TRICO POLY SYSTEMS LLC

60 BROWN AVE. SPRINGFIELD, NJ 07081 (973) 376-7770

TANK

OPERATION MANUAL

Rev K
July 2024

SAFETY

WARNING – HAZARD OF ELECTRIC SHOCK

Any installation involving electric heaters, mechanical equipment, motors, etc. must be effectively grounded in accordance with the national electrical code to eliminate shock hazard.

All electrical wiring to electrical equipment must be installed in accordance with the National Electrical Code, or local electrical codes by a qualified person. For maximum equipment protection, the **National Electrical Code** recommends ground fault protection be provided for the branch circuit supplying electrical equipment.

NOTE: It is required that the end user must provide and wire a fused disconnect in close proximity to each piece of electrical equipment provided by TPS (TRICO POLY SYSTEMS, LLC).

WARNING – MECHANICAL, AND OR CHEMICAL HAZARD

Equipment involving heaters, motors, gears, pumps, hoses, powered by air and, or fluids, in or on equipment, provided by TRICO POLY SYSTEMS, LLC must be operated or serviced by authorized personal only. Proper personal safety equipment, energy lock-outs, and proper tools must be used at all times. Proper handling, ventilation, and or, breathing apparatus may be required to operate, the TRICO POLY SYSTEMS' equipment if toxic chemicals are used in the manufacture of products from this equipment.

MATERIAL SAFETY DATA SHEETS ARE TO BE MONITORED AT ALL TIMES

NOTE: For tanks with a liquid level probe, calibration should be done prior to operation.

WARNING – BURN RISK / PRESSURE BUILD-UP

If the Tank is used with MOCA and being shipped as a standalone unit with a discharge line and a discharge ball valve, there are several very important steps for shutting down. A pressure build-up and burn risk at the discharge ball valve is present if the following steps are not taken. The scenario assumes the end of production for the day with the tank pressurized and at processing temperature:

1. Close both the base and discharge ball valves.
2. Relieve N2 pressure from the tank.
3. Once pressure is relieved, open only the discharge ball valve with a container underneath. (use caution as some residual material may be present, and under pressure)
4. Turn off main power.
5. Be sure to leave the discharge ball valve **open** and base valve (at bottom of tank) closed for the cool down and next start-up/melt-out.

Note: If the discharge line is left full of MOCA and under pressure and allowed to cool; upon re-melting, extreme pressures of 500 PSI or greater can occur causing line failure and or personal injury.

Caution: MOCA violently decomposes when exposed to excessive temperatures. In no case should MOCA ever be allowed to heat above 140°C.

This manual covers a range of standard tank sizes from TPS (10, 30 and 85 gallon). Some may contain agitation and liquid level probes. Some may be for MOCA use.

INSTALLATION

TPS Batch Tanks are delivered in a wooden crate. The tank is bolted to the base of the skid. Unbolt the tank and move into production position. **IT IS HIGHLY RECOMMENDED THAT ALL TANKS BE LEVELED AND SECURELY BOLTED TO THE FLOOR.** For air motor agitation, connect an appropriate air supply to the inlet valve. 100 psi MINIMUM is recommended and 125 psi maximum. Be sure the air motor lubricator is full with a light hydraulic oil or equivalent 10W. For both electric and air motors, ensure the agitator housing is full as well by filling the cup on the side of the housing.

NOTE: DO NOT OPERATE AGITATORS AT HIGH SPEED IF A TANK IS EMPTY, OR IF THERE IS THE POSSIBILITY SOLID MATERIAL IS IN THE TANK.

POWER

Electrical power for the control box is brought in through the empty cord grip on the upper right side of the enclosure. Please refer to the TPS nameplate on each respective tank for voltage and amperage requirements.

Once the power wiring is installed, set the circuit breakers to the on position and set the over-temp limit controller (see next section). Close the control box door.

OVER-TEMP LIMIT CONTROLLER

The over temperature limit controller uses a separate RTD to monitor the tank's temperature. The limit controller is located inside the control box and has a dial for setting the limit temperature. If the controller senses over-temp, its output triggers and disables a contactor that provides power to the solid-state relay and thus the tank's heater. Should this occur, an investigation should take place to understand why the over-temp limit occurred. The limit controller requires a reset to allow normal function. There is a small reset button on the lower right of the controller, use a small screwdriver to reset (push in) the button. The button does not protrude through the front, this is normal.

