



Main Office
397 Whittier Highway
Moultonboro, NH 03254
603-253-4525
FAX 603-253-6284

Branch Office
930B American Legion Hwy
Westport, MA 02790
508-636-8600
FAX 508-636-8650

VT License EM-2667 ME License 7905 NH License 46C MA License 221MR

SHOP DRAWING / MATERIALS SUBMITTAL

Date: June 3, 2020

E.I.I. Project Number: 2031

Submittal Number: **2031-1**

Project Title: Reinach Tank & Booster Pump Station

Owner: Village District of Eidelweiss - Madison, NH

Engineer: J/B

Submittal Item: Booster Pump Control Panel Submittal

Drawing(s) No.: As Applicable

Certification Statement: By this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data and I have checked and coordinated each item with other applicable approved shop drawings and all Contract requirements.
Exceptions or substitutions: Noted Submitted by: Darlene Chevette

Booster Pump Control Panel Bills of Materials

Electrical Installations, Inc.
Bill of Material

Project Information

Job No. : 2031

VILLAGE DISTRICT OF EIDELWEISS
MADISON, NH
REINACH TANK & BOOSTER PUMP STATION

Date: 6/2/20

Panel Name: **BOOSTER PUMP CONTROL PANEL**

ITEM FROM DWG	QTY.	PART NUMBER	MANUFACTURER	DESCRIPTION	TAG NUMBER	TAB/REF NUMBER
1	1	LABEL-UL	PANEL SHOP	UL 508A PANEL FABRICATOR LABEL	NA	NA
2	1	LABEL-ARC	PANEL SHOP	ARC PPE PANEL LABEL	NA	NA
3	2	LABEL-EI	PANEL SHOP	EI COMPANY LOGO LABEL	NA	NA
4	1	LABEL-SCCR	PANEL SHOP	SHORT CIRCUIT CURRENT RATING LABEL	NA	NA
5						
6	1	SCE -60XEL3716LP12	SAGINAW	NEMA 12 STEEL ENCLOSURE, 1-DOOR, FLANGE DISCONNECT	NA	
7	1	SCE -60P36	SAGINAW	SUB-PANEL, STEEL	NA	
8	1	SCE -FA66	SAGINAW	FAN PACKAGE, 115VAC, SS GRILLE, ALUMINUM FILTER	NA	
9	1	SCE -FGA66	SAGINAW	FILTER AND GRILLE PACKAGE, SS	NA	
10	1	SCE -TEMNO	SAGINAW	THERMOSTAT, NO, 30-140 DEG F	NA	
11	1	SCE -FK1216	SAGINAW	FLOOR STAND KIT	NA	
12						
13	1	BWT25JAGU-3P100SB	FUJI/AUTO DIRECT	MCCB, 3-POLE, 100 A, THERMAL MAGNETIC	MCCB	
14	1	BW9FOCA-15A	FUJI/AUTO DIRECT	HANDLE, FLANGE MOUNTED, WITH 1.5M FLEX-CABLE KIT	NA	
15						
16	3	FSPDB3A	MERSEN/F-S	DISTRIBUTION BLOCK, 175A, 1-LINE, 8-LOAD, #2-#14 AWG	PDB-1	
17						
18	2	38612005	SOCOMECA/AUTO DIRECT	DISCONNECT SWITCH, FUSED, CLASS J, 60A, 2-POLE, FRAME 4	FDS-1	
19	2	141G2111	SOCOMECA/AUTO DIRECT	HANDLE, S01, 30-60A, RED/YELLOW	NA	
20	2	14001040	SOCOMECA/AUTO DIRECT	SHAFT, FOR S01, 15.7 INCHES	NA	
21	2	14290000	SOCOMECA/AUTO DIRECT	SHAFT GUIDE FOR EXTERNAL HANDLE	NA	
22	2	37297540	SOCOMECA/AUTO DIRECT	NFPA 79 KIT	NA	
23						
24	2	HSJ35	MERSEN/F-S	FUSE, 35A, HIGH SPEED CLASS J	FU1A, -1B	
25	2	HSJ35	MERSEN/F-S	FUSE, 35A, HIGH SPEED CLASS J	FU2A, -2B	
26						
27	2	QOU-110	SQUARE D	CIRCUIT BREAKER, 1-POLE 120V, 10A	CB-1, -2, -3	
28						
29	2	2902991	PHOENIX CONTACT	POWER SUPPLY, 120VAC/24VDC, 30 WATTS	PS-1, -2, -3	
30						

Electrical Installations, Inc.
Bill of Material

Project Information

Job No.: 2031
VILLAGE DISTRICT OF EIDELWEISS
MADISON, NH
REINACH TANK & BOOSTER PUMP STATION

Date: 6/2/20

Panel Name: **BOOSTER PUMP CONTROL PANEL**

ITEM FROM DWG	QTY.	PART NUMBER	MANUFACTURER	DESCRIPTION	TAG NUMBER	TAB/REF NUMBER
31	AR	UTTB 4 SERIES	PHOENIX CONTACT	TERMINAL BLOCKS AND ACCESSORIES	PER DWGS	
32	AR	801733	PHOENIX CONTACT	NS 35/7.5 DIN RAIL, 35X7.5mm, 2M LENGTH, PERFORATED	NA	
33						
34	2	2963860	PHOENIX CONTACT	SD-US/SC/LA/GY SINGLE RECEPTACLE, 15 AMP, DIN RAIL	R-1, R-2	
35	1	LABEL-RECP	PANEL SHOP	PANEL LABEL "FOR UPS ONLY"	NA	
36						
37	15	RU2S-CL-A120	IDEC	RELAY, DPDT, INDICATOR LIGHT, 10 AMP, 120VAC	PER DWGS	
38	15	SU2S-05BW	IDEC	RH2B SOCKET, DIN RAIL	NA	
39						
40	AR	TYPE F	PANDUIT	WIRING DUCT, NARROW FINGER, SIZED BY PANEL SHOP	NA	
41						
42	1	N44E-84	ABB	POWER RELAY, 10A, 4 N.O., 4 N.C., DIN-MOUNT	ATR	
43						
44	1	XB4BW31G5	TELEMECANIQUE	22mm PTT LIGHT, MOMENTARY, 120VAC, WHITE LED	YL-1	
45	1	XB4BW34G5	TELEMECANIQUE	22mm PTT LIGHT, MOMENTARY, 120VAC, RED LED	AL-1	
46	1	XB4BW34G5	TELEMECANIQUE	22mm PTT LIGHT, MOMENTARY, 120VAC, RED LED	AL-2	
47						
48	2	FC-202.P2K2...	DANFOSS	VLT AQUA VFD, 240V 1-PH IN/3-PH OUTPUT, 3 HP, WITH LCP	SIC-1,-2	
49	2	130B1117	DANFOSS	LCP MOUNTING KIT	HIM-1,-2	
50						
51	FIELD INSTRUMENTATION					
52	1	OPTION-009	KPSI	SURGE ARRESTER FOR KPSI TANK LEVEL TRANSDUCER	NA	
53						
54	1	2XC13	GRAINGER	MADISON M8700 BLDG FLOOD FLOAT SWITCH	NA	
55						
56	1	TSW-160	DWYER	DIGITAL TEMPERATURE SWITCH, 24VDC	NA	
57						
58	2	2HLT3	GRAINGER	DWYER PRESSURE TRANSMITTER, 0-200 PSI, 4-20mA OUT	NA	
59						
60						

**Electrical Installations, Inc.
Bill of Material**

Project Information

Job No.: 2031

VILLAGE DISTRICT OF EIDELWEISS
MADISON, NH
REINACH TANK & BOOSTER PUMP STATION

Date: 6/2/20

Panel Name: **BOOSTER PUMP CONTROL PANEL**

ITEM FROM DWG	QTY.	PART NUMBER	MANUFACTURER	DESCRIPTION	TAG NUMBER	TAB/REF NUMBER
PLC EQUIPMENT						
61	1	SMART1000LCDT	TRIPP-LITE	UPS, LINE INTERACTIVE, 1000VA/500W	UPS	
62						
63						
64	1	1766-L32BWA	ALLEN-BRADLEY	MICROLOGIX 1400 CONTROLLER, 20 DC INPUTS / 12 RELAY OUTPUTS	PLC	
65	1	1766-MM1	ALLEN-BRADLEY	MEMORY MODULE	NA	
66	2	1762-IF4	ALLEN-BRADLEY	EXPANSION ANALOG INPUT MODULE, 4 I OR V CHANNELS	NA	
67	1	1762-OF4	ALLEN-BRADLEY	EXPANSION ANALOG OUTPUT MODULE, 4 I OR V CHANNELS	NA	
68						
69	1	EA9-17CL-R	AUTO DIRECT	TOUCH PANEL HIM, COLOR, 7-INCH	OIT	
70	1	EA-AC	AUTOMATION DIRECT	AC/DC POWER SUPPLY ADAPTER	NA	
71						
72	1	SE-SW5U	AUTO DIRECT	INDUSTRIAL ETHERNET SWITCH, 5-PORT RJ45	ETH	
73						
74	AR	CUSTOM-CAT6	EII SHOP	PATCH CABLE, ETHERNET CAT 6	NA	
75						
76	1	ZP-PNA-06-101	AUTO DIRECT	PANEL INTERFACE, NO OUTLET, RJ45_PORT	PROG_PORT	
77						
78						
79						
80						
81						
82						
83						
84						
TELEMETRY EQUIPMENT						
85	1	195C	ESTEEM	EXISTING RE-USED WIRELESS MODEM, 450-470 MHZ	WRM	
87	1	AA0621.1	ESTEEM	EXISTING RE-USED RS-232 COMMUNICATIONS CABLE	NA	
88	1	AA179	ESTEEM	EXISTING RE-USED POWER SUPPLY, 120VAC/12VDC, 3A	NA	
89						
90						

AR = As Required NA = Not Applicable TBD = To Be Determined

Booster Pump Control Panel Data Sheets



Your Enclosure Source®

Saginaw Control and Engineering
95 Midland Road Saginaw, MI 48638-5770
(800) 234-6871 - Fax: (989) 799-4524
SCE@SaginawControl.com

SCE-60XEL3716LP



Product Specifications:

Part Number: SCE-60XEL3716LP

Description: XEL LP Enclosure

Height: 60.00"

Width: 37.38"

Depth: 16.00"

Price Code: E3

List Price: \$1,040.74

Catalog Page: 106

Est. Ship Weight: 198.00 lbs

Construction

- ✱ 0.075 In. carbon steel.
- ✱ Seams continuously welded and ground smooth.
- ✱ Flange trough collar around all sides of door opening.
- ✱ Pour in place oil & water resistant gasket
- ✱ Collar studs 3/8-16 provided for mounting optional panels.
- ✱ Disconnect cutout provided on flange.
- ✱ Concealed hinges.
- ✱ Doors are interchangeable and easily removed by pulling hinge pins.
- ✱ 3-point latching mechanism when door height is greater or equal to 40 inches, 2-point latching mechanism when door height is less than 40 inches.
- ✱ Latches are opened or closed with a screwdriver (optional tamper-resistant inserts are available).
- ✱ Mounting holes on back of enclosure.
- ✱ Mounting hardware, sealing washer and hole plug included.
- ✱ Ground studs on door and body.
- ✱ Black zinc die cast coinproof/padlocking handle.
- ✱ Removable print pocket.

Application

Designed to house electrical and electronic controls, instruments and components. Provides protection from dust, oil and water. Designed to house most standard type disconnects. For outdoor applications a drip shield is recommended.

Finish

ANSI-61 gray powder coating inside and out. Optional sub-panels are powder coated white.

Industry Standards - (IS4)

- ✱ NEMA Type 3R, 4, 12 and Type 13
- ✱ UL Listed Type 3R, 4 and 12
- ✱ CSA Type 3R, 4 and 12
- ✱ IEC 60529
- ✱ IP 66

Notes

Disconnect switch (or circuit breaker) and operating mechanism are not furnished with this enclosure.

Special Instructions apply for IS3, IS4 and IS6 to maintain the environmental rating of Type 3R for these parts. Instructions are located on the enclosure door. Drip shield is required on IS3, drip shield is recommended on IS4 and IS6. Drain holes are required on all.

Provision for Lifting Lugs included on enclosures with Height >48" and with Depth >16". The Lifting Lug assembly will be included with the enclosure bolt pack and hole plugs provided to seal holes in bottom of enclosure.

Optional Accessories

- SCE-60P36 Subpanel, Bent
- SCE-60P36GALV Subpanel, Bent Galvanized
- SCE-BVK Breather Vent
- SCE-DF60EL36LP Panel, Dead Front (Wall Mount)
- SCE-DS36N4 Shield, Drip
- SCE-ELMFK4 Foot Kit, EL Mounting (4pc.)
- SCE-ELSP3 KIT, Swing-Out Panel (20 High & Up)
- SCE-RD60XEL3712 Door, Replacement

Similar Part Numbers

- SCE-48XEL3710LPXEL LP Enclosure
- SCE-48XEL3712LPXEL LP Enclosure
- SCE-48XEL3712LP12XEL LP Enclosure (Nema 12)
- SCE-48XEL3716LPXEL LP Enclosure
- SCE-60XEL3710LPXEL LP Enclosure
- SCE-60XEL3712LPXEL LP Enclosure
- SCE-60XEL3716LP12XEL LP Enclosure (Nema 12)

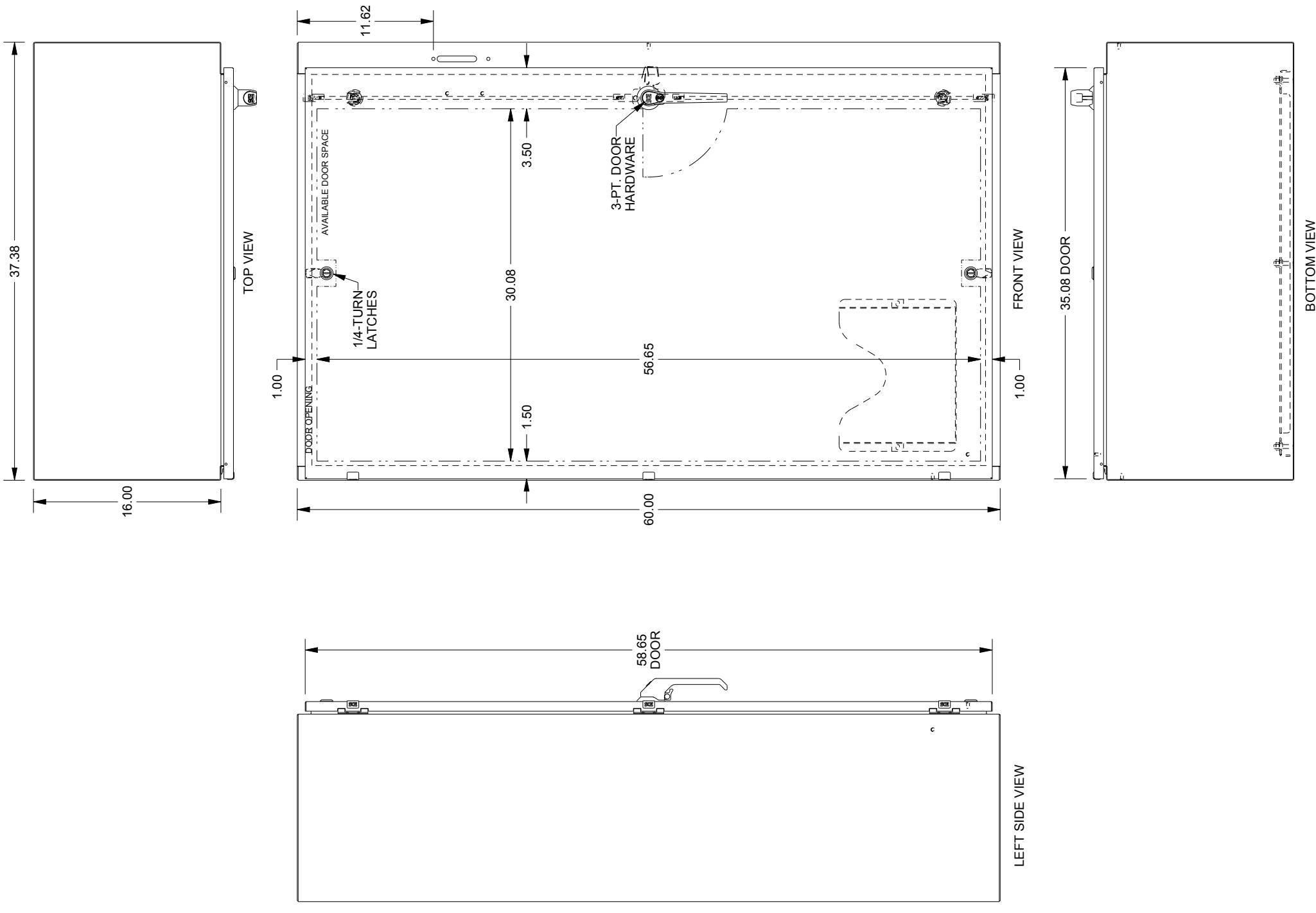
Installation Information

- ✱ Mechanical Defeater (2018 Rev) Video
- ✱ Square D Flange Mounted, Disconnects and Circuit Breakers
- ✱ Gould Flange Mounted, Disconnects and Circuit Breakers
- ✱ Bussmann Flange Mounted, Disconnects and Circuit Breakers
- ✱ Allen-Bradley Flange Mounted, Disconnects and Circuit Breakers
- ✱ Siemens Flange Mounted, Disconnects and Circuit Breakers
- ✱ GE Flange Mounted, Disconnects and Circuit Breakers
- ✱ ABB Flange Mounted, Disconnects and Circuit Breakers
- ✱ Moller Flange Mounted, Disconnects and Circuit Breakers
- ✱ Cutler-Hammer Flange Mounted, Disconnects and Circuit Breakers
- ✱ Mounting Foot Kit for Enviroline Enclosures
- ✱ Drip Shield Kit Assembly
- ✱ Self Tripping Defeater Hook Kit
- ✱ Swing Panel Assembly for Enviroline Enclosures
- ✱ Swing Panel ELSP for Encl. Height > 16
- ✱ Sealing Washer Specifications
- ✱ Mechanical Defeater (2018 Rev)
- ✱ Dead Front Wall Mount With 3 Point Latching Hardware
- ✱ Service Parts Wall Mount Enclosures
- ✱ LSis Flange Mounted Disconnect and Circuit Breakers

SAGINAW CONTROL & ENGINEERING

SCE-60XEL3716LP = SCE-09 GRAY

SCE-60XEL3716LPLG = RAL 7035





Your Enclosure Source[®]

Saginaw Control and Engineering
95 Midland Road Saginaw, MI 48638-5770
(800) 234-6871 - Fax: (989) 799-4524
SCE@SaginawControl.com

SCE-TEMNO

Product Specifications:



Part Number: SCE-TEMNO
Description: Thermostat (Normally Open)
Height: 2.40"
Width: 1.26"
Depth: 1.42"
Price Code: P1
List Price: \$50.05
Catalog Page: 344
Est. Ship Weight: 1.00 lbs
Used With: Fan
UL File Model Number: 301121

Application

Designed to regulate air temperature in enclosures that operate with heaters or fans. This mechanical bi-metallic thermostat has a set point range of 30° to 140° F and is easily installed on 35mm mounting rail. (NC) contact normally closed, or (NO) contact normally open, switch capacity 10 amp 120-250 VAC Resistive load and 1 amp 120-250VAC Inductive load, 1.25 amp 24VDC.

Industry Standards - (IS24)

* UL Component Recognized

Notes

UL File # E358385

Similar Part Numbers

SCE-TEMNCThermostat (Normally Closed)

Installation Information

* Thermostat

Molded Case Circuit Breakers Overview

Overview

Fuji Molded Case Circuit Breakers are more compact (especially 100A, 125A, 250A frames) than any breakers on the market, so they take up less space in control panels.

This product group maintains conformity to all Worldwide standards.

Agency Approvals

- UL listed, MCCB, File: E90584
- UL listed, Accessories, File E93289
- CE marked
- CCC marked
- TUV certified

Standards

- UL 489
- CSA C22.2 No.5
- IEC 60947-2
- EN 60947-2
- GB 14048.2
- JIS C8201-2-1, 2 (ANN.1, 2)

Features

- Thermal-magnetic 15A through 800A
- Suitable for branch circuit protection
- Rated current of 15 to 800A, max 600V
- Standard type and high-interrupting capacities available in identically sized breakers
- Shunt Trip, Undervoltage Release and other accessories available
- Line & load lug terminals included on all MCCBs
- Auxiliary switch, Alarm switch and Shunt Trip can be installed in the field
- Door-mounted or flange-mounted, flex shaft operating handles
- All frame sizes suitable for reverse-feed use
- All breakers include mounting hardware
- Terminal covers included for BW125 and BW250 frames. Terminal covers available for BW400, BW630 and BW800 frames.

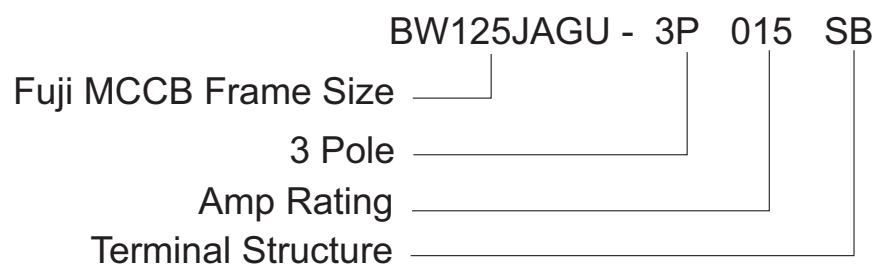


Fuji Electric Molded Case Circuit Breakers Technical Specifications									
Circuit Breaker Type	Ampere Rating at 40°C	No. Poles	Volts		Type of Trip*	UL 489 Interrupting Ratings (rms Symmetrical Amperes) (kA)			
			AC	DC		Volts AC (50/60 Hz)			Volts DC
						240	480	600	
BW125JAGU	15-125	3	600	250	N.I.T.U	50	30	10	10
BW250JAGU	125-250	3	600	250	N.I.T.U	50	30	10	10
BW400SAGU	250-400	3	480	250	N.I.T.U	50	35	–	10
BW630RAGU	500-600	3	480	250	N.I.T.U	100	50	–	10
BW800RAGU	700-800	3	480	250	N.I.T.U	100	50	–	10

*Note: N.I.T.U denotes non-interchangeable trip unit.

**Note: For DC or 1-phase AC applications, use the two outside poles of the 3-pole circuit breaker

Fuji Molded Case Circuit Breakers Part Numbering System



FE Fuji Molded Case Circuit Breakers – 125A Frame



Fuji BW125A series MCCBs are 125 amp frame, 3-pole, non-adjustable magnetic trip, molded case circuit breakers (MCCB). The BW125 series is suitable for reverse feed

applications. Included with each MCCB are Line and Load-side Lug terminals, terminal covers and mounting hardware. Accessories are not pre-installed and are sold separately.

BW125JAGU-3P125SB shown

BW125-Frame Series Three-Pole Molded Case Circuit Breakers									
Part Number	Price	Frequency	Rated Interrupting Capacity (kA)						
			Rated Current	UL489 CAN/CSA C22.2 No. 5		IEC60947-2, JIS C 8201-2-1 lcu/lcs		GB14048.2 lcu/lcs	
			Ampere Rating	Voltage	Interrupt Capacity	Voltage	Interrupt Capacity	Voltage	Interrupt Capacity
BW125JAGU-3P015SB	<--->	50/60 Hz	15	600V/Y AC 480V/Δ AC	10 kA 30 kA	500V AC 440V AC	15/8 kA 30/15 kA	400V AC 230V AC	30/15 kA 50/25 kA
BW125JAGU-3P020SB	<--->		20						
BW125JAGU-3P030SB	<--->		30						
BW125JAGU-3P040SB	<--->		40						
BW125JAGU-3P050SB	<--->		50						
BW125JAGU-3P060SB	<--->		60						
BW125JAGU-3P070SB	<--->		70						
BW125JAGU-3P075SB	<--->		75						
BW125JAGU-3P080SB	<--->		80						
BW125JAGU-3P090SB	<--->		90						
BW125JAGU-3P100SB	<--->		100						
BW125JAGU-3P125SB	<--->		125						

Note: SCCR = UL489 interrupting capacity

BW125-Frame Accessory Selection Guide		
Part Number	Price	Description
BW9W1SG0	<--->	Field installable auxiliary contact for BW125-frame MCCBs. SPDT. Lead wires: 20AWG, 19.69" long. Left and right side mount
BW9FRG0	<--->	Field installable 24 VDC/VAC shunt trip for BW125-frame MCCBs. Lead wires: 20AWG, 19.69" long. Left and right side mount
BW9FAG0	<--->	Field installable 100-120 VAC, 100-110 VDC shunt trip for BW125-frame MCCBs. Lead wires: 20AWG, 19.69" long. Left and right side mount
BW9RGAR	<--->	Field installable 24 VDC undervoltage release for BW125-frame MCCBs. Lead wires: 20AWG, 19.69" long. Left side mount only
BW9RGAT	<--->	Field installable 110-130 VAC undervoltage release for BW125-frame MCCBs. Lead wires: 20AWG, 19.69" long. Left side mount only
BW9SLOCA-3	<--->	Replacement lugs for BW125-frame MCCBs., package of 3
BW9VOCA	<--->	NEMA 12 rotary handle for BW125-Frame. Position indicating; lock-off feature. Shaft length: 0.39"
BW9VSG0	<--->	NEMA 12 rotary handle shaft for BW9VOCA for BW125-Frame. Shaft length: 6.06"
BW9FOCA-15A	<--->	NEMA 12 flexible shaft handle for BW125-Frame. Flange mounted. Lockable. Flex cable shaft length: 4.92' (1.5m)
BW9FOCA-20A	<--->	NEMA 12 flexible shaft handle for BW125-Frame. Flange mounted. Lockable. Flex cable shaft length: 6.56 (2m)
BW9Q1CA	<--->	Lockout attachment. Lock not included.

Note: Short-type terminal covers (gray-white) are supplied as standard.



BW9VOCA



BW9FOCA-15A



BW9FAG0



BW9RGAR



BW9Q1CA

FSPDB

FINGER-SAFE/POWER DISTRIBUTION BLOCKS



SAFETY EVOLVING FINGER-SAFE POWER DISTRIBUTION BLOCKS

Ferraz Shawmut FSPDBs introduce a new level of safety and ease for installing power distribution blocks. An IP20 level of finger safe protection is achieved using FSPDBs, eliminating the need for special covers or custom plexiglass sheets to protect your panels. FSPDBs (sizes 1 to 4) simply snap onto 35mm DIN rail to provide the quickest installation. Modular design also allows for multi pole applications by use of assembly pins. FSPDBs provide a safe, convenient way of splicing cables, splitting primary power into a variety of secondary circuits or providing a fixed junction tap-off point.

Features/Benefits

- **Finger-Safe**
Fully insulated block ensures touch safe isolation of live parts. Recessed termination screws and wire openings provide IP20 grade protection and qualify as “finger-safe” per IEC 529.
- **Compact Modularity**
Single or multiple pole configurations in the most compact footprint. Allows users to build smaller or higher density panels.
- **Snap on DIN Rail Mounting**
Sizes 1 to 4 feature integral DIN rail adaptors allowing for quick and easy installations on 35mm DIN rail yielding lower installed costs.
- **Captive Termination Screws**
Unique channel design ensures captive metric wire termination screws. Screws can never be lost.
- **Available Accessories**
For multi-pole panel mounting, simply snap in pins for rigid fit. Cap plugs provide the ability to maintain touch safety on unused openings. Circuit identification markers simply snap into blocks to ID circuits. End anchors provide rigid end stops.
- **Multiple Wire Ratings**
Provide users more versatility by offering capability of using multiple conductors in #2 and 2/0 openings.

