached to kegs obviously). Some bars will keep the cleaning machine permanently installed; in that case, you'd leave all hoses in place and simply turn off the machine until the next cycle. If removing the machine from a shared space, store all small parts (couplers, adapters) together so they don't get lost. Maintain a supply of cleaning solution on hand so you're

ready for the next scheduled cleaning – check the inventory of your chemicals and reorder if low.

Following these steps after each cleaning session will keep the BASIS machine itself clean and functioning optimally. A well-maintained cleaning machine means reliable performance and longer service life, ensuring your investment continues to pay off in hassle-free beer line maintenance.

Maintenance & Troubleshooting

Proper maintenance of the BASIS automatic cleaning machine will ensure it runs smoothly for years. This section covers routine maintenance tasks and common troubleshooting scenarios with their solutions.

Routine Maintenance

To keep the machine in top condition, perform the following maintenance tasks regularly:

- **Routine Cleaning of Machine Components:** As described above, rinse out the machine's internal lines after each use. After the cleaning process, this is done automatically. Some models include small filter screens on water or chemical intake to catch particles; rinse these under water to clear any debris. Keeping filters clean prevents clogs and ensures full flow during cleaning cycles.
- **Inspection of Hoses and Seals:** Every month, inspect all hoses in the installation from Basis to Taps for cracks, discoloration, or stiffness. Check seals and O-rings on connectors. Replace any part that shows signs of wear. Rubber seals can degrade from the caustic chemicals over time, so having spares on hand is useful. A leaky seal could reduce cleaning pressure or cause messes.
- **Pump and Valve Check:** The heart of the system is the pump and the solenoid valves. Listen during operation – if you notice the pump sounding strained or any unusual noise (grinding, squealing), it may need servicing (lubrication or replacement). Many pumps in these systems are maintenance-free, but after extended use (say yearly), you might run a pump cleaning solution through (the manufacturer might supply a pump descaling agent if needed). Valves should open and close crisply; if a valve is sticking, it could be due to residue – perform an extra flush cycle with hot water to clear it.
- **Software/Firmware Updates:** If your BASIS machine is IoT-enabled, check periodically for software updates to its controller. Updates can often be delivered over-the-air via the GSM/Wi-Fi connection. These might improve performance or add features. Ensure the device stays connected to receive any updates. Refer to the manufacturer's instructions for how to apply updates. Keeping the firmware up to date can also fix any bugs that may cause glitches.

- **Calibration (if applicable):** Some advanced machines allow calibration of sensors (flow meters or pressure sensors). Over time, if you suspect the machine's volume measurements or pressure readings are off, you might need to calibrate. Follow the calibration procedure in the service manual – usually involving running a known volume of water and adjusting readings in the software. Often, this is done by authorized service technicians, but it's good to be aware if results seem inconsistent.
- **Exterior and Environmental Maintenance:** Keep the machine in a suitable environment. Do not stack heavy objects on it. If the machine has a battery (for the real-time clock or memory backup), replace it as recommended (perhaps every couple of years) to avoid losing schedule settings during power outages.
- **Line Acid Cleaning:** Even with regular caustic cleaning, beer lines occasionally need an acid clean to remove mineral deposits. The BASIS system can likely handle acid cleaner as well – perhaps on a less frequent schedule. Consider running an **acid cleaning cycle every 2–3 months**. This involves using a specialized acid line cleaner in the machine instead of the normal detergent for that cycle. Always flush thoroughly afterwards. This preventive maintenance keeps beer stone at bay and ensures optimal cleanliness. Check your machine's manual to see if any adjustments are needed for acid vs. caustic (some machines might have recommended concentration differences).

By keeping up with these maintenance tasks, you minimize the chance of malfunctions and ensure that each cleaning cycle is as effective as the last.