OPERATION – TEMPERATURE

Set the main power switch to on. Enter the material processing temperature on the digital temperature controller. The factory setting for temperature is degrees Centigrade (°C). Press and hold the star button to display the current set point, then while holding the star button, raise or lower the set point with the arrow buttons. The temperature unit can be changed to °F, see page 14-15.

Once the temperature controller calls for heat, an LED will flash on the upper left of the controller's display. Once material achieves set point, the LED will turn off (indicating power to the heater is off). As heat is applied to maintain setpoint, the LED will come on periodically. Note that when the material level is very low, the temperature will likely overshoot and trigger an alarm.

Some tanks are equipped with two heating zones and thus have two temperature controllers. The upper zone is the "wall" (heater is located just under the supports for the C clamps to approximately half-way down the tank). The lower zone is the "reservoir" (heater located half-way down the tank to the bottom where the discharge valve is located). Note: if tank is only ¼ full, the wall temperature controller should be turned off.

For tanks equipped with agitation, adjust speed by adjusting air pressure (air motor) or the speed control (electric motor). **DO NOT ATTEMPT TO RUN THE AGITATOR IF THERE IS A POSSIBILITY THAT FROZEN MATERIAL IS INSIDE THE TANK.**

ALARMS

The temperature controller will display an alarm condition when temperature is under/over by 8°C (14°F). This window can be changed in the controller settings. When this alarm occurs, an audible alarm will also turn on. To reset the alarm, use the controller's power button located directly under the controller. There is a one-time bypass function built into the digital controller. Once reset, the digital controller will either call for heat or allow the tank to cool depending on the alarm condition.

Should the material temperature exceed the setpoint on the over-temp limit controller, the controller will lock out power to the heater. To reset, the operator must depress the reset button located on the controller (see page 3).

Tanks equipped with a liquid level probe will have either a Red Lion or CAL controller. Should the liquid level fall below the low setpoint; the alarm will sound. Press the "RST" button on the Red Lion or the reset button near the CAL controller, to silence the alarm.

SHUT DOWN (for standalone tanks with discharge hose and ball valve at end of hose)

1. Close all ball valves.
2. Relieve pressure from the tank.
3. Once pressure is relieved, open only the discharge ball valve (at end of hose). Use caution as some residual MOCA may be present, and under pressure.
4. Turn off main power.
5. Be sure to leave the discharge ball valve open for the cool down and next start-up/melt-out.

3-WAY VALVE

Pressure, vacuum and vent are connected to the 3/8" NPT ports as required.

FILLING

Material may be poured in through the 3/4" Ball Valve (ball valve is 1/2" on 10 gallon tanks) mounted on the lid with the 3-Way Valve in the vent position. The cam-lock fitting may also be used.

Vacuum can be applied to the tank and material can be pulled in through the 3/4" Ball Valve. Care should be taken not to over fill and to allow for foam.

MOCA TANK USE (Non-Agitated): In the center of the tank in place of an agitator, there will be either a large ball valve (automatic fill) or a "fill/vent valve" assembly (manual fill). In either case, the tank must be depressurized. Refer to each section for filling.

LIQUID LEVEL PROBE – Optional

Tanks with liquid level indication contain a Teflon coated stainless steel capacitance probe. It is threaded through the tank's lid with a ¾" NPT fitting. This probe's electronics deliver a 4-20 mA signal to the liquid level display controller. Depending on the application, there are two different controllers used with the LL probes (Red Lion, CAL).

Depending on the level of material inside the tank, the probe will signal the meter to display a level in percent (0-100%).

The Red Lion display controller may have up to two setpoints. This is typically low and flood. The CAL controller will have just one setpoint (low level).

Calibration – level probe

For testing, the probe is calibrated at TPS' facility with Benzoflex. The probe should be re-calibrated using the actual material. Calibration must be performed at the processing temperature.

1. To establish empty, transfer a bit of material into the tank until the tip of the probe is touching the material.
2. Locate the liquid level probe's housing and remove the cover.
3. Looking into the housing, locate the span "S" and zero "Z" buttons. There are UP and DOWN buttons for span and zero.
4. To establish the zero (empty) level, first observe the liquid level meter. If the number displayed is below zero, press and hold the Z UP button to get to zero. If the number is above zero, press and hold the Z DN button to go down to zero. In either case, pressing the button a longer time will increase the rate at which the reading changes. Once zero is displayed, the probe is calibrated for the zero level.
5. Fill the tank to the desired "full" level. Turn on the heater to reach processing temperature. Once at temperature, proceed to the next step.
6. To establish the full level, press and hold the span UP or DN buttons until the meter displays a level of 100. Once this occurs, the flood alarm (if enabled) will turn on.
7. This completes the calibration procedure. Too remove the flood condition, either empty the tank normally or temporarily switch off the setpoint. See section on turning off/on setpoints.