Ratings

- Ampere ratings from 175 to 840A
- 600V rated
- Short Circuit Current Rating 100kA with proper fuse. Contact Technical Services for instruction sheet.

Approvals

- UL Recognized Component - Guide XCFR2, File E73571
- CSA Certified: Class 6228, File 69363

FSPDB

FINGER-SAFE/POWER DISTRIBUTION BLOCKS

Catalog Numbers and Ratings

CATALOG NUMBER		AMPERE RATING (Based on NEC Table 310-16 for 75° C Cu wire)	LINE			LOAD			SHORT CIRCUIT CURRENT RATING
ALUMINUM <small>(Connector rated for 90° C Cu/AL wire)</small>	COPPER <small>(Connector rated for 75° C Cu wire only)</small>		WIRE RANGE		OPENINGS PER POLE	WIRE RANGE		OPENINGS PER POLE	
			AWG/ KCMIL	MM ²		AWG/ KCMIL	MM ²		
FSPDB1A	FSPDB1C	175	2/0-#14	70-2.5	1	2/0-#14	70-2.5	1	*100kA
FSPDB2A	FSPDB2C	175	2/0-#14	70-2.5	1	#2-#14	35-2.5	4	*100kA
FSPDB3A	FSPDB3C	310	350-#6 2/0-#14	185-16 70-2.5	1	#2-#14	35-2.5	8	*100kA
FSPDB4A	FSPDB4C	335	400-#6	185-16	1	400-#6	185-16	1	*100kA
FSPDB5A	FSPDB5C	840	600-#4	300-25	2	600-#4	300-25	2	*100kA

* Contact Ferraz Shawmut technical services for fuse type and maximum ampere required.

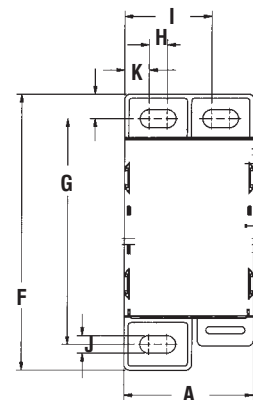
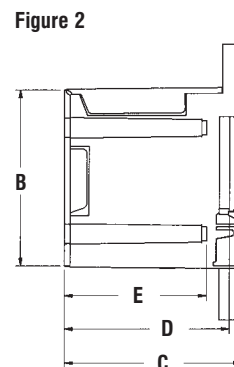
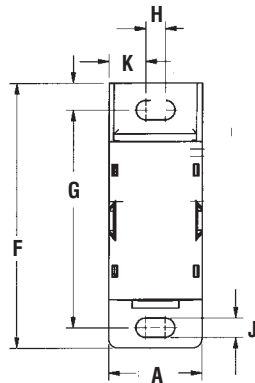
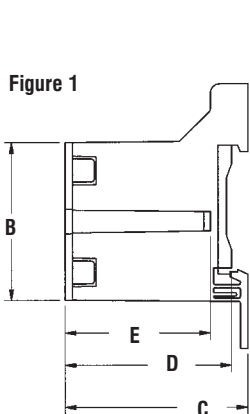
MULTIPLE WIRE RATINGS (SAME SIZE & TYPE WIRES ONLY)			
2/0 OPENINGS		#2 OPENINGS	
(2) #4 AWG	(2) #10 AWG	(2) #6 AWG	(2-4) #12 AWG
(2) #6 AWG	(2) #12 AWG	(2) #8 AWG	(2-4) #14 AWG
(2) #8 AWG	(2) #14 AWG	(2-4) #10 AWG	

Outline Dimensions

Dimension	FSPDB1A FSPDB1C <small>Figure 1</small>		FSPDB2A FSPDB2C <small>Figure 1</small>		FSPDB3A FSPDB3C <small>Figure 2</small>		FSPDB4A FSPDB4C <small>Figure 1</small>		FSPDB5A FSPDB5C <small>Figure 2</small>	
	mm	in	mm	in	mm	in	mm	in	mm	in
A	25.4	1.00	28.4	1.12	46.9	1.85	39	1.54	72	2.84
B	43.3	1.70	57.8	2.28	64.3	2.53	108	4.25	91	3.58
C	49.5	1.95	56.0	2.21	64.3	2.53	80	3.15	80	3.15
D	45.1	1.78	51.6	2.03	59.8	2.36	75.5	2.97	-	-
E	39.4	1.55	39.4	1.55	51.5	2.03	50.1	1.97	50.1	1.97
F	72.6	2.86	87.7	3.45	100.8	3.97	145.5	5.73	145	5.71
G	59.6	2.35	74.6	2.94	82.4	3.24	120.6	4.75	127.5	5.02
H	5.3	0.21	5.1	0.20	6.5	0.26	7	0.28	3	0.12
I	-	-	-	-	31.5	1.24	-	-	52	2.04
J	5.3	0.21	6.4	0.25	6.5	0.26	6.5	0.26	6.5	0.26
K	10	0.40	11.7	0.46	8.9	0.35	16	0.63	8.5	0.34

Accessories

CATALOG NO.	DESCRIPTION
FSPIN1	Accessory pin to form multiple pole block
FSCIM1	Circuit identification marker for 2/0 & #2 max. conductors
FSCIM2	Circuit identification marker for 350, 400 & 600 kcmil max. conductors
FSCAP1	Cap plug for spare 2/0 openings
FSCAP2	Cap plug for spare 350 kcmil openings
FSCP3	Cap plug for spare 600 kcmil opening
FSEA	Pair of end anchors

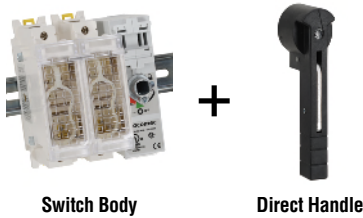


FUSERBLOC UL 98 Fusible Disconnect Switches



To assemble a switch, please select:

Direct Operation

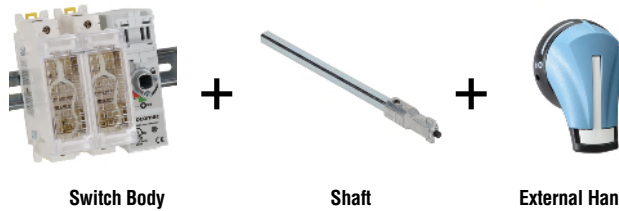


Switch Body

Direct Handle

OR

External Operation



Switch Body

Shaft

External Handle

UL 98 Fusible Disconnect Switches					
Part Number	Description	Switch Body Rating (A)	Frame Size	Number of Poles	Price
38612004	Front or side operated UL 98 Class J fusible switch, 600VAC, 250VDC	30	4	2	\$84.00
38613004				3	\$107.00
38616004				4	\$126.00
38612005		60		2	\$108.00
38613005				3	\$134.00
38616005				4	\$167.00
38612010		100	5	2	\$144.00
38613010				3	\$181.00
38616010				4	\$231.00
38612020		200		2	\$398.00
38613020				3	\$490.00
38616020				4	\$619.00
38513038		400	7	3	\$673.00
38503060		600	8	3	\$1,173.00

Front Operation Handles										
Part Number	Description	Switch Body Rating (A)	Fits Frame	Handle Color	Handle Type	NEMA/UL Type	Test	Price		
36297910	Direct mount handle	30-400	4 - 7	Black	-	-	-	\$20.50		
38596011		600	8	Black	-	-	-	\$37.00		
141F2111	Front operation handle for UL 98 fusible disconnect switches	30-60	4	Black/Blue	S1	1, 3R, 12	I - 0	\$22.50		
141G2111				Red/Yellow				\$22.50		
141D2111				Black/Blue	S1			4, 4X	I - 0	\$28.50
141E2111				Red/Yellow						\$28.50
141D2115				Black/Blue	S1			4, 4X	I - 0 - Test	\$30.00
141E2115				Red/Yellow						\$30.00
142D2115		100-200	5, 6	Black/Blue	S2	4, 4X	I - 0 - Test	\$57.00		
142E2115				Red/Yellow				\$57.00		
142F2111		100-400	5, 6, 7	Black/Blue	S2	1, 3R, 12	I - 0	\$32.50		
142G2111				Red/Yellow				\$32.50		
142D2111				Black/Blue	S2			4, 4X	I - 0	\$45.50
142E2111				Red/Yellow						\$45.50
143F3111		600	8	Black/Blue	S3	1, 3R, 12	I - 0	\$42.00		
143G3111				Red/Yellow				\$42.00		
143D3111				Black/Blue				S3	4, 4X	I - 0
143E3111		Red/Yellow	\$54.00							
141D2911	30-60	4	Black/Blue	S1	4, 4X	I - 0	\$33.00			
141E2911			Red/Yellow				\$33.00			
142D2911	100-400	5, 6, 7	Black/Blue	S2	4, 4X	I - 0	\$57.00			
142E2911			Red/Yellow				\$57.00			
143D3911	600	8	Black/Blue	S3	4, 4X	I - 0	\$75.00			
143E3911			Red/Yellow				\$75.00			



FUSERBLOC UL 98 Fusible Disconnect Switches



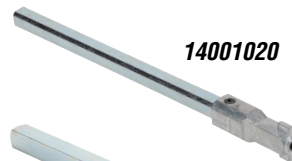
Right Side Operation Handles (No door interlocking)								
Part Number	Description	Switch Body Rating (A)	Fits Frame	Handle Color	Handle Type	NEMA/UL Type	Test	Price
141H6111	Side operation handle for UL 98 fusible disconnect switches	30-60	4	Black/Blue	S1	4, 4X	I - 0	\$29.00
141I6111				Red/Yellow				\$29.00
142H6111		100-400	5, 6, 7	Black/Blue	S2			\$42.00
142I6111				Red/Yellow				\$42.00
141H6911	Heavy duty side operation handle for UL 98 fusible disconnect switches*	30-60	4	Black/Blue	S1			\$58.00
141I6911				Red/Yellow				\$58.00
142H6911		100-400	5, 6, 7	Black/Blue	S2			\$70.00
142I6911				Red/Yellow				\$70.00



141H6111

* Heavy duty handles have larger metal hasp to accommodate multiple locking devices.

Shafts for External Handles					
Part Number	Switch Body Rating (A)	Handle Type	Length		Price
			in	mm	
14001020	30-400	S1, S2	7.9	200	\$8.75
14001032			12.6	320	\$9.75
14001040			15.7	400	\$11.00
14001220	600	S3	7.9	200	\$12.00
14001232			12.6	320	\$14.50
14001240			15.7	400	\$16.00



14001020



14001220

Shaft Guide for External Handle			
Part Number	Description	Fits Handle Type	Price
14290000	This accessory makes alignment connections between the shaft and handle easier. Allows up to 15mm misalignment tolerance. Required for a shaft length longer than 300mm. Included with longer shafts.	S1, S2, S3	\$4.75



14290000

Auxiliary Contacts				
Part Number	Description	Body Switch Rating (A)	Contacts	Price
39990701	Front mount auxiliary contacts can be configured to be operated on standard and TEST position switches. Each slot can accommodate up to 2 interlocked auxiliary contacts. 3A @ 240VAC.	30 - 600	1 NO	\$6.75
39990702			1 NC	\$6.75
3999U041	Side operated auxiliary contacts for frame sizes 3 to 8 UL 98 fusible disconnect switches, position OFF and ON signalled by 1 to 4 NO + NC auxiliary contacts. 10A @ 600 VAC/DC. 2/pk	30-200	1 NO	\$20.50
3999U042			1NO / 1NC	\$39.50



39990701

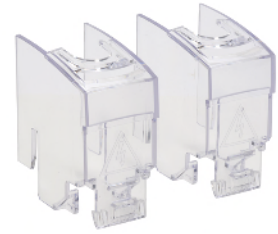


3999U041

FUSERBLOC UL 98 Fusible Disconnect Switches



Terminal Shrouds				
Part Number	Description	Switch Body Rating (A)	Pcs/pk	Price
38982020	Line or load protection against direct contact with terminals or connection parts, 1 pole	200	2	\$13.50
38983020		200	3	\$19.50
38984020		200	4	\$25.00
38983040		400	3	\$24.50
38983080		600	3	\$43.00



38982020

Terminal Lugs					
Part Number	Switch Body Rating (A)	Wire Range	Wires per lug	Lugs per Kit	Price
39542020	200	#6 - 300MCM	1	2	\$13.00
39543020				3	\$19.50
39544020				4	\$25.50
39543040	400	#2 - 600MCM	1	3	\$50.00
39543041				2 x (#6 - 350MCM)	2
39543060	600	2 x (#2 - 600MCM)	2	3	\$102.00



39542020

Note: Accept either copper or aluminum wires

NFPA 79 Accessories

Flange Handles						
Part Number	Description	Switch Body Rating (A)	Handle Color	Handle Type	NEMA/UL Type	Price
37299002	Flange handle, meets UL 508A and NFPA 79 requirements. The handle will operate the switch by cable.	30-200	Gray	Standard	1, 3, 3R, 4, 12	\$95.00
37299003		30-200	-	Chrome plated	1, 3, 3R, 4, 4X, 12	\$256.00

Requires flange handle, cable operator and cable.

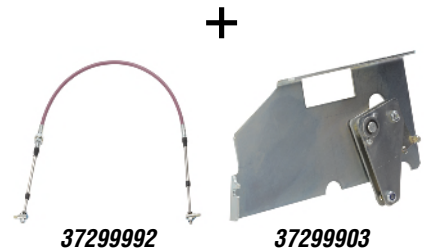


37299002

37299003

Cable Operator			
Part Number	Description	Switch Body Rating (A)	Price
37299903	Cable flange mechanism links to flange handle and side-operated switches. Must also order flange handle.	30-200	\$98.00

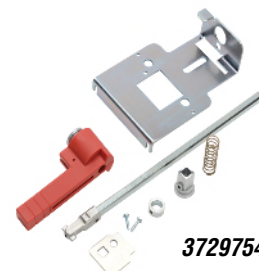
Cables			
Part Number	Cable Length (feet)	Cable Length (m)	Price
37299992	3	1	\$115.00
37299993	5	1.5	\$134.00



37299992

37299903

NFPA 79 "Through the Door" Kit					
Part Number	Description	Min Enclosure Depth	Switch Body Rating (A)	Fits Frame Size	Price
37297540	Meets both UL 508A and NFPA 79 requirements. Order an S-type external handle separately (not S0).	11.14 in (238mm)	30-200	3, 4, 5, 6	\$43.00
37297544		11.81 in (300mm)	400	7	\$62.00
37297552		14.96 in (380mm)	600	8	\$130.00



37297544

LPJ – 600Vac/300Vdc, 1-60A, Dual Element, Time-Delay Fuses



Available with easyID™
open fuse indication

Description: Ultimate protection Class J dual element, current-limiting, time-delay fuses available with optional open fuse indication. Time-delay – 10 seconds (minimum) at 500% of rated current.

Catalog Symbol: LPJ-(amp)SP (non-indicating)
LPJ-(amp)SPI (indicating)

Ratings:

- Volts – 600Vac, 300Vdc
- Amps – 1-60A
- IR – 300kA Vac RMS Sym.
- 100kA Vdc

Agency Information:

CE, UL Listed, Guide JDDZ, File E4273
CSA Certified, Class 1422-02, File 53787,
Class J per CSA 22.2 No. 248.

Catalog Numbers (amps) – Non-indicating Fuses

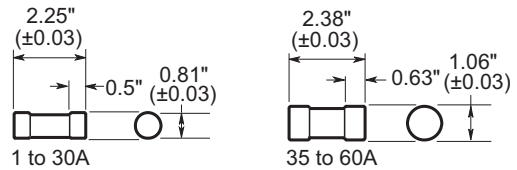
LPJ-1SP	LPJ-3SP	LPJ-7SP*	LPJ-25SP*
LPJ-1½SP	LPJ-3½SP	LPJ-8SP*	LPJ-30SP*
LPJ-1¾SP	LPJ-3¾SP	LPJ-9SP*	LPJ-35SP*
LPJ-1⅞SP	LPJ-4SP	LPJ-10SP*	LPJ-40SP*
LPJ-2SP	LPJ-4½SP	LPJ-12SP*	LPJ-45SP*
LPJ-2¼SP	LPJ-5SP	LPJ-15SP*	LPJ-50SP*
LPJ-2½SP	LPJ-5½SP	LPJ-17½SP*	LPJ-60SP*
LPJ-2⅞SP	LPJ-6SP*	LPJ-20SP*	

* Open fuse indication available by inserting the suffix "I," e.g., LPJ-15SPI.
Requires 75Vac minimum voltage.

Carton Quantity:

Amp Rating	Carton Qty.
1-60	10

Dimensions - in



Features:

- Industry's only UL Listed and CSA Certified fuse with a 300kA interrupting rating that allows for simple, worry-free installation in virtually any application.
- Fast short-circuit protection and dual-element, time-delay performance provide ultimate protection.
- Reduces existing fuse inventory by up to 33% when upgrading to Low-Peak fuses.
- Consistent 2:1 ampacity ratios for all Low-Peak fuses make selective coordination easy.
- Long time-delay minimizes needless fuse openings due to temporary overloads and transient surges.
- Current-limitation protects downstream components against damaging thermal and magnetic effects of short-circuit currents.
- Dual-element fuses have lower resistance than ordinary fuses so they run cooler. Can often be sized for back-up protection against motor burnout from overload or single-phasing if other overload protective devices fail.
- Proper sizing can provide "no damage" Type 2 coordinated protection for NEMA and IEC motor controllers.
- Space-saving package for equipment downsizing.

Recommended Fuse Blocks and Holders

Fuse Amps	1-Pole	2-Pole	3-Pole
Open Blocks			
0-30	J60030-1_	J60030-2_	J60030-3_
35-60	J60060-1_	J60060-2_	J60060-3_
"Pyramid" Blocks			
0-30	—	—	JP60030-3_
CH Series Holders			
0-30	CH30J1_	CH30J2_	CH30J3_
35-60	CH60J1_	CH60J2_	CH60J3_
Safety J™ Holders			
0-30	JT60030_	—	—
35-60	JT60060_	—	—

For additional information on the Class J fuse blocks and holders, see data sheets # 1114 (open blocks), #1108 (pyramid blocks), # 2144 (CH Series) and # 1152 (Safety J).

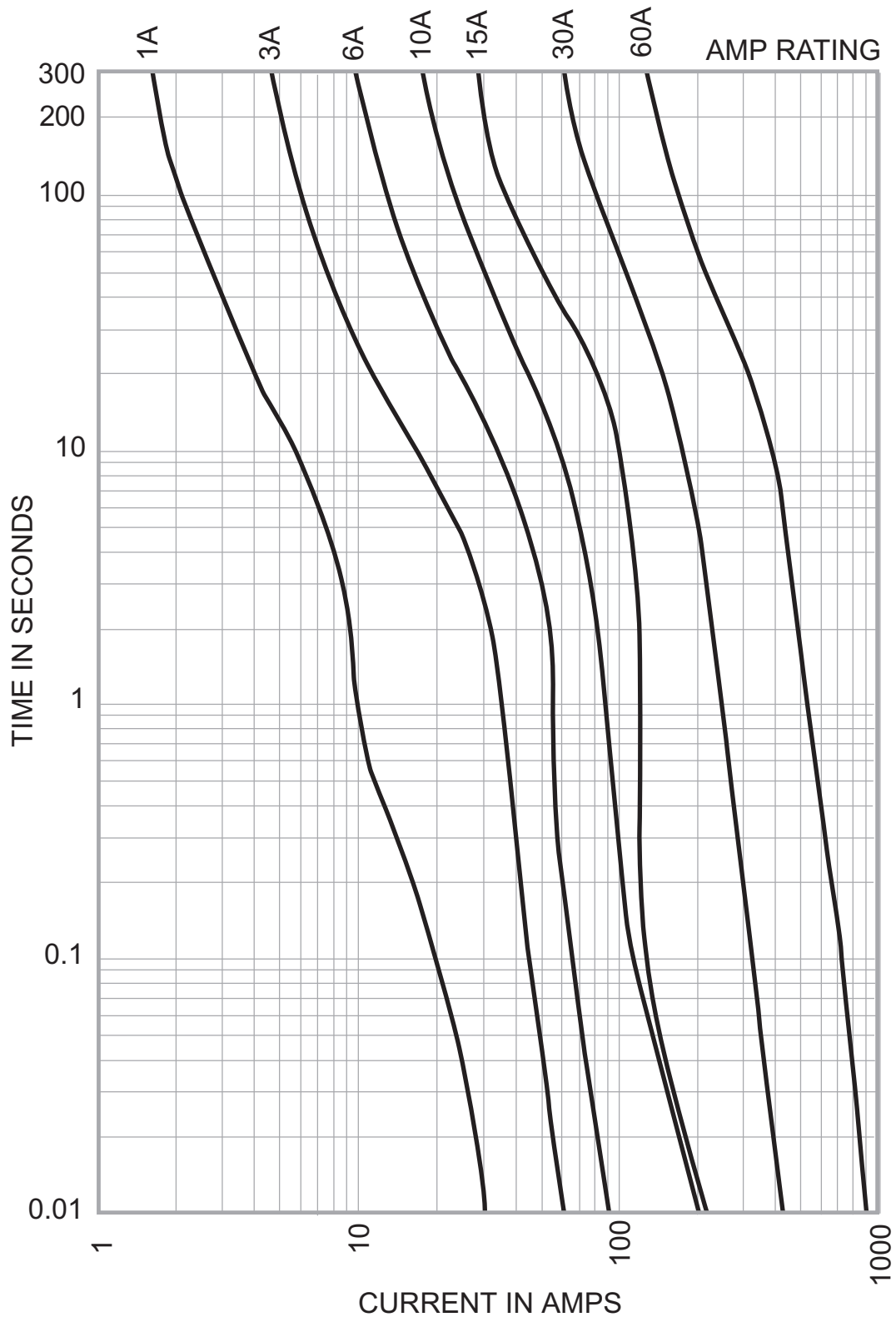
Fuse Reducers For Class J Fuses

Equipment Fuse Clips	Desired Fuse (Case) Size	Catalog Numbers (Pairs)
60A	30A	J-63
	30A	J-13
100A	60A	J-16
200A	60A	J-26†

† Not for bolt-in applications.

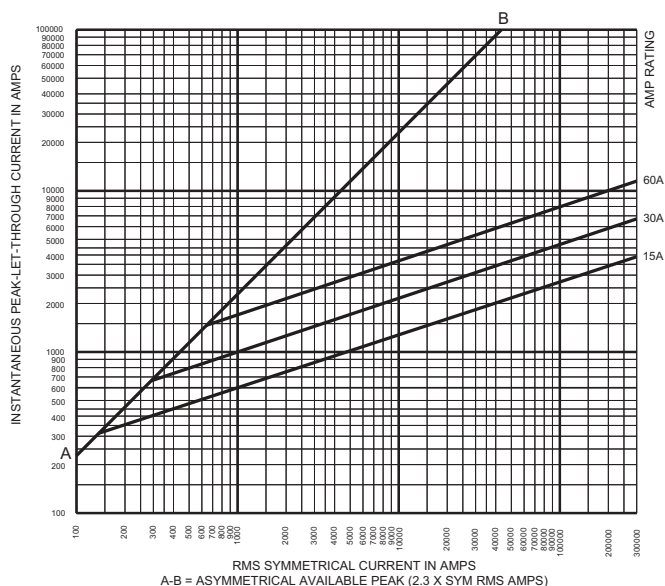
LPJ – 600Vac/300Vdc, 1-60A, Dual Element, Time-Delay Fuses

Time-Current Curves - Average Melt



LPJ – 600Vac/300Vdc, 1-60A, Dual Element, Time-Delay Fuses

Current-Limitation Curves



Current-Limiting Effects

Prosp. S.C.C.	Let-Through Current (Apparent RMS Symmetrical Vs. Fuse Rating)		
	15A	30A	60A
—	1000	1000	1000
1000	1000	1000	1000
3000	1000	1000	1000
5000	1000	1000	1000
10,000	1000	1000	2000
15,000	1000	1000	2000
20,000	1000	1000	2000
25,000	1000	1000	2000
30,000	1000	1000	2000
35,000	1000	1000	2000
40,000	1000	2000	3000
50,000	1000	2000	3000
60,000	1000	2000	3000
80,000	1000	2000	3000
100,000	1000	2000	4000
150,000	1000	2000	4000
200,000	2000	3000	4000
250,000	2000	3000	5000
300,000	2000	3000	5000

The only controlled copy of this Data Sheet is the electronic read-only version located on the Bussmann Network Drive. All other copies of this document are by definition uncontrolled. This bulletin is intended to clearly present comprehensive product data and provide technical information that will help the end user with design applications. Bussmann reserves the right, without notice, to change design or construction of any products and to discontinue or limit distribution of any products. Bussmann also reserves the right to change or update, without notice, any technical information contained in this bulletin. Once a product has been selected, it should be tested by the user in all possible applications.

QOU110

Miniature Circuit Breaker , 120/240VAC, 10A,
Circuit Breaker Type: Standard



by Schneider Electric

List Price \$40.20 USD

Availability **Stock Item: This item is normally stocked in our distribution facility.**

Technical Characteristics

Circuit Breaker Type	Standard
Approvals	UL489 Listed - CSA 22.2 #5.1 Certified - IEC Rated 60947-2
Width	0.75 Inches
For Use With	OEM Panels and Enclosures
Ampere Rating	10A
HACR Rated	Yes
Marketing Trade Name	QOU
Voltage Rating	120/240VAC
Mounting Type	Flush, Surface or DIN Rail (35mm)
Number of Poles	1-Pole
Short Circuit Current Rating	5kA@277VAC - 10kA@120/240VAC
Terminal Type	Line: Box Lug - Load: Box Lug
Type	QOU
Depth	2.98 Inches
Wire Size	#14-2 AWG(Al/Cu)
Height	4.05 Inches

Shipping and Ordering

Category	00900 - Circuit Breakers, 1 Pole: 10 - 100 Amp, 2 Pole: 10 - 125 Amp, 3 Pole: 10 -125 Amp, Type QOU
Discount Schedule	DE2
GTIN	00785901205678
Package Quantity	40
Weight	0.36 lbs.
Availability Code	Stock Item: This item is normally stocked in our distribution facility.
Returnability	Y
Country of Origin	MX

As standards, specifications, and designs change from time to time, please ask for confirmation of the information given in this document.

