

The **NORCHEM ProCAT P-30** automatic liquid polymer system is designed to process up to 36 GPH of neat liquid polymer and deliver up to 30 GPM (1800 GPH) of a nominal 0.2 to 2.0% aqueous polymer solution. The P-30 system is modular in design consisting of a liquid polymer injection module and booster module assembly.

**ProCAT P-30 LIQUID POLYMER SYSTEM SPECIFICATIONS:**

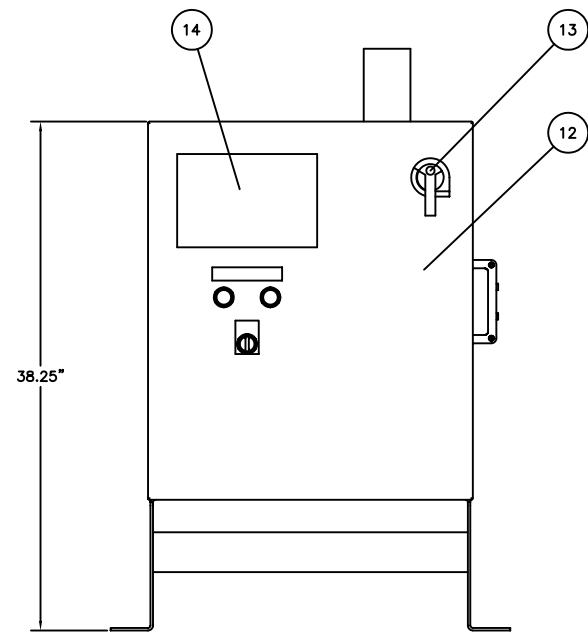
<b>FRAME:</b>	<b>BASE:</b>	<b>28" W x 30" L x 42" H</b>
	<b>CONSTRUCTION:</b>	<b>304 STAINLESS STEEL</b>
<b>PANEL:</b>	<b>ENCLOSURE:</b>	<b>NEMA 4X</b>
<b>INJECTION MODULE:</b>	<b>PUMP:</b>	<b>ROTARY-GEAR-TYPE, 316 STAINLESS STEEL</b>
	<b>DRIVE:</b>	<b>POSITIVE TORQUE TRANSMISSION, 5:1 GEAR REDUCED</b>
	<b>MOTOR:</b>	<b>½ HP, 1725 RPM, TENV, WASHDOWN DUTY</b>
	<b>CAPACITY:</b>	<b>NEAT POLYMER FLOWRATE: 6 TO 36 GPH (144 TO 864 GPD)</b>
<b>BOOSTER MODULE:</b>	<b>PUMP:</b>	<b>CENTRIFUGAL-TYPE, STAINLESS STEEL, CHEMICAL SERVICE</b>
	<b>DRIVE:</b>	<b>CLOSE-COUPLED, DIRECT</b>
	<b>MOTOR:</b>	<b>3 HP, 3450 RPM, TEFC, WASHDOWN DUTY</b>
	<b>DISCHARGE:</b>	<b>30 GPM, 15 – 20 PSI BOOST TO INLET WATER PRESSURE</b>
<b>SOLUTION OUTPUT:</b>	<b>PRIMARY FLOW:</b>	<b>30 GPM (1800 GPH)</b>
	<b>SECONDARY FLOW:</b>	<b>NONE</b>
	<b>TOTAL FLOW:</b>	<b>30 GPM (1800 GPH)</b>
<b>CONCENTRATION:</b>	<b>SOLUTION:</b>	<b>PRIMARY: 0.2 TO 2.0%, VOLUME ON VOLUME</b>
		<b>TOTAL: 0.2 TO 2.0%, VOLUME ON VOLUME</b>
<b>CONTROLS:</b>	<b>CONTROLLER:</b>	<b>NORCHEM FLOW PROPORTIONAL CONTROLLER</b>
	<b>WATER:</b>	<b>LOW WATER FLOW ALARM AND FAILSAFE, MANUAL RESET</b>
	<b>POLYMER:</b>	<b>LOW POLYMER FLOW ALARM AND FAILSAFE, MANUAL RESET</b>
	<b>LIQUID LEVEL:</b>	<b>BY CUSTOMER</b>
<b>UTILITIES:</b>	<b>ELECTRICAL:</b>	<b>460 VAC, 3 PHASE, 60 HERTZ, 15 AMP</b>
	<b>WATER:</b>	<b>30 GPM @ 50 PSI, CLEAN SOURCE</b>

**ENGINEERING SPECIFICATIONS:**

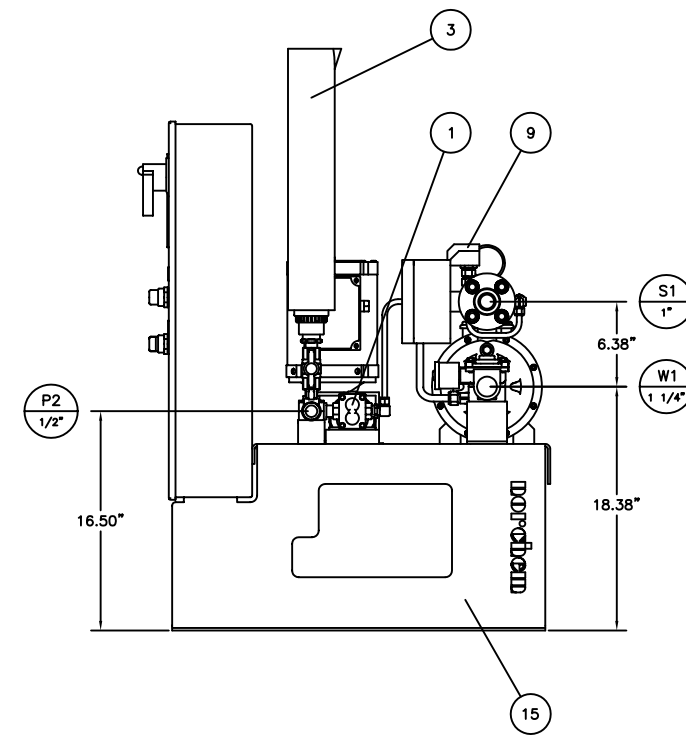
The **ProCAT Model P-30** shall be provided to rapidly dilute, activate and feed emulsion, dispersion, and solution polymers at 30 GPM of polymer solution at concentrations to 2%. The system shall contain a four-step, controlled-energy hydraulic circuit that instantaneously dilutes and blends the polymer 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, and mixing pressure gauge. The ProCAT P-30 shall include a digital controller with LED displays for primary, secondary and total water flow, polymer concentration set point, selectable flow units (mL, liters, gallons, SPM, SPH) readout, percent polymer pump output display, automatic concentration ratio control, auto pump calibration, water alarm, optional polymer alarm. Controller shall be rated NEMA 4 with a membrane keypad and display.