Special precautions for Continuous Level Systems

1. When removing the probe for cleaning, do so very carefully. Only use solvent and soft tools to clean any buildup off the probe.
2. When re-installing the probe, do not over tighten. Seal with Teflon tape.
3. *The probe must be calibrated at operating temperature.*
4. Do not turn on the agitator until all solid material inside the degasser has melted. ***Any solids inside could damage the probe.***

LOADING PELLET MATERIAL

For tanks used with pellets which will be heated into liquid form such as MOCA, loading is done manually or via a vacuum transfer system (described in the next section). Manual loading is by gravity through the 3 inch opening on the top of the tank. Loading requires the removal of the Venting Valve Assembly. This assembly has two lock levers on either side that should be securely fastened prior to pressurization. If the optional vacuum transfer (pellet transfer) system is installed, the venting valve assembly is not removed.

VENTING VALVE ASSEMBLY (MOCA TANKS)

Once the desired amount of MOCA has been loaded, insert the Venting Valve assembly and pressurize the tank. Typical operational pressure is between 30-40 PSI (5 PSI for standalone tanks). The venting valve assembly is installed on the tank's lid. It contains a pressure relief valve and a filter.

NOTE: Tanks using MOCA should only be pressurized with Nitrogen or dry air. Any degree of moisture present in the tank will have a darkening effect on the molten MOCA.

Pressurizing

Figure 1 on the next page shows the assembly of the venting valve. Locate the fitting marked "12" on the drawing. Tanks with this assembly are pressurized via this fitting.

Venting

The tank can be vented via the fitting marked "19". To vent, locate the valve marked "14" and press its button.

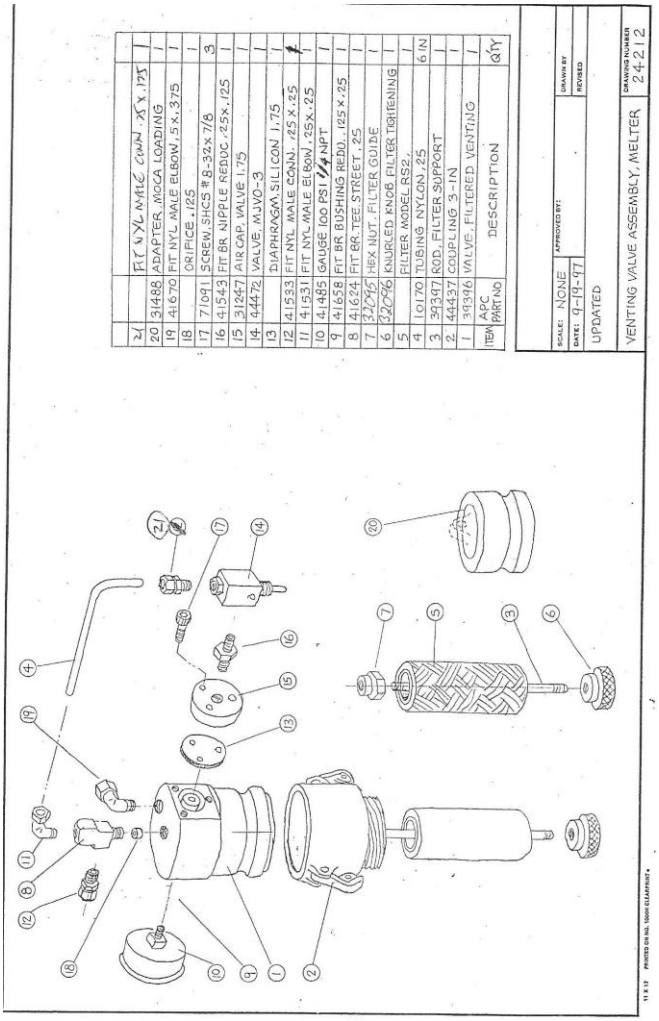
Safety

Aside from the standard pressure relief valve installed on the tank's lid, there is a relief valve assembly composed of the following items (refer to drawing): 4, 8, 11, 13-18, and 21.
In normal operation, both sides of the diaphragm (13) have the same pressure (from the pressure source). In the event that the tank builds up pressure that exceeds the source's pressure, the pressure in the tank will cause the diaphragm to flex. This creates a path for the excess pressure to be relieved (via the exhaust fitting – 19).

