

The **NORCHEM AnCAT® Model E-100MVP** automatic liquid polymer system is designed to process up to 120 GPH of neat liquid polymer and deliver up to 100 GPM (6000 GPH) of a nominal 0.2 to 2.0% aqueous polymer solution. The E-100MVP system is modular in design consisting of a liquid polymer injection module and booster module assembly.

**AnCAT® MODEL E-100MVP LIQUID POLYMER SYSTEM SPECIFICATIONS:**

<b>FRAME:</b>	<b>BASE:</b>	<b>42" W x 42" L x 58" H (48" w/OPTIONAL BOLT LUGS)</b>
	<b>CONSTRUCTION:</b>	<b>CARBON STEEL, DRYLAC SERIES 49 POWDER COATING</b>
<b>PANEL:</b>	<b>ENCLOSURE:</b>	<b>NEMA 12</b>
<b>INJECTION MODULE:</b>	<b>PUMP:</b>	<b>ROTARY-GEAR-TYPE, 316 STAINLESS STEEL</b>
	<b>DRIVE:</b>	<b>AC FREQUENCY-TYPE, 4:1 GEAR REDUCED</b>
	<b>MOTOR:</b>	<b>1 ½ HP, 1725 RPM, TENV, WASHDOWN DUTY</b>
	<b>CAPACITY:</b>	<b>NEAT POLYMER FLOWRATE: 20 TO 120 GPH (480 TO 2880 GPD)</b>
<b>BOOSTER MODULE:</b>	<b>PUMP:</b>	<b>CENTRIFUGAL-TYPE, CAST IRON MODIFIED FOR POLYMERS</b>
	<b>DRIVE:</b>	<b>CLOSE-COUPLED, DIRECT</b>
	<b>MOTOR:</b>	<b>10 HP, 3450 RPM, TEFC, WASHDOWN DUTY</b>
	<b>DISCHARGE:</b>	<b>5 TO 100 GPM, 15 – 20 PSI BOOST TO INLET WATER PRESSURE</b>
<b>SOLUTION OUTPUT:</b>	<b>PRIMARY FLOW:</b>	<b>5.0 TO 100 GPM (300 TO 6000 GPH)</b>
	<b>SECONDARY FLOW:</b>	<b>NONE,</b>
	<b>TOTAL FLOW:</b>	<b>5.0 TO 100 GPM (300 TO 6000 GPH)</b>
<b>CONCENTRATION:</b>	<b>SOLUTION:</b>	<b>PRIMARY: 0.2 TO 2.0%, VOLUME ON VOLUME TOTAL: 0.2 TO 2.0%, VOLUME ON VOLUME</b>
<b>CONTROLS:</b>	<b>CONTROLLER:</b>	<b>ENHANCED POLYMER IMAGING CONTROL (EPIC) SYSTEM COMPLETE WITH MODULATED VARIABLE POWER (MVP) LASER, CONCENTRATION CONTROLLER, PLC LOGIC CONTROLLER</b>
	<b>WATER:</b>	<b>LOW WATER FLOW ALARM AND FAILSAFE, MANUAL RESET</b>
	<b>POLYMER:</b>	<b>LOW/HIGH POLYMER FLOW ALARM AND FAILSAFE, MANUAL RESET</b>
	<b>LIQUID LEVEL:</b>	<b>CONDUCTIVITY-TYPE, 4 STAINLESS STEEL PROBE ASSEMBLY</b>
<b>UTILITIES:</b>	<b>ELECTRICAL:</b>	<b>460 VAC, 3 PHASE, 60 HERTZ, 30 AMP</b>
	<b>WATER:</b>	<b>100 GPM @ 50 PSI, CLEAN SOURCE</b>
	<b>AIR:</b>	<b>&lt;1.0 SCFH @ 50 PSI, CLEAN SOURCE</b>

