





Mechanical Separation  
Division

Westfalia Separator AG

GEA hereby certifies that (I) they have complied with the requirements of Contract Documents in preparation, review, and submission of designated Submittal and (II) the Submittal is complete and in accordance with the Contract Documents and requirements of laws and regulations and governing agencies.

Signed:

*Peter Carforo*

Project Engineer

GEA Mechanical Equipment US, Inc.  
GEA Westfalia Separator Division

GEA Mechanical Equipment US, Inc./GEA Westfalia Separator Division



GEA Mechanical Equipment US, Inc.  
**GEA Westfalia Separator Division**  
100 Fairway Court | Northvale, New Jersey | 07647

# Electrical Engineering Submittal

## Dewatering Decanter

**Model: CF 7000**

**City of Taunton, MA – WWTF**  
**Veolia Water North America - Northeast LLC**  
**Taunton, MA USA**

**Rev. 0**  
**October, 2021**



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# Table of Contents

Cover Sheet .....	1
Table of Contents .....	2
Electrical Drawings .....	3
Component Catalog Sheets .....	29

**TAUNTON, MA 2652.395.848 (CF-7000-00-35)**

**WASTEWATER TREATMENT FACILITY**

**CENTRIFUGE MAIN CONTROL PANELS & LOCAL OPERATOR PANELS**

**ELECTRICAL DRAWINGS # 9200-5901-587-10551**

**CENTRIFUGE #1 --- MCP SERIAL #10551-1A / LOP SERIAL #10551-1B**

**CENTRIFUGE #2 --- MCP SERIAL #10551-2A / LOP SERIAL # 10551-2B**

LIST OF DRAWINGS 9200-5901-587-10551:

SHT 0 - COVER SHEET  
SHT 1 - GENERAL NOTES AND LEGEND  
SHT 2 - BILL OF MATERIALS  
SHT 3 - SPARE SHEET  
SHT 4 - CENTRIFUGE MAIN CONTROL PANEL LAYOUT  
SHT 5 - TERMINAL BLOCK DETAILS  
SHT 6 - LOCAL OPERATOR PANEL & B/M  
SHT 7 - BOWL MOTOR VFD POWER DISTR. AND CONTROL  
SHT 8 - SCROLL MOTOR VFD POWER AND CONTROL  
SHT 9 - SPARE SHEET  
SHT 10 - SPARE SHEET  
SHT 11 - CONTROL PANEL 120VAC SCHEMATIC  
SHT 12 - CONTROL PANEL 120VAC SCHEMATIC  
SHT 13 - E-STOP RELAY  
SHT 14 - 24VDC POWER DISTRIBUTION  
SHT 15 - PLC RACK LAYOUT  
SHT 16 - PLC I/O  
SHT 17 - PLC I/O  
SHT 18 - PLC I/O  
SHT 19 - PLC I/O  
SHT 20 - PLC I/O  
SHT 21 - PLC I/O  
SHT 22 - RELAY CONTACTS TO CUSTOMER CONTROLS  
SHT 23 - SPARE SHEET  
SHT 24 - INTERCONNECT WIRING  
SHT 25 - COMMUNICATIONS NETWORK DIAGRAM

**REVISION # 0**

**DATE: 15OCT2021**

**RELEASE HISTORY:**

**GEA APPROVAL:**

<input checked="" type="checkbox"/>	RELEASED FOR SUBMITTAL APPROVAL REV: <u>0</u> DATE: <u>15OCT21</u>	APPROVED SIGNATURE: <u>L. Moreno / R.R.</u>
<input type="checkbox"/>	RELEASED FOR: REV: <u>1</u> DATE:	

**GEA** MECHANICAL EQUIPMENT US, INC.

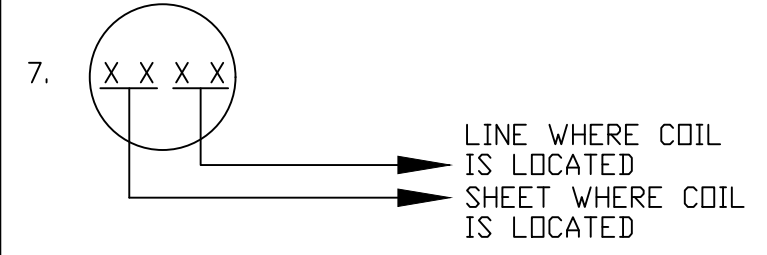
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**NOTES:**

**WIRE DESIGNATIONS:**

- WIRE # **X X X X**  
 → SEQUENTIAL LINE # ON DESIGNATED SHEET  
 → SHEET #
- WIRE # **I - X X X X**  
 → PLC I/O PROGRAM DESIGNATION  
 → DASH  
 → PLC INPUT
- WIRE # **O - X X X X**  
 → PLC I/O PROGRAM DESIGNATION  
 → DASH  
 → PLC OUTPUT
- L = 120 VAC HOT WIRE  
 N = 120 VAC NEUTRAL WIRE  
 LXXX = STARTING POINT OF WIRE (SHEET & LINE #)  
 NXXX = STARTING POINT OF WIRE
- X T X**  
 → PHASE DESIGNATION  
 → MOTOR LEAD DESIGNATION  
 → SEQUENTIAL DESIGNATION
- X L X**  
 → PHASE DESIGNATION  
 → POWER LEAD DESIGNATION  
 → SEQUENTIAL DESIGNATION



- = PUSH BUTTON  
 = PILOT LIGHT  
 X = LENS COLOR  
 = ILLUMINATED PUSH BUTTON  
 X = LENS COLOR  
 = SELECTOR SWITCH

**GENERAL NOTES:**

- 24VDC / 4-20 ma dc, 120VAC & 480VAC/575VAC WIRING MUST BE RUN SEPARATELY WITHIN THE CONTROL & MOTOR PANELS. PANEL FABRICATOR TO PROVIDE FOR ADEQUATE SEPARATION BETWEEN CONDUCTORS USING WIREWAY WHEREVER POSSIBLE, IN ORDER TO AVOID ELECTRICAL NOISE INTERFERENCE.
- ONLY WHEN ABSOLUTELY NECESSARY, CROSS 120VAC & 24VDC WIRING AT 90° ANGLES. NEVER RUN 24VDC NEAR OR ACROSS 480 VAC WIRING !
- PANEL FABRICATOR TO DETERMINE EXACT SIZE OF WIRING DUCTS TO ACCOMMODATE REQUIRED NUMBER OF CONDUCTORS.
- WIRE MARKERS TO BE TUBULAR HEAT SHRINKABLE TYPE WITH PERMANENT MECHANICAL STAMPED CHARACTERS OR SELF LAMINATING WRAP AROUND TYPE. MARK BOTH ENDS OF WIRE.
- ALL TERMINALS SHALL BE INSTALLED ON RAISED ANGLED BRACKETS.
- ALL INTERNAL DEVICES LABELED WITH P-TOUCH OR EQUAL LABELS.

**WIRE COLOR CODING:**

600V INSULATED CONDUCTORS		
POWER		
	480/575VAC	120VAC
PHASE A	BROWN	BLACK
PHASE B	ORANGE	----
PHASE C	YELLOW	----
GROUND	GREEN	GREEN
NEUTRAL	WHITE	WHITE

CONTROL WIRING, 300V INSULATED  
 (THHN, THW OR MTW) UL-508A TABLE 28.1  
 #16AWG = 10 AMPS MAX  
 #14AWG = 15 AMPS MAX  
 #12AWG = 20 AMPS MAX  
 #10AWG = 30 AMPS MAX

120VAC (hot, line in)	BLACK
120VAC (control ckt's)	RED
NEUTRAL 120VAC	WHITE
DIRECT CURRENT	BLUE
DC COMMON	BLUE/WHT STRIPE
FOREIGN VOLTAGE	YELLOW
GROUNDING	GREEN
INTRINSICALLY SAFE	LIGHT BLUE

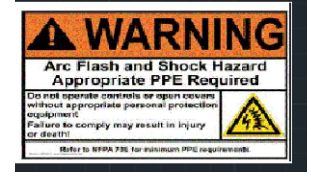
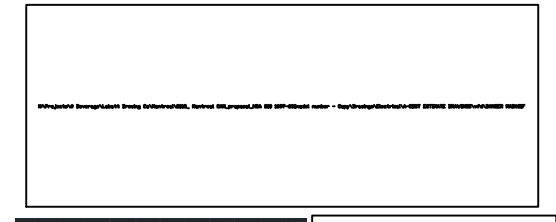
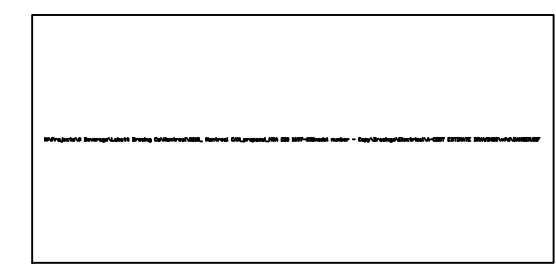
ma SIGNAL WIRING, #18AWG, TWISTED SHIELDED, 300V CONTROL CABLE (#OF PAIRS AS REQ'D), BELDEN OR EQUAL.

**UL & STANDARD WARNING LABELS**

UL LABEL TO BE APPLIED TO INTERIOR SURFACE OF PANELS UPON COMPLETION OF UL INSPECTION



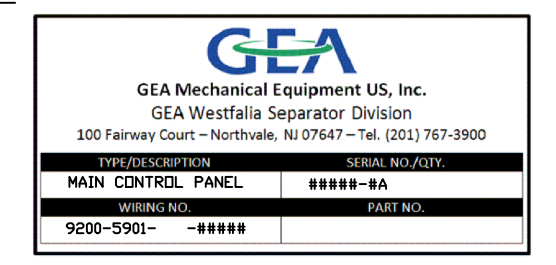
PANEL FABRICATOR TO PROVIDE LABELS ON FRONT OF ENCLOSURES WHEN APPLICABLE



PANEL FABRICATOR TO PROVIDE SCCR RATING LABEL ON VFD/MCC ENCLOSURE

INDUSTRIAL CONTROL PANEL  
 GEA PANEL SERIAL #: 10551-1A / 1B  
 CURRENT: I<sub>FLA</sub> = 218.7 AMPS  
 VOLTAGE: 460 VAC  
 PHASE & FREQ: 3/60HZ  
 SCCR: 65 kAIC  
 WIRING DIAGRAM:#9200-5901-587-10551

PANEL SERIAL NUMBER LABEL



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REV.	BY	DATE	REVISION
0	RR	15OCT21	SUBMITTAL APPROVAL ISSUE

Drawn	Approved	Date
RR	LM	15OCT21

**GEA MECHANICAL EQUIPMENT US, INC.**  
 WESTFALIA SEPARATOR DIV.  
 100 Fairway Court Northvale, NJ 07647

Title: **CF7000 CENTRIFUGE GENERAL NOTES & LEGEND**

TAUNTON, MA 2652.395.848

Sheet	Machine Type	DWG. NO.	Rev.
1 OF 25	CF 7000	9200-5901-587-10551	0


CENTRIFUGE MAIN CONTROL PANEL BILL OF MATERIAL						
ITEM	TAG NO.	QTY.	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	GEA ITEM #
1	MCP	1	SAGINAW	SCE-84XM7824SS	NEMA 12, 2 DDDR, 304SS, HEAVY DUTY ENCLOSURE, 84"x78.5"x24" DP UL Listed Type 3R, 4, 4X and 12 FURNISHED WITH 10 GA. INTERIOR SUB-PANEL, 72"x72"	-----
2	PLC-1116	1	SAGINAW	SCE-76P76	PROCESSOR, COMPACT LOGIX, 2MB, ETHERNET----- POWER SUPPLY, 85-265V----- 24VDC, 16 PT., DIGITAL INPUT CARD ----- 24VDC, 16 PT., DIGITAL OUTPUT MODULE ----- 8 PT. ANALOG INPUT MODULE ----- 8 PT. ANALOG OUTPUT MODULE ----- END CAP RIGHT -----	9105-2760-420 9105-2760-010 9105-2760-090 9105-2760-130 9105-2760-040 9105-2760-050 9105-2760-070
3	MCB702	1	SQUARE D	JJL36250	CIRCUIT BREAKER, 3-POLE, 600VAC, 250 AMP, 65 kAIC	-----
4	PDB709	1	MARATHON	1433587	POWER BLOCK, 3-POLE, 1 LINE, 4 LOAD	-----
5	FU704	3	BUSSMAN	JJS-200	FUSE, 200 AMP, CLASS T, VERY FAST ACTING, 600V	-----
6	FU804	3	BUSSMAN	JJS-90	FUSE, 90 AMP, CLASS T, VERY FAST ACTING, 600V	-----
7	ITEM NUMBER	NOT USED				-----
8	ITEM NUMBER	NOT USED				-----
9	VFD704	1	ABB	ACS880-01-124A-5	ABB ACS880, VFD, NOMINAL RATED @124 AMPS, 480VAC	9105-2749-120
10	HMI-704	1	ABB	DPMP-01	ABB ACS880, KEYPAD MOUNTING KIT	9131-1329-390
11	MCR-1300	1	PILZ	PNDZ XV3.1P (777 530)	EMERGENCY STOP RELAY, PNDZ XV3.1P	-----
12	ITEM NUMBER	NOT USED				-----
13	TT1914	2	PEPPERL & FUCHS	SISD-1TI-1U	RTD/I, TEMPERATURE SIGNAL CONVERTER FOR RTD SENSORS	9105-0250-000
14	ITEM NUMBER	NOT USED				-----
15	LUG	2	PANDUIT	LAM2A350-12-6	GROUND LUG	-----
16	TB-1 & 2	120	ALLEN BRADLEY	1492-JD3 (OR EQUAL)	TWO LEVEL, 2 CIRCUIT, FEED THRU, 600V, 20A, #22-#12AWG	-----
17	LAMP1132A/B	2	SAGINAW	SCE-SLDF	LED STRIP LIGHT, AC/DC, 24VDC TO 265 VAC 14' LONG	-----
18	WIREWAY	A/R	PANDUIT	TYPE G SLOTTED	SLOTTED WIRE DUCT, RIGID, GREY VINYL W/COVER	-----
19	ITEM NUMBER	NOT USED				-----
20	SFP-1114	1	PHOENIX	2856702	TRANSIENT VOLTAGE SURGE SUPPRESSOR & EMI/RFI FILTER	-----
21	PS-1402	1	ALLEN BRADLEY	1606-XLS480E	24VDC POWER SUPPLY, 20 AMP, 480W, 120VAC INPUT	-----
22	CKT BKR'S	4	EATON (OR EQUAL)	FAZ-C1/1-NA-SP	CIRCUIT BREAKER, UL489, 1 POLE, 1 AMP, "C" CURVE	-----
23	RELAYS	33	IDEC	RH3B-UL-DC24V	RELAY, 3PDT, 24VDC COIL, 10AMP CONTACTS	-----
24	ITEM NUMBER	NOT USED				-----
25	ITEM NUMBER	NOT USED				-----

CENTRIFUGE MAIN CONTROL PANEL BILL OF MATERIAL						
ITEM	TAG NO.	QTY.	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	GEA ITEM #
26	ITEM NUMBER	NOT USED				-----
27	SM-2002	2	PEPPERL & FUCHS	KF8-UFC-1.D	FREQUENCY CONVERTER	9105-0594-002
28	GND BAR	2	ILSCO	UGB2/0-414-6	GROUND BAR	-----
29	TX1101	1	SQUARE D	9070 T3000D1	CONTROL TRANSFORMER 480/120 VAC, 3KVA	-----
30	PLEXI	1	PANEL SHOP	CUSTOM	PLEXI-GLASS ARC FLASH DIVIDER	-----
31	FAN-1103L,R	4	RITTAL	3244.110	FILTER FAN, NEMA 12, 120VAC, 1.25A, 359 CFM	-----
32	ES-1406	1	HIRSCHMANN	943 824-002	SPIDER STX, 5 PORT, INDUSTRIAL ETHERNET SWITCH	-----
33	CAT 6	2	BELKIN	A3L980b10-S	CAT 6 PATCH CABLE, 10-FT., BLUE, RJ45 MALE/RJ45 MALE	-----
34	FB1100	1	ABB	E92/30CCS	FUSE HOLDER CLASS CC, 2POLE, WITH INDICATOR	-----
35	FU BLK	4	PHOENIX	UT 4-HEXILED 24-P/P - 3046540	Lever-type fuse terminal block, black, for 5 x 20 mm G fuse inserts, with LED for 24V	-----
36	TSH704	2	SIEMENS	3RN2010-1CW30	MOTOR THERMISTOR PROTECTION RELAY	9105-0447-000
37	DAP-1106	1	GRACE PORT	P-R2-F2RD	DATA ACCESS PORT, NEMA 4X W/RECEPTACLE, 5 AMP MAX	-----
38	PDB804	1	SCHNEIDER	9080LBA362101	POWER BLOCK, 3-POLE, 1 LINE, 1 LOAD, #14AWG-2/0	-----
39	LUG	4	BLACKBURN	ADR21-21	GROUND LUG, 2- BARRELL, 2-HOLE	-----
40	LR-704	1	TCI	KDRH3L	480V, 124A, 100HP, 3 Phase, Open, Input Line Inductor, Low Impedance, UL Listed	-----
41	LR-804	1	TCI	KDRF2L	480V, 65A, 50HP, 3 Phase, Open, Input Line Inductor, Low Impedance, UL Listed	-----
42	UPS-1108	1	EATON	9SX1500	TOWER UPS 1500VA/1350W, 120VAC, 50/60HZ	-----
43	PL-1113	1	ALLEN BRADLEY	800H-QRTH2A	PILOT LIGHT, AMBER, PUSH TO TEST, 12-130V AC/DC, NEMA 4X	-----
44	RCPT-1107	1	HUBBELL	HBL53CM61	RECEPTACLE, 5-20r NEMA	-----
45	FB1220	1	ABB	E92/30CCS	FUSE HOLDER CLASS CC, 2POLE, WITH INDICATOR	-----
46	TX1220	1	SQUARE D	9070 T3000D1	CONTROL TRANSFORMER 480/120 VAC, 3KVA	-----
47	ITEM NUMBER	NOT USED				-----
48	ITEM NUMBER	NOT USED				-----
49	ITEM NUMBER	NOT USED				-----
50	ITEM NUMBER	NOT USED				-----

NOTE: LOCAL OPERATOR PANEL BILL OF MATERIALS ITEMS 51 THRU 62 ARE CONTINUED ON SHT 6

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0	RR	15OCT21	SUBMITTAL APPROVAL ISSUE
REV.	BY	DATE	REVISION

<b>TERMINAL BLOCK LEGEND</b> ⊗ MAIN CONTROL PANEL ● LOCAL OPERATOR PANEL ▲ CUSTOMER △ X20 TERMINAL BLOCK ▽ X47 TERMINAL BLOCK □ X48 TERMINAL BLOCK ■ X11 TERMINAL BLOCK — EXTERNAL WIRING			 Mechanical Separation Division 100 Fairway Court Northvale, NJ 07647 Title <b>CF7000 CENTRIFUGE BILL OF MATERIALS</b> TAUNTON, MA 2652.395.848			
Drawn	Approved	Date	Sheet	Machine Type	DWG. NO.	Rev.
RR	LM	15OCT21	2 OF 25	CF 7000	9200-5901-587-10551	0

.....SPARE SHEET.....