PROCAT POLYMER PROCESSING SYSTEM  
COMPONENT REFERENCE DETAILS

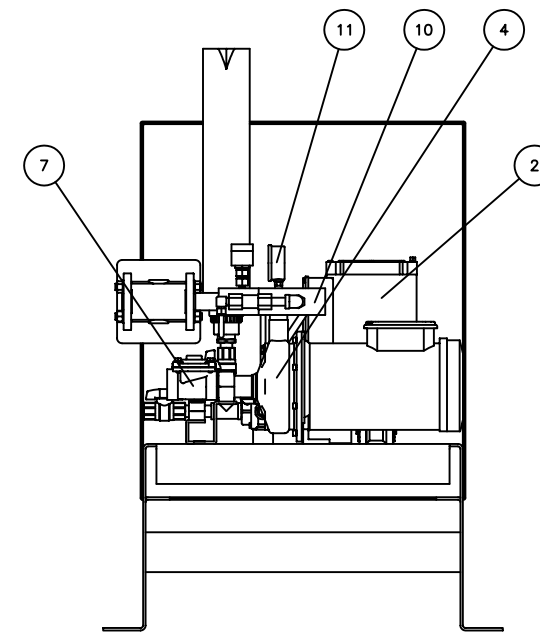
ITEM	DESCRIPTION	PART NUMBER
1	POLYMER INJECTION PUMP .60 GPM @ 360 RPM	ECO
2	POLYMER INJECTION PUMP MOTOR/DRIVE 1/2 HP @ 460 VAC	RELIANCE
3	2000 mL CALIBRATION ASSEMBLY	NORCHEM
4	BOOSTER MODULE PUMP 30 GPM @ 50 PSI	EBARA
5	BOOSTER MODULE PUMP MOTOR 3 HP @ 460 VAC	FRANKLIN
6	DILUTION WATER MAGNETIC FLOWMETER	SPARLING
7	DILUTION WATER SOLENOID VALVE	ASCO
8	POLYMER INJECTION CHECK VALVE 10 PSI	PARKER
9	LOW POLYMER FLOW SWITCH (OPTIONAL)	IFM EFECTOR
10	PREMIX MANIFOLD	NORCHEM
11	MIXING PRESSURE GAUGE 100 PSI	TEL-TRU
12	SYSTEM CONTROL PANEL	NORCHEM
13	600 VAC POWER DISCONNECT	CUTLER-HAMMER
14	FLOW PORPORTIONAL CONTROLLER	NORCHEM
15	304SS SUPPORT BASE	NORCHEM



