Auper

Harpagon/Harpagon SRP 160
Flow meter systems
User's Guide

November 2004
Harpagon Version 6
Auper Electronic Controls Inc

Contents

Harpagon and Harpagon SRP 160

When unpacking your Harpagon system, you should find the following components:

Part No	Description
50-656	Harpagon flow metering system
50-805	Serial flow meter collector
70-021	10 ft Network cable
40-001	120 volts or 220 volts to 12 Volts AC 20 VA wall mount transformer
70-035	9 pin to 9 pin null modem serial cable (10 ft)
	Draft Manager Ver 1.1 software

General information

The Harpagon is a micro-controller designed for beverage flow metering. Its purpose is to register the electronic impulses generated by the Auper flow meters when liquid flows through the flow meters. Each Harpagon can monitor up to 16 different beverage lines.
Up to 100 Harpagon systems can be networked to form a very large flow metering system using the Auper 8 inputs Rs-422 stackable hubs. Counters can be read directly from the liquid crystal display. However, the real power of the Harpagon is found when using the new Draft Manager software.
Harpagon in version SRP 160 includes the time and date and 3 different set of counters to print reports directly to a serial printer fo up to three shifts per day.

- √ Up to 16 flow meters per system
- √ Up to 100 Harpagon systems can be networked and operated from Draft Manager
- √ Universel unit mode (oz, litres, glasses, gallons, etc..)
- √ Backlight display
- √ Reset key switch
- √ Powered by a 12 Volts AC wall mount transformer
- √ Power fail memory back up

Power Source

The Harpagon is powered by a 12 volts @ 20VA power source. Each system must have its own separate power source. It is recommended to use a “clean” electrical outlet.

“Uninterruptable Power Supply” (UPS)

If you feel that your Harpagon may be exposed to extreme electrical power fluctuations or spikes, you may want to use a UPS system. UPS stands for “Uninterruptable Power Supply”. The UPS is equipped with proper power surge protection and a battery back up. It could be used for other equipment as well. In case of power failure, your Harpagon system will remain ON for a few hours on battery power. UPS systems are available at office supply stores.

Customer Support

AUPER provides telephone support for all its products, available Monday to Friday from 9 am to 5 pm (Eastern standard time), except on Holidays. If you have any questions regarding your new Harpagon, don’t hesitate to call the AUPER technical support help desk at 1-800-861-1620.

Pre-installation considerations

1. Using the computer

If you are using the Draft Manager software supplied with your Harpagon, you can install your Harpagon system(s) anywhere as long as you have a serial cable linking the computer to it. The flow meters cables can be connected directly to the Harpagon’s serial flow meter collector outside the cooler. A straight network cable will link the flow meter collector to the Harpagon. A RS-232 or Rs-422 cable will link the Harpagon to the computer.

2. Not using the computer

If you wish to read the meters directly from the Harpagon display, then select a convenient location easily accessible but that retains a certain level of security. The power supply cord and the power source should be well secured to insure they couldn’t be tampered with. The manager’s office is often selected. This set up will require that you install multiple pair cables between the cooler (or stock room) and the Harpagon system to connect your flow meters to it.

3. Harpagon network

If you plan on connecting several Harpagon systems to your computer and use the Draft Manager software, you should read the network section of this manual before you start your installation. The Auper Eclipse Hv 100 liquor dispenser can also be installed on the same network of Auper systems.

4. Selecting the serial port

If several Harpagon systems are networked using the Auper hub, or if the distance between the system and the computer exceeds 100 feet, the RS-422 port must be selected. Select the serial port using the switch on the back panel.

FLOW METERS

Each flow meter kit includes a pre-assembled flow meter with the specified tailpiece size, a plastic wall bracket, screws, hose clamps and 25 ft of flow meter cable.

- Use **stainless steel tailpieces for carbonated water, syrups and wine**. Use chrome plated tailpieces for draft beer.

- Hand tighten the plastic nuts at room temperature. When the washers are cold, sealing the adaptors may be difficult. Grab the two plastic nuts and twist. The amount of pressure required to seal the tailpieces on the washers is directly proportional to the pressure of the gas used to push the liquid. If the gas pressure is high, you will need to tighten the nuts more firmly. DO NOT GRAB THE FLOW METER BY THE CENTER TO TIGHTEN THE ADAPTORS (you could damage the coil).

- Using a sharp utility knife cut the tubing where the flow meter will be installed. Leave enough line to be able to move the kegs easily.

- Caution: Install the flow meter at least 30 cm (12 inches) from transformers, blowing fans or motors. These devices emit a magnetic field (60Hz), which can be picked up by the flow meter. If the counter moves without any liquid being dispensed, move the flow meter away from the source.

Pre-Mix

Whether it is wine, juice, or soft drink, if it's ready to serve it's Pre-Mix. As with draft beer, one flow meter per line will be necessary.

Post-Mix

1. Measuring carbonated water:

   The ratio of the mixture (or "Brix") is usually the same for all the syrups (5:1). By installing the flow meter in the carbonated water (soda) line, the flow meter system will register the total amount of soft drink served through the dispenser.

2. Measuring syrups:

   If you want to know the quantity of each flavor served, you will need to install a flow meter on each of the syrup lines. **It is necessary to use the flow meter model number 50-332 (slower flow rate).**

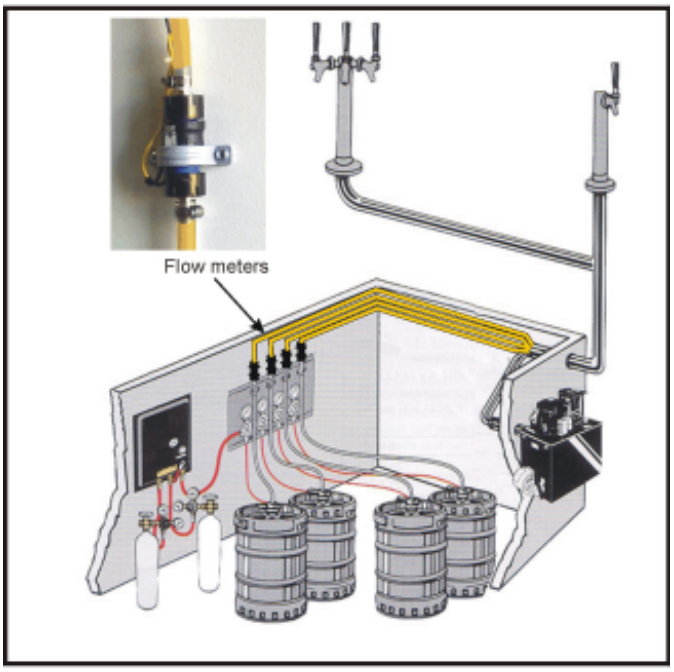
Installing the tailpieces

- Remove the lexan nut.
- Select the tailpieces corresponding to the internal diameter of the tubing.
- Insert the tailpiece in the lexan nut first and then the washer.
- Screw the lexan nut back on. Do not tighten.
- Repeat on the other side.
- Hold both lexan nut and tighten the nuts to seal. DO NOT HOLD THE FLOW METER BY THE MIDDLE TO TIGHTEN THE LEXAN NUTS.

Installation

Draft beer and Wine

If empty keg detectors (FOBs) are present, install the flow meter immediatly after as it will prevent the flow meter from ever being in contact with air or foam.