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TERMINAL BLOCK LEGEND

- ⊗ MAIN CONTROL PANEL
- ⊙ LOCAL OPERATOR PANEL
- ▲ CUSTOMER
- ◆ X20 TERMINAL BLOCK
- △ X47 TERMINAL BLOCK
- X48 TERMINAL BLOCK
- X11 TERMINAL BLOCK
- EXTERNAL WIRING

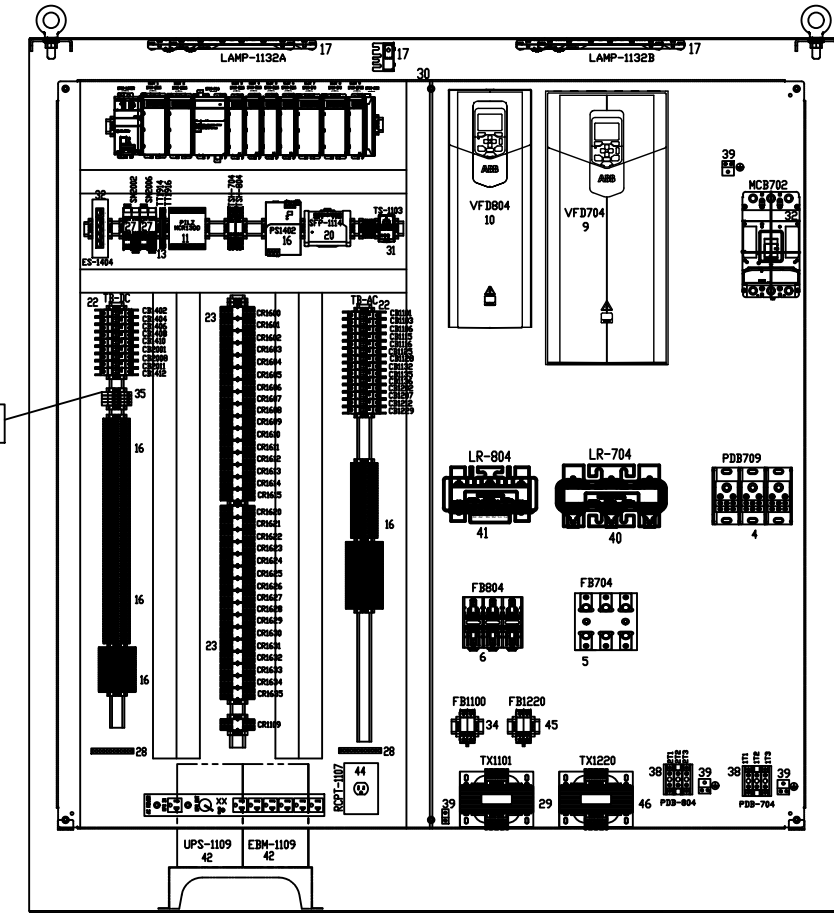
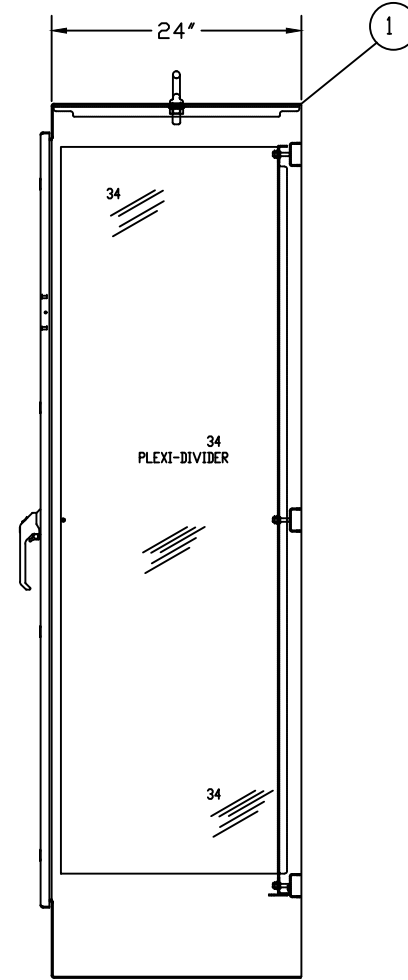
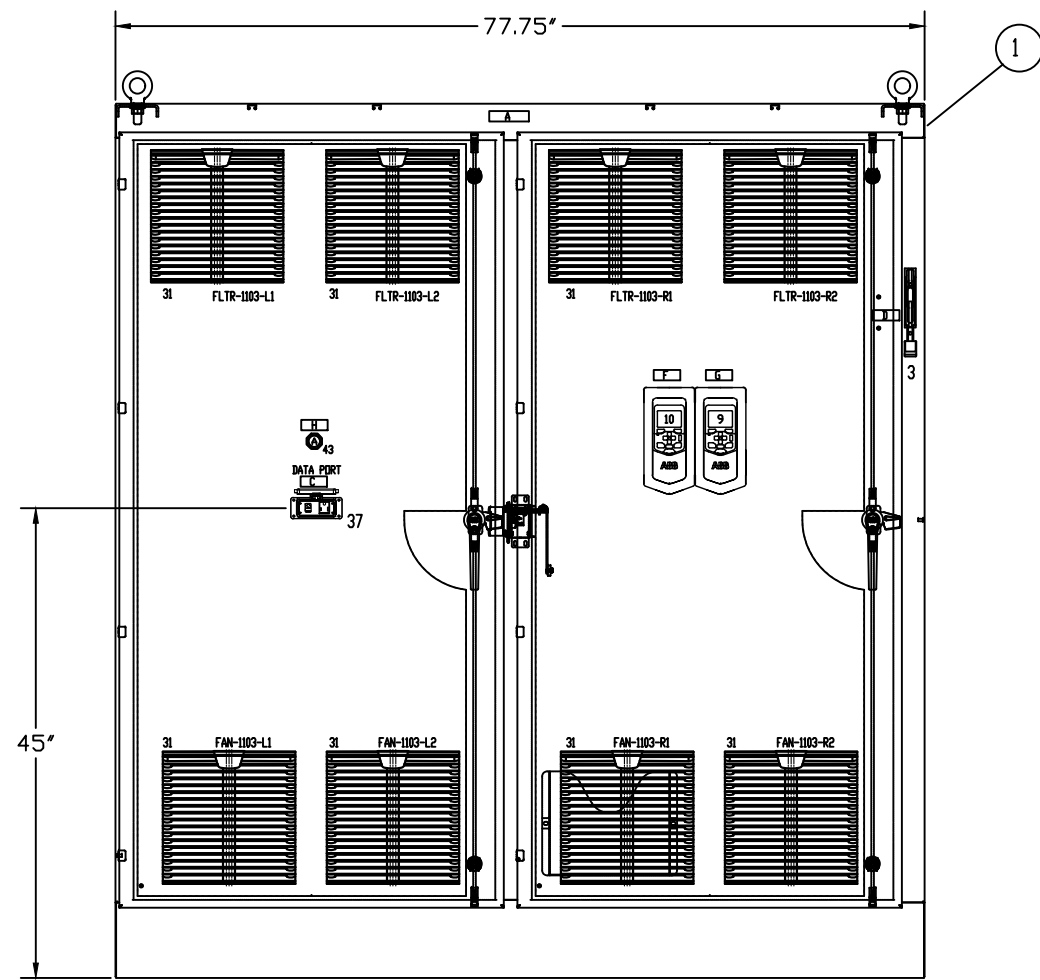


Title  
CF7000 CENTRIFUGE  
SPARE SHEET

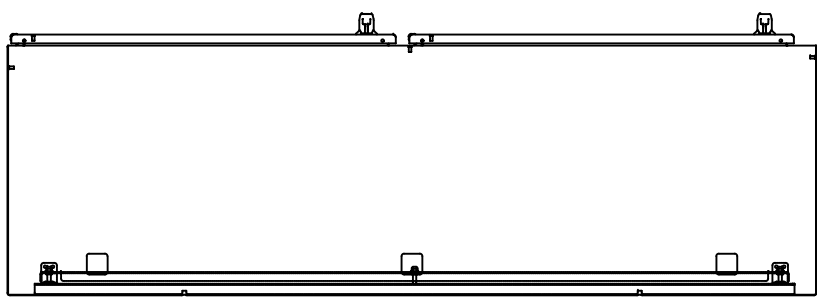
TAUNTON, MA 2652.395.848

Drawn	Approved	Date	Sheet	Machine Type	DWG. NO.	Rev.
RR	LM	15OCT21	3 OF 25	CF 7000	9200-5901-587-10551	0





SUBPANEL LAYOUT



MAIN CONTROL PANEL  
SAGINAW SCE-84XM7824SS  
NEMA 12, 304 SS

CENTRIFUGE MAIN CONTROL PANEL ENGRAVING SCHEDULE							
NOTE: ALL NAMEPLATES TO BE GLUED TO PANEL							
ID NO.	QTY.	TYPE	SIZE	PLATE COLOR	LETTER COLOR	FIRST LINE \ SECONDD LINE, ETC.	REFERENCE TAG NO.
A	1	NP	2' x 5'	WHITE	BLACK	CF7000 DEWATERING CENTRIFUGE \ MAIN CONTROL PANEL \ S/N-10551-1A	MCP-1
A	1	NP	2' x 5'	WHITE	BLACK	CF7000 DEWATERING CENTRIFUGE \ MAIN CONTROL PANEL \ S/N-10551-2A	MCP-2
B	(NOT USED)						
C	1	NP	1' x 3'	WHITE	BLACK	DATA ACCESS PORT	DAP-1106
D	1	NP	1' x 3'	WHITE	BLACK	MAIN CIRCUIT BREAKER DISCONNECT	MCB-702
E	1	NP	1' x 3'	WHITE	RED	E-STOP PUSHBUTTON	PB-1300-1
F	1	NP	1' x 3'	WHITE	BLACK	SCROLL MOTOR VFD-804	HMI-804
G	1	NP	1' x 3'	WHITE	BLACK	BOWL MOTOR VFD-704	HMI-704
H	1	NP	1' x 3'	WHITE	BLACK	UPS ON BATTERY POWER	PL-1113

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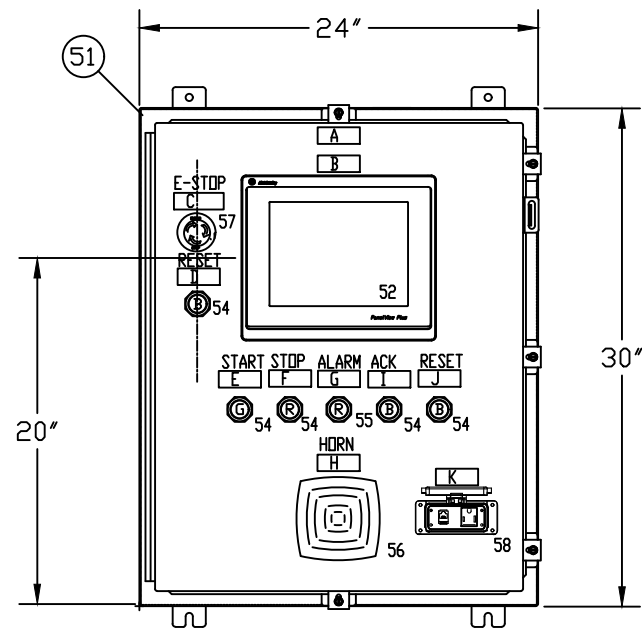
**GEA MECHANICAL EQUIPMENT US, INC.**  
100 Fairway Court Northvale, NJ 07647

Title: **CF7000 CENTRIFUGE MAIN CONTROL PANEL**

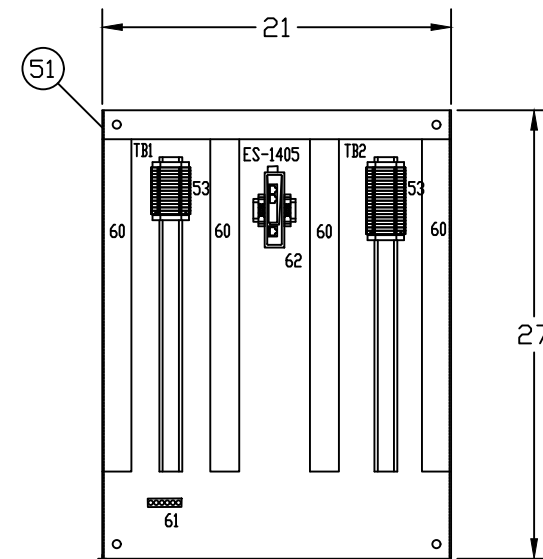
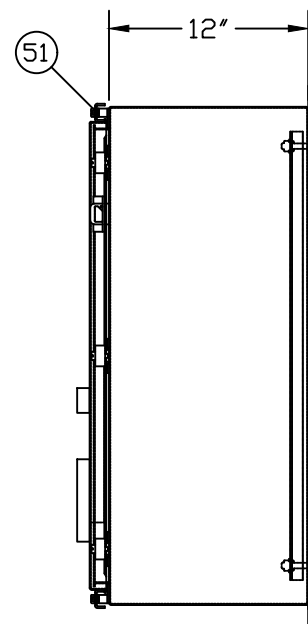
TAUNTON, MA

Sheet	Machine Type	DWG. NO.	Rev.
4 OF 25	CF 7000	9200-5901-587-10551	0





CENTRIFUGE LOCAL CONTROL PANEL  
SAGINAW MODEL # SCE-30H2412SSLP  
NEMA 4X, 304 S.S.  
(SCALE: 1"=1'-0")



INTERIOR MOUNTING PANEL  
SAGINAW MODEL # SCE-30P24

TB-1  
120VAC  
TERMINAL BLOCK

1	L1125
2	L1128
3	1125
4	1126
5	N1102
6	N1102
7	N1102
8	N1102
9	SPARE
10	SPARE
11	SPARE
12	SPARE
13	SPARE
14	SPARE

TB-2  
24VDC  
TERMINAL BLOCK

1	1300-1
2	1300-S12
3	1300-42
4	1305-S33
5	1305-S34
6	1404(+24V)
7	DC COM
8	DC COM
9	+24VDC
10	+24VDC
11	+24VDC
12	+24VDC
13	I-314
14	I-315
15	I-414
16	I-415
17	SPARE
18	SPARE
19	SPARE
20	SPARE

TERMINAL BLOCKS TO  
BE LABELLED WITH  
WIRE NUMBERS

CENTRIFUGE LOCAL OPERATOR PANEL BILL OF MATERIAL

ITEM	TAG NO.	QTY.	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	GEA ITEM #
51	LDP -----	1 A/R	SAGINAW SAGINAW HOFFMAN (or equal)	SCE-30H2412SSLP SCE-30P24 A-HCII0E	NEMA 4X ENCLOSURE, 304SS, 30"Hx24"Wx12"D INTERIOR MOUNTING SUBPANEL PANEL CORROSION INHIBITING VAPOR CAPSULES	-----
52	OIT-1404	1	ALLEN BRADLEY	2711P-T10C22D9P	PANELVIEW PLUS 7, 10", PERFORMANCE, COLOR TOUCH, ETHERNET	9105-2759-270
53	TB-1&2	34	ALLEN BRADLEY	1492-J3 (OR EQUAL)	TERMINAL BLOCK, GRAY, SCREW TYPE, 600 V, #28-#12 AWG	-----
54	PB-1715 PB-1716 PB-1305 PB-1735 PB-1736	1 1 1 1 1	ALLEN BRADLEY ALLEN BRADLEY ALLEN BRADLEY ALLEN BRADLEY ALLEN BRADLEY	800H-AR1D1 800H-AR6D2 800H-AR2D1 800H-AR2D1 800H-AR2D1	MOMENTARY PUSHBUTTON, NEMA 4X GREEN, 1 N.O. CONTACT MOMENTARY PUSHBUTTON, NEMA 4X RED, 1 N.C. CONTACT MOMENTARY PUSHBUTTON, NEMA 4X BLACK, 1 N.O. CONTACT MOMENTARY PUSHBUTTON, NEMA 4X BLACK, 1 N.O. CONTACT MOMENTARY PUSHBUTTON, NEMA 4X BLACK, 1 N.O. CONTACT	-----
55	PL-1126	1	ALLEN BRADLEY	800H-QRTH2R	PILOT LIGHT, RED, PUSH TO TEST, 12-130V AC/DC, NEMA 4X	-----
56	AH-1125	1	EDWARDS	870P-N5	ALARM HORN, NEMA 4X, 120VAC	-----
57	PB-1300-1	1	ALLEN BRADLEY ALLEN BRADLEY	800H-FRXTQ2RA1 800H-W690	12-130V AC/DC, ILLUMINATED E-STOP P.B., RED, MUSHROOM HEAD E-STOP LEGEND PLATE, YELLOW	-----
58	DAP-1128	1	GRACE PORT	P-R2-F2RD	DATA ACCESS PORT, NEMA 4X W/RECEPTACLE, 5 AMP MAX	-----
59	cat 6e	2	BELKIN	A3L980b03-S	CAT 6 PATCH CABLE, RJ45 MALE/RJ45 MALE	-----
60	WIREWAY	A/R	PANDUIT	TYPE G SLOTTED	SLOTTED WIRE DUCT, RIGID, GREY VINYL W/COVER	-----
61	GND BAR	1	PANDUIT	UGB2/0-414-6	GROUND BAR	-----
62	ES-1405	1	HIRSCHMANN	943899001	3-PORT ETHERNET SWITCH, 24VDC	-----

CENTRIFUGE LOCAL OPERATOR PANEL ENGRAVING SCHEDULE

NOTE: ALL NAMEPLATES TO BE GLUED TO PANEL

ID NO.	QTY.	TYPE	SIZE	PLATE COLOR	LETTER COLOR	FIRST LINE \ SECOND LINE, ETC.	REFERENCE TAG NO.
A	1	NP	2' x 6'	BLACK	WHITE	CF7000 DEWATERING CENTRIFUGE \ LOCAL OPERATOR PANEL \ S/N 10551-1B	LDP-1
A	1	NP	2' x 6'	BLACK	WHITE	CF7000 DEWATERING CENTRIFUGE \ LOCAL OPERATOR PANEL \ S/N 10551-2B	LDP-2
B	1	NP	1' x 3'	BLACK	WHITE	OPERATOR INTERFACE	OIT1404
C	1	NP	1' x 3'	RED	WHITE	EMERGENCY STOP	PB-1300-1
D	1	NP	1' x 3'	BLACK	WHITE	EMERGENCY STOP RESET	PB-1305
E	1	NP	1' x 3'	BLACK	WHITE	CENTRIFUGE START	PB-1715
F	1	NP	1' x 3'	BLACK	WHITE	CENTRIFUGE STOP	PB-1716
G	1	NP	1' x 3'	BLACK	WHITE	COMMON ALARM	PL-1126
H	1	NP	1' x 3'	BLACK	WHITE	ALARM HORN	AH-1125
I	1	NP	1' x 3'	BLACK	WHITE	CENTRIFUGE ALARM ACKNOWLEDGE	PB-1735
J	1	NP	1' x 3'	BLACK	WHITE	CENTRIFUGE ALARM RESET	PB-1736
K	1	NP	1' x 3'	BLACK	WHITE	DATA ACCESS PORT	DAP-1128

NOTES:

- PROVIDE LAMINATED BLACK NAMEPLATE W/BEEVELED EDGES AND 1/2" WHITE LETTERS TO IDENTIFY EACH PANEL.
- PROVIDE LAMINATED BLACK NAMEPLATE WITH BEEVELED EDGES AND 1/4" LETTERS FOR EACH FRONT OF PANEL MOUNTED DEVICE.

