WINE COUNTRY

DRAWING #2017060

2017060.1-18

2017060.DE

2017060.SE

2017060.ID

2017060.CE

SUBMITTAL PACKAGE

BILL OF MATERIALS

CUT-SHEETS

DRAWINGS

PREPARED BY:
THE PANEL SHOP

Customer	Job Reference	Bill of Materials	Job #	Date
CLOACINA	WINE COUNTRY		2017060	03.24.17

Qty	Part #	Description	Dwg. Key	Manufacturer
1	N412603616SS3PTC	N4 SS ENCLOSURE	ENC	WIEGMANN
1	NP6036C	PANEL	ENC	WIEGMANN
1	HFWNSP6036C	INNER SWING	ENC	WIEGMANN
1	HFWADM124C	ADJUST RAILS	ENC	WIEGMANN
1	N412MFKSS	MOUTING TABS	ENC	WIEGMANN
1	WADSTOPK	DOOR STOP	ENC	WIEGMANN
1	WAPPL0810	DOCUMENT POUCH/ 3M VHB	ENC	WIEGMANN
1	2D4UL	CIRCUIT BREAKER	CB10	ALTECH
1	IQ2000(VXS)(486)(SS)(N4X)	2K BTUH A/C	A/C	ICEQUBE
1	9080LBA362101	FEEDER BLOCK	PDB1	SQUARE D
1	9080LB23	FEEDER COVER	PDB1	SQUARE D
1	VKA380N	80A DISC	DSC1	ALTECH
1	L300AD11-ST	SHAFT	DSC1	ALTECH
1	LK10 Y/R UL	HANDLE	DSC1	ALTECH
1	EAC2420SC	CURRENT SENSOR	CS1	EATON
1	9080LBA363106	DIST BLOCK	PDB2	SQUARE D
1	9080LB33	DIST COVER	PDB2	SQUARE D
1	C269	PHASE/VOLTAGE MONITOR	PM	TIME
1	RH2B-ULC-AC110-120V	CONTROL RELAY	PMR	IDEC
1	SH2B-05	RELAY BASE	PMR	IDEC
1	SDU-850	450W/750VA UPS	UPS	SOLA
1	SDR-480-24	480W/24VDC PS	PS1	MEANWELL
1	3D15UL	CIRCUIT BREAKER	CB1	ALTECH
1	LC1D12G7	CONTACTOR	MC1	SQUARE D
1	LRD14	OVERLOAD RELAY	OL1	SQUARE D
1	XB5AJ33	3 POS. SELECTOR	SS1	SQUARE D
1	3D15UL	CIRCUIT BREAKER	CB2	ALTECH
1	LC1D09G7	CONTACTOR	MC2	SQUARE D
1	LRD05	OVERLOAD RELAY	OL2	SQUARE D
1	XB5AJ33	3 POS. SELECTOR	SS3	SQUARE D
1	3D15UL	CIRCUIT BREAKER	CB3	ALTECH
1	LC1D12G7	CONTACTOR	MC3	SQUARE D
1	LRD14	OVERLOAD RELAY	OL3	SQUARE D
1	XB5AJ33	3 POS. SELECTOR	SS5	SQUARE D
1	3D15UL	CIRCUIT BREAKER	CB4	ALTECH
1	LC1D09G7	CONTACTOR	MC4	SQUARE D
1	LADN20	AUX CONTACT	MC4	SQUARE D
1	LRD10	OVERLOAD RELAY	OL4	SQUARE D
1	XB5AJ33	3 POS. SELECTOR	SS9	SQUARE D
1	1D3UR	CIRCUIT BREAKER	CB18	ALTECH
1	3D15UL	CIRCUIT BREAKER	CB5	ALTECH
1	LC1D09G7	CONTACTOR	MC5	SQUARE D
1	LRD07	OVERLOAD RELAY	OL5	SQUARE D
1	XB5AJ33	3 POS. SELECTOR	SS12	SQUARE D
1	3D15UL	CIRCUIT BREAKER	CB6	ALTECH
1	LC1D09G7	CONTACTOR	MC6	SQUARE D
1	LRD07	OVERLOAD RELAY	OL6	SQUARE D
1	XB5AJ33	3 POS. SELECTOR	SS13	SQUARE D
1	3D20UL	CIRCUIT BREAKER	CB7	ALTECH
1	ATV312HU40N4	VFD	VFD1	SQUARE D
1	XB5AJ33	3 POS. SELECTOR	SS14	SQUARE D
1	1D3UR	CIRCUIT BREAKER	CB21	ALTECH
3	RH2B-ULC-AC110-120V	CONTROL RELAY	K1,K2,BFCR	IDEC
3	SH2B-05	RELAY BASE	K1,K2,BFCR	IDEC
1	3D40UM	CIRCUIT BREAKER	CB8	ALTECH
1	LC1D32G7	CONTACTOR	MC8	SQUARE D
1	LADN20	AUX CONTACT	MC8	SQUARE D
1	LRD22	OVERLOAD RELAY	OL8	SQUARE D
1	XB5AJ33	3 POS. SELECTOR	SS15	SQUARE D
1	1D3UR	CIRCUIT BREAKER	CB22	ALTECH
1	3D15UL	CIRCUIT BREAKER	CB9	ALTECH
1	ATV312HU22N4	VFD	VFD2	SQUARE D
1	XB5AJ33	3 POS. SELECTOR	SS16	SQUARE D
4	RH2B-ULC-AC110-120V	CONTROL RELAY	K3-K6	IDEC

4	SH2B-05	RELAY BASE	K3-K6	IDEC
1	2D15UL	PRI-SIDE CB	CB11	ALTECH
1	T253013SS	3KVA SS XF 480-120	XFMR	ACME
1	1D32UR	SEC-SIDE CB	CB12	ALTECH
1	XB5AJ33	3 POS. SELECTOR	SS2	SQUARE D
1	RH1B-ULC-AC120V	CONTROL RELAY	LAVR	IDEC
1	SH1B-05	RELAY BASE	LAVR	IDEC
1	1D3UR	CIRCUIT BREAKER	CB13	ALTECH
1	XB5AJ33	3 POS. SELECTOR	SS6	SQUARE D
1	RH1B-ULC-AC120V	CONTROL RELAY	AFVR	IDEC
1	SH1B-05	RELAY BASE	AFVR	IDEC
1	1D3UR	CIRCUIT BREAKER	CB15	ALTECH
1	XB5AJ33	3 POS. SELECTOR	SS4	SQUARE D
1	RH1B-ULC-AC120V	CONTROL RELAY	PWR	IDEC
1	SH1B-05	RELAY BASE	PWR	IDEC
1	1D2UR	CIRCUIT BREAKER	CB14	ALTECH
1	XB5AJ33	3 POS. SELECTOR	SS10	SQUARE D
1	RH1B-ULC-AC120V	CONTROL RELAY	FSR	IDEC
1	SH1B-05	RELAY BASE	FSR	IDEC
1	1D2UR	CIRCUIT BREAKER	CB19	ALTECH
1	XB5AJ33	3 POS. SELECTOR	SS11	SQUARE D
1	RH1B-ULC-AC120V	CONTROL RELAY	ESR	IDEC
1	SH1B-05	RELAY BASE	ESR	IDEC
1	1D2UR	CIRCUIT BREAKER	CB20	ALTECH
1	XB5AJ33	3 POS. SELECTOR	SS8	SQUARE D
1	RH1B-ULC-AC120V	CONTROL RELAY	CR320	IDEC
1	SH1B-05	RELAY BASE	CR320	IDEC
1	ACS200-AA-F	CURRENT SWITCH	CS3	AUTOMATION
1	1D3UR	CIRCUIT BREAKER	CB17	ALTECH
1	XB5AJ33	3 POS. SELECTOR	SS7	SQUARE D
1	RH1B-ULC-AC120V	CONTROL RELAY	CR330	IDEC
1	SH1B-05	RELAY BASE	CR330	IDEC
1	ACS200-AA-F	CURRENT SWITCH	CS2	AUTOMATION
1	1D3UR	CIRCUIT BREAKER	CB16	ALTECH
1	XB5AJ33	3 POS. SELECTOR	SS17	SQUARE D
1	RH1B-ULC-AC120V	CONTROL RELAY	CR620	IDEC
1	SH1B-05	RELAY BASE	CR620	IDEC
1	ACS200-AA-F	CURRENT SWITCH	CS4	AUTOMATION
1	1D3UR	CIRCUIT BREAKER	CB23	ALTECH
1	XB5AJ33	3 POS. SELECTOR	SS18	SQUARE D
1	RH1B-ULC-AC120V	CONTROL RELAY	CR630	IDEC
1	SH1B-05	RELAY BASE	CR630	IDEC
1	ACS200-AA-F	CURRENT SWITCH	CS5	AUTOMATION
1	1D3UR	CIRCUIT BREAKER	CB24	ALTECH
19	RSL1PVBU	CONTROL RELAY	1IPR0-1IPR18	SQUARE D
1	2080-LC50-48QVB	PLC BASE	PLC1.0	ALLEN BRADLEY
3	2085-IF8	ANA IN	PLC1.1-PLC1.3	ALLEN BRADLEY
1	2085-OF4	ANA OUT	PLC1.4	ALLEN BRADLEY
1	SUPER GLUE	HOLDS STICKY BACKS GOOD	MISC	TPS
2	9080MH82	ANGLE BRKT	TB	SQUARE D
50	XBUT4BK	BLACK 30A, 26-10awg	TB	CUTLER
50	XBUT4WH	WHITE 30A, 26-10awg	TB	CUTLER
50	XBUT4GN	GREEN 30A, 26-10awg	TB	CUTLER
50	XBUT4RD	RED 30A, 26-10awg	TB	CUTLER
52	XBMUCTM6	10-STRIP MARKER	TB	CUTLER
30	XBACUT10	END PLATES	TB	CUTLER
24	XBAES35C	END CLAMPS	TB	CUTLER
3	XBANS3575P	DIN RAIL	MISC	CUTLER
36	G1.5X3LG6	RACEWAY	MISC	PANDUIT
36	C1.5LG6	COVER	MISC	PANDUIT
1	KA25U	14-1/0 GROUND LUG	GND	THOMAS&BETTS
1	PK4GTA	TPS GROUND BAR	GND	SQUARE D
3	PK7GTA	CUST GROUND BAR	GND	SQUARE D
18	1x2	LABELS	MISC	TPS
1	3x4 LOGO	LABELS	MISC	TPS
300	553-50010 (3/16")	WIRE LABELS	MISC	TYTON
1	MISC	LABELS	MISC	TPS

N412 - SS3PTC & SSA3PTC ULTIMATE SERIES ENCLOSURES
NEMA 12, 4 & 4X SINGLE DOOR WALL-MOUNT

N412201606SS3PTC

Industry Standards
UL 508 Listed, Types 4X, 12 & 13
CSA Certified, Types 12 & 13
NEMA/EEMAC Type 4X, 12 & 13

UL Files E64791

CSA File LL66078

FEATURES-SPECIFICATIONS

Applications
Hubbell Wiegmann N412SS3PTC ULTIMATE Series Enclosures are designed to house and protect electrical and electronic components from harsh, dirty environments. For use in installations where dirt, dust, oil, water, or other contaminants are present. Streamlined styling, flush latching, and attractive durable finish complement any high tech electronic equipment.

Construction
- Bodies and doors fabricated from 14 gauge 304 stainless steel.
- Continuously welded seams ground smooth, less holes or knockouts.
- Body stiffeners are included in larger enclosures for added rigidity.
- Doors are interchangeable and easily removable.
- Grounding studs are welded to door and body assuring a positive ground.
- 1/4-turn semi-flush oil tight latches are supplied to hold door securely closed.
- Print pocket is provided.
- Foam in place door gasket.
- Mounting holes in rear of enclosure.**
- Collar studs for mounting optional back panel.
- With a 3pt 316L SS Padlocking Handle.

Finish
- All exterior surfaces have a smooth grained finish, interior has a standard commercial finish
- Optional back panels are white polyester powder
- Optional "G" panels have a conductive finish (See page I5)

Accessories
- Optional N412MFKSS mounting foot kit must be ordered separately**
- Back panels (see reference tables)
- Window door (reference tables)
- See pages J1-J22.

N412 SS3PT SERIES SINGLE DOOR WALL MOUNT STAINLESS ENCLOSURES

CATALOG NUMBER	ENCLOSURE SIZE H X W X D	BACK PANEL CATALOG NUMBER*			BACK PANEL SIZE A X B
		WHITE	304 SS	"G"	
N412121206SS3PTC	12.00x12.00x6.00 (305x305x152)	NP1212C	NP1212SSC	NP1212CG	10.2x10.2 (259x259)
N412161206SS3PTC	16.00x12.00x6.00 (406x305x152)	NP1612C	NP1612SSC	NP1612CG	14.2x10.2 (361x259)
N412161606SS3PTC	16.00x16.00x6.00 (406x406x152)	NP1616C	NP1616SSC	NP1616CG	14.2x14.2 (361x361)
N412201606SS3PTC	20.00x16.00x6.00 (508x406x152)	NP2016C	NP2016SSC	NP2016CG	18.2x14.2 (462x361)
N412202006SS3PTC	20.00x20.00x6.00 (508X508x152)	NP2020C	NP2020SSC	NP2020CG	18.2x18.2 (462x462)
N412161208SS3PTC	16.00x12.00x8.00 (406x305x203)	NP1612C	NP1612SSC	NP1612CG	14.2x10.2 (361x259)
N412161608SS3PTC	16.00x16.00x8.00 (406x406x203)	NP1616C	NP1616SSC	NP1616CG	14.2x14.2 (361x361)
N412162008SS3PTC	16.00x20.00x8.00 (406x508x203)	NP1620C	NP1620SSC	NP1620CG	14.2x18.2 (361x462)
N412201608SS3PTC	20.00x16.00x8.00 (508x406x203)	NP2016C	NP2016SSC	NP2016CG	18.2x14.2 (462x361)
N412202008SS3PTC	20.00x20.00x8.00 (508x508x203)	NP2020C	NP2020SSC	NP2020CG	18.2x18.2 (462x462)
N412241608SS3PTC	24.00x16.00x8.00 (610x406x203)	NP2416C	NP2416SSC	NP2416CG	22.2x14.2 (564x361)
N412242008SS3PTC	24.00x20.00x8.00 (610x508x203)	NP2420C	NP2420SSC	NP2420CG	22.2x18.2 (564x462)
N412242408SS3PTC	24.00x24.00x8.00 (610x610x203)	NP2424C	NP2424SSC	NP2424CG	22.2x22.2 (564x564)
N412302408SS3PTC	30.00x24.00x8.00 (762x610x203)	NP3024C	NP3024SSC	NP3024CG	28.2x22.2 (716x564)
N412303008SS3PTC	30.00x30.00x8.00 (762x762x203)	NP3030C	NP3030SSC	NP3030CG	28.2x28.2 (716x716)
N412362408SS3PTC	36.00x24.00x8.00 (914x610x203)	NP3624C	NP3624SSC	NP3624CG	34.2x22.2 (869x564)

*Back panels must be ordered separately.
**Enclosures are supplied with closed cell neoprene gasket (not foam-in-place).

Continued on page E22

N412 - SS3PTC & SSA3PTC ULTIMATE SERIES ENCLOSURES
NEMA 4X SINGLE DOOR WALL-MOUNT

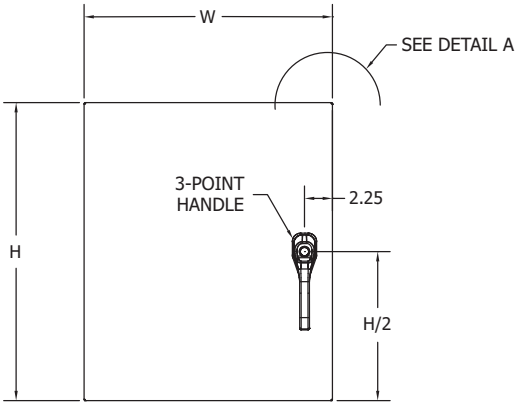
N412 SS3PTC SERIES SINGLE DOOR WALL MOUNT STAINLESS ENCLOSURES CONT'D.

CATALOG NUMBER	ENCLOSURE SIZE H X W X D	BACK PANEL CATALOG NUMBER*			BACK PANEL SIZE A X B
		WHITE	304 SS	"G"	
N412363008SS3PTC	36.00x30.00x8.00 (914x762x203)	NP3630C	NP3630SSC	NP3630CG	34.2x28.2 (869x716)
N412202012SS3PTC	20.00x20.00x12.00 (508x508x305)	NP2020C	NP2020SSC	NP2020CG	18.2x18.2 (462x462)
N412242412SS3PTC	24.00x24.00x12.00 (610x610x305)	NP2424C	NP2424SSC	NP2424CG	22.2x22.2 (564x564)
N412302412SS3PTC	30.00x24.00x12.00 (762x610x305)	NP3024C	NP3024SSC	NP3024CG	28.2x22.2 (716x564)
N412362412SS3PTC	36.00x24.00x12.00 (914x610x305)	NP3624C	NP3624SSC	NP3624CG	34.2x22.2 (869x564)
N412363012SS3PTC	36.00x30.00x12.00 (914x762x305)	NP3630C	NP3630SSC	NP3630CG	34.2x28.2 (869x716)
N412363612SS3PTC	36.00x36.00x12.00 (914x914x305)	NP3636C	NP3636SSC	NP3636CG	34.2x34.2 (869x869)
N412423612SS3PTC	42.00x36.00x12.00 (1067x914x305)	NP4236C	NP4236SSC	NP4236CG	40.2x34.2 (1021x869)
N412483612SS3PTC**	48.00x36.00x12.00 (1219x914x305)	NP4836C	NP4836SSC	NP4836CG	46.2x34.2 (1173x869)
N412603612SS3PTC**	60.00x36.00x12.00 (1524x914x305)	NP6036C	NP6036SSC	NP6036CG	58.2x34.2 (1478x869)

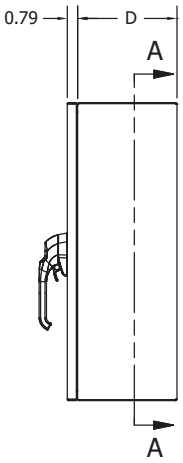
N412 SSA3PTC SERIES SINGLE DOOR WALL MOUNT STAINLESS ENCLOSURES

CATALOG NUMBER	ENCLOSURE SIZE H X W X D	BACK PANEL CATALOG NUMBER*			BACK PANEL SIZE A X B
		WHITE	304 SS	"G"	
N412121206SSA3PTC	12.00x12.00x6.00 (305x305x152)	NP1212C	NP1212SSC	NP1212CG	10.2x10.2 (259x259)
N412161206SSA3PTC	16.00x12.00x6.00 (406x305x152)	NP1612C	NP1612SSC	NP1612CG	14.2x10.2 (361x259)
N412161606SSA3PTC	16.00x16.00x6.00 (406x406x152)	NP1616C	NP1616SSC	NP1616CG	14.2x14.2 (361x361)
N412201606SSA3PTC	20.00x16.00x6.00 (508x406x152)	NP2016C	NP2016SSC	NP2016CG	18.2x14.2 (462x361)
N412202006SSA3PTC	20.00x20.00x6.00 (508X508x152)	NP2020C	NP2020SSC	NP2020CG	18.2x18.2 (462x462)
N412161208SSA3PTC	16.00x12.00x8.00 (406x305x203)	NP1612C	NP1612SSC	NP1612CG	14.2x10.2 (361x259)
N412161608SSA3PTC	16.00x16.00x8.00 (406x406x203)	NP1616C	NP1616SSC	NP1616CG	14.2x14.2 (361x361)
N412162008SSA3PTC	16.00x20.00x8.00 (406x508x203)	NP1620C	NP1620SSC	NP1620CG	14.2x18.2 (361x462)
N412201608SSA3PTC	20.00x16.00x8.00 (508x406x203)	NP2016C	NP2016SSC	NP2016CG	18.2x14.2 (462x361)
N412202008SSA3PTC	20.00x20.00x8.00 (508x508x203)	NP2020C	NP2020SSC	NP2020CG	18.2x18.2 (462x462)
N412241608SSA3PTC	24.00x16.00x8.00 (610x406x203)	NP2416C	NP2416SSC	NP2416CG	22.2x14.2 (564x361)
N412242008SSA3PTC	24.00x20.00x8.00 (610x508x203)	NP2420C	NP2420SSC	NP2420CG	22.2x18.2 (564x462)
N412242408SSA3PTC	24.00x24.00x8.00 (610x610x203)	NP2424C	NP2424SSC	NP2424CG	22.2x22.2 (564x564)
N412302408SSA3PTC	30.00x24.00x8.00 (762x610x203)	NP3024C	NP3024SSC	NP3024CG	28.2x22.2 (716x564)
N412303008SSA3PTC	30.00x30.00x8.00 (762x762x203)	NP3030C	NP3030SSC	NP3030CG	28.2x28.2 (716x716)
N412362408SSA3PTC	36.00x24.00x8.00 (914x610x203)	NP3624C	NP3624SSC	NP3624CG	34.2x22.2 (869x564)
N412363008SSA3PTC	36.00x30.00x8.00 (914x762x203)	NP3630C	NP3630SSC	NP3630CG	34.2x28.2 (869x716)
N412202012SSA3PTC	20.00x20.00x12.00 (508x508x305)	NP2020C	NP2020SSC	NP2020CG	18.2x18.2 (462x462)
N412242412SSA3PTC	24.00x24.00x12.00 (610x610x305)	NP2424C	NP2424SSC	NP2424CG	22.2x22.2 (564x564)
N412302412SSA3PTC	30.00x24.00x12.00 (762x610x305)	NP3024C	NP3024SSC	NP3024CG	28.2x22.2 (716x564)
N412362412SSA3PTC	36.00x24.00x12.00 (914x610x305)	NP3624C	NP3624SSC	NP3624CG	34.2x22.2 (869x564)
N412363012SSA3PTC	36.00x30.00x12.00 (914x762x305)	NP3630C	NP3630SSC	NP3630CG	34.2x28.2 (869x716)
N412363612SSA3PTC	36.00x36.00x12.00 (914x914x305)	NP3636C	NP3636SSC	NP3636CG	34.2x34.2 (869x869)
N412423612SSA3PTC	42.00x36.00x12.00 (1067x914x305)	NP4236C	NP4236SSC	NP4236CG	40.2x34.2 (1021x869)
N412483612SSA3PTC**	48.00x36.00x12.00 (1219x914x305)	NP4836C	NP4836SSC	NP4836CG	46.2x34.2 (1173x869)
N412603612SSA3PTC**	60.00x36.00x12.00 (1524x914x305)	NP6036C	NP6036SSC	NP6036CG	58.2x34.2 (1478x869)

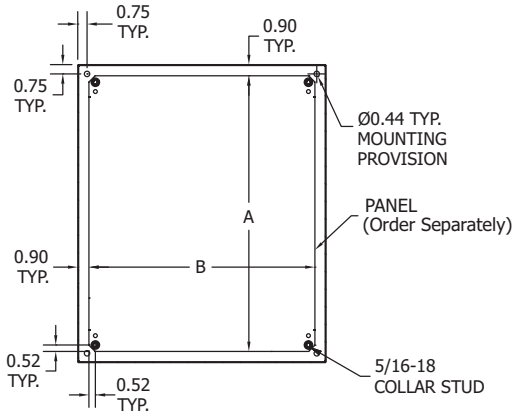
Back panels must be ordered separately.
***Enclosures are supplied with closed cell neoprene gasket (not foam-in-place).*



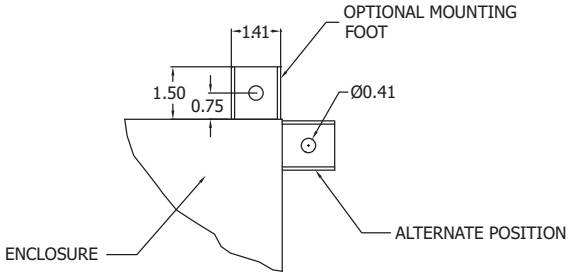
FRONT VIEW



RIGHT VIEW



SECTION A-A



DETAIL A
(OPTIONAL MOUNTING FOOT)

Notes:

1. Large Print Pocket (8 X 10) is furnished if H=20.00" or more and W=20.00" or more Otherwise, small (6 X 6) print pocket is provided.

2. Two Hinges provided when H<36.00".
   Three Hinges provided when H=36.00" or greater.
   Four Hinges provided when H=48.00" or greater.

ULTIMATE ENCLOSURE ACCESSORIES
SWING OUT PANEL • PANEL CONVERSION KIT

FEATURES-SPECIFICATIONS

SWING OUT PANEL

Swing panels are designed to mount internal equipment directly behind the main enclosure door. Maximum swing is 107 degrees. Convenient access to sub enclosure is provided via 1/4 turn pull-tab. On solid doors, the clearance from the swing panel face to the interior door face is 1-1/4", and 1" on window doors (when the door is closed). The kit includes the swing panel, brackets and hardware necessary for a tub flange install. Swing out panels meet Type 1 with enclosure door open.

Finish: White Polyester Powder.

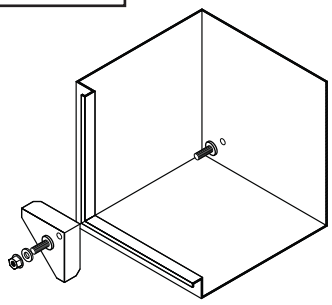
Note: Swing out panel can also be mounted on front-to-back adjustable depth mounting kits, or rear panel studs (adjustable mounting kits must be purchased separately.

PANEL CONVERSION KIT

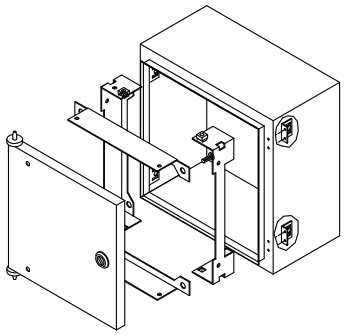
These kits allow you to utilize standard NEMA "NP" (non Ultimate panels) within Ultimate enclosures. Simply bolt the conversion brackets over the top of existing studs, then install the Ultimate sub panel. Kit includes four adapter plates and hardware for mounting Ultimate sub panels.

Finish: White Polyester Powder.

PANEL CONVERSION KIT	
CATALOG NUMBER	FOR ENCLOSURE SIZE
HFWCNP4C	Anything 30H X 30W or less



SWING OUT PANEL	
CATALOG NUMBER	FOR ENCLOSURE SIZE
HFWNSP1212C	12 X 12 (H X W)
HFWNSP1612C	16 X 12 (H X W)
HFWNSP1616C	16 X 16 (H X W)
HFWNSP2016C	20 X 16 (H X W)
HFWNSP2416C	24 X 16 (H X W)
HFWNSP1620C	16 X 20 (H X W)
HFWNSP2020C	20 X 20 (H X W)
HFWNSP2420C	24 X 20 (H X W)
HFWNSP3020C	30 X 20 (H X W)
HFWNSP2024C	20 X 24 (H X W)
HFWNSP2424C	24 X 24 (H X W)
HFWNSP3024C	30 X 24 (H X W)
HFWNSP3624C	36 X 24 (H X W)
HFWNSP3030C	30 X 30 (H X W)
HFWNSP3630C	36 X 30 (H X W)
HFWNSP3636C	36 X 36 (H X W)



***Time Saver Note: Tired of all the extensive labor when removing the competitions' swing panel to adjust the multi-depth brackets, then re-installing the swing panel? How many times have you had to adjust because of different depth instruments? Wiegmann has solved the problem! Simply use the hole access area on the swing panel, loosen the screws and adjust your swing panel. Once the correct dimension is reached, simply tighten the screw and your ready to go!*

FEATURES-SPECIFICATIONS

ADJUSTABLE DEPTH MOUNTING KIT

Adjustable depth mounting kits allow customers to slide various accessories from front to back. They fit all Wiegmann Ultimate Series depths.

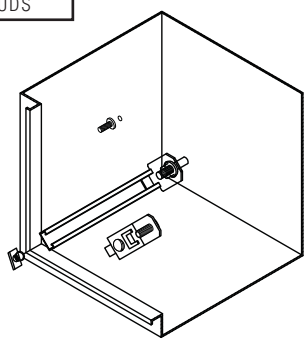
If an adjustable depth is required, then these kits must be purchased when using the following: swing out panels, DIN rails, rack angles, mounting channels and grid straps.

Kit includes slide mechanisms and hardware to mount. Use two kits when enclosure has 6 collar studs for mounting panel.

Finish: White Polyester Powder

Note: Dead front panel CANNOT be mounted on adjustable mounting kit.

ADJUSTABLE DEPTH MOUNTING KIT	
CATALOG NUMBER	FOR ENCLOSURE SIZE
HFWADM64C	6" depth or less W/4 collar studs
HFWADM84C	8" depth or less W/4 COLLAR STUDS
HFWADM82C	8" depth or less W/2 ADDITIONAL STUDS
HFWADM104C	10"depth or less W/4 COLLAR STUDS
HFWADM102C	10" depth or less W/2 ADDITIONAL STUDS
HFWADM124C	12" depth or less W/4 COLLAR STUDS
HFWADM122C	12" depth or less W/2 ADDITIONAL STUDS

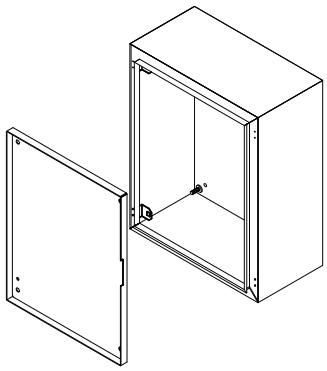


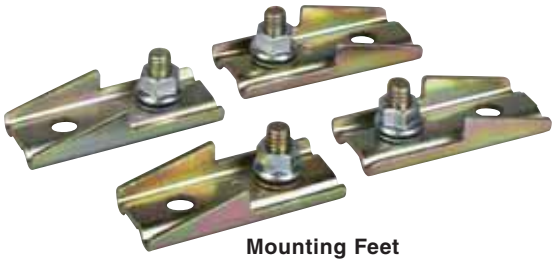
DEAD FRONT KIT

Looking for a fixed sub mounting surface but need it installed directly behind the door, then this is the kit for you. The clearance from the Dead panel face to the interior door face is 1-5/16" on solid doors, and 1-1/16" on window doors. Dead Front Kits are secured via four pan head screws. Kit includes mounting brackets, grounding hardware, and a carbon steel panel finished with white Polyester Powder paint. Dead Fronts meet Type 1 with enclosure door open.

Note: Dead Front kits CANNOT be mounted on adjustable mounting kits.

DEAD FRONT KIT	
CATALOG NUMBER	FOR ENCLOSURE SIZE
HFWDF1212C	12 X 12 (H X W)
HFWDF1612C	16 X 12 (H X W)
HFWDF2016C	20 X 16 (H X W)
HFWDF2020C	20 X 20 (H X W)
HFWDF2420C	24 X 20 (H X W)
HFWDF2424C	24 X 24 (H X W)
HFWDF3024C	30 X 24 (H X W)





Mounting Feet

WAGSE

WAWE

FEATURES-SPECIFICATIONS

MOUNTING FEET

- Mounting foot kit N412MFK contains four steel external mounting feet
- Mounting foot kit N412MFKSS contains four stainless steel external mounting feet
- Sealing washers are provided with each kit to maintain NEMA 4 or 12 rating after installation
- The N412MFK has a plated finish

MOUNTING FEET	
CATALOG NUMBER	DESCRIPTION
N412MFK	For N412 steel enclosures
N412MFKSS	For N412 stainless steel enclosures

TOUCH-UP PAINT

- Wiegmann touch-up paint is used to repair existing finishes on enclosures and panels
- Furnished in 12 oz. spray cans

TOUCH-UP PAINT	
CATALOG NUMBER	DESCRIPTION
WAGSE	ANSI 61 gray satin enamel
WAWE	White enamel

WAPPL0606
Print Pocket

WADSTOPK
Door Stop Kit

WACSHELF12
Folding Shelf

FEATURES-SPECIFICATIONS

PRINT POCKET

- Plastic print pockets can be placed anywhere within enclosure via 2-way adhesive tape flanges
- White in color

PRINT POCKET	
CATALOG NUMBER	DESCRIPTION
WAPPL0606	6x6
WAPPL0810	8x10

DOOR STOP KIT

- Designed for use on most standard Wiegmann Type 4 and 12 enclosures to secure the door in the open position
- Door stop can be mounted at the top or bottom of the door opening after drilling two small holes in the body of the enclosure and two small holes in the door. The angle of the door is easily adjusted and the stop arm slides neatly out of the way when the door is closed
- All parts are plated

DOOR STOP KIT	
CATALOG NUMBER	DESCRIPTION
WADSTOPK	Door stop kit

FOLDING SHELF

- Designed to be used to support and test equipment that is used to install and maintain electrical components in an enclosure
- The shelf can be installed on the inside or outside surface of the Wiegmann enclosures
- When not in use, the shelf folds down and projects only one inch
- All parts are made of heavy gauge steel
- ANSI-61 gray polyester powder paint finish

FOLDING SHELF	
CATALOG NUMBER	DESCRIPTION
WACSHELF12	12.00x12.00 (305x305)
WACSHELF18	18.00x18.00 (457x457)

UL - Series
D-Trip Characteristic

Application Examples:

High inrush motors, transformers, power supplies, heaters and reactive loads. Relatively long thermal trip delay and very high magnetic trip point.

Altech Corp.®

UL489

c UL us LISTED C.B.
E329510

CE

One Pole

Standard Pack: 12

Weight:
0.3-32A:
1.74kg (3.83lb.)

40-63A:
1.98kg (4.37lb.)

Rated Current	Type/ Cat. No.	Rated Voltage
0.3A	1D03UL	277V AC
0.5A	1D05UL	277V AC
1.0A	1D1UL	277V AC
1.6A	1D1.6UL	277V AC
2.0A	1D2UL	277V AC
3.0A	1D3UL	277V AC
4.0A	1D4UL	277V AC
5.0A	1D5UL	277V AC
6.0A	1D6UL	277V AC
8.0A	1D8UL	277V AC
10A	1D10UL	277V AC
12A	1D12UL	277V AC
13A	1D13UL	277V AC
15A	1D15UL	277V AC
16A	1D16UL	277V AC
20A	1D20UL	277V AC
25A	1D25UL	277V AC
30A	1D30UL	277V AC
32A	1D32UL	277V AC
40A	1D40UL	240V AC
50A	1D50UL	240V AC
60A	1D60UL	240V AC
63A	1D63UL	240V AC

Three Pole

Standard Pack: 4

Weight:
0.3-32A:
1.74kg (3.83lb.)

40-63A:
1.98kg (4.37lb.)