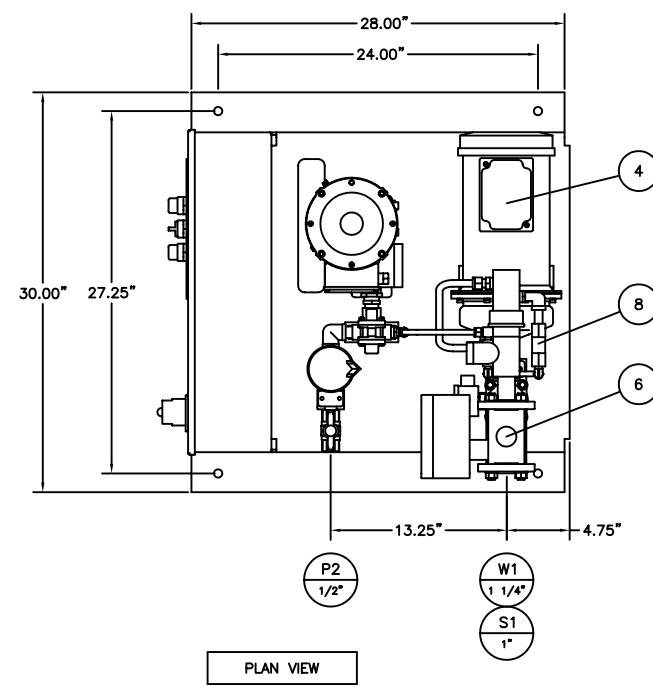
LEFT SIDE VIEW



FRONT VIEW



RIGHT SIDE VIEW



PLAN VIEW

NOZZLE CONNECTIONS

	NEAT POLYMER INLET 1/2" FNPT
	DILUTION WATER INLET 1 1/4" FNPT
	POLYMER SOLUTION DISCHARGE 1" FNPT

ELECTRICAL ENCLOSURE NOT SHOWN  
IN PLAN VIEW FOR DRAWING CLARITY  
ELECTRICAL CONDUITS NOT SHOWN

ALL DIMENSIONS +/- 1/4"  
CHANGES IN LAYOUT OR DIMENSIONING MAY  
VARY DUE TO MODIFICATIONS AND/OR  
DESIGN UPGRADE

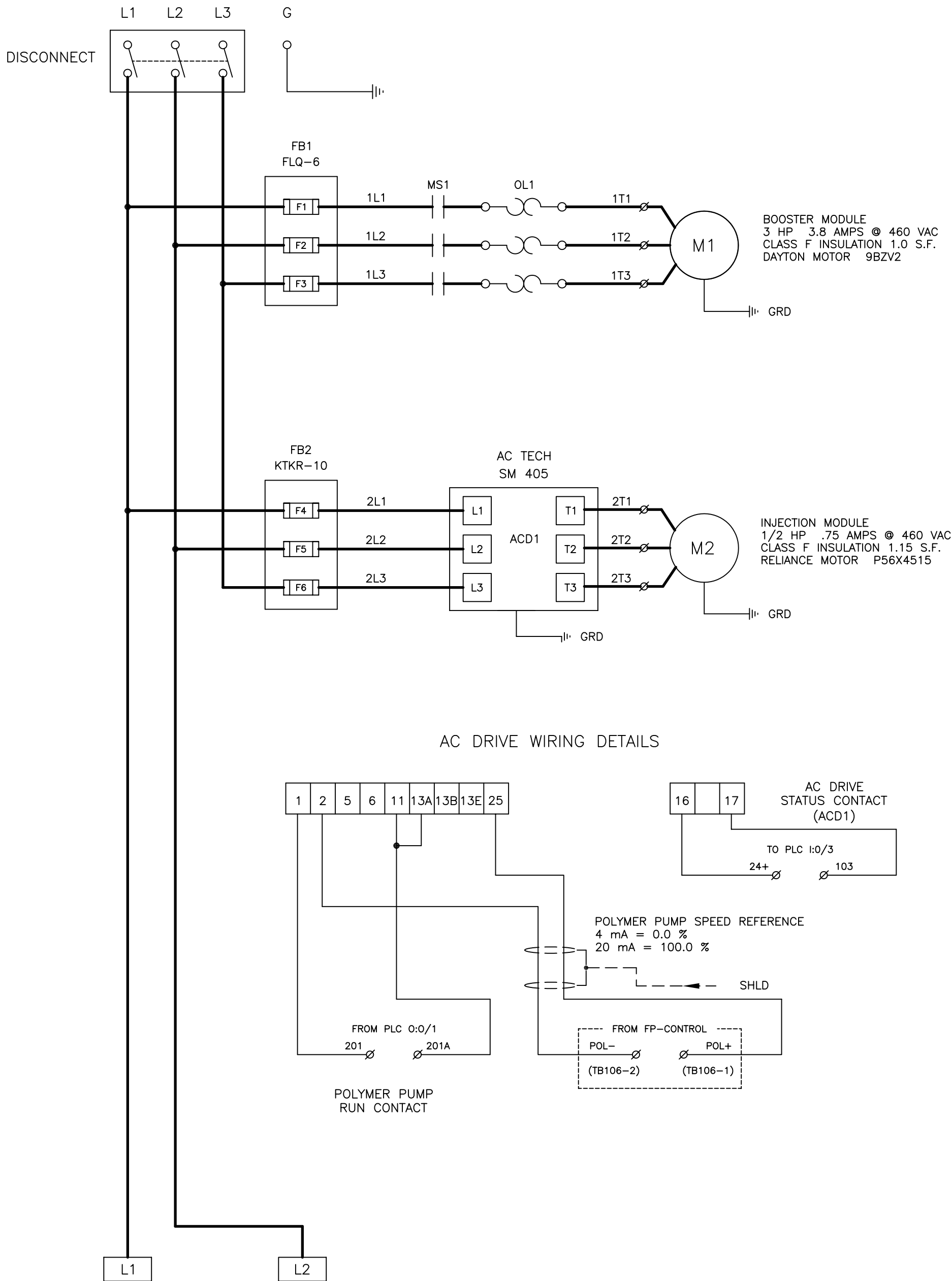
ESTIMATED EQUIPMENT WEIGHT: 850 LBS.

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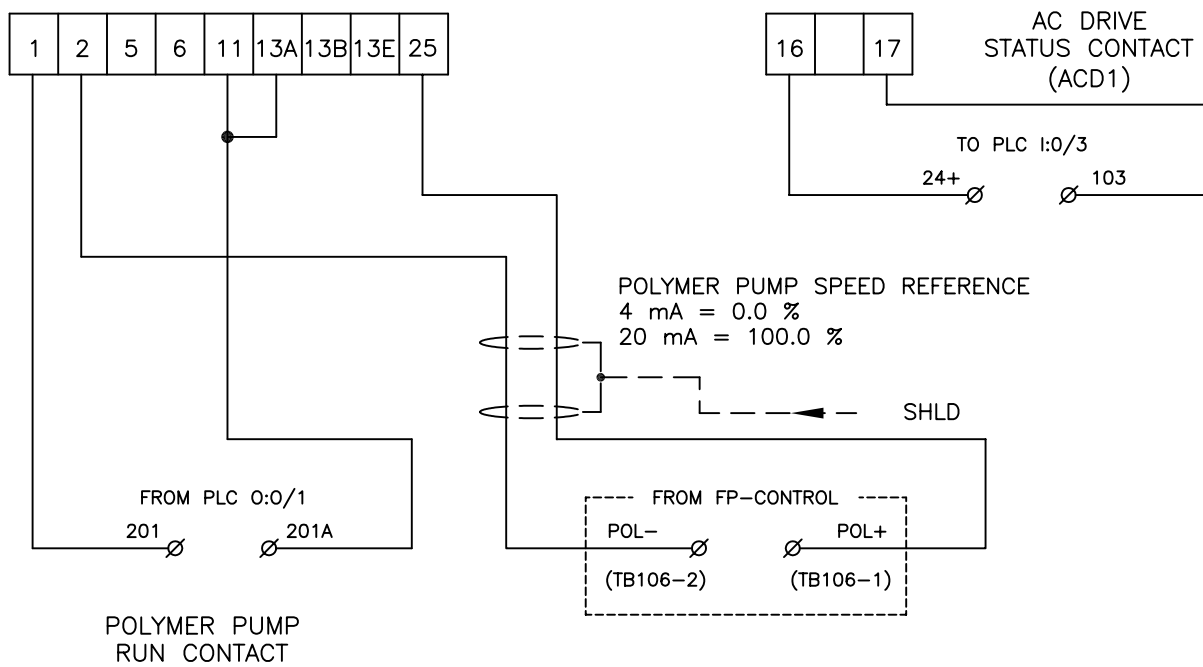
DRAWN	RWD
CHECKED	RWD
APPROVED	RWD
CAD FILE	L2003_ASSBY_2D
SHT. OF	1 1
SCALE	NONE