Power supply units and UPS

Power supply units

UNO POWER power supply units - compact basic functionality

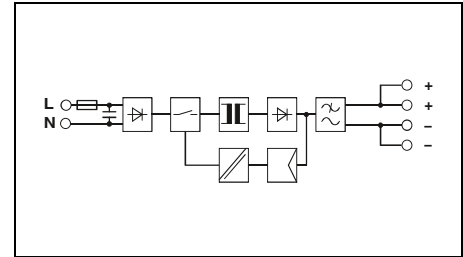
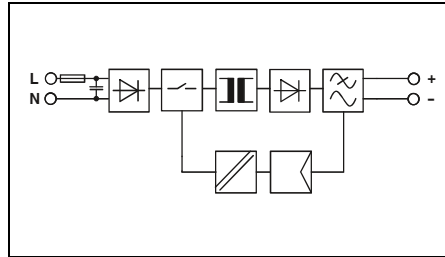
- More space in the control cabinet with up to 20% higher power density
- Height of housing is just 84 mm, suitable for all 120 mm control cabinets
- Maximum energy efficiency: energy savings with over 90% efficiency and extremely low idling losses under 0.3 W



Power supply, 1 AC, 24 DC, 30 W



Power supply, 1 AC, 24 DC, 60 W



Technical data

Technical data

Input data	
Nominal input voltage range	100 V AC ... 240 V AC
Input voltage range AC/DC	85 V AC ... 264 V AC
Frequency range	45 Hz ... 65 Hz
Current consumption (nominal load)	0.5 A (120 V AC) / 0.3 A (230 V AC)
Inrush current limitation at 25°C (typ.) / I _t	< 20 A / < 0.4 A ² s
Mains buffering (I _N , typ.)	> 35 ms (120 V AC) / > 140 ms (230 V AC)
Output data	
Nominal output voltage	24 V DC ±1%
Output current	1.25 A
Can be connected in parallel / series	yes, with redundancy module / Yes
Max. power dissipation (no load / nominal load)	< 0.3 W / < 5 W
Efficiency (typ.)	> 88 %
Residual ripple	< 60 mV _{pp}
Signaling	
Signaling DC OK	LED
General data	
Weight / Dimensions W x H x D	0.15 kg / 22.5 x 90 x 84 mm
Spacing when mounting	Alignable: 0 mm horizontally, 30 mm vertically
Connection method	Screw connection
Connection data solid / stranded / AWG	0.2 - 2.5 mm ² / 0.2 - 2.5 mm ² / 24 - 14
Degree of protection / Protection class	IP20 / II (in an enclosed control cabinet)
MTBF (EN 29500, 40°C)	> 500000 h
Ambient temperature (operation)	-25 °C ... 70 °C (> 55° C derating)
Standards/regulations	
Insulation voltage input/output	3 kV AC (routine test) / 4 kV AC (type test)
Electromagnetic compatibility	Conformance with EMC Directive 2004/108/EC
Electrical safety	IEC 60950-1/VDE 0805 (SELV)
Electronic equipm. for electrical power installations	EN 50178/VDE 0160 (PELV)
Safe isolation	DIN VDE 0100-410, DIN VDE 0106-1010
UL approvals	UL/C-UL listed UL 508, UL/C-UL Recognized UL 60950, NEC Class 2 as per UL 1310
Limitation of harmonic line currents	EN 61000-3-2

Technical data	
Nominal input voltage range	100 V AC ... 240 V AC
Input voltage range AC/DC	85 V AC ... 264 V AC
Frequency range	45 Hz ... 65 Hz
Current consumption (nominal load)	1 A (120 V AC) / 0.6 A (230 V AC)
Inrush current limitation at 25°C (typ.) / I _t	< 30 A / < 0.5 A ² s
Mains buffering (I _N , typ.)	> 20 ms (120 V AC) / > 85 ms (230 V AC)
Output data	
Nominal output voltage	24 V DC ±1%
Output current	2.5 A
Can be connected in parallel / series	yes, with redundancy module / Yes
Max. power dissipation (no load / nominal load)	< 0.3 W / < 7 W
Efficiency (typ.)	> 90 %
Residual ripple	< 30 mV _{pp}
Signaling	
Signaling DC OK	LED
General data	
Weight / Dimensions W x H x D	0.2 kg / 35 x 90 x 84 mm
Spacing when mounting	Alignable: 0 mm horizontally, 30 mm vertically
Connection method	Screw connection
Connection data solid / stranded / AWG	0.2 - 2.5 mm ² / 0.2 - 2.5 mm ² / 24 - 12
Degree of protection / Protection class	IP20 / II (in an enclosed control cabinet)
MTBF (EN 29500, 40°C)	> 500000 h
Ambient temperature (operation)	-25 °C ... 70 °C (> 55° C derating)
Standards/regulations	
Insulation voltage input/output	3 kV AC (routine test) / 4 kV AC (type test)
Electromagnetic compatibility	Conformance with EMC Directive 2004/108/EC
Electrical safety	IEC 60950-1/VDE 0805 (SELV)
Electronic equipm. for electrical power installations	EN 50178/VDE 0160 (PELV)
Safe isolation	DIN VDE 0100-410, DIN VDE 0106-1010
UL approvals	UL applied for
Limitation of harmonic line currents	EN 61000-3-2

Ordering data

Ordering data

Description	Power supply unit, primary-switched, 1-phase
-------------	--

Type	Order No.	Pcs. / Pkt.
UNO-PS/1AC/24DC/30W	2902991	1

Type	Order No.	Pcs. / Pkt.
UNO-PS/1AC/24DC/60W	2902992	1

RJ Series Slim Power Relays

Key features:

- Compact and rugged power relays. Large switching capacity
- Compact housing only 12.7-mm wide.
Large contact rating
RJ1 (1-pole): 16A (UL general use rating @250V AC)
RJ2 (2-pole): 8A
- Non-polarized LED indicator available on blade type. IDEC's unique light guide structure enables high visibility of coil status from any direction.
- The smallest width for 2-pole/bifurcated contact relay
- Excellent electrical and mechanical life.
Electrical life: 200,000 operations (AC load)
Mechanical life: 30 million operations (AC coil)
- RoHS directive compliant (EU directive 2002/95/EC). Contains no lead, cadmium, mercury, hexavalent chromium, PBB or PBDE.
- Diode model:
Diode reverse withstand voltage: 1000V
- UL recognized, CSA certified, EN compliant.



UL508
UL File No. E55996



CSA C22.2 No. 14
1608322
CSA File No. LR35144





EN61810-1
VDE (REG.-Nr B312)



EN61810-1
EC Low Voltage Directive

Part Number Selection

Style	Terminal	Contact	Model	Part Number	Coil Voltage Code (Standard Stock in bold)	
	Blade	SPDT	Standard	RJ1S-C-□	A24 , A110, A120 , A220, A240 , D12, D24 , D48, D100	
			with LED	RJ1S-CL-□		
			with Surge Suppression Diode	RJ1S-CD-□	D12, D24 , D48, D100	
				with LED & Surge Suppression Diode	RJ1S-CLD-□	
		DPDT	Standard	RJ2S-C-□	A24 , A110, A120 , A220, A240 , D12, D24 , D48, D100	
			with LED	RJ2S-CL-□		
			with Surge Suppression Diode	RJ2S-CD-□	D12, D24 , D48, D100	
			with LED & Surge Suppression Diode	RJ2S-CLD-□		
			Standard Bifurcated contacts (without LED indicator)	RJ22S-C-□	A12, A24 , A120 , A240 , D5, D12, D24 , D100	
			Bifurcated contacts (with LED indicator)	RJ22S-CL-□		
Bifurcated contacts diode (without LED indicator)	RJ22S-CD-□		D5, D12, D24 , D48, D100			
Bifurcated contacts diode (with LED indicator)	RJ22S-CLD-□					
	PCB	SPDT	Standard	RJ1V-C-□		
			High Capacity	RJ1V-CH-□		
		SPST-NO	Standard	RJ1V-A-□	A24 , A110, A120 , A220, A240 , D5, D6, D12, D24 , D48, D100	
			High Capacity	RJ1V-AH-□		
		DPDT	Standard	RJ2V-C-□		
		DPST-NO	Standard	RJ2V-A-□		
		DPDT	Bifurcated contacts	RJ22V-C-□	A12, A24 , A120 , A240 , D5, D12, D24 , D48, D100	
		DPST-NO	Bifurcated contacts	RJ22V-A-□		

Ordering Information

When ordering, specify the Part No. and coil voltage code:

(example) RJ1S-C- A120
 Part No. Coil Voltage Code

Coil Voltage Table

Coil Voltage Code	A12	A24	A110	A120	A220	A240	D5	D6	D12	D24	D48	D100
Coil Rating	12V AC	24V AC	110V AC	120V AC	220V AC	240V AC	5V DC	6V DC	12V DC	24V DC	48V DC	100-110V DCV DC

Sockets

	Relays	Standard DIN Rail Mount	Finger-safe DIN Rail Mount	PCB Mount
Blade Models	RJ1S (Std)	SJ1S-05BW	SJ1S-07LW	SJ1S-61
	RJ2S (Std)/RJ22S	SJ2S-05BW	SJ2S-07LW	SJ2S-61
PCB Models	RJ1V (Std)	—	SQ1V-07B*	SQ1V-63*
	RJ1V (HC) RJ2V/RJ22V	—	SQ2V-07B*	SQ2V-63*



Shown with optional marking plate.



Replacement Hold Down Springs

Part Number	Used With Socket
SJ9Z-CM	SJ1S-05BW, SJ1S-07LW, SJ2S-05BW, SJ2S-07LW
SQ9Z-C	SQ1V-07B, SQ2V-07B
SQ9Z-C63	SQ1V-63, SQ2V-63

Jumpers for SJ Sockets

Poles	Part Number	Quantity
2	SJ9Z-JF2	Must purchase in quantities of 10.
5	SJ9Z-JF5	
8	SJ9Z-JF8	
10	SJ9Z-JF10	



*Hold-down clip or spring must be removed to use with RJ PCB relays.

Accessories

Item	Appearance	Use with	Part No.	Remarks
Aluminum DIN Rail (1 meter length)		All DIN rail sockets	BNDN1000	The BNDN1000 is designed to accommodate DIN mount sockets. Made of durable extruded aluminum, the BNDN1000 measures 0.413 (10.5mm) in height and 1.37 (35mm) in width (DIN standard). Standard length is 39" (1,000mm).
DIN Rail End Stop		DIN rail	BNL5	9.1 mm wide.
Marking Plate		Finger safe sockets (ONLY)	SJ9Z-PWPN10	10 pieces per pack

Switches & Pilot Lights

Signaling Lights

Relays & Sockets

Timers

Contactors

Terminal Blocks

Circuit Breakers

Type N, NE, NL & TNL Control relays



Control relays
Type N, NE, NL & TNL
Positive safety
AC/DC operated



7

Positive safety relays

There are many applications where safety is very critical and it is important to use electrical equipment which ensures that dangerous machine movement cannot occur when a fault is detected with the moving contacts during the cycle which the fault is indicated.

Regulations and standards have been written to ensure that safety is maintained:

- United States ANSI B11.19-1990
 ANSI B11.20-1991
- Germany SÜVA
 ZH1/457
- France INRS
- United Kingdom BIA
- Switzerland SA

The ABB Type N & NL 4 and 8 pole relays are designed with "Positive Guided" contacts and fulfill the regulations or standards shown. The relays can provide positive safety for the N.O. and N.C. contacts which assure that the N.O. contacts will not close before any N.C. contact opens. Therefore, if one of the contacts weld due to abnormal conditions in the control circuit, the other contacts will also remain in the same position as when the welding occurred. This means that the open contacts must maintain an air distance 0.5mm when the coil is energized at 110% Vc or when it is de-energized.

UL File No: E39231 (N & NL)

General information

Type NL & TNL, DC operated

Type NL

Description

- Magnetic circuit variants: NL types: d.c. operated with solid magnetic circuits.
- 2 versions: 4 pole or 8 pole
The width of 8 pole devices is identical to that of 4 pole devices; only the depth is increased.
- Bifurcated auxiliary contacts.
- Alone or mounted with a 4 pole CA5 auxiliary contact block, these devices offer "positive safety" between their auxiliary contacts.

Application

Type NL control relays are used for switching auxiliary circuits and control circuits.

Type TNL

Description

- Magnetic circuit variants
 - NL types: D.C. operated with solid magnetic circuits.
 - TNL types: D.C. operated with solid magnetic circuit and large coil voltage range.
- 2 versions
 - 4-pole/1-stack or 8-pole/2-stack
 - The width of 8-pole devices is identical to that of 4 pole devices; only the depth is increased.
- Double sharp auxiliary contacts.
- Alone or mounted with a 4-pole CA 5 auxiliary contact block, these devices offer "positive safety" between their auxiliary contacts.

Application

Type NL and TNL control relays are used for switching auxiliary circuits and control circuits.

7

Location of surge suppressors.

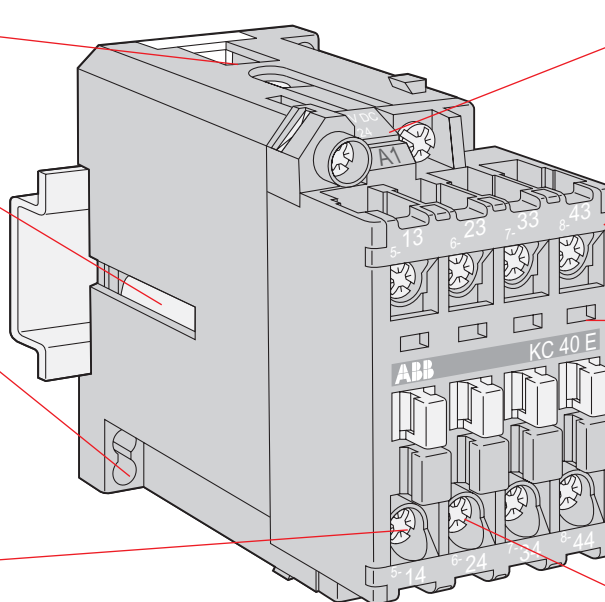
Quick mounting on 35 x 7.5mm or 35 x 15mm DIN mounting rail according to IEC947-5-1 and EN50022.

Holes for screw mounting (screws not supplied). Distances between holes according to EN50002.

Terminals delivered in open position with captive screws (screws of unused terminal should be tightened).

Screwdriver guidance for all screws makes it possible to use motorized screwdrivers.

All terminals provide protection against accidental direct contact with live parts according to VDE0106 – Part. 100.



Clear marking of coil voltages.

Terminal marking according to IEC947-5-1 and EN50 011.

Location of function marker and surge suppressor.

Stops for attaching front mounted accessories.

All terminal screws: M 3.5, posidrive (+,-) N° 2

Catalog number explanation

(T)NL 44E-84

Frame type

Coil voltage

(see coil voltage chart below.)

Contact configuration

Coil voltage selection chart

Hz	Relay type	Volts															
		12	24	48	110	120	125	208	220	240	277	380	415	440	480	500	600
60	N		81	83	84	84		34	36	80	42		86	86	51	53	55
50	N		81	83	84				80			85	86				
DC	NE, NL	80	81	83	86		87		88	89							

Type N & NL AC & DC operated



N40E-1



NE12E-1

A.C. operated

Contact configuration		Catalog number	List price
N.O.	N.C.		
4	0	N40E-84	\$ 60
3	1	N31E-84	
2	2	N22E-84	
4	4	N44E-84	120
5	3	N53E-84	
6	2	N62E-84	
7	1	N71E-84	
8	0	N80E-84	

Coil voltage selection

All AC operated catalog numbers include a 120VAC coil. All DC operated catalog numbers include a 110VDC coil. To select other coil voltages, substitute the code from the Coil Voltage Selection Chart for the first digit after the last dash in the catalog number.

Ex.: A 240V coil is required for an N80 control relay: N80E-80

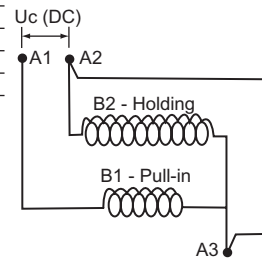
Coil voltage selection chart

Hz	Relay type	Volts															
		12	24	48	110	120	125	208	220	240	277	380	415	440	480	500	600
60	N		81	83	84	84		34	36	80	42		86	86	51	53	55
50	N		81	83	84			80					85	86			55
DC	NE, NL	80	81	83	86		87		88	89							

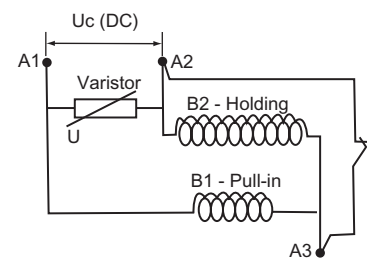
D.C. operated

Contact configuration		Catalog number	List price
N.O.	N.C.		
4	0	NL40E-86	\$ 72
3	1	NL31E-86	
2	2	NL22E-86	
4	4	NL44E-86 ①	144
5	3	NL53E-86	
6	2	NL62E-86	
7	1	NL71E-86	
8	0	NL80E-86	
1	2	NE12E-86	72
2	1	NE21E-86	
3	0	NE30E-86	
4	3	NE43E-86 ①	144
5	2	NE52E-86	
6	1	NE61E-86	
7	0	NE70E-86	

Block diagrams for NE... contactor relay coil supply

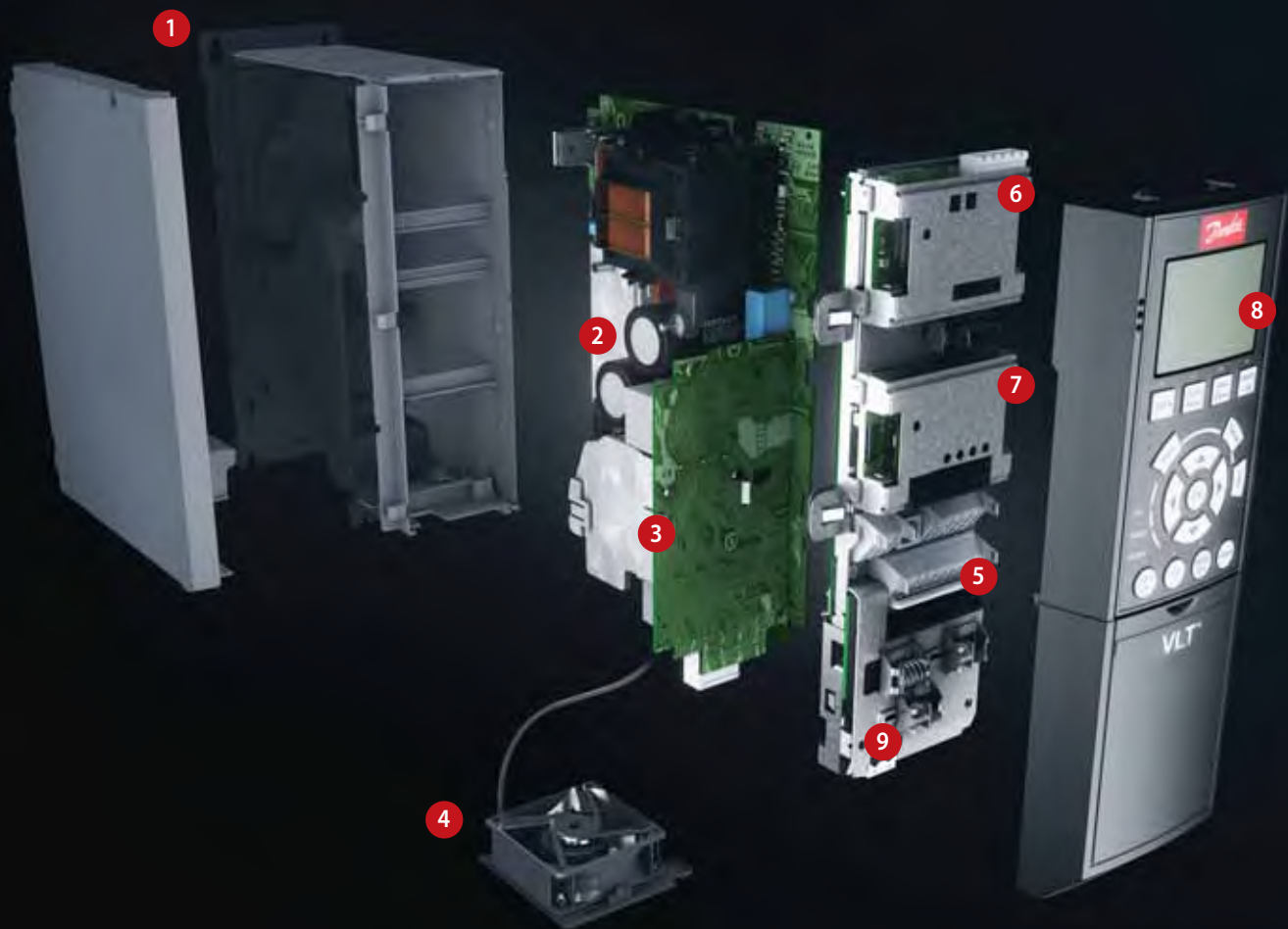


Coil supply $U_c < 110$ VDC



Coil supply via built-in varistor $U_c \leq 110$ VDC

① NE43 – NE70 and NL44 – NL62 control relays cannot accept any front mounted auxiliary contact blocks.



Modular simplicity

Delivered fully assembled and tested to meet your specific requirements

1. Enclosure

The drive meets requirements for enclosure class IP20/Chassis. IP21/Type 1, IP54/Type 12, IP55/Type 12 or IP66/Type 4X.

2. EMC and Network effects

All versions of VLT® AQUA Drive comply as standard with EMC limits B, A1 or A2 according to the EN 55011 norm. The standard integrated DC coils ensure low harmonic load on the network according to EN 61000-3-12 and increase the lifetime of the DC link capacitors.

3. Protective coating

The electronic components are, as standard, coated as per IEC 60721-3-3, class 3C2. For harsh and aggressive environments, coating as per IEC 60721-3-3, class 3C3 is available.

4. Removable fan

Like most of the elements, the fan can be quickly removed and remounted for easy cleaning.

5. Control terminals

Double-stack, spring-loaded cage clamps enhance reliability and facilitate easy commissioning and service.

6. Fieldbus option

See complete list of available fieldbus options on page 39.

7. Cascade controller and I/O extensions

Controls multiple pumps. See also pages 12 and 13.

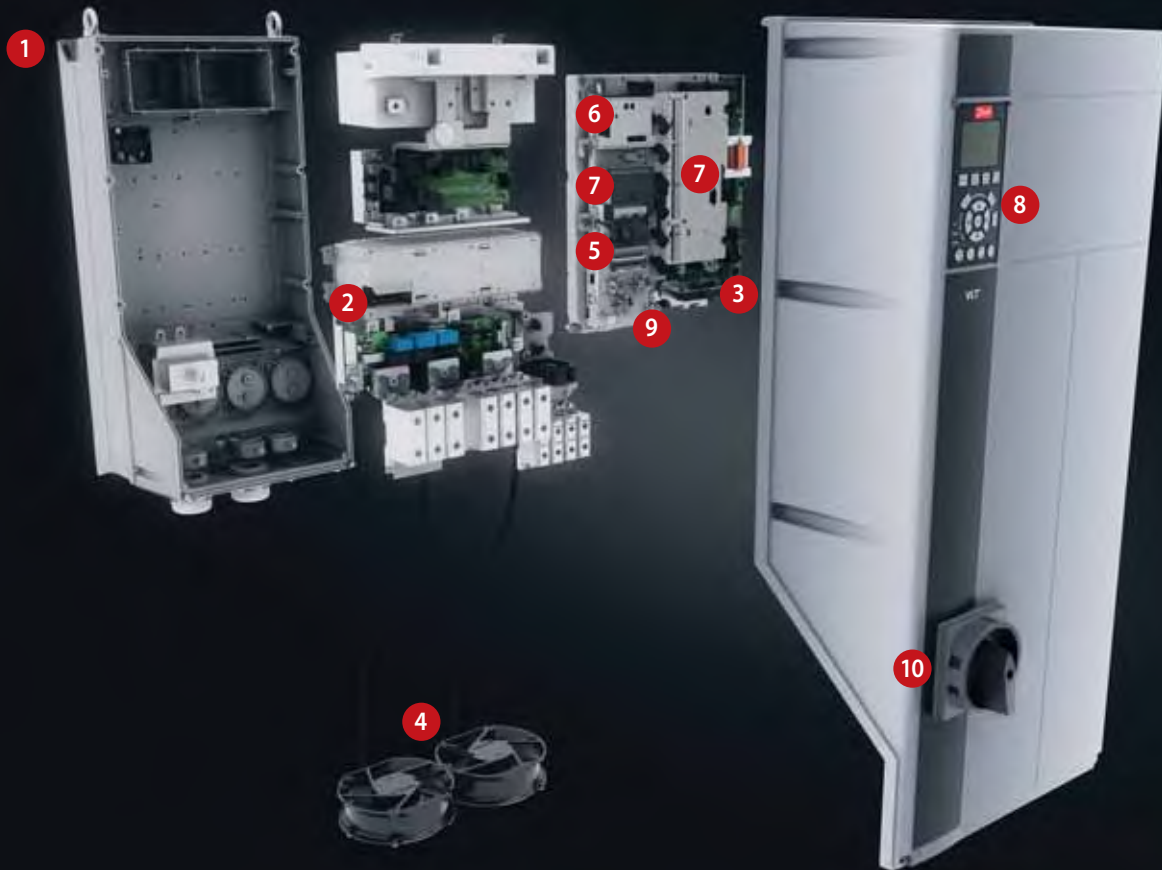
A wide range of I/O options are available either factory-mounted or as retrofit.

8. Display option

Danfoss Drives' removable Local Control Panel is available with a variety of language packs.

English is available in all drives.

Alternatively the drive can be commissioned via the built-in USB/RS485 connection or a fieldbus from with VLT® Motion Control Tool MCT 10 setup software.



9. 24 V external power supply

The external 24 V supply keeps the VLT® AQUA Drive logic “alive” when the AC mains is removed.

10. Mains disconnect

This switch interrupts the mains supply and has a free useable auxiliary contact.

Safety

The VLT® AQUA Drive can optionally be delivered with the Safe Torque Off (Safe Stop) functionality suitable for category 3, performance level d according to EN 13849-1 and SIL 2 according to IEC 62061/IEC 61508. This feature prevents the drive from starting unintended.

Built-in Smart Logic Controller

The Smart Logic Controller is a clever way to add customer-specific functionality to the drive and increase the opportunities for the drive, motor and application working together.

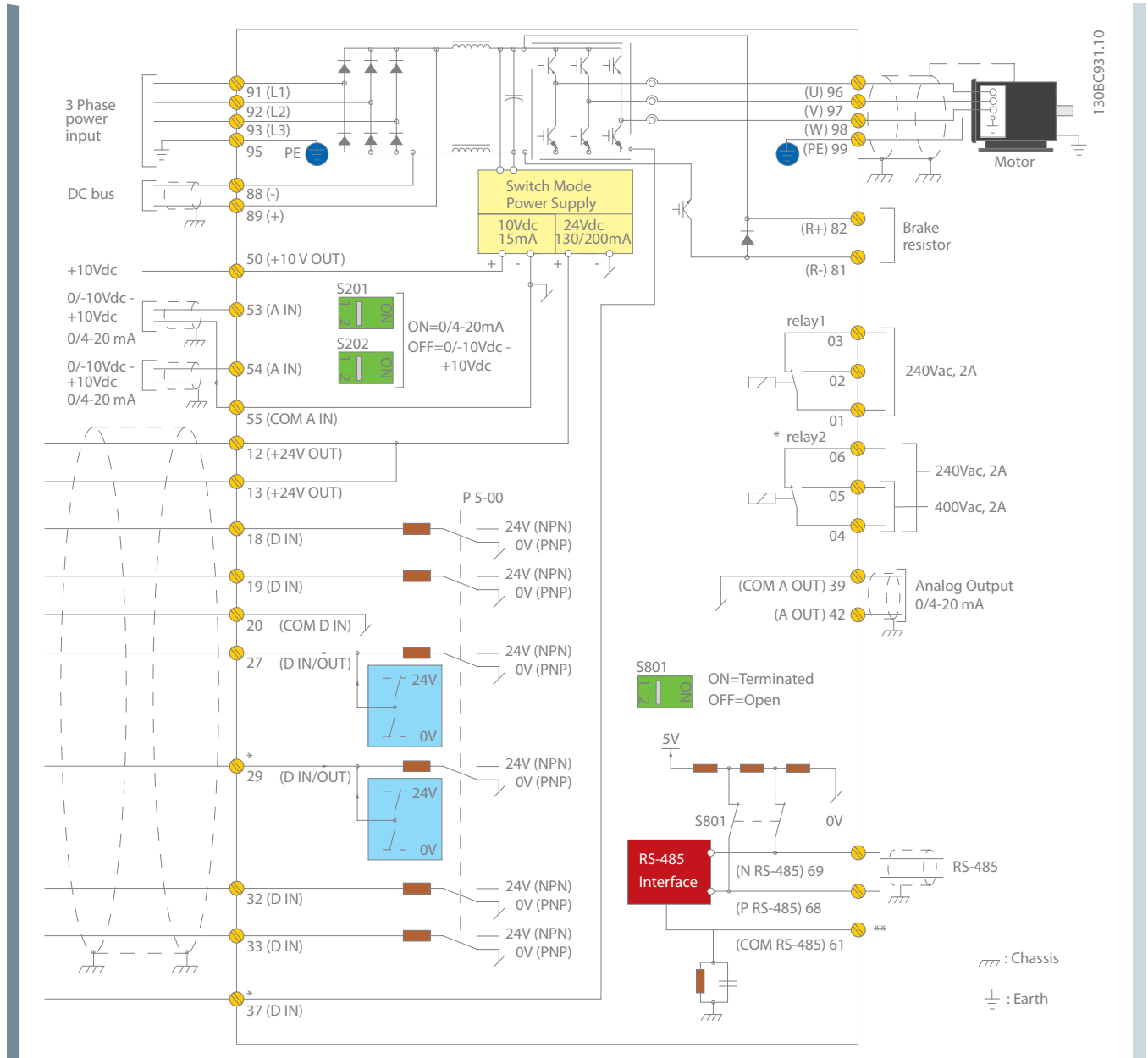
The controller monitors a specified event. When an event occurs, the controller performs a pre-defined action and then starts monitoring for the next pre-defined event. 20 steps of events and resulting actions are available before returning to the first set.