Teed beer lines:

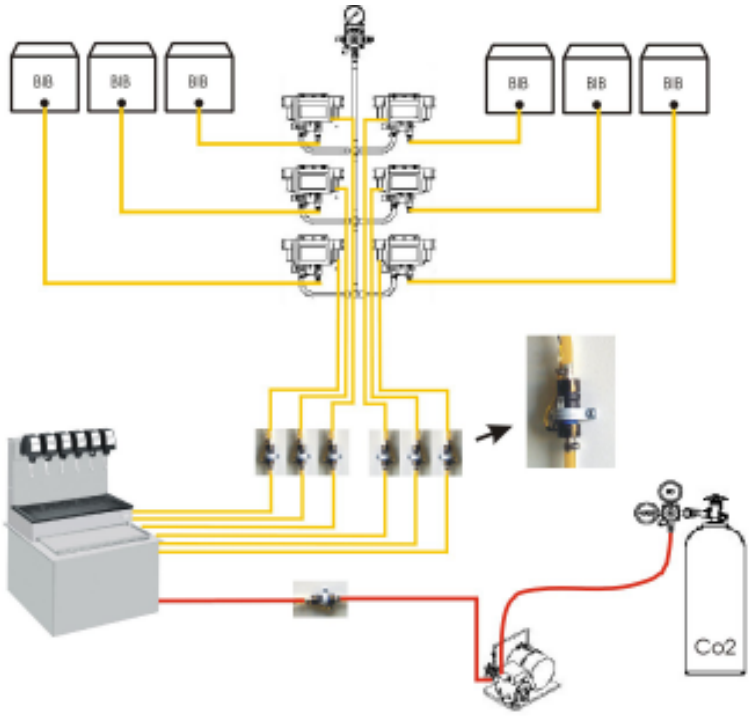
If one keg supplies more than one beer lines using a tee, you must install **check valves** before each flow meter.

The **check valve** prevent the liquid from moving back in the line when the pressure drops when the faucets are pulled open.

- **Remove** the keg coupler and open the faucet to decompress the product line.
- **Cut** the line where you will insert the flow meter.
- Slide a hose clamp on each side, check the **flow direction** and insert the flow meter.
- **Tighten** both clamps and secure your flow meter to the wall using the bracket.
- Re-install the keg coupler. Check for leaks.
- The insertion of the flow meter has created an air pocket in the beverage line. You must pour enough beer to evacuate the air pocket before proceeding with the calibration of the system.
- Leave the faucet open until the air pocket has passed. Let the beer rest for a few minutes.

Soft drink

Carbonated water:



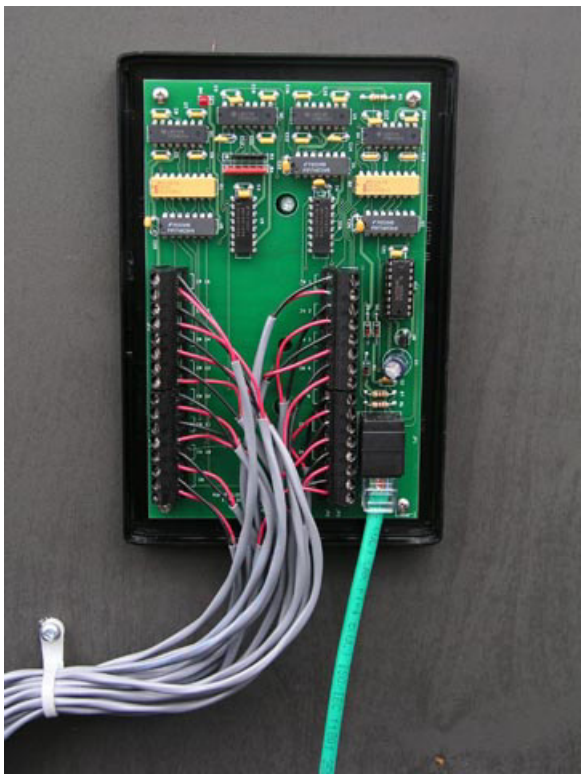
- Shut the water, CO2 and carbonator pump off.
- Depressurize the carbonated water line.
- Install **stainless steel tailpieces** corresponding to the internal diameter of the line and the washers.
- Using a sharp utility knife cut the tubing where the flow meter will be installed.
- Slide a hose clamp on each side, check the flow direction and insert the flow meter.
- Tighten both clamps and secure your flow meter to the wall using the bracket.
- Turn the water, CO2 and the pump back on. Pour enough carbonated water to bleed the line of any trapped air pockets.
- Check for leaks.

Syrups:

- Disconnect the power to the pumps or shut off the gas pressure to the pumps to cut the pressure within the feed lines. Depressurize each flavor.
- Slide a hose clamp on each side, check the flow direction and insert the flow meter.
- Pressurize the feed lines and check for leaks.

Connecting the flow meters to serial collector

- Pass your flow meter cables out of the cooler to where the flow meter collector is installed.
- Secure your cables with cable ties and cut them near the monitor system.
- Strip 1/2 inch (2 cm) of the insulation off the wires.
- Press the lower sides of the cover to remove it.
- Screw the turbine collector to the outside wall of the cooler out of reach of normal traffic.
- Each terminal is identified on the circuit board T1 to T16.
- Use a small flat screw driver and unscrew the terminals. Insert the wires.
- Screw down the to close the contact. Make sure the contact is closed on the copper wire to guarantee a secured and solid connection.
- Secure all your wires with cable ties.



Connecting the flow meter collector to the Harpagon system

- **Disconnect the Harpagon system before connecting the flow meter collector.**
- Connect the Cat 5 network cable between the flow meter collector and the input connector of the Harpagon system.
- The Cat 5 network cable can be very long up to 1000 M.
- Connect the power supply wires to the 12 Volts @ 20 VA power supply. Make sure the power supply is not easily accessible or that it cannot be accidentally disconnected.
- Plug the transformer in the electrical outlet. Inexpensive power bars should be avoided.

Testing the connections

- Turn the key to Program to enter the **Impulse** mode of the Harpagon
- The impulse mode is used to verify that all the flow meters are connected properly to the Harpagon. From left to right, 16 dots represent lines 1 to 16.
- When a flow meter is connected to a line, the corresponding dot is up.
- If no flow meter is connected to a line, the corresponding dot is down.
- When a flow meter detects liquid flowing though it, the corresponding dot will alternate up and down.
- If a flow meter is installed backward, the corresponding dot will be up but will not alternate when product is flowing.

Calibration

The calibration procedure insures the accuracy of the measurements of the flow meter system. Each flow meter must be calibrated with the product it is measuring. The flow meter should be re-calibrated if the product is changed or if the dispensing flow rate was changed by a factor of 30 % or more. Calibrating an Auper flow meter system requires you to pour a measured amount of product at each faucet into a graduated cylinder. In the calibration mode, the system calculates how much liquid flows through each flow meter for one turbine impulse. During the calibration procedure all 16 lines are calibrated at the same time. This feature prevents you from having to go back and forth to the Harpagon to set the calibration values.

As soon as the system is put in the calibration mode, the amount of liquid dispensed at each faucet is used to calibrate the metering system. If liquid is dispensed on a line that you did not intend to calibrate, the calibration of that flow meter will be changed. Only the lines that have detected liquid flowing will calibrate. When you are ready to calibrate your meters, **tell everyone not to use any of the beverage lines** for the duration of the calibration procedure to prevent unwanted re-calibrations.

******To accelerate the calibration, spraying a little WD40 inside the graduated before filling it with beer will eliminate the foam rapidly.***

Steps:

- Press the mode button once: The display shows **CAL. WITH 20 oz.**
- Press the Set button to alternate between **CAL. WITH 1 UNIT** and **CAL. WITH 20 oz.**
- The Harpagon can be programmed to measure ounces, liters, gallons, glasses, etc...
- To calibrate to count ounces select the **CAL. WITH 20 oz**
- For all other measuring units select the **CAL. WITH 1 UNIT**
- When the calibration value is selected, press the Mode button once. The display shows **C1 0000 à 00.0000**
- You have now entered the calibration mode. Even though only one line is showed on the display, all sixteen lines are in calibration mode.
- If you selected **"USE 20"** to calibrate to measure ounces: Pour and measure exactly 20 ounces of product at each faucet using a graduated cylinder.
- If you selected "USE 1", pour exactly one unit (1 Liter, 1 gallon, 1 glass) at each faucet using a graduated cylinder.

- The display will show the corresponding flow meter pulses on line 1**.** Press the up and down button to change the line number displayed.
  For example: ***C1 0502 -- 00.0000***
- Press the Set button to calibrate all 16 lines. The display will show the resulting value of the calculation
  (For ex: 20/300 = 0.066666 or 1/502 = 0.001992) **C1 0502 -- 00.001992**
- If you are not satisfied with the measure and wish to re-calibrate either one, or all lines, remain in this mode after pressing the front panel button to set the calibration values. Start again on the lines you want to re-calibrate. Lines, on which the pulse counter remained at zero indicating no product was served, will retain their old calibration. Make sure that no one uses the dispenser while you calibrate to avoid unwanted re-calibrations.