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0	RR	15OCT21	SUBMITTAL APPROVAL ISSUE

Drawn	Approved	Date
RR	LM	15OCT21

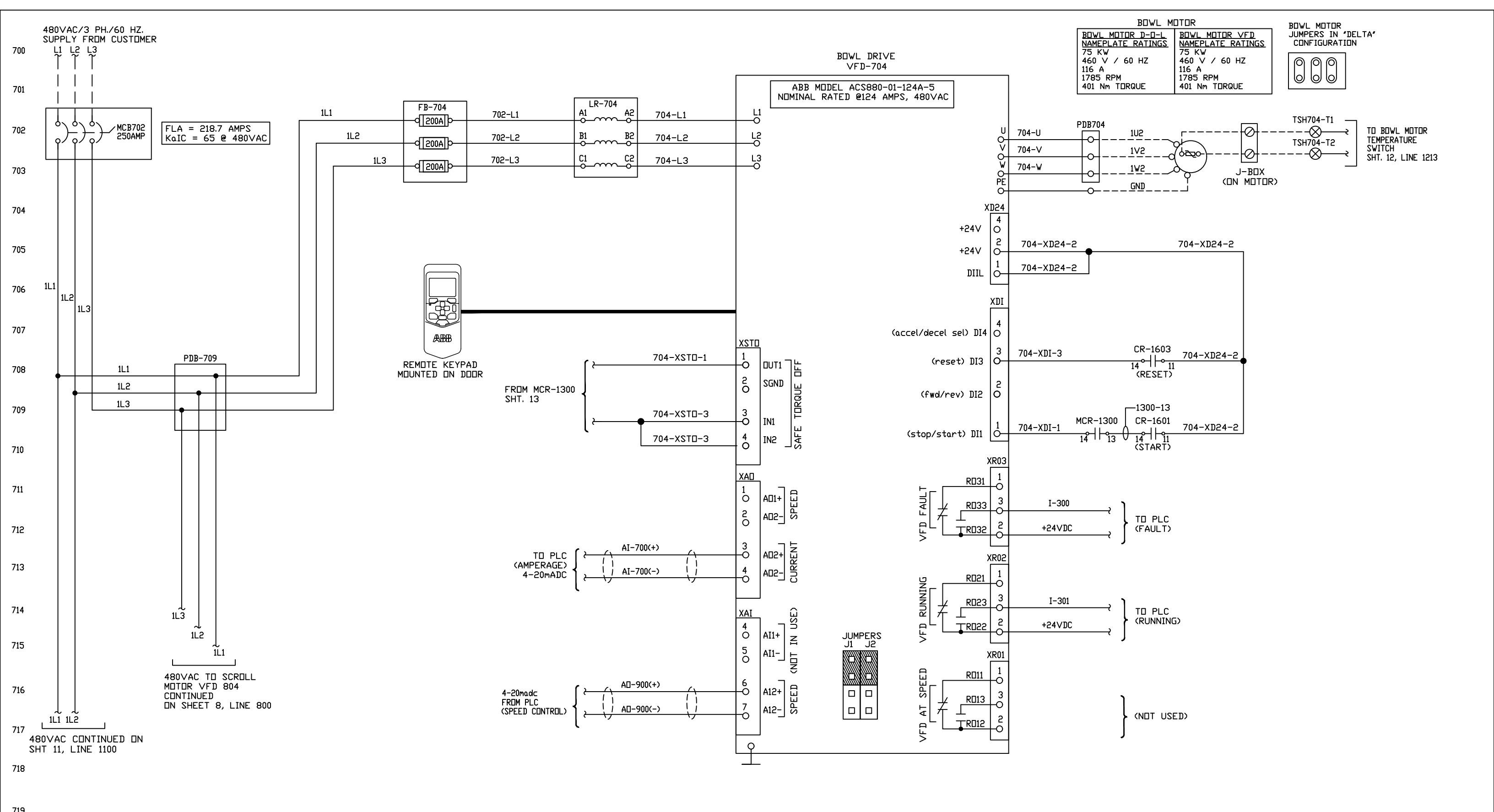
**GEA** Westfalia Separator, Inc.  
Mechanical Separation Division 100 Fairway Court Northvale, NJ 07647

Title  
CF7000 CENTRIFUGE  
LOCAL OPERATOR PANEL

TAUNTON, MA 2652.395.848

Sheet	Machine Type	DWG. NO.	Rev.
6 OF 25	CF 7000	9200-5901-587-10551	0

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0	RR	15OCT21	SUBMITTAL APPROVAL ISSUE
REV.	BY	DATE	REVISION

**TERMINAL BLOCK LEGEND**

- ⊗ MAIN CONTROL PANEL
- ⊙ LOCAL OPERATOR PANEL
- ⬢ CUSTOMER
- ⬤ X20 TERMINAL BLOCK
- △ X47 TERMINAL BLOCK
- X48 TERMINAL BLOCK
- X11 TERMINAL BLOCK
- EXTERNAL WIRING

Drawn	Approved	Date
RR	LM	15OCT21

**GEA MECHANICAL EQUIPMENT US, INC.**

100 Fairway Court Northvale, NJ 07647

Title: **CF7000 CENTRIFUGE BOWL MOTOR VFD**

TAUNTON, MA 2652.395.848

Sheet	Machine Type	DWG. NO.	Rev.
7 OF 25	CF 7000	9200-5901-587-10551	0

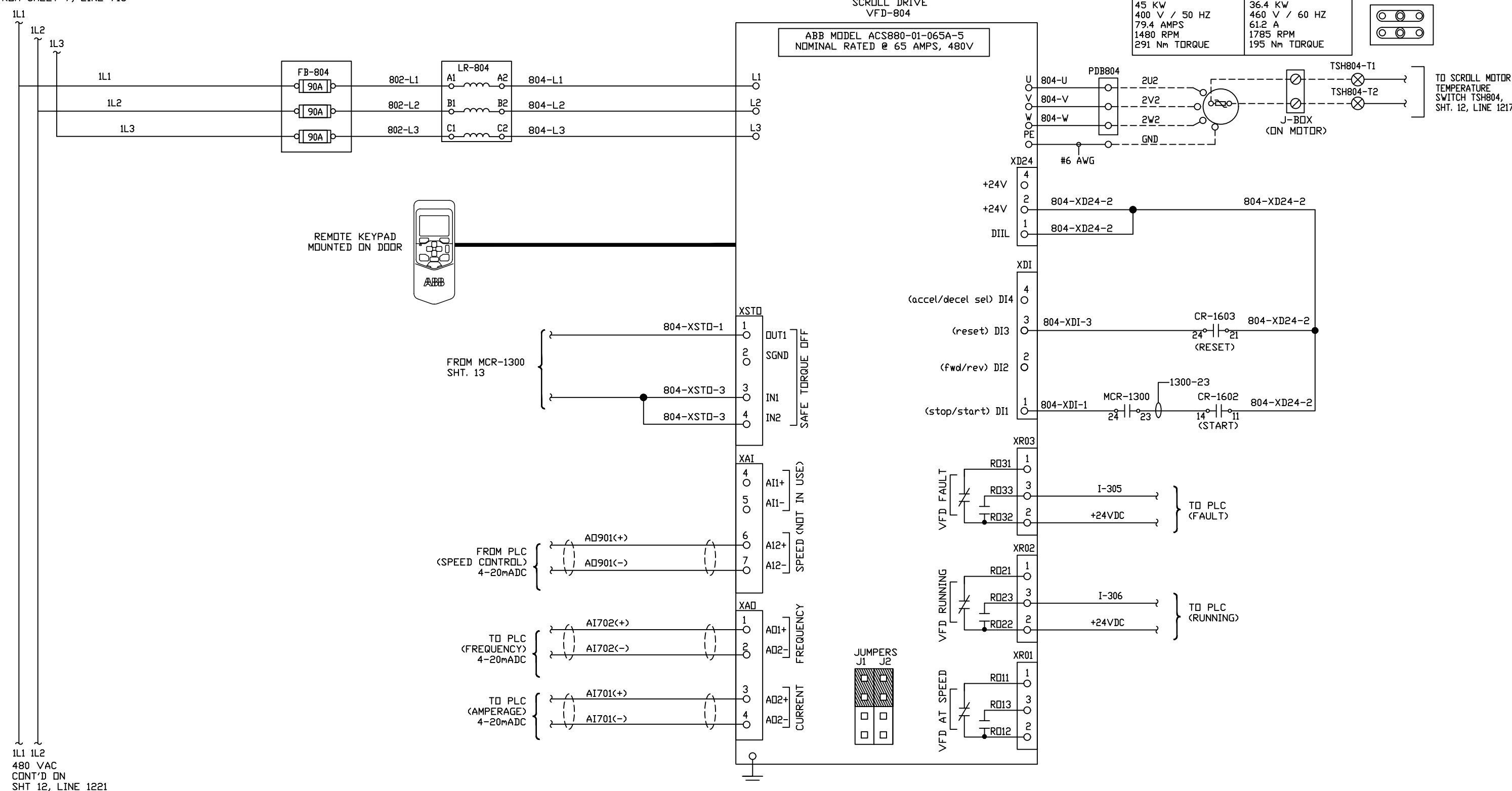
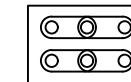
480 VAC CONTINUED  
FROM SHEET 7, LINE 713

SCROLL DRIVE  
VFD-804

ABB MODEL ACS880-01-065A-5  
NOMINAL RATED @ 65 AMPS, 480V

SCROLL MOTOR	
SCROLL MOTOR D-0-L NAMEPLATE RATINGS	SCROLL MOTOR VFD NAMEPLATE RATINGS
45 KW	36.4 KW
400 V / 50 HZ	460 V / 60 HZ
79.4 AMPS	61.2 A
1480 RPM	1785 RPM
291 Nm TORQUE	195 Nm TORQUE

SCROLL MOTOR JUMPERS IN  
"WYE" CONFIGURATION



1L1 1L2  
480 VAC  
CONT'D DN  
SHT 12, LINE 1221

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0	RR	15OCT21	SUBMITTAL APPROVAL ISSUE

TERMINAL BLOCK LEGEND		
⊗	MAIN CONTROL PANEL	
⊙	LOCAL OPERATOR PANEL	
⬢	CUSTOMER	
⬤	X20 TERMINAL BLOCK	
△	X47 TERMINAL BLOCK	
□	X48 TERMINAL BLOCK	
■	X11 TERMINAL BLOCK	
---	EXTERNAL WIRING	

**GEA MECHANICAL EQUIPMENT US, INC.**  
100 Fairway Court Northvale, NJ 07647

Title: **CF7000 CENTRIFUGE SCROLL MOTOR VFD**

TAUNTON, MA 2652.395.848

Drawn	Approved	Date	Sheet	Machine Type	DWG. NO.	Rev.
RR	LM	15OCT21	8 OF 25	CF 7000	9200-5901-587-10551	0

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.....SPARE SHEET.....

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TERMINAL BLOCK LEGEND		
⊗	MAIN CONTROL PANEL	
⊙	LOCAL OPERATOR PANEL	
▲	CUSTOMER	
◆	X20 TERMINAL BLOCK	
△	X47 TERMINAL BLOCK	
□	X48 TERMINAL BLOCK	
■	X11 TERMINAL BLOCK	
----	EXTERNAL WIRING	
Drawn	Approved	Date
RR	LM	15OCT21

**GEA** Westfalia Separator, Inc.  
 Mechanical Separation Division 100 Fairway Court Northvale, NJ 07647

Title  
 CF7000 CENTRIFUGE  
 SPARE SHEET

TAUNTON, MA 2652.395.848

Sheet	Machine Type	DWG. NO.	Rev.
9 OF 25	CF 7000	9200-5901-587-10551	0

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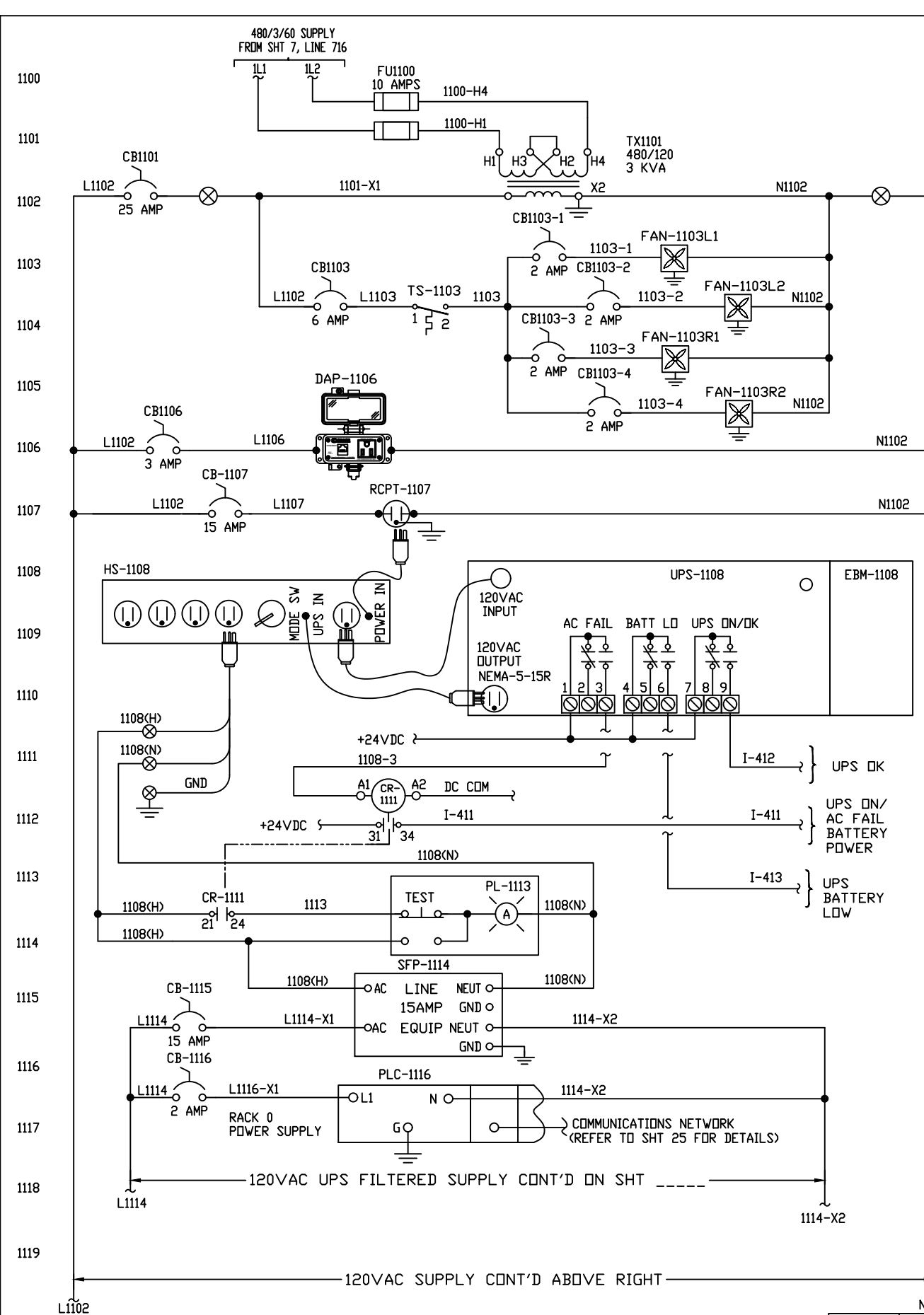
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⊙	LOCAL OPERATOR PANEL	
▲	CUSTOMER	
◆	X20 TERMINAL BLOCK	
△	X47 TERMINAL BLOCK	
□	X48 TERMINAL BLOCK	
■	X11 TERMINAL BLOCK	
---	EXTERNAL WIRING	
Drawn	Approved	Date
RR	LM	15OCT21

**GEA** Westfalia Separator, Inc.  
 Mechanical Separation Division 100 Fairway Court Northvale, NJ 07647

Title  
 CF7000 CENTRIFUGE  
 SPARE SHEET

TAUNTON, MA 2652.395.848

Sheet	Machine Type	DWG. NO.	Rev.
10 OF 25	CF 7000	9200-5901-587-10151	0



MCC/VFD ENCLOSURE COOLING FANS

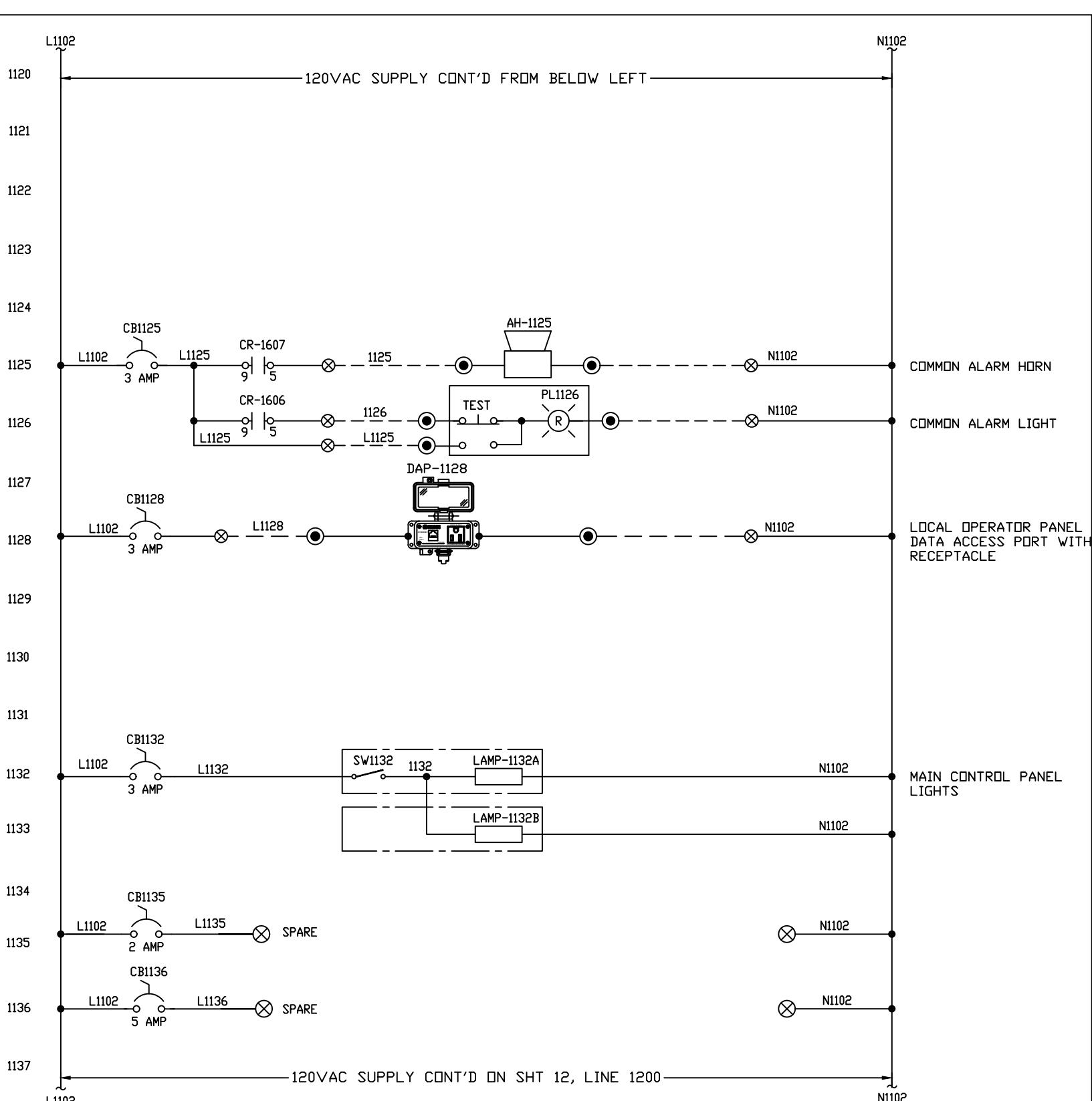
MAIN CONTROL PANEL DATA ACCESS PORT WITH RECEPTACLE  
 LOCAL CONTROL PANEL UPS DEDICATED RECEPTACLE