Rated Current	Type/ Cat. No.	Rated Voltage
0.3A	3D03UL	480Y/277V AC
0.5A	3D05UL	480Y/277V AC
1.0A	3D1UL	480Y/277V AC
1.6A	3D1.6UL	480Y/277V AC
2.0A	3D2UL	480Y/277V AC
3.0A	3D3UL	480Y/277V AC
4.0A	3D4UL	480Y/277V AC
5.0A	3D5UL	480Y/277V AC
6.0A	3D6UL	480Y/277V AC
8.0A	3D8UL	480Y/277V AC
10A	3D10UL	480Y/277V AC
12A	3D12UL	480Y/277V AC
13A	3D13UL	480Y/277V AC
15A	3D15UL	480Y/277V AC
16A	3D16UL	480Y/277V AC
20A	3D20UL	480Y/277V AC
25A	3D25UL	480Y/277V AC
30A	3D30UL	480Y/277V AC
32A	3D32UL	480Y/277V AC
40A	3D40UL	240V AC
50A	3D50UL	240V AC
60A	3D60UL	240V AC
63A	3D63UL	240V AC

Two Pole

Standard Pack: 6

Weight:
0.3-32A:
1.74kg (3.83lb.)

40-63A:
1.98kg (4.37lb.)

Rated Current	Type/ Cat. No.	Rated Voltage
0.3A	2D03UL	480Y/277V AC
0.5A	2D05UL	480Y/277V AC
1.0A	2D1UL	480Y/277V AC
1.6A	2D1.6UL	480Y/277V AC
2.0A	2D2UL	480Y/277V AC
3.0A	2D3UL	480Y/277V AC
4.0A	2D4UL	480Y/277V AC
5.0A	2D5UL	480Y/277V AC
6.0A	2D6UL	480Y/277V AC
8.0A	2D8UL	480Y/277V AC
10A	2D10UL	480Y/277V AC
12A	2D12UL	480Y/277V AC
13A	2D13UL	480Y/277V AC
15A	2D15UL	480Y/277V AC
16A	2D16UL	480Y/277V AC
20A	2D20UL	480Y/277V AC
25A	2D25UL	480Y/277V AC
30A	2D30UL	480Y/277V AC
32A	2D32UL	480Y/277V AC
40A	2D40UL	240V AC
50A	2D50UL	240V AC
60A	2D60UL	240V AC
63A	2D63UL	240V AC

Add-on Neutral Pole

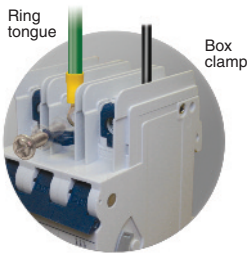
Rated Current	Type/ Cat. No.	Rated Voltage
0.3-32A	N32UL	480/277V AC
40-63A	N63UL	240V AC

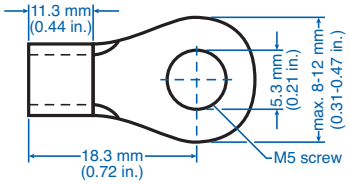
Standard Pack: 6

Weight:
0.99kg (2.18 lb.)

Standard Dual Connection Terminal

- Box clamp terminals
  Top: 18-3 AWG;
  Bottom: 18-2 AWG
  (Line/Load reversible)
- Ring tongue terminals





** May differ by manufacturer. Top terminal ring tongue max. thickness 1.6mm.*

Vertical Mount

1,000 to 20,000 BTUH - 480 VAC Air Conditioners

ICEqube
Cooling Solutions

Standard Features

- Digital temperature controller with alarm.
- Built-in condensate evaporator.
- Durable 16 gauge welded steel construction.
- Efficient, quiet, long lasting rotary compressor.
- Environment friendly HFC refrigerant.
- Easy pull-out filter.
- UL Listed.
- Space saving aesthetic cabinet design.
- Designed to mount on side of enclosure while maintaining NEMA type 12, 3R, 4, or 4X integrity.

Options & Accessories

- Stainless Steel
- Remote Controller Kit
- Replacement Filters
- Corrosive Packages
- Low Ambient
- Internal Heat
- Alarm Output

Technical Data

Model	BTUH	Volts Hz	Max Amps	Weight (lbs.)	Dimensions
IQ1000V	1000	480/60/50	0.8/0.9	51	17.31"Hx14.41"Wx8.03"D
IQ2500V	2500	480/60/50	1.7/1.9	86	32.53"Hx19.25"Wx6.38"D
IQ3500V	3500	480/60/50	2.1/2.3	86	32.53"Hx19.25"Wx6.38"D
IQ4500V	4500	480/60/50	2.3/2.5	86	32.53"Hx19.25"Wx6.38"D
IQ10000V	10000	480/60/50	4.0/4.4	180	57.65"Hx17.65"Wx10.34"D
IQ12000V	12000	480/60/50	4.9/5.4	232	57.65"Hx17.65"Wx10.34"D
IQ14000V	14000	480/60/50	6.7/7.4	232	56.00"Hx20.06"Wx14.31"D
IQ17000V	17000	480/60/50	7.8/8.6	232	56.00"Hx20.06"Wx14.31"D
IQ20000V	20000	480/60/50	8.7/9.6	232	56.00"Hx20.06"Wx14.31"D
IQ1200VS	1200	480/60/50	0.9/1.0	56	26.28"Hx11.51"Wx6.26"D
IQ1500VS	1500	480/60/50	0.9/1.0	56	26.28"Hx11.51"Wx6.26"D
IQ1800VS	1800	480/60/50	1.0/1.1	56	26.28"Hx11.51"Wx6.26"D
IQ2200VS	2200	480/60/50	1.6/1.8	70	34.12"Hx12.27"Wx6.34"D
IQ3000VS	3000	480/60/50	1.6/1.8	70	34.12"Hx12.27"Wx6.34"D
IQ4000VS	4000	480/60/50	2.2/2.4	76	34.12"Hx12.27"Wx8.34"D
IQ5500VS	5500	480/60/50	2.1/2.3	92	34.12"Hx12.27"Wx10.39"D
IQ6000VS	6000	480/60/50	1.9/2.1	93	34.12"Hx12.27"Wx10.39"D
IQ5000V16	5000	480/60/50	2.4/2.6	105	40.10"Hx15.93"Wx7.34"D
IQ6000V16	6000	480/60/50	2.5/2.4	105	40.10"Hx15.93"Wx7.34"D
IQ8000V16	8000	480/60/50	3.4/3.7	130	46.15"Hx15.93"Wx10.34"D
IQ1200VXS	1200	480/60/50	0.9/1.0	59	34.00"Hx6.50"Wx11.50"D
IQ1500VXS	1500	480/60/50	0.9/1.0	59	34.00"Hx6.50"Wx11.50"D
IQ1800VXS	1800	480/60/50	1.0/1.1	59	34.00"Hx6.50"Wx11.50"D
IQ2000VXS	2000	480/60/50	1.6/1.8	74	28.03"Hx10.00"Wx10.00"D
IQ2400VXS	2400	480/60/50	1.7/1.9	74	28.03"Hx10.00"Wx10.00"D
IQ4000VXS	4000	480/60/50	2.3/2.5	136	40.03"Hx11.05"Wx15.00"D
IQ5000VXS	5000	480/60/50	2.5/2.7	136	40.03"Hx11.05"Wx15.00"D
IQ6000VXS	6000	480/60/50	2.6/2.8	136	40.03"Hx11.05"Wx15.00"D
IQ4000V16HA*	4000	480/60/50	2.3/2.0	105	40.10"Hx15.93"Wx7.34"D
IQ5000V16HA*	5000	480/60/50	3.2/3.5	130	46.15"Hx15.93"Wx10.34"D
IQ6000V16HA*	6000	480/60/50	3.4/3.7	130	46.15"Hx15.93"Wx10.34"D
IQ8000VHA*	8000	480/60/50	3.9/4.3	180	57.65"Hx17.65"Wx10.34"D

* Designed for high ambient applications

Ice Qube, Inc., 141 Wilson Ave., Greensburg, PA 15601 Call: 724.837.7600 Fax: 724.837.3386
www.iceqube.com Email: sales@iceqube.com


LBC165212


LBA365212


LBA361104


LBA161104

Standard Power Distribution Blocks

Lug WireRange▲		Aluminum■						Dim. Type
Main	Branch	One Pole		Two Pole		Three Pole		
		Type ★	Price	Type ★	Price	Type ★	Price	
(1) #14–2/0	(1) #14–2/0	LBA162101	$ 6.90	LBA262101	$ 14.70	LBA362101	$ 17.10	2
(1) #6–350 kcmil	(1) #6–350 kcmil	LBA163101	35.60	LBA263101	54.00	LBA363101	71.00	3
(1) #4–600 kcmil	(1) #4–600 kcmil	LBA164101	63.00	N/A	. . .	LBA364101	122.00	4
(2) #4–350 kcmil	(2) #4–350 kcmil	LBA165202	65.00	LBA265202	98.00	LBA365202	126.00	5
(2) #4–500 kcmil	(2) #4–500 kcmil	LBA1652021	90.00	LBA2652021	137.00	LBA3652021	162.00	5
(1) #14–2/0	(4) #14–4	LBA162104	20.30	LBA262104	30.50	LBA362104	45.60	2
(1) #14–2/0	(6) #14–4	N/A	. . .	N/A	. . .	LBA362106	87.00	...▼
(1) #6–400 kcmil	(4) #14–2	LBA163104	37.20	LBA263104	56.00	LBA363104	75.00	3
(1) #6–400 kcmil	(6) #14–2	LBA163106	39.30	LBA263106	59.00	LBA363106	81.00	3
(1) #6–400 kcmil	(8) #14–2	LBA164108	51.00	LBA264108	77.00	LBA364108	107.00	4
(1) #4–500 kcmil	(6) #14–2/0	LBA165106	84.00	LBA265106	126.00	LBA365106	155.00	5
(1) #4–500 kcmil	(12) #14–2	LBA165112	89.00	LBA265112	134.00	LBA365112	174.00	5
(2) #14–2/0	(6) #14–4	LBA163206	39.80	LBA263206	60.00	LBA363206	81.00	3
(2) #4–500 kcmil	(8) #14–2/0	LBA165208	84.00	LBA265208	126.00	LBA365208	167.00	5
(2) #4–500 kcmil	(12) #14–4	LBA165212	90.00	LBA265212	137.00	LBA365212	174.00	5

Miniature Power Distribution Blocks

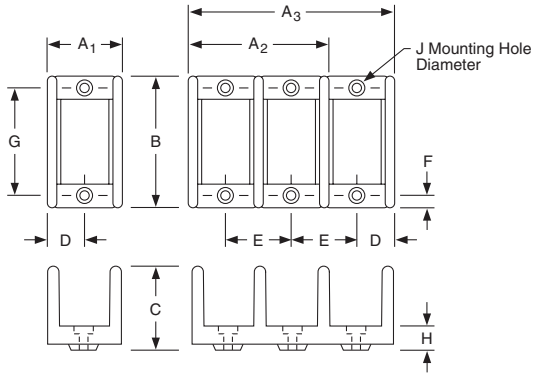
Lug Wire Range▲		Aluminum■						Dim. Type
Main	Branch	One Pole		Two Pole		Three Pole		
		Type ★	Price	Type ★	Price	Type ★	Price	
(1) #14–2	(1) #14–2	LBA161101	$ 8.90	N/A	. . .	LBA361101	$ 15.60	1
(1) #14–2	(4) #18–10	LBA161104	17.60	LBA261104	$20.40	LBA361104	38.70	1

Copper Power Distribution Blocks

Lug Wire Range▲		Copper						Dim. Type
Main	Branch	One Pole		Two Pole		Three Pole		
		Type ★	Price	Type ★	Price	Type ★	Price	
(1) #18–1/0	(1) #18–1/0	LBC162101	$ 66.00	N/A	. . .	LBC362101	$134.00	2
(1) #6–250 kcmil	(1) #6–250 kcmil	LBC163101	83.00	N/A	. . .	LBC363101	155.00	3
(1) #14–2/0	(4) #14–4	LBC162104	66.00	LBC262104	$ 98.00	LBC362104	165.00	2
(1) #4–500 kcmil	(6) #14–2	LBC163106	102.00	LBC263106	152.00	LBC363106	236.00	3
(2) #14–2/0	(6) #14–4	LBC163206	89.00	LBC263206	134.00	LBC363206	179.00	3
(2) #4–500 kcmil	(8) #14–2/0	LBC165208	198.00	N/A	. . .	LBC365208	395.00	5
(2) #4–500 kcmil	(12) #14–2	LBC165212	189.00	N/A	. . .	LBC365212	378.00	5

▲ Lugs suitable for use with 75°C conductors. (#) indicates number of conductors.
■ Aluminum blocks will accept either Al or Cu conductors.
♦ Cu blocks will accept copper conductors only.
★ CE Marked.
▼ Refer to catalog for dimensions.

Dimensions



Dimensions (Inches)

Type	A1	A2	A3	B	C	D	E	F	G	H	J
1	.76	1.40	2.03	2.29	1.62	.38	.64	.19	1.93	.32	.201
2	1.13	1.94	2.75	2.88	1.78	.56	.81	.31	2.25	.24	.205
3	1.94	3.47	5.00	4.00	2.61	.97	1.53	.31	3.38	.40	.203
4	2.28	4.16	6.04	4.75	2.92	1.14	1.88	.31	4.13	.51	.20
5	3.17	5.88	8.54	5.50	3.12	1.58	2.69	.38	4.75	.50	.265

Clear Plastic Covers (0.045 in. thick)

Note: There are no covers for miniature blocks.

For LBA Type	Type	Price △	Dim. A	Dim. B
LBA162..., LBC162	LB21	$ 7.50	1.062	2.750
LBA262..., LBC262	LB22	9.00	1.875	2.750
LBA362..., LBC362 □	LB23	10.50	2.688	2.750
LBA163..., LBC163	LB31	8.30	1.782	3.813
LBA263..., LBC263	LB32	9.80	3.313	3.813
LBA363..., LBC363	LB33	11.30	4.844	3.813
LBA164...	LB41	9.00	2.125	4.563
LBA264...	LB42	10.50	4.000	4.563
LBA364...	LB43	12.00	5.875	4.563
LBA165..., LBC165	LB51	9.80	2.719	5.313
LBA265..., LBC265	LB52	11.30	5.656	5.313
LBA365..., LBC365	LB53	12.80	8.375	5.313

△ Above covers must be ordered in multiples of 5 covers. Above covers are supplied with two self tapping screws per cover.
□ Will not work on a 9080LBA362106 block.

Application Data

UL component recognized (File E60616 CCN XCFR2).
CSA certified (File LR70361).
Voltage Rating—Class B & C—600 V
Blocks are rated based on NEC Table 310-16 using 75°C wire.
Aluminum blocks are tin plated high conductive aluminum.
Copper blocks are tin plated high conductive copper.
Housing material:

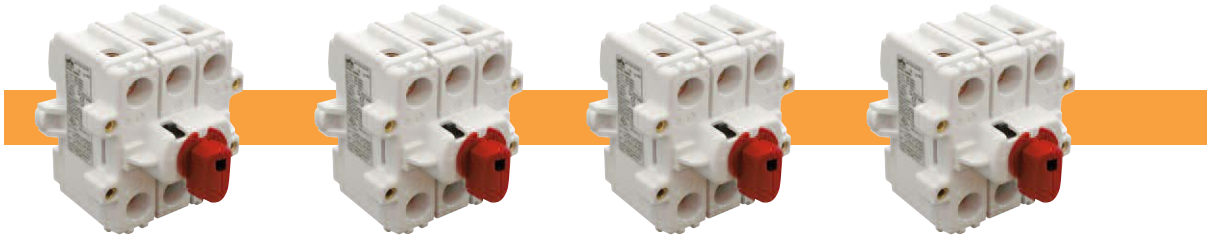
- Miniature Blocks are made from high impact thermoplastic rated at 125°C. max. & -40°C. min.
- Full Size Blocks are made from general purpose phenolic rated at 150°C. max. & -40°C. min.

All blocks have a flammability rating of UL 94V-0.

For additional information, reference Catalog # 9080CT9603.

Extended/Direct Handle Motor Disconnect Switch

The KU/VKA...N series can be used with extended and direct handles (see page 8-9 for details).



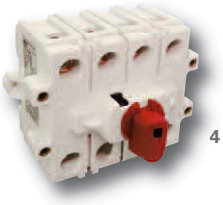
Catalog Number	VKA380N	VKA3100N	VKA3125N	VKA3160N
No. of Poles	3 (4 pole - VKA480N)	3 (4 pole - VKA4100N)	3 (4 pole - VKA4125N)	3 (4 pole - VKA4160N)
General Purpose Current	80A	100A	125A	150A
Maximum Voltage	600V AC	600V AC	600V AC	600V AC
Motor FLA @ 480V AC	–	–	–	–
Motor FLA @ 600V AC	47A	54A	68A	83A

Horsepower Rating /HP	1 Phase	3 Phase	1 Phase	3 Phase	1 Phase	3 Phase	1 Phase	3 Phase
110-120V AC	3	7.5	3	7.5	5	10	7.5	10
200V AC	7.5	10	7.5	15	10	20	10	25
208V AC	7.5	15	7.5	15	10	20	10	25
220-240V AC	7.5	15	10	20	15	25	15	30
265V AC	10	20	10	20	15	25	20	30
277V AC	10	20	10	20	15	30	20	30
380-415V AC	15	25	15	30	20	40	25	50
440-480V AC	20	30	20	40	25	50	30	60
550-600V AC	25	40	30	50	30	60	40	75

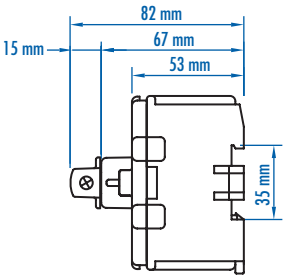
Short Circuit Withstand Rating at 600 V with Max. Fuse Size/Class:	10kA	10kA	10kA	10kA
K5	150A	150A	150A	150A
RK5	150A	150A	150A	150A
RK1	–	–	–	–
J	200A	200A	200A	200A
Terminal Size Acceptability (Cu Conductors only, 75°C)	4-1/0AWG	4-1/0AWG	4-1/0AWG	4-1/0AWG
Terminal Torque	50 lb. in.	50 lb. in.	50 lb. in.	50 lb. in.

Dimensions

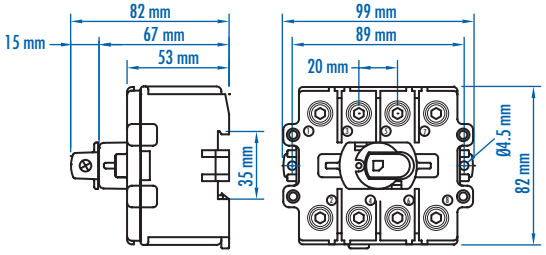
(to convert to inches multiply by 0.03937)



3 Pole



4 Pole



Weight	0.480Kg (1.058lb.) (3 pole) 0.620Kg (1.367lb.) (4 pole)	0.480Kg (1.058lb.) (3 pole) 0.620Kg (1.367lb.) (4 pole)	0.480Kg (1.058lb.) (3 pole) 0.620Kg (1.367lb.) (4 pole)	0.480Kg (1.058lb.) (3 pole) 0.620Kg (1.367lb.) (4 pole)

Suitable Accessories

Extended Handle Version/ Door Interlock Mechanism				
Shaft	L(1,2.3)00AD11-ST	L(1,2.3)00AD11-ST	L(1,2.3)00AD11-ST	L(1,2.3)00AD11-ST
Handles	LK10 (Y/R) UL, LK11 (Y/R) U	LK10 (Y/R) UL, LK11 (Y/R) U	LK10 (Y/R) UL, LK11 (Y/R) U	LK10 (Y/R) UL, LK11 (Y/R) U
Auxiliary Switch	VKA1.V, VKA2.V	VKA1.V, VKA2.V	VKA1.V, VKA2.V	VKA1.V, VKA2.V
Fuse Holder	–	–	–	–
Direct Handle Version				
Handle for 3 & 4 Pole	K/VKA3-4P (Y/R)	K/VKA3-4P (Y/R)	K/VKA3-4P (Y/R)	K/VKA3-4P (Y/R)
Door Mounting Kits	OKA/VKA x	OKA/VKA x	OKA/VKA x	OKA/VKA x

Dimensions *(to convert to inches multiply by 0.03937)*

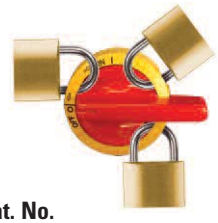
Extended Handle Accessories

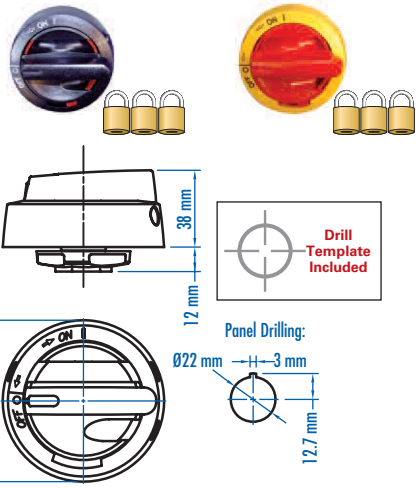
DOOR INTERLOCK HANDLES with 3 padlock locations*

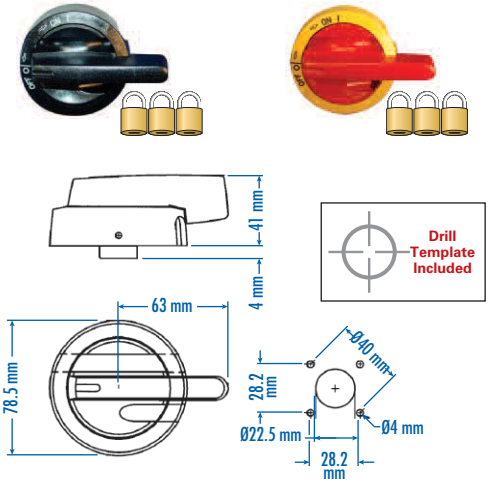
E185115

LK10 (Y/R) UL:
- *Single hole mounting (22.5mm)*
- *Defeatable (built-in mechanism)*

LK11 (Y/R) U:
- *Retention mechanism (only rotates 90° from off to on, keeps handle in off position while cabinet door is open)*
- *Defeatable (looses NEMA rating)*



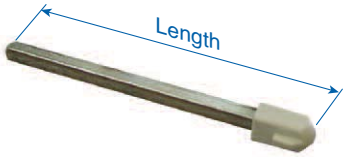




Cat. No.	LK10 UL	LK10 Y/R UL	LK11 U	LK11 Y/R U
Environmental Rating	NEMA Type 4X, IP66	NEMA Type 4X, IP66	NEMA Type 4X, IP67	NEMA Type 4X, IP67
Color	Black	Yellow/Red	Black	Yellow/Red

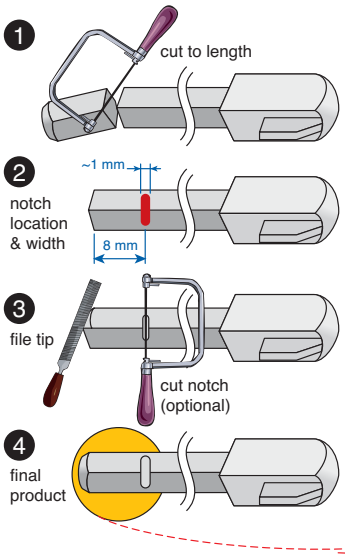
DOOR INTERLOCK SHAFT

The steel shaft ensures reliable operation even in the toughest conditions.

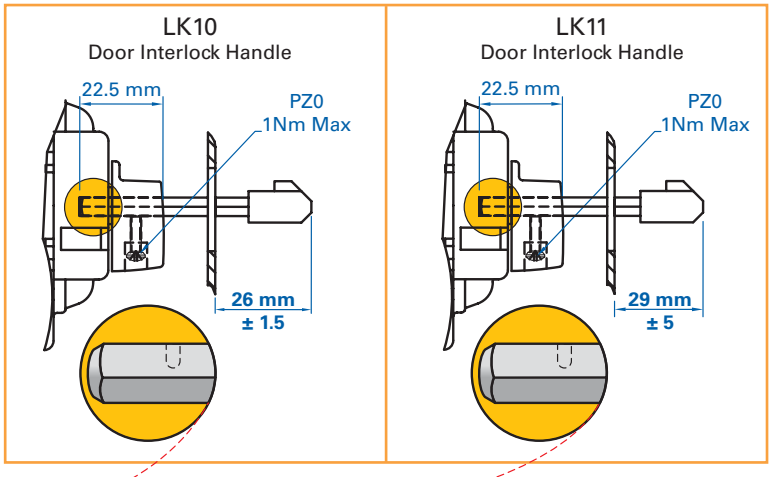


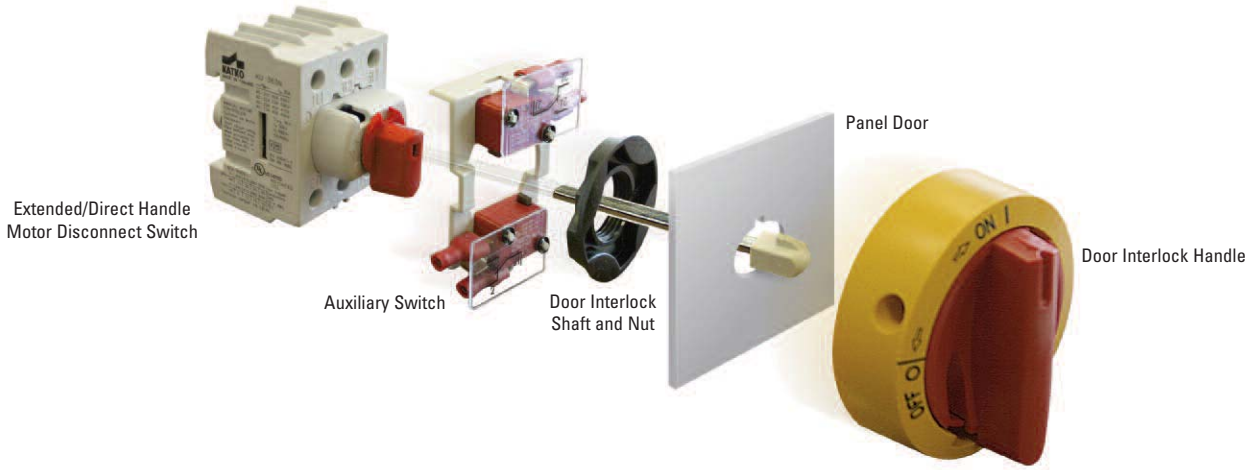
Cat. No.	L100AD11-ST	L200AD11-ST	L300AD11-ST
Length (L)	100mm	200mm	300mm
Material	Steel	Steel	Steel

SHAFT CUTTING RECOMMENDATIONS



SHAFT LENGTH GUIDELINE





*1/4" padlocks not included.

Dimensions *(to convert to inches multiply by 0.03937)*

EAC Series Current Sensor
CurrentWatch Current Sensors

Contents

The CurrentWatch EAC Series from Eaton's electrical business combines a current transformer and signal conditioner into a single package. The EAC Series has jumper-selected current input ranges and industry standard outputs: 4 – 20 mA, 0 – 5V DC or 0 – 10V DC. This family of sensors is designed for application on "linear" or sinu-soidal AC loads. Available in split-core or solid-core housings.

For typical applications of the CurrentWatch EAC Series, see listing to the right.

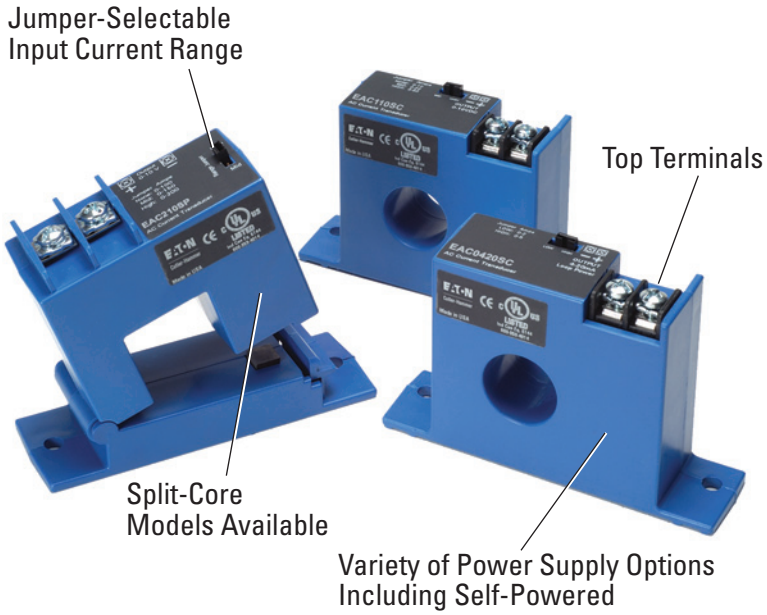
Approvals ①

- UL Listed
- C-UL Listed

CE

① EACP models not listed.

AC Current Sensor with Analog Outputs and Power Supply Options



Product Features

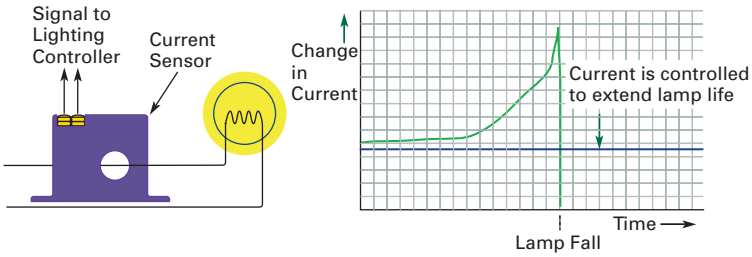
- **Highly Accurate** — Factory matched and calibrated single-piece sensor is more accurate than traditional two-piece, field-installed solutions
- **Average Responding** — "Average Responding" algorithm gives an RMS output on pure sine waves, perfect for constant speed (linear) loads
- **Jumper Selectable Ranges** — The ability to change input ranges reduces inventory and eliminates zero and span
- **Isolation** — Output is magnetically isolated from the input for safety and elimination of insertion loss (voltage drop)
- **UL, C-UL and CE Approved** — Accepted worldwide

Typical Applications

- **Automation Equipment** — Analog current reading for remote monitoring and software alarms
- **Data Loggers** — Self-powered sensor helps conserve data logger batteries
- **Panel Meters** — Simple connection displays power consumption

Example Application — CurrentWatch EAC Series

Preventative Maintenance of a Critical Lighting System



Model Selection — CurrentWatch EAC Series

	Power Supply	Aperture Size	Output Signal	Current Range	Catalog Number
Top Terminal Current Sensors					
Solid-Core Housings 	Self-Powered (No External Power Needed)	0.74 in. (19 mm)	0 – 5V DC	10, 20 or 50A	**EAC105SC**
				100, 150 or 200A	**EAC205SC**
			0 – 10V DC	10, 20 or 50A	**EAC110SC**
				100, 150 or 200A	**EAC210SC**
	24V DC Loop-Powered		4 – 20 mA	2 or 5A	**EAC0420SC**
				10, 20 or 50A	**EAC1420SC**
				100, 150 or 200A	**EAC2420SC**
Split-Core Housings 	Self-Powered (No External Power Needed)	0.85 in. (21.6 mm)	0 – 5V DC	10, 20 or 50A	**EAC105SP**
				100, 150 or 200A	**EAC205SP**
			0 – 10V DC	10, 20 or 50A	**EAC110SP**
				100, 150 or 200A	**EAC210SP**
	24V DC Loop-Powered		4 – 20 mA	2 or 5A	**EAC0420SP**
				10, 20 or 50A	**EAC1420SP**
				100, 150 or 200A	**EAC2420SP**
Split-Core Housings 	120V AC		4 – 20 mA	2 or 5A	**EACP0420120SP** ①
				10, 20 or 50A	**EACP1420120SP** ①
				100, 150 or 200A	**EACP2420120SP** ①
	24V AC/DC		4 – 20 mA	2 or 5A	**EACP042024USP** ①
				10, 20 or 50A	**EACP142024USP** ①
				100, 150 or 200A	**EACP242024USP** ①

① Not UL listed.

Stocked product, typical order quantities guaranteed in stock.

Specifications — CurrentWatch EAC Series (Does Not Apply to EACP Series)

Description	Models with 0 – 5V DC Output	Models with 0 – 10V DC Output	Models with 4 – 20 mA Output
Power Supply	Self-Powered — No Power Supply Needed		12 – 40V DC Loop-Powered
Output Signal	0 – 5V DC	0 – 10V DC	4 – 20 mA
Output Limit	8.2V DC	15V DC	23 mA
Accuracy	1.0% FS		
Response Time	100 mS		300 mS
Frequency Range	50 – 60 Hz		20 – 100 Hz
Loading	1 mΩ Min. Rated Accuracy 100 kΩ Add 1.3% Error		See Power Supply Above
Isolation Voltage	UL Listed to 1,270V AC (Tested to 5kV)		
Input Ranges	Field Selectable Ranges from 0 – 200A, Additional Custom Ranges Available from Factory		
Sensing Aperture	Solid-Core: 0.74 in. (19 mm) dia. Split-Core: 0.85 in. (21.6 mm) sq.		
Housing	UL94 V0 Flammability Rated		
Environmental	Operating Temperature: -4 to 122°F (-20 to 50°C) Humidity: 0 – 95% RH, Non-condensing		
Approvals	UL 508 Industrial Control Equipment (USA and Canada), CE Certified		

Specifications — CurrentWatch EACP Series

Description	Specification
Power Supply	Models Ending -0SP: 120V AC Models Ending -USP: 24V AC/DC (40V Max.)
Output Signal	4 – 20 mA
Output Limit	22.4 mA
Accuracy	0.25% FS
Response Time	100 mS
Frequency Range	40 – 100 Hz
Loading	50 kΩ min. 500 kΩ max.
Isolation Voltage	UL Listed to 1,270V AC (Tested to 5kV)
Input Range	0 – 200A Jumper Selectable
Sensing Aperture	0.85 in. (21.6 mm)
Housing	UL94 V0 Flammability Rated
Environmental	Operating Temperature: -4 to 122°F (-20 to 50°C) Humidity: 0 – 95% RH, Non-condensing
Approvals	UL 508 Industrial Control Equipment (USA and Canada), CE Certified

MODEL 269

Over & Under 3-Phase Monitor

- **Monitors for High Voltage, Low Voltage, Phase Loss & Phase Reversal**
- **4 Voltage Ranges**
- **Automatic Reset**
- **5 Year Unconditional Warranty**

DESCRIPTION

The Model 269 Over & Under 3-Phase Monitor continuously monitors 3-phase lines for high voltage, low voltage, phase loss or phase reversal. This device features a solid-state voltage and phase angle sensing circuit, which drives a SPDT output relay.