Common Issues & Troubleshooting

Even with a robust system, you may occasionally encounter issues. Below are some common problems and how to address them:

- **Machine Won't Turn On:** If the BASIS unit does not power up (no lights on the panel, no response when switched on), first check the power source. Ensure the power cord is firmly plugged in and the outlet is live. Check for any tripped circuit breaker or GFCI if in a wet area. If the unit has an internal fuse, refer to the manual's fuse location and inspect it (replace if blown with the same rating). Only qualified personnel should open the unit; if power issues persist, contact the manufacturer's service department.
- **No Cleaning Solution Flowing (Pump runs dry):** You start a cycle but notice that no fluid is coming through the lines (for example, you don't see discharge in the drain or you have a flow sensor alarm). Possible causes:

    - The cleaning solution reservoir might be **empty** or the pickup tube is not submerged. **Solution:** Refill the chemical solution or check that the tube is properly placed.
    - A valve may be **closed or clogged**. Ensure all required valves (inlet, outlet) are open. Inspect inline filters for blockage – clean them if needed.
    - **Pump priming issue:** There could be an airlock. Try stopping the cycle, then initiate a prime/manual pump to push the air out (you might open a vent if the model has one or briefly loosen a connection at the highest point to let air escape, then retighten and try again).
    - If the pump motor isn't running at all, it could be an electrical fault or the pump is seized. In that case, after checking all the above, contact service if the pump doesn't engage.
- **Leaks Detected:** If you see liquid dripping from the machine or connections:
    - **Identify source:** It could be at a hose connection, a crack in a tube, or from a pressure relief valve.
    - **Solution:** Tighten any loose connectors (many have swivel nuts – ensure they are snug, but do not overtighten plastic fittings). If a hose is cracked, replace it. If the leak comes from the machine body, it might be an internal fitting loose or a split in a component; turn off and unplug the machine, relieve pressure, and only if you're qualified, open the cover to inspect. Otherwise, call a technician.
    - Leaks around the keg coupler connections could mean a bad washer in the coupler. Check the keg connector washer and replace if worn.
    - Always fix leaks promptly – besides the mess, a leak can cause the machine to lose pressure and not clean effectively.
- **Cleaning Cycle Does Not Start at Scheduled Time:** If the automatic schedule didn't trigger:
    - Check that the machine's internal clock is set correctly (power outages might disrupt it if no battery backup; reset the date/time if needed).
    - Ensure the schedule is enabled (some systems allow you to turn the schedule on/off).
    - If using cloud scheduling, verify that the device has network connectivity to receive the command. The GSM signal or Wi-Fi might be down – in which case the machine might revert to a default schedule or none.

    - In the meantime, you can start a manual cycle so cleaning isn't missed, and then troubleshoot the connectivity after.
    - If the schedule feature appears to be malfunctioning, contacting support for a firmware update or debugging is advised.
- **Error Codes or Alarms:** BASIS may display error codes for various faults (e.g. "E1 – Low Flow on Line 2" or "Pressure not reached" etc.). When an error is shown:
    - Refer to the user manual's error code chart if provided. This will guide what the code means.
    - Common ones: Low flow could mean partial blockage or an empty reservoir as mentioned; "No Connectivity" might warn that the IoT connection is lost (not critical to cleaning function, but you'd want to restore it for monitoring).
    - Address the root cause (refill, fix blockage, etc.) and then typically press a **Reset** or **Acknowledge** button to clear the error and retry the cycle.
    - If an error persists and is not something simple (like "Internal sensor fault"), you may need to have the unit serviced.
- **Beer Still Tastes Off After Cleaning:** If you or customers notice that beer flavor is not improved or there's still an off-taste after running the automatic cleaner:
    - Verify that the cleaning cycle actually ran to completion on that line. Check the cleaning log – was there any interruption or error? If that line was skipped due to a problem, run a manual cycle.
    - Check if the cleaning chemical is fresh and effective. An old or spent cleaner might not clean well; ensure you're using the right amount and it's within its shelf life.
    - The issue might be beyond routine cleaning – for instance, there could be a microbial infection in the faucet or a spot that the cleaning cycle can't easily reach (like an old faucet washer). Remove and manually clean the faucet and coupler parts periodically in addition to the in-line cleaning. Soak them in cleaning solution or replace worn parts.
    - If beer stone (mineral) build-up is heavy, one caustic cycle might not fully remove it. Consider performing an acid line clean as noted in maintenance. After an acid cycle, the flavor should improve as those deposits are cleared.