UNINTERRUPTIBLE POWER SUPPLY W/ RELAY CARD 1500VA/1350W

UPS ON/AC FAIL BATTERY POWER INDICATING LIGHT

SURGE FILTER PROTECTOR TVSS - EMI/RFI

COMPACT LOGIX PLC POWER SUPPLY



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TERMINAL BLOCK LEGEND	
⊗	MAIN CONTROL PANEL
⊙	LOCAL OPERATOR PANEL
⬢	CUSTOMER
⬤	X20 TERMINAL BLOCK
⬢	X47 TERMINAL BLOCK
⬢	X48 TERMINAL BLOCK
⬢	X11 TERMINAL BLOCK
---	EXTERNAL WIRING

**GEA MECHANICAL EQUIPMENT US, INC.**  
 100 Fairway Court Northvale, NJ 07647

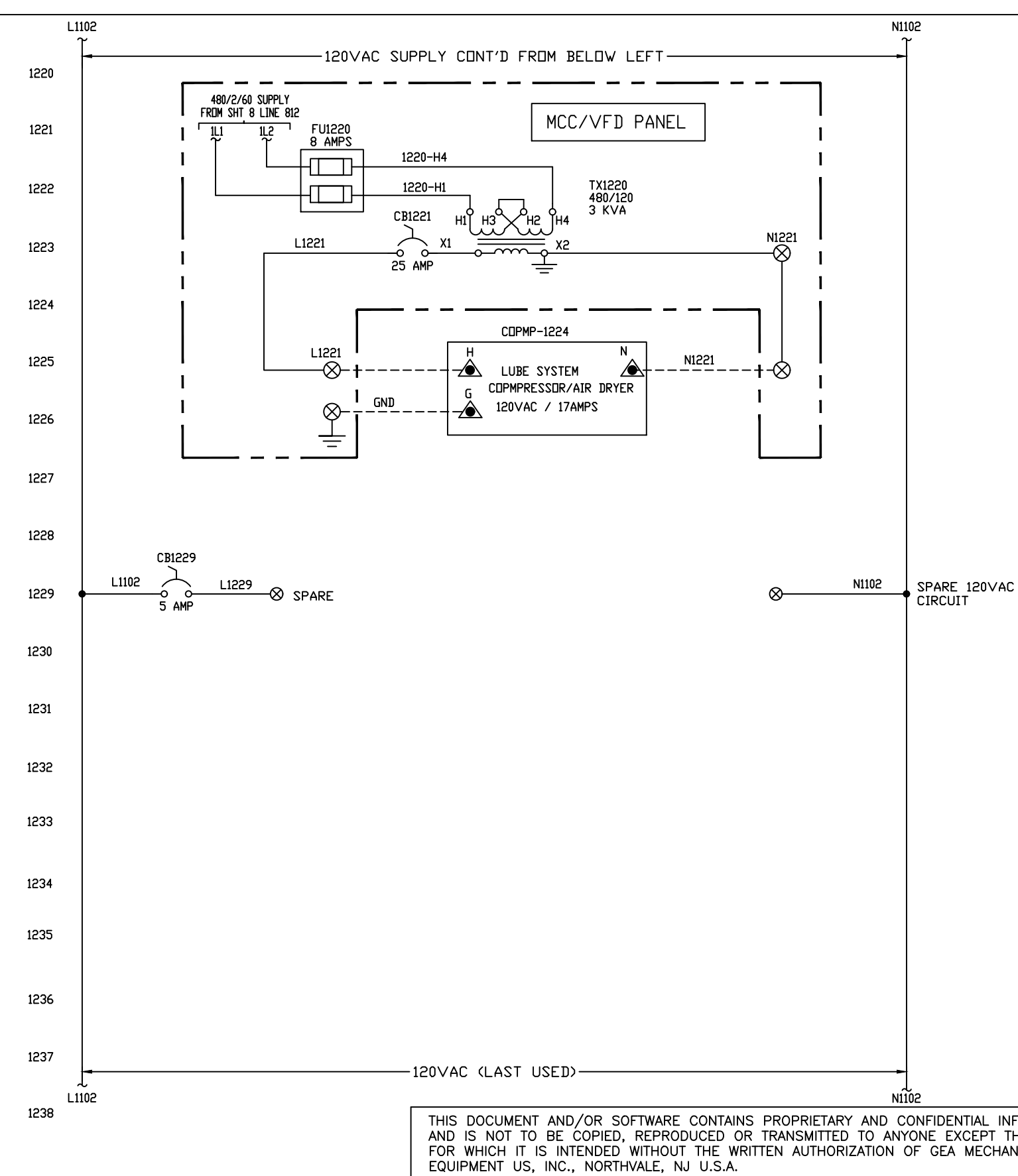
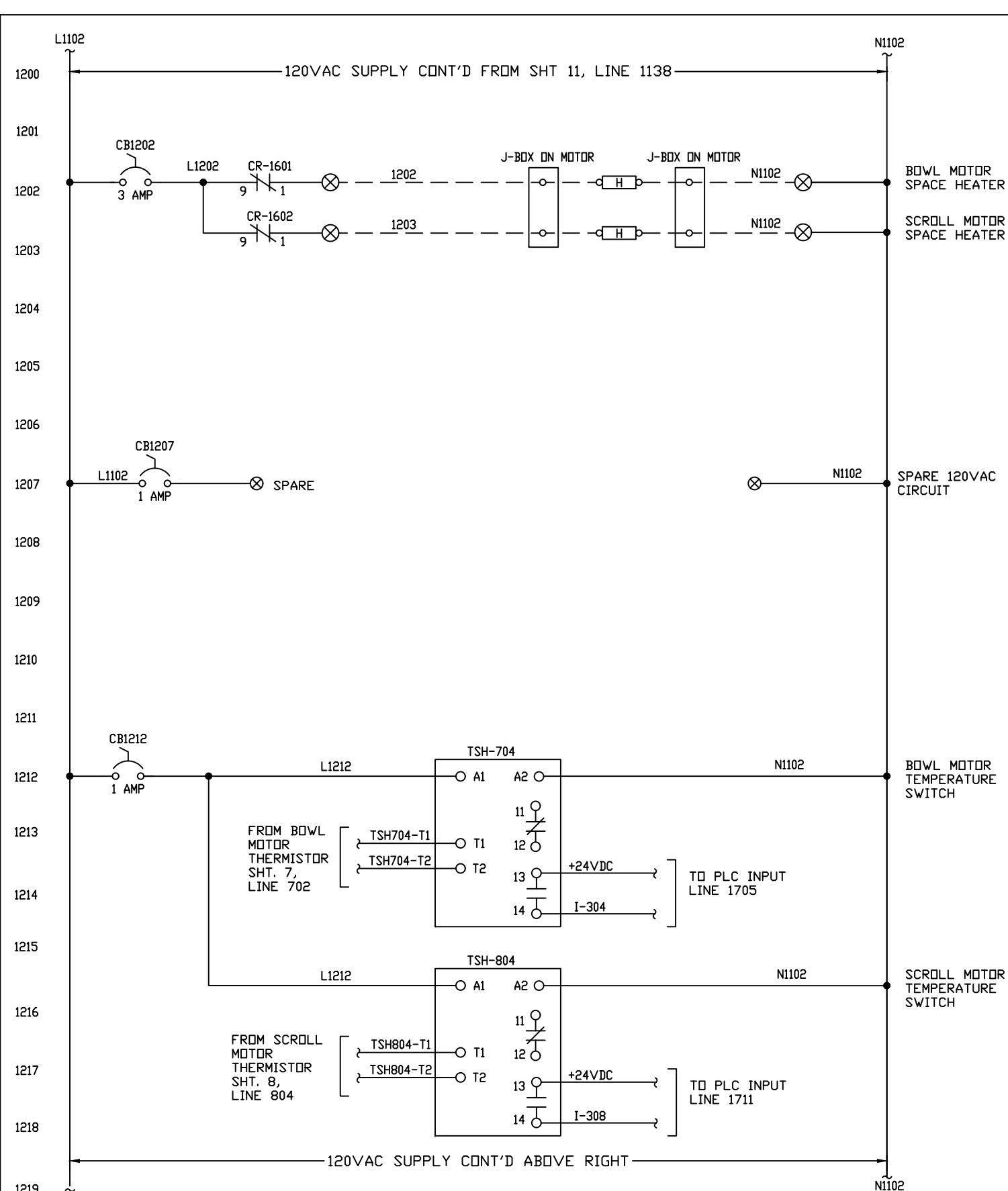
Title: **CF7000 CENTRIFUGE 120VAC POWER DISTRIBUTION**

TAUNTON, MA 2652.395.848

Drawn	Approved	Date	Sheet	Machine Type	DWG. NO.	Rev.
RR	LM	15OCT21	11 OF 25	CF 7000	9200-5901-587-10551	0

0	RR	15OCT21	REVISED FOR APPROVAL ISSUE
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REV.	BY	DATE	REVISION

TERMINAL BLOCK LEGEND		
⊗	MAIN CONTROL PANEL	
⊙	LOCAL OPERATOR PANEL	
⬇	CUSTOMER	
⬆	X20 TERMINAL BLOCK	
⬇	X47 TERMINAL BLOCK	
⬆	X48 TERMINAL BLOCK	
⬆	X11 TERMINAL BLOCK	
---	EXTERNAL WIRING	

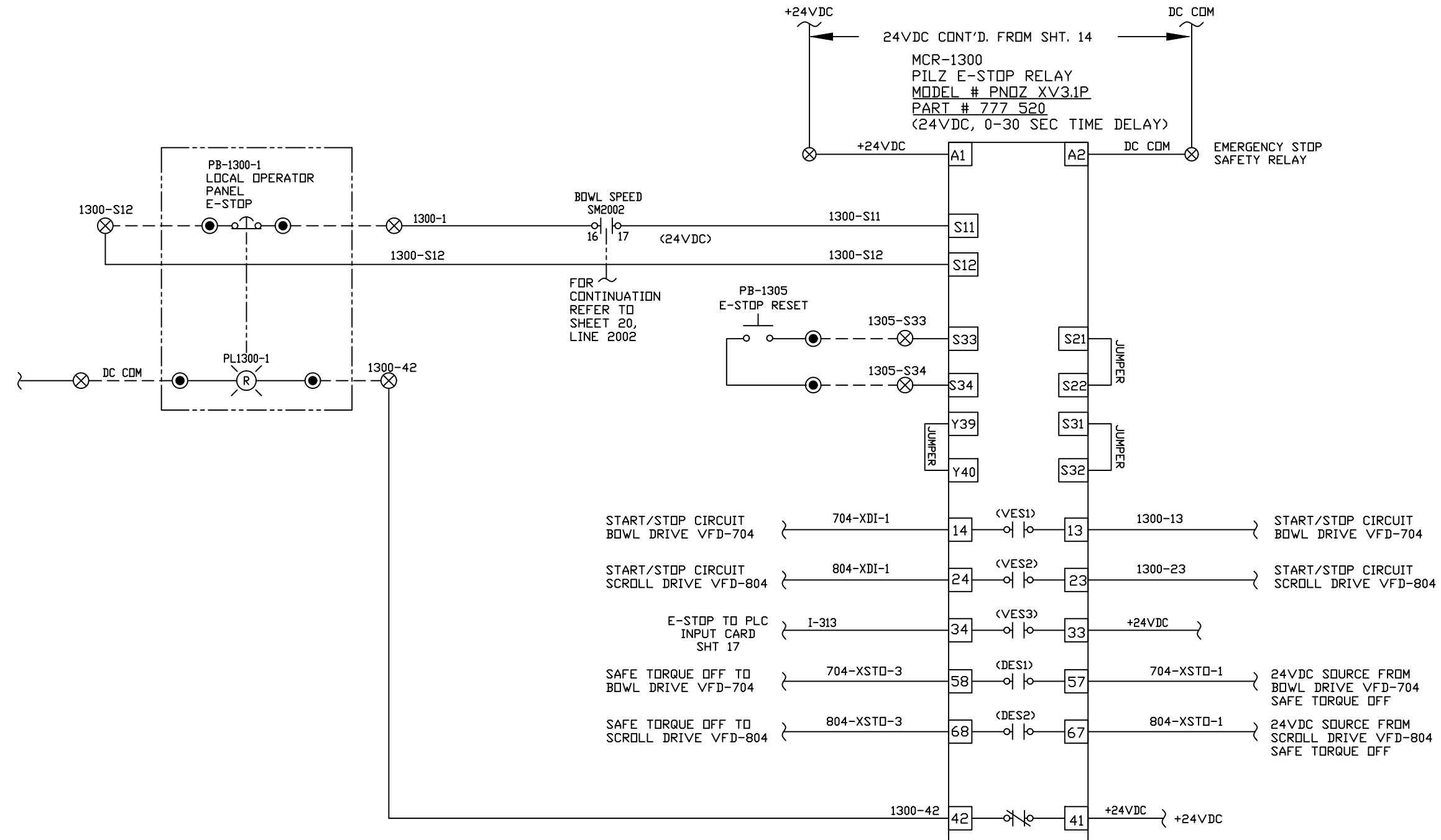
**GEA MECHANICAL EQUIPMENT US, INC.**  
 100 Fairway Court Northvale, NJ 07647

Title: **CF7000 CENTRIFUGE 120VAC POWER DISTRIBUTION**

TAUNTON, MA 2652.395.848

Drawn	Approved	Date	Sheet	Machine Type	DWG. NO.	Rev.
RR	LM	15OCT21	12 OF 25	CF 7000	9200-5901-587-10551	0

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NOTES:  
1. VES = INSTANTANEOUS E-STOP.  
2. DES = DELAYED E-STOP.  
3. SET DELAY TIMER TO 1 SECOND.

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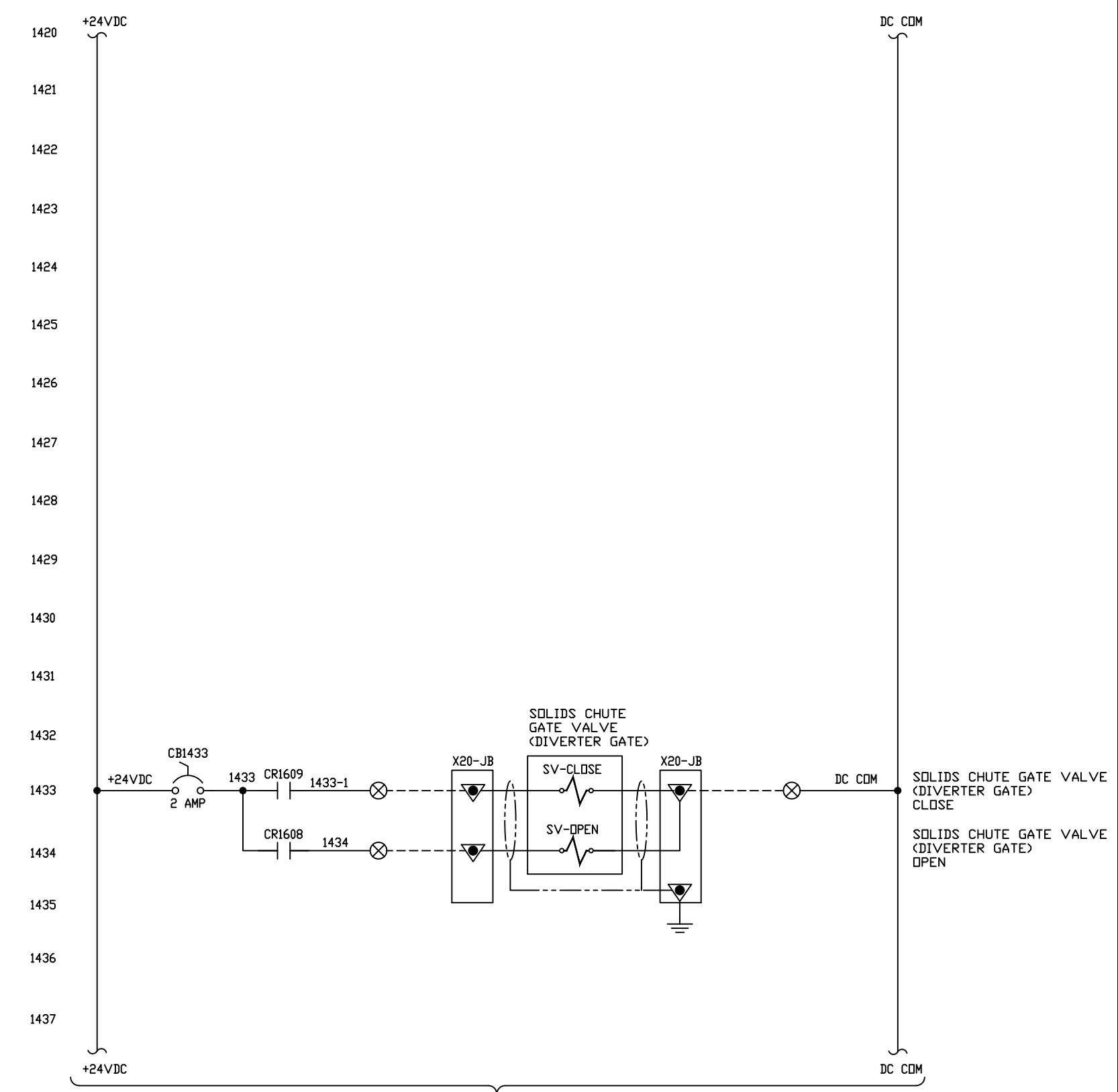
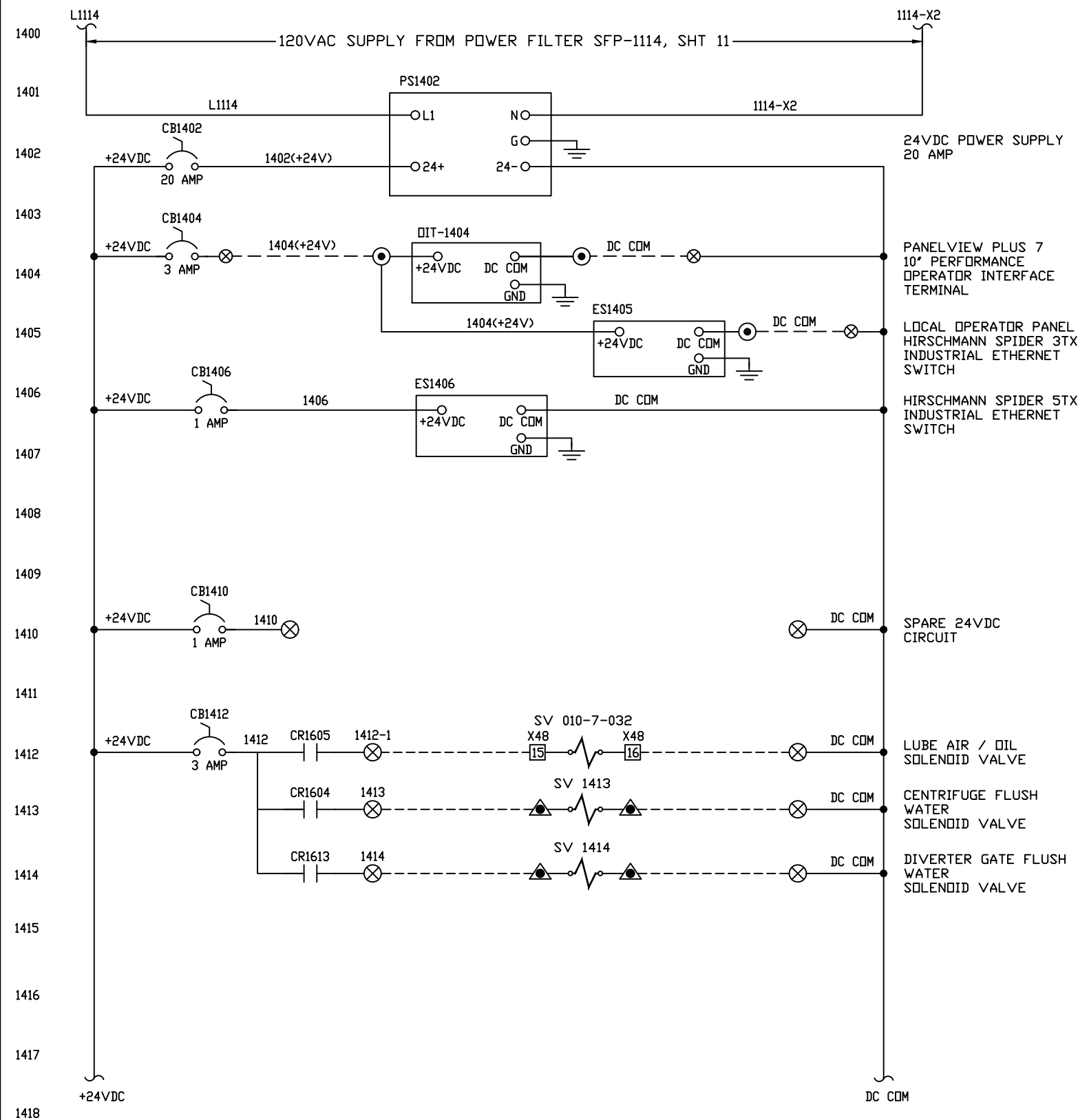
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□	X48 TERMINAL BLOCK	
■	X11 TERMINAL BLOCK	
---	EXTERNAL WIRING	
Drawn	Approved	Date
RR	LM	15OCT21