Caution: MOCA violently decomposes when exposed to excessive temperatures. In no case should MOCA ever be allowed to heat above 285°F (140°C). Typical processing temperature is 255°F (125°C).

Filter: The filter (item 5 on the drawing) is not present when the tank is equipped with a vacuum transfer system. The system has its own filtration.

Figure 1 – Venting Valve Assembly



ELECTRIC AGITATION - Optional

Tanks equipped with electrical agitation are driven from a gearmotor mounted at the top of the agitator assembly. An inverter/motor module is used to control the motor. The control box contains a speed adjustment potentiometer with integral on/off switch. Approximate agitation speeds are:

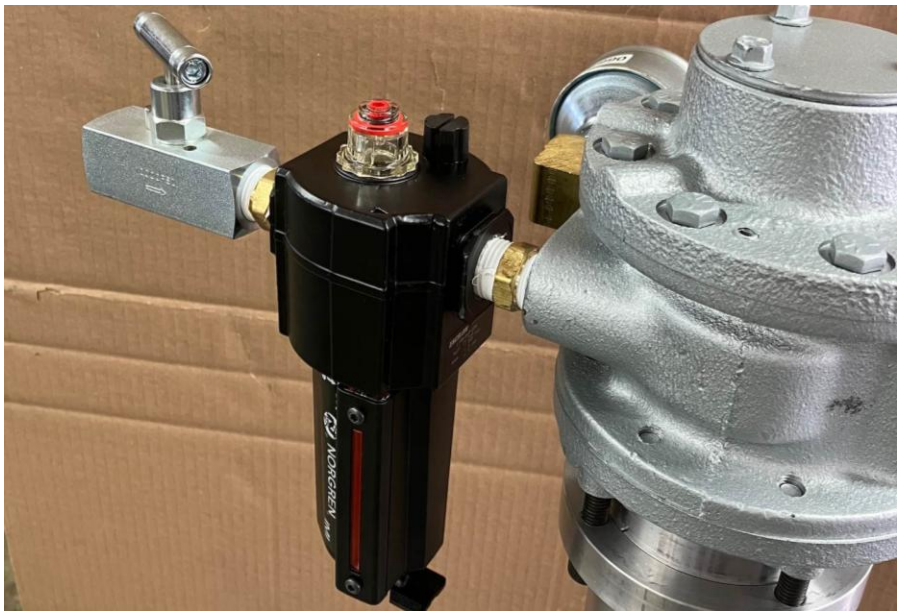
Speed setting (%)	Approximate agitation speed (RPM)
20	2
30	25
40	35
50	90
100	175