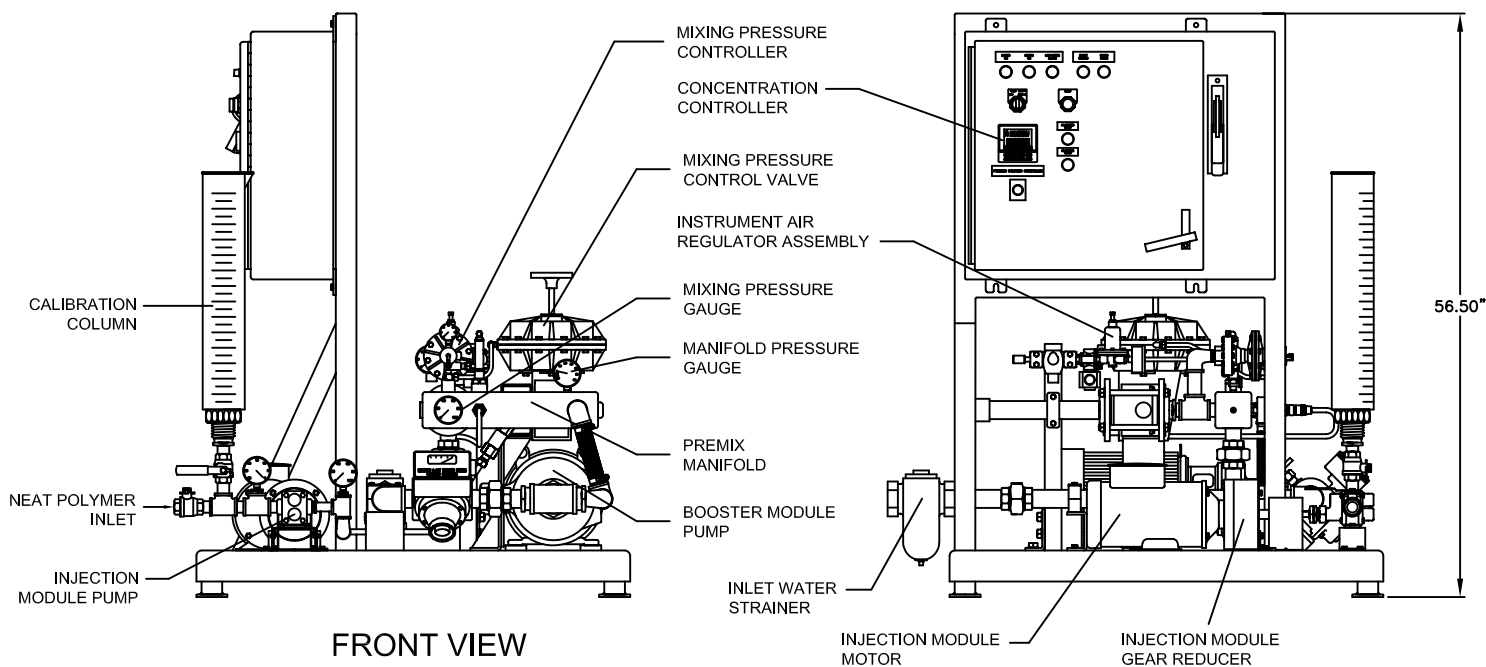
**ENGINEERING SPECIFICATIONS:**

The **AnCAT® Model E-100MVP** shall be provided to rapidly dilute, activate and feed emulsion, dispersion, and solution polymers at 100 GPM of polymer solution at concentrations to 2%. The system shall contain a four-step, controlled-energy hydraulic circuit that instantaneously dilutes and blends the polymer to its most effective state for use in the process. The unit shall be designed with full pressure-controlled, inline-inversion capability and shall not be limited by a minimum retention time restriction. The polymer system shall be capable of providing a 15 to 20 PSI pressure boost and shall not rely on available inlet water pressure to discharge the polymer solution product. The system shall be modular in design and shall consist of a polymer injection module, booster module, premix manifold, inlet water solenoid valve, primary inlet water flow meter, primary inlet water flow controller, mixing pressure regulator (adjustable to 70 PSI), hydraulic stabilizer circuit, mixing pressure gauge, manifold pressure gauge, and inlet water throttling valve.