]

Verifying your calibration values

A 50-316 Auper flow meter generally used for domestic draft beer, should generates approximately **15 pulses per ounce**. If you calibrate to measure ounces, 20 ounces times 15 = 300 pulses. Since the Harpagon divides 20 by the number of pulses measured, the resulting value after pressing the **Set** button should be in the area of 0.066666. Everything the Harpagon measures can be verified mathematically.

For example: A flow meter generates 289 pulses for 20 ounces: 20/289 = **0.0692041** (or 14.45 pulses per ounce)

The same flow meter will generate for one liter: 1 liter = 35.2 imperial ounces = 508 pulses with a resulting calibration value of 1/508 = 0.001968
1 liter = 33.8 US ounces = 488 pulses with a resulting calibration value of 1/488 = **0.002049**

You can always scroll through the different lines to look at the pulse count or the resulting calibration values on each line to make sure they are in the expected range.

Programming modes (Harpagon version)

- Press mode once: **CLR 1 ? 123456.78**

- This mode allows you to reset the displayed counter to zero by pressing the Set button. To continue without resetting the counter press Mode. To clear the counters individually, use the up and down buttons to select the line number and press the S/R button the reset the displayed counter. The counters can be cleared all at once using the key in the normal operation mode (see next section).

- Press «mode» again. The **''SYSTEM DISABLED"** mode may be used when beverage lines are being cleaned or when priming the lines.. This mode is used to disable the system from counting. As long as the display shows "system disabled", the counters are not registering. Press Mode or turn the key to Run to exit this mode and activate the counters.

- Press «mode» again. **In "CLR PWF ?** : ..." press the Set button to reset the power failure counter to zero. Each time the Harpagon is disconnected, or there is a power failure, the PWF counter will register one count.

- Press «mode» again. **SYSTEM NUMBER 00**. Use the Up and Down arrows to select the Harpagon number. This number will identify the system for the software. When several Harpagon systems are networked to the same computer, each system must be given a different number starting with 00 up to 99.

- Turn the key back to Run to exit the program mode.

Programming modes SRP 160 version

- Press mode once: **CLR 1 ? 123456.78**
- This mode allows you to reset the displayed counter to zero by pressing the Set button. To continue without resetting the counter press Mode. To clear the counters individually, use the up and down buttons to select the line number and press the S/R button the reset the displayed counter. The counters can be cleared all at once using the key in the normal operation mode (see next section).
- Press «mode» again. The **''SYSTEM DISABLED"** mode may be used when beverage lines are being cleaned or when priming the lines.. This mode is used to disable the system from counting. As long as the display shows "system disabled", the counters are not registering. Press Mode or turn the key to Run to exit this mode and activate the counters.
- Press «mode» again. **In "CLR PWF ?** : ..." press the Set button to reset the power failure counter to zero. Each time the Harpagon is disconnected, or there is a power failure, the PWF counter will register one count.
- Press «mode» again. **SYSTEM NUMBER 00**. Use the Up and Down arrows to select the Harpagon number. This number will identify the system for the software. When several Harpagon systems are networked to the same computer, each system must be given a different number starting with 00 up to 99.
- Press Mode again. **To change the date**: press UP to change the month, press down to change the day and press set to change the year.
- Press mode again: **To change time:** Press up to change the hour, press down to change the minutes and press set to reset the seconds to zero.
- Press mode again: **Nb of shifts = 1**. Use the Up and down buttons to select the number of shifys per day. Up to three shifts can be selected. A separate set of counters will be used for each shift. All shifts are cleared when the manager restes the counters.
- Press mode again: To set the **automatic shift change times**: press up to select between shifts 1, 2 or 3. Press down to change the hour and press ste to change the minutes.
- Press mode again to come go to the first mode (impulse mode).
- Turn the key back to Run to exit the program mode.

OPERATION (Harpagon)

In normal operation, the key is used to validate the presence of the manager when programming the system, resetting the counters or putting the system in the “system disabled” mode for line cleaning.

Key is in the Run position.

- The display shows the number of ounces, liters or units dispensed per line according to the unit type selected when you calibrated the system. Pressing the **Up** and **down** arrows will change the line number displayed.

- Pressing «**Set**» allows you to view the PWF counter.

- Pressing «**mode**» will take you to the master reset mode. To clear the 16 counters, **turn the key to Prog** and then back to Run.

Operation SRP 160 version

The key is in **Run** position. Before you press the Mode button, the display shows the amount of product dispensed. Press the **UP** and **Down** buttons to view each line. Press **S/R** to view the Power fail counter.

- Press Mode once to see the time and date.
- Press mode again: **Manual/Auto** shifting
- Turn the key to **Prog.** Press Set to select between Auto or Manual shifting.
- Press Mode again: **Manual/Auto** printing
- Turn the key to prog to select between Auto or Manual printing. Auto print is available only if Auto shifting has been selected.
- Press mode again: **Current shift.**
- Turn the key to Prog. Use the Up and Down buttons to select another shift.
- Press Mode again: **SHF1 4354.56.** Display the total amount of product dispensed per shift. Press the Up and Down buttons to change shift.
- Press mode again: **Print report?**
- Press Set to print to serial printer only.
  CLR All Lines ?
- Turn the key to Prog and back to Run to reset all counters to zero.

Using Auto shift and Auto print (SRP 160 only)

When set to manual, the manager selects the Shift manually. When set to Auto shift, the SRP 160 will change the counter bank for each shift at the times set (1,2 or 3).
If Auto print is selected, the system will print a report automatically at the end of each shift.

Power Fail counter

The “power fail counter” counts the number of times the power was lost. That could mean there was a power failure or that the system was disconnected. When the system is installed in a location where power failures are frequent, installing a UPS (un-interruptable power supply) is a good idea. The battery back up in the UPS should supply enough power to last a few hours. “UPS” systems can be purchased at electronic stores or office supply stores.

Connecting the Harpagon system to your computer

The Harpagon is supplied with a 10 ft Rs-232 null modem cable ready to be connected to your IBM compatible PC. The Rs-232 connector on your PC is a 9-pin male connector as shown on the picture. Most PCs have two connectors identified as COM 1 and COM 2.
The COM port on your computer must be operational and properly configured in Windows in order for the computer to communicate with the Harpagon system.

Rs-232 cable pin out

DB9F DB9F
2 ——————— 3
3 ——————— 2
5 ——————— 5
Solder pins 7 to 8 and 4 to 6 on both sides.

Rs-422 cable

If the distance between your Harpagon and the computer is greater than 100 feet (30 meters) or if you connect more than one Harpagon or other Auper system to the same computer, you must use Rs-422 cables that are terminated by modular jacks (telephone connectors). The Rs-422 protocol is not compatible with your computer. You must install an Rs-422/Rs-232 converter at the computer.
You can order a Rs-422 cable pre-tested from the factory.

Networking Auper systems

Both the Auper Harpagon flow meter system and the Eclipse Hv100 liquor dispenser can be interfaced to your computer. Auper makes two different software: Draft Manager for the Harpagon and Liquor Manager for the Eclipse Hv 100.
Both software can share the same serial port on your computer, which provides for the ability to network the systems together. Up to 100 Auper systems can be networked to one computer using the Auper 8 input Rs-422 stackable hub
(part No: 70-060).

You can connect two systems that are within 10 meters from each other using a modular splitter. A splitter can be connected directly to the rs-422/Rs-232 converter. For larger networks, a splitter can be connected to a hub.
Using the hub is mandatory if you plan to connect more than two systems together.