**GEA MECHANICAL EQUIPMENT US, INC.**  
100 Fairway Court Northvale, NJ 07647

Title: **CF7000 CENTRIFUGE E-STOP RELAY**

TAUNTON, MA 2652.395.848

Sheet	Machine Type	DWG. NO.	Rev.
13 OF 25	CF 7000	9200-5901-587-10551	0



CONT'D ON SHT 13, LINE 1300 & SHT 20, LINE 2000

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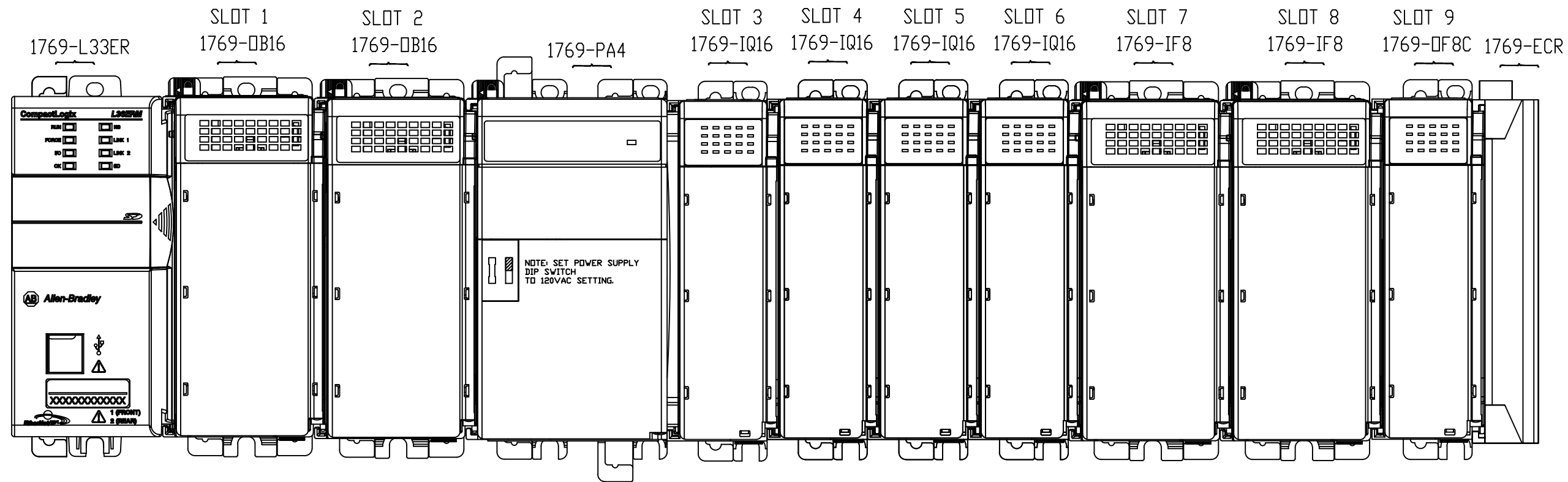
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⊙	LOCAL OPERATOR PANEL	
▲	CUSTOMER	
◊	X20 TERMINAL BLOCK	
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□	X48 TERMINAL BLOCK	
■	X11 TERMINAL BLOCK	
---	EXTERNAL WIRING	
Drawn	Approved	Date
RR	LM	15OCT21

**GEA MECHANICAL EQUIPMENT US, INC.**  
 100 Fairway Court Northvale, NJ 07647

Title: **CF7000 CENTRIFUGE 24VDC POWER DISTRIBUTION**

TAUNTON, MA 2652.395.848

Sheet	Machine Type	DWG. NO.	Rev.
14 OF 25	CF 7000	9200-5901-587-10551	0



NOTE:  
 THE MAXIMUM CONFIGURATION FOR THE FIRST BANK OF A COMPACTLOGIX CONTROLLER IS  
 THE CONTROLLER AND THREE I/O MODULES TO THE LEFT OF THE POWER SUPPLY AND  
 EIGHT I/O MODULES TO THE RIGHT OF THE POWER SUPPLY.

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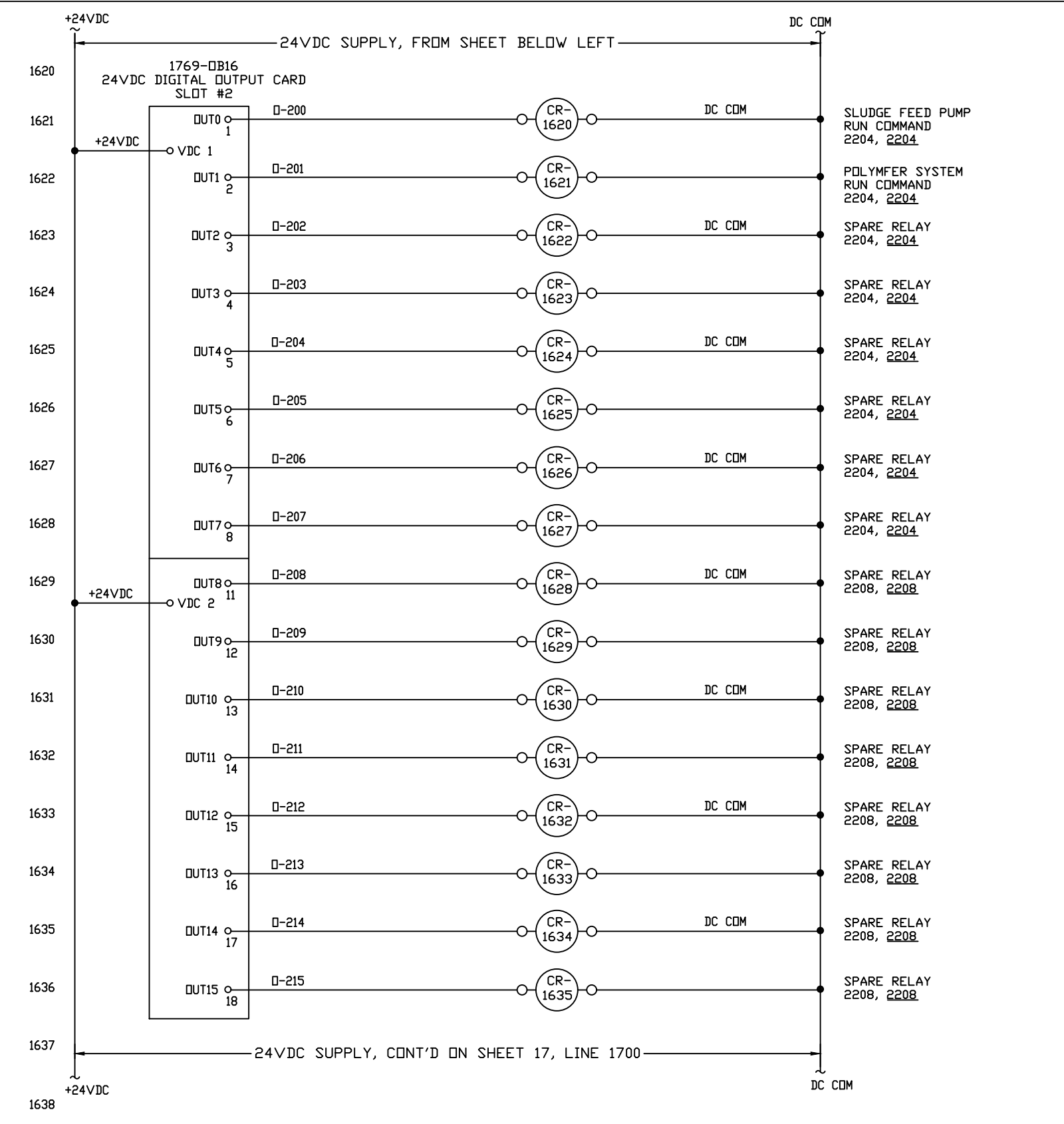
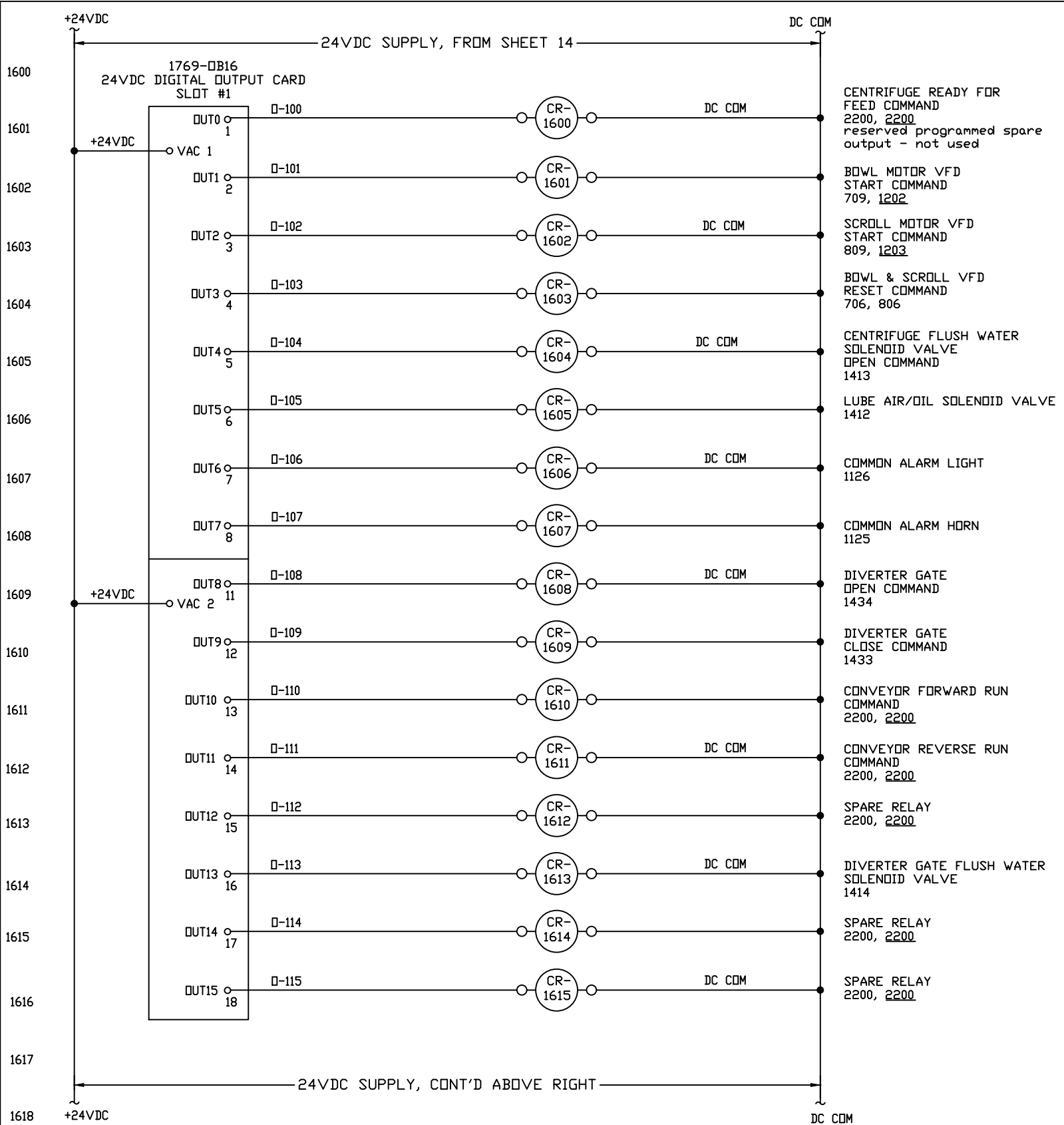
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REV.	BY	DATE	REVISION

TERMINAL BLOCK LEGEND		
⊗	MAIN CONTROL PANEL	
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△	X47 TERMINAL BLOCK	
□	X48 TERMINAL BLOCK	
■	X11 TERMINAL BLOCK	
----	EXTERNAL WIRING	
Drawn	Approved	Date
RR	LM	15OCT21

**GEA MECHANICAL EQUIPMENT US, INC.**  
 100 Fairway Court Northvale, NJ 07647

Title: **CF7000 CENTRIFUGE  
 COMPACT LOGIX  
 PLC RACK LAYOUT**  
 TAUNTON, MA 2652.395.848

Sheet	Machine Type	DWG. NO.	Rev.
15 OF 25	CF 7000	9200-5901-587-10551	0



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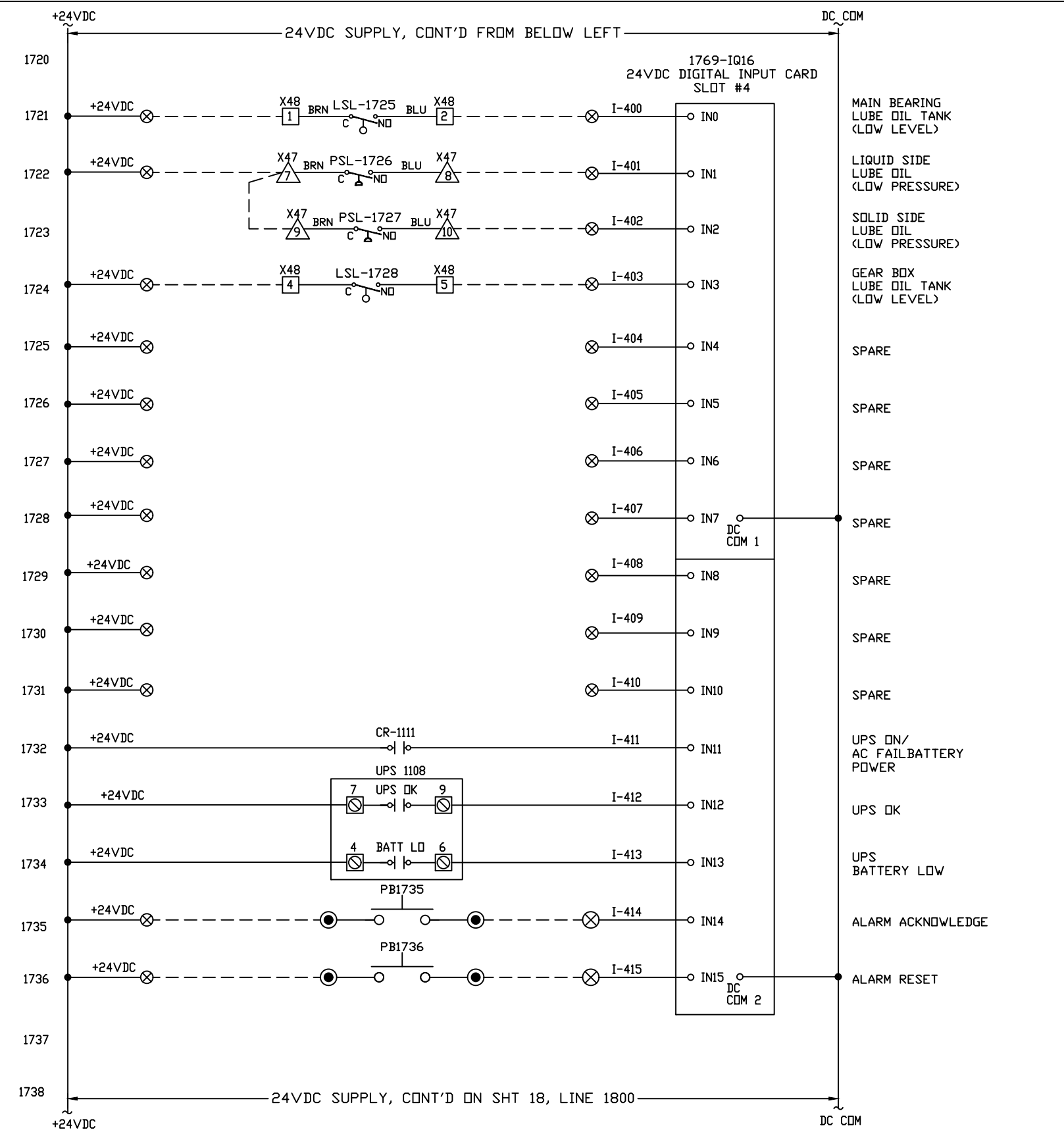
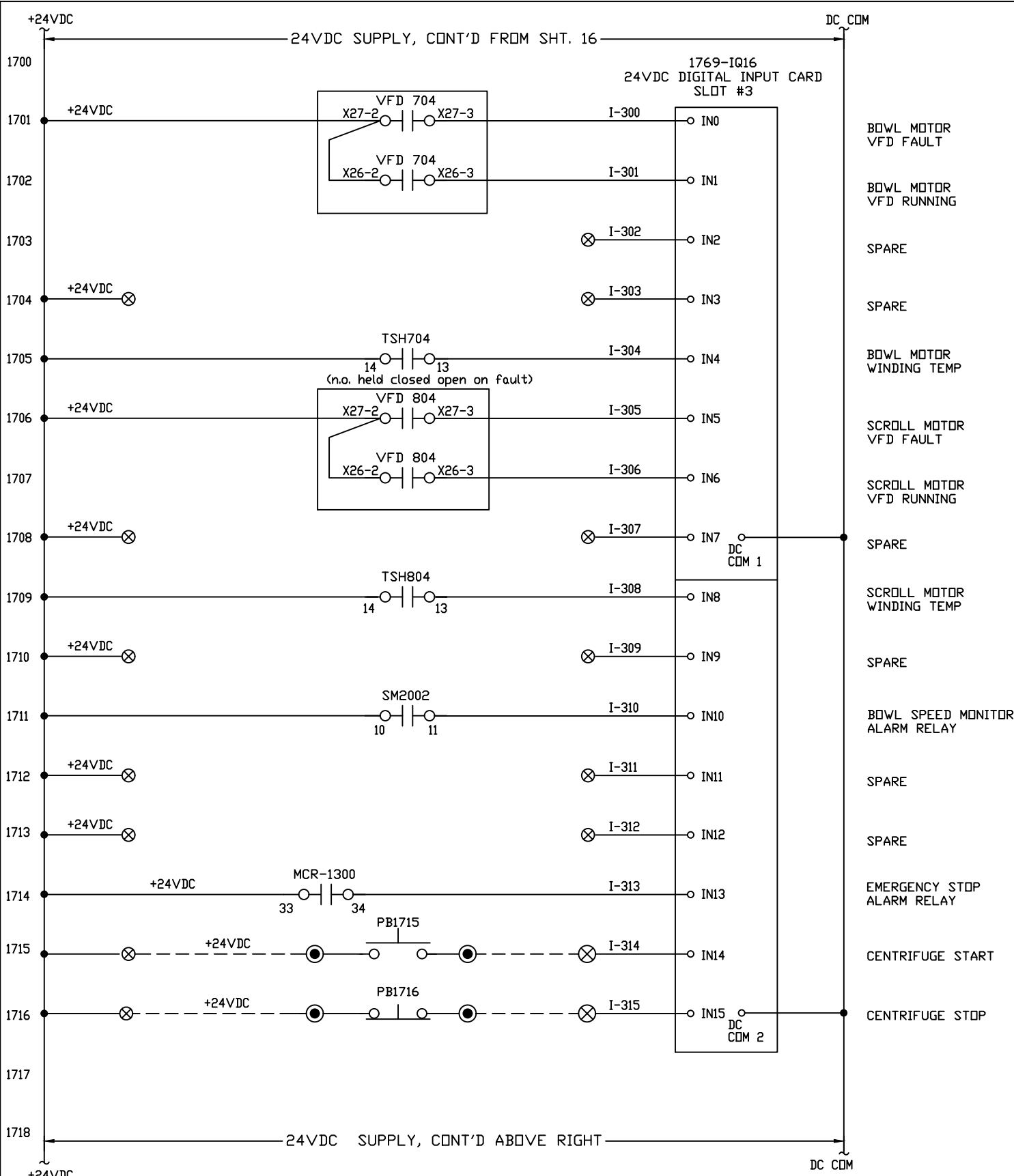
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⊗	MAIN CONTROL PANEL	
⊙	LOCAL OPERATOR PANEL	
▲	CUSTOMER	
◆	X20 TERMINAL BLOCK	
△	X47 TERMINAL BLOCK	
□	X48 TERMINAL BLOCK	
■	X11 TERMINAL BLOCK	
---	EXTERNAL WIRING	
Drawn	Approved	Date
RR	LM	15OCT21