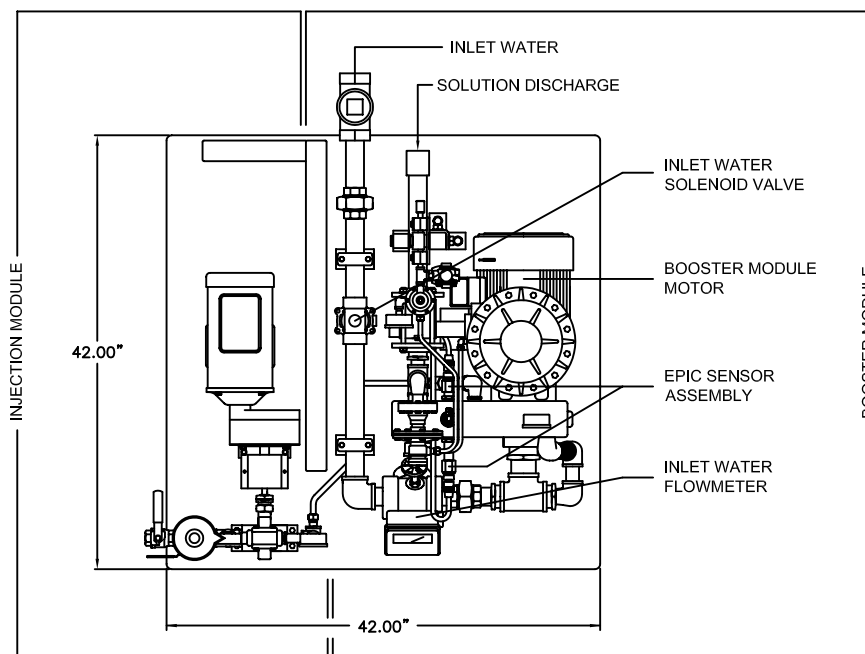
# PLAN & ELEVATION

E100MVP\_DIM

# AnCAT EPIC E-100MVP



FRONT VIEW