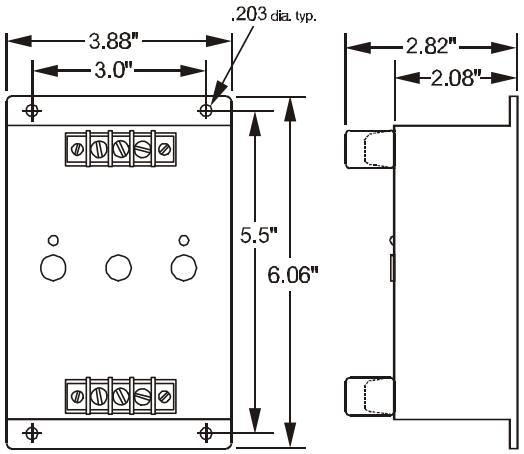
The Model 269 is independent of the system load, and may be used on any horsepower motor. When phase sequence is correct, and the voltage remains between the upper and lower trip points, the output relay remains energized. When a fault condition is sensed, the output relay drops out.

The Model 269 does not require a neutral connection, and can be used on Wye or Delta systems. Each of the four voltage versions can be adjusted over a wide range. An adjustable trip delay (1-10 seconds) prevents nuisance tripping. OVER and UNDER voltage failure indicators aid in calibration and system troubleshooting.

SPECIFICATIONS

Model	A269	B269	C269	EX269
Nominal AC Voltage (phase to phase)	120VAC	208/240VAC	480VAC	380VAC
Adj Range - Upper - Lower	110 - 145V 80 - 115V	210 - 280V 170 - 240V	400 - 540V 380 - 460V	350 - 450V 300 - 400V
Frequency	60 Hz			50 Hz
Power Consumption	1.5W	3W	6W	6W
Transient Protection	2500VRMS for 10 msec			
Repeat Accuracy	± 0.1% of set point (fixed conditions)			
Response Time	Adjustable from 1-10 seconds ±5%			
Reset Time	0.25 seconds			
Reset Type	Automatic			
Dead Band	Approximately 2%			
Output Contacts	SPDT 10A at 240VAC resistive			
Expected Relay Life	Mech: 10 million operations Elec: 100,000 operations at rated load			
Operating Temp	- 40° to +130° F			
Humidity Tolerance	0-97% w/o condensation			
Enclosure Material	ABS Plastic			
Mounting	Surface			
Weight	9 oz.			
Agency Approval	UL Listed & CSA Certified			

DIMENSIONS



TIME MARK CORPORATION

RH Series Compact Power Relays

Key features

- SPDT through 4PDT, 10A contacts
- Compact power type relays
- Miniature power relays with a large capacity
- 10A contact capacity
- Compact size saves space

Part Number Selection

Contact	Model	Part Number: Blade Terminal	Part Number: PCB Terminal	Coil Voltage Code (Standard Stock in bold)
SPDT 	Standard	RH1B-U ☐	RH1V2-U ☐	AC6V, AC12V, **AC24V**, AC110V, **AC120V**, AC220V, **AC240V** DC6V, **DC12V**, **DC24V**, DC48V, DC110V
	With Indicator	RH1B-UL ☐	—	
	With Check Button	RH1B-UC ☐	—	
	With Indicator and Check Button	RH1B-ULC ☐	—	
	Top Bracket Mounting	RH1B-UT ☐	—	
	With Diode (DC coil only)	RH1B-UD ☐	RH1V2-UD ☐	DC6V, **DC12V**, **DC24V**, DC48V, DC110V
	With Indicator and Diode (DC coil only)	RH1B-ULD ☐	—	**DC12V**, **DC24V**, DC48V, DC110V
DPDT 	Standard	RH2B-U ☐	RH2V2-U ☐	AC6V, AC12V, **AC24V**, **AC110-120V**, **AC220-240V** DC6V, **DC12V**, **DC24V**, DC48V, DC100-110V
	With Indicator	RH2B-UL ☐	RH2V2-UL ☐	
	With Check Button	RH2B-UC ☐	—	
	With Indicator and Check Button	RH2B-ULC ☐	—	
	Top Bracket Mounting	RH2B-UT ☐	—	
	With Diode (DC coil only)	RH2B-UD ☐	RH2V2-UD ☐	DC6V, **DC12V**, **DC24V**, DC48V, DC100-110V
	With Indicator and Diode (DC coil only)	RH2B-ULD ☐	RH2V2-ULD ☐	
3PDT 	Standard	RH3B-U ☐	RH3V2-U ☐	AC6V, AC12V, **AC24V**, AC110V, **AC120V**, AC220V, **AC240V** DC6V, **DC12V**, **DC24V**, DC48V, DC110V
	With Indicator	RH3B-UL ☐	RH3V2-UL ☐	
	With Check Button	RH3B-UC ☐	—	
	With Indicator and Check Button	RH3B-ULC ☐	—	
	Top Bracket Mounting	RH3B-UT ☐	—	
	With Diode (DC coil only)	RH3B-UD ☐	—	DC6V, DC12V, DC24V, DC48V, DC110V
	With Indicator and Diode (DC coil only)	RH3B-ULD ☐	—	
4PDT 	Standard	RH4B-U ☐	RH4V2-U ☐	AC6V, AC12V, **AC24V**, AC110V, **AC120V**, AC220V, **AC240V** DC6V, **DC12V**, **DC24V**, DC48V, DC110V
	With Indicator	RH4B-UL ☐	RH4V2-UL ☐	
	With Check Button	RH4B-UC ☐	—	
	With Indicator and Check Button	RH4B-ULC ☐	—	
	Top Bracket Mounting	RH4B-UT ☐	—	
	With Diode (DC coil only)	RH4B-UD ☐	RH4V2-UD ☐	DC6V, DC12V, DC24V, DC48V, DC110V
	With Indicator and Diode (DC coil only)	RH4B-ULD ☐	—	

PCB terminal relays are designed to mount directly to a circuit board without any socket.

Ordering Information
When ordering, specify the Part No. and coil voltage code:
(example) **RH3B-U** (Part No.) **AC120V** (Coil Voltage Code)

Sockets (for Blade Terminal Models)

Relays	Standard DIN Rail Mount [1]	Finger-safe DIN Rail Mount [1]	Through Panel Mount	PCB Mount
RH1B	SH1B-05	SH1B-05C	SH1B-51	SH1B-62
RH2B	SH2B-05	SH2B-05C	SH2B-51	SH2B-62
RH3B	SH3B-05	SH3B-05C	SH3B-51	SH3B-62
RH4B	SH4B-05	SH4B-05C	SH4B-51	SH4B-62
				

1. DIN Rail mount socket comes with two horseshoe clips. Do not use unless you plan to insert pullover wire spring. Replacement horseshoe clip part number is Y778-011.

Hold Down Springs & Clips

Appearance	Item	Relay	For DIN Mount Socket	For Through Panel & PCB Mount Socket
	Pullover Wire Spring	RH1B	SY2S-02F1 [2]	SY4S-51F1
		RH2B	SY4S-02F1 [2]	
		RH3B	SH3B-05F1 [2]	
		RH4B	SH4B-02F1 [2]	
	Leaf Spring (side latch)	RH1B, RH2B, RH3B, RH4B	SFA-202 [3]	SFA-302 [3]
	Leaf Spring (top latch)	RH1B, RH2B, RH3B, RH4B	SFA-101 [3]	SFA-301 [3]

2. Must use horseshoe clip when mounting in DIN mount socket. Replacement horseshoe clip part number is Y778-011.
3. Two required per relay.

AC Coil Ratings

Voltage (V)	Rated Current (mA) ±15% at 20°C								Coil Resistance (Ω) ±10% at 20°C				Operation Characteristics (against rated values at 20°C)		
	AC 50Hz				AC 60Hz										
	SPDT	DPDT	3PDT	4PDT	SPDT	DPDT	3PDT	4PDT	SPDT	DPDT	3PDT	4PDT	Max. Continuous Applied Voltage	Pickup Voltage	Dropout Voltage
6	170	240	330	387	150	200	280	330	330	9.4	6.4	5.4	110%	80% maximum	30% minimum
12	86	121	165	196	75	100	140	165	165	39.3	25.3	21.2			
24	42	60.5	81	98	37	50	70	83	83	153	103	84.5			
110	9.6	—	18.1	21.6	8.4	—	15.5	18.2	18.2	—	2,200	1,800			
110-120	—	9.4-10.8	—	—	—	8.0-9.2	—	—	—	—	—	—			
120	8.6	—	16.4	19.5	7.5	—	14.2	16.5	16.5	—	10,800	7,360			
220	4.7	—	8.8	10.7	4.1	—	7.7	9.1	9.1	—	10,800	7,360			
220-240	—	4.7-5.4	—	—	—	4.0-4.6	—		—	18,820	—	—			
240	4.9	—	8.2	9.8	4.3	—	7.1	8.3	8.3	—	12,100	9,120			

DC Coil Ratings

Voltage (V)	Rated Current (mA) ±15% at 20°C				Coil Resistance (Ω) ±10% at 20°C				Operation Characteristics (against rated values at 20°C)		
	SPDT	DPDT	3PDT	4PDT	SPDT	DPDT	3PDT	4PDT	Max. Continuous Applied Voltage	Pickup Voltage	Dropout Voltage
6	128	150	240	250	47	40	25	24	110%	80% maximum	10% minimum
12	64	75	120	125	188	160	100	96			
24	32	36.9	60	62	750	650	400	388			
48	18	18.5	30	31	2,660	2,600	1,600	1,550			
100-110	—	8.2-9.0	—	—	—	12,250	—	—			
110	8	—	12.8	15	13,800	—	8,600	7,340			

Standard coil voltages are in **BOLD**.

SDU Series, DIN Rail AC UPS

The SDU DIN Rail UPS combines an industry leading compact design with a wide operation temperature range and unique installation options. The SDU series provides economical protection from damaging impulses and power interruptions. These units include easy to wire screw terminations for critical devices needing battery back up such as computer based control systems.

UL 1778
Ind. Application
E179213

Features

- Lightweight, compact industrial design
- Wide operation temperature range (0-50°C)
- Cold start capability
- Phone/dataline surge protection
- Software and cable included for easy installation
- Simulated sinewave output
- RS232 Communication Port
- USB Communication Port (optional)
- Form C Dry Contact Relay (optional)
- Panel/Wall mounting brackets (optional)
- Remote turn-on and shut-off capabilities NEW
- Limited two-year warranty

Approvals

- 120V models are UL1778 recognized for industrial applications without derating.
  - No derating required in UL508 applications.
- 230V models are CE marked.

Applications

- Programmable Logic Controllers
- Factory Automation
- Robotics
- Conveying Equipment
- Computer-based Control Systems

Related Products

- Portable MCR Power Conditioners
- STV Surge Protective Devices
- SDN DIN Rail Power Supplies
- STFV Plus Active Tracking® Filters

Selection Table

Capacity (VA/W)	Catalog Number	Volts, Frequency In/Out	Typical Back–up Time (minutes)*	Input/Output Connections	Approx. Ship Weight – lbs (kg)
500/300	SDU 500	120 Vac, 50/60 Hz	4	IP20 touch proof, screw terminals. Wire range: 10 ~ 24 AWG.	10.7 (4.7)
850/510	SDU 850		2		11.4 (5.0)
500/300	SDU 500-5	230 Vac, 50/60 Hz	4		11.5 (5.2)
850/510	SDU 850-5		2		11.9 (5.4)

* At full load.

SDU Accessories

Catalog Number	Description	Approx. Ship Weight – lbs (kg)
RELAYCARD-SDU	Dry contact I/O relay box, IP20 touch proof screw terminals, wire size range 12~22 AWG (IEC 2.5mm); N.O./N.C. form "C" contact. Relay contact signal for "On Battery", "Low Battery" and "UPS Shutdown".	1.0 (0.45)
UPSMON-USB	RS232 to USB adapter cable	1.0 (0.45)
SDU-PMBRK	Mounting brackets to secure UPS to wall, back of panel or enclosure.	1.0 (0.45)

Specifications

Catalog Number	SDU 500	SDU 850	SDU 500-5	SDU 850-5
Capacity (VA/Watts)	500/300	850/510	500/300	850/510
Load Power Factor	0.6			
Dimensions – inches (mm)				
Unit (H x W x D)	4.88 x 11.1 x 4.55 (124 x 281 x 116)			
Weight – lbs (kg)	10.7 (4.7)	11.4 (5.0)	11.5 (5.2)	11.9 (5.4)
Input Parameters				
Voltage	120 V (+10%, -20%)		230 V (+/- 20%)	
Frequency	50 +/- 5 Hz or 60 Hz +/- 6 Hz (auto sensing)			
Output AC Parameters				
Voltage (Battery Mode)	Step sinewave			
	+/- 5%			
Frequency (On Battery)	50 or 60 Hz			
	+/- 0.3 Hz			
Overload Protection	UPS automatic shutdown if overload exceeds 105% of nominal at 20 seconds, 120% at 10 seconds, 130% at 3 seconds			
Short Circuit	UPS output cut off immediately			
Battery Parameters				
Battery Type	Sealed, non-spillable, maintenance-free lead acid batteries			
Transfer Time	4 - 6 ms typical			
Back–up Time* (minutes)	4.5/18	2.5/10	4.5/18	2.5/10
Recharge Time	8 hours to 90% capacity after full discharge			
Environmental				
Operating Temperature	32°F to 122°F (0°C to 50°C)			
Storage Temperature	5°F to 140°F (-15°C to 60°C)			
Relative Humidity	1% to 95%, non-condensing			
Ambient Operation	1-95% humidity non-condensing, 0-50°C up to 5,000 ft. (1500m)			
Audible Noise	< 40dBA (1 meter from surface)			
Standards				
Safety	UL 1778 Recognized components for industrial applications in accordance with UL508 without derating. CAN/CSA C22.2 No 107.1-01. Overvoltage Category 3, pollution degree 3. FCC Part 15, Subpart B, Class A		CE Marked; LVD: EN62040-1-1; EMC: EN50091-2, EN61000-3-2, EN61000-3-3, IEC60801-2, IEC60801-3, IEC60801-4, IEC61000-2-2.	
Elevation	5000 ft. without derating			
Shock & Vibration	According to the International Safe Transit Association standard ISTA 2A.			
Mounting	To be mounted on DIN TS35/7.5 or TS35/15 rail system. Chassis mounting permissible via optional brackets. Unit handles normal shock and vibration of industrial use and transportation without coming off rail.			

* At full load/half load.

480W Single Output Industrial DIN RAIL with PFC Function

SDR-480 series

■ Features :

- High efficiency 94% and low power dissipation
- 150% peak load capability
- Built-in active PFC function, PF>0.94
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection
- Built-in constant current limiting circuit
- Can be installed on DIN rail TS-35/7.5 or 15
- UL 508(industrial control equipment)approved
- EN61000-6-2(EN50082-2) industrial immunity level
- Built-in DC OK relay contact
- 100% full load burn-in test
- 3 years warranty

SPECIFICATION

MODEL		SDR-480-24	SDR-480-48
OUTPUT	DC VOLTAGE	24V	48V
	RATED CURRENT	20A	10A
	CURRENT RANGE	0 ~ 20A	0 ~ 10A
	RATED POWER	480W	480W
	PEAK CURRENT	30A	15A
	PEAK POWER Note.6	720W (3sec.)	
	RIPPLE & NOISE (max.) Note.2	100mVp-p	120mVp-p
	VOLTAGE ADJ. RANGE	24 ~ 28V	48 ~ 55V
	VOLTAGE TOLERANCE Note.3	±1.2%	±1.0%
	LINE REGULATION	±0.5%	±0.5%
	LOAD REGULATION	±1.0%	±1.0%
	SETUP, RISE TIME	1500ms, 150ms/230VAC 3000ms, 150ms/115VAC at full load	
	HOLD UP TIME (Typ.)	14ms/230VAC at full load	
INPUT	VOLTAGE RANGE Note.7	90 ~ 264VAC 127 ~ 370VDC	
	FREQUENCY RANGE	47 ~ 63Hz	
	POWER FACTOR (Typ.)	0.94/230VAC 0.99/115VAC at full load	
	EFFICIENCY (Typ.)	94%	
	AC CURRENT (Typ.)	5A/115VAC 2.5A/230VAC	
	INRUSH CURRENT (Typ.)	40A/115VAC 80A/230VAC	
	LEAKAGE CURRENT	<0.8mA / 240VAC	
PROTECTION	OVERLOAD	Normally works within 110 ~ 150% rated output power for more than 3 seconds and then shut down o/p voltage with auto-recovery	
		>150% rated power, constant current limiting with auto-recovery within 2 seconds and may cause to shut down if over 2 seconds	
	OVER VOLTAGE	29 ~ 33V	56 ~ 65V
		Protection type : Shut down o/p voltage with auto-recovery or re-power on to recovery	
	OVER TEMPERATURE	105℃ ±5℃ (TSW : detect on heatsink of power switch)	
		Protection type : Shut down o/p voltage, recovers automatically after temperature goes down	
FUNCTION	DC OK REALY CONTACT RATINGS (max.)	60Vdc/0.3A, 30Vdc/1A, 30Vac/0.5A resistive load	
ENVIRONMENT	WORKING TEMP. Note.5	-25 ~ +70℃ (Refer to "Derating Curve")	
	WORKING HUMIDITY	20 ~ 95% RH non-condensing	
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH	
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)	
	VIBRATION	Component:10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6	
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL508, TUV EN60950-1 approved	
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC O/P-DC OK:0.5KVAC	
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:>100M Ohms / 500VDC / 25℃/ 70% RH	
	EMC EMISSION	Compliance to EN55011, EN55022 (CISPR22), EN61204-3 Class B, EN61000-3-2,-3	
	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, EN61000-6-2 (EN50082-2), EN61204-3, heavy industry level, criteria A, SEMI F47, GL approved	
OTHERS	MTBF	112.9K hrs min. MIL-HDBK-217F (25℃)	
	DIMENSION	85.5*125.2*128.5mm (W*H*D)	
	PACKING	1.6Kg; 8pcs/13.8Kg/0.9CUFT	

NOTE

1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance : includes set up tolerance, line regulation and load regulation.
4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.
5. Installation clearances : 40mm on top, 20mm on the bottom, 5mm on the left and right side are recommended when loaded permanently with full power. In case the adjacent device is a heat source, 15mm clearance is recommended.
6. 3 seconds peak power max. and the average output power should not exceed the rate power.
7. Derating may be needed under low input voltage. Please check the derating curve for more details.


LC1D09


LC1D093


LC1D40A


LC1D115


LRD22


LRD3

Table 18.1: 3- or 4-Pole Screw Terminal Connections

Maximum Horsepower Ratings						Maximum Current Utilization Categories		No of Poles		Instantaneous Auxiliary Contacts		Catalog Number ▲	$ Price	
Single Phase		Three Phase				Inductive AC3 Amperes	Resistive AC1 Amperes	N.O.	N.C.	N.O.	N.C.			
115 V hp	230 V hp	200 V hp	230 V hp	460 V hp	575 V hp								AC Coils	DC Coils
0.5	1	2	2	5	7.5	9	20	3	0	1	1	LC1D09 ♦★▼	94.00	119.00
—	—	—	—	—	—	—		4				LC1DT20 ♦	94.00	119.00
—	—	—	—	—	—	—		2	2			LC1D098 ♦	94.00	119.00
1	2	3	3	7.5	10	12	25	3	0	1	1	LC1D12 ♦★▼	119.00	149.00
—	—	—	—	—	—	—		4				LC1DT25 ♦	119.00	149.00
—	—	—	—	—	—	—		2	2			LC1D128 ♦	119.00	149.00
1	3	5	5	10	15	18	32	3	0	1	1	LC1D18 ♦★	136.00	160.00
—	—	—	—	—	—	—		4				LC1DT32 ♦	149.00	183.00
—	—	—	—	—	—	—		2	2			LC1D188 ♦	149.00	183.00
2	3	7.5	7.5	15	20	25	40	3	0	1	1	LC1D25 ♦★	151.00	181.00
—	—	—	—	—	—	—		4				LC1DT40 ♦	193.00	240.00
—	—	—	—	—	—	—		2	2			LC1D258 ♦	193.00	240.00
2	5	10	10	20	30	32	50	3	0	1	1	LC1D32 ♦★	172.00	213.00
3	5	10	10	30	30	40	60	3	0	1	1	LC1D40A	218.00	275.00
—	—	—	—	—	—	—		4		0	0	LC1DT60A	296.00	353.00
3	7.5	15	15	40	40	50	80	3	0	1	1	LC1D50A	234.00	291.00
5	10	20	20	40	50	65		3				LC1D65A	322.00	379.00
—	—	—	—	—	—	—		4	0	0	0	LC1DT80A	446.00	503.00
7.5	15	25	30	60	60	80	125	3	0	1	1	LC1D80	363.00	420.00
—	—	—	—	—	—	—		4		0	0	LC1D80004 ■	489.00	524.00
—	—	—	—	—	—	—		2	2			LC1D80008 ■	489.00	524.00
—	—	30	40	75	100	115	200	3	0	1	1	LC1D115	479.00	479.00
—	—	40	50	100	125	150		3				LC1D150	696.00	696.00
—	—	—	—	—	—	—		4		0	0	LC1D115004	630.00	630.00

▲ Complete catalog number with coil voltage code from table on page 18-6; example, LC1D09G7.
■ For DC version of these devices replace the 'C' with 'P' (ex. LC1D80004** becomes LP1D80004**). This applies only to 80A 4 pole devices.
♦ On LC1D09 - LC1D65A and LC1DT20 through LC1DT80A, for ring tongue versions add '6' to the catalog number prior to adding the voltage code (ex. LC1D09G7 becomes LC1D096G7 and LC1D50AG7 becomes LC1D50A6G7). No price adder for this modification.
★ On LC1D09 - LC1D65A, for spring terminals versions add '3' to the catalog number prior to adding the voltage code (ex. LC1D12G7 becomes LC1D123G7 and LC1D40AG7 becomes LC1D40A3G7 - Note that 40A to 65A spring terminals are only on the control terminations and not on power terminations). No price adder for this modification.
▼ On LC1D09 and LC1D12 only, for slip-on connector versions add "9" to the catalog number prior to adding the voltage code (ex. LC1D09G7 becomes LC1D099G7). No price adder for this modification.

Table 18.2: TeSys D Overload Relays — Ambient Compensated, Bi-Metallic Direct Mount

Current Setting Range Amperes	For Direct Mounting to LC1...	Class 10 with Single Phase Sensitivity	Class 10 without Single Phase Sensitivity	Class 20 with Single Phase Sensitivity	Class 20 without Single Phase Sensitivity	$ Price
0.10–0.16	D09–D32	LRD01	LR3D01	—	—	60.00
0.16–0.25		LRD02	LR3D02	—	—	
0.25–0.40		LRD03	LR3D03	—	—	
0.40–0.63		LRD04	LR3D04	—	—	
0.63–1		LRD05	LR3D05	—	—	
1–1.6		LRD06	LR3D06	—	—	
1.6–2.5		LRD07	LR3D07	—	—	
2.5–4		LRD08	LR3D08	LRD1508	LR3D1508A1	
4–6		LRD10	LR3D10	LRD1510	LR3D1510A1	
5.5–8	D09–D32	LRD12	LR3D12	LRD1512	LR3D1512A1	62.00
7–10	D09–D32	LRD14	LR3D14	LRD1514	LR3D1514A1	
9–13	D12–D32	LRD16	LR3D16	LRD1516	LR3D1516A1	
12–18	D18–D32	LRD21	LR3D21	LRD1521	LR3D1521A1	
16–24	D25–D32	LRD22	LR3D22	—	—	
17–25	D25–D32	—	—	LRD1522	LR3D1522A1	
23–32	D25–D32	LRD32	LR3D32	—	—	73.00
23–28	D25–D32	—	—	LRD1530	LR3D1530A1	
25–32	D25–D32	—	—	LRD1532	LR3D1532A1	
30–38	D32	LRD35	LR3D35	—	—	
9-13	D40A-D65A △	LRD313	LR3D313	LRD313L	—	107.00
12-18	D40A-D65A △	LRD318	LR3D318	LRD318L	—	
16-25	D40A-D65A △	LRD325	LR3D325	LRD325L	—	
23-32	D40A-D65A △	LRD332	LR3D332	LRD332L	—	
30-40	D40A-D65A △	LRD340	LR3D340	LRD340L	—	
37-50	D40A-D65A △	LRD350	LR3D350	LRD350L	—	
48-65	D40A-D65A △	LRD365	LR3D365	LRD365L	—	
17-25	D40-D80 □	LRD3322	LR3D3322	LR2D3522	LR3D3522	107.00
23-32	D40-D80 □	LRD3353	LR3D3353	LR2D3553	LR3D3553	
30-40	D40-D80 □	LRD3355	LR3D3355	LR2D3555	LR3D3555	
37-50	D50-D80 □	LRD3357	LR3D3357	LR2D3557	LR3D3557	
48-65	D50-D80 □	LRD3359	LR3D3359	LR2D3559	LR3D3559	
55–70	D65–D80	LRD3361	LR3D3361	LR2D3561	LR3D3561	127.00
63–80	D65–D80	LRD3363	LR3D3363	LR2D3563	LR3D3563	
80–104	D80	LRD3365	—	—	—	
80–104	D115–D150	LRD4365	—	—	—	362.00
95–120	D115–D150	LRD4367	—	—	—	
110–140	D150	LRD4369	—	—	—	

△ Overload relays with Everlink termination - direct mount to D40A to D65A only.
□ Direct mount to old D2 style D40 to D65 (no Everlink terminations) and to D80 only.

TeSys D contactor accessories . . . . . pages 18-8 to 18-11
TeSys D overload relay accessories . . . . . page 18-16
TeSys D replacement coils. . . . . pages 18-17 to 18-19
Dimensions. . . . . pages 18-40 to 18-46
TeSys T. . . . . pages 16-91

E164862
CCN NLDX

LR43364
Class 3211 04


XB5AS9445


XB5AT42


XB5AS542

Table 19.113: Non-Illuminated Emergency Stop and Emergency Off Mushroom Head Push Buttons, Ø 40 mm (Red) (screw clamp terminal connections)

Shape of Head	Type of Push	Type of Contact		Catalog Number	(Components)	$ Price
		N.O.	N.C.			
	Trigger action push-pull▲	1	1	XB5AT845	(ZB5AZ105 + ZB5AT84)	**101.00**
	Trigger action turn-to-release▲	1	1	XB5AS8445	(ZB5AZ105 + ZB5AS844)	**165.00**
		—	2	XB5AS8444	(ZB5AZ104 + ZB5AS844)	
	Trigger action Key release (No. 455)▲	1	1	XB5AS9445	(ZB5AZ105+ ZB5AS944)	**165.00**
	Push-pull	—	1	XB5AT42	(ZB5AZ102 + ZB5AT4)	**68.00**
	Turn-to-release	—	1	XB5AS542	(ZB5AZ102 + ZB5AS54)	**110.00**
	Key release (No. 455)	—	1	XB5AS142	(ZB5AZ102 + ZB5AS14)	**147.00**

▲ Trigger action mushroom heads are tamper proof in that a change of contact state is not possible by teasing or floating the operator. For emergency stop applications, always use a trigger action push button (per EN/IEC 13850).

Table 19.114: Non-Illuminated Selector Switches and Key Switches (screw clamp terminal connections) ■


XB5AD33


XB5AJ33


XB5AG33

Shape of Head	Type of Operator	Type of Contact		Number and Type of Positions		Catalog Number	(Components)	$ Price
		N.O.	N.C.					
	Standard lever, black	1	—	2-maintained		XB5AD21	(ZB5AZ101 + ZB5AD2)	**51.00**
		1	1	2-maintained		XB5AD25	(ZB5AZ105 + ZB5AD2)	**68.00**
		2	—	3-maintained		XB5AD33	(ZB5AZ103 + ZB5AD3)	**68.00**
				3-momentary to center		XB5AD53	(ZB5AZ103 + ZB5AD5)	**75.00**
	Extended lever, black	1	—	2-maintained		XB5AJ21	(ZB5AZ101 + ZB5AJ2)	**51.00**
		2	—	3-maintained		XB5AJ33	(ZB5AZ103 + ZB5AJ3)	**68.00**
				3-momentary to center		XB5AJ53	(ZB5AZ103 + ZB5AJ5)	**75.00**
	Key (No. 455)	1	—	2-maintained		XB5AG21	(ZB5AZ101 + ZB5AG2)	**123.00**
						XB5AG41	(ZB5AZ101 + ZB5AG4)	**123.00**
				2-momentary to left		XB5AG61	(ZB5AZ101 + ZB5AG6)	**123.00**
		2	—	3-maintained		XB5AG03	(ZB5AZ103 + ZB5AG0)	**141.00**
						XB5AG33	(ZB5AZ103 + ZB5AG3)	**141.00**

■ See 19-49 for contact configurations.
Note: The symbol ⚷ indicates key withdrawal position(s)

Legends . . . . . pages 19-58 to 19-60

Front Mounted Auxiliary Blocks (shown on TeSys D contactor)

Table 18.15: Standard, instantaneous auxiliary contact blocks

Snap-On Mounting	Number of Contacts	Composition N.O.	Composition N.C.	Catalog Number ▲	$ Price
To front of LC●DT20–D258 (4P), LC●D09–D150▲ or **To right side of** LC●F	4 ▲	2	2	LADN22 ■	**41.50**
		1	3	LADN13 ■	**41.50**
		4	0	LADN40 ■	**41.50**
		0	4	LADN04 ■	**41.50**
		3	1	LADN31 ■	**41.50**
		2 ♦	2 ♦	LADC22 ■♦	**41.50**
	2	1	1	LADN11 ■	**20.70**
		2	0	LADN20 ■	**20.70**
		0	2	LADN02■	**20.70**
To front of LC●D80 and D115 or **To left side of** LC●F	1	1	0	LADN10 ★	**13.10**
		0	1	LADN01 ★	**13.10**
To side of LC●D09 to D150 only (not for use on TeSys F)	2	1	1	LAD8N11 ▼	**20.70**
		2	0	LAD8N20 ▼	**20.70**

▲ For low consumption coils (LC1D09 to D32 only), only one front-mounted two-contact block allowed. No side-mounted contact blocks allowed.
■ For spring terminal versions of these blocks, add a "3" to the end of the catalog number. (Ex. LADN223). No price adder for this modification.
♦ Including 1 N.O. + 1 N.C. make before break overlapping contacts.
★ This block cannot be added to the LC1D 09 to D32 contactors; a maximum of 2 blocks can be mounted on the LC1D40A to LC1/LP1D80 contactors only.
▼ 1 block may be added to the left side of the LC1D 09 to D32, AC coils only; 1 block may be added to each side of the LC1D 40A to D80 contactors, AC coils only. Cannot be installed on TeSys D contactors with DC coils.

Table 18.16: Instantaneous blocks with dust-tight auxiliary contacts (IP54) NEMA 12

Snap-On Mounting	Standard Contacts N.O.	Standard Contacts N.C.	Dusttight Contacts N.O.	Dusttight Contacts N.C.	Catalog Number	$ Price
To front of LP●D40–D80, LC●DT20–D258 (4P), LC●D09 to D80 or **To right side of** LC●F	—	—	2	—	LA1DX20	**65.00**
	2	—	2	—	LA1DZ40	**82.00**
	1	1	2	—	LA1DZ31	**82.00**
	—	—	2	—	LA1DY20△	**77.00**

△ Device supplied with 4 ground terminal points.

Table 18.17: Pneumatic time delay contact blocks

Snap-On Mounting	Time Delay Contacts N.O.	Time Delay Contacts N.C.	Type	Range of Time Delay	Catalog Number ◊	$ Price
To front of LP●D40–D80, LC●DT20–D258 (4P), LC●D09 to D150 or **To right side of** LC●F	1	1	On energization (on delay)	0.1 to 3 s□	LADT0	**131.00**
				0.1 to 30 s	LADT2	**131.00**
				10 to 180 s	LADT4	**131.00**
				1 to 30 s☆	LADS2	**131.00**
	1	1	On de-energization (off-delay)	0.1 to 3 s□	LADR0	**131.00**
				0.1 to 30 s	LADR2	**131.00**
				10 to 180 s	LADR4	**131.00**

□ Scale range is expanded between 0.1 and 0.6 seconds on the dial for more accurate settings at the lower end of the range.
◊ For spring terminal versions of these blocks, add a "3" to the end of the catalog number. (Ex. LADT23). No price adder for this modification.
☆ With switching time of 40 ms ± 15 ms between the opening of the N.C. contact to the closing of the N.O. contact.

Table 18.18: Mechanical latch blocks with manual or electrical unlatch (TeSys D only)

Front snap-on mounting onto	Application	Catalog number to be completed by the code corresponding to the coil voltage	$ Price
LC●D09 to D65A	For silent operation and energy conservation	LAD6K10▽◒	**77.00**
LC1 D80 to D150 LP1 D80	For silent operation and energy conservation	LA6DK20▽◒	**77.00**

▽ Does not include internal coil clearing contact.
◒ Complete catalog number by adding coil voltage code. For example: LAD6K10F.

Table 18.19: Coil Voltage Codes for LA6DK mechanical latch blocks

Volts	12	24	32/36	42/48	60/72	100	110/127	200/208	220/240	380/415	440/480	500/600
AC or DC	J	B	C	E	EN	K	F	L	M	Q	R	S

TeSys D contactors . . . . . pages 18-4, 18-6
TeSys D overload relay accessories . . . . . page 18-16
TeSys D replacement coils . . . . . pages 18-18 to 18-19
Dimensions. . . . . pages 18-40 to 18-46

E164862
CCN NLDX

LR43364
Class 3211 04

Altech Corp.®
35 Royal Road • Flemington, NJ 08822-6000
t 908-806-9400 • f 908-806-9490 • www.altechcorp.com

UR-Series - UL1077 Recognized Supplementary Protector - **1 pole D-Trip**

c UL us
UL Recognized
E137915

CE

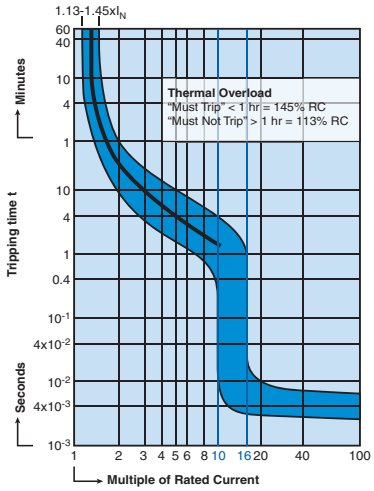
One Pole

Standard Pack: 12

Weight:
0.3A - 32A
1.75kg (3.86 lb.)
40A - 63A
2.07kg (4.56 lb.)