**GEA MECHANICAL EQUIPMENT US, INC.**  
100 Fairway Court Northvale, NJ 07647

Title: **CF7000 CENTRIFUGE PLC SLOTS 1 & 2**

TAUNTON, MA 2652.395.848

Sheet	Machine Type	DWG. NO.	Rev.
16 OF 25	CF 7000	9200-5901-587-10551	0



0	RR	15OCT21	SUBMITTAL APPROVAL ISSUE
REV.	BY	DATE	REVISION

TERMINAL BLOCK LEGEND		
⊗	MAIN CONTROL PANEL	
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▲	CUSTOMER	
◊	X20 TERMINAL BLOCK	
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---	EXTERNAL WIRING	
Drawn	Approved	Date
RR	LM	15OCT21

**GEA MECHANICAL EQUIPMENT US, INC.**  
 100 Fairway Court Northvale, NJ 07647

Title: **CF7000 CENTRIFUGE PLC I/O**

TAUNTON, MA 2652.395.848

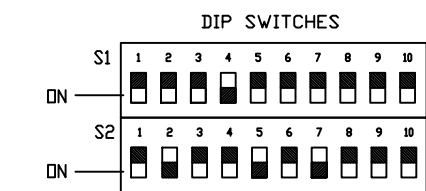
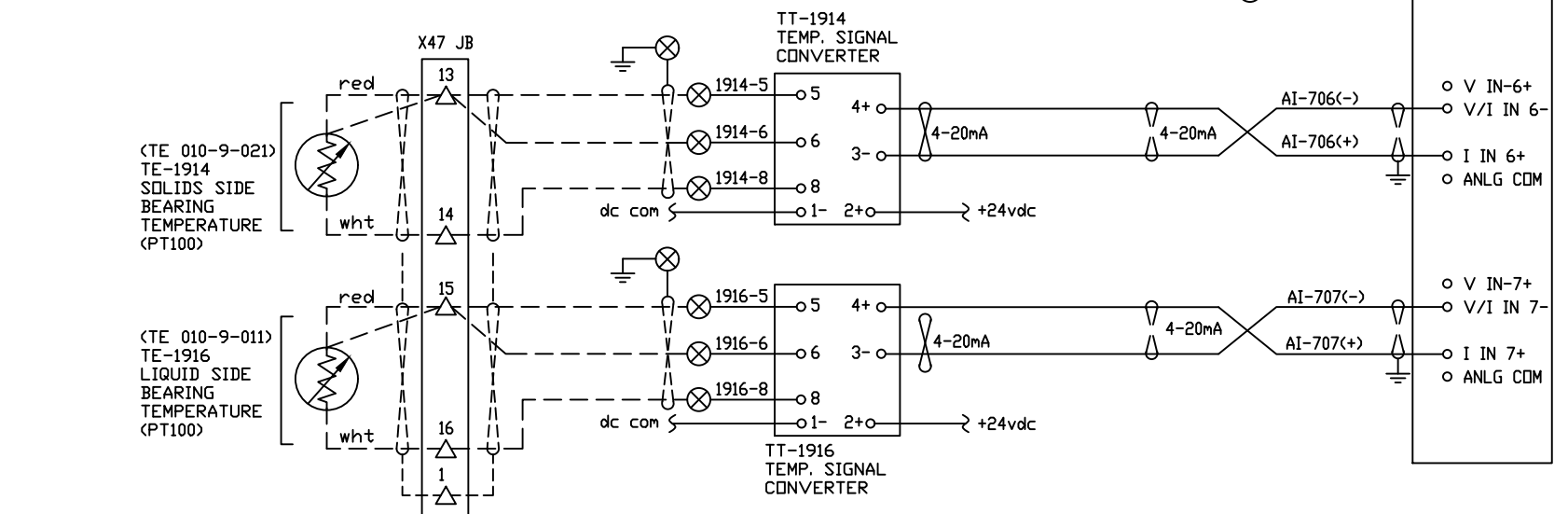
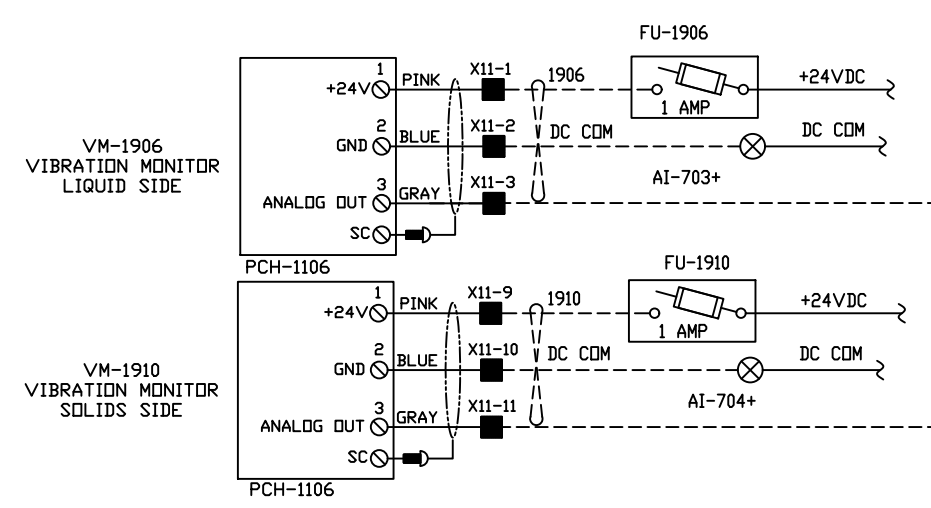
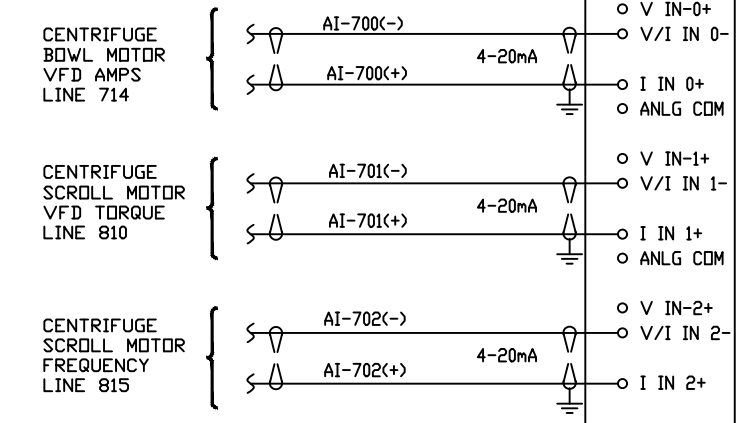
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17 OF 25	CF 7000	9200-5901-587-10551	0

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1769-IF8  
ANALOG INPUT MODULE  
SLOT 7

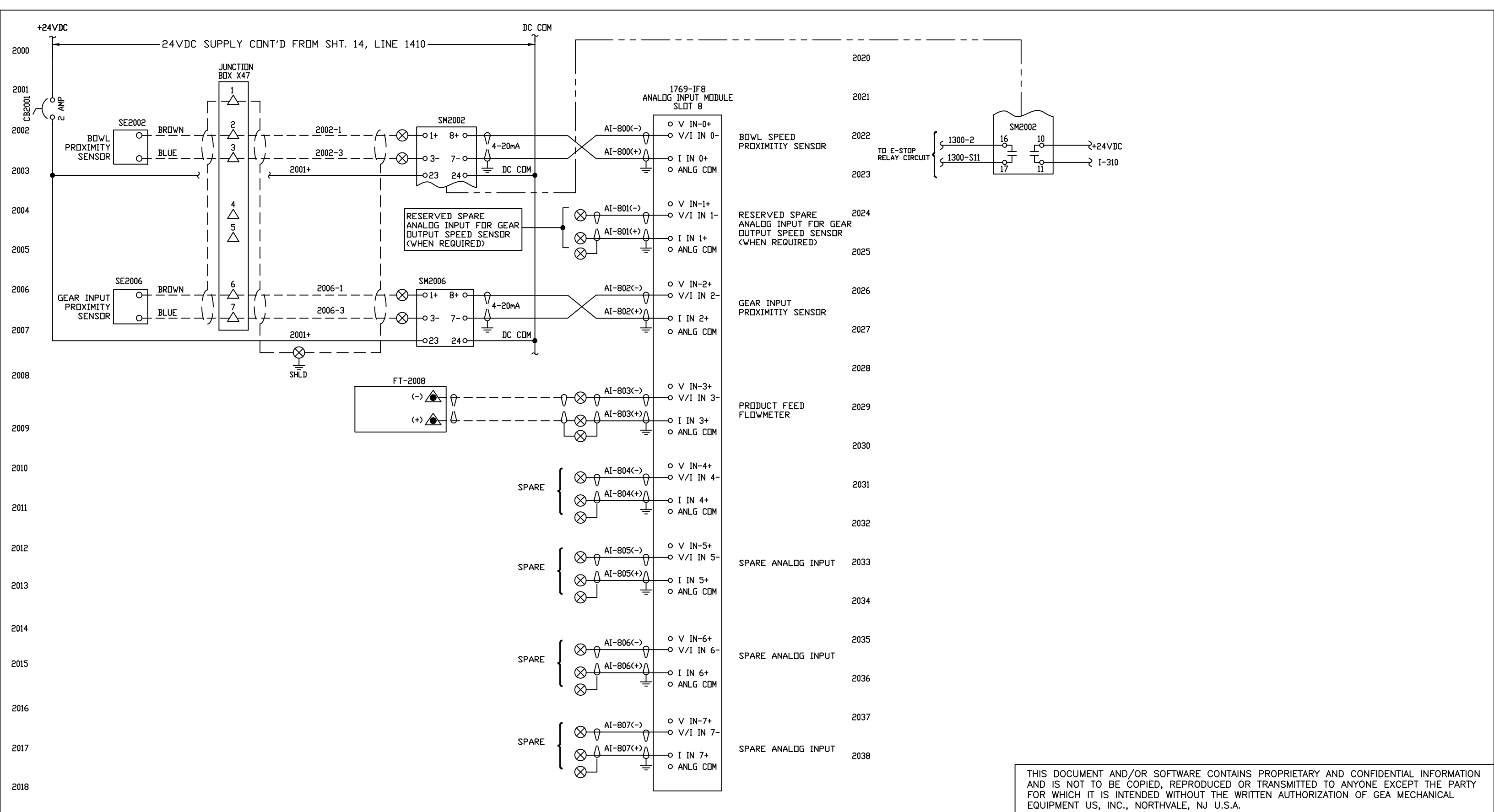


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<p>TERMINAL BLOCK LEGEND</p> <ul style="list-style-type: none"> <li>⊗ MAIN CONTROL PANEL</li> <li>⊙ LOCAL OPERATOR PANEL</li> <li>▲ CUSTOMER</li> <li>◊ X20 TERMINAL BLOCK</li> <li>△ X47 TERMINAL BLOCK</li> <li>□ X48 TERMINAL BLOCK</li> <li>■ X11 TERMINAL BLOCK</li> <li>--- EXTERNAL WIRING</li> </ul>			<p><b>GEA</b> MECHANICAL EQUIPMENT US, INC. 100 Fairway Court Northvale, NJ 07647</p>		
<p>Title</p> <p style="text-align: center;">CF7000 CENTRIFUGE PLC I/O</p>			<p>TAUNTON, MA 2652.395.848</p>		
Drawn	Approved	Date	Sheet	Machine Type	DWG. NO.
RR	LM	15OCT21	19 OF 25	CF 7000	9200-5901-587-10551
					Rev.
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---	EXTERNAL WIRING	
Drawn	Approved	Date
RR	LM	15OCT21

**GEA MECHANICAL EQUIPMENT US, INC.**  
 100 Fairway Court Northvale, NJ 07647

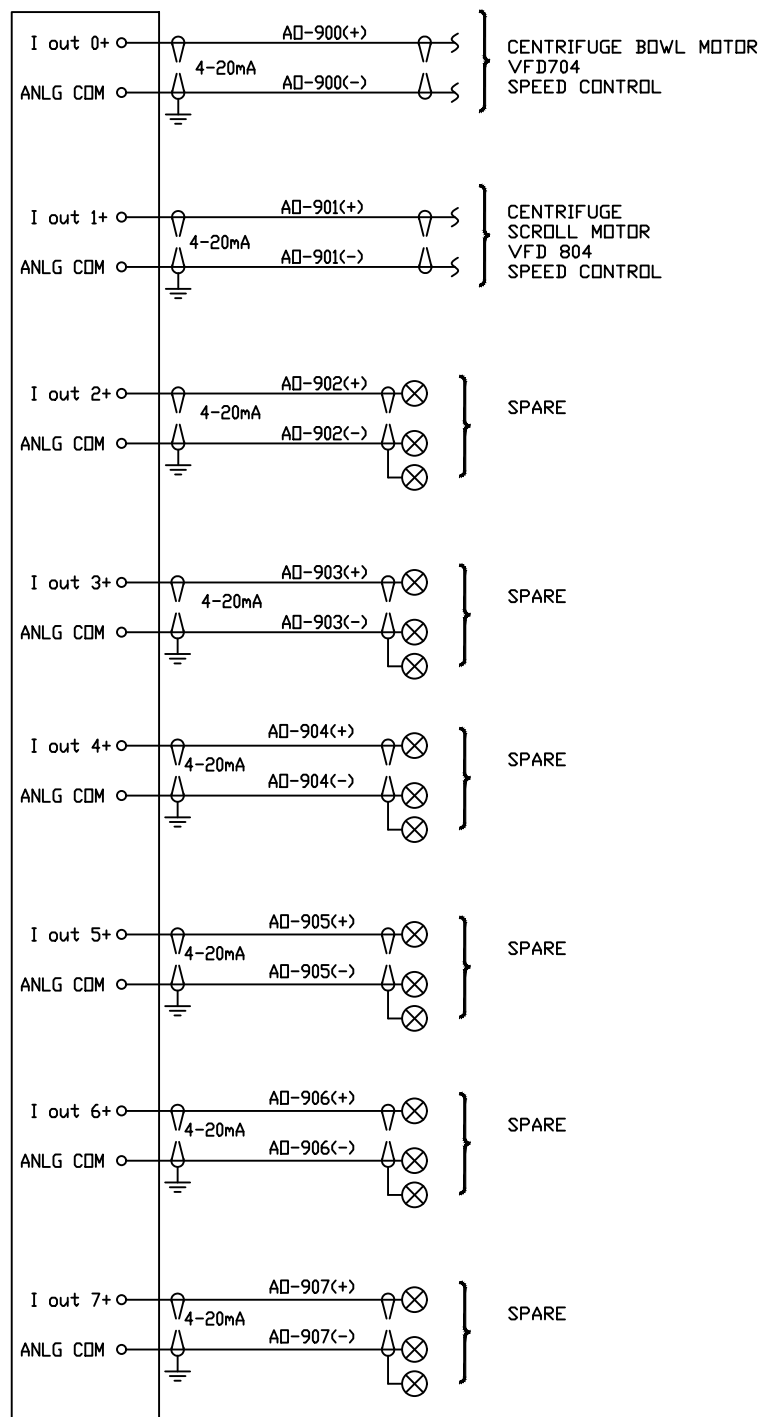
Title: **CF7000 CENTRIFUGE PLC I/O**

TAUNTON, MA 2652.395.848

Sheet	Machine Type	DWG. NO.	Rev.
20 OF 25	CF 7000	9200-5901-587-10551	0

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1769-DF8C  
ISOLATED ANALOG OUTPUT MODULE  
SLOT 9