LEFT END VIEW



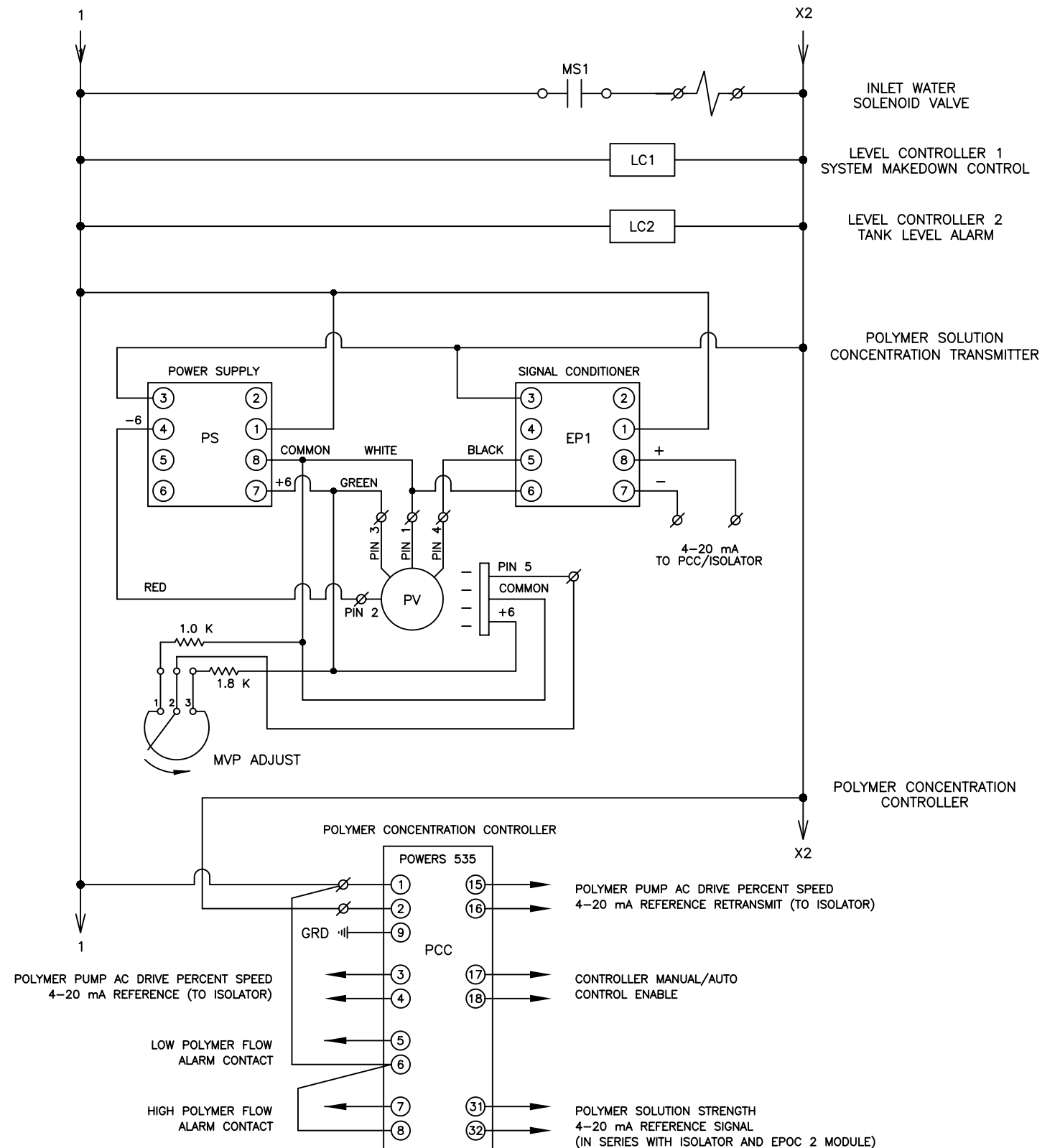
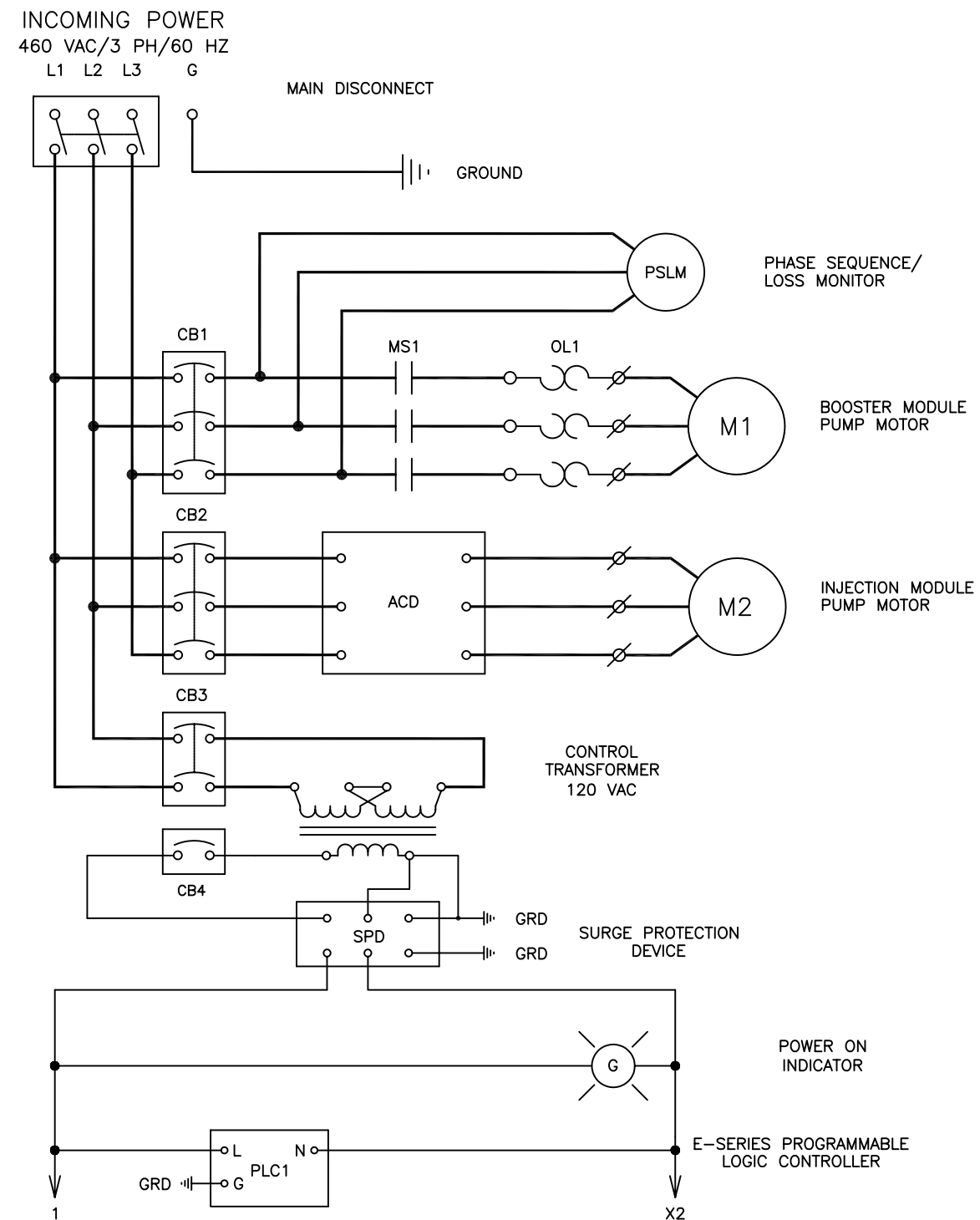
PLAN VIEW