		<b>NORCHEM INC.</b> 8910 W. 192nd STREET MOKENA, IL 60448	
A		FOR INFORMATION ONLY	11-30-00
SYM.	REVISIONS	DATE	
CUSTOMER		NORCHEM INC. MOKENA, IL 60448	
DESCRIPTION		PROCAT POLYMER PROCESSING SYSTEM EQUIPMENT PLAN AND ELEVATION DETAILS	
CONTRACT NUMBER			
PROJECT NUMBER	DRAWING NUMBER	NCI-020603-1	REV A

INCOMING POWER  
480 VAC/3 PH/60 HZ  
15 AMP SUPPLY

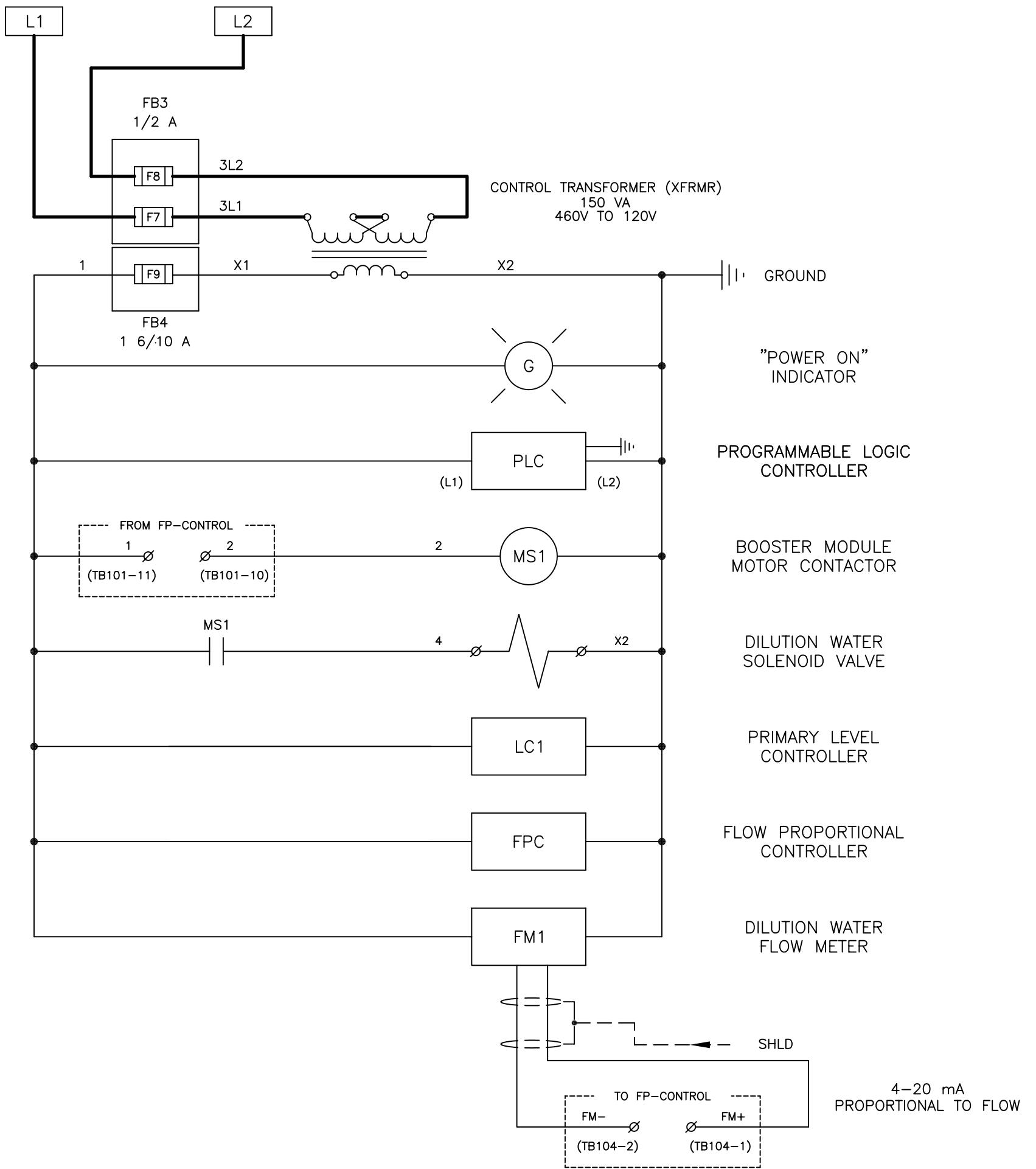


AC DRIVE WIRING DETAILS

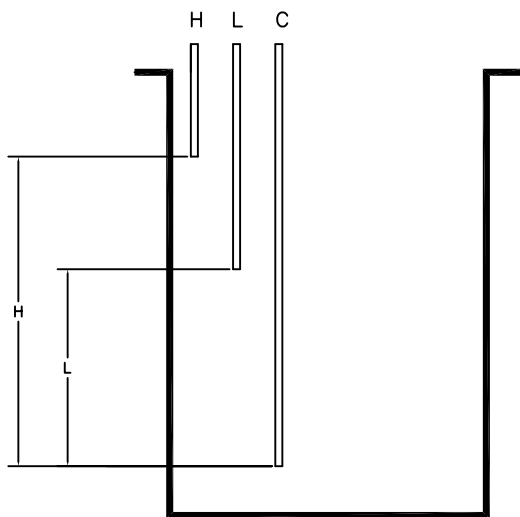


— #12 GAUGE WIRE CONNECTIONS  
 — #16 GAUGE WIRE CONNECTIONS  
 ∅ TERMINAL BLOCK CONNECTIONS

MODEL: PROCAT P30  
 CUSTOMER: NORCHEM INC.  
 CUSTOMER P.O. NO.: xxxxx  
 NCI PROJECT: xxxxx  
 SCHEMATIC NO.: NCI-102902-1 REV. A  
 SHEET 1 OF 5