Logic functions can be selected and run independent from the sequence control. This enables drives to monitor variables or signal defined events in an easy and flexible way independently of the motor control.



Connection example

The numbers represent the terminals on the drive



This diagram shows a typical installation of the VLT® AQUA Drive. Power is connected to the terminals 91 (L1), 92 (L2) and 93 (L3) and the motor is connected to 96 (U), 97 (V) and 98 (W).

Terminals 88 and 89 are used for load sharing between drives. Analogue inputs can be connected to the 53 (V or mA), and for 54 (V or mA) terminals.

These inputs can be set up as either reference, feedback or thermistor inputs.

There are 6 digital inputs to be connected to terminals 18, 19, 27, 29, 32, and 33. Two digital input/output terminals (27 and 29) can be set up as digital outputs to show an actual status or warning or can be used as pulse reference signal. The terminal 42

analogue output can show process values such as 0 - I_{max} .

On the 68 (P+) and 69 (N-) terminals' RS 485 interface, the drive can be controlled and monitored via serial communication.

VLT® AQUA Drive technical data

Basic unit without extensions

Main supply (L1, L2, L3)	
Supply voltage	1 x 200 – 240 V AC..... 1.1 – 22 kW 1 x 380 – 480 V AC..... 7.5 – 37 kW 3 x 200 – 240 V AC..... 0.25 – 45 kW 3 x 380 – 480 V AC..... 0.37 – 1000 kW 3 x 525 – 600 V AC..... 0.75 – 90 kW 3 x 525 – 690 V AC..... 1.1 – 1400 kW*
Supply frequency	50/60 Hz
Displacement power factor (cos φ) near unity	> 0.98
True power factor (λ)	≥ 0.9
Switching on input supply L1, L2, L3	1–2 times/min.
Harmonic disturbance	Meets EN 61000-3-12
* Up to 2000 kW available on request	
Output data (U, V, W)	
Output voltage	0 – 100% of supply voltage
Output frequency (dependent on power size)	0-590 Hz
Switching on output	Unlimited
Ramp times	0.1 – 3600 sec.
Note: VLT® AQUA Drive can provide 110%, 150% or 160% current for 1 minute, dependent on power size and parameter settings. Higher overload rating is achieved by oversizing the drive.	
Digital inputs	
Programmable digital inputs	6*
Changeable to digital output	2 (terminal 27, 29)
Logic	PNP or NPN
Voltage level	0 – 24 V DC
Maximum voltage on input	28 V DC
Input resistance, Ri	Approx. 4 kΩ
Scan interval	5 ms
* Two of the inputs can be used as digital outputs.	
Analog inputs	
Analogue inputs	2
Modes	Voltage or current
Voltage level	0 to +10 V (scaleable)
Current level	0/4 to 20 mA (scaleable)
Accuracy of analog inputs	Max. error: 0.5% of full scale
Pulse inputs	
Programmable pulse inputs	2*
Voltage level	0 – 24 V DC (PNP positive logic)
Pulse input accuracy (0.1 – 1 kHz)	Max. error: 0.1% of full scale
* Two of the digital inputs can be used for pulse inputs.	
Digital outputs	
Programmable digital/pulse outputs	2
Voltage level at digital/frequency output	0 – 24 V DC
Max. output current (sink or source)	40 mA
Maximum output frequency at frequency output	0 to 32 kHz
Accuracy on frequency output	Max. error: 0.1% of full scale
Analogue output	
Programmable analogue outputs	1
Current range at analogue output	0/4 – 20 mA
Max. load to common at analogue output (clamp 30)	500 Ω
Accuracy on analogue output	Max. error: 1% of full scale

Control card	
USB interface	1.1 (Full Speed)
USB plug	Type "B"
RS485 interface	Up to 115 kBaud
Max. load (10 V)	15 mA
Max. load (24 V)	200 mA
Relay output	
Programmable relay outputs	2
Max. terminal load (AC) on 1-3 (break), 1-2 (make), 4-6 (break) power card	240 V AC, 2 A
Max. terminal load (AC) on 4-5 (make) power card	400 V AC, 2 A
Min. terminal load on 1-3 (break), 1-2 (make), 4-6 (break), 4-5 (make) power card	24 V DC 10 mA, 24 V AC 20 mA
Surroundings/external	
Enclosure	IP: 00/20/21/54/55/66 UL Type: Chassis/1/12/4x Outdoor
Vibration test	1.0 g (D, E & F-enclosures: 0.7 g)
Max. relative humidity	5% – 95% (IEC 721-3-3; Class 3K3 (non-condensing) during operation)
Ambient temperature	Up to 55°C (50°C without derating; D-frame 45°C)
Galvanic isolation of all	I/O supplies according to PELV
Aggressive environment	Designed for coated/uncoated 3C3/3C2 (IEC 60721-3-3)
Fieldbus communication	
Standard built-in: FC Protocol Modbus RTU	Optional: VLT® PROFIBUS DP V1 MCA 101 VLT® DeviceNet MCA 104 VLT® PROFINET MCA 120 VLT® EtherNet/IPMCA 121 VLT® Modbus TCP MCA 122
Ambient temperature	
– Electronic thermal motor protection against overload	
– Up to 55°C (50°C without derating; D-frame 45°C)	
– Temperature monitoring of the heatsink ensures that the frequency converter trips in case of overtemperature	
– The frequency converter is protected against short-circuits on motor terminals U, V, W	
– The frequency converter is protected against earth faults on motor terminals U, V, W	
– Protection against mains phase loss	
Application options	
Extend the functionality of the drive with integrated options:	
<ul style="list-style-type: none"> • VLT® General Purpose I/O MCB 101 • VLT® Extended Cascade Controller MCO 101 • VLT® Advanced Cascade Controller MCO 102 • VLT® Sensor Input MCB 114 • VLT® PTC Thermistor Card MCB 112 • VLT® Extended Relay Card MCB 113 • VLT® 24 V External Supply MCB 107 	
Relay and analogue I/O option	
<ul style="list-style-type: none"> • VLT® Relay Card MCB 105 • VLT® Analog I/O MCB109 	
Power options	
Choose from a wide range of external power options for use with our drive in critical networks or applications:	
<ul style="list-style-type: none"> • VLT® Low Harmonic Drive • VLT® Advanced Active Filter • VLT® Advanced Harmonic Filter • VLT® dU/dt filter • VLT® Sine wave filter (LC filter) 	
High power options	
See the VLT® High Power Drive Selection Guide for a complete list.	
PC software tools	
<ul style="list-style-type: none"> • VLT® Motion Control Tool MCT 10 • VLT® Energy Box • VLT® Motion Control Tool MCT 31 	



Global Marine

Electrical data

VLT® AQUA Drive 1 x 200-240 V AC

Enclosure	IP20/Chassis		A3								
	IP21/Type 1		B1					B2	C1	C2	
	IP55/Type 12 + IP66/NEMA 4X		A5	P1K1	P1K5	P2K2	P3K0	P3K7	P5K5	P7K5	P15K
Typical shaft output	[kW]		1.1	1.5	2.2	3	3.7	5.5	7.5	15	22
Typical shaft output at 240 V	[HP]		1.5	2.0	2.9	4.0	4.9	7.5	10	20	30
Output current											
Continuous (3x200-240 V)	[A]		6.6	7.5	10.6	12.5	16.7	24.2	30.8	59.4	88
Intermittent (3x200-240 V)	[A]		7.3	8.3	11.7	13.8	18.4	26.6	33.4	65.3	96.8
Output power											
Continuous (208 V AC)	[kVA]		2.4	2.7	3.8	4.5	6.0	8.7	11.1	21.4	31.7
Maximum input current											
Continuous (1 x 200-240 V)	[A]		12.5	15	20.5	24	32	46	59	111	172
Intermittent (1 x 200-240 V)	[A]		13.8	16.5	22.6	26.4	35.2	50.6	64.9	122.1	189.2
Max. pre-fuses	[A]		20	30	40		60	80	100	150	200
Additional specifications											
Estimated power loss at rated max. load ³⁾	[W]		44	30	44	60	74	110	150	300	440
Efficiency ⁴⁾			0.98								
Max. cable cross-section Mains, motor, brake	[mm ²] ([AWG])		0.2-4 (4-10)			10 (7)			35 (2)	50 (1/0)	95 (4/0)
Max. cable cross-section Mains with disconnect switch	[mm ²] ([AWG])		5.26 (10)				16 (6)	25 (3)	50 (1/0)	2 x 50 (2 x 1/0) _{9) 10)}	
Max. cable cross-section Mains without disconnect switch	[mm ²] ([AWG])		5.26 (10)				16 (6)	25 (3)	50 (1/0)	95 (4/0)	
Cable insulation temperature ratings	[°C]		75								
Weight											
IP20/Chassis	[kg] (lbs)		4.9 (10.8)								
IP21/Type 1	[kg] (lbs)							23 (50.7)	27 (59.5)	45 (99.2)	65 (143.3)
IP55/Type 12, IP66/NEMA 4X	[kg] (lbs)							23 (50.7)	27 (59.5)	45 (99.2)	65 (143.3)

Mains supply 1 x 200-240 V AC – normal overload = 110% torque during 60 s, P1K1-P22K.

⁹⁾ Two wires are required. ¹⁰⁾ Variant not available in IP21.

VLT® AQUA Drive 1 x 380-480 V AC

Enclosure	IP21/Type 1 IP55/Type 12 IP66/NEMA 4X		B1		B2		C1		C2		
			P7K5	P11K	P18K	P37K					
Typical shaft output	[kW]		7.5	11	18.5	37					
Typical shaft output 240 V	[HP]		10	15	25	50					
Output current											
Continuous (3 x 380-440 V)	[A]		16	24	37.5	73					
Intermittent (3 x 380-440 V)	[A]		17.6	26.4	41.2	80.3					
Continuous (3 x 441-480 V)	[A]		14.5	21	34	65					
Intermittent (3 x 441-480 V)	[A]		15.4	23.1	37.4	71.5					
Output power											
Continuous at 400 V AC	[kVA]		11.0	16.6	26	50.6					
Continuous at 460 V AC	[kVA]		11.6	16.7	27.1	51.8					
Maximum input current											
Continuous (1 x 380-440 V)	[A]		33	48	78	151					
Intermittent (1 x 380-440 V)	[A]		36	53	85.5	166					
Continuous (1 x 441-480 V)	[A]		30	41	72	135					
Intermittent (1 x 441-480 V)	[A]		33	46	79.2	148					
Max. pre-fuses	[A]		63	80	160	250					
Additional specifications											
Estimated power loss at rated max. load ³⁾	[W]		300	440	740	1480					
Efficiency ⁴⁾			0.96								
Max. cable cross-section Mains, motor and brake	[mm ²] ([AWG])		10 (7)	35 (2)	50 (1/0)	120 (4/0)					
Weight											
IP21/Type 1, IP55/Type 12, IP66/NEMA 4X	[kg] (lbs)		23 (50.7)	27 (59.5)	45 (99.2)	65 (143.3)					

¹⁾ High overload = 150% or 160% torque for a duration of 60 s. Normal overload = 110% torque for a duration of 60 s.

²⁾ The 3 values for the max. cable cross-section indicate single core, flexible wire, and flexible wire with sleeve, respectively.

³⁾ The typical power loss is at normal load conditions and expected to be within ±15% (tolerance relates to variations in voltage and cable conditions). Values are based on a typical motor efficiency. Lower efficiency motors will also add to the power loss in the frequency converter and vice versa. If the switching frequency is raised from nominal, the power losses may rise significantly.

⁴⁾ LCP and typical control card power consumptions are included. Further options and customer load may add up to 30 W to the losses. (Though typically only 4 W extra for a fully loaded control card or options for slot A or slot B, each).

⁵⁾ Although measurements are made with state of the art equipment, some measurement inaccuracy must be allowed for (±5%).

⁶⁾ Measured using 5 m screened motor cables at rated load and rated frequency.

⁷⁾ Enclosure types A2 + A3 can be converted to IP21 using a conversion kit. See also Mechanical mounting and IP21/Type 1 enclosure kit in the Design Guide.

⁸⁾ Enclosure types B3 + B4 and C3 + C4 can be converted to IP21 using a conversion kit. See also Mechanical mounting and IP21/Type 1 enclosure kit in the Design Guide.

1 phase

VLT® AQUA Drive		S2 200 – 240 V				S4 380 – 480 V		
FC 200	kW	IP20	IP21	IP55	IP66	IP21	IP55	IP66
PK25	0.25							
PK37	0.37							
PK55	0.55							
PK75	0.75							
P1K1	1.1	A3	A3	A5	A5			
P1K5	1.5							
P2K2	2.2							
P3K0	3.0		B1	B1	B1			
P3K7	3.7							
P5K5	5.5							
P7K5	7.5		B2	B2	B2	B1	B1	B1
P11K	11					B2	B2	B2
P15K	15		C1	C1	C1			
P18K	18.5					C1	C1	C1
P22K	22		C2	C2	C2			
P37K	37					C2	C2	C2

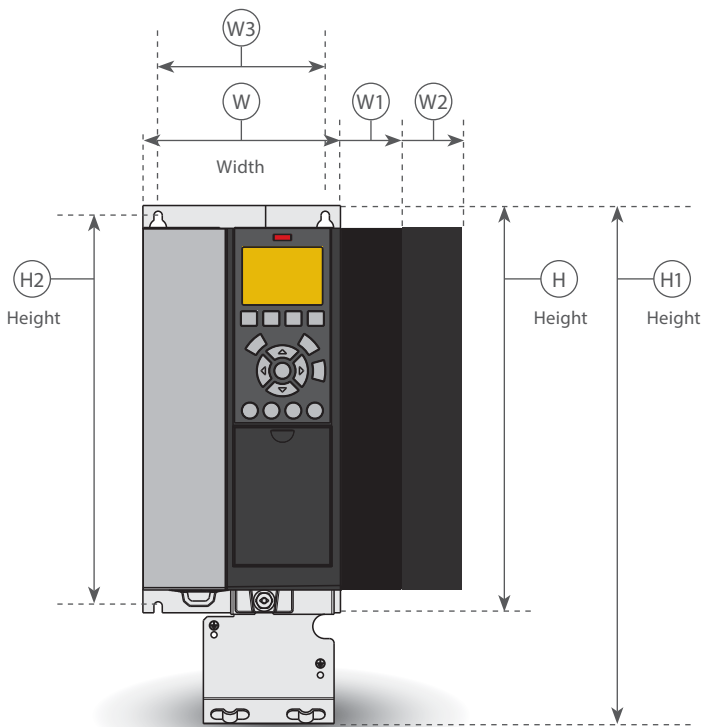
- IP00/Chassis
- IP20/Chassis
- IP21/Type 1
- IP21 with upgrade kit – available in US only
- IP54/Type 12
- IP55/Type 12
- IP66/NEMA 4X



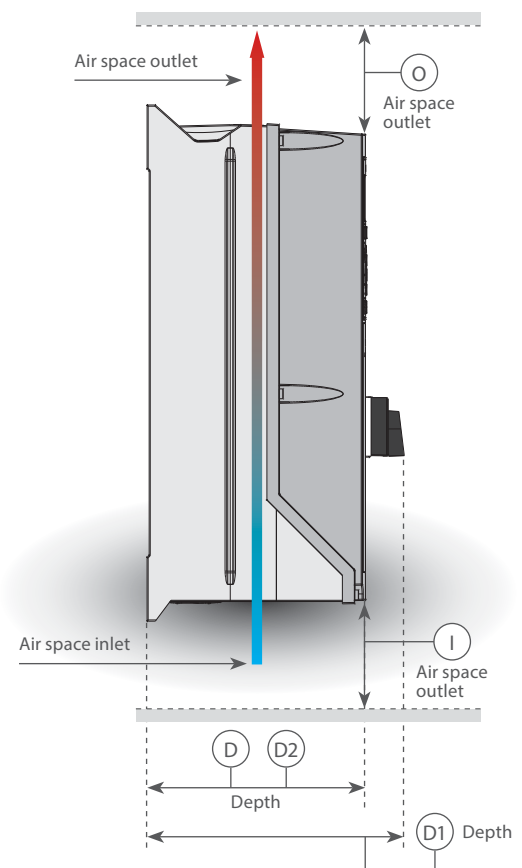
A, B and C frames

Frame	VLT® AQUA Drive													
	A2		A3		A4	A5	B1	B2	B3	B4	C1	C2	C3	C4
Enclosure	IP20	IP21	IP20	IP21	IP55/IP66		IP21/IP55/IP66		IP20		IP21/IP55/IP66		IP20	
H mm Height of back plate	268	375	268	375	390	420	480	650	399	520	680	770	550	660
H1 mm With de-coupling plate for fieldbus cables	374	-	374	-	-	-	-	-	420	595	-	-	630	800
H2 mm Distance to mounting holes	254	350	257	350	401	402	454	624	380	495	648	739	521	631
W mm	90	90	130	130	200	242	242	242	165	230	308	370	308	370
W1 mm With one C option	130	130	170	170	-	242	242	242	205	230	308	370	308	370
W2 mm With two C options	150	150	190	190	-	242	242	242	225	230	308	370	308	370
W3 mm Distance between mounting holes	70	70	110	110	171	215	210	210	140	200	272	334	270	330
D mm Depth without option A/B	205	207	205	207	175	195	260	260	249	242	310	335	333	333
D1 mm With mains disconnect	-	-	-	-	206	224	289	290	-	-	344	378	-	-
D2 mm With option A/B	220	222	220	222	175	195	260	260	262	242	310	335	333	333
Air cooling	I (air space inlet) mm	100	100	100	100	100	200	200	200	200	200	225	200	225
	O (air space outlet) mm	100	100	100	100	100	200	200	200	200	200	225	200	225
Weight (kg)	4.9	5.3	6.6	7	9.7	13.5/14.2	23	27	12	23.5	45	65	35	50

A3 IP20 with option C



A4 IP55 with mains disconnect



Side-Mounted Single Point Float Level Switch

M8700 1/2" x 1/2" NPT Polypropylene Side-Mounted Float Level Switch

The M8700 side-mounted liquid level switch has a polypropylene stem and a polypropylene float. The M8700 series side-mounted plastic float switches are designed for liquid level sensing for a wide variety of fluids and conditions. These hermetically sealed float switches provide years of dependable sensing at an economical cost. Used with standard 1/2" NPT threaded stem, these plastic switches provide control signals for many different liquid level sensor applications. Any of our side mount float switches can easily be mounted through the wall of a tank as a High or Low level float switch. Slosh shields are also available to protect the float and switches from turbulence or debris.

All wetted materials are NSF grade material and the float switch is listed as an NSF component and widely used in the food equipment industry.



Specifications

M8700 – Side-Mounted Polypropylene Float Switch	
Stem Material	Polypropylene
Float Material	Polypropylene
Fitting Type	1/2" NPT Pipe Thread by 1/2" NPT Pipe Thread
Max. Temperature	105°C
Max. Pressure	100 PSIG
Float SG	0.60 SG
Switch Rating	30 Watt, 240V max. (AC/DC), SPST
Lead Wires	24", 22 AWG, MTW Insulated (Standard)
Approvals	NSF, UL, CSA, CE
Availability	Stock

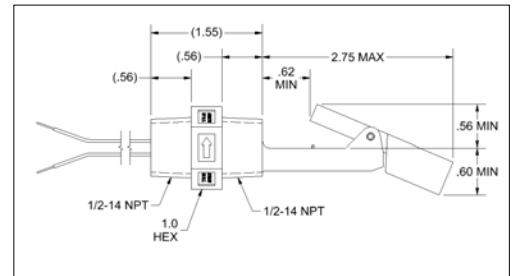
Custom configurations available. Contact Madison Company or your sales representative to discuss your application.

Note: SPST = Single Pole, Single Throw Reed Switch

Applications

- ◆ Low temperature food processing applications (to 105°C)*
- ◆ Steam tables and condensate pans to monitor high/low levels
- ◆ Oil or water level detection
- ◆ Single point low level float switch for pump dry protection
- ◆ Sump alarm float switch for flood protection if sump pump or tank shut-offs fail
- ◆ Installations involving DI-water, salt water or mild acids

* Madison Company uses only polypropylene that is FDA-approved for food contact.



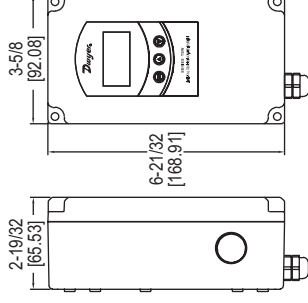
Electrical Ratings

Switches are rated for resistive loads. The table below represents the UL guidelines for current (Amperes resistive) at different voltages.

AC Voltage			
30 VA Nominal	at 120 VAC	0.28 amps max	
30 VA Nominal	at 240 VAC	0.14 amps max	
DC Voltage			
30 W Nominal	at 24 VDC	0.28 amps max	
30 W Nominal	at 120 VDC	0.07 amps max	

WEATHER PROOF DIGITAL TEMPERATURE SWITCH

NEMA 4X Housing, Single or Dual Stage, 20 A Contact Rating



The Series TSW Weather Proof Digital Temperature Switch combines the trusted, reliable TS family of temperature controls and an installation friendly weatherproof enclosure. The bright, easy-to-read LED display shows the current output status and the temperature measurement.

FEATURES/BENEFITS

- Weatherproof housing
- Single or dual stage models
- Configuration key
- Physical and passcode parameter setting protection

APPLICATIONS

- Chillers
- Walk in cooler
- Woodboilers
- Brewing systems

MODEL CHART

Model	Description	Temperature Probe Included	Supply Power
TSW-150	Single stage	TS-8T	90 to 255 VAC
TSW-160	Single stage	TS-8T	12 to 24 VAC/VDC
TSW-250	Dual stage	TS-8T	90 to 255 VAC
TSW-260	Dual stage	TS-8T	12 to 24 VAC/VDC
TSW-150-NP	Single stage	None	90 to 255 VAC
TSW-160-NP	Single stage	None	12 to 24 VAC/VDC
TSW-250-NP	Dual stage	None	90 to 255 VAC 12
TSW-260-NP	Dual stage	None	12 to 24 VAC/VDC

SPECIFICATIONS

Probe Range: PTC: -58 to 302°F (-50 to 150°C); NTC: -58 to 230°F (-50 to 110°C).

Input: PTC (1000Ω @ 25°C); NTC (10K Ω @ 25°C).

Output: R1 SPDT relay resistive load: 20 A @ 240 VAC; R2 SPDT relay resistive load: 8 A @ 240 VAC; Inductive load: 3 A @ 240 VAC.

Horsepower Rating: R1 2HP @ 240 VAC.

Control Type: On/off.

Power Requirements: 90 to 255 VAC or 12 to 24 VAC/VDC (±10%) depending on model.

Power Consumption: 3.6 VA.

Accuracy: ±1% FS.

Display: 3 digits plus sign.

Resolution: Single stage: 1°; Dual stage: 0.1° < 100°, 1° ≥ 100°.

Memory Backup: Non-volatile memory.

Ambient Temperature: 32 to 104°F (0 to 40°C).

Weight: 1.2 lb (544 g).

Enclosure Rating: NEMA 4X (IP66).

Agency Approvals: CE, cURus.

ACCESSORIES

Model	Description
CC1-N	Temperature sensor clip, neutral
CC1-GY	Temperature sensor clip, grey

SmartPro LCD 120V 1000VA 500W Line-Interactive UPS, AVR, Tower, USB, TEL/DSL/Coax Protection, 8 Outlets

MODEL NUMBER: **SMART1000LCD**



Highlights

- Supports a basic desktop PC up to 60 min. during power outage
- Features 8 protected outlets—4 battery-protected, 4 surge-only
- Offers automatic voltage regulation (AVR)
- LCD screen reports real-time UPS and power status
- Plugs into any NEMA 5-15R socket

Package Includes

- SMART1000LCD SmartPro LCD 120V 1000VA/500W Line-Interactive UPS
- USB cable
- Telephone cord
- Owner's Manual

Description

The SMART1000LCD SmartPro LCD 120V, 1000VA/500W Line-Interactive Uninterruptible Power Supply provides battery backup and AC power protection against blackouts, brownouts, power surges and line noise that can damage electronics or destroy data. Ideal for backing up your desktop computer or audio/visual components, this line-interactive UPS switches to battery backup mode in milliseconds to keep your connected equipment running long enough to save files and shut down safely with no data loss.

While all eight NEMA 5-15R outlets protect against surges, four outlets also provide up to 3 hours of UPS battery support for a DVR component, 60 minutes of support for a basic desktop PC and LCD monitor, and 10 minutes of support at half load (250W).

Automatic voltage regulation (AVR) corrects undervoltages as low as 89V without using any battery power. EMI/RFI noise filtering improves your equipment's performance and prevents damage. A 1038-joule surge suppression rating protects your equipment from harmful power surges.

Space-saving NEMA 5-15P plug with 6-foot cord connects to any NEMA 5-15R socket and allows furniture to be placed flush against the wall. Large rotatable LCD screen with dimmer shows real-time input voltage, overload, AVR and battery statuses at a glance. With Tripp Lite's free PowerAlert software (available via free web download), the SMART1000LCD enables safe unattended system shutdown and file saves in case of a prolonged power failure.