All network transmissions use the Rs-422 protocol. At the computer end of the network, the Auper Rs-422 to Rs-232 converter (part No: 70-050) is necessary to convert the signals coming from the Rs-422 network into the Rs-232 format compatible with your computer's 9 pins serial port. Order at least one Rs-422 hub and Rs-422/Rs-232 converter kit (Part No.70-000). Additional hubs can be ordered separately (Part No. 70-060)

Rs-422 Hub

The output of one hub can be connected to any one of the 8 inputs of another hub to enlarge your network. Any number of hubs can be used this way. Up to 1000 meters can separate two Auper devices using the Rs-422 protocol. Each Auper system on the network must be set to use the Rs-422 port as explained in their corresponding user manuals.

Network Cables

Two types of cables are involved when planning the installation of a Rs-422 network:

- **Modular cables** (like telephone cables) to connect the systems to the network.
- **Cat 5 network cables** are used to link each bar or storage rooms to the office where the computer with the software is.

Network cable terminations

Use Cat 5 jacks and wall plates to terminate your Cat 5 cable. Follow the standard color codes for **straight** network cables. Use the punch down tool to secure each connection. The Rj-11 modular jack of the Auper Rs-422 cables fits in the middle of the Cat 5 jack.

Cable inversion:

- The Rs-422 connector has 4 wires: **Tx+, Tx-, Rx-, Rx+**
- The data transmitted (Tx) by one machine must be received **(Rx)** by the other
- A Tx pin cannot receive and vice-versa.
- The **Pin 1 Tx +** of one machine must end up in **Pin 4 Rx +** of the other.
- The **Pin 2 Tx -** of one machine must end up in **Pin 3 Rx -** of the other.
- Modular cable Part No 70-040 is **inverted** as follows

Yellow wire Tx+ to black wire Rx+
Red wire Tx- to green wire Rx-
Green wire Rx- to red wire Tx-
Black wire Rx+ to yellow wire Rx+

- **Two inverted cables** installed in series will **cancel** the inversion and communication cannot happen.
- When using a Cat 5 network cable, you will use two modular cables.
- The second one must be straight to keep the inversion (part No: 70-041)

The Harpagon Ver 6 option

With the Harpagon Ver. 6.0 you have the option of using a Cat 5 network cable to connect your flow meter collector to your Harpagon system.
One network cable per Harpagon flow meter collector is necessary
You can mount the flow meter collectors inside or near the beer kegs storage room and install the Harpagon systems in the office near the Rs-422 hub.
The connections between the Harpagon sustems and the hub will be achieved using the inverted modular cables (Part: 70-040)

or

Use a Rs-422 splitter to connect two Harpagon systems using inverted modular cables and run one Cat 5 cable between the storage room and the office where the hub is.

If you have more than two Harpagon systems, you will need to use a Hub at the storage room as well.
Only one network cable can link all Harpagon to the office
One hub should be installed at the location where the Harpagon systems are installed to link them all together and come out of the hub with only one cable. The outlet of the hub is then connected to a Cat 5 cable going to the office.

TROUBLE SHOOTING

Flowmeter not registering as being connected (16 pulse mode)

- Check connections on turbine collector (loose)
- Check connection at the flow meter
- Check wiring (broken cable)
- Switch the flow meter with one registering properly to check wiring.
- Bring a working turbine directly to the turbine collector and blow to check if the pulses register.

Flowmeter not registering impulses.

- Check flow direction.
- Has the beer line been cleaned in a long time?
- Dismantle turbine and rinse in hot water until it spins freely.
- Is the flow rate approximately 2 oz/second?
- Select a 50-018 flow meter if the flow rate is slower.

Harpagon not responding

- Disconnect power, wait 5 seconds and plug it back in.
- Check PWF counter for excessive number of power failures.
- Call authorized factory technician.

Number of unit registered seems to be off.

- Check calibration by serving product into a graduated cylinder.
- Verify dispenser for excessive foaming problem and increased wastage.
- Check glass size by pouring content into a graduated cylinder.
- Has the brand dispensed on this line been changed without re-calibration?

Harpagon does not communicate with computer.

- Check Com port selection (Rs232 or Rs422) on Harpagon circuit.
- Check Com port selection on computer.
- Do you have the corresponding system number in the software?
- Are you connected to a 9 or 25-pin male connector on the computer side? (If no, it is not a Com port)
- For Rs422, is the Rs-232 to Rs422 converter ON?
- Are you using an Auper cable? If no, is it Null modem?

- Check switch osition on back panel for the Com port selection (Rs232 or Rs422)

TTL outputs

The output connector of your Harpagon system can be used to drive other electronic devices. Each of the normally high (5 volts) 16 outputs will generate a pulse going to ground for each unit measured. If the Harpagon is calibrated to measure 250 ml, a pulse is generated each time the unit number changes. The outputs can be used to drive a portion control device used to fill containers for example.

Pin out of the output connector

Pins 1 to 16 = Outputs 1 to 16
Pin 24 = Harpagon Vcc 5 volts
Pin 25 = Harpagon ground

Trouble shooting foamy draft beer

Draught beer is a sensitive product that requires a certain number of parameters to be just right Temperature, pressure, propellant and good beer system design. The Auper flow meter (turbine) is guaranteed not to make beer foam. However, the installation of flow meters into your beer lines will not solve the foaming problems. It would only tell you how much is wasted.

Does the serving temperature correspond to the brewer's norms?

North America: 38F (3.3C) & 42 F (5.5C)

Pour a glass and insert a thermometer immediately in the freshly poured beer. If the temperature in the glass is outside these norms, it is quite possible that your refrigeration system is defective or needs adjustment. Too high a temperature will increase the risk of excessive foaming. If the beer is too cold, the beer is not foamy enough and bartenders usually serve more in each glass. In either case, you should be concerned that the pour cost will probably be too high.

Is the flow rate between 2.5 and 3.5 l/min (Approx 2 oz/sec)?

If the flow rate is too slow, it is probably due to a lack of pressure in the system. The C02 gas can separate from the beer while in the line causing the beer to foam at the tap. The color of the beer will change a few seconds after the tap is opened, passing from a clear and golden color to white.

Is the beer flat or over carbonated?

Any beer system with a distance between the kegs and the faucet greater than 10 feet (3 meters) should be pressurized using a mixture of air or nitrogen (70 %) and CO2 (30 %).

Straight CO2 can be used for direct draw systems and very short runs (less than 10 feet or 3 M). Clean straight air can be used if the sales volume per day is very high. Otherwise, it either contaminates the beer (think of where the air is pumped from) or it will make the beer flat. The wrong choice of propellant will make the beer foam, make it flat or change the taste. In either case you will be wasting product thus increasing your pour cost. Get a qualified technician to look at the problem!

Non-refrigerated kegs (Europe)

Temperature is one of the elements that will affect draft beer along with pressure, the type of gas, the line design and the product itself. When kegs are stored in a non-refrigerated room (pasteurized beer only), an increase in the store room temperature will have an effect on the way the product pours at the faucet. The higher the storage temperature is, the more gas pressure will be required to dispense the beer properly.

Draft beer control

The draft beer system

Your draft beer dispenser is designed to pour approximately 2 oz/second (60ml/sec). It takes approximately 5 seconds to pour 10 oz (300ml) in a 12 oz glass. A gas regulator installed near your beer kegs controls the flow of beer. The pressure is set by the installer and remains fixed. A draft beer keg weights about 140 lbs (63 kg) when full and as beer is dispensed the keg gets lighter until completely empty. **That means that the flow of beer will increase as you empty your kegs (simple physics).**

It is specifically because of this normal flow increase that flow meters have to be used to measure the amount of draft beer dispensed accurately. Any device used for draft beer control, that is not capable of measuring and reporting the amount of beer dispensed, is probably inaccurate to the point of being almost useless.

When you think about draft beer control, you should be concerned with two things:

Sales and cost control

Both are as important as the other in term of profit loss. This is clearly demonstrated when using the pour cost percentage calculator.

Controlling sales

In order for a beer monitoring system, a beer dispenser or a cash register to report if the beer was sold as a glass or a pitcher, there must be an **action** taken by the bartender to tell the machine.

The type of action is one of two things:

- Pressing a button.
- Dispensing the amount.

When the faucet is closed, the computer looks at the quantity poured and the corresponding counter is activated. The quantity poured can be evaluated by either a timer or by a flow meter.

Let's not forget who is pressing the buttons!