    - Also ensure that after cleaning, you *thoroughly rinsed* the lines. Cleaner residue can itself cause off-taste (chemical or soapy flavor). The automatic rinse should handle it, but double-check that the rinse volume setting is correct for your line length. If in doubt, you can increase the rinse time via settings or do an extra manual rinse.

- **Connectivity/Telemetry Issues:** If you are not receiving data or alerts from the machine as expected:
    - Check the GSM signal (if using cellular, an LED or icon usually shows signal strength). If it's low or dropped, possibly the location has poor reception. You might need to adjust the antenna position or use an external antenna extension.
    - For Wi-Fi, verify the network is up and the device is connected. It might require re-entering the Wi-Fi credentials if they changed.
    - Ensure your subscription or SIM card for the device's data is active (if applicable).
    - If the machine has logged data locally but not uploaded, there may be a server issue – contact the manufacturer's support if the cloud portal isn't updating.
    - These issues won't stop the cleaning function (it will still run on schedule), but you may lose the convenience of remote monitoring until resolved.
- **Physical Damage or Wear:** If any part of the machine breaks (for example, a button on the control panel doesn't respond, or the display is blank/damaged), you should contact the manufacturer for repair or part replacement. Do not attempt to operate the machine with jury-rigged fixes, especially on electrical components, as this could be unsafe. Many parts are modular, so replacing a faulty touchscreen or pump is possible by professionals.

In all troubleshooting cases, **always prioritize safety**. If something seems seriously wrong (smoke, electrical smell, major fluid leak), stop and disconnect power immediately. Consult professional service technicians for help. Fortunately, the BASIS system is designed to be user-friendly and robust, so most issues can be prevented or resolved with the above steps. Keep the manufacturer's support contact information handy (usually found in the manual or on a label on the machine) for any complex problems or to order replacement parts.

Safety Precautions

When using the automatic beer cleaning machine, follow these safety guidelines to prevent accidents, injury, or damage to equipment. The cleaning process involves electrical components, pressurized liquids, and chemical cleaners, so caution is required.

- **Read the Manual First:** Ensure that you and any staff who will operate the machine have read and understood this user manual and any official documentation. Do not attempt to use the machine without proper training. Misuse can lead to safety hazards or ineffective cleaning.
- **Electrical Safety:** Only plug the BASIS machine into a properly grounded outlet of the correct voltage as specified (e.g. 120V or 230V AC). **Do not use extension cords or adapters** that could present a shock or fire hazard. Keep the power cord away from wet areas. Before performing any maintenance that involves opening the machine or disconnecting hoses, **turn off and unplug the power**. Never touch electrical parts with wet hands. If the machine's power cord or plug is damaged, do not use it until repaired or replaced by a qualified electrician or service agent.
- **Chemical Safety:** The beer line cleaners used are often caustic (high pH) or acidic (low pH) and can cause burns to skin and eyes. Always **wear protective gloves and safety goggles** when handling cleaning chemicals. If the cleaning solution comes in contact with skin, wash immediately with plenty of water. In case of eye contact, flush eyes with water for at least 15 minutes and seek medical attention. Keep the cleaning chemicals **in clearly labeled containers** and out of reach of unauthorized persons (especially children). Follow the chemical manufacturer's safety data sheet instructions. Never mix different chemicals together unless instructed (mixing acid and caustic, for example, can create a violent reaction). Use only the recommended concentration; stronger is not always better and can damage equipment or be harder to rinse out.
- **Pressure Safety:** During operation, the machine pressurizes the beer lines with fluid. Ensure all connections are secure to avoid hose "whipping" or splashing in case a line comes loose under pressure. **Do not disconnect any beer line or fitting while the machine is running** – release pressure first by completing or aborting the cycle and opening a pressure relief or faucet. Some systems have a pressure relief valve – use it if needed before disconnecting hoses. If a hose or fitting bursts, keep clear of the spray to avoid chemical contact and turn off the pump immediately.
- **Operational Safety:** Only operate the cleaning cycle when the beer dispensing system is not in use for serving. Lock out the beer taps or post a sign during

cleaning: *"Cleaning in Progress – Do Not Pour Beer."* This prevents anyone from accidentally drinking or serving the cleaning solution. Never bypass any safety features of the machine (such as door interlocks, if any, or software warnings). Use the machine only for its intended purpose – cleaning draft beer lines. It is not designed to pump other beverages or chemicals outside of its specified use.