Features

Reliable Battery Backup

- Provides 1000VA/500W high-performance power protection for desktop computers, audio/video components, media centers and other electronics
- Supports basic desktop computer and LCD monitor up to 60 minutes or single DVR components up to 3 hours during power outage
- Supports 50% load (250W) up to 10 minutes and full load (500W) up to 3 minutes
- 97% full-load efficiency rating saves money in energy costs
- Audible alarm indicates loss of utility power or low battery

Optimized Outlets



- 4 NEMA 5-15R outlets deliver battery backup for devices that require constant power
- All 8 outlets protect against surges or spikes that can harm equipment or data

Automatic Voltage Regulation (AVR)

- Corrects undervoltages as low as 89V with a 14% boost without drawing battery backup power

Rotatable LCD Status Screen

- Large LCD screen shows real-time input voltage, overload, AVR and battery statuses
- Rotates for easy viewing in both horizontal and vertical installations
- Dimmer switch controls brightness level

AC Line, Coaxial and Tel/DSL Surge Suppression

- Surge suppression rating of 1038 joules protects connected equipment and data from harmful power surges
- Tel/DSL RJ11 jacks and included cord protect standard dialup/DSL phone connection
- 2.2 Hz coaxial jacks protect CATV, broadband cable internet, satellite or broadcast antenna connections

EM/RFI Line Noise Filtering

- Removes electromagnetic and radio frequency interference that can disrupt or damage your equipment's performance

USB Communication Port and Free PowerAlert Software

- HID-compliant USB port integrates with built-in power management and auto-shutdown of Windows and Mac OS X
- Works with Tripp Lite PowerAlert software available as free web download from www.tripplite.com/poweralert, to enable safe, unattended system shutdown and file saves during prolonged power failure

Flexible Installation Options

- Space-saving NEMA 5-15P right-angle plug with 6-foot cord connects to any NEMA 5-15R socket
- Adapts to vertical or horizontal installation without special hardware

Specifications

OUTPUT	
Output Volt Amp Capacity (VA)	1000
Output kVA Capacity (kVA)	1
Output Watt Capacity (Watts)	500
Nominal Output Voltage(s) Supported	110V; 115V; 120V
Nominal Voltage Details	115v nominal output in battery mode
Frequency Compatibility	60 Hz
Output Voltage Regulation (Battery Mode)	+/- 5%
Output Receptacles	(8) 5-15R



UPS Output Receptacles (Surge Suppression Only)	4 UPS outlets, 4 surge-only outlets
Hot-Swap PDU options	PDUB15 (2U / 8 5-15R outlets)
Output AC Waveform (AC Mode)	Sine wave
Output AC Waveform (Battery Mode)	PWM sine wave
INPUT	
Rated input current (Maximum Load)	12A
Nominal Input Voltage(s) Supported	120V AC
UPS Input Connection Type	5-15P; Right-Angled
UPS Input Cord Length (ft.)	6
UPS Input Cord Length (m)	1.8
Recommended Electrical Service	15A 120V
Input Phase	Single-Phase
BATTERY	
Full Load Runtime (min.)	3 min. (500w)
Half Load Runtime (min.)	10 min. (250w)
DC System Voltage (VDC)	12
Battery Recharge Rate (Included Batteries)	Less than 16 hours from 10% to 90%
Internal UPS Replacement Battery Cartridge	RBC51
Battery Access	Battery access door
Battery Replacement Description	Hot-swappable, user replaceable batteries
Expandable Runtime	No
VOLTAGE REGULATION	
Voltage Regulation Description	Automatic voltage regulation (AVR) maintains line power operation with input voltage as low as 89
Undervoltage Correction	Input voltages between 89 and 104 are boosted by 14%
USER INTERFACE, ALERTS & CONTROLS	
Front Panel LCD Display	Backlighted LCD screen indicates input voltage, 5-bar battery charge level, overload, AVR, on battery and replace battery status; LCD screen rotates for rack/tower viewing
Switches	2 Switches control off/on power status and alarm-cancel/self-test operation; dimmer switch controls LCD brightness
Alarm Cancel Operation	Power-fail alarm can be silenced using alarm-cancel switch; once silenced, alarm will re-sound to indicate low-battery status
Audible Alarm	Audible alarm indicates power-failure and low-battery status; alarm can be disabled using PowerAlert software
LED Indicators	Front panel LCD display



SURGE / NOISE SUPPRESSION	
UPS AC Suppression Joule Rating	1038
UPS AC Suppression Response Time	Instantaneous
UPS Dataline Suppression	1 line TEL/DSL (1 in / 1 out); Coax jacks (1 set)
EMI / RFI AC Noise Suppression	Yes
PHYSICAL	
Installation Form Factors Supported with Included Accessories	Tower
Primary Form Factor	Tower
UPS Power Module Dimensions (hwd, in.)	11.84 x 3.66 x 7.24
UPS Power Module Dimensions (hwd, cm)	30.1 x 9.3 x 18.4
UPS Power Module Weight (lbs.)	15.55
UPS Power Module Weight (kg)	7.05
UPS Shipping Dimensions (hwd / in.)	10.43 x 15.55 x 4.8
UPS Shipping Dimensions (hwd / cm)	26.5 x 39.5 x 12.2
Shipping Weight (lbs.)	16.2
Shipping Weight (kg)	7.4
UPS Housing Material	ABS
Primary UPS Height (mm)	301
Primary UPS Width (mm)	93
Primary UPS Depth (mm)	184
Shipping Height (mm)	265
Shipping Width (mm)	395
Shipping Depth (mm)	122
ENVIRONMENTAL	
Operating Temperature Range	+32 to +104 degrees Fahrenheit / 0 to +40 degrees Celsius
Storage Temperature Range	+5 to +122 degrees Fahrenheit / -15 to +50 degrees Celsius
Relative Humidity	0 to 95%, non-condensing
AC Mode BTU / Hr. (Full Load)	61
Battery Mode BTU / Hr. (Full Load)	510
AC Mode Efficiency Rating (100% Load)	97%



COMMUNICATIONS	
Communications Interface	USB (HID enabled)
PowerAlert Software	For local monitoring via the UPS's built-in USB port, download PowerAlert Local software at http://www.tripplite.com/poweralert
Communications Cable	USB cable included
WatchDog Compatibility	Supports Watchdog application, OS and hard-reboot restart options for remote applications
Network UPS Tools Compatibility	NUT compatible. See the full list of Tripp Lite NUT compatible UPS systems at http://www.networkupstools.org/stable-hcl.html?manufacturer=Tripp Lite
LINE / BATTERY TRANSFER	
Transfer Time	3 milliseconds
Low Voltage Transfer to Battery Power (Setpoint)	89
High Voltage Transfer to Battery Power (Setpoint)	139
SPECIAL FEATURES	
Cold Start (Startup in Battery Mode During a Power Failure)	Cold-start operation supported
Green Energy-Saving Features	Greater than 95% efficiency - GREEN UPS
CERTIFICATIONS	
UPS Certifications	Tested to UL1778 (USA); Tested to CSA (Canada); Tested to NOM (Mexico); Meets FCC Part 15 Category B (EMI)
WARRANTY	
Product Warranty Period (U.S. & Canada)	3-year limited warranty
Product Warranty Period (Latin America)	3-year limited warranty
Product Warranty Period (International)	2-year limited warranty
Product Warranty Period (Mexico)	3-year limited warranty
Connected Equipment Insurance (U.S., Canada & Puerto Rico)	\$250,000 Ultimate Lifetime Insurance

© 2017 Tripp Lite. All rights reserved. All product and company names are trademarks or registered trademarks of their respective holders. Use of them does not imply any affiliation with or endorsement by them. Tripp Lite has a policy of continuous improvement. Specifications are subject to change without notice. Tripp Lite uses primary and third-party agencies to test its products for compliance with standards. See a list of Tripp Lite's testing agencies:

<https://www.tripplite.com/products/product-certification-agencies>

Select MicroLogix 1400 Controllers

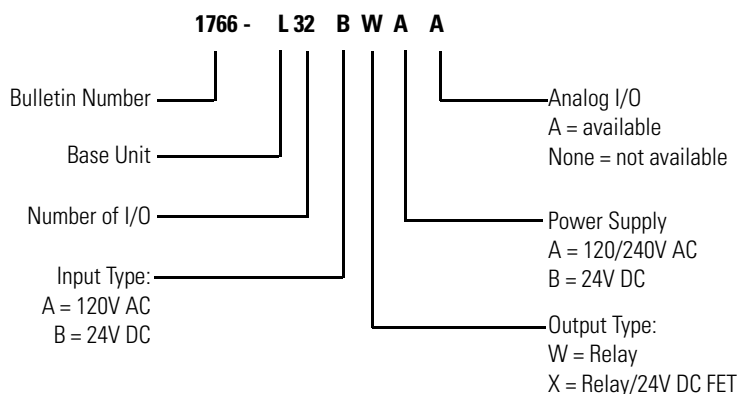
MicroLogix 1400 Base Units

The base unit houses embedded inputs, outputs, power supply, and communication ports. The base unit also provides the interface to expansion I/O when required by an application.

Step 10 - Select:

- controller - review power and I/O configurations to select a controller catalog number; see power supply and I/O specification for more detailed information
- accessories - memory modules
- record your selection in the Selection Record (starts on [page 87](#))

MicroLogix 1400 Controller Catalog Number Detail



MicroLogix 1400 Controller Power and I/O Configuration

Cat. No.	Line Voltage	Number of Inputs	Number of Outputs	Embedded Analog I/O
1766-L32BWA	120/240V AC	(12) Fast 24V DC (8) Normal 24V DC	(12) Relay	---
1766-L32AWA	120/240V AC	(20) 120V AC	(12) Relay	---
1766-L32BXB	24V DC	(12) Fast 24V DC (8) Normal 24V DC	(6) Relay (3) Fast 24V DC (3) Normal 24V DC	---
1766-L32BWAA	120/240V AC	(12) Fast 24V DC (8) Normal 24V DC	(12) Relay	(4) Voltage Inputs (2) Voltage Outputs
1766-L32AWAA	120/240V AC	(20) 120V AC	(12) Relay	(4) Voltage Inputs (2) Voltage Outputs
1766-L32BXBA	24V DC	(12) Fast 24V DC (8) Normal 24V DC	(6) Relay (3) Fast 24V DC (3) Normal 24V DC	(4) Voltage Inputs (2) Voltage Outputs

MicroLogix 1400 Controller Power Supply Specifications

Attribute	1766-L32AWA, 1766-L32AWAA	1766-L32BWA, 1766-L32BWAA	1766-L32BXB, 1766-L32BXBA
Power Supply Voltage	100...240V AC (-15%, 10%) at 47...63 Hz		24V DC (-15%, 10%) Class 2 SELV

Available Modules



1762 Expansion I/O Modules

Cat. No.	Description
Digital	
1762-IA8	8-Point 120V AC Input Module
1762-IQ8	8-Point Sink/Source 24V DC Input Module
1762-IQ80W6	8 Point Sink/Source 24V DC Input/6-Point AC/DC Relay Output Combination Module
1762-IQ16	16-Point Sink/Source 24V DC Input Module
1762-OA8	8-Point 120/240V AC Triac Output Module
1762-OB8	8-Point Sourcing 24V DC Output Module
1762-OB16	16-Point Sourcing 24V DC Output Module
1762-OW8	8-Point AC/DC Relay Output Module
1762-OW16	16-Point AC/DC Relay Output Module
1762-OX6I	6-Point Isolated AC/DC Relay Output Module
1762-OV32T	32-Point Solid State 24V DC Sink Output Module
1762-OB32T	32-Point Solid State 24V DC Source Output Module
1762-IQ32T	32-Point DC Input Module
Analog	
1762-IF4	4-Channel Voltage/Current Analog Input Module
1762-OF4	4-Channel Voltage/Current Analog Output Module
1762-IF20F2	Combination 2-Channel Input 2-Channel Output Voltage/Current Analog Module
Specialty	
1762-IR4	4-Channel RTD/Resistance Input Module
1762-IT4	4-Channel Thermocouple/mV Input Module

C-more Operator Panels Overview

Getting started

Installing the software and configuring the **C-more** panel is simple. You will need the following to successfully connect, configure and send a project to the panel:

- **C-more** touch panel - 6", 7" wide, 8", 10", 12" or 15" model
- **C-more** Programming Software, p/n EA9-PGMSW
- **C-more** programming cable, USB or Ethernet
- 12-24 VDC switching power supply or the optional **C-more** AC Power Adapter, p/n EA-AC
- Personal Computer - to run **C-more** programming software
- PLC communications cable (serial or Ethernet) to connect the **C-more** touch panel to your controller

Part Number	Description	Price
EA9-T6CL-R	<i>C-more</i> EA9 series touch screen HMI, 6in color TFT LCD, 320 x 240, QVGA, supports (1) serial and (2) USB ports and (1) memory card slot.	\$499.00
EA9-T6CL	<i>C-more</i> EA9 series touch screen HMI, 6in color TFT LCD, 320 x 240, QVGA, supports (3) serial, (1) Ethernet and (2) USB ports and (1) memory card slot, audio line out.	\$699.00
EA9-T7CL-R	<i>C-more</i> EA9 series touch screen HMI, 7in color TFT LCD, widescreen, 800 x 480, WVGA, supports (1) serial, (1) Ethernet and (2) USB ports and (1) memory card slot.	\$465.00
EA9-T7CL	<i>C-more</i> EA9 series touch screen HMI, 7in color TFT LCD, widescreen, 800 x 480, WVGA, supports (3) serial, (1) Ethernet and (2) USB ports and (1) memory card slot, audio line out.	\$540.00
EA9-T8CL	<i>C-more</i> EA9 series touch screen HMI, 8in color TFT LCD, 800 x 600, SVGA, supports (3) serial, (1) Ethernet and (2) USB ports and (1) memory card slot, audio line out.	\$999.00
EA9-T10CL	<i>C-more</i> EA9 series touch screen HMI, 10in color TFT LCD, 800 x 600, SVGA, supports (3) serial, (1) Ethernet and (2) USB ports and (1) memory card slot, audio line out.	\$1,290.00
EA9-T12CL	<i>C-more</i> EA9 series touch screen HMI, 12in color TFT LCD, 800 x 600, SVGA, supports (3) serial, (1) Ethernet and (2) USB ports, (2) memory card slots and (1) HDMI video out, audio line out.	\$1,790.00
EA9-T15CL	<i>C-more</i> EA9 series touch screen HMI, 15in color TFT LCD, 1024 x 768, XGA, supports (3) serial, (1) Ethernet and (2) USB ports, (2) memory card slots and (1) HDMI video out, audio line out.	\$1,999.00
EA9-PGMSW	<i>C-more</i> Windows-based programming software on CD for the <i>C-more</i> EA9 series touch panels. Requires Windows XP Pro 32-bit, Windows 7 (Pro, Ultimate, 32 or 64-bit) or Windows 8 (Pro, Ultimate, 32 or 64-bit). Requires USB or Ethernet connection to touch panel. Cables sold separately. (Does not support <i>C-more</i> EA7 series panels.)	\$99.00
USB-CBL-AB3	Standard 3-ft. (0.9m) USB 2.0 cable, A-type connector to B-type connector, used to connect personal computer to any <i>C-more</i> touch panel for setup and programming. (Note: Touch panels require a power source for configuration and operation.)	\$7.50
USB-CBL-AB6	Standard 6-ft. (1.8m) USB 2.0 cable, A-type connector to B-type connector, used to connect personal computer to any <i>C-more</i> touch panel for setup and programming. (Note: Touch panels require a power source for configuration and operation.)	\$9.50
USB-CBL-AB10	Standard 10-ft (3 meter) USB 2.0 cable, A-type connector to B-type connector, used to connect personal computer to any <i>C-more</i> touch panel for setup and programming. (Note: Touch panels require a power source for configuration and operation.)	\$18.00
USB-CBL-AB15	Standard 15-ft. (4.6m) USB 2.0 cable, A-type connector to B-type connector, used to connect personal computer to any <i>C-more</i> touch panel for setup and programming. (Note: Touch panels require a power source for configuration and operation.)	\$22.50

C-more Selection Guide & Specifications

Model	6" TFT color w/ base features	6" TFT color w/ full features	7" TFT color w/ base features	7" TFT color w/ full features
Part Number	EA9-T6CL-R	EA9-T6CL	EA9-T7CL-R	EA9-T7CL
Price	\$499.00	\$699.00	\$465.00	\$540.00
Display Actual Size and Type	5.7" TFT color		7.0" TFT color	
Display Viewing Area	4.54" x 3.40" [115.2 mm x 86.4 mm]		6.00" x 3.60" [152.4 mm x 91.4 mm]	
Weight	1.56 lb [710g]	1.59 lb [720g]	1.46 lb [660g]	1.48 lb [670g]
Screen Pixels	320 x 240 (QVGA)		800 x 480 (WVGA)	
Display Brightness	280 nits (typ)		350 nits (typ)	
LCD Panel Dot Pitch	0.18 mm x 0.18 mm		0.190 mm x 0.190 mm	
Color Scale	65,536 colors			
Backlight Average Lifetime*	50,000 hours @ 25°C			
Touch Panel Type**	Four-wire analog resistive, single touch			
Project Memory	26MB			
Number of Screens	Up to 999 screens – limited by project memory			
Realtime Clock	Realtime Clock Built into panel, backed up for 30 days at 25°C			
Calendar - Month / Day / Year	Yes - monthly deviation 60 sec (Reference)			
Serial Port 1	15-pin D-sub female - RS232C, RS-422/485			
Serial Port 2	N/A	3-wire terminal block - RS-485	N/A	3-wire terminal block - RS-485
Serial Port 3	N/A	RJ-12 modular jack - RS-232C	N/A	RJ-12 modular jack - RS-232C
USB Port - Type B	USB 2.0 High speed (480 Mbps) Type B - Download/Program			
USB Port - Type A	USB 2.0 High speed (480 Mbps) Type A -for USB device options			
Ethernet Port	N/A	Ethernet Port Ethernet 10/100 Base-T, auto MDI/MDI-X		
Audio Line Out	N/A	3.5 mm mini jack – requires amplifier and speaker(s)	N/A	3.5 mm mini jack – requires amplifier and speaker(s)
Mic In (Future)	N/A	3.5 mm mini jack	N/A	3.5 mm mini jack
SD Card Slot	1 slot supports max 2 GB (SD), max 32 GB (SDHC)			
HDMI Video Out	N/A			
HDMI Supported Resolution	N/A			
Supply Power	10.2-26.4 VDC Class 2 or SELV (Safety Extra-Low Voltage) Circuit or Limited Energy Circuit (LEC), or use the AC/DC Power Adapter, EA-AC, to power the touch panel from a 100-240 VAC, 50/60 Hz power source. Reverse Polarity Protected			
Power Consumption	16.0 W 1.30 A @ 12VDC 0.66 A @ 24VDC			
Internal Fuse (non-replaceable)	4.0 A		6.3 A	
Altitude	Up to 2000m (6562 ft)			
Operating Temperature	0 to 50 °C (32 to 122 °F) Maximum surrounding air temperature rating: 50°C (122°F) IEC 60068-2-14 (Test Nb, Thermal Shock)			
Storage Temperature	-20 to +60°C (-4 to +140 °F) IEC 60068-2-1 (Test Ab, Cold) IEC 60068-2-2 (Test Bb, Dry Heat) IEC 60068-2-14 (Test Na, Thermal Shock)			
Humidity	5–95% RH (non-condensing)			
Environment	For use in Pollution Degree 2 environment, no corrosive gases permitted			
Noise Immunity	(EN61131-2), EN61000-4-2 (ESD), EN61000-4-3 (RFI), EN61000-4-4 (FTB), EN61000-4-5 (Serge), EN61000-4-6 (Conducted) EN61000-4-8 (Power frequency magnetic field immunity) (Local Test) RFI, (145MHz, 440MHz 10W @ 10cm), Impulse 1000V @ 1µs pulse			
Withstand Voltage	1000 VAC, 1 min. (FG to Power supply)			
Insulation Resistance	> 10M ohm @ 500VDC (FG to Power supply)			
Vibration	IEC60068-2-6 (Test Fc)			
Shock	IEC60068-2-27 (Test Ea)			
Emission	EN55011 Class A (Radiated RF emission)			
Enclosure	NEMA 250 type 4/4X indoor use only UL50 type 4X indoor use only IP-65 indoor use only (When mounted correctly)		NEMA 250 type 4/4X indoor use only UL50 type 4X indoor use only IP-65 (not tested by UL) (When mounted correctly)	
Agency Approvals	UL508, E157382 CE (EN61131-2), RoHS (2011/65/EU) CUL Canadian C22.2		UL61010, E157382 CE (EN61131-2), RoHS (2011/65/EU) CUL Canadian C22.2	
NOTES:	*The backlight average lifetime is defined as the average usage time it takes before the brightness becomes 50% of the initial brightness. The lifetime of the backlight depends on the ambient temperature. The lifetime will decrease under low or high temperature usage. **The touchscreen is designed to respond to a single touch. If it is touched at multiple points at the same time, an unexpected object may be activated.			

C-more 7" TFT Color Touch Panel - Base Model

Part No. EA9-T7CL-R

C-more EA9 series touch screen interface panel, 7-inch color TFT (7.0 inch viewable screen), 64K colors, 800 x 480 pixel WVGA screen resolution, 800MHz CPU, 12-24 VDC powered, NEMA 4/4X, IP65 (when mounted correctly; for indoor use only)(not tested by UL), non-replaceable LED backlight. Includes (1) serial port, USB 2.0 Type A and B ports and Ethernet port; supports SD memory card. Compatible with EA9-PGMSW programming software version 6.3 or later.



\$465.00

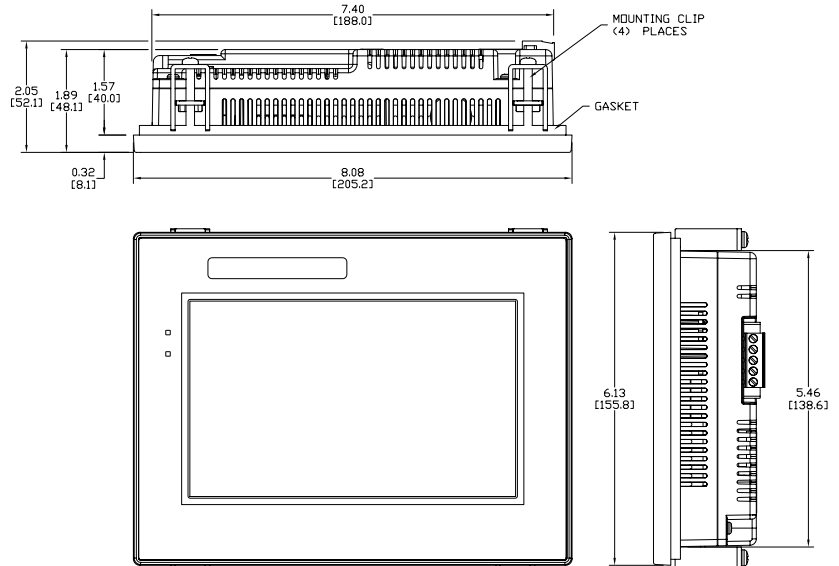
Dimensions
inches / [mm]

Features

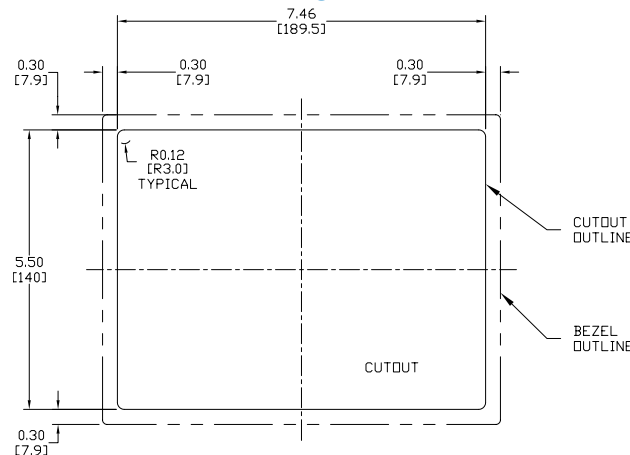
- 7.0" diagonal color TFT (Thin Film Transistor) LCD display with 64K colors
- 800 x 480 pixel resolution
- 350 NITS display brightness
- 50,000 hour average backlight half-life
- Analog resistive (1024 X 1024) touch screen allowing unlimited touch areas
- USB port B (program/download) and USB port A (USB device options)
- Ethernet 10/100 Base-T port (program/download & PLC communication)
- Remote Internet Access
- Serial PLC interface (RS-232/422/485)
- One built-in SD memory card slot
- 12-24 VDC powered, 110VAC power adapter (optional)
- 26MB project memory
- Data logging
- 0 to 50°C [32 to 122°F] operating temperature range
- NEMA 4/4X, IP65(not tested by UL) when mounted correctly, indoor use only
- Slim design saves panel space
- UL, cUL & CE agency approvals
- 2-year warranty from date of purchase



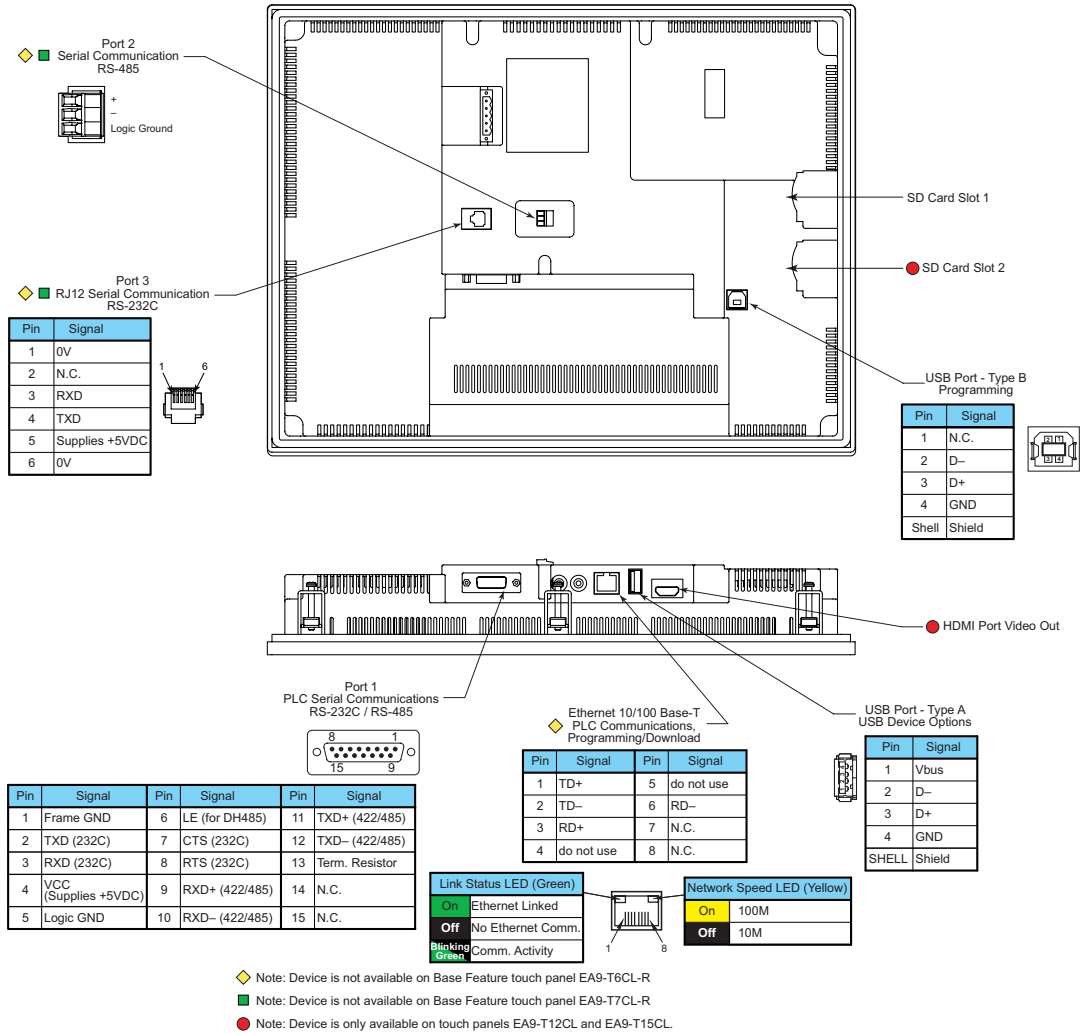
Function	Available
Ethernet	Yes
USB	Yes
SD Card	Yes
Audio Out	No
HDMI Video Out	No



Mounting Cutout



C-more Communication Ports



Ethernet Port

The Ethernet port has several uses:

- Download program to panel
- Communicate to PLCs/PCs
- Send e-mail
- Access FTP server
- Act as a Web server
- Remote Internet Access

The Ethernet port has an RJ-45 8-wire modular connector with green and yellow LEDs.

- The yellow LED indicates network speed; off for a 10 Mbps connection and illuminated for a 100 Mbps connection.
- The green LED indicates link status and illuminates when a link is established.