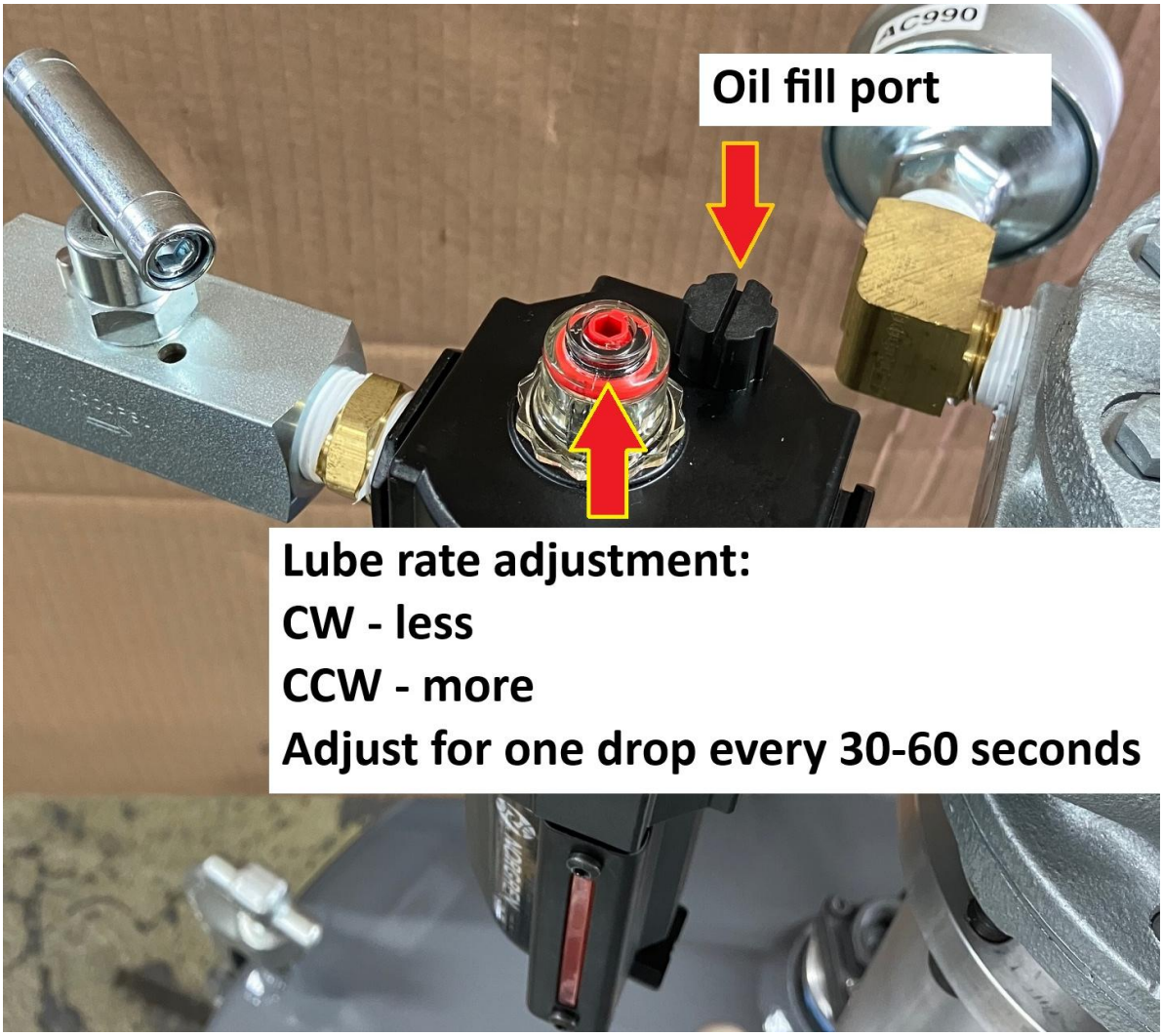
For electrical agitation, the only check that is required is the oil level for the shaft's mechanical seal. See red arrow below. Use any 10 weight oil. Do not fill the cup as the heat may expand the oil and cause a leak out of the cup.

AIR MOTOR AGITATION – Optional

The air motor runs from compressed air. Max air pressure must not exceed 100 PSI. Speed control is adjusted by the needle valve prior to the lubricator. Similar to the electrical agitation option, the shaft seal's oil level should be checked as described above.

For long life, the air motor should be lubricated. Maintain a satisfactory level of oil in the lubricator (as shown in below). Use any 10W oil. The rate of lubrication should be adjusted to approximately one drop every 30-60 seconds. Turn the adjustment and view the oil feed through the plastic window. See pictures on the next page. Note: a faster oil rate will not harm the motor but will cause excess oil mist to exit the muffler.




Oil fill port
Lube rate adjustment:
CW - less
CCW - more
Adjust for one drop every 30-60 seconds

VACUUM TRANSFER SYSTEM – Optional

The vacuum transfer system is a safe and convenient piece of equipment to transfer MOCA pellets into the tank. A vacuum is created to transfer the pellets from the MOCA container into the tank. Internal filters eliminate MOCA dust from exhausting into the work area. A large ball valve isolates the system from the tank. The system has its own control box. Note: A separate 120 VAC 1 PH 60 Hz 15 Amp supply is required to power the unit.

WARNING: The vacuum transfer system causes the Tank to become extremely top heavy. Care should be taken to be sure it is securely bolted to the floor.

Loading Pellets

1. Close the tank's discharge valve.
2. Relieve all pressure from the tank. Pull open the brass 75psi relief valve located on the top of the tank to ensure no pressure is left and double check the pressure gauge is at zero.
3. If tank is powered on, the heat may be allowed to be maintained.
4. Check the pellet level by removing the Vent/Pressure valve assembly held in place by the two cam lock levers.
5. Open the 3" ball valve located under the funnel.
6. On the transfer system's control box, (see picture below) the "FILL TIME" control knob adjusts the suction time. Min setting is approximately 4 seconds, max is 35 seconds. Set it to about half to three quarters on the dial and set the power switch to on.