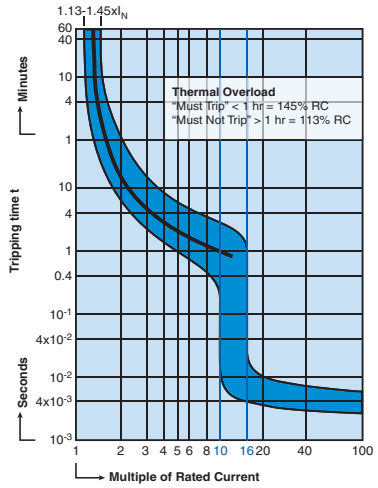
Rated Current	Type/ Cat. No.	Rated Voltage
0.5A	1D05UR	277V AC
1.0A	1D1UR	277V AC
2.0A	1D2UR	277V AC
3.0A	1D3UR	277V AC
4.0A	1D4UR	277V AC
5.0A	1D5UR	277V AC
6.0A	1D6UR	277V AC
8.0A	1D8UR	277V AC
10A	1D10UR	277V AC
12A	1D12UR	277V AC
13A	1D13UR	277V AC
15A	1D15UR	277V AC
16A	1D16UR	277V AC
20A	1D20UR	277V AC
25A	1D25UR	277V AC
30A	1D30UR	277V AC
32A	1D32UR	277V AC
40A	1D40UR	277V AC
50A	1D50UR	277V AC
60A	1D60UR	277V AC
63A*	1D63UR	277V AC

**63A is not UL Recognized.*

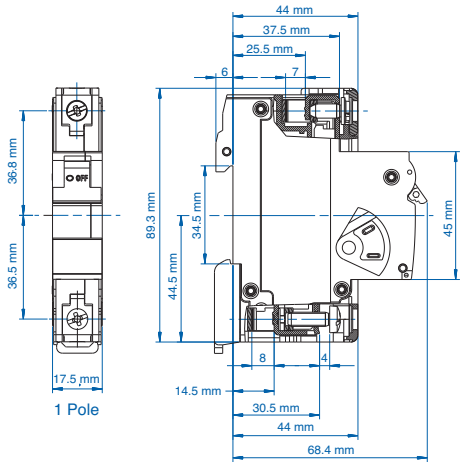


0.3A Through 10A Rated Current

UR - Series	
Voltage Rating	0.5-60A / 277V AC
Short Circuit Withstand Rating	0.5 - 10A (RC): 10 kA with no back-up fuse 8 - 63A (RC): 10 kA with UL-listed Class J back-up fuse; 5 kA with no back-up fuse
Calibration Temperature	30°C (86°F)
Ambient Temperature	-25°C to +55°C (-13°F to 131°F)
Storage Temperature	-40°C to +70°C (-40°F to 158°F)
Terminal Torque (min/max)	2 Nm (17.7 lb.in.) / 2.5Nm (22.2 lb.in)
Electrical Life	6000 switching cycles ON/ OFF
Mechanical Life	10000 switching cycles ON/ OFF
Vibration Resistance	> 15g according to DIN EN 60069-2-59 during a load with 1.05 x I_N
Resistance to mechanical shocks	25g @ 11ms



12A Through 63A Rated Current



"D" Magnetic Trip Parameters
Rated current 0.5A to 63A.
1. Hold for a minimum of 100ms at surge of 10 times rated current.
2. Trip in under 100ms at 16 times rated current.

Short Circuit Withstand Ratings for R-Series Supplementary Protector

Trip Curve	Amp Range	Backup Protection	
		UL-Listed Class J Fuse up to 10kA	No Backup Fuse Required up to:
All	0.5 - 10A	70A	10kA
All	12 - 60A	4xRC*	5kA

*up to nearest rated current

Product data sheet
Characteristics

ATV312HU40N4
variable speed drive ATV312 - 4kW - 9.2kVA - 150 W - 380..500 V - 3-phase supply

Green Premium™ Product

Product availability: Stock - Normally stocked in distribution facility
Price*: 688.00 USD

Main

Commercial Status	Commercialised
Range of product	Altivar 312
Product or component type	Variable speed drive
Product destination	Asynchronous motors
Product specific application	Simple machine
Assembly style	With heat sink
Component name	ATV312
Motor power kW	4 kW
Motor power hp	5 hp
[Us] rated supply voltage	380...500 V (- 15...10 %)
Supply frequency	50...60 Hz (- 5...5 %)
Network number of phases	3 phases
Line current	13.9 A for 380 V, 1 kA 10.6 A for 500 V
EMC filter	Integrated
Apparent power	9.2 kVA
Maximum transient current	14.3 A for 60 s
Power dissipation in W	150 W at nominal load
Speed range	1...50
Asynchronous motor control profile	Factory set : constant torque Sensorless flux vector control with PWM type motor control signal
Electrical connection	L1, L2, L3, U, V, W, PA, PB, PA/+, PC/- terminal 0.01 in² (5 mm²) AWG 10 AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6 terminal 0 in² (2.5 mm²) AWG 14
Supply	Internal supply for reference potentiometer (2.2 to 10 kOhm) at 10...10.8 V <= 10 mA for overload and short-circuit protection Internal supply for logic inputs at 19...30 V <= 100 mA for overload and short-circuit protection
Communication port protocol	CANopen Modbus
IP degree of protection	IP41 on upper part IP31 on upper part IP21 on connection terminals IP20 on upper part without cover plate
Option card	Profibus DP communication card Modbus TCP communication card Fipio communication card DeviceNet communication card CANopen daisy chain communication card

Complementary

Supply voltage limits	323...550 V
Network frequency limits	47.5...63 Hz
Prospective line Isc	1 kA
Continuous output current	9.5 A at 4 kHz
Speed drive output frequency	0.5...500 Hz
Nominal switching frequency	4 kHz
Switching frequency	2...16 kHz adjustable
Transient overtorque	170...200 % of nominal motor torque
Braking torque	30 % without braking resistor 150 % with braking resistor for 60 s 100 % with braking resistor continuously
Regulation loop	Frequency PI regulator
Motor slip compensation	Adjustable Automatic whatever the load Suppressable
Output voltage	<= power supply voltage
Tightening torque	10.62 lbf.in (1.2 N.m) L1, L2, L3, U, V, W, PA, PB, PA/+, PC/- 5.31 lbf.in (0.6 N.m) AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6
Insulation	Electrical between power and control
Analogue input number	3
Analogue input type	AI3 configurable current 0...20 mA, impedance 250 Ohm AI2 configurable voltage +/- 10 V, input voltage 30 V max, impedance 30000 Ohm AI1 configurable voltage 0...10 V, input voltage 30 V max, impedance 30000 Ohm
Sampling duration	LI1...LI6 4 ms for discrete AI1, AI2, AI3 8 ms for analog
Response time	R1A, R1B, R1C, R2A, R2B 8 ms for discrete AOV, AOC 8 ms for analog
Linearity error	+/- 0.2 % for output
Analogue output number	2
Analogue output type	AOV configurable voltage 0...10 V, impedance 470 Ohm, resolution 8 bits AOC configurable current 0...20 mA, impedance 800 Ohm, resolution 8 bits
Discrete input logic	(LI1...LI6)Positive logic (source) state 0 < 5 V state 1 > 11 V (LI1...LI6)Negative logic (source) state 0 > 19 V (LI1...LI4)Logic input not wired state 1 < 13 V
Discrete output number	2
Discrete output type	(R2A, R2B) configurable relay logic NC, electrical durability 100000 cycles (R1A, R1B, R1C) configurable relay logic 1 NO + 1 NC, electrical durability 100000 cycles
Minimum switching current	R1-R2 10 mA at 5 V DC
Maximum switching current	R1-R2 on resistive load, 5 A at 30 V DC, cos phi = 1, L/R = 0 ms R1-R2 on resistive load, 5 A at 250 V AC, cos phi = 1, L/R = 0 ms R1-R2 on inductive load, 2 A at 30 V DC, cos phi = 0.4, L/R = 7 ms R1-R2 on inductive load, 2 A at 250 V AC, cos phi = 0.4, L/R = 7 ms
Discrete input number	6
Discrete input type	(LI1...LI6) programmable, 24 V 0...100 mA with PLC, impedance 3500 Ohm
Acceleration and deceleration ramps	Linear adjustable separately from 0.1 to 999.9 s S, U or customized
Braking to standstill	By DC injection
Protection type	Thermal protection motor Short-circuit between motor phases drive Overheating protection drive Overcurrent between output phases and earth (on power up only) drive Motor phase breaks drive Line supply phase loss safety function, for three phases supply drive Line supply overvoltage and undervoltage safety circuits drive Input phase breaks drive
Insulation resistance	>= 500 mOhm at 500 V DC for 1 minute

Local signalling	Four 7-segment display units for CANopen bus status 1 LED red for drive voltage
Time constant	5 ms for reference change
Frequency resolution	Display unit 0.1 Hz Analog input 0.1...100 Hz
Type of connector	1 RJ45 Modbus/CANopen
Physical interface	RS485 multidrop serial link
Transmission frame	RTU
Transmission rate	4800, 9600 or 19200 bps Modbus 10, 20, 50, 125, 250, 500 kbps or 1 Mbps CANopen
Number of addresses	1...247 Modbus 1...127 CANopen
Number of drive	31 Modbus 127 CANopen
Marking	CE
Operating position	Vertical +/- 10 degree
Outer dimension	184 x 140 x 150 mm 215 x 185 x 158 mm 402 x 239 x 192 mm
Height	7.24 in (184 mm)
Width	5.59 in (142 mm)
Depth	5.98 in (152 mm)
Product weight	6.83 lb(US) (3.1 kg)

Environment

Dielectric strength	3400 V AC between control and power terminals 2410 V DC between earth and power terminals
Electromagnetic compatibility	Radiated radio-frequency electromagnetic field immunity test conforming to IEC 61000-4-3 level 3 Electrostatic discharge immunity test conforming to IEC 61000-4-2 level 3 Electrical fast transient/burst immunity test conforming to IEC 61000-4-4 level 4 1.2/50 µs - 8/20 µs surge immunity test conforming to IEC 61000-4-5 level 3
Standards	IEC 61800-3 IEC 61800-5-1
Product certifications	CSA C-Tick GOST NOM UL
Pollution degree	2
Protective treatment	TC
Vibration resistance	1.5 mm (f = 3...13 Hz) conforming to EN/IEC 60068-2-6 1 gn (f = 13...150 Hz) conforming to EN/IEC 60068-2-6
Shock resistance	15 gn for 11 ms conforming to EN/IEC 60068-2-27
Relative humidity	5...95 % without dripping water conforming to IEC 60068-2-3 5...95 % without condensation conforming to IEC 60068-2-3
Ambient air temperature for storage	-13...158 °F (-25...70 °C)
Ambient air temperature for operation	14...140 °F (-10...60 °C) with derating factor without protective cover on top of the drive 14...122 °F (-10...50 °C) without derating with protective cover on top of the drive
Operating altitude	3280.84...9842.52 ft (1000...3000 m) with current derating 1 % per 100 m <= 3280.84 ft (1000 m) without derating

Ordering and shipping details

Category	22152 - ATV312 / ATV32 (.25 THRU 7.5 HP)
Discount Schedule	CP4B
GTIN	00785901822998
Nbr. of units in pkg.	1
Package weight(Lbs)	7.10
Product availability	Stock - Normally stocked in distribution facility
Returnability	Y
Country of origin	ID

Offer Sustainability

Sustainable offer status	Green Premium product
RoHS	Compliant - since 0913 - Schneider Electric declaration of conformity
REACh	Reference contains SVHC above the threshold - go to CaP for more details
Product environmental profile	Available Download Product Environmental
Product end of life instructions	Need no specific recycling operations

Contractual warranty

Period	18 months

D-Trip Characteristic

Application Examples:

High inrush motors, transformers, power supplies, heaters and reactive loads. Relatively long thermal trip delay and very high magnetic trip point.

UL508 Listed
E137938

One Pole

Standard Pack: 12

Weight:
0.3A - 32A
1.75kg (3.86 lb.)
40A - 63A
2.07kg (4.56 lb.)

Rated Current	Type/ Cat. No.	Approvals
0.3A	**1D03UM**	
0.5A	**1D05UM**	
0.75A	**1D075UM**	
0.8A	NA	
1.0A	**1D1UM**	
1.6A	**1D1.6UM**	
2.0A	**1D2UM**	
2.5A	**1D2.5UM**	
3.0A	**1D3UM**	
3.5A	**1D3.5UM**	
4.0A	**1D4UM**	
5.0A	**1D5UM**	
6.0A	**1D6UM**	
8.0A	**1D8UM**	
10A	**1D10UM**	
12A	NA	
13A	**1D13UM**	
15A	**1D15UM**	
16A	**1D16UM**	
20A	**1D20UM**	
25A	**1D25UM**	
30A	**1D30UM**	
32A	**1D32UM**	
40A	**1D40UM**	
50A	**1D50UM**	
60A	**1D60UM**	
63A	**1D63UM**	

Three Pole

Standard Pack: 4

Weight:
0.3A - 32A
1.75kg (3.86 lb.)
40A - 63A
2.07kg (4.56 lb.)

Rated Current	Type/ Cat. No.	Approvals
0.3A	**3D03UM**	
0.5A	**3D05UM**	
0.75A	**3D075UM**	
0.8A	NA	
1.0A	**3D1UM**	
1.6A	**3D1.6UM**	
2.0A	**3D2UM**	
2.5A	**3D2.5UM**	
3.0A	**3D3UM**	
3.5A	**3D3.5UM**	
4.0A	**3D4UM**	
5.0A	**3D5UM**	
6.0A	**3D6UM**	
8.0A	**3D8UM**	
10A	**3D10UM**	
12A	NA	
13A	**3D13UM**	
15A	**3D15UM**	
16A	**3D16UM**	
20A	**3D20UM**	
25A	**3D25UM**	
30A	**3D30UM**	
32A	**3D32UM**	
40A	**3D40UM**	
50A	**3D50UM**	
60A	**3D60UM**	
63A	**3D63UM**	

Two Pole

Standard Pack: 6

Weight:
0.3A - 32A
1.75kg (3.86 lb.)
40A - 63A
2.07kg (4.56 lb.)

Rated Current	Type/ Cat. No.	Approvals
0.3A	**2D03UM**	
0.5A	**2D05UM**	
0.75A	**2D075UM**	
0.8A	NA	
1.0A	**2D1UM**	
1.6A	**2D1.6UM**	
2.0A	**2D2UM**	
2.5A	**2D2.5UM**	
3.0A	**2D3UM**	
3.5A	**2D3.5UM**	
4.0A	**2D4UM**	
5.0A	**2D5UM**	
6.0A	**2D6UM**	
8.0A	**2D8UM**	
10A	**2D10UM**	
12A	NA	
13A	**2D13UM**	
15A	**2D15UM**	
16A	**2D16UM**	
20A	**2D20UM**	
25A	**2D25UM**	
30A	**2D30UM**	
32A	**2D32UM**	
40A	**2D40UM**	
50A	**2D50UM**	
60A	**2D60UM**	
63A	**2D63UM**	

Add-on Neutral Pole

Rating	Type/ Cat. No.	Approvals
0.3-63A/ 480Y/277V	**N63UM**	

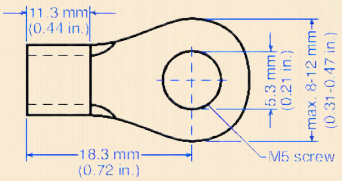
Standard Pack: 5

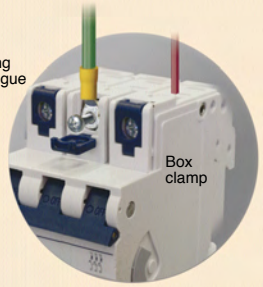
Weight:
0.775kg (1.71lb.)

Standard Dual Connection Terminal

- Box clamp terminals
  Top: 18-3 AWG;
  Bottom: 18-2 AWG
  (Line/Load reversible)
- Ring tongue terminals

Dimensions*:





** May differ by manufacturer.*

Top terminal ring tongue maximum thickness 1.6 mm.

Product data sheet
Characteristics

ATV312HU22N4
variable speed drive ATV312 - 2.2kW - 5.9kVA - 79W - 380..500 V- 3-phase supply

Green Premium™ Product

Product availability: Stock - Normally stocked in distribution facility

Price*: 574.00 USD

Main

Commercial Status	Commercialised
Range of product	Altivar 312
Product or component type	Variable speed drive
Product destination	Asynchronous motors
Product specific application	Simple machine
Assembly style	With heat sink
Component name	ATV312
Motor power kW	2.2 kW
Motor power hp	3 hp
[Us] rated supply voltage	380...500 V (- 15...10 %)
Supply frequency	50...60 Hz (- 5...5 %)
Network number of phases	3 phases
Line current	8.9 A for 380 V, 1 kA 6.7 A for 500 V
EMC filter	Integrated
Apparent power	5.9 kVA
Maximum transient current	8.3 A for 60 s
Power dissipation in W	79 W at nominal load
Speed range	1...50
Asynchronous motor control profile	Factory set : constant torque Sensorless flux vector control with PWM type motor control signal
Electrical connection	L1, L2, L3, U, V, W, PA, PB, PA/+, PC/- terminal 0.01 in² (5 mm²) AWG 10 AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6 terminal 0 in² (2.5 mm²) AWG 14
Supply	Internal supply for reference potentiometer (2.2 to 10 kOhm) at 10...10.8 V <= 10 mA for overload and short-circuit protection Internal supply for logic inputs at 19...30 V <= 100 mA for overload and short-circuit protection
Communication port protocol	CANopen Modbus
IP degree of protection	IP41 on upper part IP31 on upper part IP21 on connection terminals IP20 on upper part without cover plate
Option card	Profibus DP communication card Modbus TCP communication card Fipio communication card DeviceNet communication card CANopen daisy chain communication card

Complementary

Supply voltage limits	323...550 V
Network frequency limits	47.5...63 Hz
Prospective line Isc	1 kA
Continuous output current	5.5 A at 4 kHz
Speed drive output frequency	0.5...500 Hz
Nominal switching frequency	4 kHz
Switching frequency	2...16 kHz adjustable
Transient overtorque	170...200 % of nominal motor torque
Braking torque	30 % without braking resistor 150 % with braking resistor for 60 s 100 % with braking resistor continuously
Regulation loop	Frequency PI regulator
Motor slip compensation	Adjustable Automatic whatever the load Suppressable
Output voltage	<= power supply voltage
Tightening torque	10.62 lbf.in (1.2 N.m) L1, L2, L3, U, V, W, PA, PB, PA/+, PC/- 5.31 lbf.in (0.6 N.m) AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6
Insulation	Electrical between power and control
Analogue input number	3
Analogue input type	AI3 configurable current 0...20 mA, impedance 250 Ohm AI2 configurable voltage +/- 10 V, input voltage 30 V max, impedance 30000 Ohm AI1 configurable voltage 0...10 V, input voltage 30 V max, impedance 30000 Ohm
Sampling duration	LI1...LI6 4 ms for discrete AI1, AI2, AI3 8 ms for analog
Response time	R1A, R1B, R1C, R2A, R2B 8 ms for discrete AOV, AOC 8 ms for analog
Linearity error	+/- 0.2 % for output
Analogue output number	2
Analogue output type	AOV configurable voltage 0...10 V, impedance 470 Ohm, resolution 8 bits AOC configurable current 0...20 mA, impedance 800 Ohm, resolution 8 bits
Discrete input logic	(LI1...LI6)Positive logic (source) state 0 < 5 V state 1 > 11 V (LI1...LI6)Negative logic (source) state 0 > 19 V (LI1...LI4)Logic input not wired state 1 < 13 V
Discrete output number	2
Discrete output type	(R2A, R2B) configurable relay logic NC, electrical durability 100000 cycles (R1A, R1B, R1C) configurable relay logic 1 NO + 1 NC, electrical durability 100000 cycles
Minimum switching current	R1-R2 10 mA at 5 V DC
Maximum switching current	R1-R2 on resistive load, 5 A at 30 V DC, cos phi = 1, L/R = 0 ms R1-R2 on resistive load, 5 A at 250 V AC, cos phi = 1, L/R = 0 ms R1-R2 on inductive load, 2 A at 30 V DC, cos phi = 0.4, L/R = 7 ms R1-R2 on inductive load, 2 A at 250 V AC, cos phi = 0.4, L/R = 7 ms
Discrete input number	6
Discrete input type	(LI1...LI6) programmable, 24 V 0...100 mA with PLC, impedance 3500 Ohm
Acceleration and deceleration ramps	Linear adjustable separately from 0.1 to 999.9 s S, U or customized
Braking to standstill	By DC injection
Protection type	Thermal protection motor Short-circuit between motor phases drive Overheating protection drive Overcurrent between output phases and earth (on power up only) drive Motor phase breaks drive Line supply phase loss safety function, for three phases supply drive Line supply overvoltage and undervoltage safety circuits drive Input phase breaks drive
Insulation resistance	>= 500 mOhm at 500 V DC for 1 minute

Local signalling	Four 7-segment display units for CANopen bus status 1 LED red for drive voltage
Time constant	5 ms for reference change
Frequency resolution	Display unit 0.1 Hz Analog input 0.1...100 Hz
Type of connector	1 RJ45 Modbus/CANopen
Physical interface	RS485 multidrop serial link
Transmission frame	RTU
Transmission rate	4800, 9600 or 19200 bps Modbus 10, 20, 50, 125, 250, 500 kbps or 1 Mbps CANopen
Number of addresses	1...247 Modbus 1...127 CANopen
Number of drive	31 Modbus 127 CANopen
Marking	CE
Operating position	Vertical +/- 10 degree
Outer dimension	184 x 140 x 150 mm 215 x 185 x 158 mm 402 x 239 x 192 mm
Height	7.24 in (184 mm)
Width	5.59 in (142 mm)
Depth	5.98 in (152 mm)
Product weight	6.83 lb(US) (3.1 kg)

Environment

Dielectric strength	3400 V AC between control and power terminals 2410 V DC between earth and power terminals
Electromagnetic compatibility	Radiated radio-frequency electromagnetic field immunity test conforming to IEC 61000-4-3 level 3 Electrostatic discharge immunity test conforming to IEC 61000-4-2 level 3 Electrical fast transient/burst immunity test conforming to IEC 61000-4-4 level 4 1.2/50 µs - 8/20 µs surge immunity test conforming to IEC 61000-4-5 level 3
Standards	IEC 61800-3 IEC 61800-5-1
Product certifications	CSA C-Tick GOST NOM UL
Pollution degree	2
Protective treatment	TC
Vibration resistance	1.5 mm (f = 3...13 Hz) conforming to EN/IEC 60068-2-6 1 gn (f = 13...150 Hz) conforming to EN/IEC 60068-2-6
Shock resistance	15 gn for 11 ms conforming to EN/IEC 60068-2-27
Relative humidity	5...95 % without dripping water conforming to IEC 60068-2-3 5...95 % without condensation conforming to IEC 60068-2-3
Ambient air temperature for storage	-13...158 °F (-25...70 °C)
Ambient air temperature for operation	14...140 °F (-10...60 °C) with derating factor without protective cover on top of the drive 14...122 °F (-10...50 °C) without derating with protective cover on top of the drive
Operating altitude	3280.84...9842.52 ft (1000...3000 m) with current derating 1 % per 100 m <= 3280.84 ft (1000 m) without derating

Ordering and shipping details

Category	22152 - ATV312 / ATV32 (.25 THRU 7.5 HP)
Discount Schedule	CP4B
GTIN	00785901822967
Nbr. of units in pkg.	1
Package weight(Lbs)	6.54
Product availability	Stock - Normally stocked in distribution facility
Returnability	Y
Country of origin	ID

Offer Sustainability

Sustainable offer status	Green Premium product
RoHS	Compliant - since 0913 - Schneider Electric declaration of conformity
REACh	Reference contains SVHC above the threshold - go to CaP for more details
Product environmental profile	Available Download Product Environmental
Product end of life instructions	Need no specific recycling operations

Contractual warranty

Period	18 months

SELECTION CHARTS

SINGLE PHASE

GROUP I

240 X 480 PRIMARY VOLTS — 120/240 SECONDARY VOLTS — FOUR WINDINGS — 1Ø, 60 Hz

kVA	CATALOG NO.	APPROX. DIMENSIONS Inches (cm.)			APPROX. SHIP WEIGHT Lbs. (Kg.)	TYPE MTG. W – Wall F – Floor	KNOCKOUTS Inches (Cm.)	WEATHER SHIELD P/N	Wiring Diagrams & Design Figures Begin on Page 154
		HEIGHT	WIDTH	DEPTH					
① .05	T153004	6.41 (16.3)	3.14 (8.0)	3.05 (7.7)	4 (1.8)	W	0.875 (2.2)	NA	1–A
① .10	T153005	7.16 (18.2)	3.89 (9.9)	3.67 (9.3)	5 (2.3)	W	0.875 (2.2)	NA	1–A
① .15	T153006	7.16 (18.2)	3.89 (9.9)	3.67 (9.3)	7 (3.2)	W	0.875 (2.2)	NA	1–A
① .25	T253007S	8.68 (22.0)	4.08 (10.4)	3.88 (9.9)	10 (4.5)	W	0.50-0.75 (1.3-1.9)	NA	2–B
① .50	T253008S	9.06 (23.0)	4.37 (11.1)	4.20 (10.7)	15 (6.8)	W	0.50-0.75 (1.3-1.9)	NA	2–B
① .75	T253009S	9.68 (24.6)	4.75 (12.1)	4.50 (11.4)	19 (8.6)	W	0.50-0.75 (1.3-1.9)	NA	2–B
1.00	T253010S	10.50 (26.7)	5.50 (14.0)	5.13 (13.0)	24 (10.9)	W	0.50-0.75 (1.3-1.9)	NA	2–B
1.50	T253011S	11.62 (29.5)	5.50 (14.0)	5.13 (13.0)	30 (13.6)	W	0.50-0.75 (1.3-1.9)	NA	2–B
2.00	T253012S	13.00 (33.0)	5.50 (14.0)	5.13 (13.0)	38 (17.2)	W	0.50-0.75 (1.3-1.9)	NA	2–B
3.00	T253013S	11.50 (29.2)	10.31 (26.2)	7.13 (18.1)	55 (24.9)	W	0.75-1.25 (1.9-3.2)	NA	2–C
3.00	T2530134S	11.50 (29.2)	10.31 (26.2)	7.13 (18.1)	55 (24.9)	W	0.75-1.25 (1.9-3.2)	NA	3–C
5.00	T253014S	14.38 (36.5)	10.31 (26.2)	7.13 (18.1)	75 (34.0)	W	0.75-1.25 (1.9-3.2)	NA	2–C
5.00	T2530144S	14.38 (36.5)	10.31 (26.2)	7.13 (18.1)	75 (34.0)	W	0.75-1.25 (1.9-3.2)	NA	3–C
7.50	T2535153S	15.19 (38.6)	13.50 (34.3)	10.84 (27.5)	115 (52.2)	W	0.75-1.25 (1.9-3.2)	NA	4–D
10.00	T2535163S	15.19 (38.6)	13.50 (34.3)	10.84 (27.5)	125 (56.7)	W	0.75-1.25 (1.9-3.2)	NA	4–D
15.00	T2535173S	16.94 (43.0)	14.12 (35.9)	11.59 (29.4)	170 (77.1)	W	1.00-1.50 (2.5-3.8)	NA	4–D
25.00	T2535183S	18.44 (46.8)	16.13 (41.0)	13.34 (33.9)	250 (113.0)	W	1.00-1.50 (2.5-3.8)	NA	4–D
37.50	TP530193S	25.50 (64.8)	24.39 (61.9)	19.37 (49.2)	280 (127.0)	F②	NA	WSA1	5–E
50.00	TP530203S	25.50 (64.8)	24.39 (61.9)	19.37 (49.2)	350 (158.8)	F②	NA	WSA1	5–E
75.00	TP530213S	35.47 (90.1)	31.90 (81.0)	26.88 (68.3)	430 (195.0)	F	NA	WSA3	5–E
100.00	TP530223S	41.52 (105.5)	32.90 (83.6)	29.87 (75.9)	525 (238.0)	F	NA	WSA4	5–E
167.00	TP530233S	45.60 (115.8)	39.50 (100.3)	35.50 (90.2)	1050 (476.3)	F	NA	WSA5	5–E
250.00	TP530243S	45.60 (115.8)	39.50 (100.3)	35.50 (90.2)	1440 (653.2)	F	NA	WSA5	5–E

Notes: 0.05 through 25.0 kVA encapsulated (exempt from TP1), 37.5 through 250.0 kVA TP1 compliant

GROUP I – 316 SS

316 STAINLESS STEEL
240 X 480 PRIMARY VOLTS — 120/240 SECONDARY VOLTS — FOUR WINDINGS — 1Ø, 60 Hz

kVA	CATALOG NO.	APPROX. DIMENSIONS Inches (Cm.)			APPROX. SHIP WEIGHT Lbs. (Kg.)	TYPE MTG. W – Wall F – Floor	KNOCKOUTS Inches (Cm.)	WEATHER SHIELD P/N	Wiring Diagrams & Design Figures Begin on Page 154
		HEIGHT	WIDTH	DEPTH					
0.25	T253007SS	8.68 (22.0)	4.08 (10.4)	3.88 (9.9)	10 (4.5)	W	NA	NA	2-B
0.50	T253008SS	9.06 (23.0)	4.37 (11.1)	4.20 (10.7)	15 (6.8)	W	NA	NA	2-B
0.75	T253009SS	9.68 (24.6)	4.75 (12.1)	4.50 (11.4)	19 (8.6)	W	NA	NA	2-B
1.00	T253010SS	10.50 (26.7)	5.50 (14.0)	5.13 (13.0)	24 (10.9)	W	NA	NA	2-B
1.50	T253011SS	11.62 (29.5)	5.50 (14.0)	5.13 (13.0)	30 (13.6)	W	NA	NA	2-B
2.00	T253012SS	13.00 (33.0)	5.50 (14.0)	5.13 (13.0)	38 (17.2)	W	NA	NA	2-B
3.00	T253013SS	11.50 (29.2)	10.31 (26.2)	7.13 (18.1)	55 (24.9)	W	NA	NA	3-C
5.00	T253014SS	14.38 (36.5)	10.31 (26.2)	7.13 (18.1)	75 (34.0)	W	NA	NA	3-C
7.50	T253515SS	15.19 (38.6)	13.50 (34.3)	10.84 (27.5)	115 (52.2)	W	NA	NA	4-D
10.00	T253516SS	15.19 (38.6)	13.50 (34.3)	10.84 (27.5)	125 (56.7)	W	NA	NA	4-D
15.00	T253517SS	16.94 (43.0)	14.12 (35.9)	11.59 (29.4)	170 (77.1)	W	NA	NA	4-D
25.00	T253518SS	18.44 (46.8)	16.13 (41.0)	13.34 (33.9)	250 (113.0)	W	NA	NA	4-D

Notes: 0.25 through 25.0 kVA encapsulated (exempt from TP1)

① Suitable for 50/60 Hz.

② Wall mounting brackets are available for these sizes, refer to page 165.

AcuAMP AC Current Switches, Transducers and Indicators

Overview

The AcuAMP series of AC current sensors is a family of high-performance current sensors offering outstanding features, flexibility, and durability at an incredible price. Choose from a wide selection of current transducers, switches and indicators, all designed in a rugged industry-standard feed-through package, including both fixed core and split core models.

AcuAMP current sensors are available with a broad selection of input sensing ranges for maximum flexibility across many current ratings. The current transducer output choices include 4-20 mA, 24VDC loop-powered, and 0 to 10 volt self-powered analog outputs. The Current Switch outputs are isolated solid state switches and are available in Normally Open and Normally Closed configurations.

Models with output time delay are also offered in the Current Switch series. The ACL1 Current Indicator senses AC current ranging from 0.5 to 100A and requires no power for the indicating LED.

These current sensors can be mounted in a panel (convenient DIN rail adapter accessory is available) or attached to the monitored conductor with a wire tie. Use the Selection Guide below to find the best sensor for your requirements.

Selection Guide

AcuAMP AC Current Transducer Specifications by Model Type		
Specifications	***Transducer***	***Transducer (True RMS)***
Model	***ACT***	***ACTR***
Input Range	Jumper selectable: ACT005: 0 to 2A 0 to 5A ACT050: 0 to 10A 0 to 20A 0 to 50A ACT200: 0 to 100A 0 to 150A 0 to 200A ACT750: 0 to 375A 0 to 500A 0 to 750A ACT2000: 0 to 1000A 0 to 1333A 0 to 2000A	Jumper selectable (fixed and split core): ACTR005: 0 to 2A 0 to 5A ACTR050: 0 to 10A 0 to 20A 0 to 50A ACTR200: 0 to 100A 0 to 150A 0 to 200A ACTR750: 0 to 375A 0 to 500A 0 to 750A ACTR2000: 0 to 1000A 0 to 1333A 0 to 2000A Fixed range (flexible split core): ACTR500: 0 to 500A ACTR1000: 0 to 1000A ACTR2000: 0 to 2000A
Output	-10 models: 0–10 VDC, self-powered -42L models: 4–20 mA, loop-powered	4–20 mA, loop-powered true RMS
Frequency Range	-10 models: 50 to 60 Hz -42L models: 20 to 100 Hz sinusoidal waveforms only	10 to 400 Hz; (40 to 400 Hz flexible split core models) sinusoidal and non-sinusoidal waveforms
Response Time	-10 models: 100ms -42L models: 300ms	600ms
Sensing Aperture	ACT005, ACT050, ACT200: Fixed core: 0.75 in [19mm] dia. Split core: 0.85 in [21.6 mm] sq. ACT750, ACT2000: 3.0 in [76.2 mm] dia.	ACTR005, ACTR050, ACTR200: Fixed core: 0.75 in [19mm] dia. Split core: 0.85 in [21.6 mm] sq. ACTR750, ACTR2000: Fixed core: 3.0 in [76.2 mm] dia. ACTR500, ACTR1000, ACTR2000: Split (flexible split core) core, 4.5 in [114.3mm] dia.