Note: EA6-T6CL-R does not include an Ethernet port, and does not have these capabilities.

USB Port B

Program *C-more* via the USB programming port. It's fast and easy, with no baud rate settings, parity, or stop bits to worry about. We stock standard USB cables for your convenience. USB Port B can be used to upload or download projects to and from a PC.

USB Port A

The Universal Serial Bus (USB) Port A is a standard feature for all models and can be used to connect various USB HID (Human Input Device) devices to the panel, such as:

- USB pen drives, (USB-FLASH)
- USB keyboards
- USB barcode scanners
- USB card scanners

C-more can log data to the USB pen drive as well as load projects to the panel from the pen drive. You can also back up project files and panel firmware.

Sound Interface (Audio Line Out)

When attached to an amplifier and speaker(s), *C-more* can play warning sounds or pre-recorded messages such as: "conveyor is jammed". *C-more* supports WAV type files. The output is stereo.

Serial Port

Port 1 - Connect to your serial controller network via Port 1. Port 1 is a 15-pin port that supports RS-232 or RS-422/485.

Port 2 - Connect your RS-485 network via Port 2. Port 2 is provided with a 3-wire removable terminal block.

Port 3 - Connect to your RS-232C device via Port 3. Port 3 is an RJ12 connection.

HDMI Video Out

EA9-T12CL and EA9-T15CL include an HDMI Type A port to provide video output to a projector or remote monitor.

C-more Accessories

AC/DC Power Adapter

The optional **C-more** AC/DC Power Adapter can be used to power the **C-more** touch panels from a 100-240 VAC, 50/60 Hertz, voltage source. The adapter provides 24VDC @ 1.5 A to the touch panel's DC power connector and can be conveniently secured to the touch panel with two captive screws.

The adapter provides a power loss signal to the touch panel that causes the touch panel to stop writing data to SD memory devices providing a controlled shutdown for increased data logging reliability.

Part No. **EA-AC**

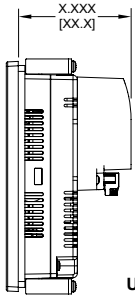
\$74.00

Dimensions

inches / [mm]

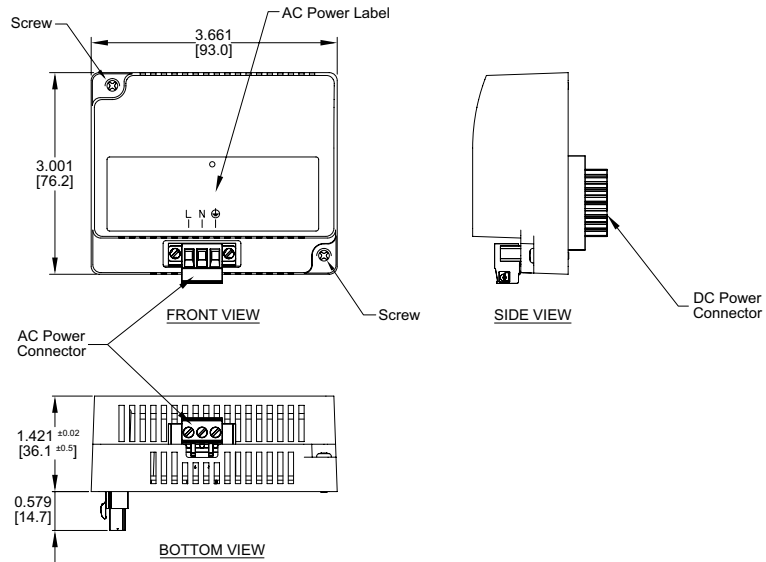


Overall Panel Depth w/ EA-AC Installed



- EA9-T6CL-R = 2.99 [75.9]
- EA9-T6CL = 2.99 [75.9]
- EA9-T7CL-R = 2.99 [75.9]
- EA9-T7CL = 2.99 [75.9]
- EA9-T8CL = 3.51 [89.2]
- EA9-T10CL = 3.51 [89.2]
- EA9-T12CL = 3.35 [85.1]
- EA9-T15CL = 3.35 [85.1]

Units: inches[mm]



AC/DC Power Adapter Specifications			
Part Number	EA-AC	Short Circuit Protection	85VAC: 2.6 A, 100VAC: 2.8 A, 264VAC: 3.9 A
Input Voltage & Frequency	100-240 VAC +10% -15%; 50/60 Hertz	Static Electricity Discharge Resistance	Compliant with IEC61000-4-2, Contact: 4 kV, Air: 8 kV
Wire	24-14 AWG, 60 / 75°C Copper. Tighten to 72 oz-in (0.5 Nm)	Agency Approvals	UL508 - UL Recognized for use with C-more panels, cUL, CE, EMC EN61132-2
Permissible Momentary Power Failure	Within 40ms	Environment	For use in pollution degree 2 environment
Input Power	68VA or less	Grounding	Ground resistance: less than 100 ohm
Operating Temperature Range	0°C to 50°C [32 to 122°F] Maximum surrounding temperature rating, 50°C	Dimensions - inches [mm]	3.00" (H) x 3.66" (W) x 1.42" (D) [76.2 mm x 93.0 mm x 36.1 mm] (Excluding DC Power Connector.)
Storage Temperature Range	-20 to 60°C [-4 to 140°F]	Weight	6.13 oz. [175 g]
Operating & Storage Humidity	10-85% RH (non-condensing)	Cooling Method	Natural convection
Noise Immunity	1000VAC p-p (Pulse width 1 μs, rise time: 1 ns), with proper ground connection on AC terminal block.	Removable AC Power Connector (included)	EA-AC-CON or DECA Switchlab MC101-508-03G Secured with (2) captive M2.5 screws, torque to 70 oz-in [0.5 Nm]
Hi-Pot	1000VAC, 1 minute, with proper ground connection on AC terminal block.	Output Voltage and Ripple	21.6 - 26.4 VDC, Ripple < 100 mV p-p
Insulation Resistance	500VDC, 10 M ohm or above, with proper ground connection on AC terminal block.	Output Current	Maximum 1.5 A
Vibration	Compliant with IEC61131-2	Inrush Current	For 100VAC: 15A, 3ms or less For 240VAC: 20A, 3ms or less
Shock	Pulse shape: Sine half wave, Peak acceleration: 147 m/s ² (15 G), X, Y, Z: 3 directions, 2 times each	Mounting to Touch Panel	Secure with (2) spring loaded captive M3-20 screws, torque to 50 oz-in [0.35 Nm]
Thermal Protection	140°C [284°F], with autorecovery	Recommended External Fuse	3.0A (ADC p/n: MDL3)

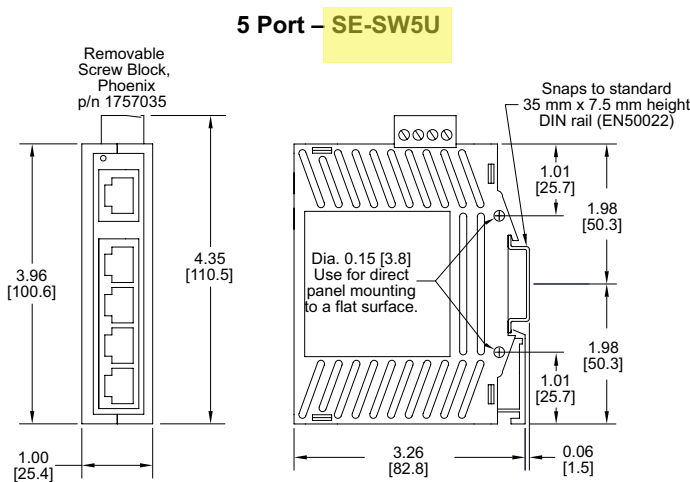
Stride[®] Unmanaged Industrial Ethernet Switches

5-Port Ethernet Switch - Plastic Case

STRIDE SlimLine Industrial Unmanaged Ethernet Switch, plastic case, -10 to +60 °C operating temperature range, five 10/100BaseT RJ45 Ethernet ports. Redundant power inputs with surge and spike protection, auto-crossover, DIN rail mounting. Supports Store and Forward wire speed switching and full-duplex with flow control. UL/CUL1604 (Class I, Div. 2, Groups A, B, C, D) and CE marked.

Dimensions

Inches [mm]



SE-SW5U
\$99.00

ACT/LNK LED

This is the **Yellow** LED on models with a Yellow and a Green LED per RJ45 port.

ON (yellow) (not flashing)	Indicates that there is a proper Ethernet connection (Link) between the port and another Ethernet device, but no communications activity is detected.
ON (yellow) (flashing)	Indicates that there is a proper Ethernet connection (Link) between the port and another Ethernet device, and that there is communications activity.
OFF	Indicates that there is not a proper Ethernet connection (Link) between the port and another Ethernet device. Make sure the cable has been plugged securely into the ports at both ends.

Speed 10/100 LED

This is the **Green** LED on models with a Yellow and a Green LED per RJ45 port.

ON (green)	A 100 Mbps (100BaseT) connection is detected.
OFF	A 10 Mbps (10BaseT) connection is detected.

Specifications

The following are specifications relevant to the SE-SW5U 5-Port Ethernet Switch.

Input power (typical with all ports active at 100 Mbps)	2.0 W
Weight	4 oz (0.11 kg)
Power connector max. screw torque	5.0 lb-in (0.57 Nm)

Stride Unmanaged Industrial Ethernet Switches & Media Converter

General Specifications		
Ethernet switch type	Up to 9 ports	
Operating mode	Store and forward wire speed switching, non-blocking	
Devices supported	All IEEE 802.3 compliant devices are supported	
Standards	IEEE 802.3, 802.3u, 802.3x	
MAC addresses	1024 addresses	
Memory bandwidth	3.2 Gbps	
Latency for 10 Mbps ports	16 us + frame time (typical)	
Latency for 100 Mbps ports	5 us + frame time (typical)	
Power input	Redundant Input Terminals	
Input power (typical with all ports active at 100 Mbps)	SE-MC2U-ST SE-MC2U-SC SE-SW5U SE-SW5U-WT	2.0 W
	SE-SW5U-ST SE-SW5U-SC SE-SW5U-ST-WT SE-SW5U-SC-WT	3.0 W
	SE-SW8U SE-SW8U-WT	4.0 W
	SE-SW9U-ST SE-SW9U-SC SE-SW9U-ST-WT SE-SW9U-SC-WT	5.0 W
Input voltage	10-30 VDC (continuous) - Class 2 Power Supply	
Reverse power protection	Yes	
Transient protection	15,000 watts peak	
Spike protection	5,000 watts (10x for 10 us)	
Ethernet isolation	1500 VRMS 1 minute	
Operating temperature range	SE-MC2U-ST SE-MC2U-SC SE-SW5U SE-SW8U SE-SW5U-ST SE-SW5U-SC SE-SW9U-ST SE-SW9U-SC	-10 to +60 °C (+14 to +140 °F), cold startup at -10 °C (+14 °F)
	SE-SW5U-WT SE-SW8U-WT SE-SW5U-ST-WT SE-SW5U-SC-WT SE-SW9U-ST-WT SE-SW9U-SC-WT	-40 to +85 °C (-40 to +185 °F), cold startup at -40 °C (-40 °F)
Storage temperature range	-40 to +85 °C (-40 to +185 °F)	
Humidity (non-condensing)	5 to 95% RH	
Environmental Air	No corrosive gasses permitted	
Vibration, shock & freefall	IEC68-2-6, -27, -32	
Agency Approvals	UL/cUL 508, CSA C22 per EN61010-1, UL/cUL 1604 (Class 1, Div. 2, Groups A, B, C, D), CSA C 22.2/213 9 per EN50021/EN60079-15 (Zone 2, Category 3), CE (ATEX)	
EMI emissions	FCC part 15, ICES-003, EN55022	
EMC immunity	IEC61326-1	
RoHS and WEEE	RoHS (Pb free) and WEEE compliant	
Environmental Air	For use in Pollution Degree 2 environment	

General Specifications Cont'd		
Packaging and protection	SE-MC2U-ST SE-MC2U-SC SE-SW5U SE-SW8U SE-SW5U-ST SE-SW5U-SC SE-SW9U-ST SE-SW9U-SC	UL94V0 Lexan, IP30
	SE-SW5U-WT SE-SW8U-WT SE-SW5U-ST-WT SE-SW5U-SC-WT SE-SW9U-ST-WT SE-SW9U-SC-WT	Aluminum IP30
Dimensions (L x W x H)	See mechanical diagrams for details	

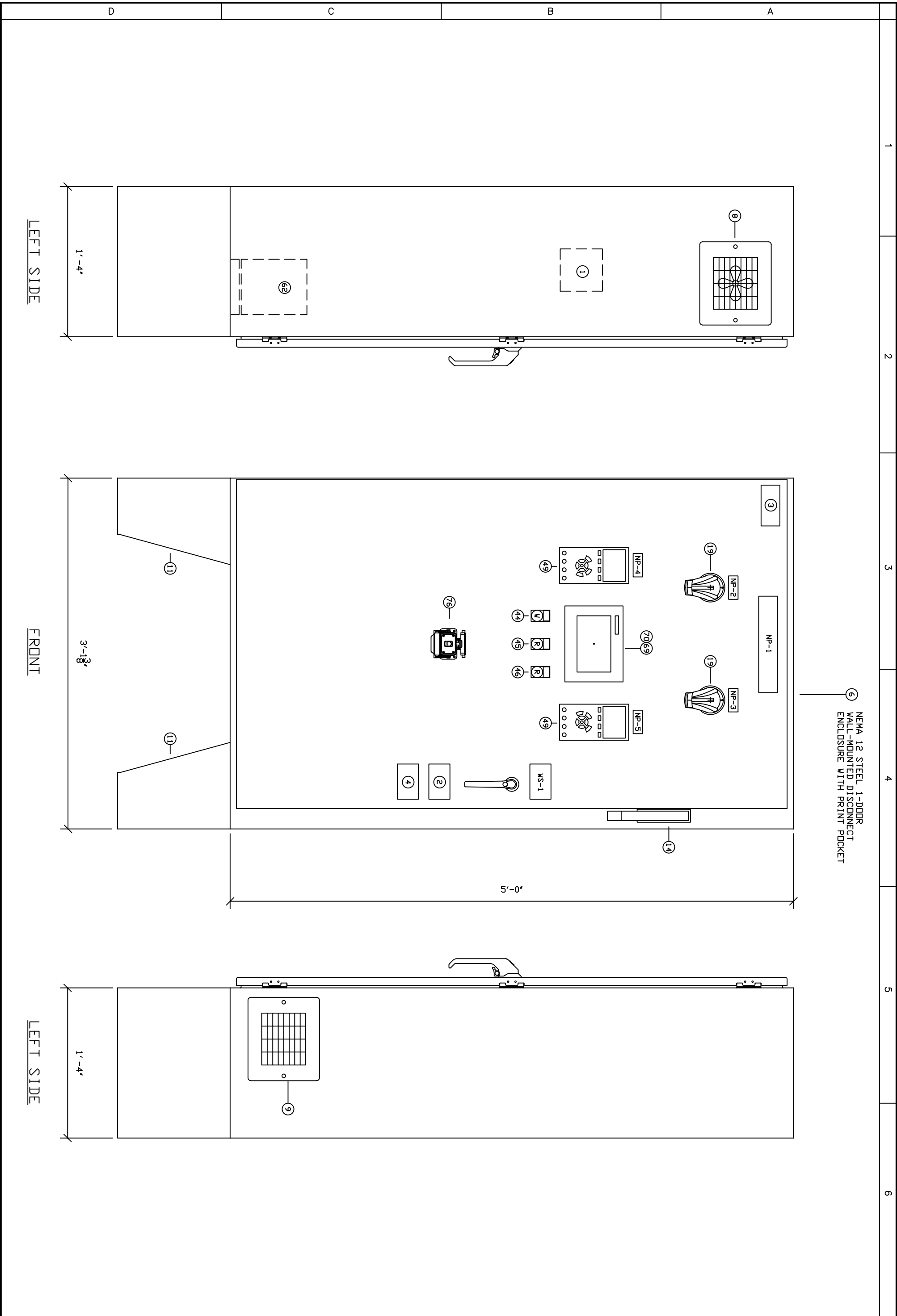
Copper RJ45 Ports: (10/100BaseT)	
10/100BaseT ports	Shielded RJ45
Protocols supported	All standard IEEE 802.3
Ethernet compliance	IEEE 802.3, 802.3u, 802.3x
Auto-crossover	Yes, allows you to use straight-through or crossover wired cables
Auto-sensing operation	Yes, Full and half duplex
Auto-negotiating	Yes, 10BaseT and 100BaseT
Auto-polarity	Yes, on the TD and RD pair
Flow control	Automatic
Ethernet isolation	1500 VRMS 1 minute
Plug and play	Yes
Cable requirements	Twisted pair (Cat. 5 or better) (shielded recommended)
Max. cable distance	100 meters

Fiber Port: (100BaseFX multimode)	
100BaseFX ports	1
Fiber port mode	Multimode (mm)
Fiber port connector	ST – models SE-XXXX-ST and SE-XXXX-ST-WT SC – models SE-XXXX-SC and SE-XXXX-SC-WT
Optimal fiber cable	50/125 or 62.5/125 μm
Center wavelength	1300 nm
Multimode	Links up to 4 km typ.; 1300 nm; use with 50 or 62.5/125 μm fiber > Transmitter power (dB): -21 min, -17 typ, -14 max > Receiver sensitivity (dB): -34 typ, -31 max
Nominal max. distance (full duplex)	4 km
Half and full duplex	Full duplex
Ethernet compliance	100BaseFX
Eye safety (laser)	IEC 60825-1, Class 1; FDA 21 CFR 1040.10 and 1040.11

Complete documentation

Documentation can be downloaded from www.automationdirect.com.

Drawings



1
2
3
4
5
6
JOB #2031



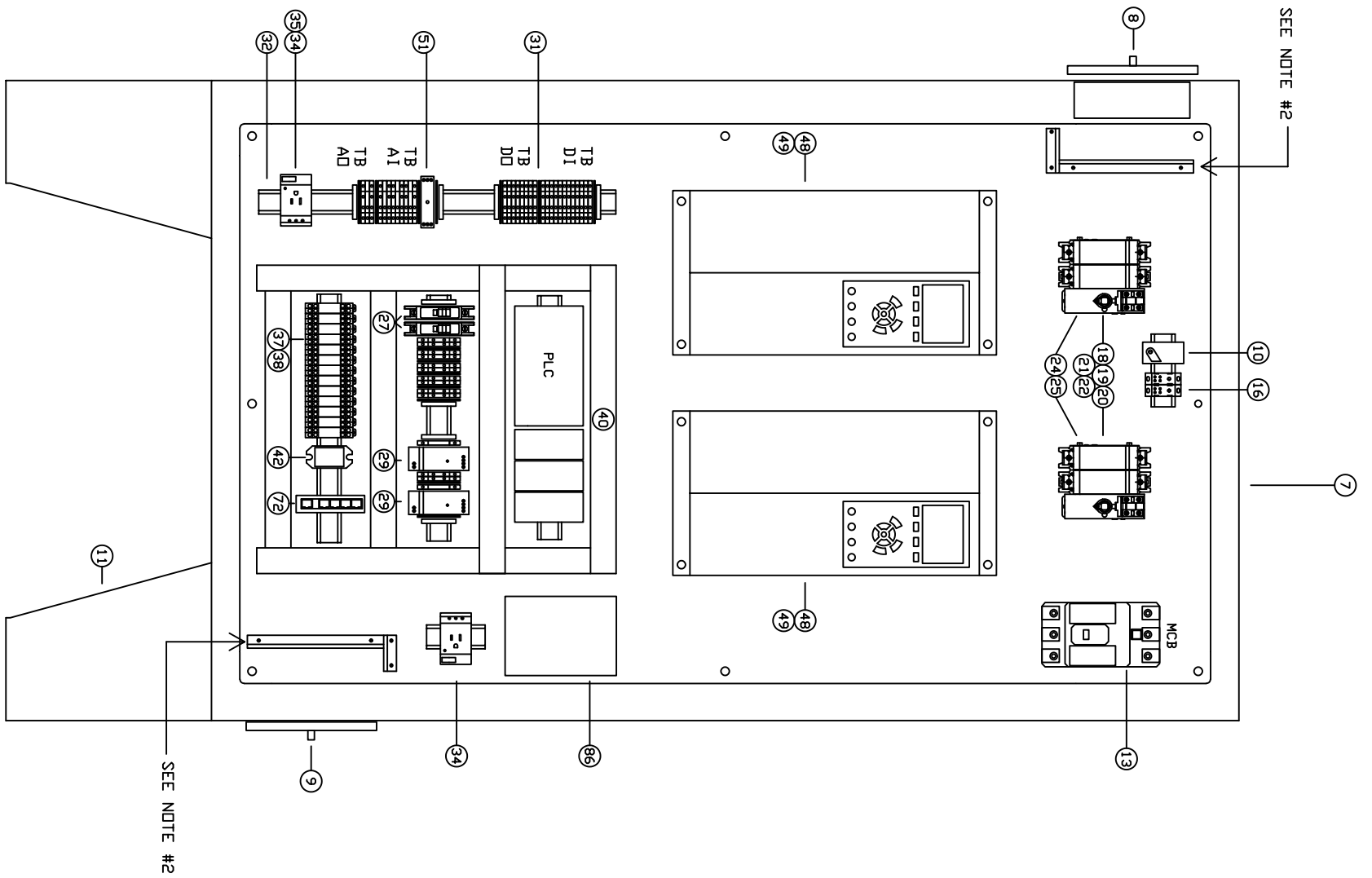
THIS DRAWING IS THE PROPERTY OF ELECTRICAL INSTALLATIONS, INC. AND MAY NOT BE COPIED, USED OR DISCLOSED FOR ANY PURPOSE EXCEPT AS AUTHORIZED IN WRITING BY ELECTRICAL INSTALLATION, INC.

Rev.	Description	Date
A	PRELIMINARY	6/2/20
B		
C		
D		
E		
F		
G		

Drawn By: BC Date: 6/2/20
Checked By: TT Scale: None

For: VILLAGE DISTRICT OF EIDELWEISS - MADISON, NH
 Project: REINACH TANK, BOOSTER PUMP STATION
 Engineer: J/B Contractor:
 Title: BOOSTER PUMP CONTROL PANEL ENCLOSURE EXTERIOR LAYOUTS

Drawing No. 2031-BPCP-1-1
 1 OF 4 Sheet



- NOTES:
- #1. A 12-INCH MINIMUM CLEARANCE IS REQUIRED FROM A VENTILATION OPENING TO ANY INTERNAL PANEL PART THAT IS CAPABLE OF ARCING PER UL 508A.
 - #2. IF THE CLEARANCE SPACE IS LESS THAN 12-INCHES, THEN A VENTILATION OPENING BARRIER IS REQUIRED PER UL 508A STANDARDS.

Electrical Installations, Inc.
 Engineering • Construction • Control Systems
 -Moultonboro, NH-

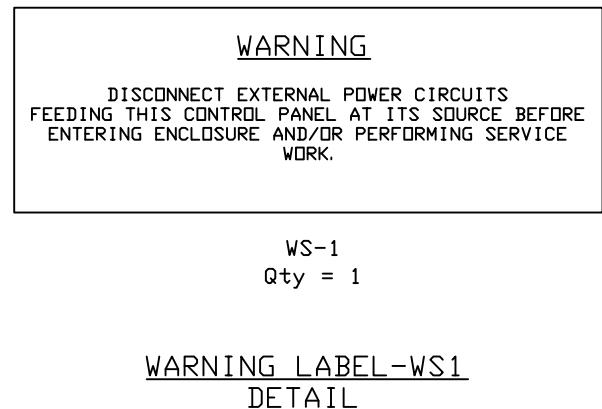
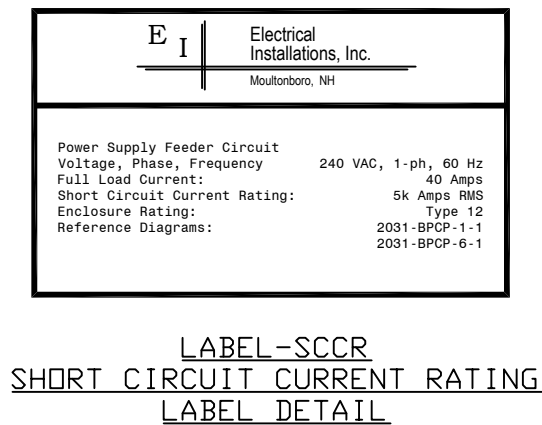
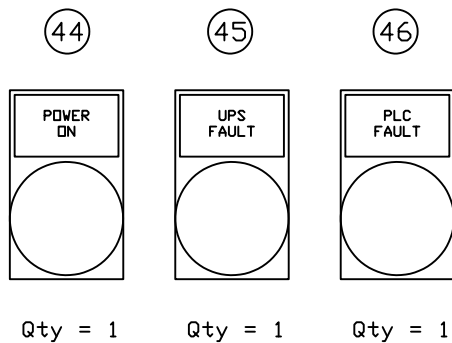
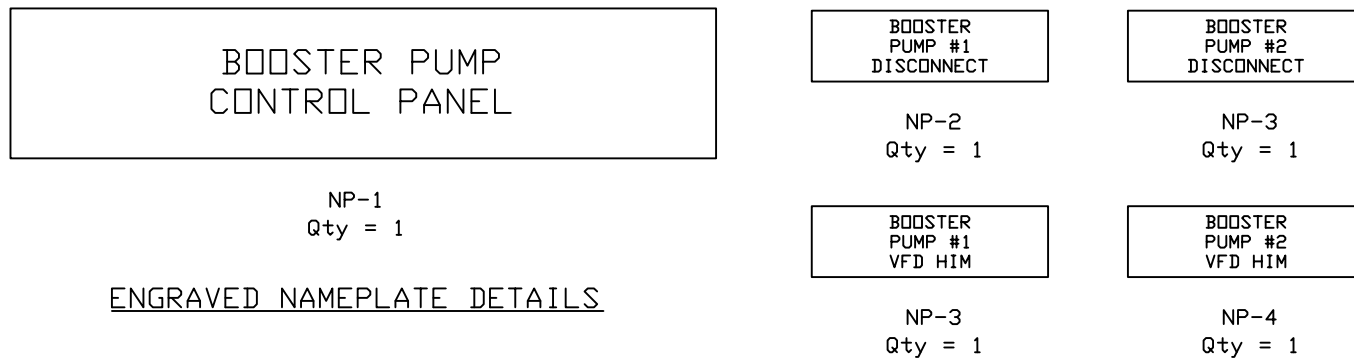
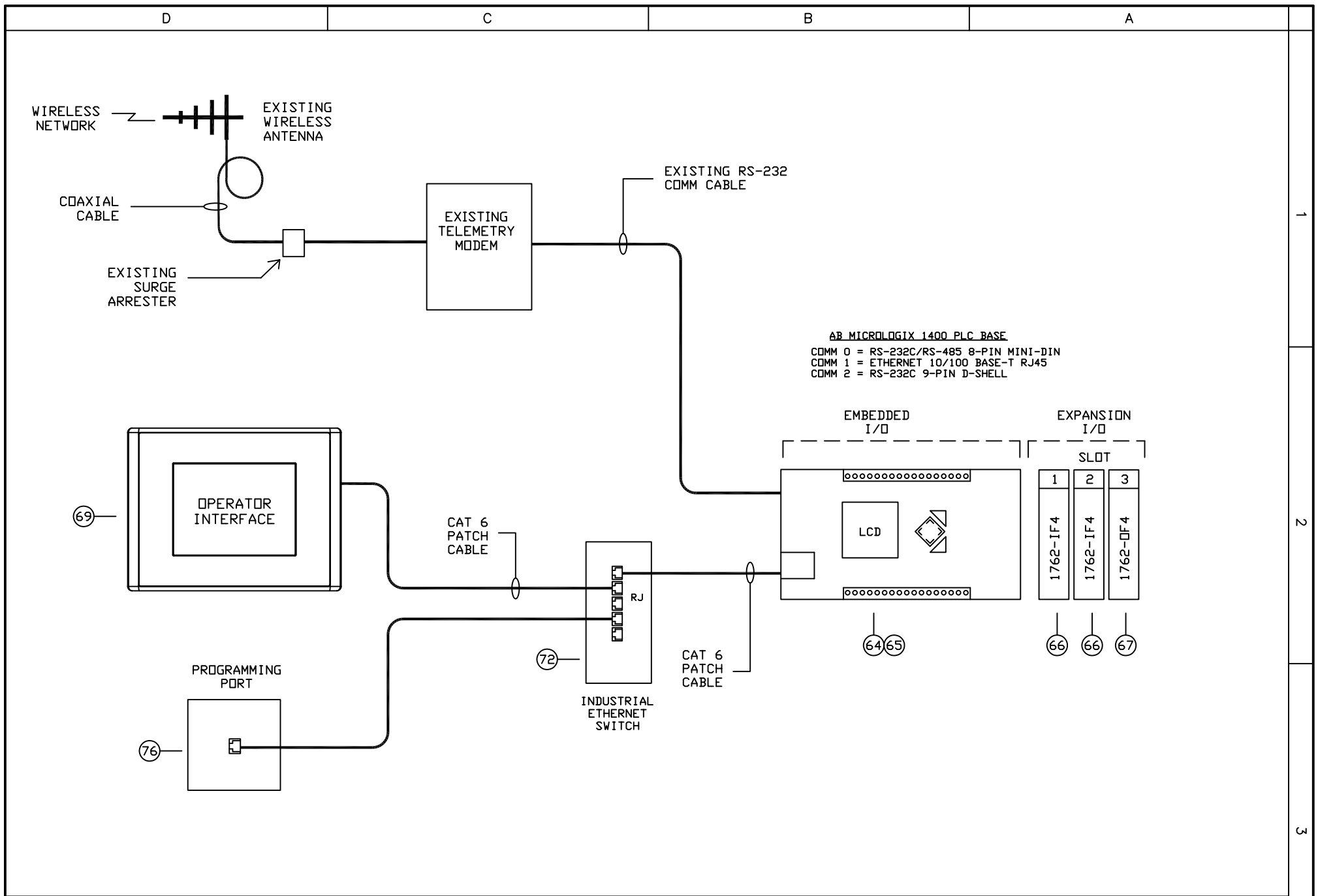
THIS DRAWING IS THE PROPERTY OF ELECTRICAL INSTALLATIONS, INC AND MAY NOT BE COPIED, USED OR DISCLOSED FOR ANY PURPOSE EXCEPT AS AUTHORIZED IN WRITING BY ELECTRICAL INSTALLATION, INC.