7. The vacuum system will power on and begin pulling pellets from the supply container into the vacuum system's lower section (just above the funnel). A gate in this section creates a chamber where the pellets are temporarily held.
8. After the time expires, the system turns off and via gravity the pellets push open the gate and fall into the funnel, through the ball valve and into the tank. Once the chamber area is empty, the gate returns to the closed position. A proximity switch signals the chamber is ready and the system turns back on and repeats. This process will continue until the desired amount of pellets have been transferred. This can be verified by looking in the vent/pressure valve port. The transfer rate is approximately 25-30 lbs./min.
9. DO NOT OVERFILL. THE TANK'S SIDEWALL HEATER ENDS APPROXIMATELY AT THE JACKET. OVERFILLING WILL CAUSE MOCA TO SOLIDIFY INTO A LARGE ROUNDED MASS AND THEN IT WILL NOT REMELT.
10. BE SURE NOT TO SUCK IN THE BAG LINER OF THE SUPPLY DRUM IF APPLICABLE.
11. Should the transfer rate slow over time, see below for filter removal.

Re-pressurization

1. Close the 3" fill valve and reinstall the vent/pressure assembly.
2. If the tank is not up to operating temperature, do so prior to pressurization.
3. Verify all controllers are powered on.
4. Apply appropriate pressure to the tank.
5. Once a stable pressure is established reopen the tank's discharge valve.
6. Molten Moca will now be ready to dispense.

Filter removal/replacement

Eventually, the suction ability of the transfer system will start to decline. This is an indication that the internal air filters are becoming clogged. Replacing the filters is straightforward, follow along: (use caution when disassembling transfer system as there will be MOCA dust in the filter area; use of a respirator is recommended).

1. Loosen and remove the top clamp (see picture), then disconnect motor connector and remove the top section (motor).

2. Remove two bolts securing the filter plate. Remove plate. Filters are attached to a secondary plate. Use caution as this area is filled with MOCA dust.

3. Filters can be cleaned or replaced. Replacement filter part numbers: 45595 (standard filter: 10-20 micron), 45595-1 (high filtration: 0.5 micron). Qty 4 is required.
4. Installation is reversal of assembly.

LIQUID LEVEL SETTINGS - CAL controller (CAL 3300)

(4-20mA input (PID OFF) - Must use 1ohm resistor at inputs)

LEVEL 1		LEVEL 2		LEVEL 3	
Tune	OFF	**SP1.P**	100	**SP1.d**	SSd
bAnd	10	**bAnd**	OFF	**SP2.d**	rLY
int.t	OFF	**PL.1**	100	**Burn**	uP.SC
dEr.t	OFF	**PL.2**	100	**rEU.d**	1r.2r
dAC	1.5	**SP2.A**	dU.lo	**rEU.L**	1n.2n
CYC.t	ON.OFF	**SP2.b**	Lt.ho	**SPAn**	0
oFSt	0	**diSP**	1	**Zero**	0
SP.Lk	OFF	**hi.SC**	100	**ChEK**	Off
SPrr	0	**Lo.SC**	0	**rEAD**	Var
SPrn	OFF	**inPt**	Lin2	**tECh**	CTA
SoAk	--	**Unit**	Set	**Ver**	(factory set)
Set.2	-10			**rESET**	(see below)
Bnd.2	1				
CYC.2	ON.OFF				

LEVEL 4 - DO NOT ALTER: USE DEFAULT SETTINGS ONLY

GENERAL INFO

1) Controller is setup to display 0-100%. This corresponds to the 4-20mA input. Setpoint 1 does not use the PID loop. The "bAnd" setting in level 1 is the hysteresis. Therefore, the SSR output is turned ON when the input goes below "setpoint-bAnd". The SSR output is turned OFF when the input reaches the setpoint.

2) Set.2 represents the upper/lower band for alarm purposes. This input can be adjusted by the operator for individual applications. The default number of -10 will cause the controller to alarm once the level goes below the setpoint by 10 (if the setpoint is 25, the alarm will trigger when the level is below 15 {25-10}).

3) For the rESET setting, "all" should only be used to completely reset the controller in the event that a total reprogram is needed.

4) To silence Alarm and reset, depress white button below controller. Depress once to turn controller OFF and depress again to turn controller ON.

DO NOT adjust any of the internal settings in the controller without guidance from TPS.