If a glass of beer sells for $ 2.00, and a pitcher sells for $ 8.00 (there is about 5 glasses in a pitcher), it is easy for anyone to press the pitcher button, and sell the beer in 5 glasses. There is an additional $ 2.00 going in the tip jar. Even if you had a portion control device, the bartender can easily press the pitcher button and pour the beer in 5 glasses.

The machines report how many times each button was pressed.

If you give a discount to your customers, be aware the some dishonest employees could be using it to their advantage. The presence of a trusted manager and a good price structure, reducing as much as possible these incentives, can do a lot more than electronics can. By measuring the draft beer dispensed you will force your bartenders to match the ounces (liters) served with the number of glasses sold making very hard for them to cheat the system. Can you imagine a bartender remitting a usage report that exceeds the sales report by 200 oz without looking a little guilty? Only the honest bartenders will be able to keep on working in your bar. The other ones will have to leave. You get the piece of mind and the profits they were costing you.

Inventory control

When you want to know how many bottles of beer were sold on a shift, you look at your cash register report and count the bottles left in the cooler to make sure they were all sold. Cash register errors are also detected using the inventory. In other words, **you control sales and cost by checking your inventory**.

For draft beer (using our flow meter system) it is the same with a few variations. **Inventory is calculated using flow meters**. You count ounces or liters instead of bottles. With bottles you don't worry about the amount served to the customers. With draft beer you have to worry about over pouring and spillage since they can increase your pour cost dramatically. In order to control your draft beer sales and inventory accurately, you must first measure the amount of beer served in each glass, mug or pitcher sold in your bar.

You can do that using the flow meter system by resetting the meters, pouring 10 glasses and averaging the amount dispensed per glass. The more glasses used for this sampling the more accurate your estimate will be.

With this method, you can count how many glasses each keg should yield. If you already own a metering or dispensing system, you can verify its accuracy by comparing the number of glasses registered with the estimated yield per keg.

Reconciling sales using flow meters

The meters can be read three ways:

- Manually by the manager or by the bartender who goes to the system to write down the counts at the beginning and at the end of each shift. There is always the option of resetting the counters at the start of a shift.

- A usage report can be printed on a serial printer. The meter readings are saved and printed manually or automatically up to three times a day.

- The metering system is interfaced to a computer. The meter readings are initiated by the computer and stored on disk. Reports can be printed at any time for any period.

To reconcile your sales with your meters, you multiply the amount of each of the different sizes sold by the amount of beer each size contains (which you have previously measured).

For bars with a larger number of brands, the reconciliation can be done more rapidly using a spreadsheet or using the **Draft Manager 2004 software with the POS interface.** Because you get a report telling you how much beer was served out of any given bar at any time, any problem you may have will show up at the end of the shift. You can deal with it immediately, reducing your pour cost and maximizing your profits at the same time.

Tips

- You may want to check is your glass sizes. Check all your glasses and be aware that some glasses look the same but don't contain the same amount of ounces (pay special attention to pitchers).

- Are you wasting a lot of beer to foam? If so, with the flow meters you will know how much it is costing you. If you want the problem fixed contact someone with the expertise to fix it. People with foam problems often think that it is normal. A good beer system will work well all the time. A bad beer system will cost you a lot of money.

- If you blow your beer lines at the end of a keg and lose a couple of pitchers in the process of tapping a new keg, you can solve the problem with empty beer keg detectors. These devices will shut off the beer flow and prevent gas from entering the empty line causing all the foaming when tapping a fresh keg.

- If you want to know how much beer goes down the drain, make sure the drainer empties into a graduated container instead of the sewer. You can deduct the amount wasted from the flow meter report for an absolute value of beer dispensed that should have been sold.

WARRANTY

Auper Electronic Controls Inc warrants that this product is in good working condition, according to its specifications at the time of the shipment, for a period of one (1) year from the date of purchase. Should the product, in Auper Electronic Controls opinion, malfunction within the warranty period, Auper Electronic Controls Inc will repair or replace the product without charge. Any replaced part becomes the property of Auper Electronic Controls Inc. This warranty does not apply to the software component of a product or a product which has been damaged due to an accident, misuse, abuse, improper installation, usage not in accordance with product specifications and instructions, natural or personal disaster or unauthorized alterations, repairs or modifications.

LIMITATIONS

All warranty for this product, expressed or implied, are limited to one year from the date of purchase and no warranty, expressed or implied, will apply after that period.

No warranties for this product expressed or implied will apply to any person who purchases the product in used condition.

The liability of Auper Electronic Controls Inc with respect to any defective product will be limited to the repair or replacement of such product.

In no event shall Auper Electronic Controls Inc be responsible or liable for any damages arising

(a) from the use of the product;

(b) from the loss of use, revenue or profit of the product; or

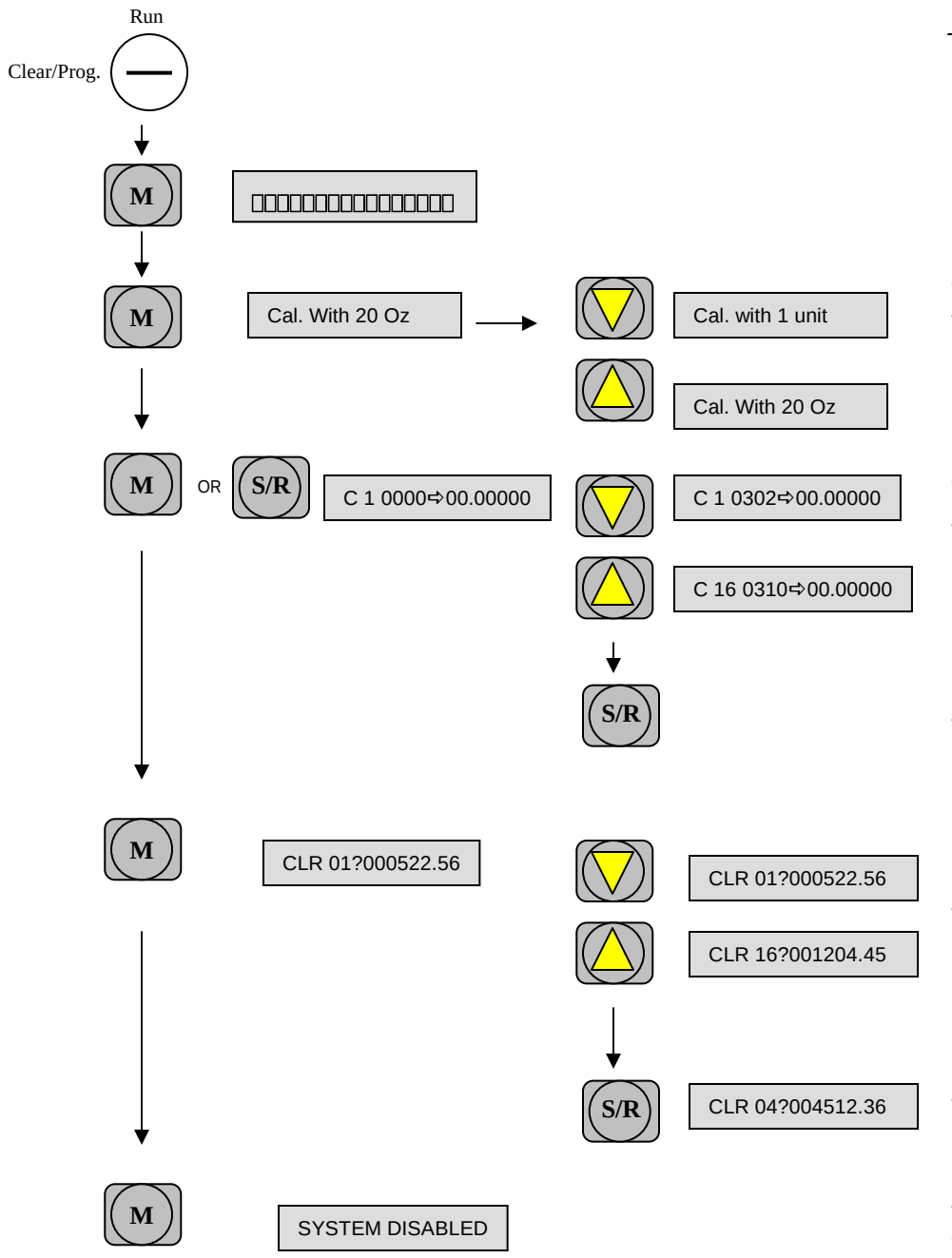
(c) as a result of any event, circumstances, action or abuse beyond the control of Auper Electronic Controls Inc ; whether such damage be direct, indirect, consequential, special or otherwise and whether such damages are incurred by the person to whom this warranty extends or a third party.