Rev.	Description	Date
A	PRELIMINARY	6/2/20
B		
C		
D		
E		
F		
G		

Drawn By: BC Date: 6/2/20
 Checked By: TT Scale: None

For: VILLAGE DISTRICT OF EIDELWEISS – MADISON, NH
 Project: REINACH TANK, BOOSTER PUMP STATION
 Engineer: J/B Contractor:
 Title: BOOSTER PUMP CONTROL PANEL
 ENCLOSURE INTERIOR LAYOUT

Drawing No. 2031-BPCP-1-2
 2 OF 4
 Sheet



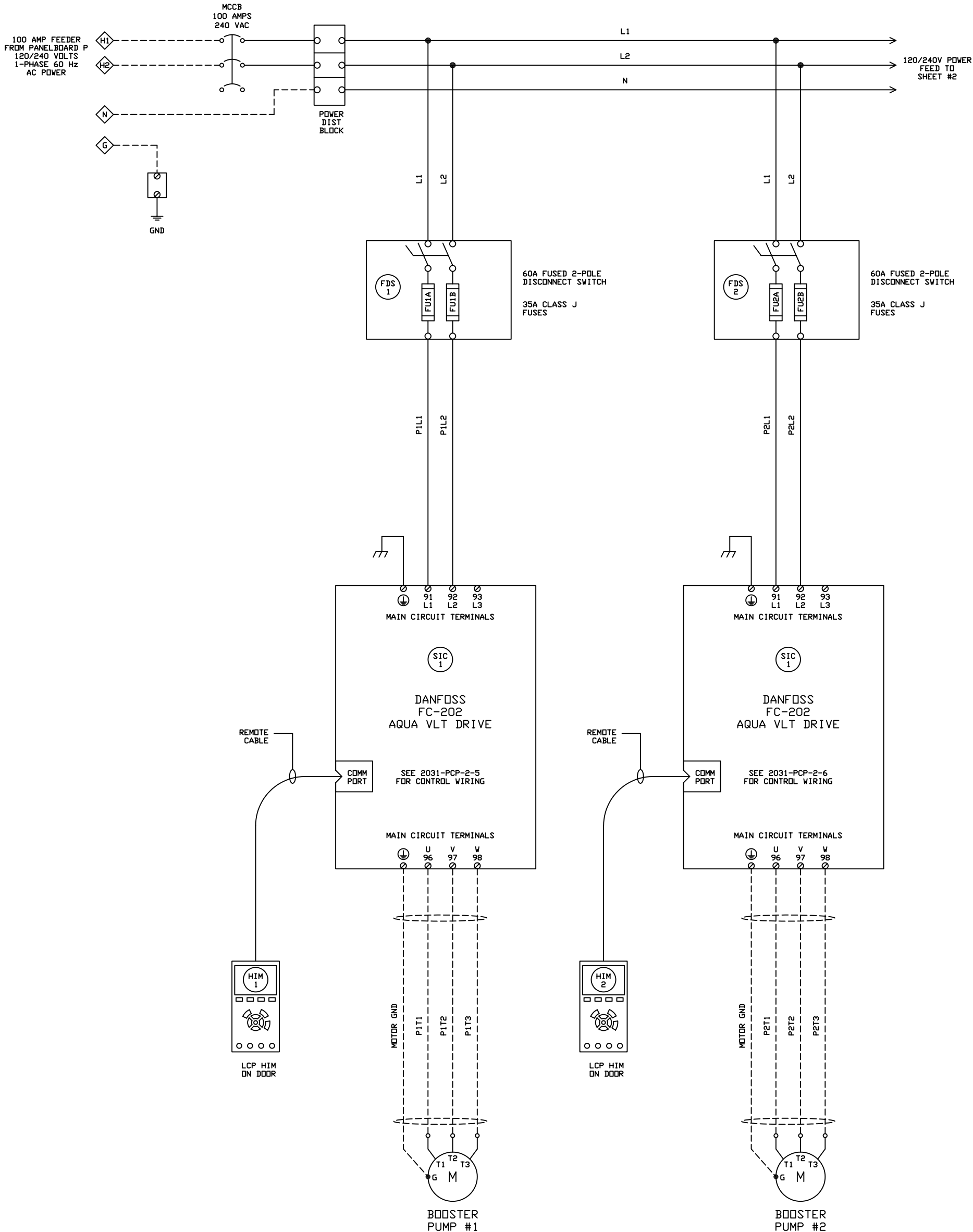
1
2
3
4
5
6
JOB #2031

D

C

B

A



MOTOR DESIGN DATA
 3 HP
 230 V
 3-PHASE
 9.6 FLA
 REFER TO MOTOR
 NAMEPLATE FOR
 ACTUAL VALUES

MOTOR DESIGN DATA
 3 HP
 230 V
 3-PHASE
 9.6 FLA
 REFER TO MOTOR
 NAMEPLATE FOR
 ACTUAL VALUES



THIS DRAWING IS THE PROPERTY OF ELECTRICAL INSTALLATIONS, INC. AND MAY NOT BE COPIED, USED OR DISCLOSED FOR ANY PURPOSE EXCEPT AS AUTHORIZED IN WRITING BY ELECTRICAL INSTALLATIONS, INC.

Rev.	Description	Date
A	PRELIMINARY	6/2/20
B	ISSUED FOR SHOP FABRICATION	6/16/20
C		
D		
E		
F		
G		

Drawn By: BC Date: 6/2/20
 Checked By: TT Scale: None

For:	VILLAGE DISTRICT OF EIDELWEISS - MADISON, NH
Project:	REINACH TANK, BOOSTER PUMP STATION
Engineer:	J/B
Contractor:	
Title:	BOOSTER PUMP CONTROL PANEL POWER WIRING DIAGRAM

Drawing No.	2031-BPCP-2-1
1 OF 6	Sheet

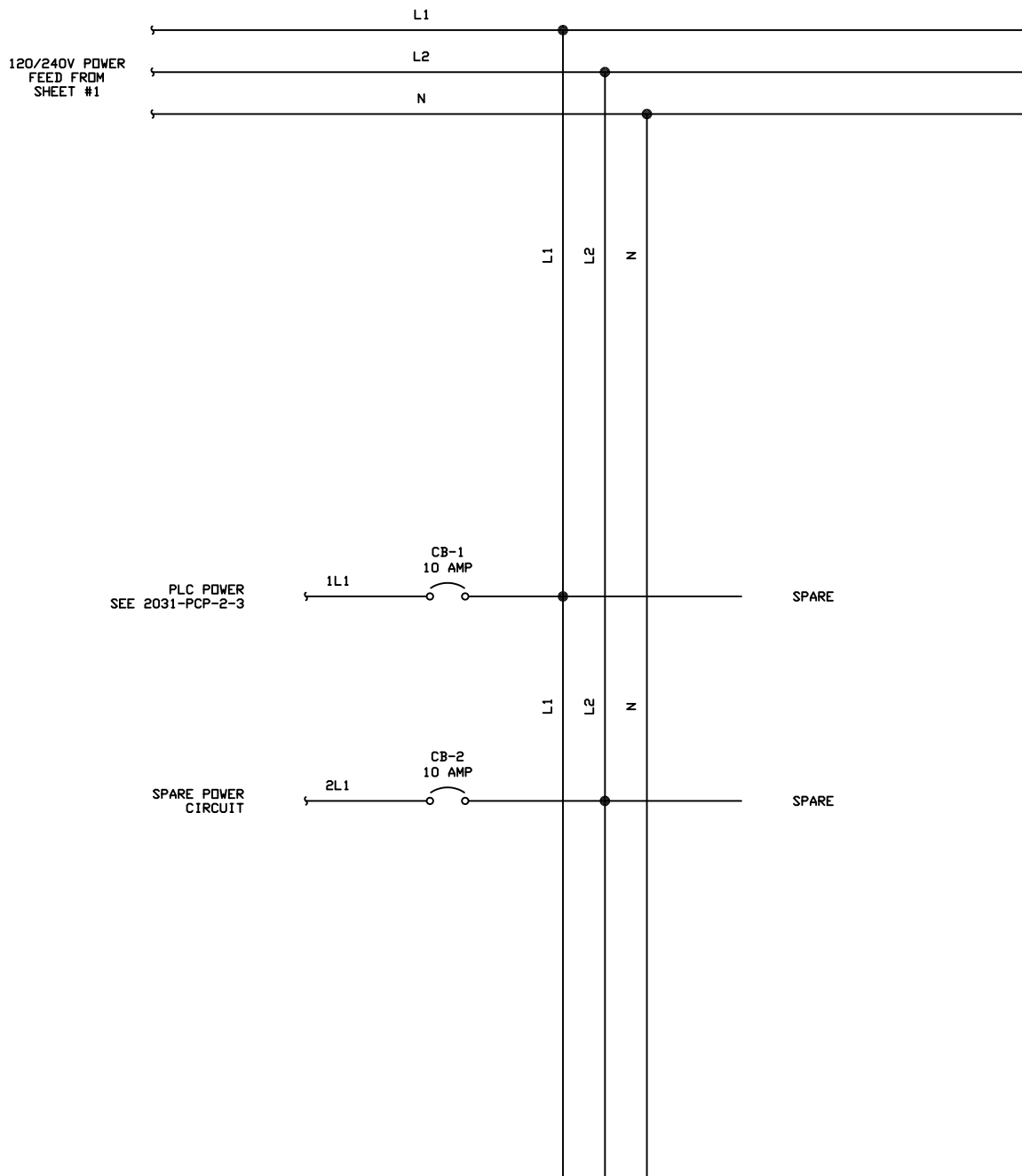
JOB #2031

D

C

B

A



1
2
3
4
5
6
JOB #2031



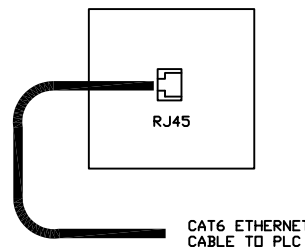
Rev.	Description	Date
A	PRELIMINARY	6/2/20
B		
C		
D		
E		
F		
G		

Drawn By: BC Date: 6/2/20
Checked By: TT Scale: None

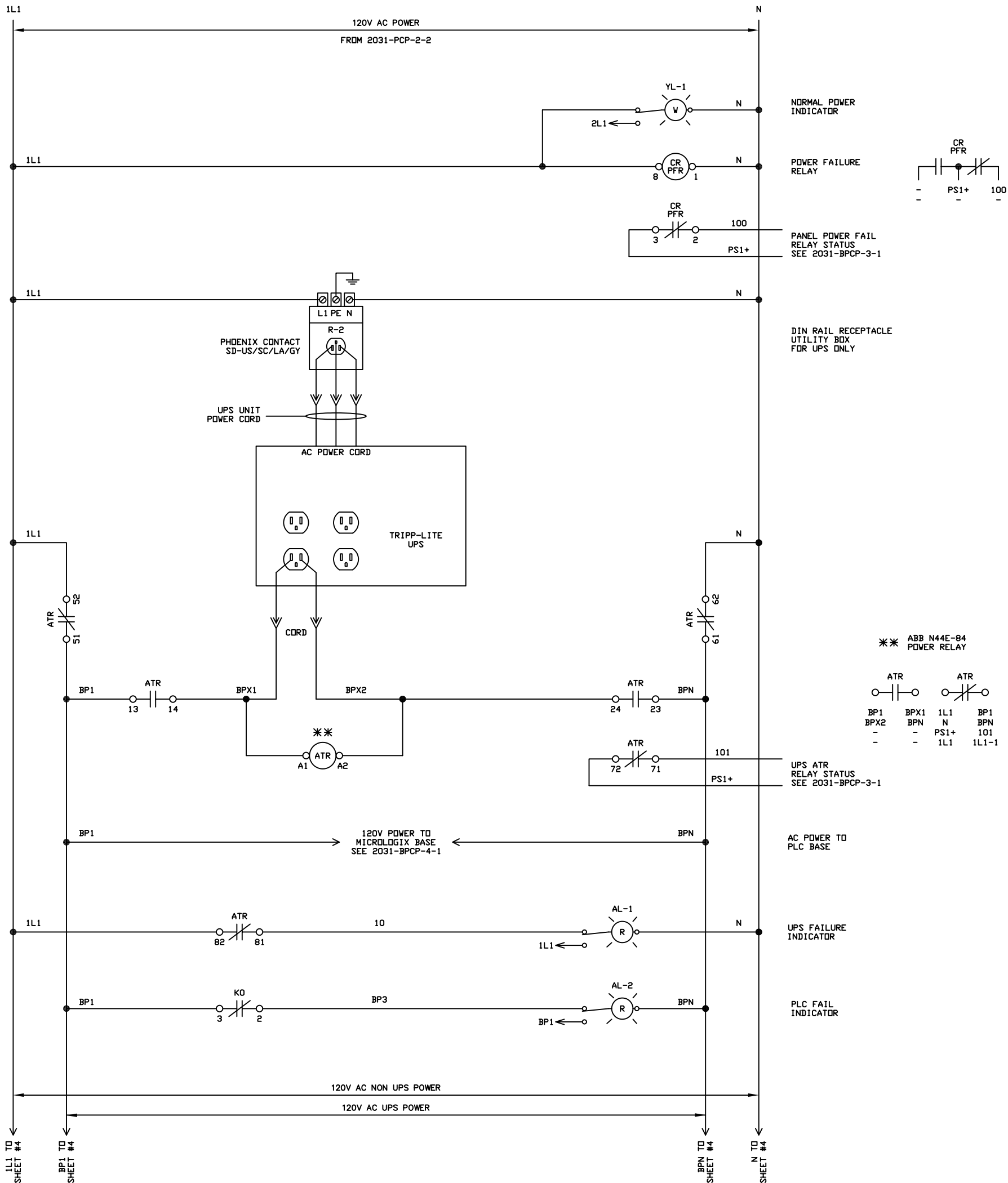
For: VILLAGE DISTRICT OF EIDELWEISS – MADISON, NH
 Project: REINACH TANK, BOOSTER PUMP STATION
 Engineer: J/B Contractor:
 Title: BOOSTER PUMP CONTROL PANEL
 POWER WIRING DIAGRAM

Drawing No. 2031-BPCP-2-2
 2 OF 6
 Sheet

THIS DRAWING IS THE PROPERTY OF ELECTRICAL INSTALLATIONS, INC AND MAY NOT BE COPIED, USED OR DISCLOSED FOR ANY PURPOSE EXCEPT AS AUTHORIZED IN WRITING BY ELECTRICAL INSTALLATION, INC.



PROGRAMMING PORT
(NON-POWERED)



THIS DRAWING IS THE PROPERTY OF ELECTRICAL INSTALLATIONS, INC. AND MAY NOT BE COPIED, USED OR DISCLOSED FOR ANY PURPOSE EXCEPT AS AUTHORIZED IN WRITING BY ELECTRICAL INSTALLATION, INC.

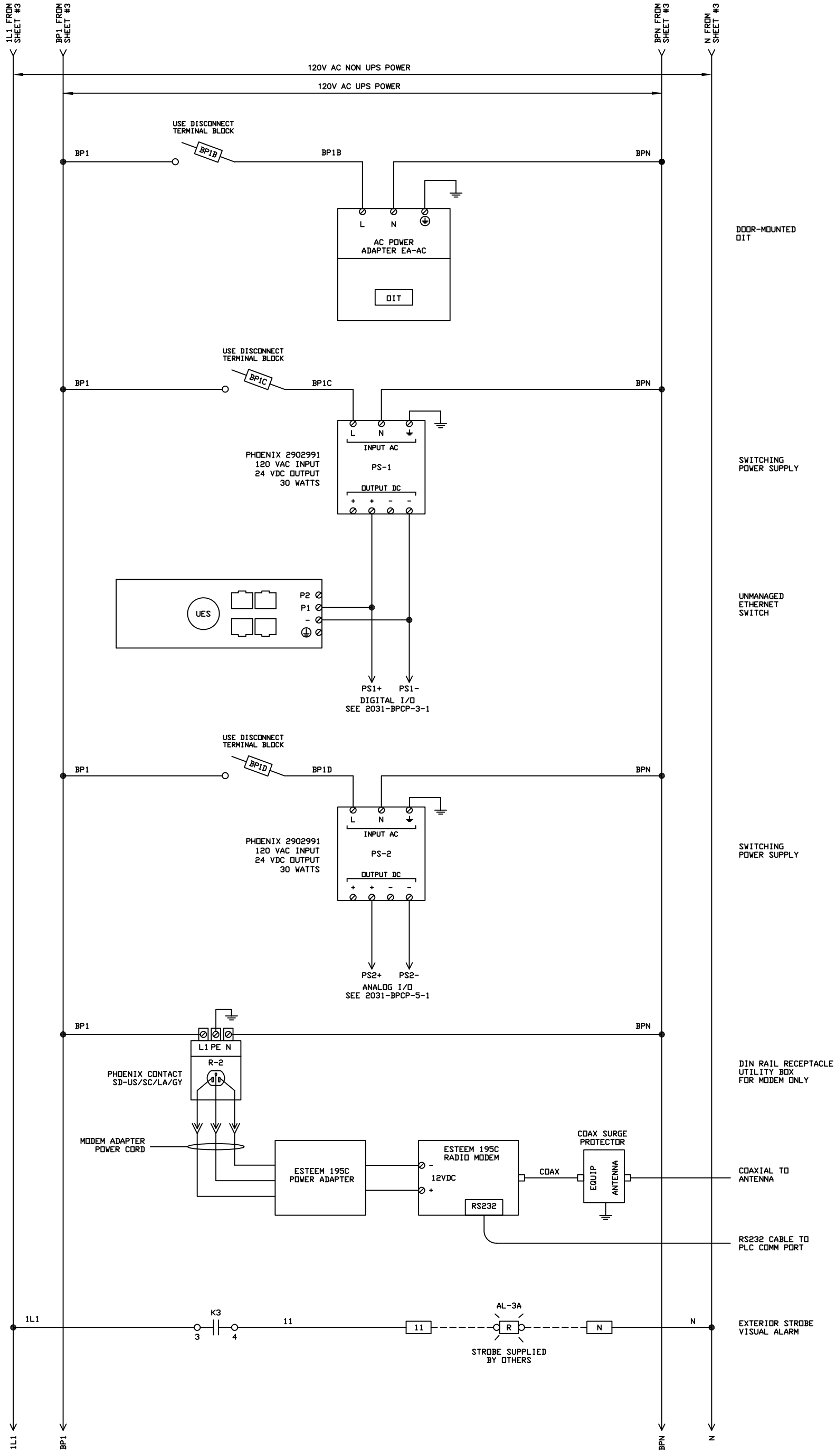
Rev.	Description	Date
A	PRELIMINARY	6/2/20
B		
C		
D		
E		
F		
G		

Drawn By: BC Date: 6/2/20
Checked By: TT Scale: None

For: VILLAGE DISTRICT OF EIDELWEISS – MADISON, NH
 Project: REINACH TANK, BOOSTER PUMP STATION
 Engineer: J/B Contractor:
 Title: BOOSTER PUMP CONTROL PANEL
 POWER WIRING DIAGRAM

Drawing No.
 2031-BPCP-2-3
 3 OF 6
 Sheet

1
2
3
4
5
6
JOB #2031



DOOR-MOUNTED
DIT

SWITCHING
POWER SUPPLY

UNMANAGED
ETHERNET
SWITCH

SWITCHING
POWER SUPPLY

DIN RAIL RECEPTACLE
UTILITY BOX
FOR MODEM ONLY

COAXIAL TO
ANTENNA

RS232 CABLE TO
PLC COMM PORT

EXTERIOR STROBE
VISUAL ALARM



THIS DRAWING IS THE PROPERTY OF ELECTRICAL INSTALLATIONS, INC. AND MAY NOT BE COPIED, USED OR DISCLOSED FOR ANY PURPOSE EXCEPT AS AUTHORIZED IN WRITING BY ELECTRICAL INSTALLATIONS, INC.

Rev.	Description	Date
A	PRELIMINARY	6/2/20
B		
C		
D		
E		
F		
G		

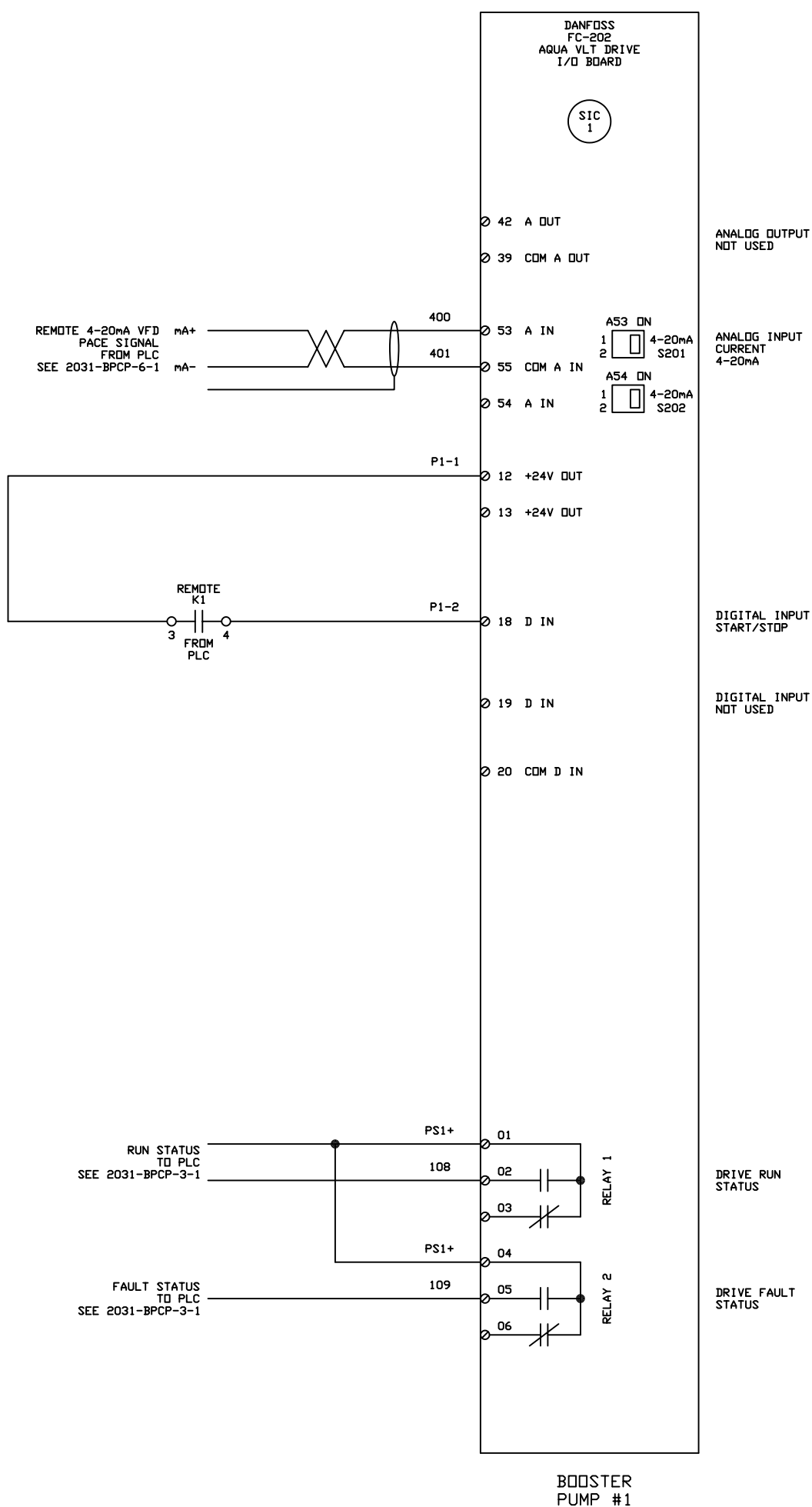
Drawn By: BC Date: 6/2/20
Checked By: TT Scale: None

For: VILLAGE DISTRICT OF EIDELWEISS - MADISON, NH
 Project: REINACH TANK, BOOSTER PUMP STATION
 Engineer: J/B Contractor:
 Title: BOOSTER PUMP CONTROL PANEL
 POWER WIRING DIAGRAM

Drawing No.
2031-BPCP-2-4
4 OF 6
Sheet

JOB #2031

1
2
3
4
5
6
JOB #2031



THIS DRAWING IS THE PROPERTY OF ELECTRICAL INSTALLATIONS, INC AND MAY NOT BE COPIED, USED OR DISCLOSED FOR ANY PURPOSE EXCEPT AS AUTHORIZED IN WRITING BY ELECTRICAL INSTALLATION, INC.