LIQUID LEVEL SETTINGS – Red Lion controller

Meter Settings: Meter Model: PAXP P/N: 45094, Quad Relay PCB P/N: 45095

Signal Input Parameters (Program module 1)

rANGE	Input range	0.02A
dECPT	Decimal point	0.0
Round	Display rounding	0.1
FILtr	Filter setting	1.0
bAND	Filter band	10
Pts	Scaling points	2
StYLE	Scaling style	KEY
INP 1	Input value for point 1	4.0
dSP 1	Display value for point 1	0.0
INP 2	Input value for point 2	20.0
dSP 2	Display value for point 2	100

User Input & Front Panel Function Key Parameters (Program module 2)

USr-1	User input 1	no
USr-2	User input 2	no
USr-3	User input 3	no
F1	Function key 1	no
F2	Function key 2	no
rSt	Reset key	r-2 (reset alarm 2)
Sc-F1	Secondary function key 1	no
Sc-F2	Secondary function key 2	no

Setpoint Parameters (Program module 6)

			SPSEL 1 Setpoint Select	**SPSEL 2 Setpoint Select**	**SP3**	**SPSEL 4 Setpoint Select**
Act-n	Setpoint Action		AU-Lo	AU-Lo	OFF	AU-HI
SP-n	Setpoint value		10	10	-	90
Src-n	Setpoint scource	default	rEL	rEL	-	rEL
HYS-n	Hysteresis value		2	2	-	2
tON-n	On time delay	default	0	0	-	0
tOF-n	Off time delay	default	0	0	-	0
Out-n	Output logic	default	nor	nor	-	nor
rSt-n	Reset action	default	Auto	Auto	-	Auto
Stb-n	Standby operation	default	No	No	-	No
Lit-n	Setpoint annunciators		FLASH	FLASH	-	FLASH

Notes:

1. Setpoint 1 turns on the audible alarm. The alarm can be reset by pressing the “RST” button on the controller.

2. Setpoint 2 is optional and turns on the visual alarm (if equipped).
3. Setpoint 4 is optional and turns on the flood alarm.
4. The "setpoint action" setting describes the way the meter's output relays respond to the setpoint. The settings are:
    a. AU-Lo (Absolute low acting – unbalanced hysteresis) – the output triggers on when the level falls below the setpoint and triggers off when the level rises above the addition of the setpoint and hysteresis values.
    b. Ab-Lo (Absolute low acting – balanced hysteresis) – the output triggers on when the level falls below the subtraction of half the hysteresis from the setpoint and triggers off when the level rises above the addition of half the hysteresis and the setpoint.
    c. AU-HI (Absolute high acting – unbalanced hysteresis) – the output triggers on when the level rises above the setpoint and triggers off when the level falls below the subtraction of the hysteresis from the setpoint.

CHANGING SETPOINTS

To change the setpoint value of either the low, or flood setpoints, use the "PAR", "F1", and "F2" pushbutton keys as follows:

1. Press "PAR" to get into the menu system.
2. Press "F1" six times to get to the setpoint menu. "6-SPT" is displayed.
3. Press "PAR" to enter the menu.
4. Press "F1" to select the level type (once for low, twice for control and four times for flood). "SP-1" or -2 or -4 will be displayed.
5. Press "PAR" twice to get to the setpoint value.
6. Use the "F1" or "F2" to change the setting.
7. Press "PAR" ten times until "END" appears. This will get the display out of the menu system.

Example: The current setting for the low level is set to 10%. We want to change it to 20%. The buttons to press are as follows:

1. PAR
2. F1 six times
3. PAR
4. F1 once (to get to low level)
5. PAR two times
6. F1 to go up to 20
7. PAR ten times until END is displayed.

SWITCHING OFF/ON SETPOINTS

At times it may be necessary to temporarily switch off the setpoints. To turn on/off a setpoint, use the "PAR", "F1", and "F2" pushbutton keys.

TURNING OFF A SETPOINT

1. Press "PAR" to get into the menu system.
2. Press "F1" six times to get to the setpoint menu. "6-SPT" is displayed.
3. Press "PAR" to enter the menu.
4. Press "F1" the corresponding number of times to select the setpoint type (once for low and four times for flood). "SP-1" or -4 will be displayed.
5. Press "PAR" one time. The "setpoint action" setting will be displayed (AU-Lo for low and AU-Hi for flood)
6. Press "F1" until OFF is displayed.
7. Press "PAR" until END appears. This will get the display out of the menu system.