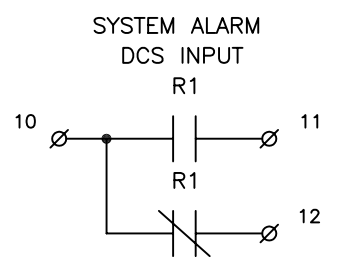
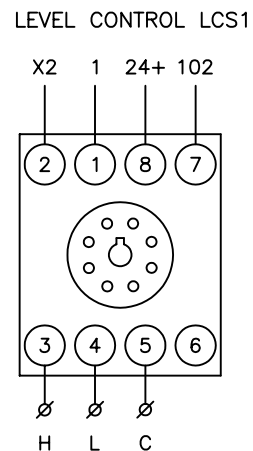


NOTES: PROBE INSTALLED USING  
2 1/2" FNPT TANK FITTING  
OR COUPLING MOUNTED TO  
TANK COVER OR BRACKET  
ON SIDE WALL OF TANK  
(SUPPLIED BY CUSTOMER)

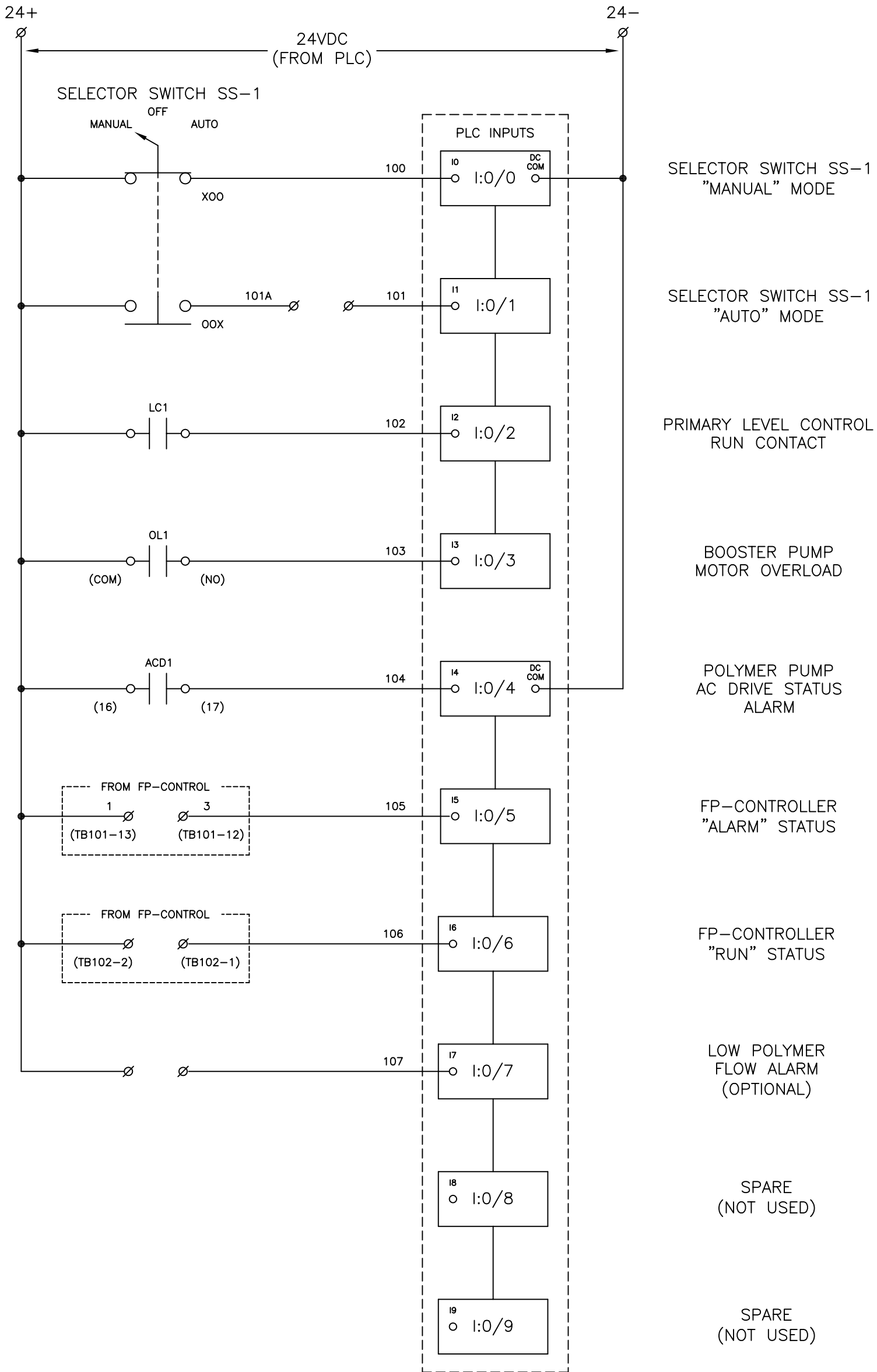


PROBE INSTALLATION

LEVEL CONTROL SOCKET WIRING



MODEL: PROCAT P30  
CUSTOMER: NORCHEM INC.  
CUSTOMER P.O. NO.: xxxxx  
NCI PROJECT: xxxxx  
SCHEMATIC NO.: NCI-102902-1 REV. A  
SHEET 2 OF 5