AcuAMP® AC Current Switches, Transducers and Indicator

AcuAMP AC Current Switch Specifications by Model Type							
Specifications	**AC Current Switches**						**Indicator**
Model	**ACSN100**	**ACSN250**	**ACS150**	**ACSL**	**ACS200**	**ACSX**	**ACL1**
Input Range	0 to 100A	0 to 250A	Fixed core: 1 to 150A Split core: 1.75 to 150A	0 to 150A	Jumper Selectable: Fixed core: 1 to 6A 6 to 40A 40 to 175A Split core: 1.75 to 6A 6 to 40A 40 to 200A	Jumper Selectable: Fixed core: 1.5 to 12A 12 to 55A 55 to 175A Split core: 2 to 12A 12 to 55A 55 to 200A	0 to 100A
Setpoint (Trip Point)	Non-adjustable: 0.5 A	Non-adjustable: Fixed core: 0.75A Split core: 1.25A	Adjustable: Fixed core: 1-150 A (15-turn potentiometer) Split core: 1.75-150 A (4-turn potentiometer) Monitored load current required to adjust setpoint	Adjustable (3/4-turn potentiometer): ACSL010: 1-10A ACSL020: 2-20A ACSL050: 10-50A ACSL100: 50-100A ACSL150: 100-150A Monitored load current not required to adjust setpoint	Adjustable: (4-turn potentiometer) Fixed core: 1-175A Split core: 1.75-200A Monitored load current required to adjust setpoint	Adjustable: Fixed core: 1.5-175A (15-turn potentiometer) Split core: 2-200A (4-turn potentiometer) Monitored load current required to adjust setpoint	Non-adjustable: 0.5 A
Output	Isolated solid state: Normally Open 0.15 A @ 120VAC or VDC	Isolated solid state: Normally Open 0.15 A @ 240VAC or VDC	Isolated solid state: Normally Open 0.15 A @ 240VAC or VDC Normally Closed 0.2 A @ 135VAC or VDC	Isolated solid state: Normally Open AC: 0.15 mA @ 240VAC; Normally Open AC: 0.2 mA @ 135VAC	Isolated solid state: Normally Open or Normally Closed AC model: 1A @ 240VAC Normally Open or Normally Closed DC model: 0.15 A @ 30VDC	Isolated solid state: Normally Open or Normally Closed AC model: 1A @ 240VAC Normally Open AC/DC model: 0.15 A @ 240 VAC/VDC Normally Closed AC/DC model: 0.2 A @ 135 VAC/VDC	LED Only (flashing, red)
Frequency Range	50 to 400 Hz	6 to 100 Hz	6 to 100 Hz	10 to 100 Hz	6 to 100 Hz	50 to 100 Hz	50 to 400 Hz
Response Time	N/A	120ms	120ms	100ms & 2s inrush delay	40 to 120 ms	Field adjustable time delay: 0.12 to 15 seconds	N/A
Sensing Aperture	0.30 in [8.13 mm] dia.	Fixed core: 0.75 in [19mm] dia. Split core: 0.85 in [21.7 mm] sq.	Fixed core: 0.75 in [19mm] dia. Split core: 0.85 in [21.7 mm] sq.	Fixed core: 0.55 in [13.97 mm] dia. Split core: 0.85 in [21.7 mm] sq.	Fixed core: 0.55 in [13.97 mm] dia. Split core: 0.85 in [21.7 mm] sq.	Fixed core: 0.75 in [19mm] dia. Split core: 0.85 in [21.7 mm] sq.	0.30 in [8.13 mm] dia.

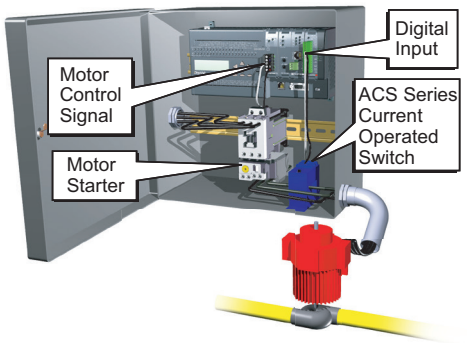
AcuAMP AC Current Sensors, Switches and Transducers Application Guide

Application Guide

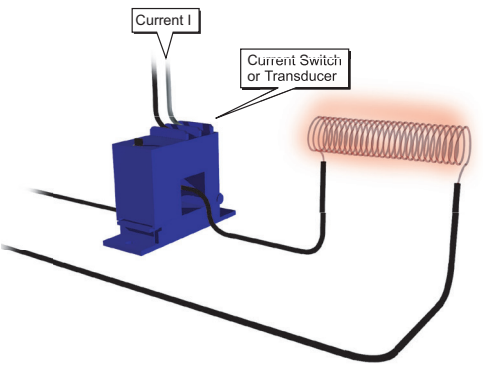
AcuAMP current sensors are a great fit for many applications including material handling, fan and pump applications, and heating systems. With current transducers, current switches and current indicators, this sensor family gives you valuable data for processes ranging from monitoring loads to preventive maintenance. Models with the ability to read True RMS non-sinusoidal waveforms make it easy to monitor applications using variable frequency drives.

Use the application examples to help choose the best sensor model for your application.

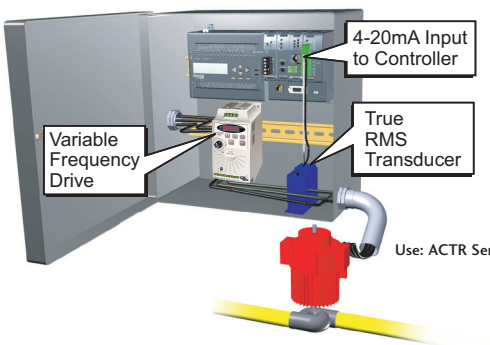
Pump Jam & Suction Loss Protection



Heater Life Prediction



Pump Load Monitoring

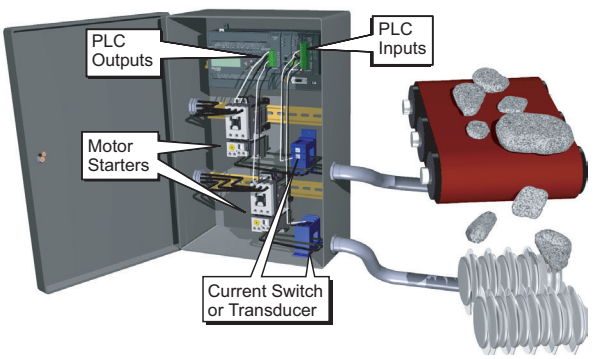


Use: ACTR Series - True RMS Current

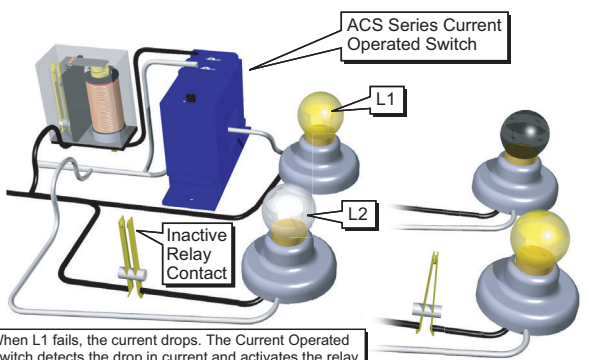
Crusher/Grinder/Shredder Motor Interlocks

The performance of size reduction equipment like crushers or grinders can be optimized by controlling the in-feed in order to

- Help prevent jamming
- Improve the uniformity of the resultant product
- Enhance overall production efficiency

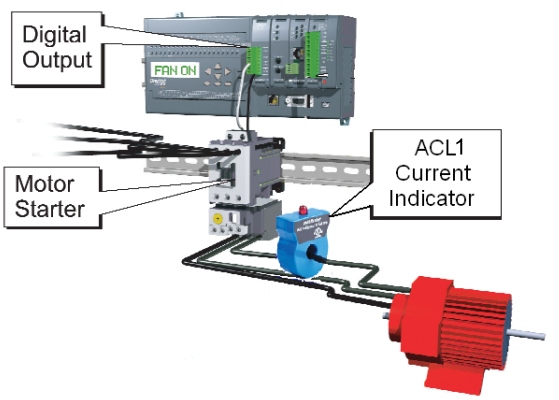


Lamp Failure Detection

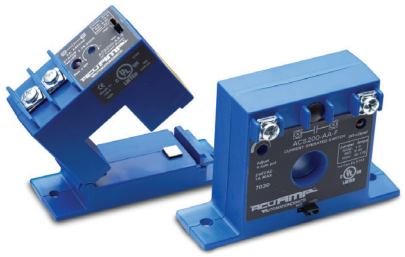


When L1 fails, the current drops. The Current Operated Switch detects the drop in current and activates the relay which turns on the back-up lamp L2. The system may be configured fail-safe by using a Normally Open Current switch together with Normally Closed relay contacts

Electric Motor Load Status



ACS200 Series AC Current Switches



ACS200 series current operated switches provide the same dependable status indication as the ACS150 series, but with added resolution. A choice of three jumper-selectable input ranges allows the ACS200 to be tailored to an application and provides more precision in setpoint adjustment. Self-powered, isolated solid-state relay outputs and multiple input ranges are standard features.

Applications

Electronic Proof of Flow

- Current operated switch eliminates the need for multiple pipe or duct penetrations, lowering installed costs.
- Solid-state technology more reliable than electromechanical pressure or flow switches

Conveyors

- Detect jams and overloads; useful when interlocking multiple conveyor sections

Lighting, Heating Circuits

- Detect ON/OFF status, easier to install and less expensive than photocell or temperature sensor alternatives

Features

- Five-year warranty
- N.O. or N.C. outputs 1A @ 240VAC or 0.15 A @ 30VDC.
- Status LED provides visual indication of setpoint trip and contact action.
- Self-powered operation cuts installation time and operating costs.
- Potentiometer-adjustable trip points speed start-up and allow for tailored operation.
- Choose fixed-core or split-core enclosure style. Split-core allows easy installation on existing systems; fixed-core offers more compact package for OEM or new installations.
- Built-in feet with optional 35mm DIN rail adapter available.

Agency Approvals

c UL us CE

ACS200 AC Current Operated Switches				
Part Number	**Description**	**Pcs/Pkg**	**Wt (lb)**	**Price**
ACS200-AA-F	N.O. AC adjustable current switch, fixed core, AC output	1	0.40	$68.50
ACS200-AA-S	N.O. AC adjustable current switch, split core, AC output	1	0.40	$79.50
ACS200-CA-F	N.C. AC adjustable current switch, fixed core, AC output	1	0.40	$68.50
ACS200-CA-S	N.C. AC adjustable current switch, split core, AC output	1	0.40	$79.50
ACS200-AD-F	N.O. AC adjustable current switch, fixed core, DC output	1	0.40	$68.50
ACS200-AD-S	N.O. AC adjustable current switch, split core, DC output	1	0.40	$79.50
ACS200-CD-F	N.C. AC adjustable current switch, fixed core, DC output	1	0.40	$68.50
ACS200-CD-S	N.C. AC adjustable current switch, split core, DC output	1	0.40	$79.50
Accessories				
DRA-2	DIN rail adapters, 1.69"x0.39"x0.75" [43x10x19mm]	2	0.40	$3.50

Maximum Input Ranges				
Range Jumper	**Range - Fixed Core**	**Range Split Core**	**Maximum Input Amps**	
			6 Sec max	**1 Sec max**
NONE	1 to 6A	1.75 to 6A	400	600
MID	6 to 40A	6 to 40A	500	800
HIGH	40 to 175A	40 to 200A	800	1200

ACS200 Minimum Load	
Part Number	**Minimum Load Operating Current**
ACS200-AA-F	20mA
ACS200-AA-S	20mA
ACS200-CA-F	20mA
ACS200-CA-S	20mA
ACS200-AD-F	1mA
ACS200-AD-S	1mA
ACS200-CD-F	1mA
ACS200-CD-S	1mA

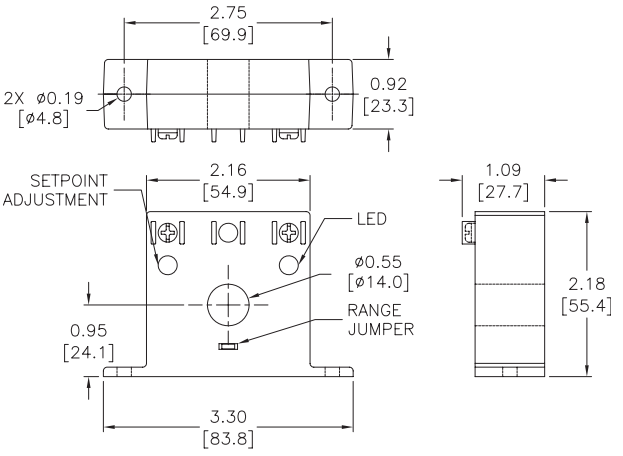
ACS200 Series Specifications	
Power Supply	None - Self-powered
Output	Isolated solid-state switch
Output Rating	N.O. or N.C. AC: 1A @ 240VAC N.O. or N.C. DC: 0.15A @ 30VDC
Response Time	40 - 120ms
Off State Leakage	< 10µA
Input Ranges	Jumper selectable: Fixed core: 1 to 6A, 6 to 40A, 40 to 175A Split core: 1.75 to 6A, 6 to 40A, 40 to 200A
Setpoint (Trip Point) Adjust	4-turn potentiometer
Hysteresis	low: 0.15 A; mid: 0.3 A; high: 0.9 A
Overload (1 second duration)	low: 600A; mid: 800A; high: 1,200A
Isolation Voltage	UL listed to 1,270VAC. Tested to 5,000VAC (1 minute max)
Frequency Range	6 to 100Hz
Case	UL 94V-0 flammability rated
Environmental	Operating Temperature: -58 to 149°F [-50 to 65°C]
	Relative Humidity: 0-95% RH, Non-condensing
	Pollution Degree 2
	Altitude to 2000 meters
Agency Approvals*	UL/cUL (E222847), CE

** To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com*

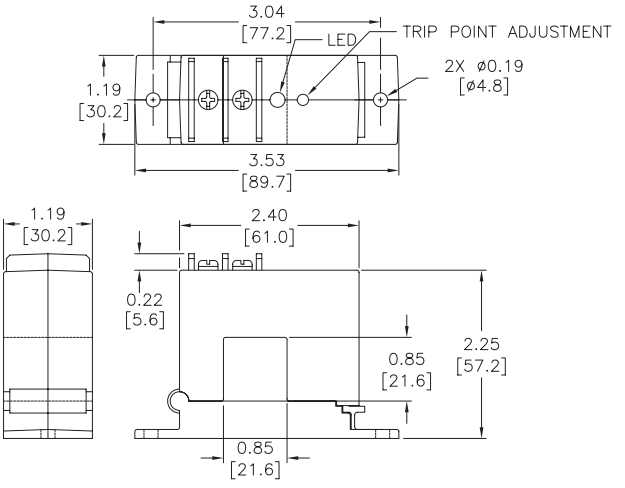
ACS200 Series AC Current Switches

Dimensions

Inches [mm]



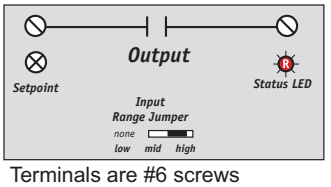
ACS200 Series Fixed Core



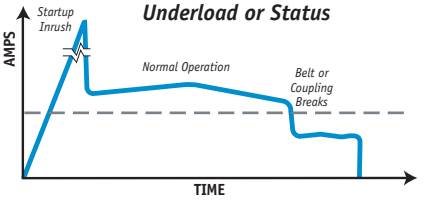
ACS200 Series Split Core

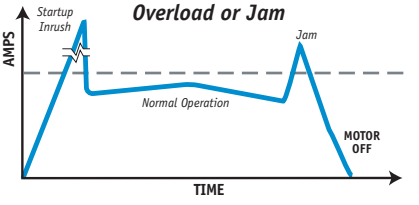
See our website www.AutomationDirect.com for complete Engineering drawings.

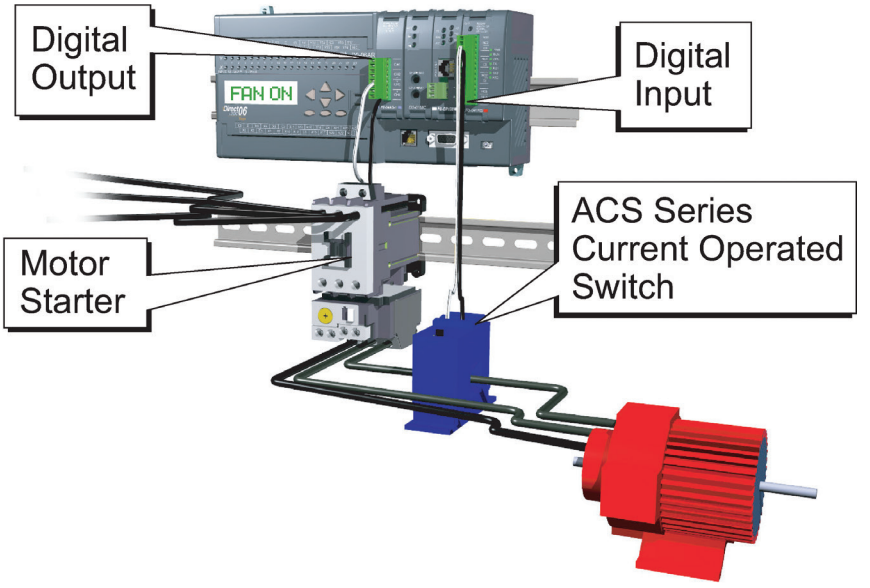
Connections



Terminals are #6 screws
Use up to 14 AWG copper wire







Product data sheet
Characteristics

RSL1PVBU
slim relay mounted on screw socket with LED and protection circuit, 24 V

Stock Code: Stock - Normally stocked in distribution facility

Price*: 14.60 USD

Main

Commercial Status	Commercialised
Range of product	Zelio Relay
Series name	Interface relay
Product or component type	Plug-in relay
Device short name	RSL
Contacts type and composition	1 C/O
Contacts operation	Standard
Control circuit voltage	24 V DC
[Ithe] conventional enclosed thermal current	6 A at -40...55 °C
Status LED	With
Shape of pin	Flat (PCB type)
Sale per indivisible quantity	10

Complementary

Fixing mode	Plastic compression spring
Average resistance	3390 Ohm (DC) at 23 °C +/- 10 %
[Ui] rated insulation voltage	277 V conforming to cUL 250 V conforming to EN/IEC
[Uimp] rated impulse withstand voltage	6 kV conforming to IEC
Contacts material	Silver alloy (AgSnO2)
[Ie] rated operational current	6 A 1 C/O (AC-1/DC-1) conforming to IEC/UL
Minimum switching current	100 mA
Maximum switching voltage	277 V
Minimum switching voltage	12 V
Maximum switching capacity	150 W 1500 VA
Minimum switching capacity	120 mW
Operating rate	<= 360 cycles/hour under load <= 72000 cycles/hour no-load
Mechanical durability	<= 10000000 cycles
Electrical durability	60000 cycles for resistive load (6 A at 250 V, AC-1)
Operating time	12 ms reset 5 ms
Marking	CE
Protection category	RT III
Operating position	Any position
Height	78.6 mm
Width	6.2 mm
Depth	95 mm
Terminals description ISO n°1	(11-12-14)OC (A1-A2)CO

Product weight	0.029 kg
Load current	6 A at 250 V AC for 0.5 mm mounting distance
Average consumption in W	0.17 W DC
Drop-out voltage threshold	>= 0.05 Uc
Contact terminal arrangement	Separate
Connections - terminals	Screw connectors (1 x 0.2...1 x 2.5 mm² / AWG 24...AWG 14) solid cable without cable end Screw connectors (1 x 0.2...1 x 2.5 mm² / AWG 24...AWG 14) flexible cable with cable end
Tightening torque	<= 0.5 N.m (M2.5)

Environment

Input voltage	24 V AC/DC (input voltage limit: 21.6...28.8 V)
Dielectric strength	4000 V AC (between coil and contact) 1000 V AC (between contacts)
Standards	EN/IEC 61810-1 UL 508 CSA C22.2 No 14
Product certifications	CSA GOST UL
Ambient air temperature for storage	-40...85 °C
Vibration resistance	5 gn +/- 1 mm (f = 10...150 Hz) 10 cycles in operation conforming to EN/IEC 60068-2-6 10 gn +/- 1 mm (f = 10...150 Hz) 10 cycles not operating conforming to EN/IEC 60068-2-6
IP degree of protection	IP40 conforming to EN/IEC 60529
Shock resistance	5 gn for11 ms not operating conforming to EN/IEC 60068-2-27 10 gn for11 ms in operation conforming to EN/IEC 60068-2-27
Ambient air temperature for operation	-40...55 °C

Ordering and shipping details

Category	21127 - ZELIO ICE CUBE RELAYS
Discount Schedule	CP2
GTIN	00785901617747
Nbr. of units in pkg.	10
Package weight(Lbs)	0.07
Stock Code	Stock - Normally stocked in distribution facility
Returnability	Y
Country of origin	CN

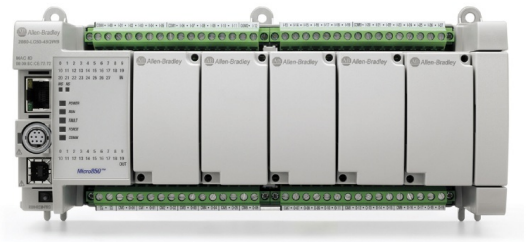
Offer Sustainability

Sustainable offer status	Not Green Premium product
REACh	Reference contains SVHC above the threshold - go to CaP for more details
Product environmental profile	Available Download Product Environmental

Contractual warranty

Period	18 months

Product: 2080-LC50-48QVB
Description: Micro850 Controller



Representative Photo Only (actual product may vary based on configuration selections)

M850 Product Configuration

Micro 850	M850 System with Base unit and Plug-in options
Digital Input Type	24V DC/V AC
Number of Input Points available	28
Digital Output type	24V DC Sink
Number of Output Points Available	20

Motion Support Options

Note:	Available in Base unit for 24V DC/V AC Input Type, however the High Speed Counter Support option is available as Plug-in module

Motion Support Options Available Based on Selected IO Options

High Speed Counter Support	6
Pulse Train Output Support	3

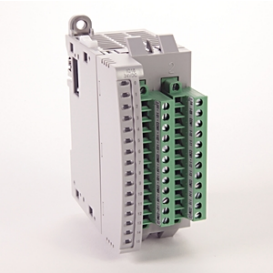
Number of Plug-in Slots available for the Selected IO Points

Max number of Plug-in Slots Available	5

Accessories

Network Media	(1) Male RJ45 to Male RJ45, Unshielded Twisted Pair, Teal TPE Cable, 1.9 m

Product: 2085-IF8
Description: Micro850 Expansion Modules



Representative Photo Only
(actual product may vary based on configuration selections)

Micro850 Expansion I/O Modules
Expansion I/O Modules

(1) Micro850 Input Module, Analog, Voltage/Current, 8 Channels, Bipolar, +-10V, 0-20mA

Product: 2085-OF4
Description: Micro850 Expansion Modules

Representative Photo Only (actual product may vary based on configuration selections)

Micro850 Expansion I/O Modules

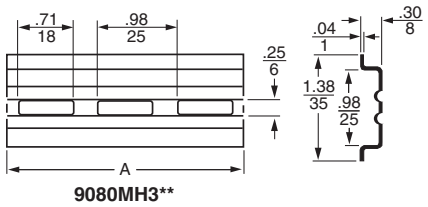
Expansion I/O Modules	(1) Micro850 Output Module, Analog, Voltage/Current, 4 Channels, Bipolar, +-10V, 0-20mA

Table 24.16: DIN 3 Track – Various Lengths

Description		Length m (in.)	Class 9080 Type	$ Price ea.	Std.▲ Pack
Symmetrical rail 35 x 7.5 mm (1.38 in. x 0.295 in.) in compliance with EN 50022 standard (DIN 46277-3).	Galvanized steel, no mounting holes	0.08 (3)	MH203	**3.20**	10
		0.10 (4)	MH204	**3.60**	
		0.13 (5)	MH205	**4.10**	
		0.15 (6)	MH206	**4.70**	
		0.18 (7)	MH207	**5.10**	
		0.20 (8)	MH208	**5.60**	
		0.23 (9)	MH209	**6.20**	
		0.25 (10)	MH210	**6.80**	
		0.28 (11)	MH211	**7.20**	
		0.30 (12)	MH212	**7.80**	
		0.33 (13)	MH213	**8.30**	
		0.36 (14)	MH214	**8.70**	
		0.38 (15)	MH215	**9.30**	
		0.41 (16)	MH216	**9.80**	
		0.42 (17)	MH217	**10.20**	
		0.46 (18)	MH218	**10.80**	
		0.50 (19.68)	MH220	**11.60**	
		1 (39.37)	MH239	**19.70**	
		2 (78.74)	MH279	**29.60**	
	Galvanized steel, prepunched	0.08 (3)	MH303	**3.50**	
		0.10 (4)	MH304	**3.90**	
		0.13 (5 in.	MH305	**4.70**	
		0.15 (6)	MH306	**5.10**	
		0.18 (7)	MH307	**5.70**	
		0.20 (8)	MH308	**6.20**	
		0.23 (9)	MH309	**6.90**	
		0.25 (10)	MH310	**7.40**	
		0.28 (11)	MH311	**8.10**	
		0.30 (12)	MH312	**8.60**	
		0.33 (13)	MH313	**9.20**	
		0.36 (14)	MH314	**9.60**	
		0.38 (15)	MH315	**10.20**	
		0.41 (16)	MH316	**10.80**	
		0.42 (17)	MH317	**11.60**	
		0.46 (18)	MH318	**12.00**	
		0.50 (19.68)	MH320	**13.10**	
		1 (39.37)	MH339	**23.00**	
		2 (78.74)	MH379	**32.70**	
High rise track	Aluminum	1 (39.37)	MH439	**27.90**	2

▲ Orders must specify the standard package quantity (Std. Pack) or multiples of that quantity.

Dimensions



9080MH3** 9080MHA10

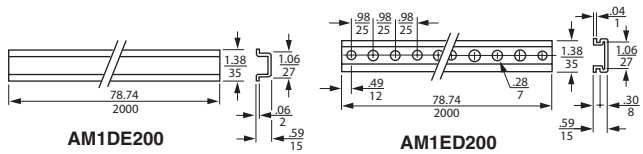
Angle bracket kit		Catalog Number	$ Price ea.	Std.▲ Pack
For mounting 9080GH or MH track to a panel at 45° angle. Includes 2 brackets and hardware for mounting the track to the brackets.		9080MH82♦	**7.20**	1
End Clamps				
Plastic end clamp for 35 mm DIN 3 track, 8 mm (0.31 in.) wide		AB1AB8P35	**1.50**	100
Metal end clamp for 35 mm DIN 3 track, 8 mm (0.31 in.) wide		AB1AB8M35	**2.40**	100
Polycarbonate end clamp for 35 mm DIN 3 track, 8 mm (0.31 in.) wide		9080MHA10	**2.40**	50

■ Not RoHS Compliant

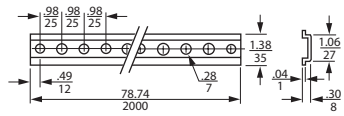
Table 24.17: Mounting Track 1 or 2 meter length

Description	Length m (in.)	Catalog Number	$ Price ea.	Std.▲ Pack
DIN 3				
15 mm depth, 1 mm steel, zinc chromated 	2 (78.74)	AM1ED200	**14.70**	10
15 mm depth, 1.5 mm steel, zinc chromated 	2 (78.74)	AM1DE200	**21.80**	10
7.5 mm depth, 1 mm steel, zinc chromated EN 50022 & NF C63-015 	2 (78.74)	AM1DP200	**7.80**	10
DIN 1				
Asymmetrical 32 mm track EN 50035 & NF C63-018  15 mm steel, zinc chromated	2 (78.74)	DZ5MB201	**23.20**	10
DIN 2				
Symmetrical 15 mm track EN 50045 	1 (39.37)	AB1PC15	**7.50**	10

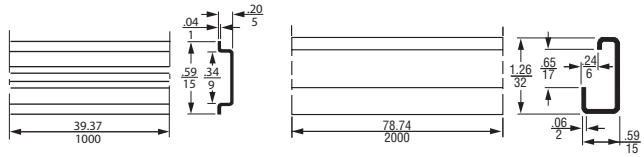
Dimensions



AM1DE200 AM1ED200



AM1DP200



AB1PC15 DZ5MB201

End Clamps		Catalog Number	$ Price ea.	Std.▲ Pack
Plastic end clamp for 32 mm DIN 1 track, 7.5 mm (0.30 in.) wide		AB1AB7P32	**2.60**	100
Metal end clamp for 32 mm DIN 1 track, 7.5 mm (0.30 in.) wide		AB1AB10M32	**2.60**	100
Plastic end clamp for 15 mm DIN 2 track, 7.5 mm (0.30 in.) wide		AB1AB715	**1.50**	100
Plastic end clamp for 35 mm DIN 3 track, 8 mm (0.31 in.) wide		AB1AB8R35	**1.50**	100

RoHS Compliant

Product Selection

XBUT4

Screw Connection Single Level—Through-Feed

Terminal Width	Maximum Wire Size	IEC 60 947-7-1 in V/A/AWG	EN 50 019 ① in V/A/AWG	UL-cUL Ratings in V/A/AWG	Color	Standard Pack	Catalog Number
5.2 mm	12 AWG/2.5 mm^2	800/32/26–12	750/22/28/26–12	600/20/26–12	Gray	50	**XBUT25**
					Blue	50	**XBUT25BU**
6.2 mm	10 AWG/4 mm^2	800/41/26–10	750/30/38/26–10	600/30/26–10	Gray	50	**XBUT4**
					Blue	50	**XBUT4BU**
					Orange	50	**XBUT4OR**
					Yellow	50	**XBUT4YE**
					Red	50	**XBUT4RD**
					White	50	**XBUT4WH**
					Black	50	**XBUT4BK**
					Green	50	**XBUT4GN**
8.2 mm	8 AWG/6 mm^2	800/57/24–8	750/40/50/24–8	600/50/24–8	Gray	50	**XBUT6**
					Blue	50	**XBUT6BU**
10.2 mm	6 AWG/10 mm^2	1000/76/20–6	750/54/69/20–6	600/65/20–6	Gray	50	**XBUT10**
					Blue	50	**XBUT10BU**
					Orange	50	**XBUT10OR**
					Yellow	50	**XBUT10YE**
					Red	50	**XBUT10RD**
12 mm	4 AWG/16 mm^2	1000/101/17–4	—	600/85/16–4	Gray	50	**XBUT16**
					Blue	50	**XBUT16BU**
16 mm	0 AWG/35 mm^2	1000/150/15–0	—	600/150/14–1/0	Gray	50	**XBUT35**
					Blue	50	**XBUT35BU**

Note

① EU type—examination certificate number: KEMA 05ATEX2158 U.

Accessories

Screw Connection Single Level—Through-Feed

Description	Color	Number of Positions	Standard Pack	XBUT25 Catalog Number	XBUT4 Catalog Number	XBUT6 Catalog Number	XBUT10 Catalog Number	XBUT16 Catalog Number	XBUT35 Catalog Number
End cover	Gray	—	10	**XBACUT10**	**XBACUT10**	**XBACUT10**	**XBACUT10**	**XBACUT16**	①
Partition plate	Gray	—	10	**XBATUT10**	**XBATUT10**	**XBATUT10**	**XBATUT10**	—	—
Plug-in bridge— for cross connections in the bridge shaft	Red	2	10	**XBAFBS25**	**XBAFBS26**	**XBAFBS28**	**XBAFBS210**	**XBAFBS212**	**XBAFBS216**
		3	10	**XBAFBS35**	**XBAFBS36**	—	—	—	—
		5	10	**XBAFBS55**	**XBAFBS56**	—	—	—	—
		10	10	**XBAFBS105**	**XBAFBS106**	—	—	—	—
		50	10	**XBAFBS505**	**XBAFBS506**	—	—	—	—
Test adapter	—	—	10	**XBATSPAI4**	**XBATSPAI4**	**XBATSPAI4**	—	—	—
2.3 mm diameter test plug	—	—	—	**XBATSMPS-_** ①	**XBATSMPS-_** ①	—	—	—	—
Modular test plug	—	—	10	**XBATSPS5**	**XBATSPS6**	**XBATSPS8**	—	—	—
Blank marker strip (strip of 10)	White	—	10	**XBMZB5** ②	**XBMZB6** ②	**XBMZB8** ②	**XBMZB10** ②	**XBMZB12** ②	**XBMZB15** ②

Notes

① For ordering information, see **Page V7-T8-105**.

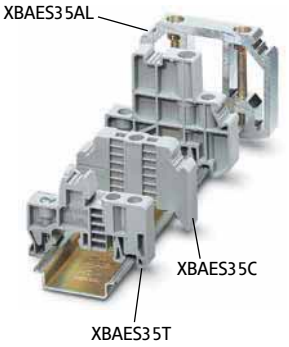
② For information on Printed Marking Tag Options, see **Page V7-T8-98**.

For additional accessories, see **Page V7-T8-90**.

8

End Stops

Product Selection



Snap-On End Stop (15 mm)

Standard Pack	Catalog Number
50	**XBAES15N**

Snap-On End Stop (35 mm)

Standard Pack	Catalog Number
50	**XBAES35N**

Snap-on end stops for 35 mm and 15 mm DIN rails can be fitted with blank marker strips and adjustable terminal strip markers, parking facility for bridges and testing accessories.

Universal End Stop (15 mm)

Standard Pack	Catalog Number
50	**XBAES15C**

Universal End Stop (35 mm)

Standard Pack	Catalog Number
50	**XBAES35T**
50	**XBAES35C**

Screwed on, labeling with blank marker strips and terminal strip markers.

Aluminum End

Standard Pack	Catalog Number
10	**XBAES35AL**

Snaps on, for end support of 50–240 mm terminal blocks, labeling with XBMZB10.

8

Cross-Reference of Terminal Blocks Marking, End Stops

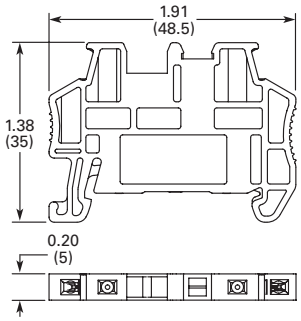
Catalog Number	XBMKLM2	XBMGLMA	XBMUBE
XBAES35N	X	—	—
XBAES35T	—	X	X

Dimensions

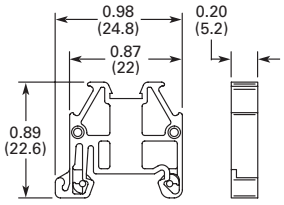
Approximate Dimensions in Inches (mm)

Snap-On End Stop

XBAES35N

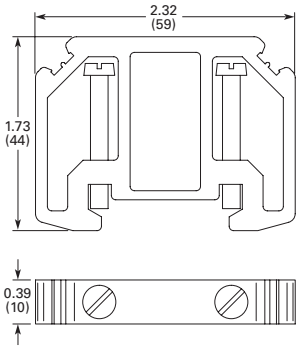


XBAES15N



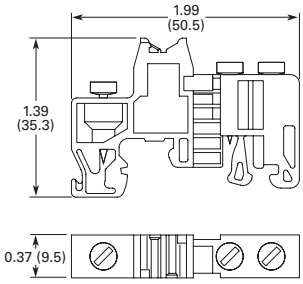
Aluminum End Stop

XBAES35AL

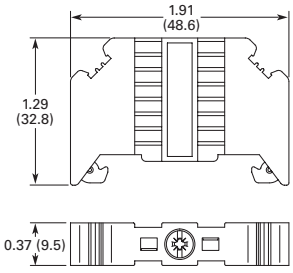


Universal End Stop

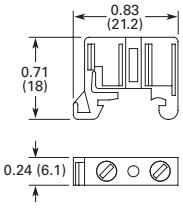
XBAES35T



XBAES35C



XBAES15C



DIN Rails

Product Selection

Perforated and unperforated DIN rails in accordance with E 60715.