TURNING ON A SETPOINT

1. Press "PAR" to get into the menu system.
2. Press "F1" six times to get to the setpoint menu. "6-SPT" is displayed.
3. Press "PAR" to enter the menu.
4. Press "F1" the corresponding number of times to select the setpoint type (once for low and four times for flood). "SP-1" or -4 will be displayed.
5. Press "PAR" one time. OFF will be displayed as the "setpoint action".
6. Press "F1" or "F2" until the following is displayed for the specific setpoint:
    a. Low (SP-1) – AU-Lo
    b. Flood (SP-4) – AU-Hi
7. Press "PAR" until END appears. This will get the display out of the menu system.

MATERIAL PROCESSING TIPS

1. DO NOT raise temperatures to attempt to melt material quicker. If a tank is left full and material solidifies, only TIME will re-melt material properly.
2. When pulling vacuum, be sure there is adequate space left in the tank to accommodate the foam.
3. Start agitator motors slowly.
4. DO NOT clean residue from inside the tank with any sharp of abrasive tools. This will permanently damage the (Optional) Teflon lining.
5. Temperature sensitive resins should be processed with extreme care. Since only the walls of the tank are heated, a low initial set point should be entered. Then, once the material is melted or at a viscosity that will allow agitation it should be started and the setpoint raised slowly.
6. Agitation is generally not needed for MOCA melting.

TEMPERATURE CONTROL SETTINGS 3300

CAL 3300 Program (Trico 100Ω RTD at inputs)

LEVEL 1		LEVEL 2		LEVEL 3	
Tune	OFF	**SP1.P**	--	**SP1.d**	SSd
bAnd	10 (18)	**bAnd**	OFF	**SP2.d**	rLY
int.t	5	**PL.1**	100	**Burn**	uP.SC
dEr.t	25	**PL.2**	100	**rEU.d**	1r.2r
dAC	1.5	**SP2.A**	bAnd	**rEU.L**	1n.2n
CYC.t	20	**SP2.b**	Lt.ho	**SPAn**	0 (see note 1)
oFSt	0	**diSP**	1	**Zero**	0 (see note 1)
SP.Lk	OFF	**hi.SC**	150 (302)	**ChEK**	Off
SPrr	0	**Lo.SC**	0 (32)	**rEAD**	--
SPrn	OFF	**inPt**	RTD	**tECh**	CTA
SoAk	--	**Unit**	°C (°F)	**Ver**	(factory set)
Set.2	8 (14)			**rESET**	(see below)
Bnd.2	0.1 (0.2)				
CYC.2	ON.OFF				

Note 1: For tanks prior to serial number 22xxxx that use Trico RTDs instead of standard 100 ohm RTDs, SPAN setting should be -56 if unit is °C, -101 if °F. ZERO setting should be 15 if unit is °C, 27 if °F, otherwise the displayed temperature will not be accurate.

LEVEL 4 - DO NOT ALTER: USE DEFAULT SETTINGS ONLY

GENERAL INFO:

Set.2 represents the upper/lower band for alarm purposes. This input can be adjusted by the operator for individual applications.

For the rESET setting, “all” should only be used to completely reset the controller in the event that a total reprogram is needed.

To silence Alarm and reset, depress white button below controller. Depress once to turn controller OFF and depress again to turn controller ON.

Temperature Controllers are capable of various programs depending on customer's application i.e. over-temperature only etc...

ENTERING ADJUSTMENTS

1. To enter new setpoint, depress the * button. The unit of measure will appear first, then the present setpoint. While depressing the * button, depress the up or down scroll button to desired setpoint.
2. To enter the program (Level 1, Level 2, Level 3), depress both scroll buttons simultaneously for three seconds. The word " tune " will appear on the display. This is the first entry on Level 1. To scroll to each input, depress either the up or down scroll

button. To change an input, depress the * button and scroll up/down with the scroll buttons.

3. To change from °C to °F, get to the Level 2 menu and scroll to “unit”. Change unit here.

TROUBLESHOOTING

Display	Cause	Solution
"Input Fail"	● Sensor not connected ● Poor wire connection ● Controller defective ● Controller not programmed ● Faulty sensor	●Check connection ● Check connection or clean ● Replace ● Re-Enter program ●Replace
PARK	● setpoint not set	●adjust setpoint
"False Temp. Display"	● Loose connection ●Lead is shorted to ground	● Check connection ● Check connection
No Display	● No 24vdc	● Push-button faulty ● Replace Controller