HARPAGON Version 3E

PROGRAMMING AND OPERATION MODES

FLOW CHART FC50656

PROGRAM MODE



Description

Impulse mode

Display the connected lines.

Calibration mode

To select the unit of measure.

Calibration mode

To view lines value while calibrating.

To accept calibration value of all lines.

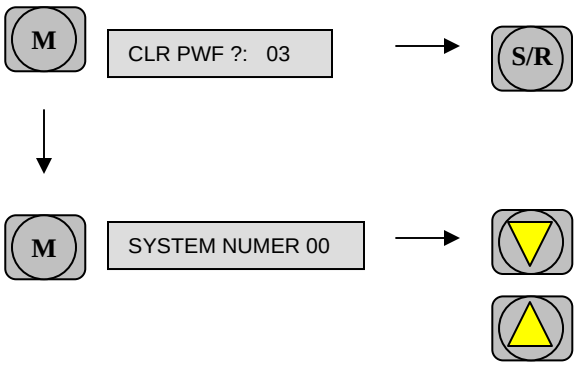
Reset counters

To select the line to be reset.

To reset selected line.

To momentarily stop counting (lines cleaning).

PROGRAM MODE

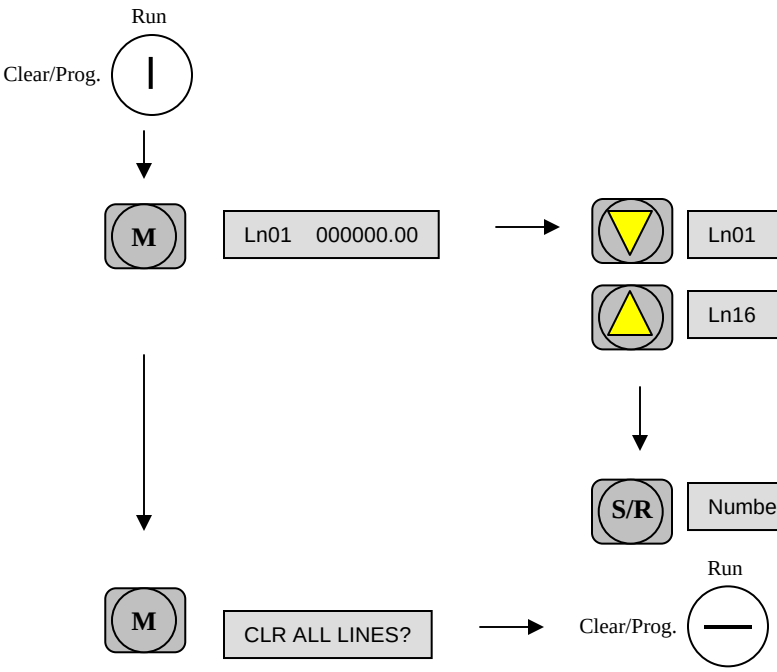


Description

To reset power failure counter.

To assign the system number.

RUN MODE



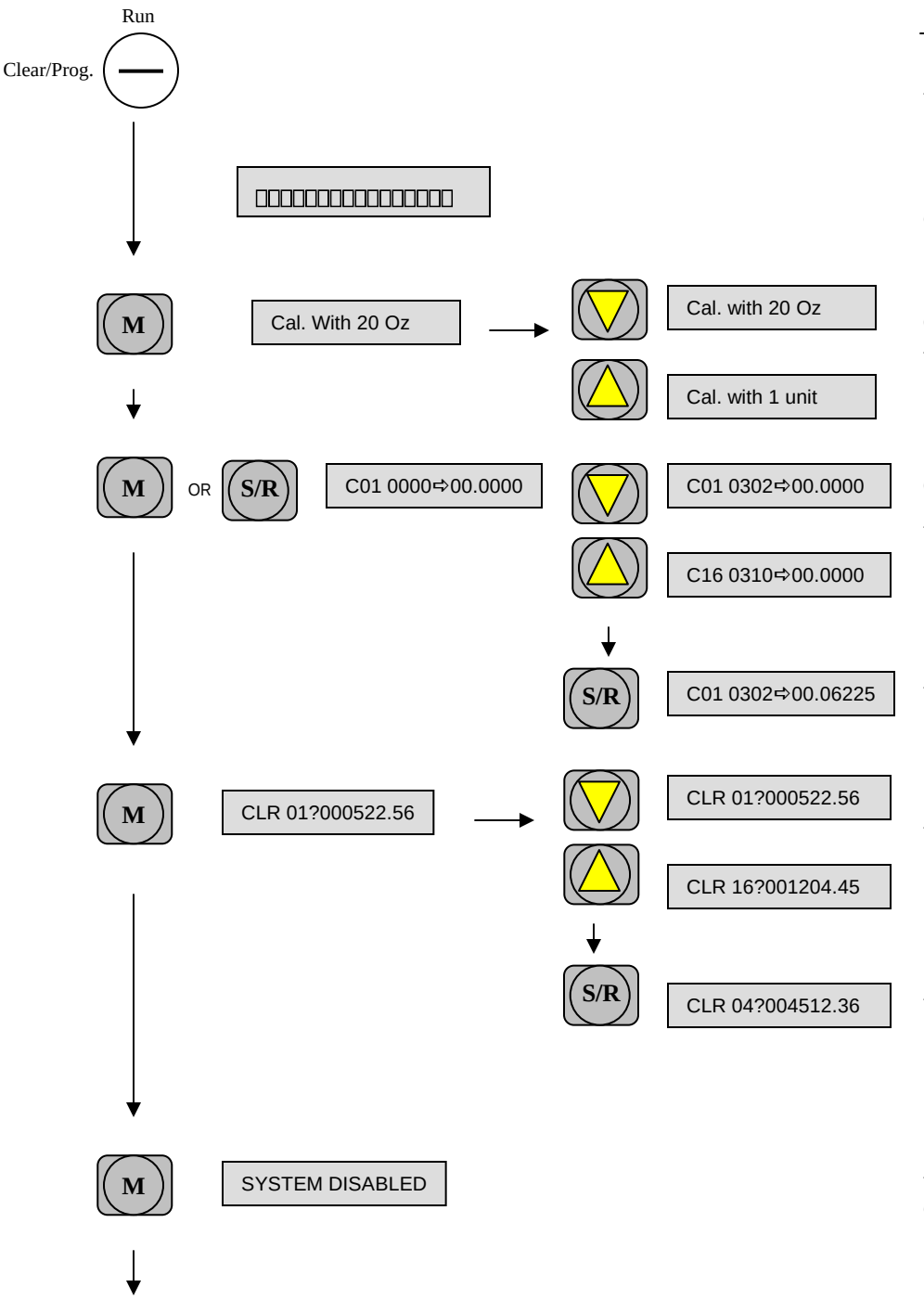
Counters display

To scroll down the lines.

To read number of power failure.

Turn key to Clear/Prog. to reset all the counter lines.

PROGRAM MODE



Description

Turn key to **Clear/Prog.** mode.

Impulse mode – shows the connected lines.

Calibration mode.

To select the unit of measure.

Calibration mode.

To view lines values while calibrating.

To accept calibration value of all lines.