SELECTOR SWITCH SS-1  
"MANUAL" MODE

SELECTOR SWITCH SS-1  
"AUTO" MODE

PRIMARY LEVEL CONTROL  
RUN CONTACT

BOOSTER PUMP  
MOTOR OVERLOAD

POLYMER PUMP  
AC DRIVE STATUS  
ALARM

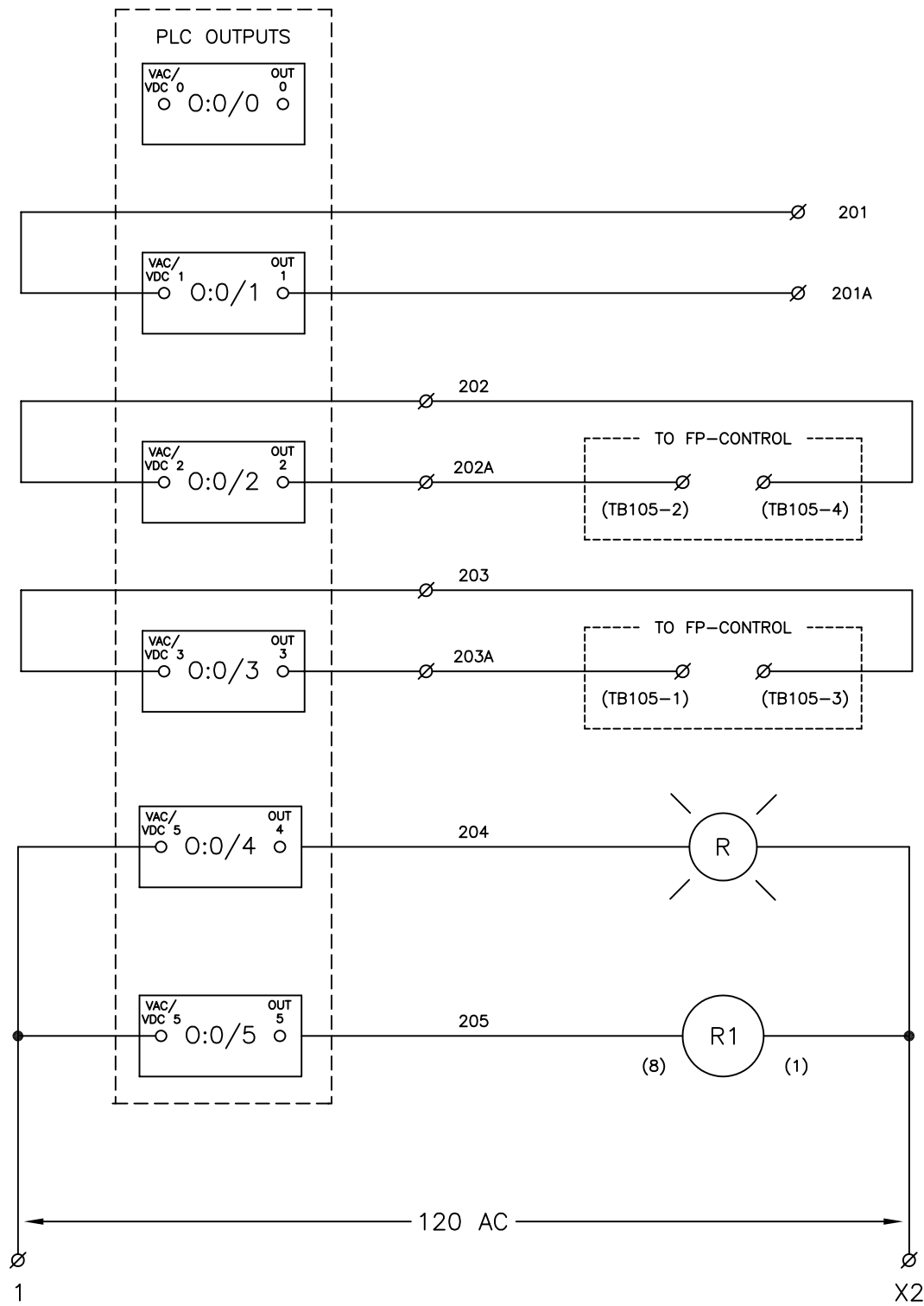
FP-CONTROLLER  
"ALARM" STATUS

FP-CONTROLLER  
"RUN" STATUS

LOW POLYMER  
FLOW ALARM  
(OPTIONAL)

SPARE  
(NOT USED)

SPARE  
(NOT USED)



SPARE  
(NOT USED)