- **Ventilation:** Perform cleaning in a well-ventilated area. While most beer line cleaners have low odor, some fumes can be irritating. Additionally, if the cooler is a confined space, make sure there is fresh air circulation especially if multiple lines are being cleaned (CO_2 from kegs might also be present in cooler – ensure CO_2 levels are safe; as an added safety, CoolBeer offers CO_2 monitoring sensors (Naslovna | Coolbeer) that are compatible with their system). If you feel lightheaded or experience difficulty breathing, stop and get fresh air.
- **Avoid Cross-Contamination:** Do not allow the cleaning solution to come into contact with other beverage lines or areas where it could mix with beverages. If the bar has other soda or wine lines nearby, make sure those are closed off. Also, thoroughly rinse the beer lines after cleaning – any cleaner left can make customers sick or contaminate the beer. Always confirm the presence of only beer (and no cleaner) before resuming service.
- **Equipment Handling:** The BASIS unit, if portable, may be somewhat heavy (around 20–25 lbs). Use proper lifting technique to move it – bend at the knees, not your back, or use a cart if needed. If it's installed in a tight space, ensure you have stable footing and adequate lighting when reaching in to connect or disconnect hoses. Avoid dropping the machine or subjecting it to impacts; this could not only damage it but also spill chemicals.
- **Emergency Stop:** Familiarize yourself with how to quickly stop the machine in an emergency. This might be a physical **E-Stop button** on the device or simply switching off the power. If something goes wrong (like a major leak or someone is in danger), hit the emergency stop to halt the pump and relieve pressure. You can always re-start the process after the issue is addressed.
- **Child Safety and Unauthorized Access:** The cleaning machine should be operated by trained adults only. Keep children and pets away from the area when it's in use. If the machine is installed in a public or customer-accessible area, consider a lock or password on the controls to prevent tampering. The same applies to the connected app – secure it so patrons cannot accidentally start a cycle.
- **After Use:** Once cleaning is finished, ensure all chemical containers are closed and stored safely. Neutralize or wash down any spills immediately (for caustic cleaners, a mild vinegar solution can neutralize drips; for acid, a baking soda

solution can neutralize). Dispose of used solutions as per local regulations – large quantities of cleaner should be diluted heavily before going into drains, according to environmental guidelines.

- **Fire Hazards:** While the machine itself doesn't involve open flames and beer line cleaners aren't typically flammable, always have a fire extinguisher rated for electrical and chemical fires nearby (just as a general bar safety measure). Do not store flammable solvents or cleaners near the machine unless specified.

By adhering to these safety precautions, you will create a safe environment for yourself and others while using the automatic beer line cleaning machine. Safety is everyone's responsibility – ensure all staff are aware of these guidelines. When in doubt, stop and verify before proceeding with a potentially unsafe action. Remember that the combination of electricity, pressure, and chemicals requires respect and care. With proper precautions, the BASIS system can be used confidently and safely as a valuable tool in your bar's maintenance routine.

Technical Specifications

Below are the key technical specifications and information for the BASIS Automatic Beer Line Cleaning Machine. These details include electrical requirements, capacity, materials, and other technical data to help you understand the machine's capabilities and ensure it meets your needs and compliance standards.