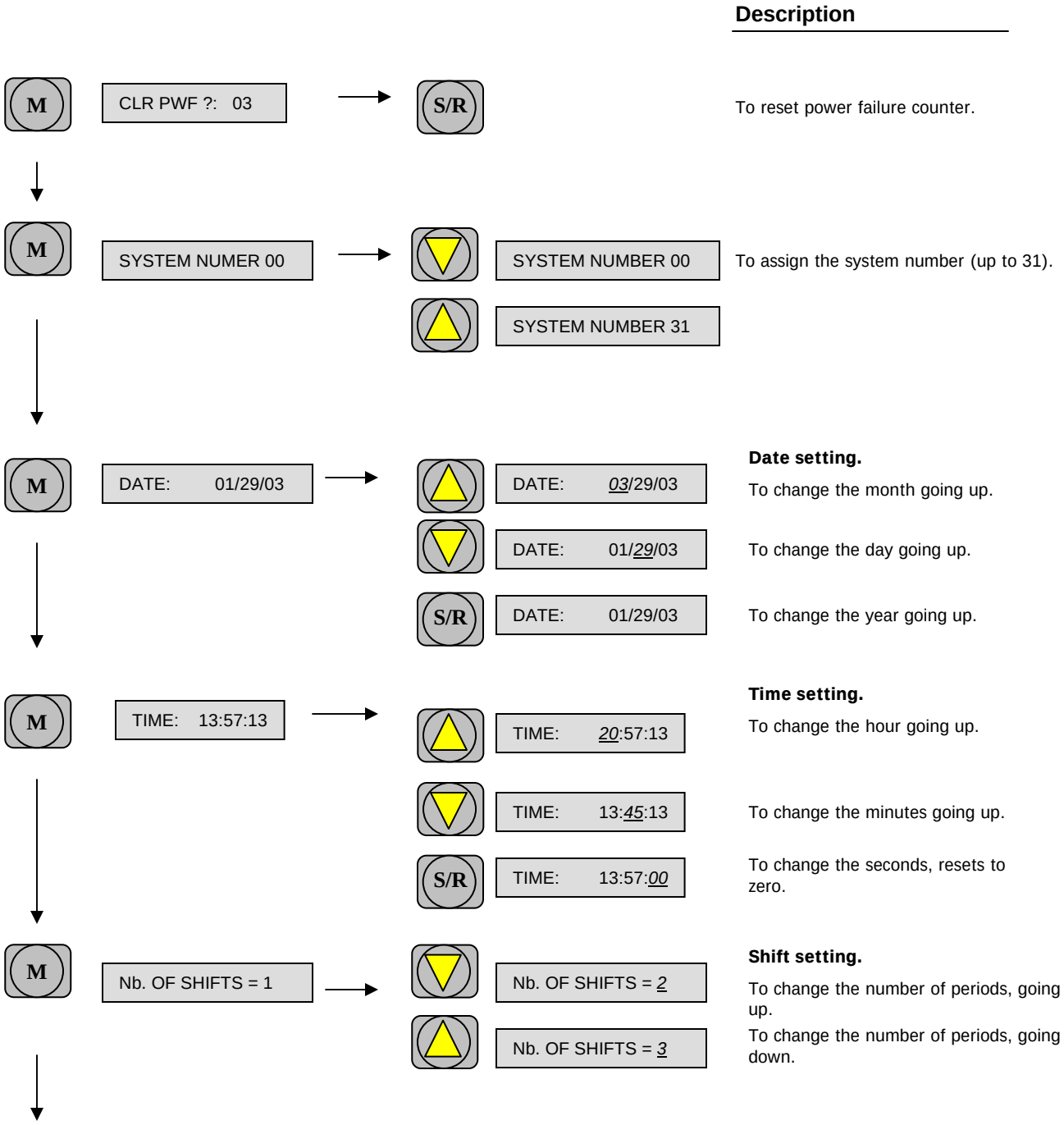
Reset counters.

To select line to be reset.

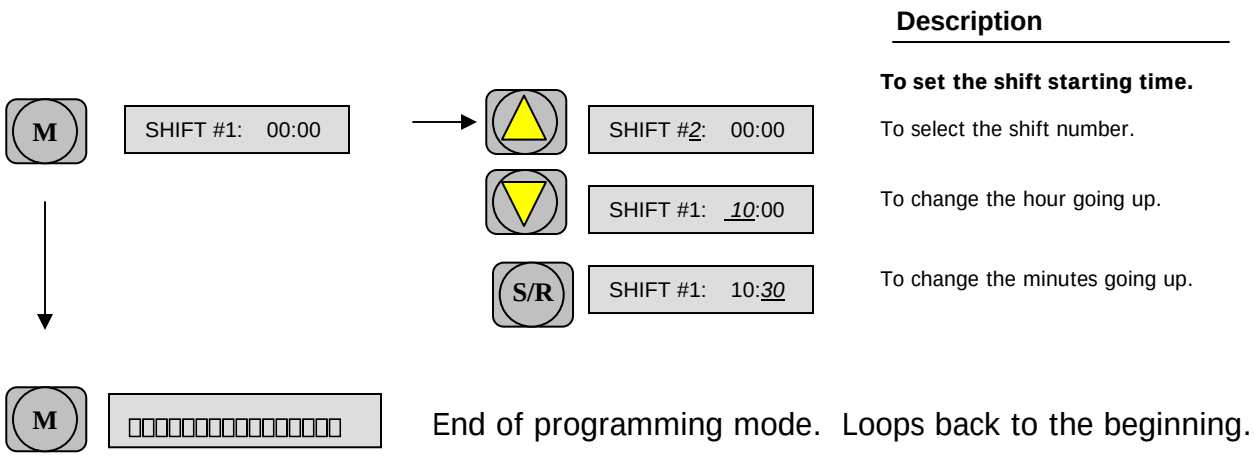
To reset selected line.

To momentarily stop counting (lines cleaning).