Features

- High dimensional accuracy
- Restricted tolerances
- Double surface tempering, galvanized and chromated
- All 2m in length
- Customization available

35 x 7.5 mm x 2m

Standard Pack	Catalog Number
Slotted	
25	**XBANS3575P**
Solid	
25	**XBANS3575U**

35 x 15 mm x 2m

Standard Pack	Catalog Number
Slotted	
25	**XBANS3515P**
Solid	
25	**XBANS3515U**

15 x 5.5 mm x 2m

Standard Pack	Catalog Number
25	**XBANS15P**

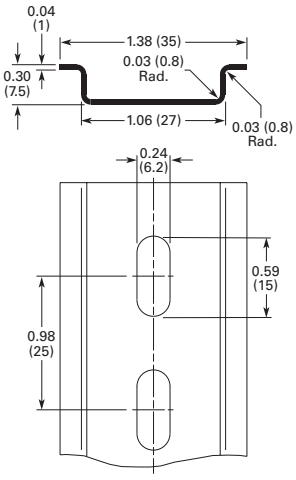
Aluminum DIN Rails (Perforated)

Standard Pack	Catalog Number
35/7.5/2m	
25	**XBANS3575PL**
35/58/2m	
6	**XBANS35PL**

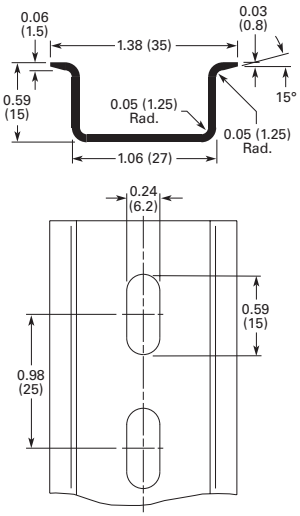
Dimensions

Approximate Dimensions in Inches (mm)

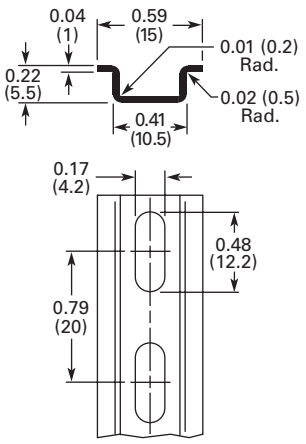
35 x 7.5 mm DIN Rail



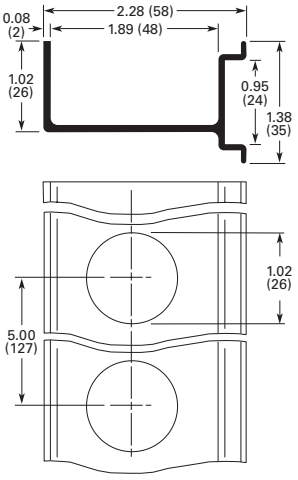
35 x 15 mm DIN Rail



15 x 5.5 mm x 2m DIN Rail

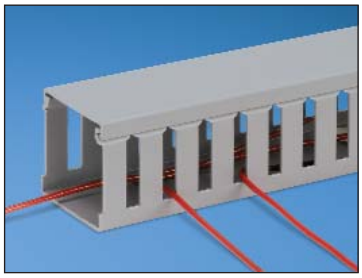


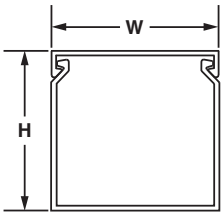
XBANS35PL Raised Rail

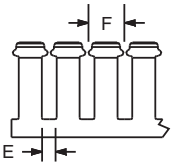


Panduct® Type G Wide Slot Wiring Duct

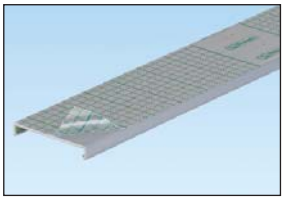
- Wide slot/finger design provides greater sidewall rigidity and can be used with a wide range of wire bundle sizes
- Material: Lead-free PVC
- UL recognized continuous use temperature: 122°F (50°C)
- UL 94 flammability rating of V-0
- Conforms with NFPA 79-2007 section 13.3.1 requirement for flame retardant material
- Provided with mounting holes
- Base and cover length is 6 feet







	E	F
For .5" duct height:	0.37" [9.4]	0.80" [20.3]
0.75" to 2" duct height:	0.31" [7.9]	0.80" [20.3]
3" to 4" duct height:	0.31" [7.9]	1.00" [25.4]
5" duct height:	0.38" [9.4]	1.33" [33.8]



To order cover with protective film add "-F" to part number. 6" cover not available with film.

Base Part Number	Duct Size (W x H)* In.	Duct Size (W x H)* mm	Slot Width In.	Slot Width mm	Cover Part Number	Std. Pkg. Qty.	Base Ctn. Qty.	Cover Ctn. Qty.
G.5X.5LG6	0.69 x 0.60	17.5 x 15.2	0.38	9.7	C.5LG6	6	120	120
G.5X1LG6	0.69 x 1.06	17.5 x 26.9	0.31	7.9	C.5LG6	6	120	120
G.5X2LG6	0.69 x 2.03	17.5 x 51.6	0.31	7.9	C.5LG6	6	120	120
G.75X.75LG6	0.93 x 0.82	23.6 x 20.8	0.31	7.9	C.75LG6	6	120	120
G.75X1LG6	0.93 x 1.06	23.6 x 26.9	0.31	7.9	C.75LG6	6	120	120
G.75X1.5LG6	0.93 x 1.57	23.6 x 39.9	0.31	7.9	C.75LG6	6	120	120
G.75X2LG6	0.93 x 2.03	23.6 x 51.7	0.31	7.9	C.75LG6	6	120	120
G1X1LG6	1.26 x 1.12	32.0 x 28.4	0.31	7.9	C1LG6	6	120	120
G1X1.5LG6	1.26 x 1.62	32.0 x 41.1	0.31	7.9	C1LG6	6	120	120
G1X2LG6	1.26 x 2.12	32.0 x 53.8	0.31	7.9	C1LG6	6	120	120
G1X3LG6	1.26 x 3.12	32.0 x 79.2	0.31	7.9	C1LG6	6	120	120
G1X4LG6	1.26 x 4.10	32.0 x 104.1	0.31	7.9	C1LG6	6	60	120
G1.5X1LG6	1.75 x 1.12	44.5 x 28.4	0.31	7.9	C1.5LG6	6	120	120
G1.5X1.5LG6	1.75 x 1.62	44.5 x 41.1	0.31	7.9	C1.5LG6	6	120	120
G1.5X2LG6	1.75 x 2.12	44.5 x 53.8	0.31	7.9	C1.5LG6	6	120	120
G1.5X3LG6	1.75 x 3.12	44.5 x 79.2	0.31	7.9	C1.5LG6	6	120	120
G1.5X4LG6	1.75 x 4.10	44.5 x 104.1	0.31	7.9	C1.5LG6	6	60	120
G2X1LG6	2.25 x 1.12	57.2 x 28.4	0.31	7.9	C2LG6	6	120	120
G2X1.5LG6	2.25 x 1.62	57.2 x 41.1	0.31	7.9	C2LG6	6	120	120
G2X2LG6	2.25 x 2.12	57.2 x 53.8	0.31	7.9	C2LG6	6	120	120
G2X3LG6	2.25 x 3.12	57.2 x 79.2	0.31	7.9	C2LG6	6	60	120
G2X4LG6	2.25 x 4.10	57.2 x 104.1	0.31	7.9	C2LG6	6	60	120
G2X5LG6	2.25 x 5.10	57.2 x 129.5	0.38	9.7	C2LG6	6	60	120
G2.5X3LG6	2.75 x 3.12	69.9 x 79.2	0.31	7.9	C2.5LG6	6	120	120
G3X1LG6	3.25 x 1.12	82.6 x 28.4	0.31	7.9	C3LG6	6	120	120
G3X2LG6	3.25 x 2.12	82.6 x 53.8	0.31	7.9	C3LG6	6	120	120
G3X3LG6	3.25 x 3.12	82.6 x 79.2	0.31	7.9	C3LG6	6	60	120
G3X4LG6	3.25 x 4.10	82.6 x 104.1	0.31	7.9	C3LG6	6	60	120
G3X5LG6	3.25 x 5.10	82.6 x 129.5	0.38	9.7	C3LG6	6	60	120
G4X1.5LG6	4.25 x 1.62	108.0 x 41.1	0.31	7.9	C4LG6	6	120	120
G4X2LG6	4.25 x 2.12	108.0 x 53.8	0.31	7.9	C4LG6	6	60	120
G4X3LG6	4.25 x 3.12	108.0 x 79.2	0.31	7.9	C4LG6	6	60	120
G4X4LG6	4.25 x 4.10	108.0 x 104.1	0.31	7.9	C4LG6	6	60	120
G4X5LG6	4.25 x 5.10	108.0 x 129.5	0.38	9.7	C4LG6	6	60	120
G6X4LG6	6.25 x 4.15	158.8 x 105.4	0.31	7.9	C6LG6	6	60	120

Part number shown for LG (Light Gray). For other color availability see color selection guide, page C1.48.
Base and cover sold separately.
*"H" dimension includes duct and cover.

Panduit Wiring Duct Approvals and Compliances

Agency Mark	Agency	Requirement	Classification/Performance	Wiring Duct Types/Products
	Underwriters Laboratories, Inc. File No. E147128	UL 1565	Material Flame Class V-0 Continuous-use temperature up to 50°C (122°F)	All wiring duct types and covers
c US		UL 1565 CSA C22.2 No. 18.5-03	Material Flame Class V-0 Continuous-use temperature up to 50°C (122°F)	Type H, HS, HN, and DRD
	Underwriters Laboratories, Inc.	UL 508 section 15	An insulating barrier material shall comply with the minimum material properties indicated in Table 15.1	PVC divider walls
		UL 508 sections 34 and 181	Qualifies as a metal barrier with required thickness as indicated in Table 6.1	SD*EMI metal barrier
	Canadian Standards Association File No. 016446	CSA C22.2 No. 18.5-02	Material Flame Class V-0 Continuous-use temperature up to 50°C (122°F)	All wiring duct types and covers (except H, HS, and HN)
CE	Conformity European	Low Voltage Directive 2006/95/EC EN 50085-1 EN 50085-2-3	• CDS (cable ducting system for impact 2 J) • Minimum storage, transport, installation, and application temperature: -5°C (23°F) • Maximum application temperature: 60°C (140°F) • Non-flame propagating • Without electrical continuity • Cover removable without a tool	H, HS, G, F, D, MC, FS, NNC, NE, DRD, and TNC
	DIN German Institute for Standardization	DIN 43659	• Specifies dimensions for slotted trunkings used in electrical switch-gear assemblies and that conform to DIN VDE 060 Part 506 • Channel mounting hole pattern, slot dimensions, pitch, and location • Distance from first to last like-size mounting hole • Minimum overall product length	MC, NNC, and TNC
		DIN 5510-2 DIN 54837	Burning Class: S4 Smoke Class: SR2 Dripping Class: ST2	TNC
	AFNOR French Association of Normalization	NF F 16-101 NF F 16-102	Type NNC Wiring Duct Classification = F3/I4 Type TNC Wiring Duct Classification = F1/I4	NNC and TNC
	UNIFER Italian Railway Standards	EN ISO 11925-2	Pass 30-second flame application	TNC
	FRA – Federal Railroad Administration	49 CFR Part 238	Surface Flammability: < 35 Smoke Density D_s (1.5) < 100 D_s (4.0) < 200	TNC
	NFPA – National Fire Protection Association	NFPA130		
	National Fire Protection Agency	NFPA 79-2012, Section 13.3.1 IEC 60332-1	Non-metallic duct shall be permitted (inside enclosures) only when they are made with a flame-retardant material; flame-retardant material is defined in the standard by the IEC 60332-1 test method	All wiring duct types and covers (except FL)
		NFPA 79-2012, Section 13.5.2	Panduit publishes a maximum percentage wire fill for common wire types equal to 50% of the interior cross-sectional area of the wiring duct	All wiring duct types and covers
		NFPA 79-2012, section 13.1.6.9	Panduit bend radius control accessories can be mounted at right angles and T junctions created using wiring duct in order to maintain cable bend radius control	Corner strip with 1" bend radius control
RoHS	European Union	European Directive 2002/95/EC	Meets the requirements on the Restriction of Hazardous Substances and is free of the six substances listed in the directive	All wiring duct products

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WDSG01--SA-ENG
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UNIVERSAL TERMINAL
Type KA-U


Fig. 1


Fig. 2

(1 Conductor)

For Aluminum and Copper Conductors

These dual-rated one conductor lugs are constructed from high strength aluminum alloy and electro tin-plated to provide low contact resistance.

Catalog Number	Conductor Range	Figure Number
KA6U	14 - 6 str.	1
KA2U	14 - 2 str.	1
KA25U	14 - 1/0 str.	1
KA26U	6 - 2/0 str.	1
KA29U	6 str. - 250 kcmil	2
KA30U	6 str. - 300 kcmil	2
KA31U	6 str. - 350 kcmil	2
KA34U	4 str. - 500 kcmil	2
KA36U	2 str. - 600 kcmil	2
KA40U	300 - 800 kcmil	2
KA44U	500 - 1000 kcmil	2

UNIVERSAL TERMINAL
Type K2A-U

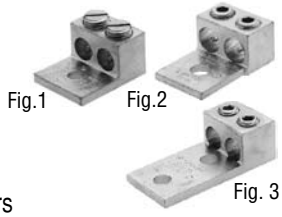
Fig.1 Fig.2 Fig. 3

(2 Conductors)

For Aluminum and Copper Conductors

Compact, wide-range, tin-plated aluminum terminal for use with two copper or aluminum cables.

Catalog Number	Conductor Range	Stud Hole Size	Stud Hole Spacing	Figure Number
K2A25U	Two: 14 - 1/0 str.	1/4	—	1
K2A26U	Two: 14 - 2/0 str.	1/4	—	1
K2A29U	Two: 6 str. - 250 kcmil	3/8	—	2
K2A31U	Two: 4 str. - 350 kcmil	1/2	—	2
K2A36U	Two: 2 str. - 600 kcmil	1/2	—	2
K2A40U	Two: 300 - 800 kcmil	5/8	—	2
K2A44U	Two: 500 - 1000 kcmil	5/8	—	2
K2A31U-2N*	Two: 6 str. - 350 kcmil	1/2	1-3/4	3
K2A36U-2N*	Two: 2 str. - 600 kcmil	1/2	1-3/4	3
K2A40U-2N*	Two: 300 - 800 kcmil	1/2	1-3/4	3
K2A44U-2N*	Two: 500 - 1000 kcmil	1/2	1-3/4	3

*Tongue holes drilled per NEMA standards.

UNIVERSAL TERMINAL
Types K3A-U, KK3A-U


Fig. 1


Fig. 2

(3 Conductor)

For Aluminum & Copper Conductors

Dual-rated three conductor lugs are constructed from high strength aluminum alloy and electro tin-plated to provide low contact resistance.

Catalog Number	Conductor Range	Stud Hole Size	Figure Number
K3A2U-2*	Three: 14 - 2 str.	5/16	1
K3A25U-2*	Three: 14 - 1/0 str.	3/8	1
K3A26U-2N	Three: 14 - 2/0 str.	1/2	1
K3A27U-2N	Three: 6 - 3/0 str.	1/2	1
K3A29U-2N	Three: 6 str. - 250 kcmil	1/2	1
K3A31U-2N	Three: 6 str. - 350 kcmil	1/2	1
K3A36U-2N	Three: 2 str. - 600 kcmil	1/2	1
KK3A36U-2N	Three: 2 str. - 600 kcmil	1/2	2
KK3A40U-2N	Three: 300 - 800 kcmil	1/2	2
KK3A44U-2N	Three: 500 - 1000 kcmil	1/2	2

* Slotted screw

"N" indicates NEMA Standard holes

UNIVERSAL TERMINAL
Type K4A-U


Fig. 1


Fig. 2

(4 Conductor)
For Aluminum and Copper Conductors

These dual-rated four conductor lugs are constructed from high strength aluminum alloy and electro tin-plated to provide low contact resistance.

Catalog Number	Conductor Range	Stud Hole Size	Figure Number
K4A29U-4N	Four: 6 str. - 250 kcmil	1/2	1
K4A31U-4N	Four: 6 str. - 350 kcmil	1/2	1
KK4A36U-4N	Four: 2 str. - 600 kcmil	1/2	2
KK4A40U-4N	Four: 300 - 800 kcmil	1/2	2

"N" indicates NEMA Standard holes

LAY-IN QIKLUG™
Type BGBL
* UL Listed 90°C, 600 V

The Lay-In QIKLUG, type BGBL is manufactured from high strength 6061-T6 aluminum, and is ideally suited for grounding and bonding applications accommodating both copper and aluminum conductor sizes 14 AWG to 250 kcmil.

Catalog Number	Conductor Range	Hex Size
BGBL-4	14 - 4 str.	SLOT
BGBL-1/0	14 - 1/0 str.	SLOT
BGBL-250	6 str. - 250 kcmil	7/32

Product Data Sheet

PK4GTA

LOAD CENTER EQUIPMENT GROUND BAR ASSY

SQUARE D by Schneider Electric

List Price $10.80 USD

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

Technical Characteristics

Application	Load Centers
Circuit Breaker Type	PK
Marketing Trade Name	QO and Homeline

Shipping and Ordering

Category	00102 - Load Centers, Accessories, Type QO
Discount Schedule	DE3A
GTIN	00785901026365
Package Quantity	10
Weight	0.05 lbs.
Availability Code	Stock Item: This item is normally stocked in our distribution facility.
Returnability	Y
Country of Origin	US

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

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Product Data Sheet

PK7GTA

LOAD CENTER EQUIPMENT GROUND BAR ASSY

SQUARE D by Schneider Electric

List Price $11.70 USD

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

Technical Characteristics

Application	Load Centers
Circuit Breaker Type	PK
Marketing Trade Name	QO and Homeline

Shipping and Ordering

Category	00102 - Load Centers, Accessories, Type QO
Discount Schedule	DE3A
GTIN	00785901026372
Package Quantity	1
Weight	0.08 lbs.
Availability Code	Stock Item: This item is normally stocked in our distribution facility.
Returnability	Y
Country of Origin	US

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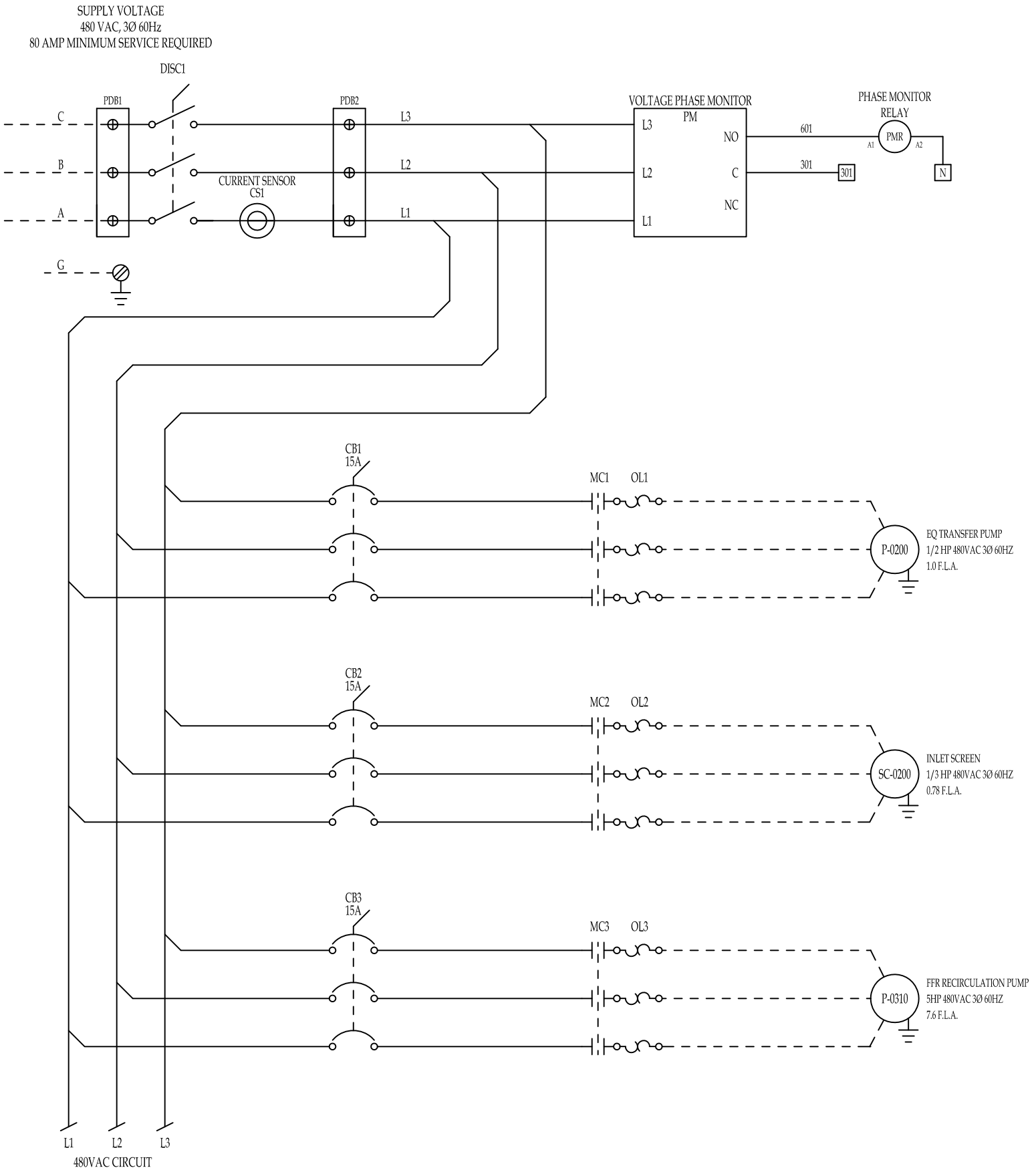

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DESIGNER:	S.CORBETT	DATE: 03.20.17	DRAWING NO.		
ENGINEER:	M.NUNES	DATE: 03.21.17	2017060.1		
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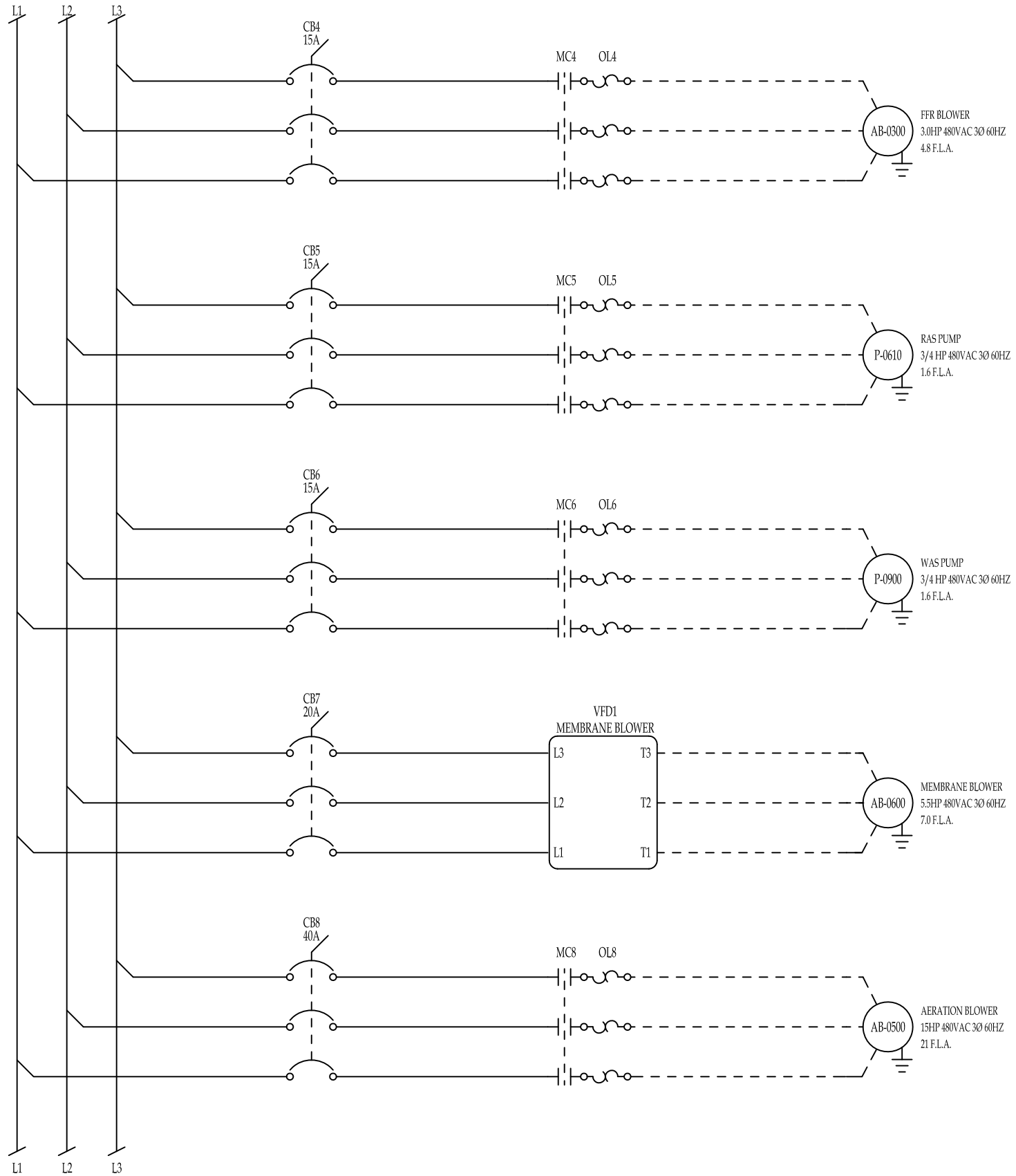

480VAC CIRCUIT
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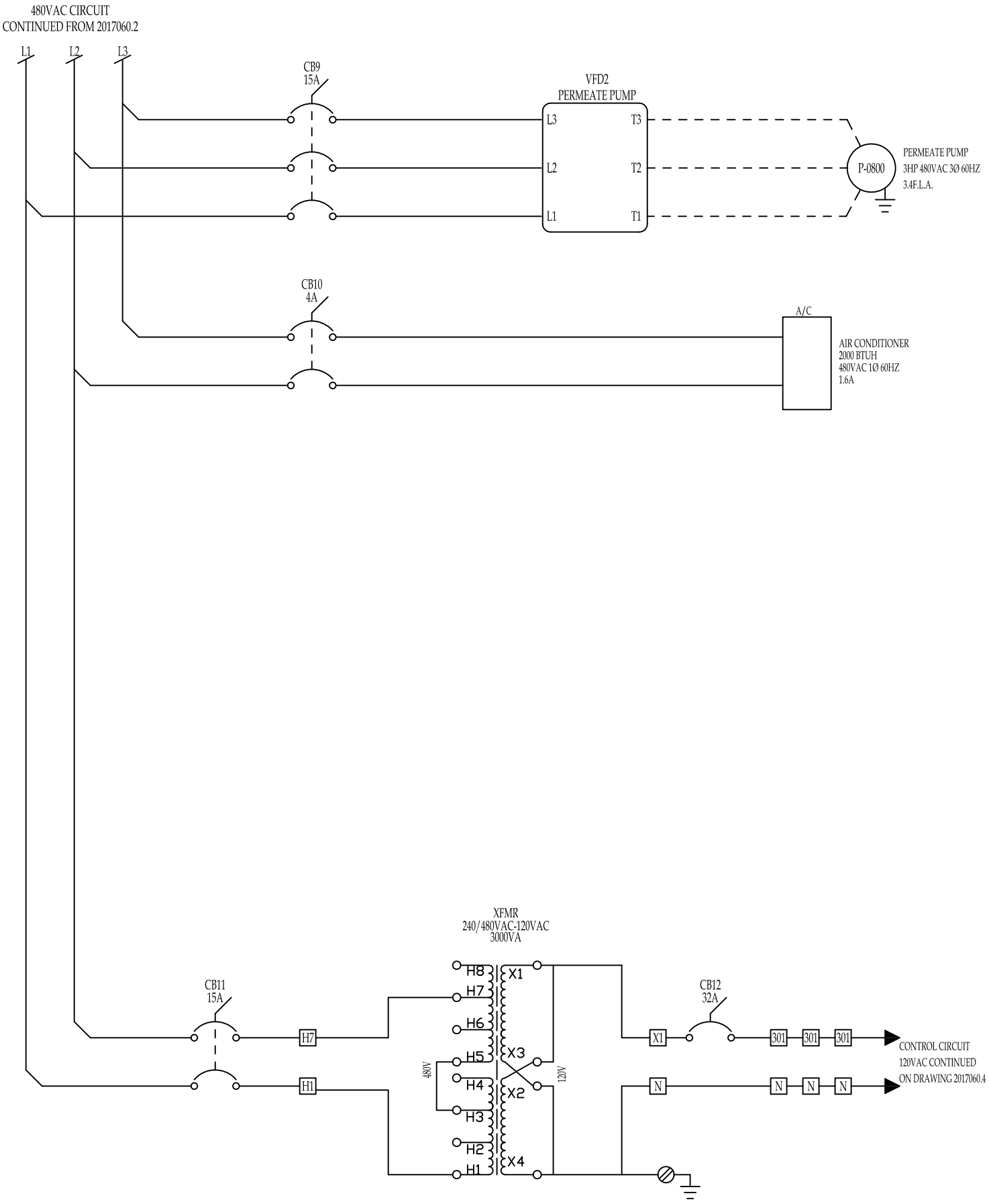

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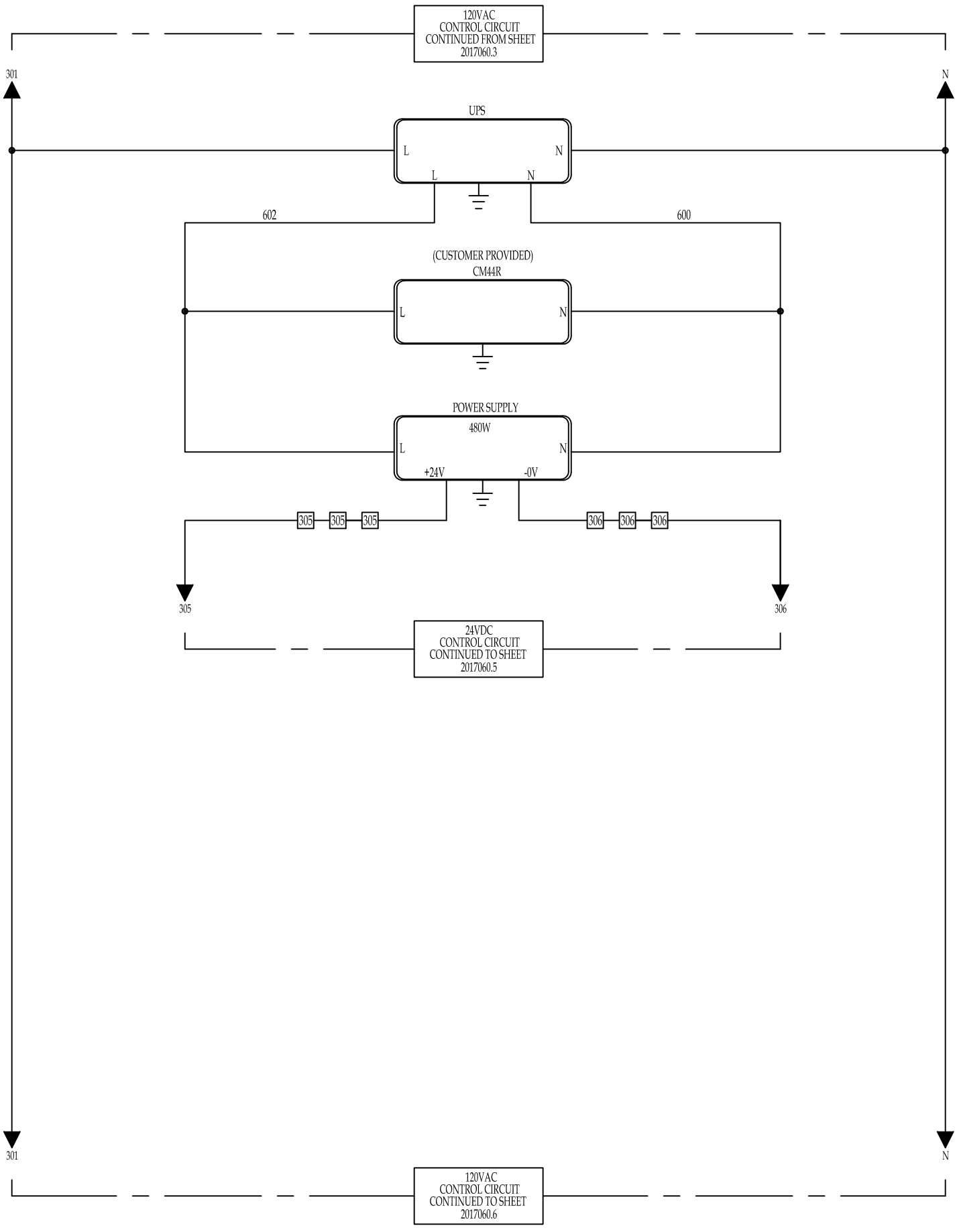