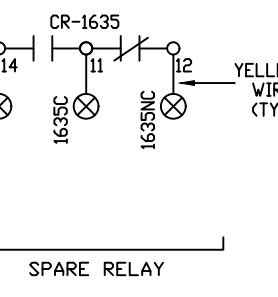
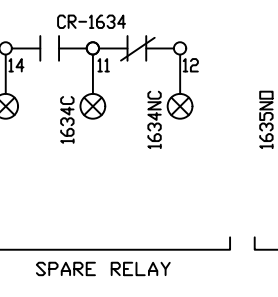
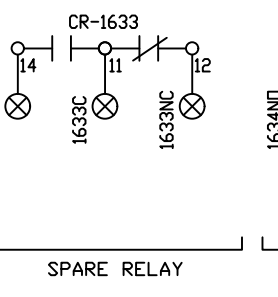
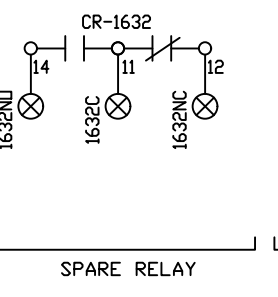
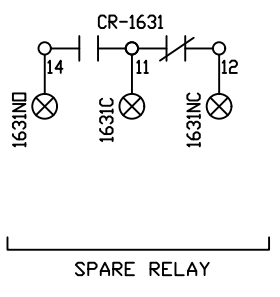
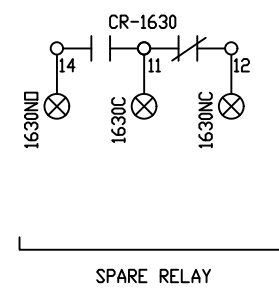
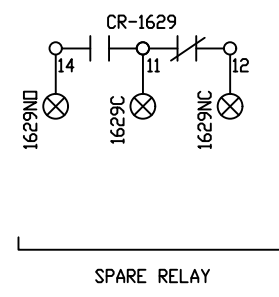
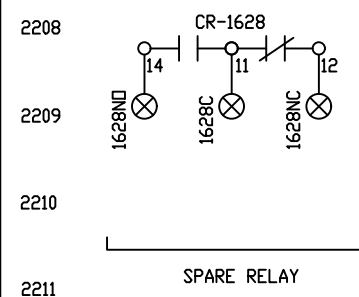
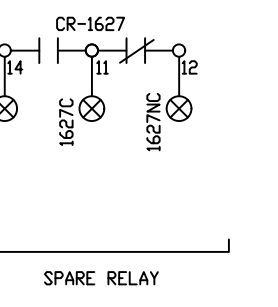
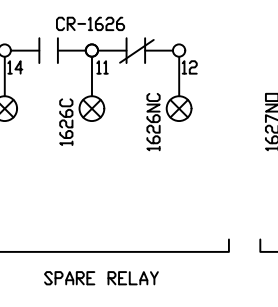
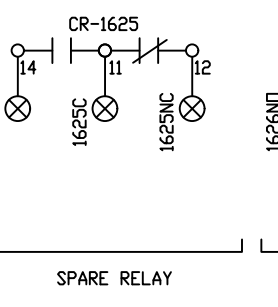
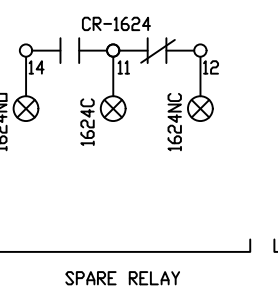
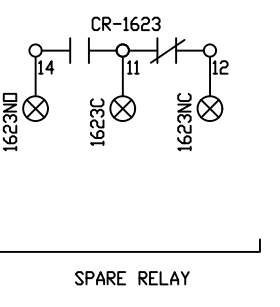
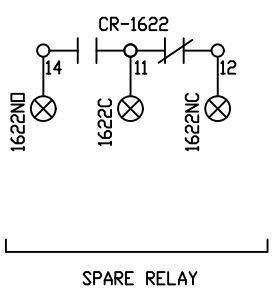
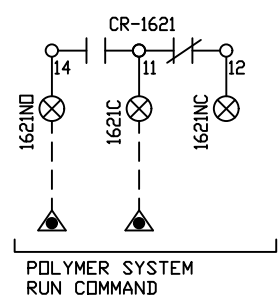
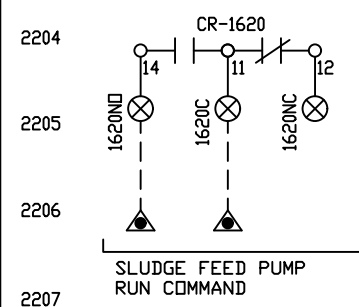
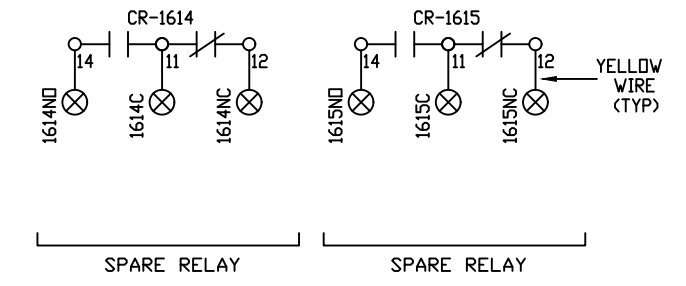
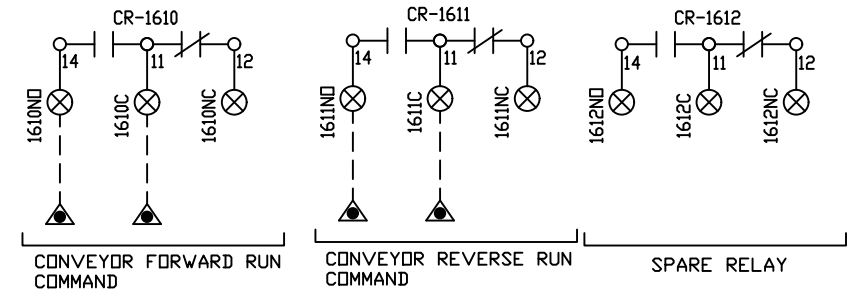
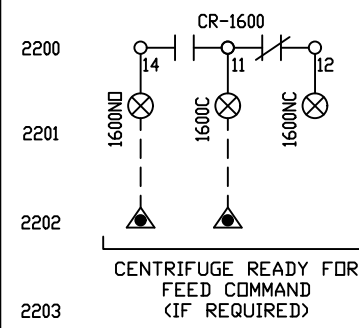
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0	RR	15OCT21	SUBMITTAL APPROVAL ISSUE
REV.	BY	DATE	REVISION

<b>TERMINAL BLOCK LEGEND</b> ⊗ MAIN CONTROL PANEL ● LOCAL OPERATOR PANEL ▲ CUSTOMER ◆ X20 TERMINAL BLOCK △ X47 TERMINAL BLOCK □ X48 TERMINAL BLOCK ■ X11 TERMINAL BLOCK --- EXTERNAL WIRING			 100 Fairway Court Northvale, NJ 07647 Title CF7000 CENTRIFUGE PLC I/O TAUNTON, MA 2652.395.848			
Drawn RR	Approved LM	Date 15OCT21		Sheet 21 OF 25	Machine Type CF 7000	DWG. NO. 9200-5901-587-10551



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TERMINAL BLOCK LEGEND

- ⊗ MAIN CONTROL PANEL
- LOCAL OPERATOR PANEL
- ▲ CUSTOMER
- ◆ X20 TERMINAL BLOCK
- △ X47 TERMINAL BLOCK
- X48 TERMINAL BLOCK
- X11 TERMINAL BLOCK
- EXTERNAL WIRING

**GEA MECHANICAL EQUIPMENT US, INC.**  
 100 Fairway Court Northvale, NJ 07647

Title: **CF7000 CENTRIFUGE RELAY CONTACTS FOR CUSTOMER CONTROLS**  
 TAUNTON, MA 2652.395.848

0	RR	15OCT21	SUBMITTAL APPROVAL ISSUE
REV.	BY	DATE	REVISION

Drawn	Approved	Date	Sheet	Machine Type	DWG. NO.	Rev.
RR	LM	15OCT21	22 OF 25	CF 7000	9200-5901-587-10551	0

.....SPARE SHEET.....

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0	RR	15OCT21	SUBMITTAL APPROVAL ISSUE
REV.	BY	DATE	REVISION

TERMINAL BLOCK LEGEND

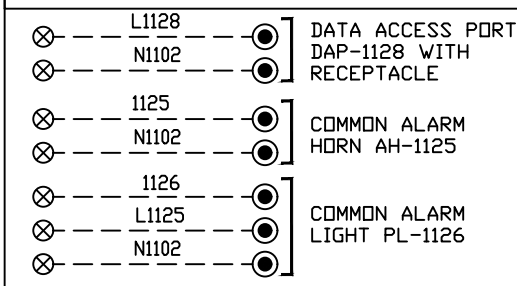
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- ⊙ LOCAL OPERATOR PANEL
- ▲ CUSTOMER
- ◆ X20 TERMINAL BLOCK
- △ X47 TERMINAL BLOCK
- X48 TERMINAL BLOCK
- X11 TERMINAL BLOCK
- EXTERNAL WIRING

**GEA** MECHANICAL EQUIPMENT US, INC.  
 100 Fairway Court Northvale, NJ 07647

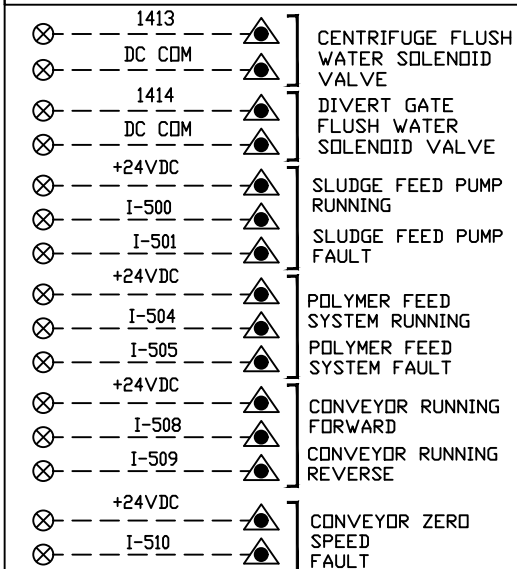
Title  
 CF7000 CENTRIFUGE  
 SPARE SHEET  
 TAUNTON, MA 2652.395.848

Drawn	Approved	Date	Sheet	Machine Type	DWG. NO.	Rev.
RR	LM	15OCT21	23 OF 25	CF 7000	9200-5901-587-10551	0

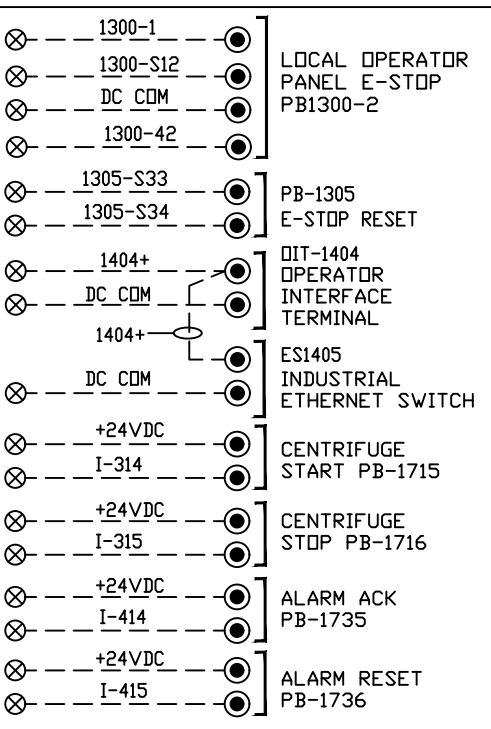
**120VAC - MAIN CONTROL PANEL TO LOCAL OPERATOR PANEL (#12AWG, 600V, MINIMUM RATED)**



**24VDC - MAIN CONTROL PANEL TO FIELD DEVICES (#14AWG, 600V, MINIMUM RATED)**



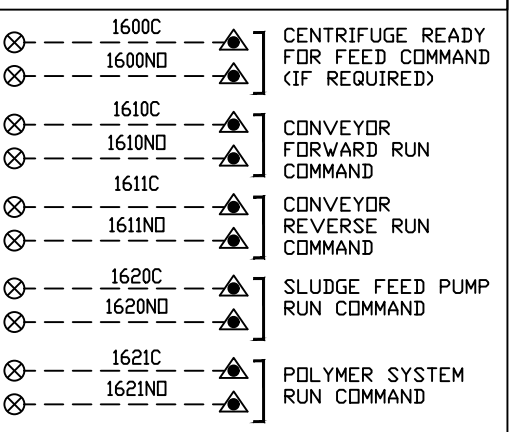
**24VDC - CONTROL PANEL TO LOCAL OPERATOR PANEL (#16AWG, 600V, MINIMUM RATED)**



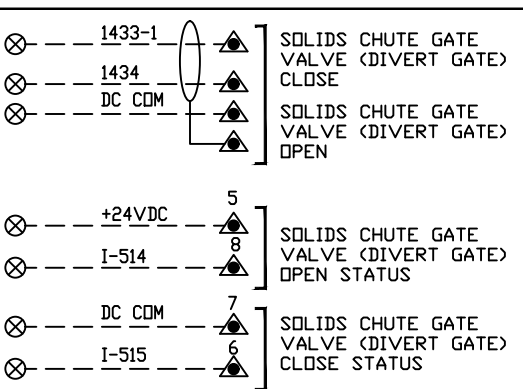
**4-20 MADC - CONTROL PANEL TO JUNCTION BOX (#16AWG, 600V, T.S.P.)**



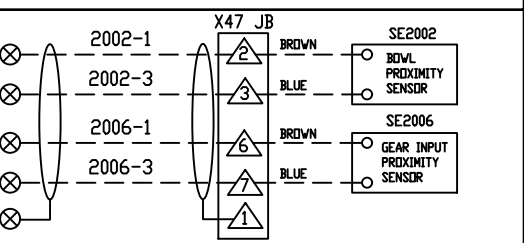
**DRY CONTACT RELAY OUTPUTS CONTROL PANEL TO CUSTOMER (#16AWG, 600V, MINIMUM RATED)**



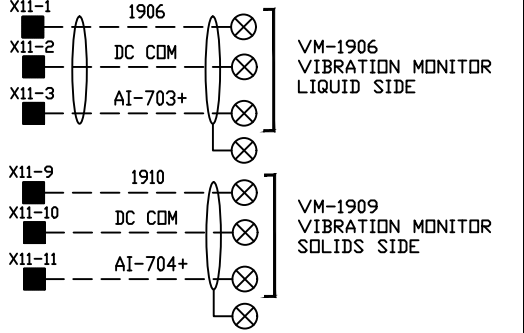
**24VDC - CONTROL PANEL TO X20 JUNCTION BOX (#16AWG, 600V, MIN. RATED)**



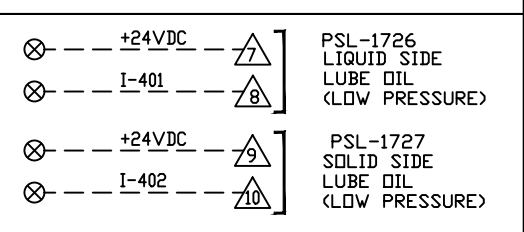
**24VDC - CONTROL PANEL TO X47 JUNCTION BOX (#16AWG, 600V, T.S.P. MIN. RATED)**



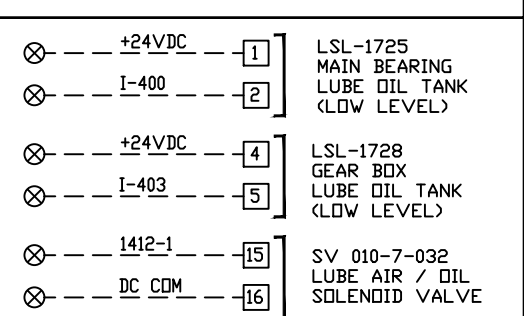
**24VDC & 4-20MADC - CONTROL PANEL TO (X-II JB) VIBRATION MONITORS (#16AWG, SHLD'D 300V, MINIMUM RATED)**



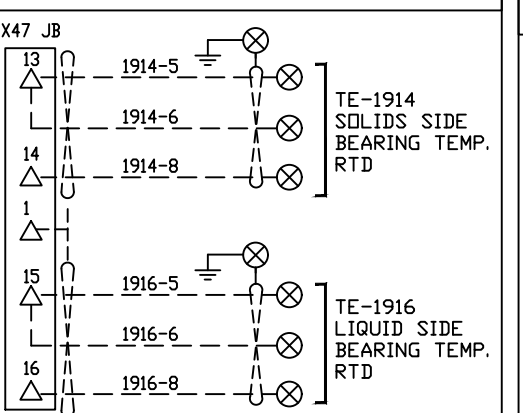
**24VDC - CONTROL PANEL TO X47 JUNCTION BOX (#16AWG, 600V, MIN. RATED)**



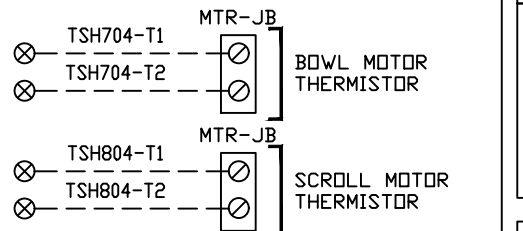
**24VDC - CONTROL PANEL TO X48 JUNCTION BOX (#16AWG, 600V, MIN. RATED)**



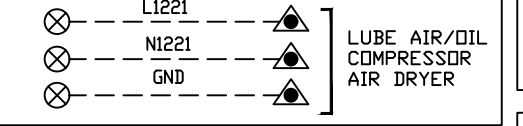
**RTD'S - CONTROL PANEL TO FIELD X47 JUNCTION BOX #16 AWG TWISTED SHIELDED TRIAD**



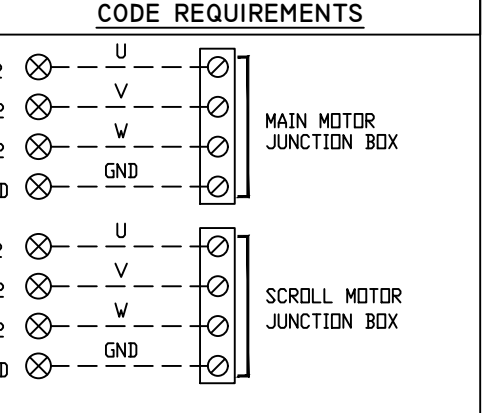
**24VDC - CONTROL PANEL TO MOTOR JUNCTION BOXES (#16AWG, 600V, MINIMUM RATED)**



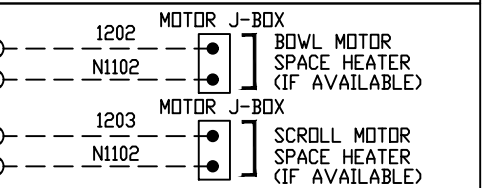
**120VAC - MAIN CONTROL PANEL TO CUSTOMER FIELD DEVICES (#14AWG, 600V, MINIMUM RATED)**



**480 VAC - CENTRIFUGE PANEL TO MOTORS SIZE TO SUIT LOCAL ELECTRICAL CODE REQUIREMENTS**



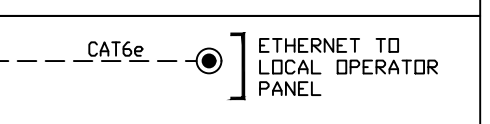
**120VAC - CONTROL PANEL TO MOTOR JUNCTION BOXES (#16AWG, 600V, MINIMUM RATED)**