- **Model Name:** BASIS (Beer Automatic Smart System Sanitizer) – Automatic Beer Line Cleaning Machine
- **Manufacturer:** Maicatech d.o.o. (Belgrade, Serbia) – IoT Draft Beer Solutions Division
- **Intended Use:** Automatic cleaning and sanitization of draft beer dispensing lines and related hardware (faucets, couplers, tubing) in commercial hospitality settings.
- **Power Supply:** 100–240 V AC, 50/60 Hz, single phase (universal power input with auto-sensing). The machine consumes approximately 150-600 Watts during operation (mainly for the pump and control unit). It is recommended to connect through a surge protector to safeguard the electronics.
- **Dimensions:** Approx. **500 mm x 450 mm x 350 mm** (Width x Depth x Height). This compact size allows installation in most bar setups or keg coolers. *(Note: dimensions are approximate and may vary slightly by model version.)* The control interface (if separate on a stand or wall-mount) may add to the height.

- **Weight:** ~25 kg (50 lbs) for the main unit, when empty (without water/chemical). When filled with fluid, weight can increase by a few kilograms. The relatively light weight makes the unit portable if needed, while still being sturdy.
- **Enclosure Material:** Powder-coated steel chassis with ABS plastic or stainless steel accent panels. The housing is corrosion-resistant to withstand the humid bar cooler environment and any incidental contact with cleaning chemicals. The interior fluid-contact components (pump head, valves, fittings, and tubing) are made of **food-grade materials**: primarily stainless steel (SS304/316) and beverage-safe vinyl or PE tubing. These materials ensure no leaching of flavors and easy cleaning.
- **Pump:** Diaphragm or peristaltic pump (depending on model) capable of delivering ~1–2 gallons per minute flow rate. Maximum pressure output ~30–50 PSI to effectively push fluid through long beer lines and create turbulent flow for scrubbing. The pump has an automatic shutoff to prevent dry running (float sensor or pressure sensor monitored).
- **Valves:** Solenoid valves (12V or 24V DC internally) control the routing of water, cleaning solution, and rinse flow to each beer line. Each beer line connection has its own valve that opens during cleaning. These valves are rated for caustic liquids and have Viton or EPDM seals for chemical resistance.
- **Line Connections:** The machine typically supports **2 beer line connections simultaneously** (common standard) – i.e., it can clean up to 2 draft lines in one cycle. Expansion models or multiple units can accommodate more lines for larger systems (8 or more lines by linking units). Connection type: Standard keg coupler attachments (e.g. Sankey D-type keg coupler fittings on the machine for U.S. standard, or appropriate couplers for other regions. Water inlet: 1/2" threaded hose connector or quick-connect fitting. Drain outlet: 1/2" or 5/8" barb for a drain hose. All connections are designed as *"plug & play"* for quick setup.
- **Cleaning Solution Reservoir:** Integrated tank of approx. 5 liters capacity, or external container hookup via siphon tube. This capacity is enough for multiple cleaning cycles (exact usage depends on number of lines and cycle length). The system includes a dosing mechanism that mixes cleaner concentrate with water to the required strength automatically. For example, it may draw a small amount of chemical and blend with water to achieve a typical 1–4.5% caustic solution in-line.
- **Supported Cleaning Agents:** Compatible with alkaline (caustic) draft line cleaners (e.g. potassium hydroxide or sodium hydroxide based solutions). Also compatible with acidic cleaners (phosphoric or nitric acid based) for periodic use. The machine's wetted parts are chosen to resist both types of chemicals.

Do NOT use chlorine bleach or other unapproved chemicals in the machine, as they can damage stainless steel and create unsafe residues. Always follow manufacturer guidelines for chemical types and concentrations.