# NORCHEM INC.

# ELECTRICAL SCHEMATIC

ESER100\_ELE\_A

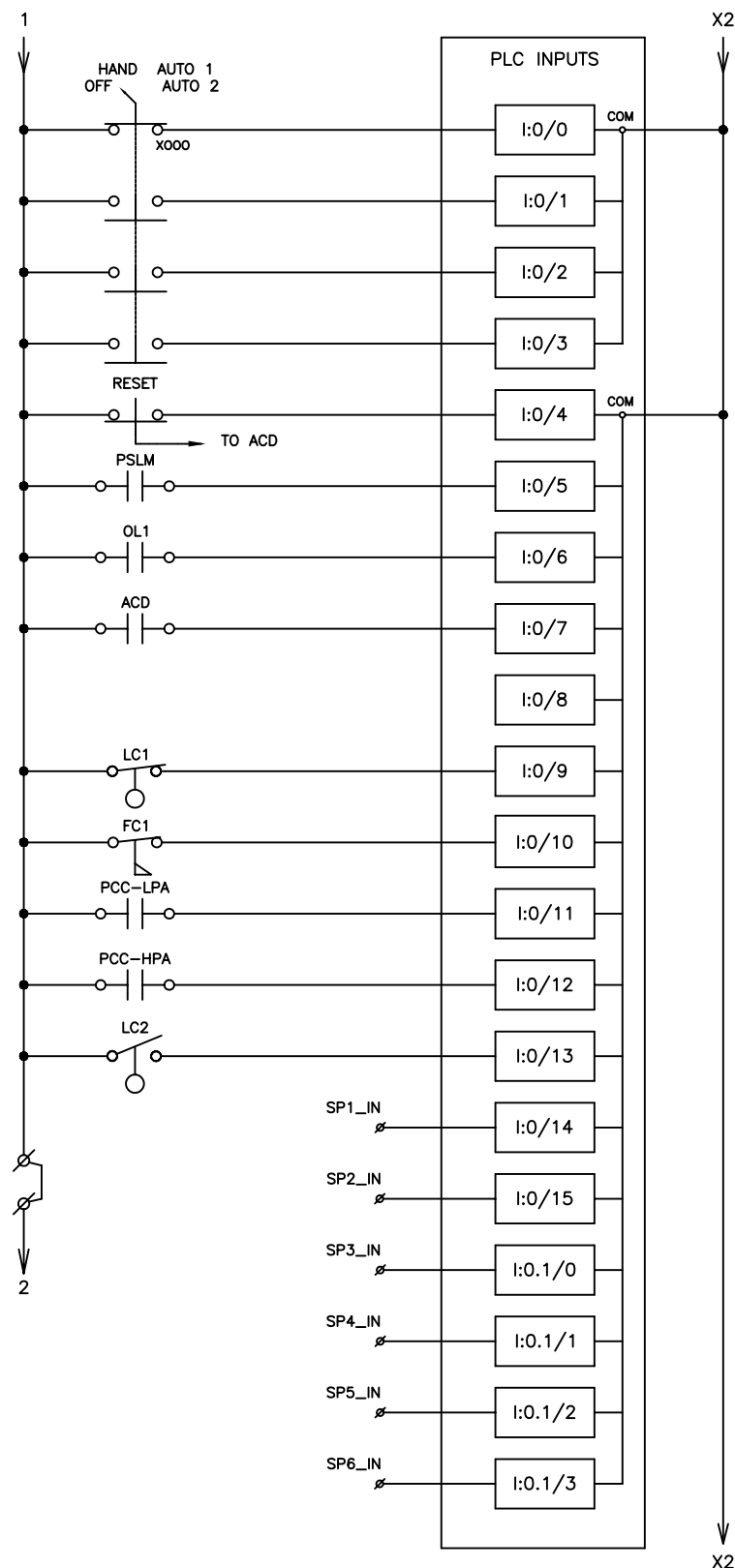
# EPIC SERIES E-100MVP



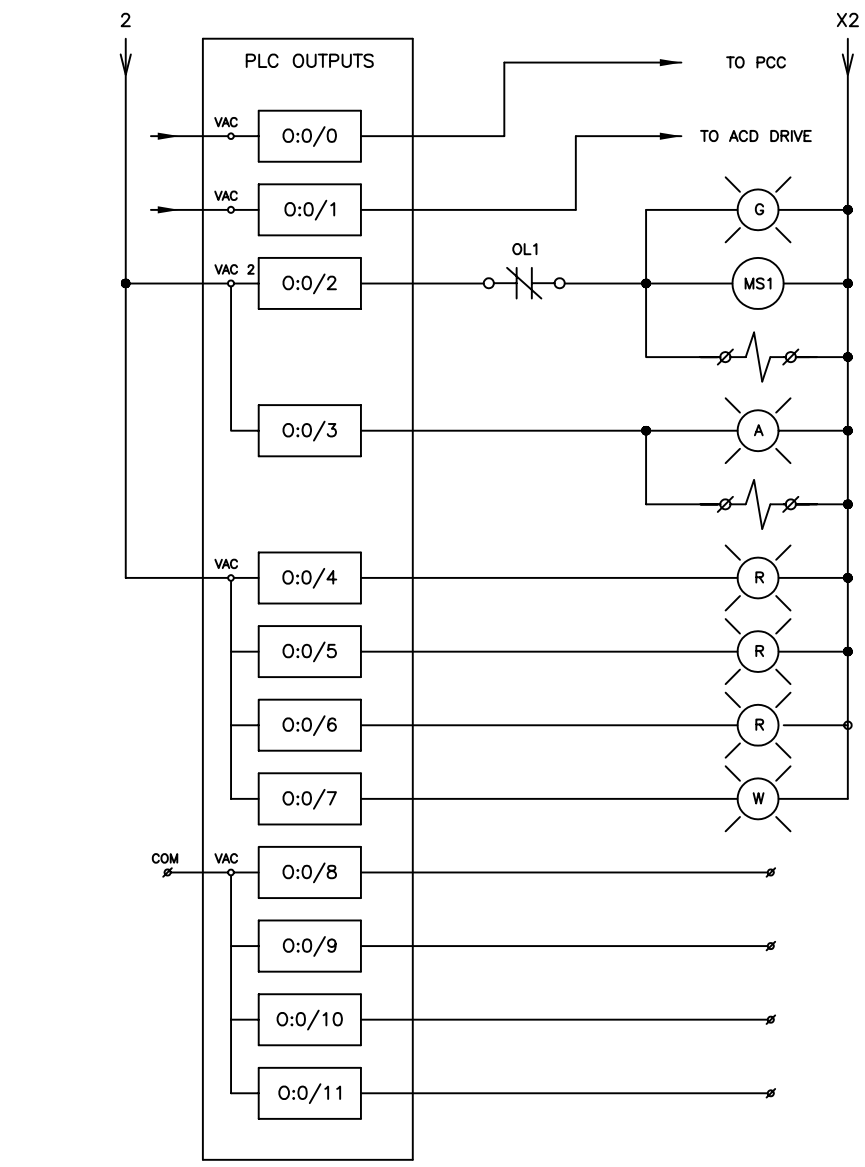
# ELECTRICAL SCHEMATIC

ESER100\_ELE\_B

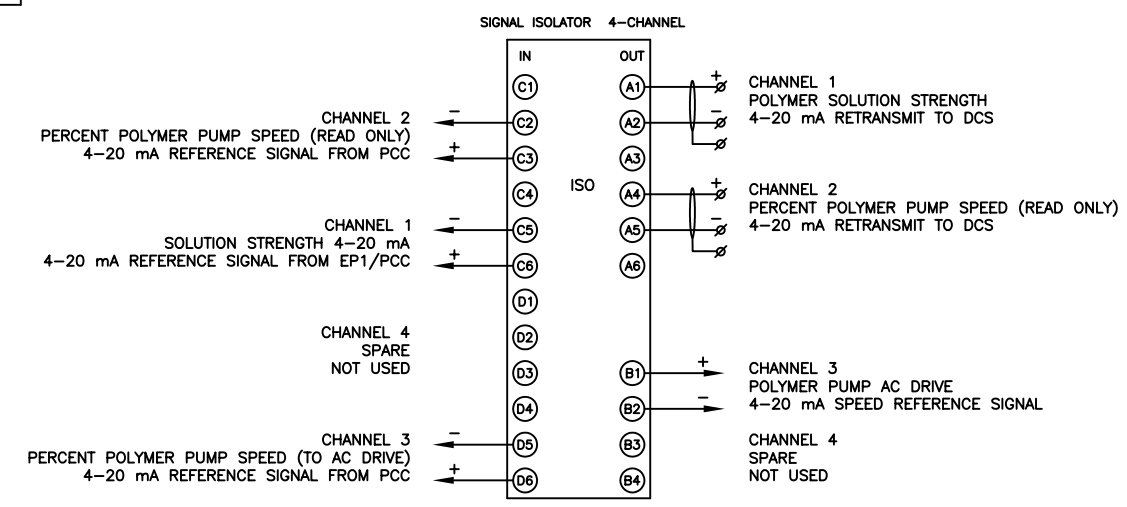
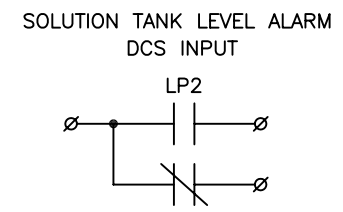
# EPIC SERIES E-100MVP



- I:0/0 SELECTOR SWITCH "OFF" MODE
- I:0/1 SELECTOR SWITCH "HAND" MODE
- I:0/2 SELECTOR SWITCH "AUTO 1" MODE
- I:0/3 SELECTOR SWITCH "AUTO 2" MODE
- I:0/4 PUSH BUTTON "RESET"
- I:0/5 PHASE SEQUENCE/LOSS MONITOR
- I:0/6 BOOSTER MODULE MOTOR OVERLOAD
- I:0/7 INJECTION MODULE DRIVE FAULT
- I:0/8 SPARE RESERVED
- I:0/9 SOLUTION TANK LEVEL CONTROL RELAY
- I:0/10 LOW WATER FLOW ALARM CONTACT
- I:0/11 LOW POLYMER FLOW ALARM CONTACT
- I:0/12 HIGH POLYMER FLOW ALARM CONTACT
- I:0/13 SOLUTION TANK LEVEL ALARM
- I:0/14 SPARE NOT USED
- I:0/15 SPARE NOT USED
- I:0.1/0 SPARE NOT USED
- I:0.1/1 SPARE NOT USED
- I:0.1/2 SPARE NOT USED
- I:0.1/3 SPARE RESERVED