POLYMER PUMP  
START/STOP

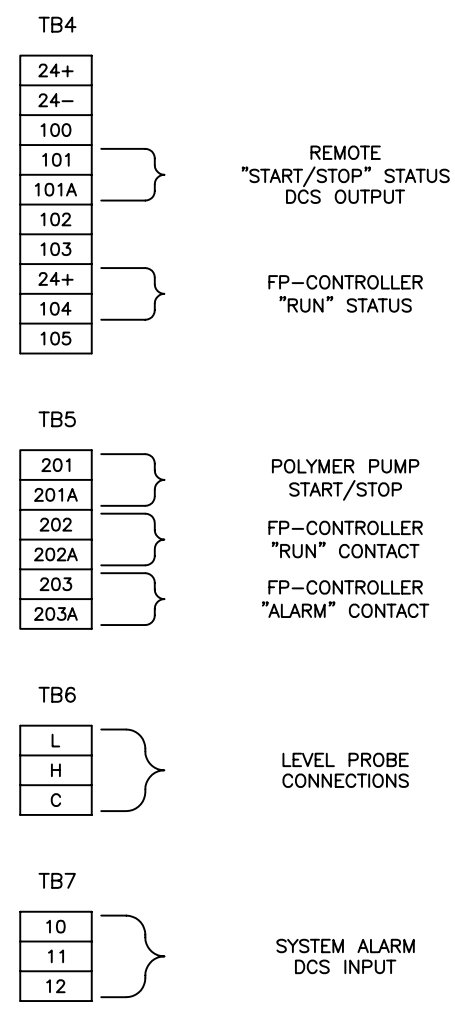
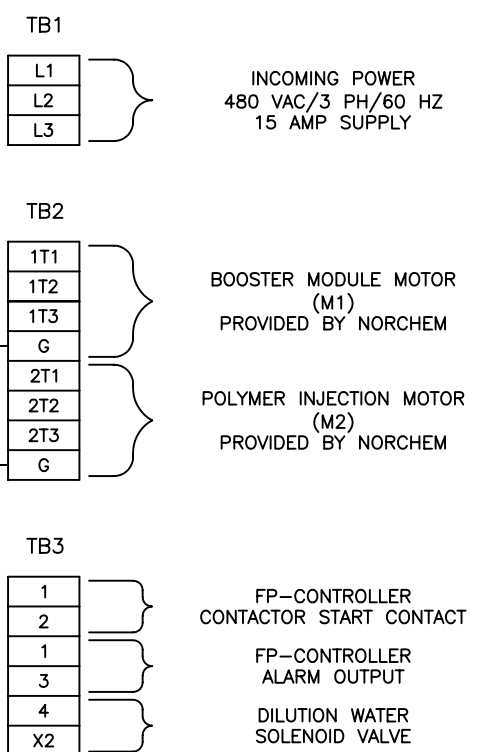
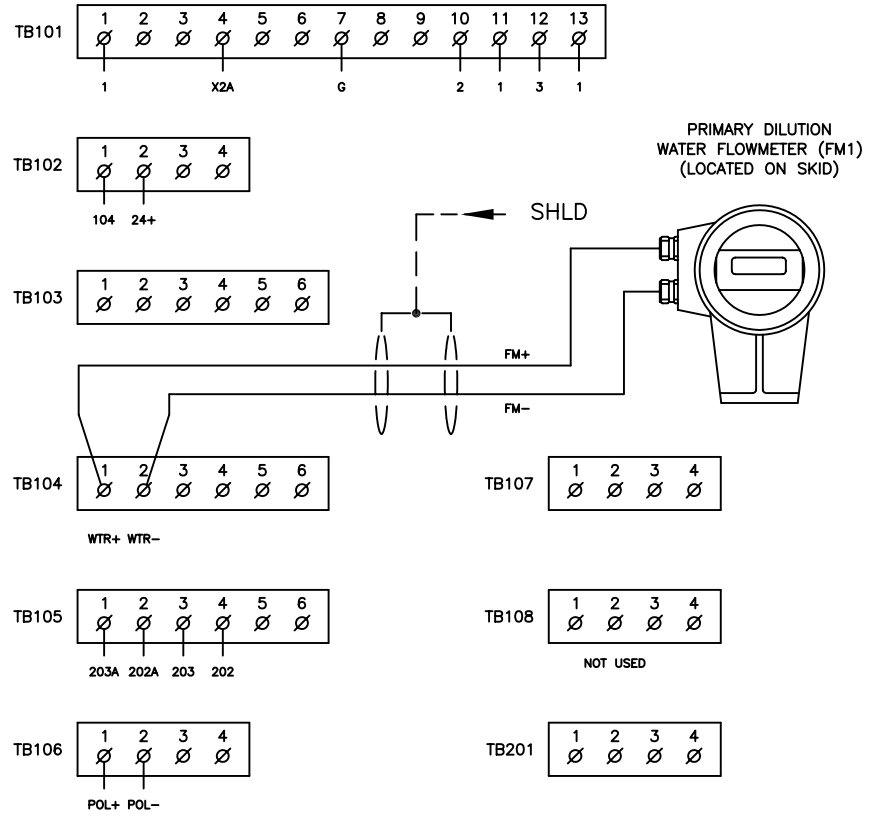
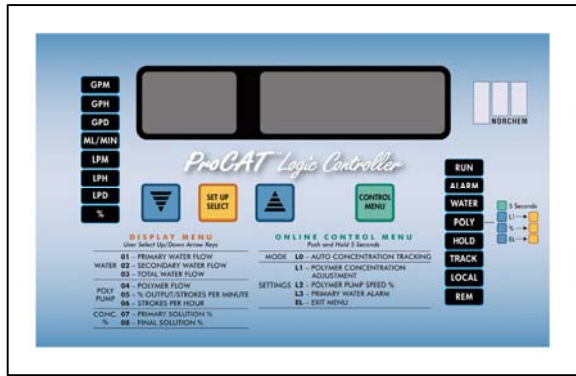
FP-CONTROLLER  
"RUN" CONTACT