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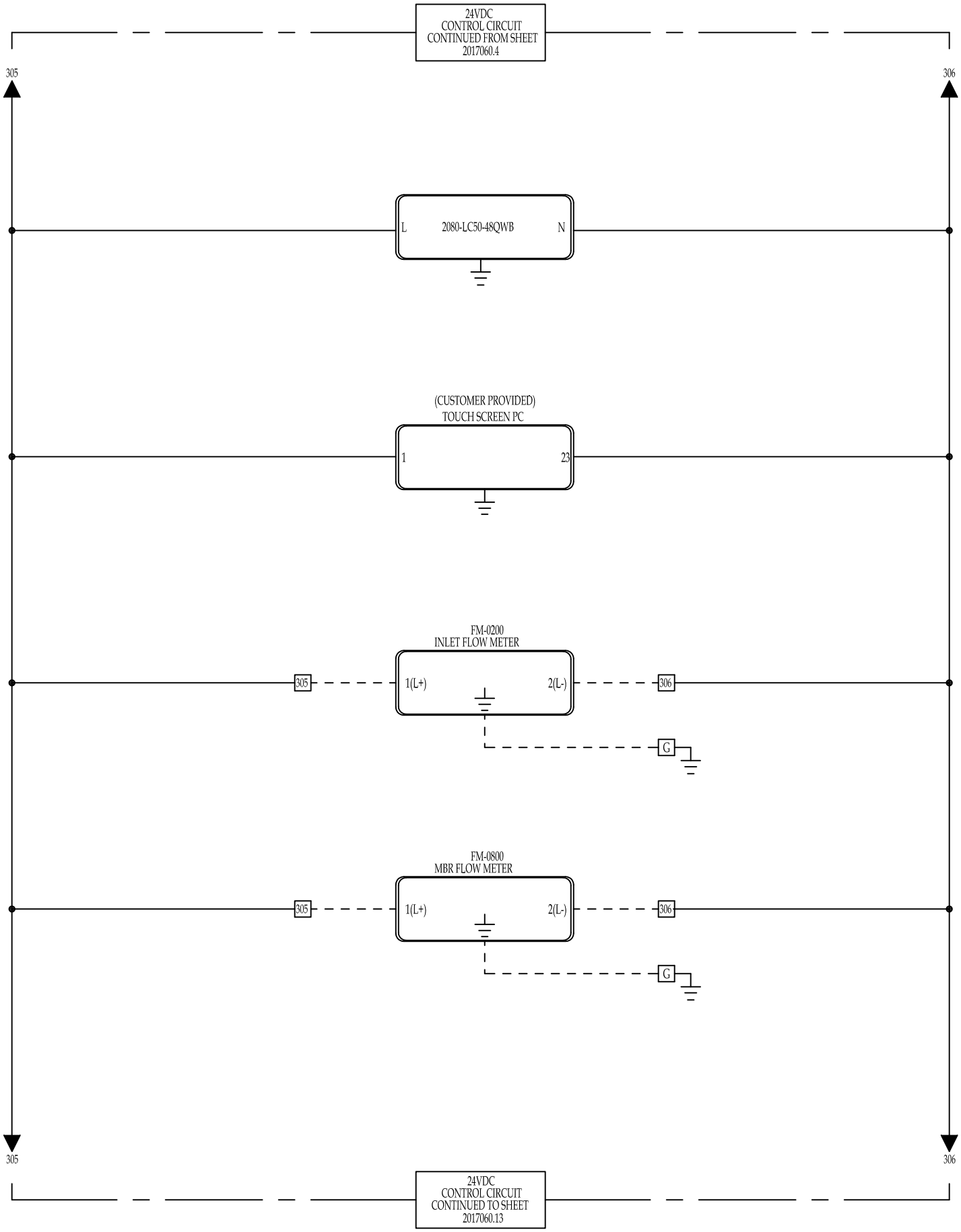

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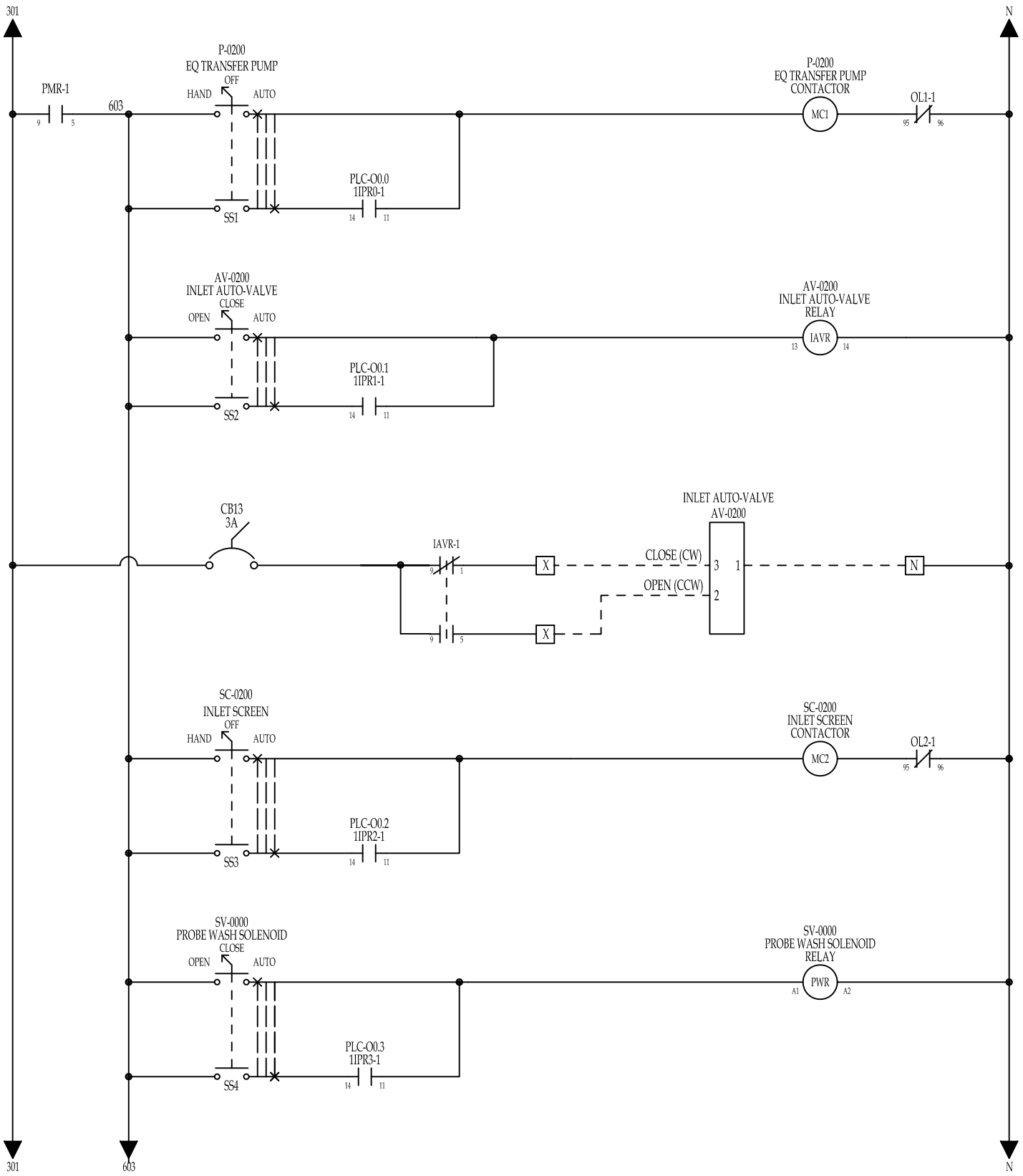

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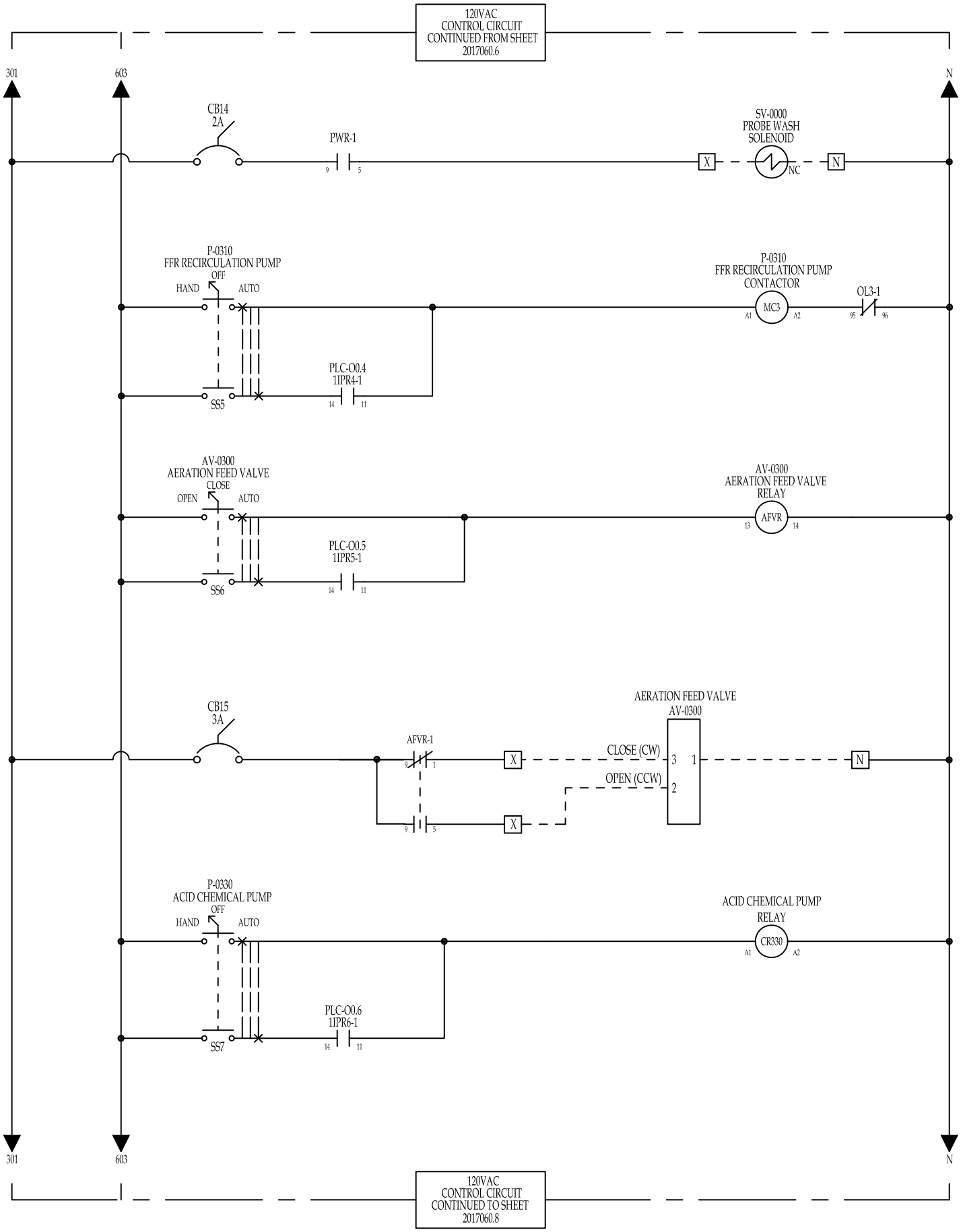

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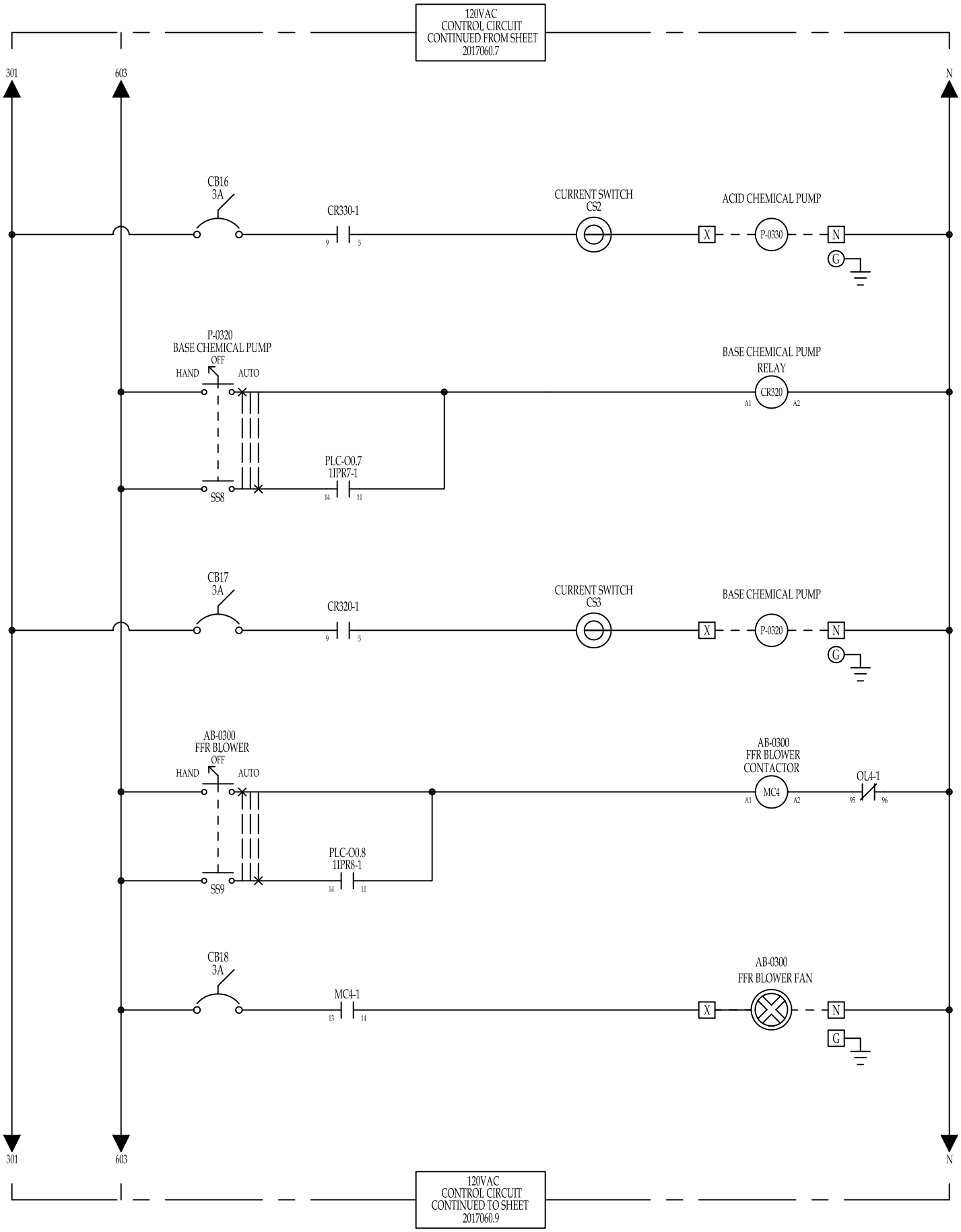

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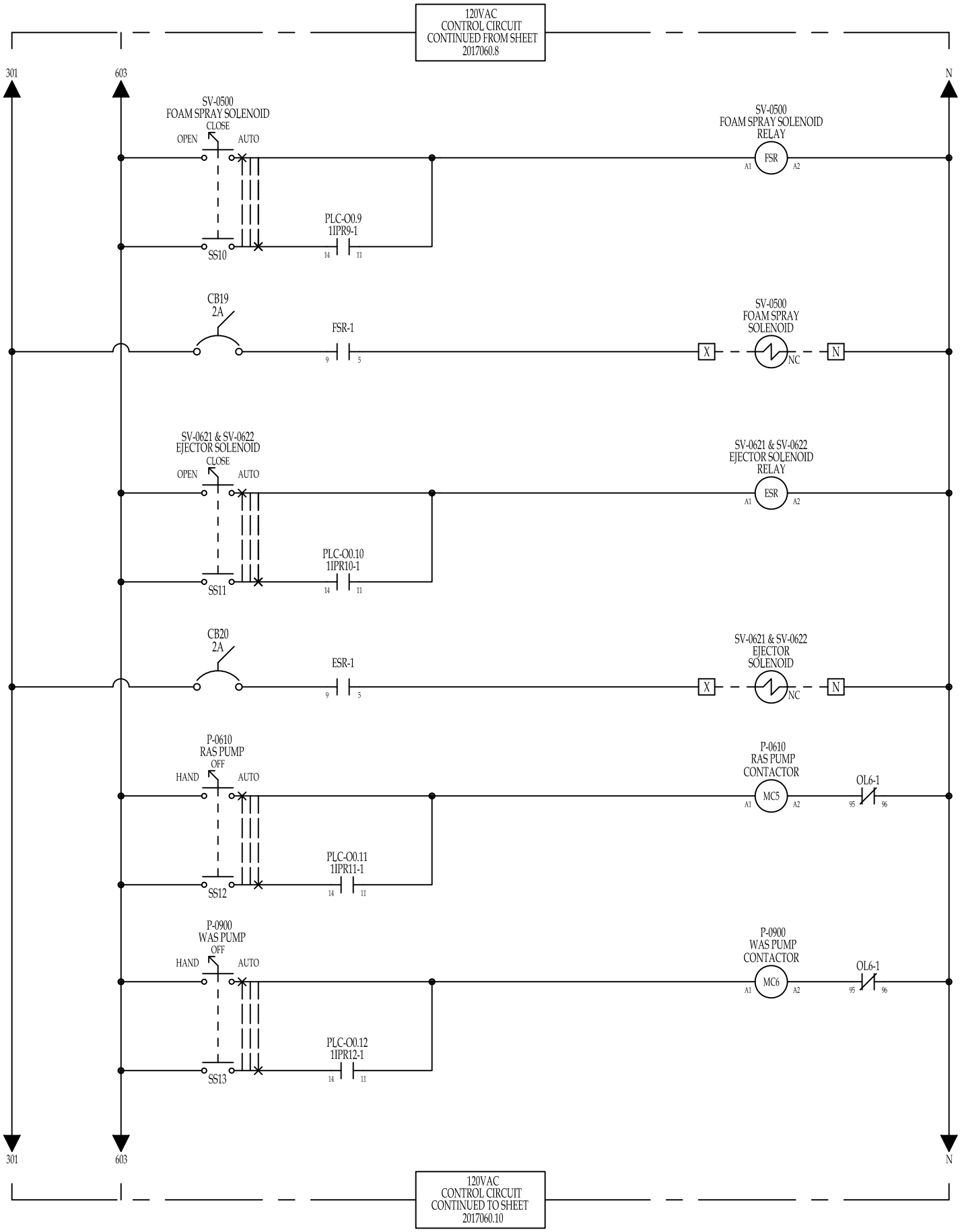

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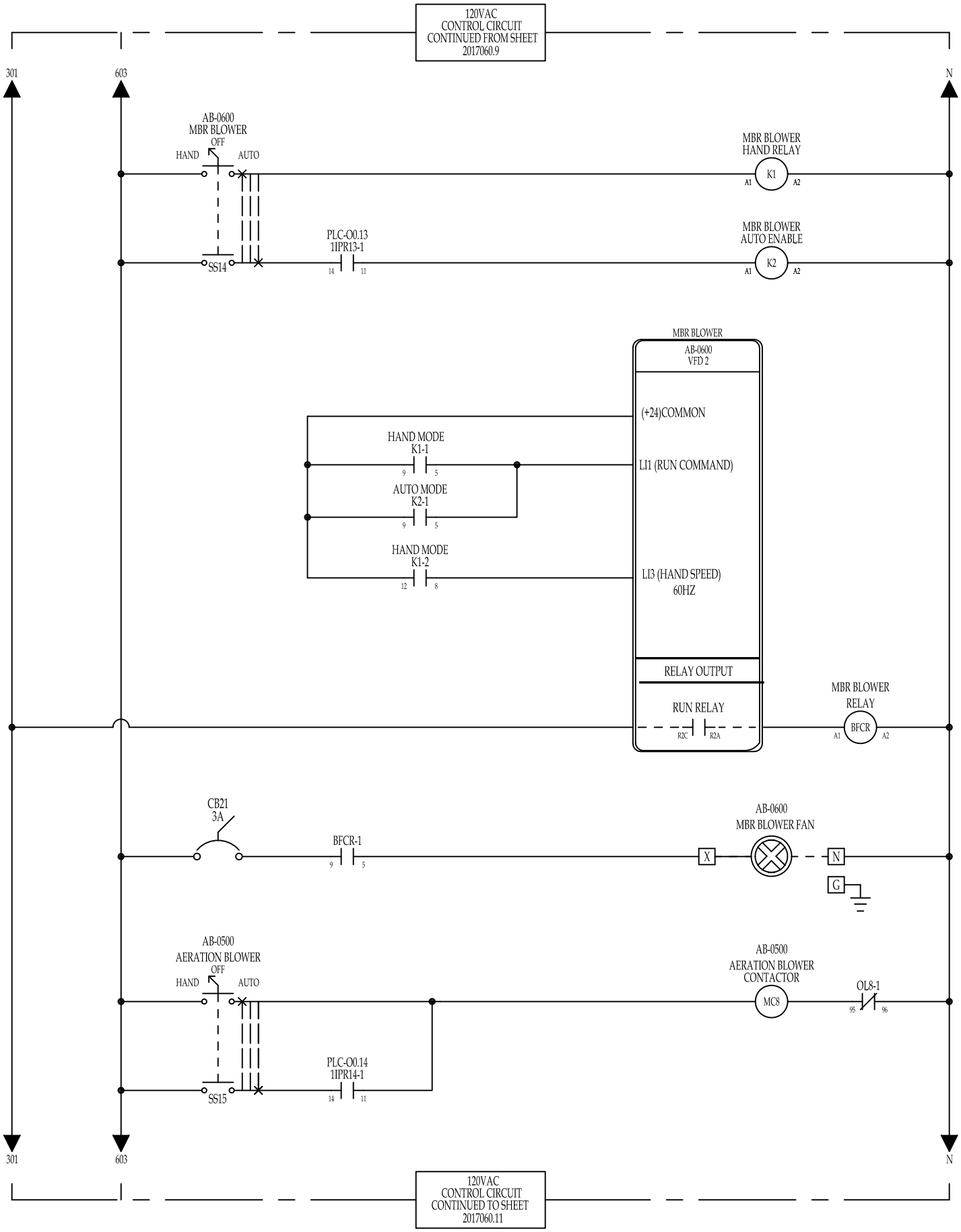

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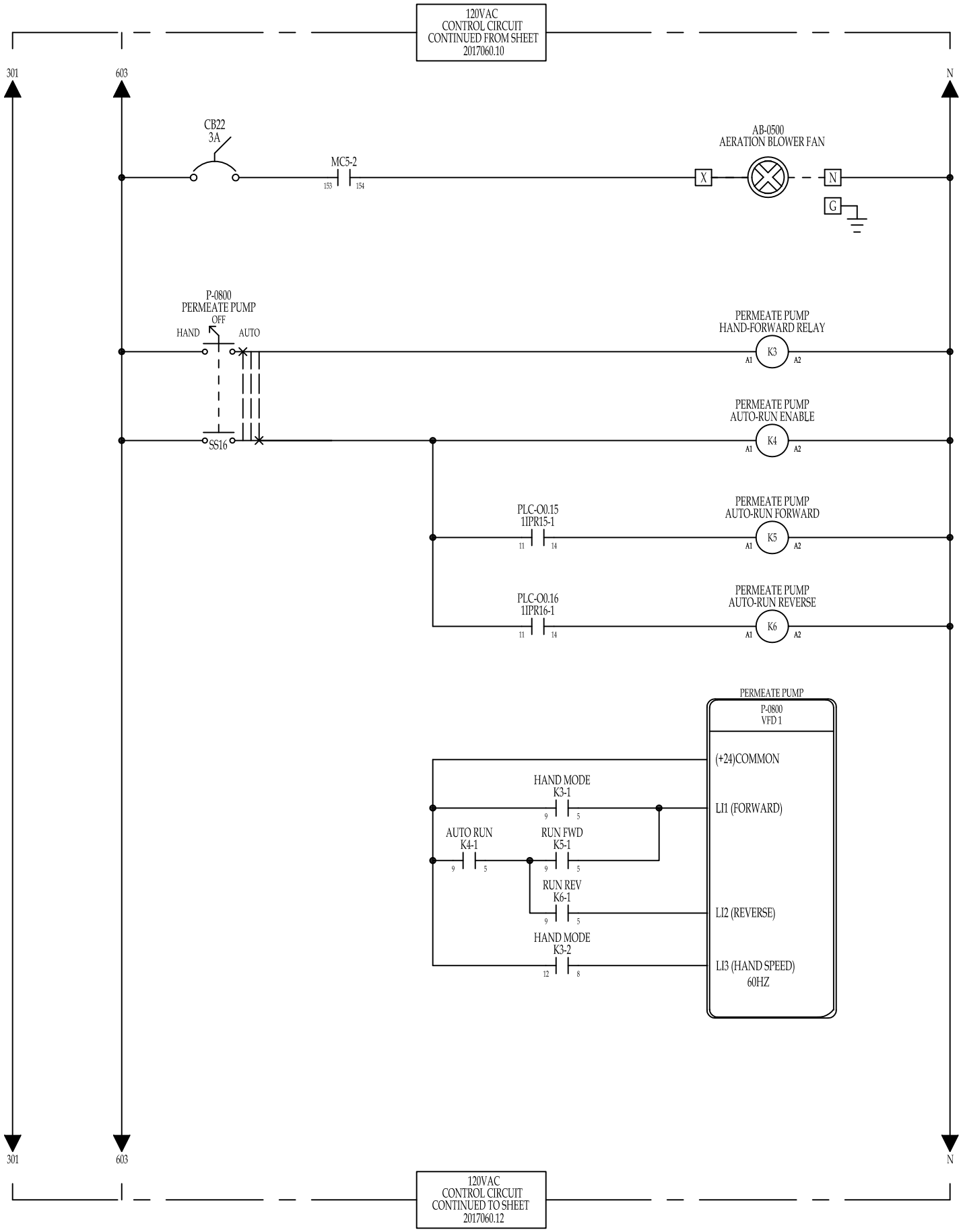

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DESIGNER:	S.CORBETT	DATE: 03.20.17	DRAWING NO. 2017060.11		
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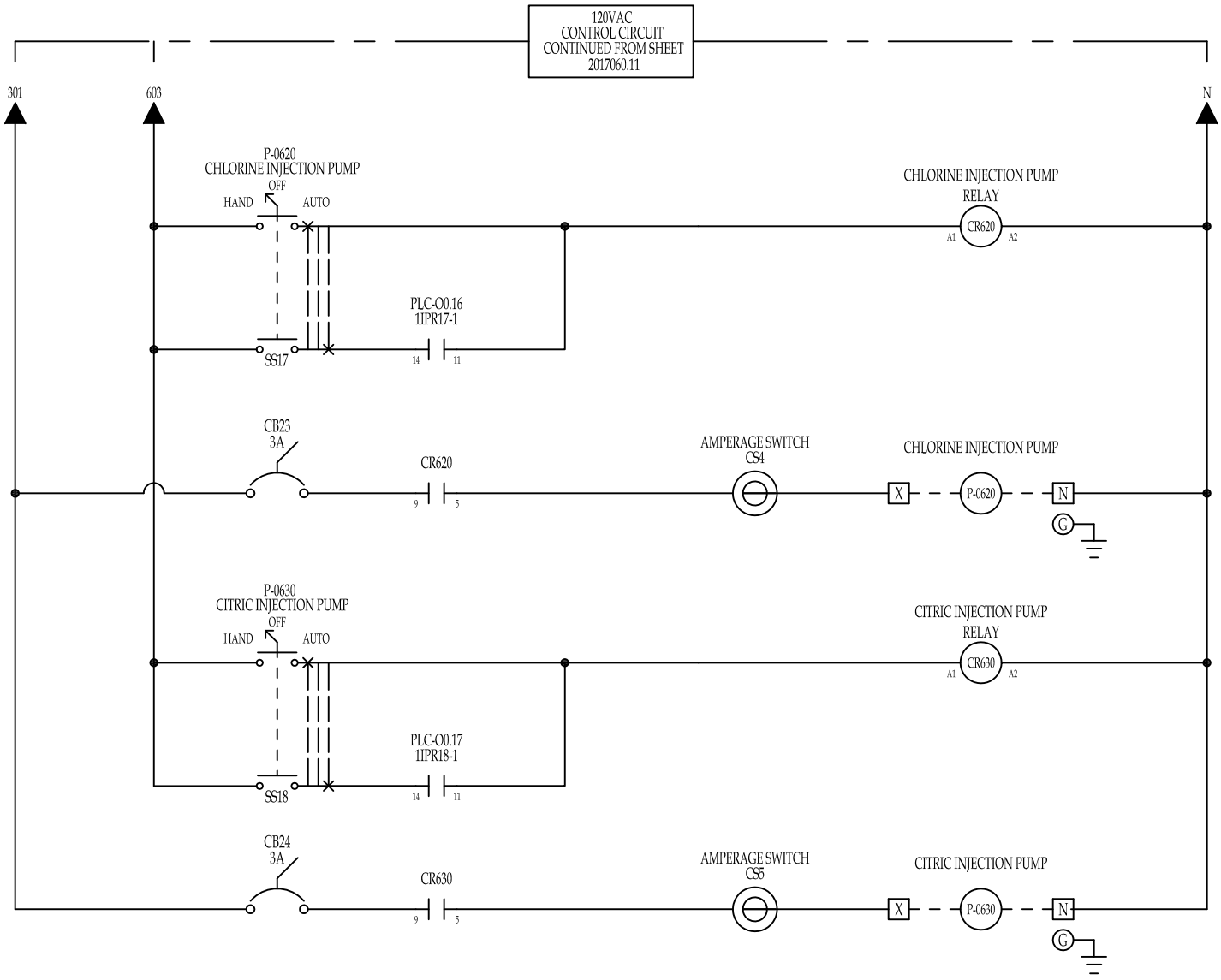

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DESIGNER:	S.CORBETT	DATE: 03.20.17	DRAWING NO. 2017060.12		
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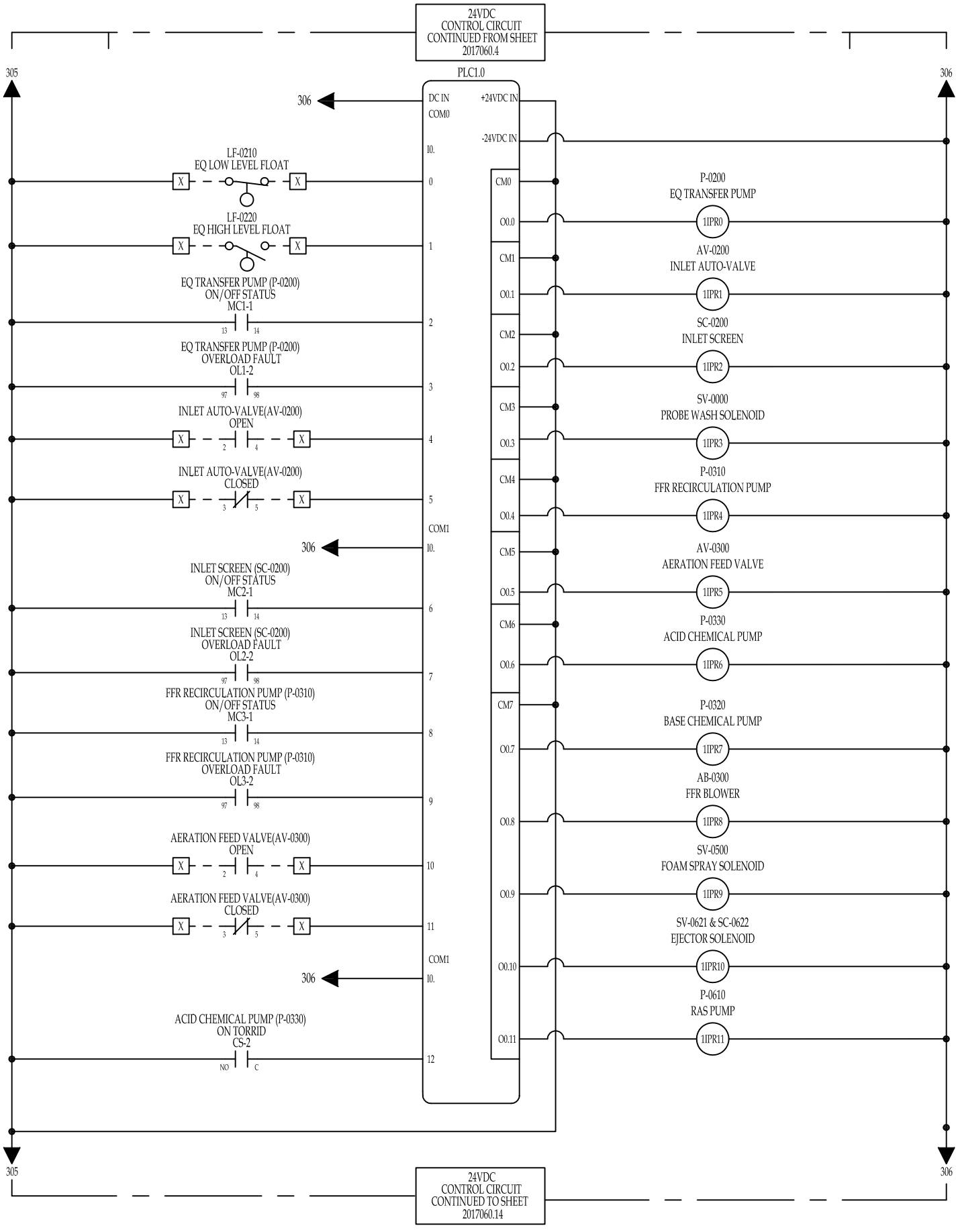