- **Cycle Controls:** Digital programmable timer and logic controller. Cleaning cycle duration typically adjustable from 5 minutes up to 30 minutes total. Default cycle (recommended): ~15 minutes including 5 min circulation, soak time, and rinse. Soak time configurable. Rinse volume can be set based on line length (e.g. flush 2x line volume by default). The controller ensures each step completes fully before moving on, and will alarm if not (e.g., it will detect if flow is inadequate or if the solution was not drawn).
- **Telemetry & Data Logging:** Built-in memory stores up to 1000 cleaning cycle records (timestamp, duration, any errors, which lines cleaned). Data is uploaded to cloud in real-time via the connectivity modules. The system logs sensor readings such as flow rates and can provide diagnostics. Telemetry also includes self-monitoring (e.g. it can detect if a valve is not opening properly by analyzing flow, and log a warning).
- **Connectivity: GSM Cellular (2G/4G LTE Cat M1)** module with SIM slot for cloud communication (Maicatech – AI&IoT Controllers). **Wi-Fi 2.4 GHz** (802.11 b/g/n) connectivity for local network communication (if configured). **Bluetooth Low Energy (BLE)** for initial setup and local control via smartphone app. The machine can operate fully offline as well (running scheduled cleans from internal memory) if connectivity is lost, and will sync data when back online. Remote access allows starting a cycle or changing settings from the cloud portal (with proper authentication). The cloud portal (or app) is accessible to authorized users, providing status and reports.
- **Location Tracking:** Supports **WPS (Wi-Fi Positioning System)** for location tracking (Maicatech – AI&IoT Controllers), used by the managing cloud platform to identify the venue location of the unit. This is mainly for asset management and service logistics (useful for companies deploying many units nationwide).
- **User Interface:** Options include a 10” color touch screen or a LCD screen on the device (depending on model) or a simple LCD with push buttons (Power, Set, Start/Stop). The interface language can be set to English (and others if available). The display shows menus for scheduling, manual start, and displays progress (as percentage or step name) during cleaning. LED Indicators: e.g. **Power** (on/off), **GSM** (network status), **WiFi**, and **Alarm**. An audible buzzer is present for alarms or cycle completion notification.
- **Environmental Requirements:** Operating ambient temperature 0–50°C (32–122°F). If installed in a walk-in cooler, ensure it does not freeze (the unit can

operate in cold environments, but its water lines must not freeze). Storage temperature -20–60°C (keep chemicals from freezing or overheating as well). The unit is rated IPX4 (splash resistant) – it can handle splashes but should not be submerged or exposed to heavy rain. Use only indoors or in a sheltered outdoor bar setup.

- **Certifications:** Designed to meet relevant safety standards: CE certified (for electrical safety and EMC for EU), FCC compliance for North America, and food equipment sanitation standards (components NSF rated or equivalent for food contact). The cleaning process efficacy might have laboratory validation; for instance, similar systems have been tested at VLB Berlin institute for cleaning effectiveness.
- **Performance Metrics:** Typical cleaning effectiveness: removes >99% of beerstone and biofilm when used on recommended schedule (as per internal testing). Improves pour quality and reduces beer waste compared to manual cleaning, because the process is optimized.Water usage per cleaning cycle: approximately 10–15 liters (including all rinse stages) – note that this may be less than manual cleaning since the process is timed precisely. Cleaning chemical usage: a few hundred milliliters of concentrate per cycle (depending on lines and concentration).
- **Maintenance Interval:** The machine itself is low-maintenance. It is recommended to have it inspected by an authorized service technician annually. Certain parts like pump tubing (for peristaltic pumps) might be replaced yearly as preventive maintenance. Valves can last for many thousands of cycles; replace if any sign of failure. Keep firmware updated to the latest version for best performance.
- **Included Accessories:** The standard package includes: 2× beer line coupler adapters (or cleaning couplers), 1× water inlet hose (with filter screen), 1× drain hose, 1× power cord, Quick-start guide, and a sample bottle of recommended beer line cleaner. Some packages may also include a test kit (pH strips or solution test) to verify that no cleaner remains after rinse – useful for assurance.

These technical specifications provide a comprehensive picture of the BASIS machine's capabilities and requirements. For any further technical details, consult the product datasheet or contact Cool Beer's technical support. Always ensure that the machine's specifications align with your venue's utilities and that installation is done according to local regulations (for example, backflow prevention on water supply, if required, and proper waste disposal for cleaning effluent). With the machine properly specified and installed, you can expect reliable and efficient performance in keeping your draft beer lines impeccably clean.

§ 15.19 Labelling requirements.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

§ 15.21 Information to user.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

§ 15.105 Information to the user.

Note:This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

*RF warning for Mobile device:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.