- O:0/0 MANUAL/AUTO ENABLE
- O:0/1 ACD DRIVE START COMMAND
- O:0/2 "PUMPS ON" INDICATOR
- O:0/3 BOOSTER MODULE MOTOR STARTER
- O:0/4 MIXING PRESSURE REGULATOR AIR SOLENOID VALVE
- O:0/5 FLUSH CYCLE INDICATOR
- O:0/6 LENS MAINTENANCE AIR SOLENOID VALVE
- O:0/7 "LOW WATER FLOW" INDICATOR
- O:0/8 "LOW POLYMER FLOW" INDICATOR
- O:0/9 "HIGH POLYMER FLOW" INDICATOR
- O:0/10 "FAULT STATUS" INDICATOR
- O:0/11 SYSTEM COMMON FAULT DCS INPUT
- O:0/12 SYSTEM COMMON ALARM DCS INPUT
- O:0/13 SYSTEM POWER FAULT DCS INPUT
- O:0/14 SOLUTION TANK LEVEL ALARM DCS INPUT



# EPIC SERIES E-60MVP & E-100MVP

ESH\_PID

LEGEND

DEVICES

HV-1	POLYMER SUPPLY SHUTOFF HAND VALVE
HV-2	CALIBRATION ASSEMBLY ISOLATION HAND VALVE
CAL-1	CALIBRATION CYLINDER
PI-101	NEAT POLYMER POLYMER SUCTION GAUGE
PI-102	NEAT POLYMER PUMP DISCHARGE GAUGE
PI-103	MIXING PRESSURE GAUGE
PI-104	MANIFOLD PRESSURE GAUGE
PI-105	INSTURMENT AIR PRESSURE GAUGE
M-101	BOOSTER PUMP MOTOR
M-102	POLYMER INJECTION PUMP MOTOR
SOV-101	DILUTION WATER INLET SOLENOID VALVE
SOV-102	INSTRUMENT AIR SOLENOID VALVE
SOV-103	LENS MAINTENANCE AIR SOLENOID VALVE
CV-101	MIXING PRESSURE CONTROL VALVE
CV-102	INSTRUMENT AIR PRESSURE CONTROL REGULATOR
FEI-101	DILUTION WATER INDICATING FLOW METER w/VALVE
CYL-101	LENS MAINTENANCE AIR CYLINDER

CONTROLS

SS-101	SELECTOR SWITCH "HAND-OFF-AUTO 1-AUTO 2"
PB-101	PUSH BUTTON "RESET"
LC-101	PRIMARY LEVEL CONTROLLER
LC-102	SECONDARY LEVEL CONTROLLER
PC-101	MIXING PRESSURE AUTOMATIC CONTROLLER
PCC-101	POLYMER CONCENTRATION CONTROLLER
PS1-101	EPIC SENSOR POWER SUPPLY
EP1-101	EPIC SENSOR SIGNAL CONDITIONER

INDICATORS

PWR-101	"POWER ON" INDICATOR
PMP-101	"PUMPS ON" INDICATOR
STA-101	"FAULT STATUS" INDICATOR
LWA-101	"LOW WATER FLOW" INDICATOR
LPA-101	"LOW POLYMER FLOW" INDICATOR
HPA-101	"HIGH POLYMER FLOW" INDICATOR
FLU-101	"FLUSH CYCLE" INDICATOR

OUTPUTS

R101	COMMON FAULT
R102	COMMON ALARM
R103	SYSTEM POWER FAULT
R104	TANK LEVEL ALARM
R105	TANK LEVEL ALARM (AUXILIARY)

LOOP RETRANSMISSION (4-20 mA)

L101	POLYMER SOLUTION CONCENTRATION
L102	AC DRIVE SPEED REFERENCE