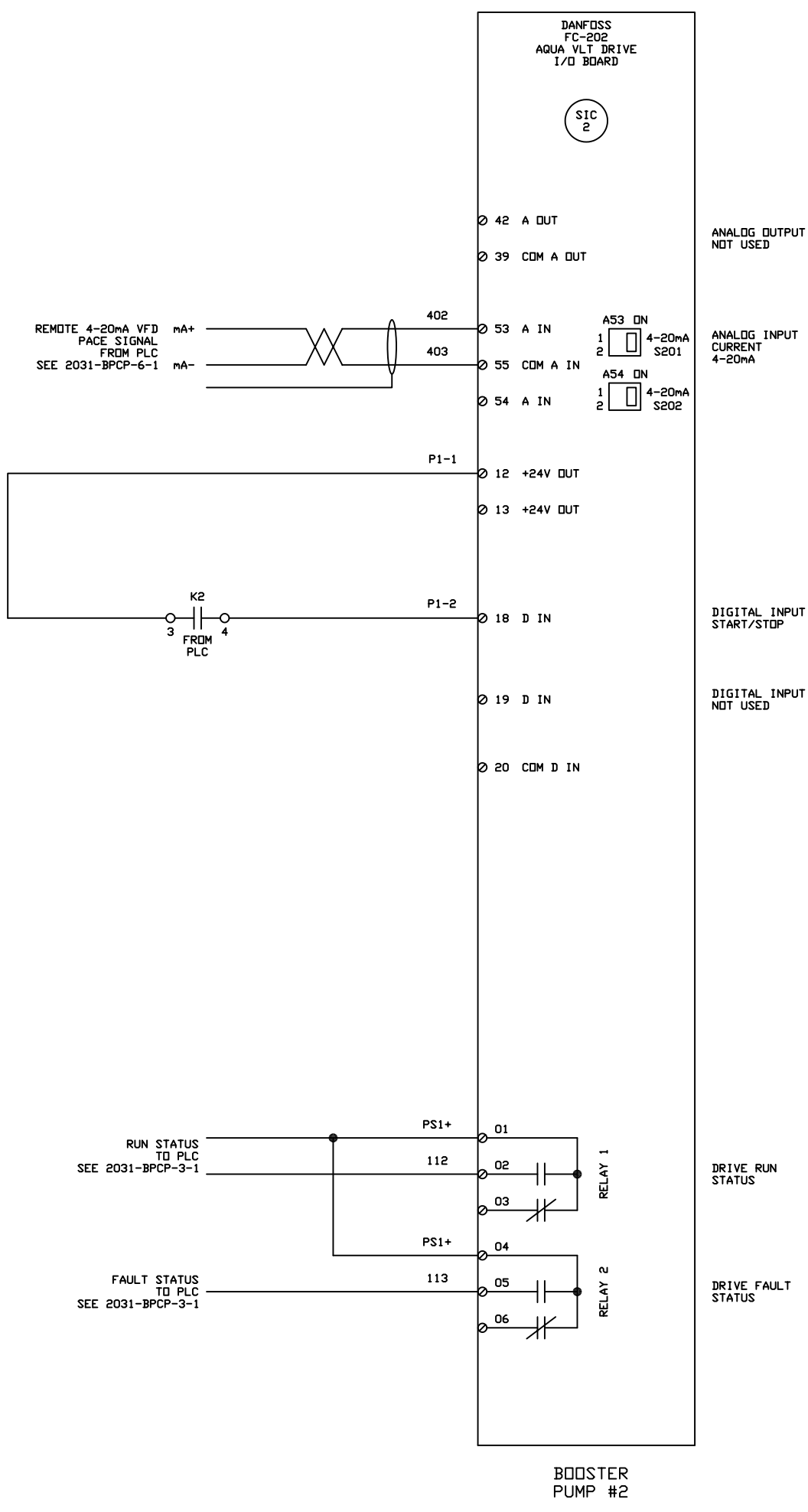
Rev.	Description	Date
A	PRELIMINARY	6/2/20
B		
C		
D		
E		
F		
G		

Drawn By: BC Date: 6/2/20
Checked By: TT Scale: None

For: VILLAGE DISTRICT OF EIDELWEISS - MADISON, NH
Project: REINACH TANK, BOOSTER PUMP STATION
Engineer: J/B Contractor:
Title: BOOSTER PUMP CONTROL PANEL
POWER WIRING DIAGRAM

Drawing No. 2031-BPCP-2-5
5 OF 6
Sheet

1
2
3
4
5
6
JOB #2031



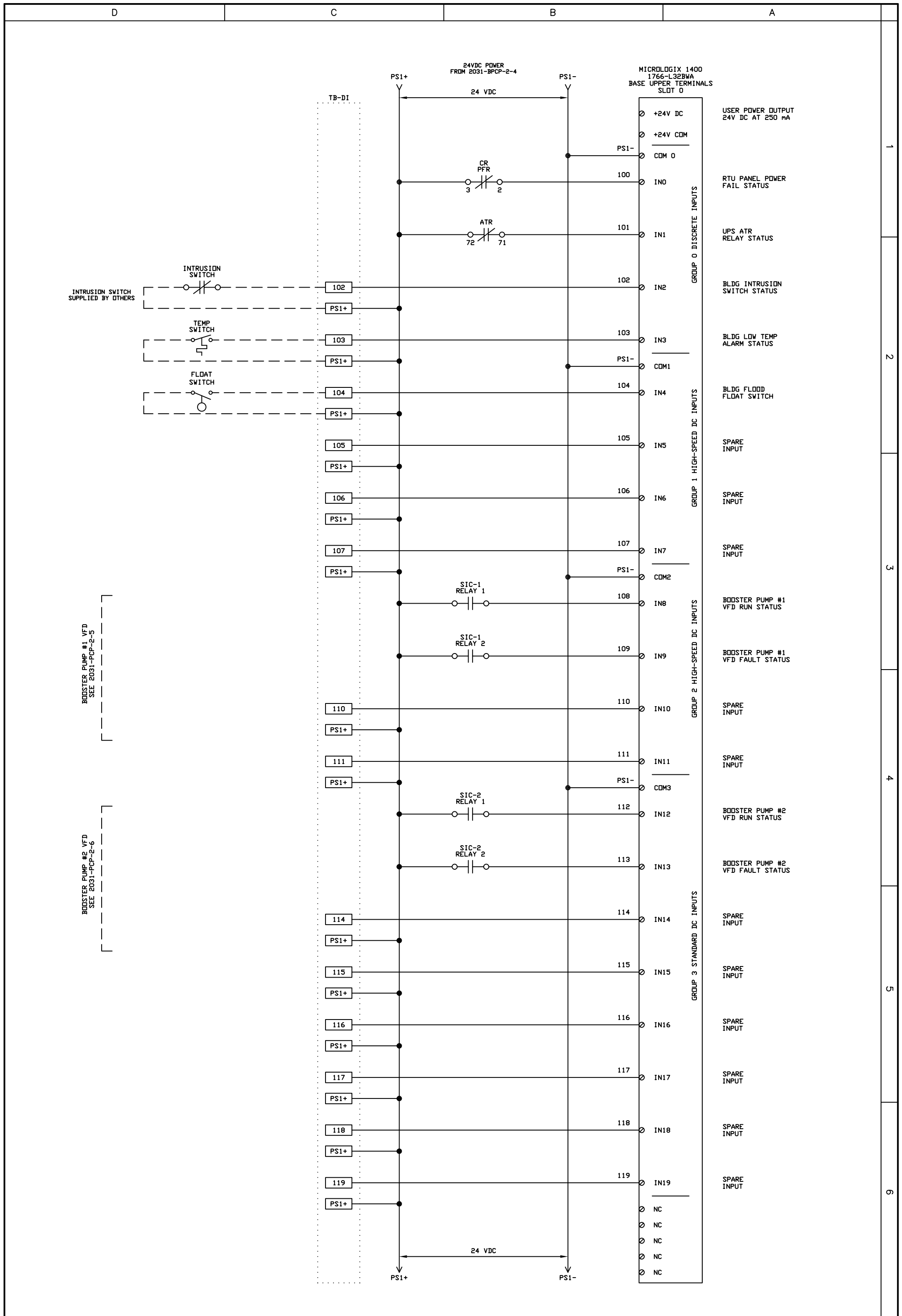
THIS DRAWING IS THE PROPERTY OF ELECTRICAL INSTALLATIONS, INC. AND MAY NOT BE COPIED, USED OR DISCLOSED FOR ANY PURPOSE EXCEPT AS AUTHORIZED IN WRITING BY ELECTRICAL INSTALLATION, INC.

Rev.	Description	Date
A	PRELIMINARY	6/2/20
B		
C		
D		
E		
F		
G		

Drawn By: BC Date: 6/2/20
Checked By: TT Scale: None

For: VILLAGE DISTRICT OF EIDELWEISS - MADISON, NH
Project: REINACH TANK, BOOSTER PUMP STATION
Engineer: J/B Contractor:
Title: BOOSTER PUMP CONTROL PANEL
POWER WIRING DIAGRAM

Drawing No. 2031-BPCP-2-6
6 OF 6
Sheet



BOOSTER PUMP #1 VFD
SEE 2031-PCP-2-5

BOOSTER PUMP #2 VFD
SEE 2031-PCP-2-6



THIS DRAWING IS THE PROPERTY OF ELECTRICAL INSTALLATIONS, INC. AND MAY NOT BE COPIED, USED OR DISCLOSED FOR ANY PURPOSE EXCEPT AS AUTHORIZED IN WRITING BY ELECTRICAL INSTALLATION, INC.

Rev.	Description	Date
A	PRELIMINARY	6/2/20
B		
C		
D		
E		
F		
G		

Drawn By: BC Date: 6/2/20
Checked By: TT Scale: None

For: VILLAGE DISTRICT OF EIDELWEISS - MADISON, NH
Project: REINACH TANK, BOOSTER PUMP STATION
Engineer: J/B Contractor:
Title: BOOSTER PUMP CONTROL PANEL
PLC EMBEDDED DIGITAL INPUTS WIRING DIAGRAM

Drawing No. 2031-BPCP-3-1
1 OF 1 Sheet

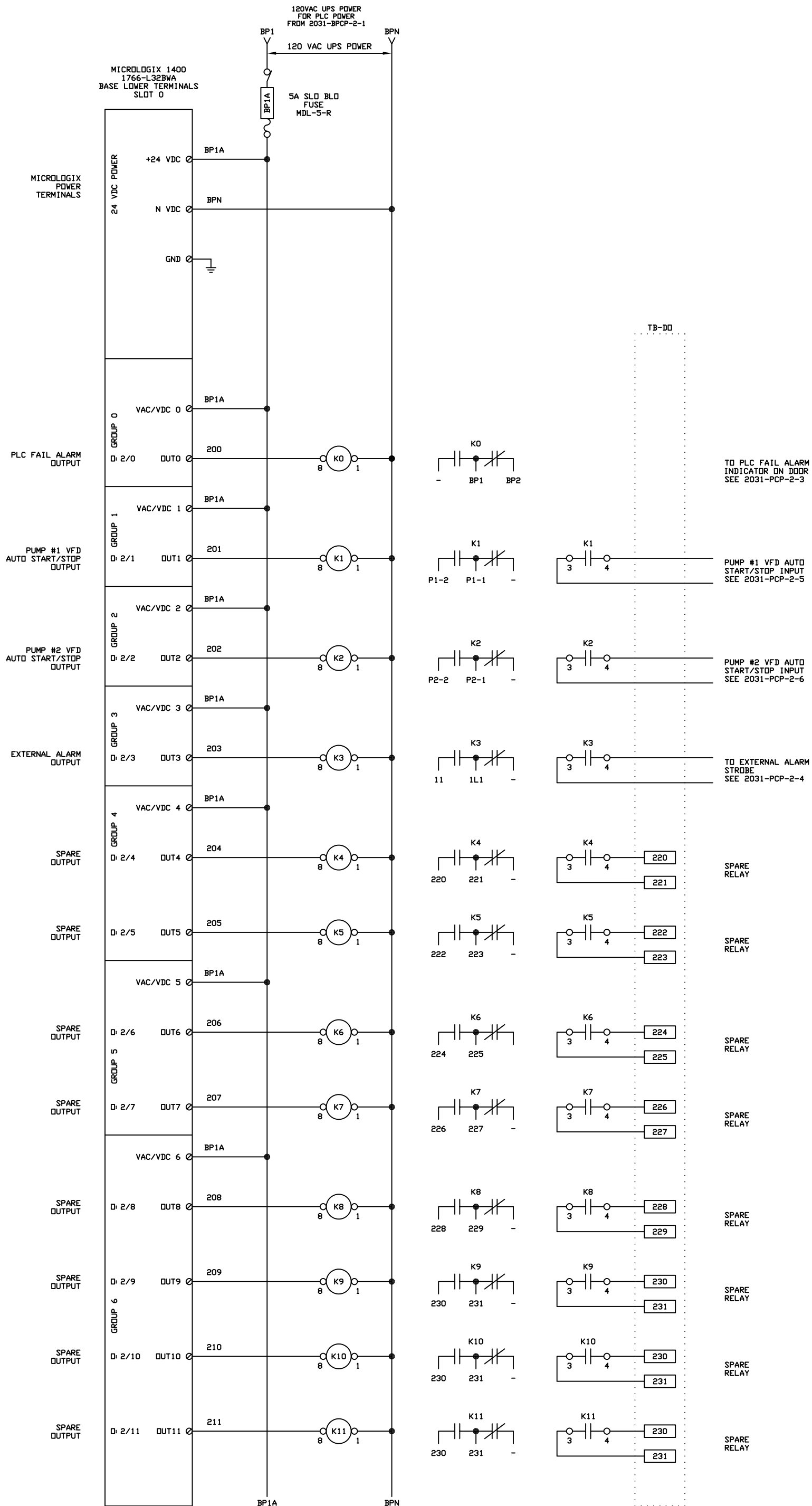
JOB #2031

D

C

B

A



1
2
3
4
5
6
JOB #2031



Rev.	Description	Date
A	PRELIMINARY	6/2/20
B		
C		
D		
E		
F		
G		

Drawn By: BC Date: 6/2/20
Checked By: TT Scale: None

For: VILLAGE DISTRICT OF EIDELWEISS - MADISON, NH
 Project: REINACH TANK, BOOSTER PUMP STATION
 Engineer: J/B Contractor:
 Title: BOOSTER PUMP CONTROL PANEL
 PLC EMBEDDED DIGITAL RELAY OUTPUTS WIRING DIAGRAM

Drawing No. 2031-BPCP-4-1
 1 OF 1
 Sheet

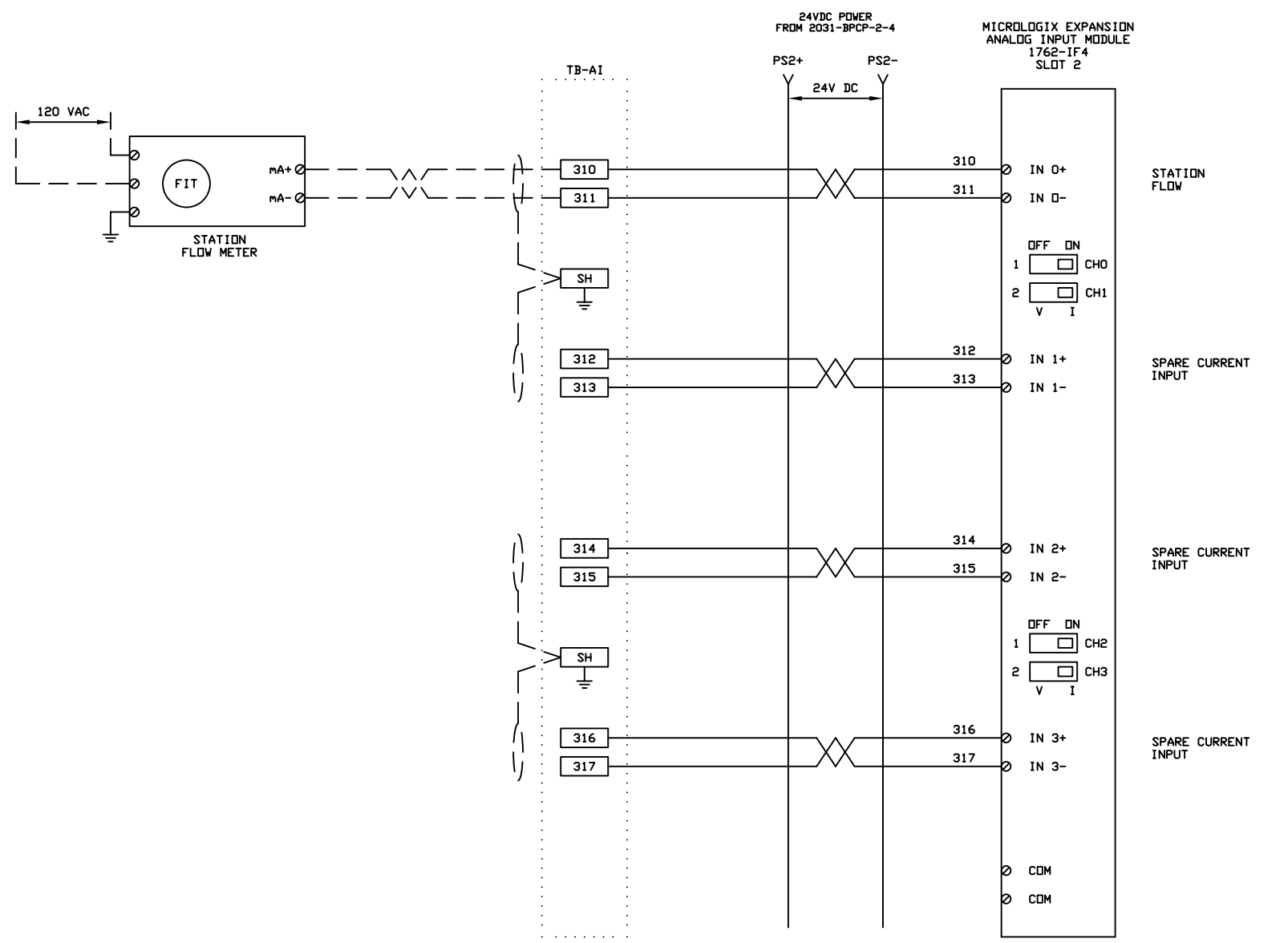
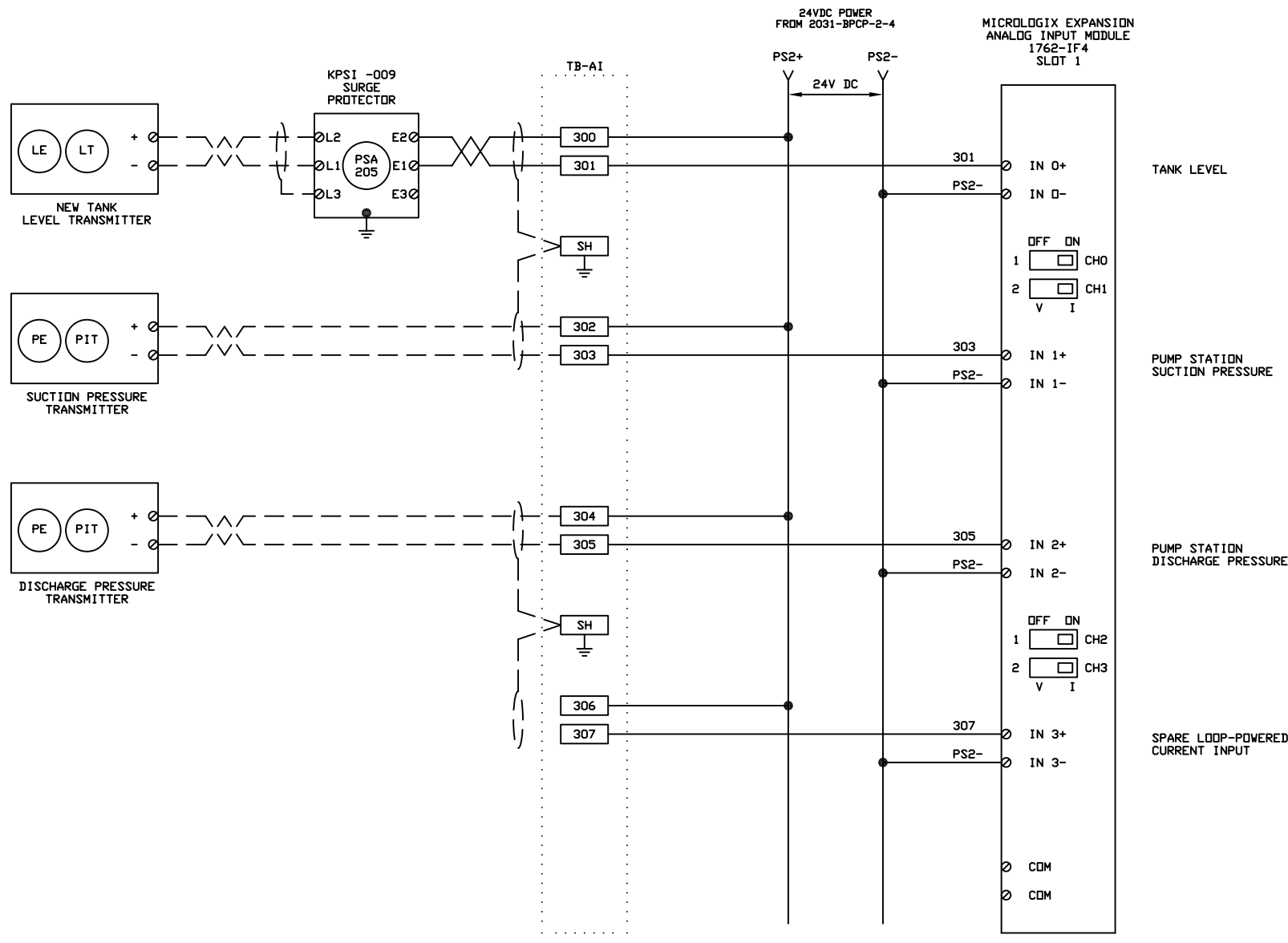
THIS DRAWING IS THE PROPERTY OF ELECTRICAL INSTALLATIONS, INC AND MAY NOT BE COPIED, USED OR DISCLOSED FOR ANY PURPOSE EXCEPT AS AUTHORIZED IN WRITING BY ELECTRICAL INSTALLATIONS, INC.

D

C

B

A



Rev.	Description	Date
A	PRELIMINARY	6/2/20
B		
C		
D		
E		
F		
G		

Drawn By: BC Date: 6/2/20
Checked By: TT Scale: None

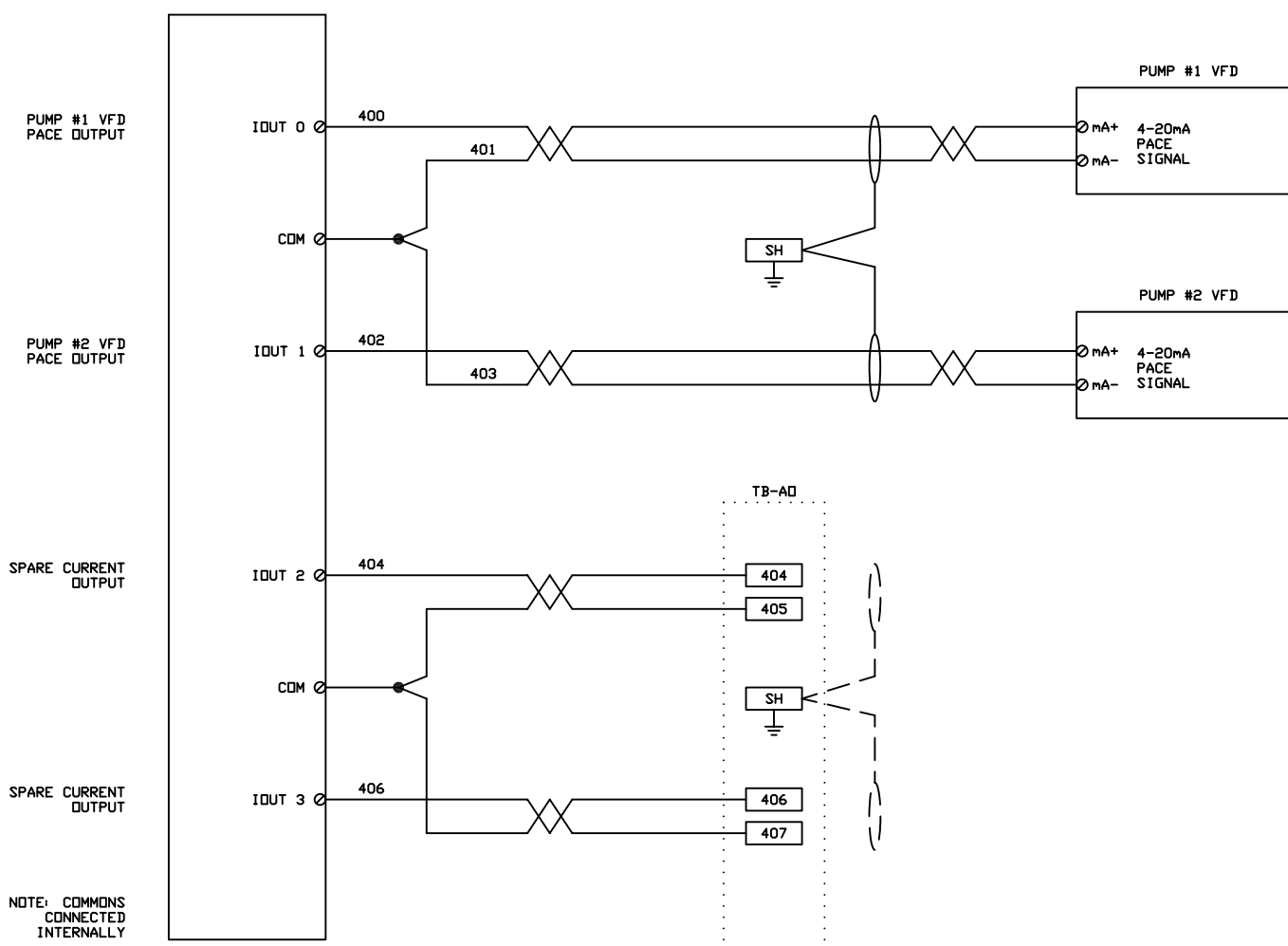
For: VILLAGE DISTRICT OF EIDELWEISS - MADISON, NH
 Project: REINACH TANK, BOOSTER PUMP STATION
 Engineer: J/B Contractor:
 Title: BOOSTER PUMP CONTROL PANEL
 PLC EXPANSION ANALOG INPUTS WIRING DIAGRAM

Drawing No. 2031-BPCP-5-1
 1 OF 1
 Sheet

THIS DRAWING IS THE PROPERTY OF ELECTRICAL INSTALLATIONS, INC AND MAY NOT BE COPIED, USED OR DISCLOSED FOR ANY PURPOSE EXCEPT AS AUTHORIZED IN WRITING BY ELECTRICAL INSTALLATION, INC.

1
2
3
4
5
6
JOB #2031

MICROLOGIX EXPANSION
ANALOG OUTPUT MODULE
1762-OF4
SLOT 3



NOTE: COMMONS
CONNECTED
INTERNALLY

1
2
3
4
5
6



THIS DRAWING IS THE PROPERTY OF ELECTRICAL INSTALLATIONS, INC AND MAY NOT BE COPIED, USED OR DISCLOSED FOR ANY PURPOSE EXCEPT AS AUTHORIZED IN WRITING BY ELECTRICAL INSTALLATION, INC.

Rev.	Description	Date
A	PRELIMINARY	6/2/20
B		
C		
D		
E		
F		
G		

Drawn By: BC Date: 6/2/20
Checked By: TT Scale: None

For: VILLAGE DISTRICT OF EIDELWEISS – MADISON, NH
Project: REINACH TANK, BOOSTER PUMP STATION
Engineer: J/B Contractor:
Title: BOOSTER PUMP CONTROL PANEL
PLC EXPANSION ANALOG OUTPUTS WIRING DIAGRAM

Drawing No. 2031-BPCP-6-1
1 OF 1 Sheet

JOB #2031