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UL 508A Listed
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PROJECT:	WINE COUNTRY INDUSTRY PARK		
DRAWN:	W.KREGO	DATE: 03.23.17	CUSTOMER: CLOACINA
DESIGNER:	S.CORBETT	DATE: 03.20.17	DRAWING NO. 2017060.13
ENGINEER:	M.NUNES	DATE: 03.21.17	
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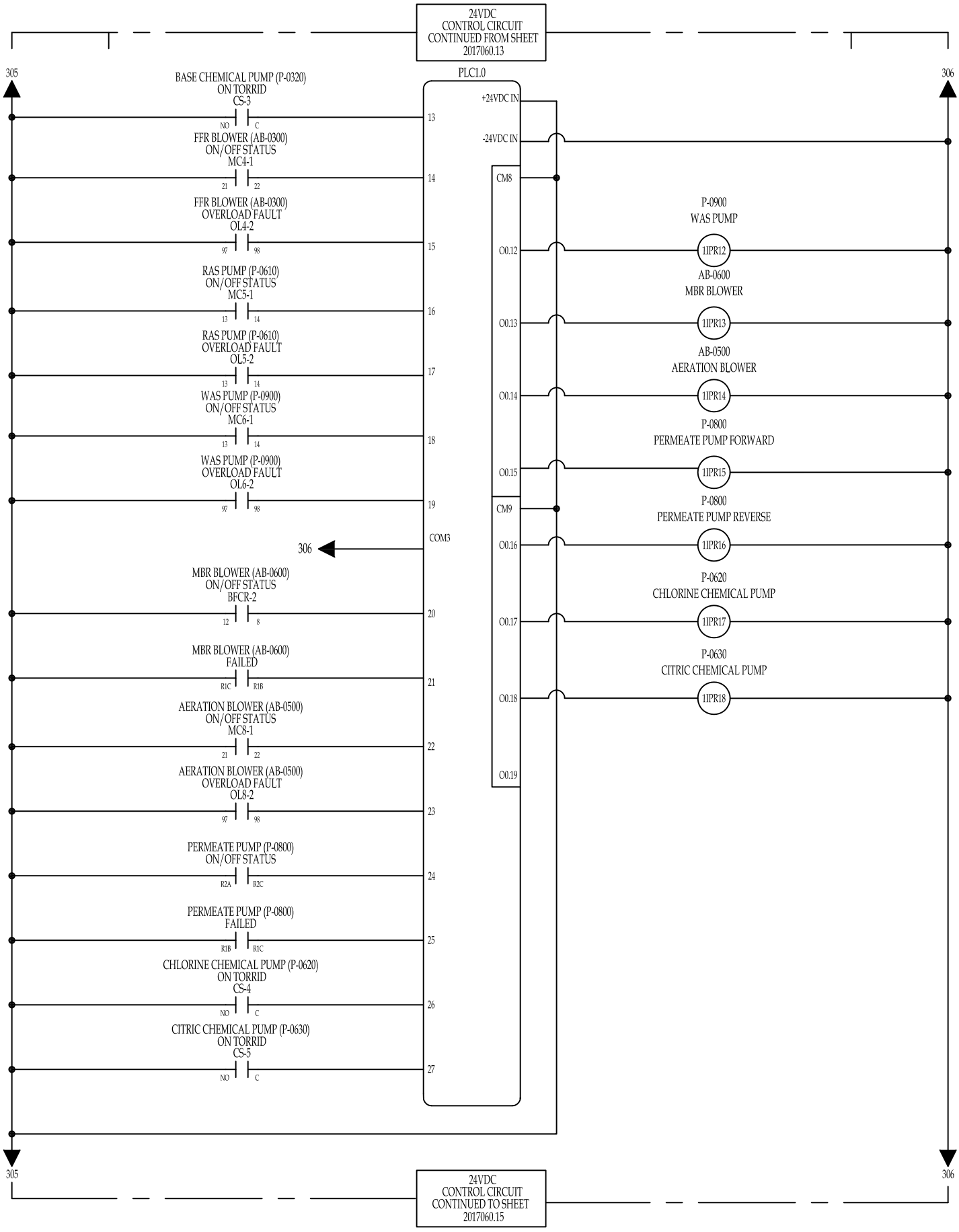
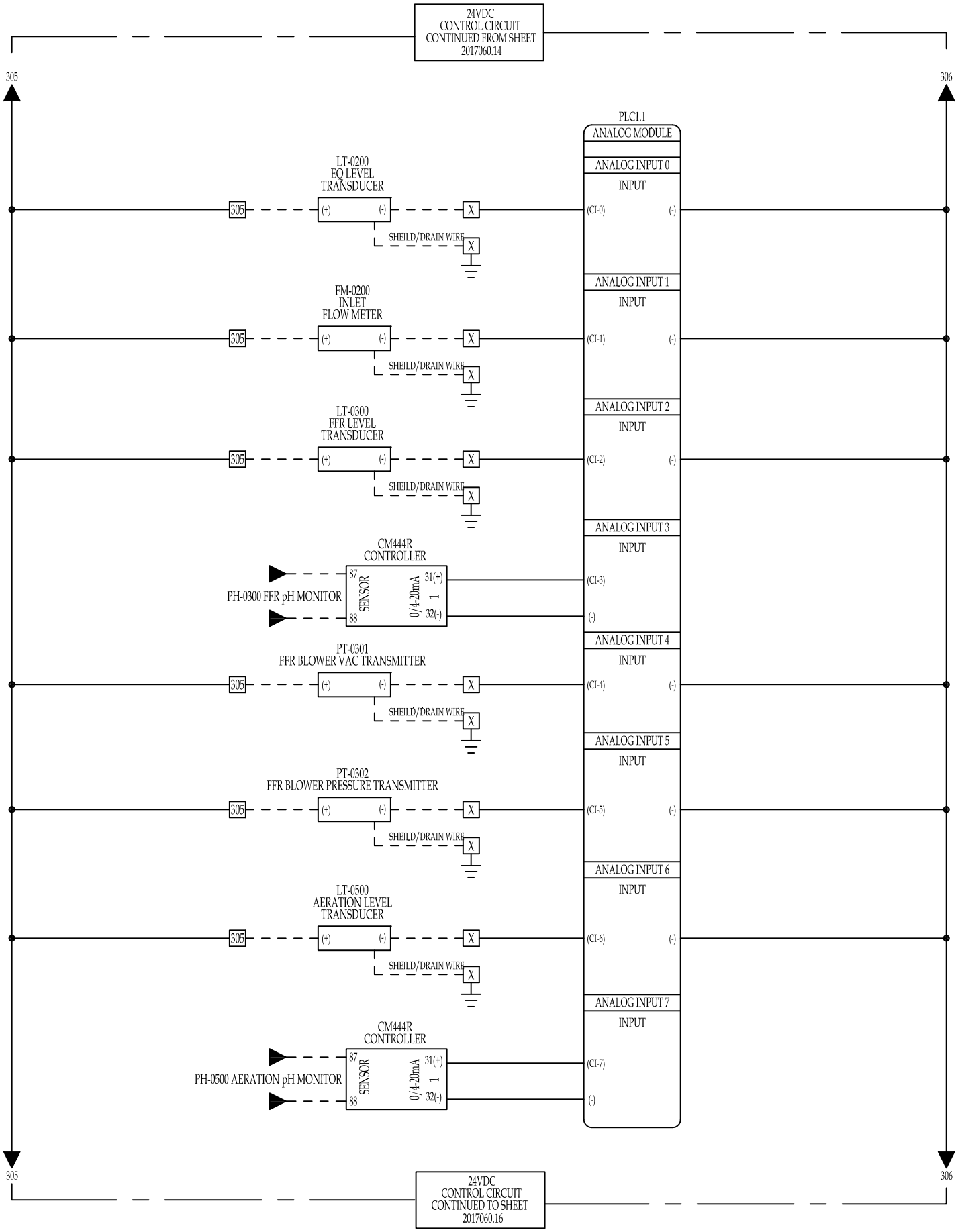


THE KREGO CORPORATION

dba: The Panel Shop
12971 ARROYO ST.
SAN FERNANDO, CA.
Phone: 818.837.1494
UL 508A Listed
E141807
www.controlpanelshop.com

PROJECT:	WINE COUNTRY INDUSTRY PARK				
DRAWN:	W.KREGO	DATE: 03.23.17	CUSTOMER: CLOACINA		
DESIGNER:	S.CORBETT	DATE: 03.20.17	DRAWING NO. 2017060.14		
ENGINEER:	M.NUNES	DATE: 03.21.17			
APPROVED:	XXXXXXX	DATE: 00.00.00	DESCRIPTION: ELECTRICAL	SCALE: NONE	SHEET SIZE: 8.5" x 11.0"

Approved as Noted Doc rec'd.
Released For Fabrication



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PROJECT:	WINE COUNTRY INDUSTRY PARK		
DRAWN: W.KREGO	DATE: 03.23.17	CUSTOMER: CLOACINA	
DESIGNER: S.CORBETT	DATE: 03.20.17	DRAWING NO. 2017060.15	
ENGINEER: M.NUNES	DATE: 03.21.17		
APPROVED: XXXXXXX	DATE: 00.00.00	DESCRIPTION: ELECTRICAL / SCALE: NONE / SHEET SIZE: 8.5" x 11.0"	Approved as Noted Doc rec'd. Released For Fabrication

24VDC
CONTROL CIRCUIT
CONTINUED FROM SHEET
2017060.15

305 306

PLC1.1
ANALOG MODULE

CM444R
CONTROLLER
DO-0500 AERATION DO
87 SENSOR 88
0/4-20mA 1
31(+) 32(-)
(CI-0) (COM0)
ANALOG INPUT 0
INPUT

CM444R
CONTROLLER
DO-0500 AERATION MLSS
87 SENSOR 88
0/4-20mA 1
31(+) 32(-)
(CI-1) (COM1)
ANALOG INPUT 1
INPUT

LT-0600
MEMBRANE LEVEL TRANSMITTER
305 (+) (-) X
SHEILD/DRAIN WIRE X
(CI-2) (COM2)
ANALOG INPUT 2
INPUT

LT-0800
CLEARWELL LEVEL TRANSMITTER
305 (+) (-) X
SHEILD/DRAIN WIRE X
(CI-3) (COM3)
ANALOG INPUT 3
INPUT

PT-0601
MBR BLOWER VAC TRANSMITTER
305 (+) (-) X
SHEILD/DRAIN WIRE X
(CI-4) (COM4)
ANALOG INPUT 4
INPUT

PT-0602
MBR BLOWER PRESSURE TRANSMITTER
305 (+) (-) X
SHEILD/DRAIN WIRE X
(CI-5) (COM5)
ANALOG INPUT 5
INPUT

PT-0501
AERATION BLOWER VAC TRANSMITTER
305 (+) (-) X
SHEILD/DRAIN WIRE X
(CI-6) (COM6)
ANALOG INPUT 6
INPUT

PT-0502
AERATION BLOWER PRESSURE TRANSMITTER
305 (+) (-) X
SHEILD/DRAIN WIRE X
(CI-7) (COM7)
ANALOG INPUT 7
INPUT

305 306

24VDC
CONTROL CIRCUIT
CONTINUED TO SHEET
2017060.17

THE KREGO CORPORATION
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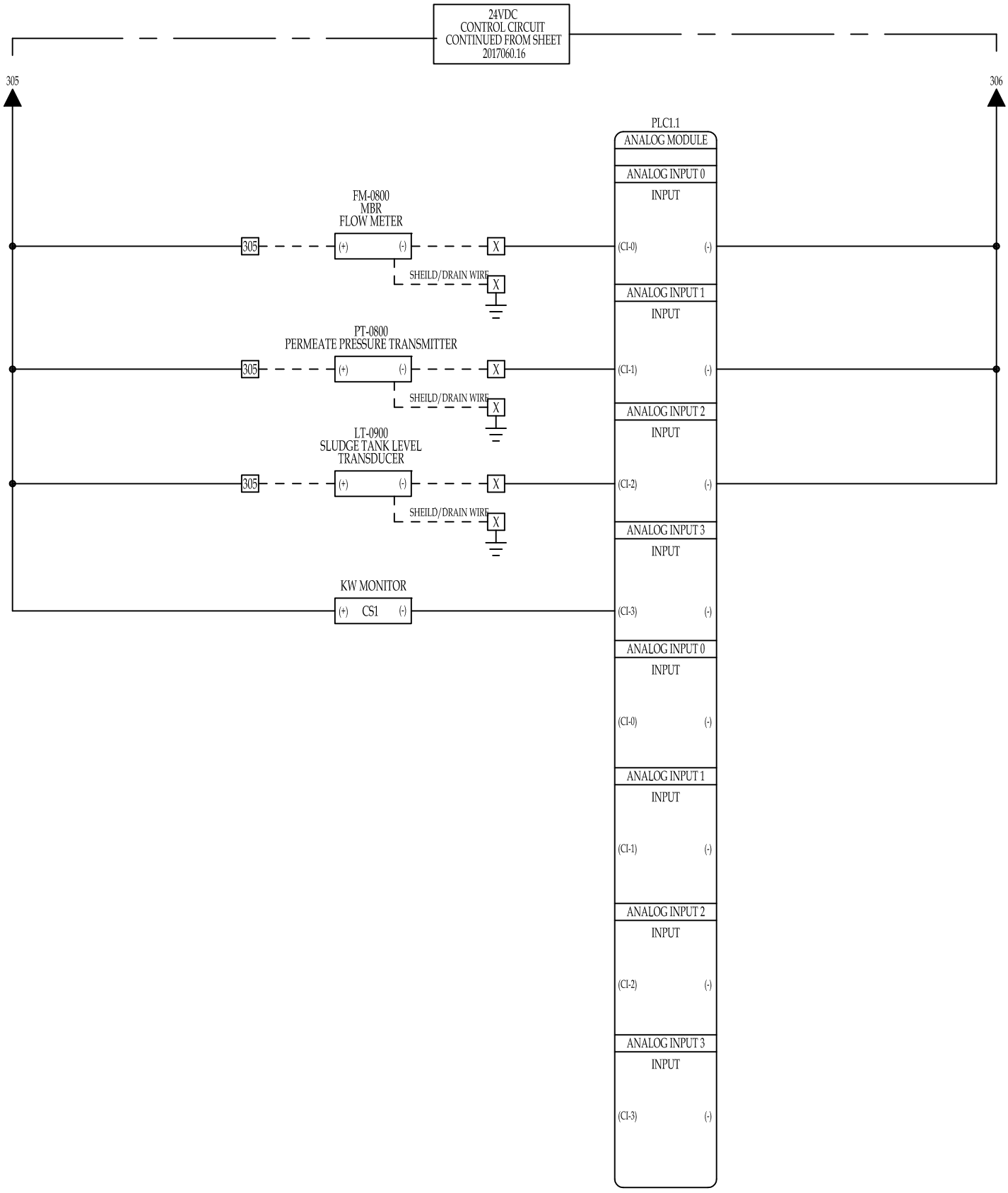
PROJECT:	WINE COUNTRY INDUSTRY PARK		
DRAWN: W.KREGO	DATE: 03.23.17	CUSTOMER: CLOACINA	
DESIGNER: S.CORBETT	DATE: 03.20.17	DRAWING NO. 2017060.16	
ENGINEER: M.NUNES	DATE: 03.21.17		
APPROVED: XXXXXXX	DATE: 00.00.00	DESCRIPTION: ELECTRICAL / SCALE: NONE / SHEET SIZE: 8.5" x 11.0"	Approved as Noted Doc rec'd. Released For Fabrication



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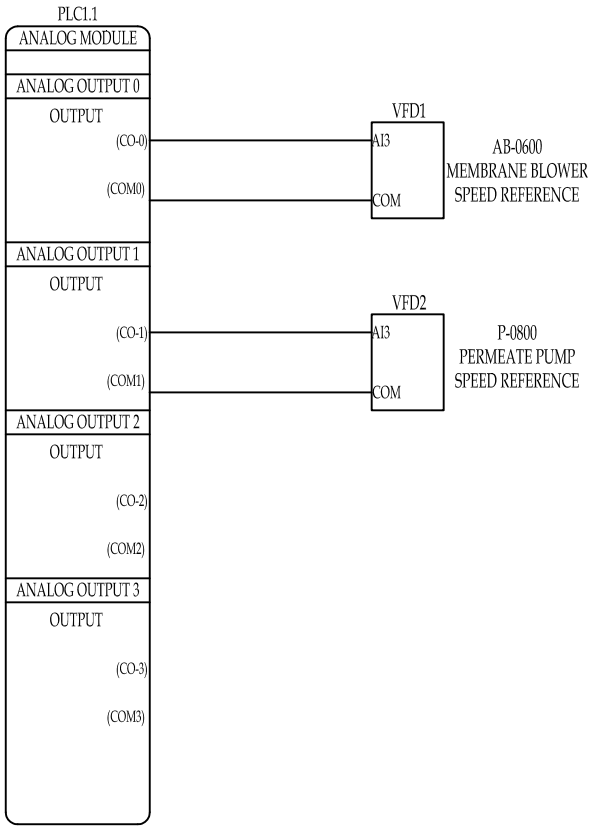
SAN FERNANDO, CA.
Phone: 818.837.1494
UL 508A Listed
E141807
www.controlpanelshop.com

PROJECT:	WINE COUNTRY INDUSTRY PARK		
DRAWN: W.KREGO	DATE: 03.23.17	CUSTOMER: CLOACINA	
DESIGNER: S.CORBETT	DATE: 03.20.17	DRAWING NO. 2017060.17	
ENGINEER: M.NUNES	DATE: 03.21.17		
APPROVED: XXXXXXX	DATE: 00.00.00	DESCRIPTION: ELECTRICAL / SCALE: NONE / SHEET SIZE: 8.5" x 11.0"	Approved as Noted Doc rec'd. Released For Fabrication



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Phone: 818.837.1494
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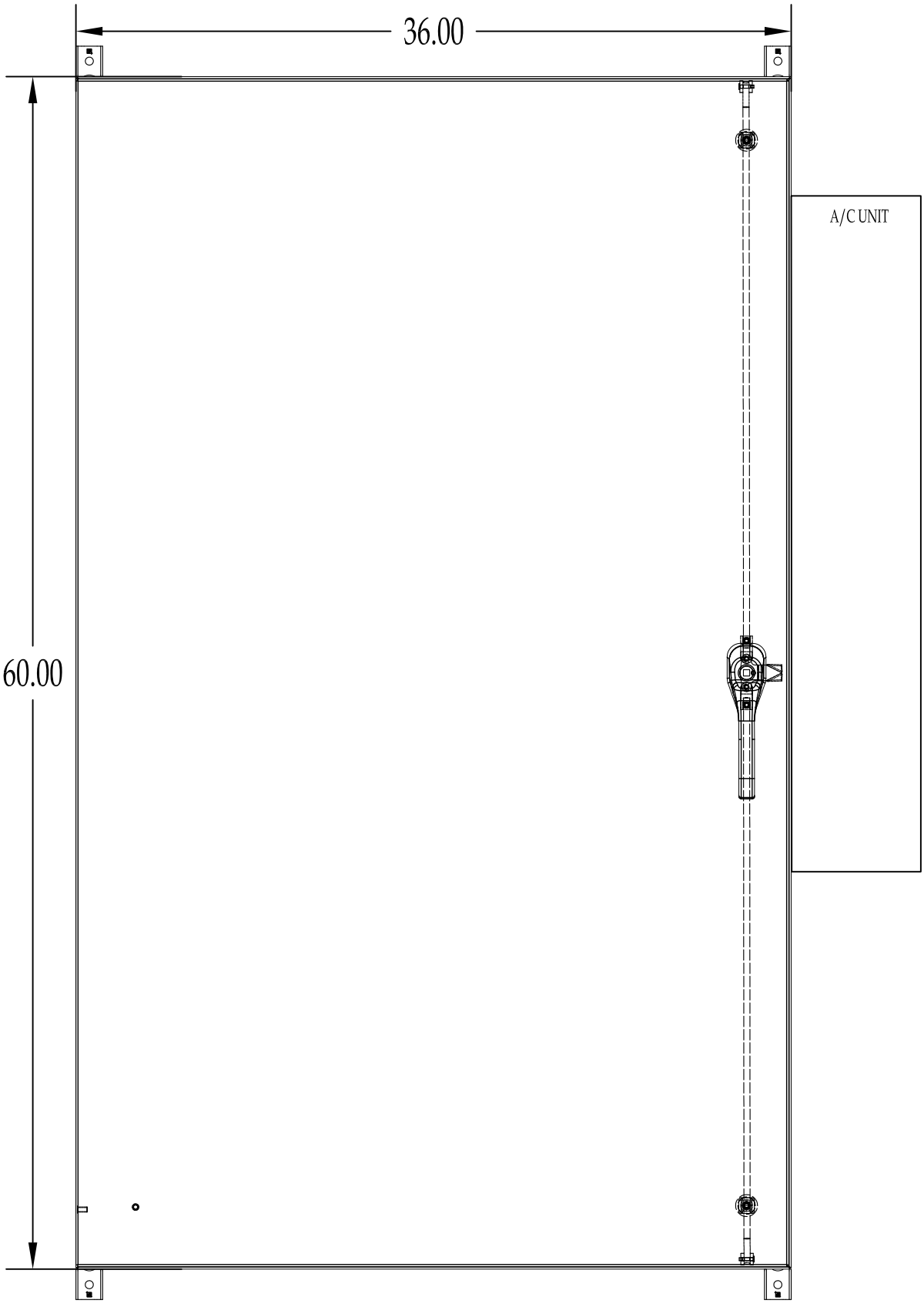
PROJECT:	WINE COUNTRY INDUSTRY PARK				
DRAWN:	W.KREGO	DATE: 03.23.17	CUSTOMER: CLOACINA		
DESIGNER:	S.CORBETT	DATE: 03.20.17	DRAWING NO. 2017060.18		
ENGINEER:	M.NUNES	DATE: 03.21.17			
APPROVED:	XXXXXXX	DATE: 00.00.00	DESCRIPTION: ELECTRICAL	SCALE: NONE	SHEET SIZE: 8.5" x 11.0"

Approved as Noted Doc rec'd.
Released For Fabrication



EXTERIOR VIEW

THE KREGO CORPORATION
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SAN FERNANDO, CA.
Phone: 818.837.1494
UL 508A Listed
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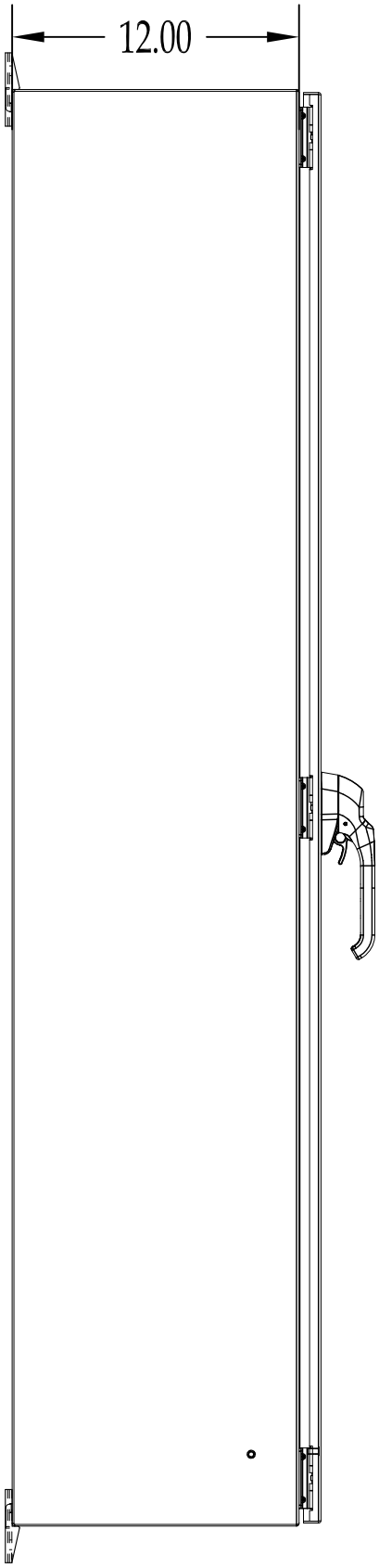
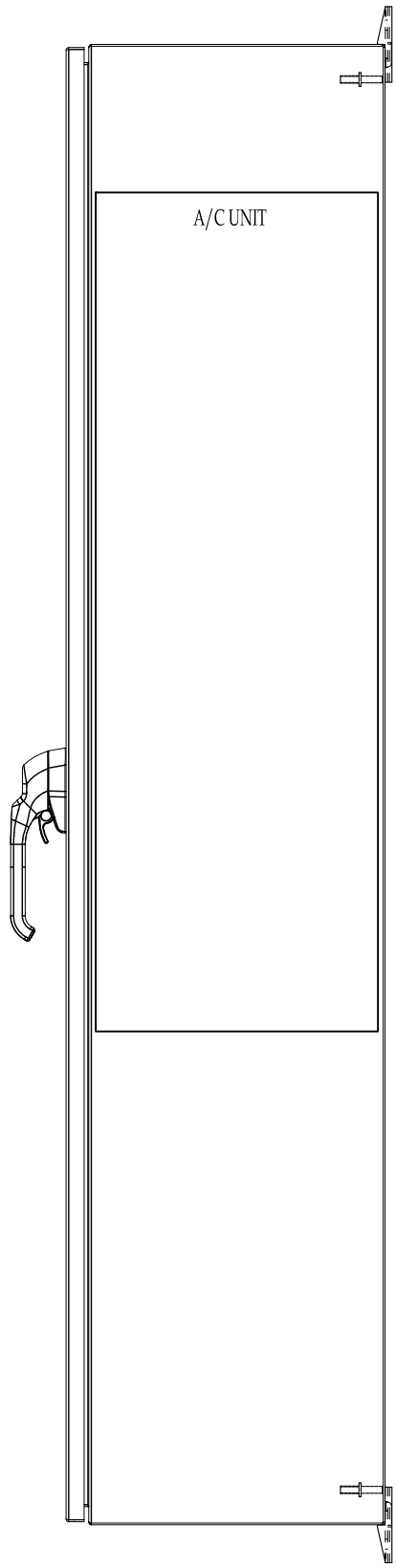
PROJECT:	WINE COUNTRY INDUSTRY PARK				
DRAWN:	W.KREGO	DATE: 03.23.17	CUSTOMER: CLOACINA		
DESIGNER:	S.CORBETT	DATE: 03.20.17	DRAWING NO. 2017060.DE		
ENGINEER:	M.NUNES	DATE: 03.21.17			
APPROVED:	XXXXXXX	DATE: 00.00.00	DESCRIPTION: DOOR ELEVATION	SCALE: NONE	SHEET SIZE: 8.5" x 11.0"

Approved as Noted Doc rec'd.
Released For Fabrication



LEFT SIDE



RIGHT SIDE

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SAN FERNANDO, CA.
Phone: 818.837.1494
UL 508A Listed
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www.controlpanelshop.com

PROJECT:	WINE COUNTRY INDUSTRY PARK				
DRAWN:	W.KREGO	DATE: 03.23.17	CUSTOMER: CLOACINA		
DESIGNER:	S.CORBETT	DATE: 03.20.17	DRAWING NO. 2017060.SE		
ENGINEER:	M.NUNES	DATE: 03.21.17			
APPROVED:	XXXXXXX	DATE: 00.00.00	DESCRIPTION: SIDE ELEVATION	SCALE: NONE	SHEET SIZE: 8.5" x 11.0"

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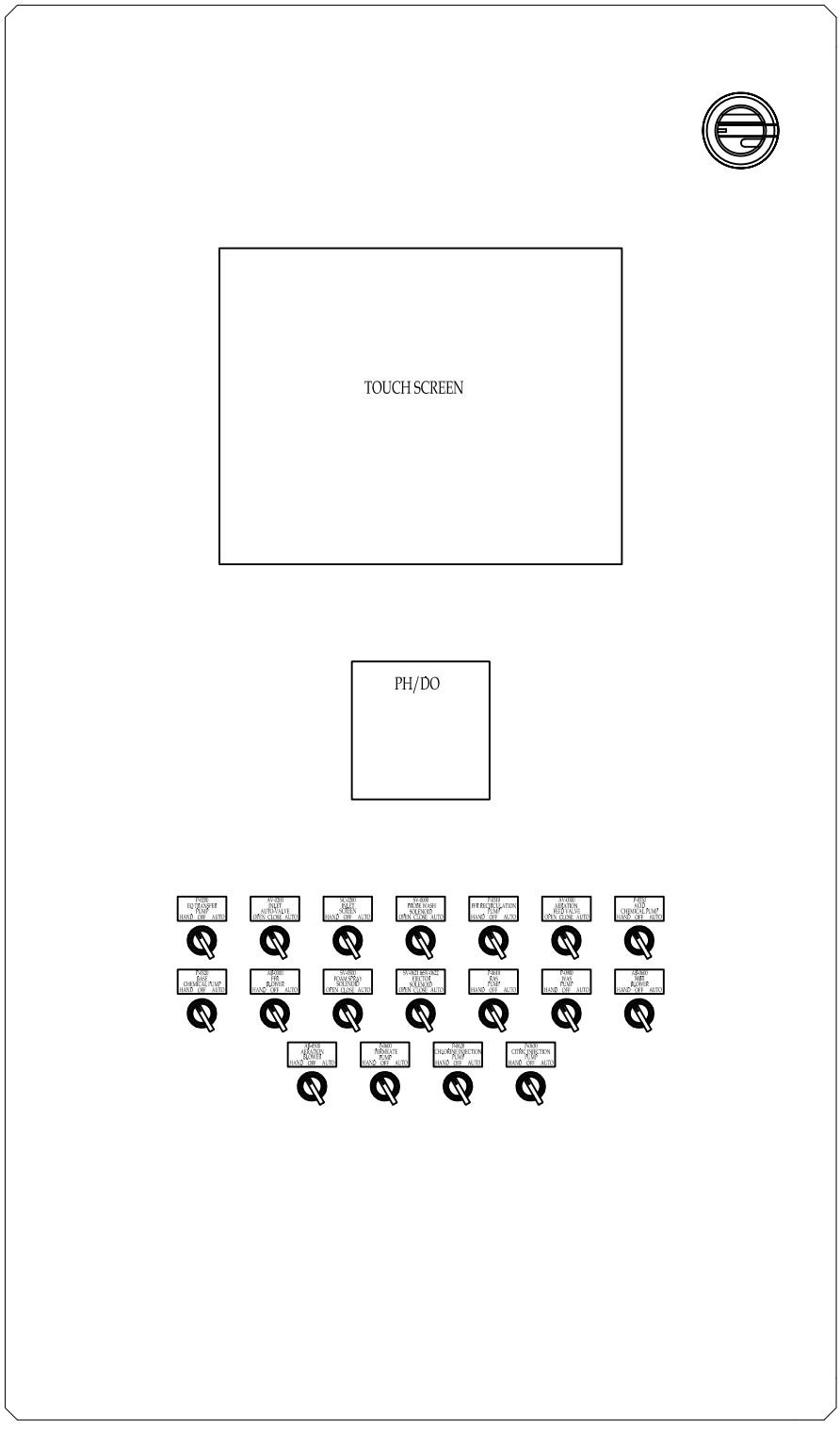
Released For Fabrication

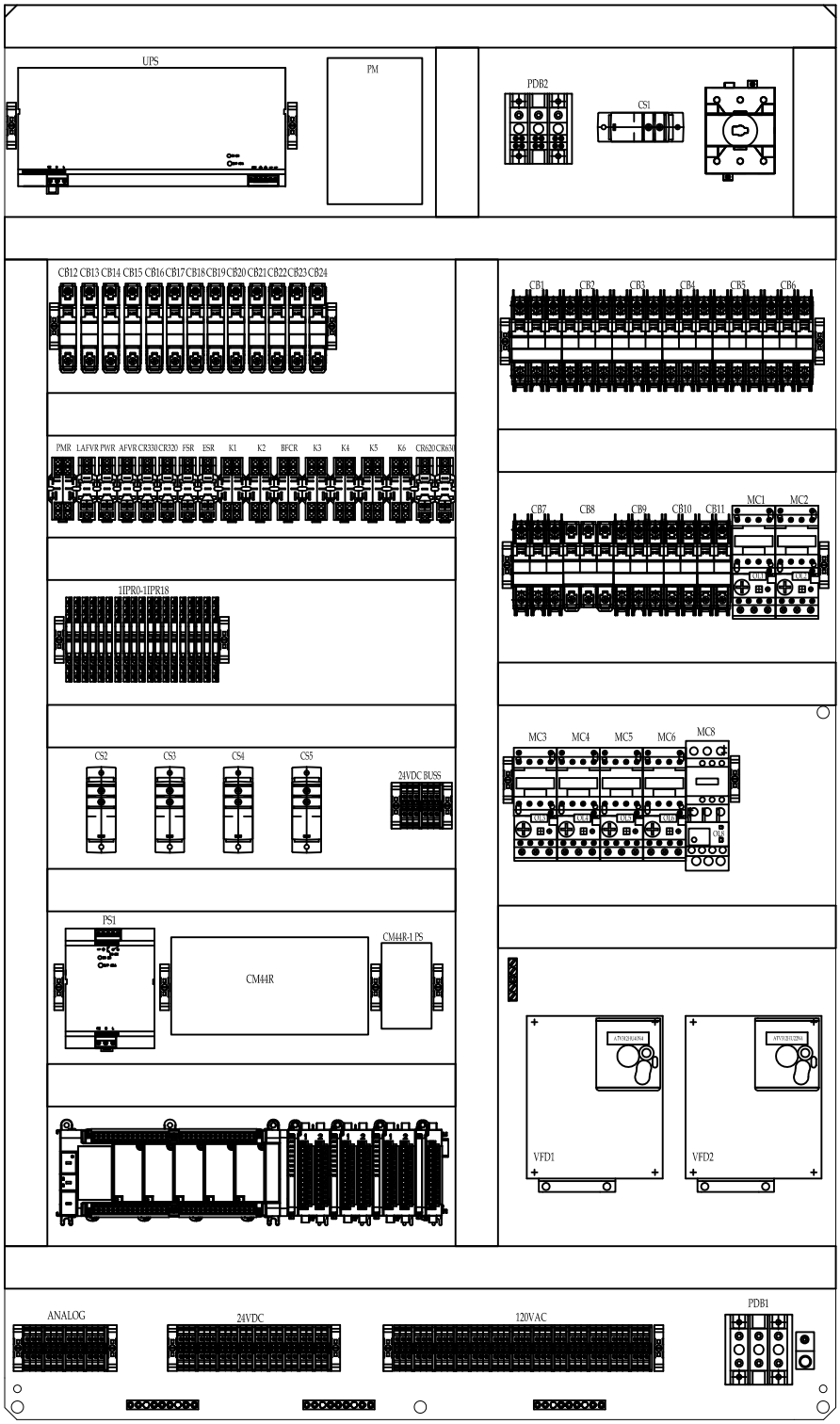


INTERIOR DOOR

THE KREGO CORPORATION
dba: The Panel Shop
12971 ARROYO ST.
Phone: 818.837.1494
UL 508A Listed
SAN FERNANDO, CA.
E141807
www.controlpanelshop.com

PROJECT:	WINE COUNTRY INDUSTRY PARK				
DRAWN:	W.KREGO	DATE: 03.23.17	CUSTOMER: CLOACINA		
DESIGNER:	S.CORBETT	DATE: 03.20.17	DRAWING NO. 2017060.ID		
ENGINEER:	M.NUNES	DATE: 03.21.17			
APPROVED:	XXXXXXX	DATE: 00.00.00	DESCRIPTION: SWING PANEL ELEVATION	SCALE: NONE	SHEET SIZE: 8.5" x 11.0"

Approved as Noted Doc rec'd.
Released For Fabrication



INTERIOR VIEW

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SAN FERNANDO, CA.
Phone: 818.837.1494
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PROJECT:	WINE COUNTRY INDUSTRY PARK				
DRAWN:	W.KREGO	DATE: 03.23.17	CUSTOMER: CLOACINA		
DESIGNER:	S.CORBETT	DATE: 03.20.17	DRAWING NO. 2017060.CE		
ENGINEER:	M.NUNES	DATE: 03.21.17			
APPROVED:	XXXXXXX	DATE: 00.00.00	DESCRIPTION: COMPONENT ELEVATION	SCALE: NONE	SHEET SIZE: 8.5" x 11.0"

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