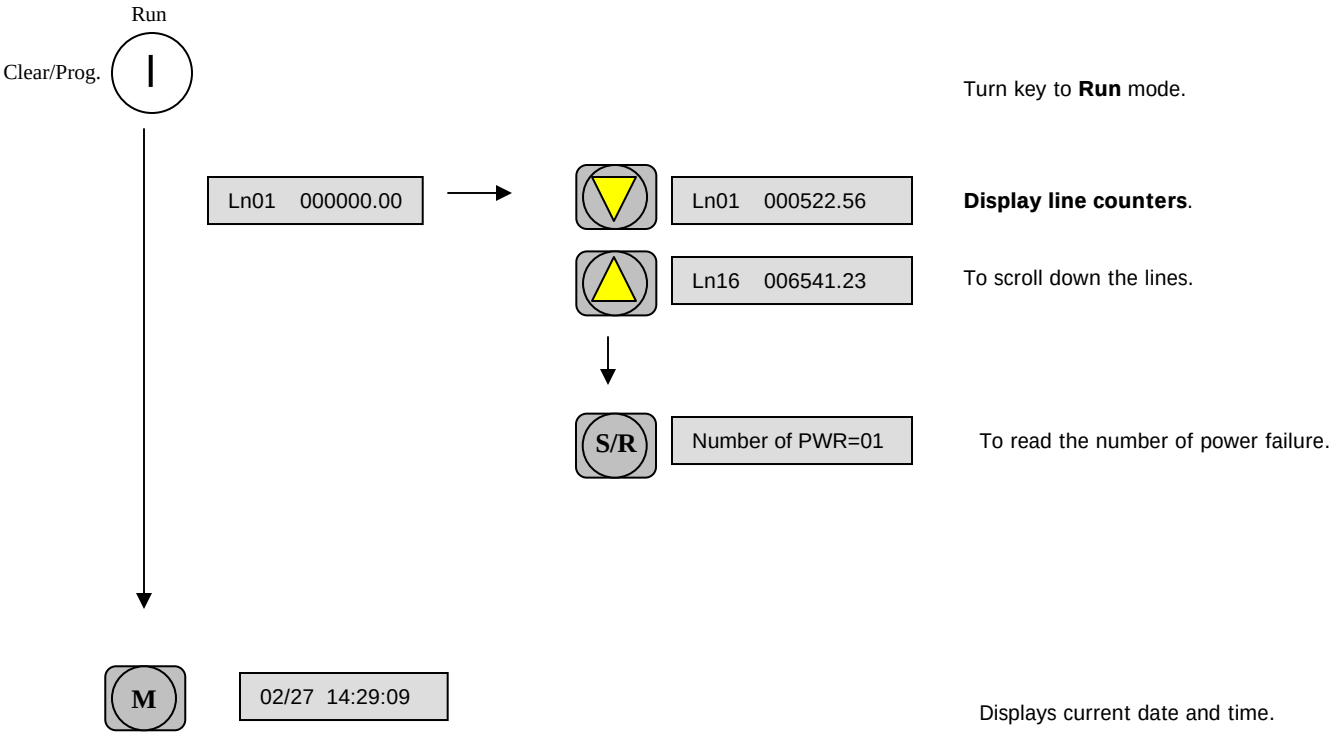
PROGRAM MODE



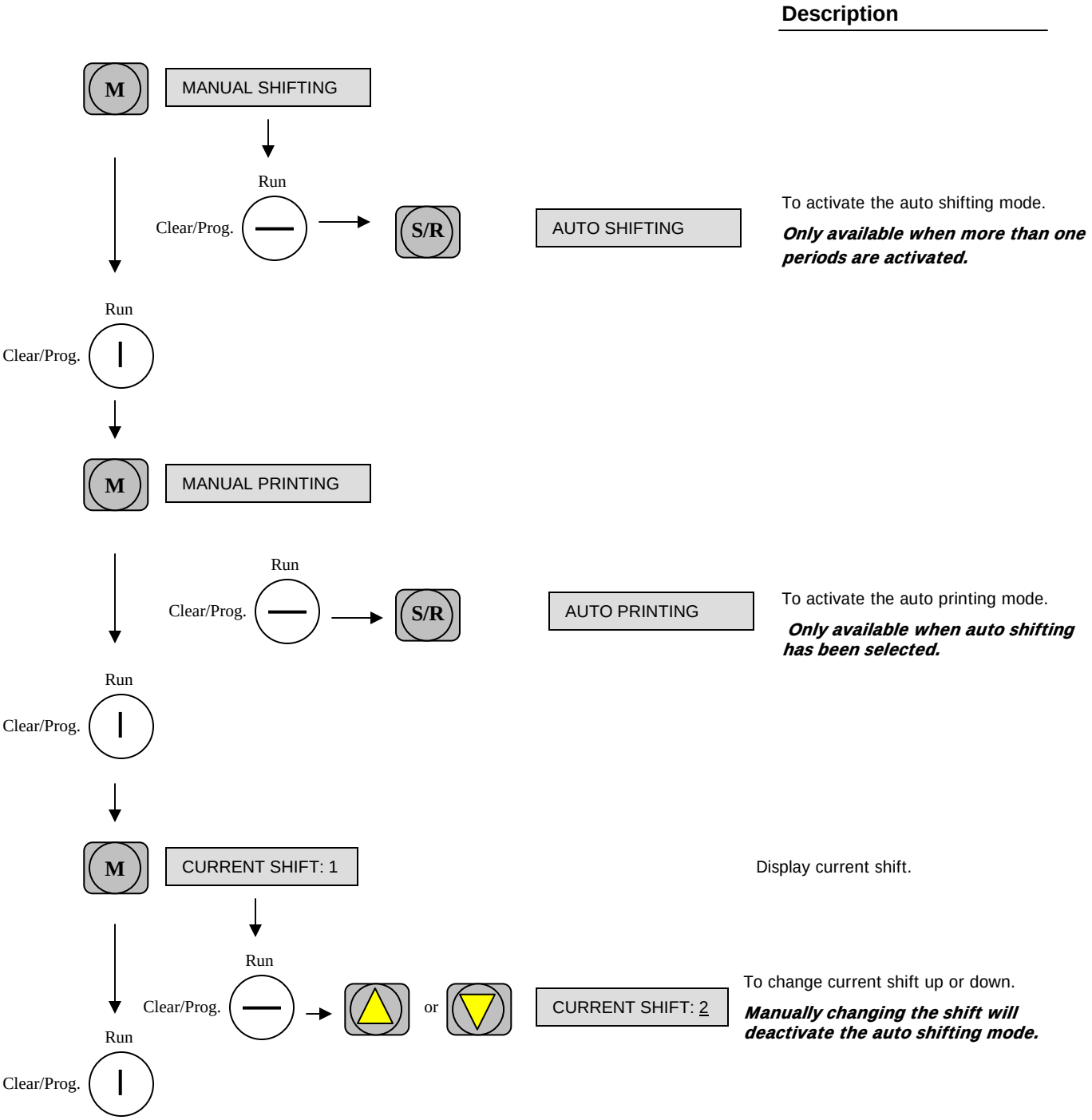
PROGRAM MODE



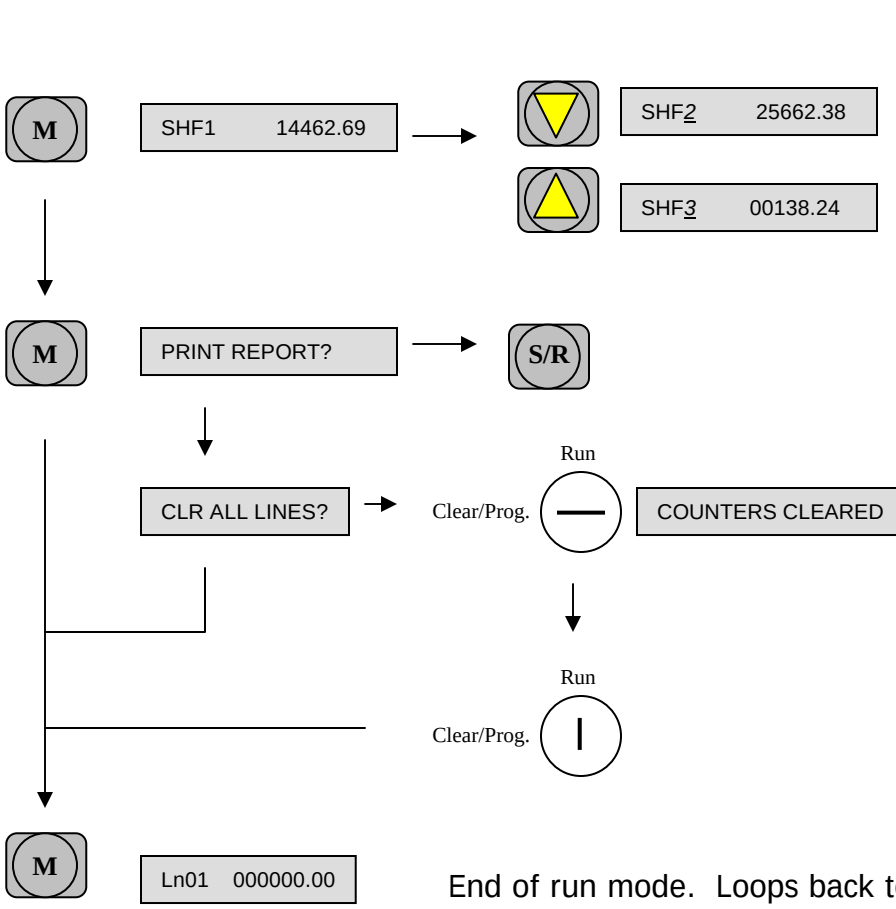
RUN MODE



RUN MODE


Description
M
MANUAL SHIFTING
Run
Clear/Prog.
S/R
AUTO SHIFTING
To activate the auto shifting mode.
Only available when more than one periods are activated.
Run
Clear/Prog.
M
MANUAL PRINTING
Run
Clear/Prog.
S/R
AUTO PRINTING
To activate the auto printing mode.
Only available when auto shifting has been selected.
Run
Clear/Prog.
M
CURRENT SHIFT: 1
Display current shift.
Run
Clear/Prog.
or
CURRENT SHIFT: 2
To change current shift up or down.
Manually changing the shift will deactivate the auto shifting mode.
Run
Clear/Prog.

RUN MODE



End of run mode. Loops back to the beginning.

Auper Electronic Controls Inc.
901 Michelin Street
Laval – Quebec - Canada - H7L 5B6
Phone 450.663.1993 – Fax 450.663.0636
1.800.861.1620
www.bar-controls.com