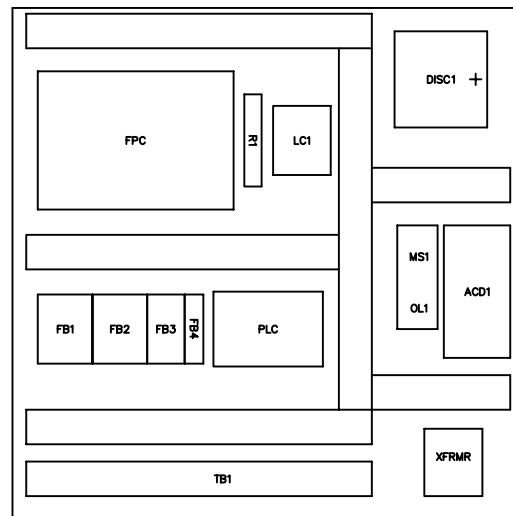
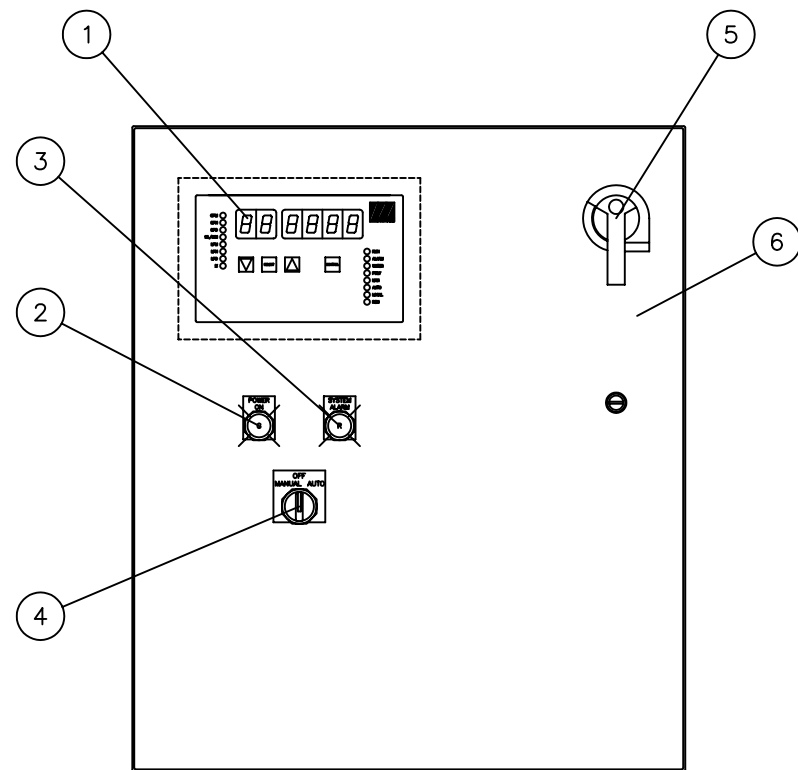
CONTROLLER  
"ALARM" CONTACT

"SYSTEM ALARM"  
INDICATOR

SYSTEM ALARM  
CONTROL RELAY

PROCAT CONTROLLER






SUBPANEL COMPONENT LISTING		
ITEM	DESCRIPTION	PART NO.
DISC1	INCOMING POWER DISCONNECT w/OPERATOR	ALLEN-BRADLEY OR EQUAL
MS1	STARTER - BOOSTER PUMP MOTOR	ALLEN-BRADLEY
OL1	OVERLOAD - BOOSTER PUMP MOTOR	ALLEN-BRADLEY
FB1	FUSE BLOCK - BOOSTER PUMP MOTOR	BUSSMAN OR EQUAL
FB2	FUSE BLOCK - AC DRIVE	BUSSMAN OR EQUAL
FB3	FB3 - XFRMR PRIMARY	BUSSMAN OR EQUAL
FB4	FUSE BLOCK - XFRMR SECONDARY	BUSSMAN OR EQUAL
ACD1	AC DRIVE - POLYMER PUMP	AC TECH
PLC	SECONDARY LEVEL CONTROLLER (11 PIN SOCKET)	ALLEN-BRADLEY 1761-L10BWA
XFRMR	CONTROL TRANSFORMER 150 VA	MICRON OR EQUAL
FPC	FLOW PROPORTIONAL CONTROLLER	NORCHEM
R1	ALARM CONTROL RELAY	ALLEN-BRADLEY
LC1	PRIMARY LEVEL CONTROLLER	WARRICK
TB1	FLOW PROPORTIONAL CONTROLLER	ALLEN-BRADLEY

OPERATOR AND DISPLAY LISTING

- |                                    |   |
|------------------------------------|---|
| ① FLOW PROPORTIONAL CONTROLLER HIM | ④ SELECTOR SWITCH MANUAL-OFF-AUTO           |
| ② "POWER ON" INDICATOR             | ⑤ SYSTEM PANEL DISCONNECT 600 VOLTS/30 AMPS |
| ③ "SYSTEM ALARM" INDICATOR         | ⑥ NEMA 4X 304SS ENCLOSURE                   |

		<b>NORCHEM INC.</b> 8910 W. 192nd STREET MOKENA, ILLINOIS 60448	
A	FOR INFORMATION ONLY	10-29-02	
SYM.	REVISIONS	DATE	
CUSTOMER NORCHEM INC. MOKENA, IL 60448 USA			
DESCRIPTION NORCHEM L-SERIES (VER. 2003) CONTROL PANEL & SUBPAN LAYOUT			
CONTRACT NUMBER -			
PROJECT NUMBER	-	DRAWING NUMBER	NCI-102902-2A
REV	A		

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DWN.	RWD
CHK'D	RWD
APP'D	RWD
CADFILE:	PROCAT_CTL_SPEC
SHT. OF	1 1
SCALE	NONE



**LEGEND**

**DEVICES**

HV-1	POLYMER SUPPLY SHUTOFF HAND VALVE
HV-2	CALIBRATION ASSEMBLY ISOLATION HAND VALVE
CAL-1	CALIBRATION CYLINDER
PI-101	MIXING PRESSURE GAUGE
M-101	BOOSTER PUMP MOTOR
M-102	POLYMER INJECTION PUMP MOTOR
SOV-101	DILUTION WATER INLET SOLENOID VALVE
FT-101	DILUTION WATER FLOW TRANSMITTER 0-35 GPM (4-20 mA)

**CONTROLS**

SS-101	SELECTOR SWITCH "MANUAL-OFF-AUTO"
LC-101	PRIMARY LEVEL CONTROLLER
FPC-101	FLOW PROPORTIONAL CONTROLLER (NORCHEM)

**INDICATORS**

PWR-101	"POWER ON" INDICATOR
STA-101	"SYSTEM ALARM" INDICATOR

**DCS INTERFACE**

S101	REMOTE "STOP/START" DCS OUTPUT (AUTO MODE ONLY)
R101	"SYSTEM ALARM" DCS INPUT (FORM-C RELAY)
L101	DILUTION WATER FLOW 4-20 mA DCS INPUT (0-35 GPM)
L102	POLYMER PUMP SPEED 4-20 mA DCS INPUT (0-100%)