**CAT 6E ETHERNET MAIN CONTROL PANEL TO CUSTOMER**



**CAT 6E ETHERNET MAIN CONTROL PANEL TO LOCAL OPERATOR PANEL**

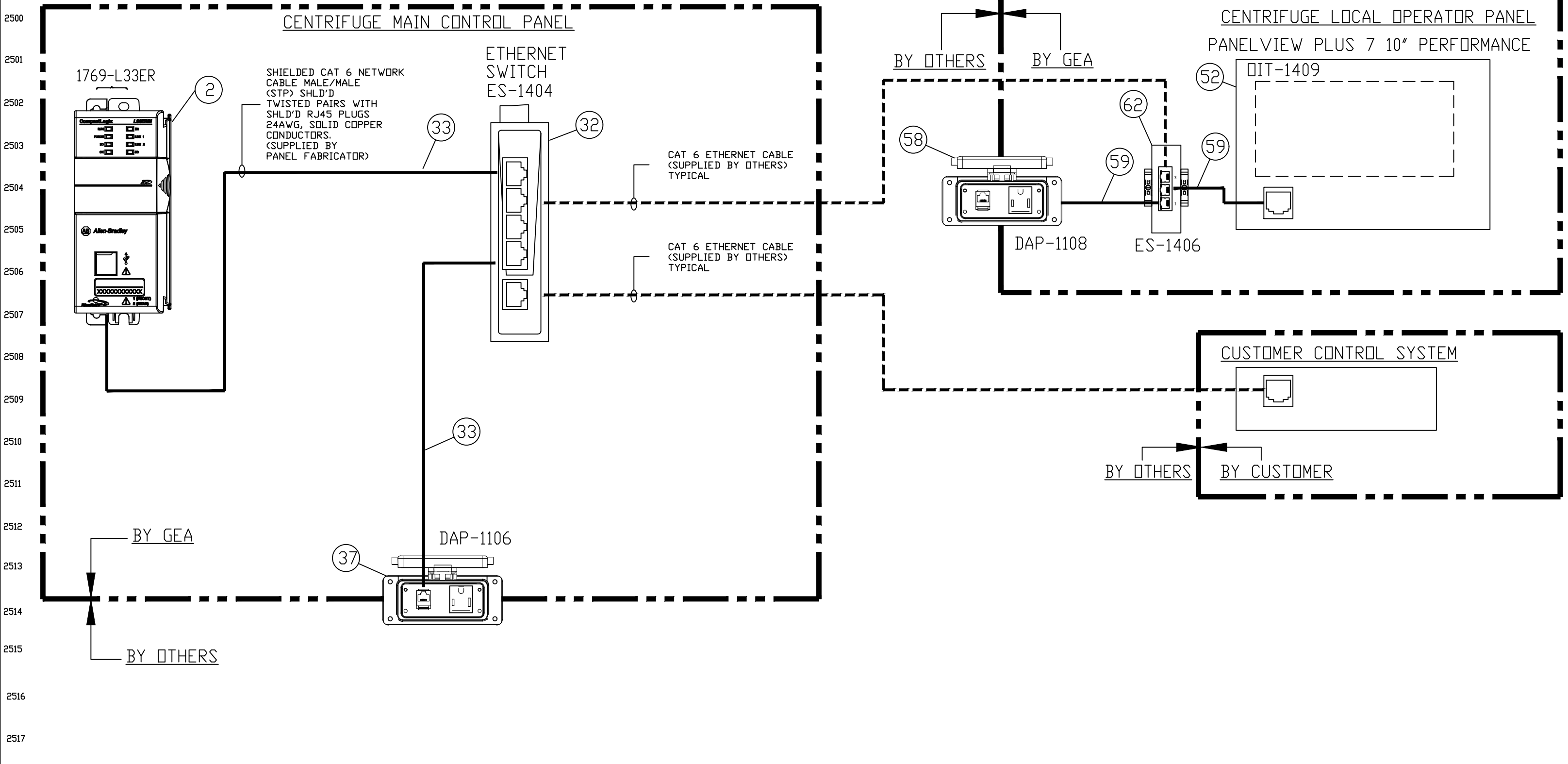


**NOTES:**  
 1. ALL WIRING ON THIS DRAWING IS SHOWN SCHEMATICALLY. CONTRACTOR TO DETERMINE SIZE, QUANTITY AND BEST POSSIBLE ROUTING OF CABLE AND CONDUITS TO SUIT FIELD CONDITIONS.  
 2. DASHED LINES REPRESENT FIELD WIRING TO BE INSTALLED BY ELECTRICAL CONTRACTOR.  
 3. CONTRACTOR TO RUN SEPARATE CONDUITS FOR 120VAC POWER, 480VAC POWER AND 24VDC/4-20ma SIGNAL WIRING AND MUST ADHERE TO ALL LOCAL & NATIONAL ELECTRICAL CODES.  
 4. ALL RUNS DESIGNATED AS SHIELDED WIRING TO BE TWISTED, SHIELDED PAIRS OR TRIADS WITH 100% FOIL SHIELD AND DRAIN WIRE.  
 5. FOR COMPLETE WIRING DIAGRAMS AND CONTROL PANEL LAYOUT'S REFER TO DWG'S '90-0112-A-01 THRU 26'.  
 6. CONTRACTOR TO PROVIDE ADEQUATE SPARES IN ALL CONDUIT/CABLE RUNS.  
 7. PLEASE REFER TO INSTALLATION DIAGRAM FOR EXACT LOCATION OF JUNCTION BOXES, AND RECOMMENDED LOCATION OF VIM (VIBRATION MONITOR).

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0	RR	15OCT21	SUBMITTAL APPROVAL ISSUE
REV.	BY	DATE	REVISION

TERMINAL BLOCK LEGEND							
⊗	MAIN CONTROL PANEL	●	LOCAL OPERATOR PANEL	Title CF7000 CENTRIFUGE ELECTRICAL INTERCONNECTION DIAGRAM TAUNTON, MA 2652.395.848			
▲	CUSTOMER	◊	X20 TERMINAL BLOCK	Sheet	Machine Type	DWG. NO.	Rev.
△	X47 TERMINAL BLOCK	□	X48 TERMINAL BLOCK	24 OF 25	CF 7000	9200-5901-587-10551	0
■	X11 TERMINAL BLOCK	---	EXTERNAL WIRING	Drawn	Approved	Date	
				RR	LM	15OCT21	



CEN 1 (NORTH CENTRIFUGE)  
 PLC: PORT A2 (PRIVATE) 192.168.1.10, DIT 192.168.1.11, BOWL VFD 192.168.1.12, SCROLL VFD 192.168.1.13,  
 SUBNET 255.255.255.0, GATEWAY 192.168.1.1

PORT A1 (PUBLIC) 172.30.167.177, SUBNET 255.255.255.0, GATEWAY 172.30.167.1, REDLION DSP 172.30.167.178,  
 SUBNET 255.255.255.0, GATEWAY 172.30.167.1

CEN 2 (SOUTH CENTRIFUGE)  
 PLC: PORT A2 (PRIVATE) 192.168.1.20, DIT 192.168.1.21, BOWL VFD 192.168.1.22, SCROLL VFD 192.168.1.23,  
 SUBNET 255.255.255.0, GATEWAY 192.168.1.1

PORT A1 (PUBLIC) 172.30.167.179, SUBNET 255.255.255.0, GATEWAY 172.30.167.1, REDLION DSP 172.30.168.180,  
 SUBNET 255.255.255.0, GATEWAY 172.30.167.1

REV.	BY	DATE	REVISION
0	RR	15OCT21	SUBMITTAL APPROVAL ISSUE

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**GEA MECHANICAL EQUIPMENT US, INC.**  
 100 Fairway Court Northvale, NJ 07647

Title: **CF7000 CENTRIFUGE ETHERNET NETWORK DIAGRAM**

TAUNTON, MA 2652.395.848

Drawn	Approved	Date	Sheet	Machine Type	DWG. NO.	Rev.
RR	LM	15OCT21	25 OF 25	CF 7000	9200-5901-587-10551	0

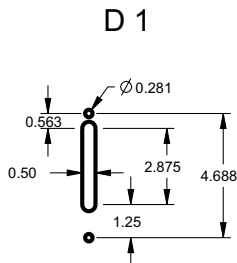
## STAINLESS STEEL HEAVY DUTY FREE-STANDING ENCLOSURES FOR FLANGE-MOUNTED DISCONNECTS TWO-DOOR ENCLOSURES

ENCLOSURE PRODUCT CODE S2						SUB-PANEL (P3)			
Catalog No.	Height (A)	Width (B)	Depth (C)	Industry Standard	List Price	Catalog No.	Panel Height (E)	Panel Width (F)	List Price
SCE-72XM5418SS	72.00	53.75	18.00	IS6	9,890.44	SCE-64P52**	60.00	48.00	Included
SCE-72XM6618SS	72.00	65.75	18.00	IS6	11,145.52	SCE-64P64**	60.00	60.00	Included
SCE-72XM7818SS	72.00	77.75	18.00	IS6	12,396.34	SCE-64P76**	60.00	72.00	Included
SCE-72XM7824SS	72.00	77.75	24.00	IS6	13,286.12	SCE-64P76**	60.00	72.00	Included
SCE-84XM7818SS	84.00	77.75	18.00	IS6	13,758.93	SCE-76P76**	72.00	72.00	Included
SCE-84XM7824SS	84.00	77.75	24.00	IS6	13,930.86	SCE-76P76**	72.00	72.00	Included
SCE-90XM7818SS	90.00	77.75	18.00	IS6	14,691.64	SCE-82P76**	78.00	72.00	Included
SCE-90XM7824SS	90.00	77.75	24.00	IS6	15,418.09	SCE-82P76**	78.00	72.00	Included

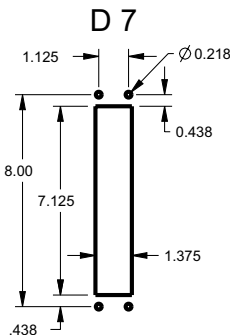
### XM ENCLOSURES

\* Add the letter U to the end of the part number for enclosures with a universal disconnect cutout.

Standard Disconnect cutout provided



Universal Disconnect cutout



\*\*Sub-panel included with enclosure.  
Replacement panels can be ordered.  
Prices found in the accessory section.



## Stainless Steel Heavy Duty Free-Standing Enclosures For Flange-Mounted Disconnects

### Application -

Designed to house electrical equipment and provide degree of protection from dirt, dust, oil and water and to house most standard type disconnects. For installation information, consult our Installation Manual at [www.saginawcontrol.com](http://www.saginawcontrol.com).

### Construction -

- 0.104" stainless steel Type 304.
- Seams continuously welded and ground smooth.
- Flange trough collar around all sides of door opening.
- Body stiffeners in large enclosures for extra rigidity.
- Heavy duty lifting eyes anchor into reinforced top.
- Removable center posts permit easy sub-panel installation.
- Stainless steel concealed hinges.
- Black zinc die cast coinproof/padlocking handle on main door with black zinc die cast padlocking handle on slave doors.
- 3-point latching mechanism.
- Black quarter turn latches as required.
- Panel supports.
- Large removable print pockets.
- Oil-resistant gasket.
- Removable sub-panels mount on collar studs.
- Master door is far right-hand door on all enclosures.
- Defeater on master door requires a screwdriver to open.
- Mechanical interlock activated by master door prevents slave doors from being opened first. Doors can be closed in any order.
- Ground stud on door and body.
- Provisions for light kit.

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

### Finish -

#4 brushed finish on all exterior surfaces. Sub-panels powder coated white.

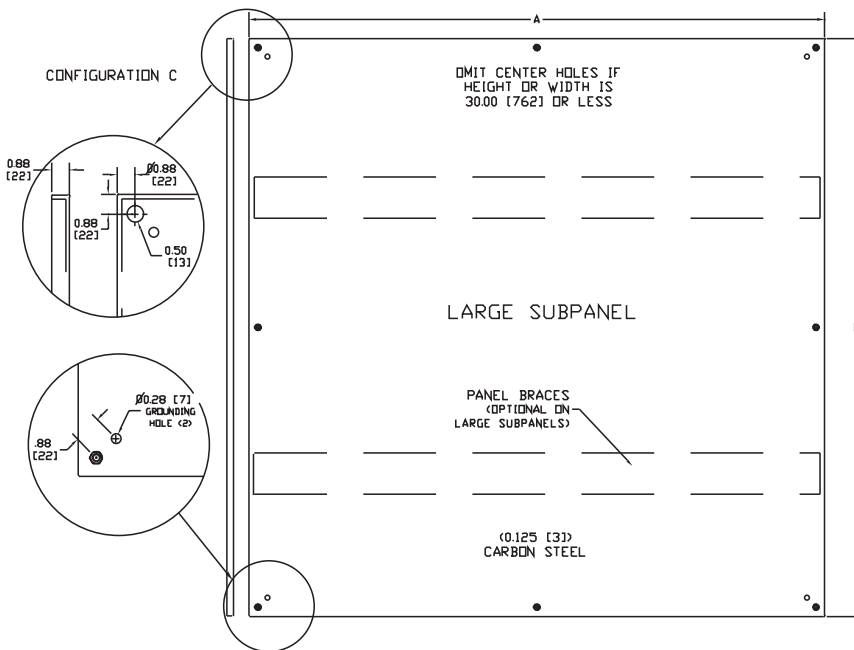
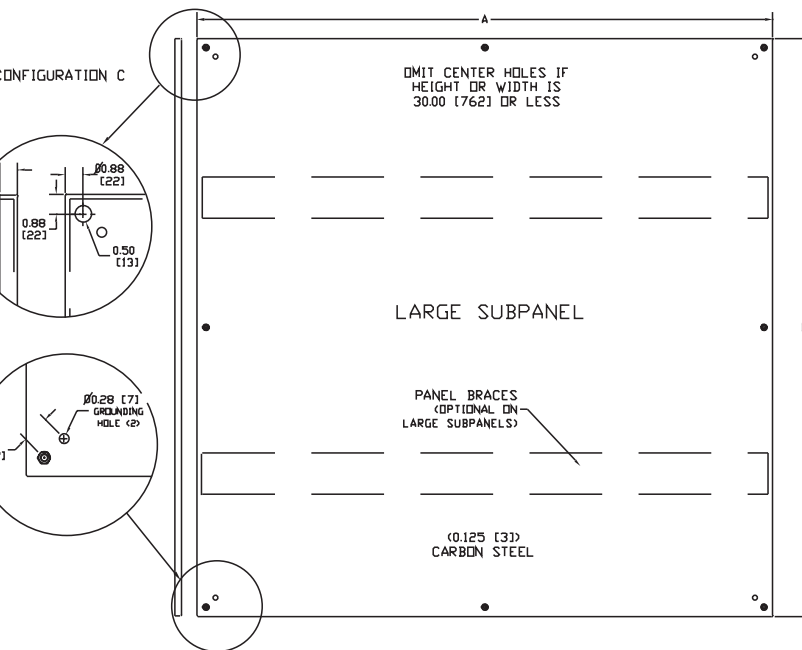
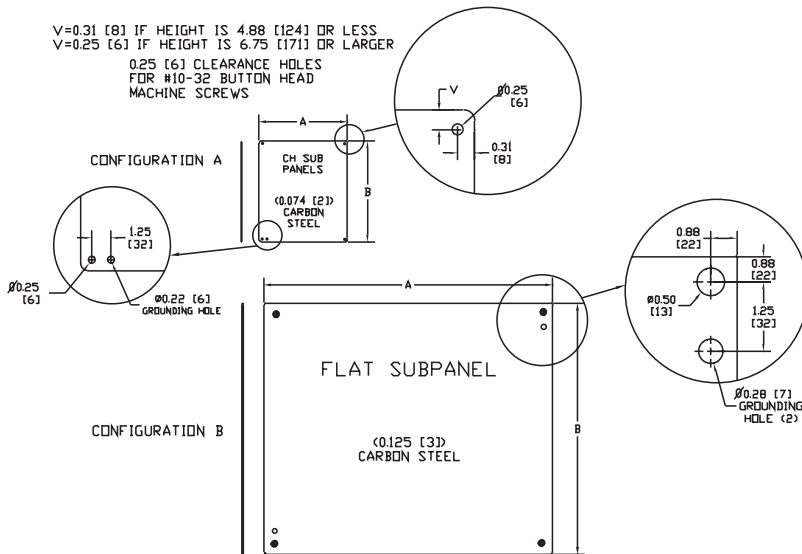
### IS6 - Industry Standards -

NEMA Type 3R, 4, 4X, 12 & Type 13  
UL Listed Type 3R, 4, 4X & 12  
CSA Type 3R, 4, 4X & 12  
IEC 60529 IP66

\*\*\*Special Instructions apply for IS3, IS4 and IS6 to maintain the environmental rating of Type 3R for these parts. See the Special Instructions on the Industry Standards page in the Technical Information Section.

Catalog No.	Height (A)	Width (B)	Configuration	Edge Flanges	Product Code	List Price
SCE-64P52	60.00	48.00	C	Four	P3	334.21
SCE-64P64	60.00	60.00	C	Four	P3	362.06
SCE-64P76	60.00	72.00	C	Four	P3	425.36
SCE-72P60	68.00	56.00	C	Four	P3	394.98
SCE-72P72	68.00	68.00	C	Four	P3	470.93
SCE-72P30	69.00	27.00	C	Four	P3	210.15
SCE-72P36	69.00	33.00	C	Four	P3	225.33
SCE-76P37	72.00	33.75	C	Four	P3	250.65
SCE-76P76	72.00	72.00	C	Four	P3	498.78
SCE-82P37	78.00	33.75	C	Four	P3	278.51
SCE-82P76	78.00	72.00	C	Four	P3	501.32

V=0.31 [8] IF HEIGHT IS 4.88 [124] OR LESS  
 V=0.25 [6] IF HEIGHT IS 6.75 [171] OR LARGER  
 0.25 [6] CLEARANCE HOLES FOR #10-32 BUTTON HEAD MACHINE SCREWS



# MOUNTING PANELS

## SUB-PANELS

### Construction -

Sub-panels are constructed from carbon steel. Size determines steel thickness.

### Finish -

Powder coated white.

### Options -

Configuration A - Add (SS) to the end of the sub-panel part number. (Example: SCE-12P10SS). Sub-panels are made of 316/316L stainless steel.

Configuration B & C - Add (SS) to the end of the sub-panel part number for 304 stainless steel (Example: SCE-30P30SS). Add (SS6) to the end of the sub-panel part number for 316/316L stainless steel (Example: SCE-30P30SS6).

Available within 10 working days if not in stock



## CompactLogix™ 5370 L3 Programmable Automation Controllers



1769-L30ER, -L30ERM, -L30ER-NSE, -L33ER, -L33ERM, L36ERM, -L37ERM, -L38ERM

### Features and Benefits

The CompactLogix 5370 L3 controllers deliver scalable, affordable control ideal for applications from small stand-alone equipment to high performance indexing tables, process skids, case packers and erectors, and packaging.

Machine builders and end users can take advantage of the cost-saving features of these controllers:

- Support for Integrated Motion on EtherNet/IP
- Support for Device Level Ring (DLR) network topologies
- Built-in energy storage eliminates the need for lithium batteries
- Support reuse of existing 1769 I/O
- Removable 1GB secure digital (SD) card improves data integrity
- Flexible memory options up to 3MB
- Added features for hazardous environments (NSE version)
- Support for Kinematics eliminates the need for additional robot controllers and software
- Open socket capability allows support for Modbus TCP as well as devices such as printers, barcode readers and servers

*Reduce cost and time to market with CompactLogix 5370 L3 Programmable Automation Controllers.*



Expanding on the scalability of the Logix family of controllers, the CompactLogix 5370 L3 programmable automation controllers (PAC) are designed to meet the growing need for a higher performance controller in a compact and affordable package.

As part of the Integrated Architecture system, the CompactLogix 5370 L3 controllers use the same programming software, network protocol, and information capabilities as all Logix controllers, providing a common development environment for all control disciplines.

### Integrated Motion on EtherNet/IP

The CompactLogix 5370 L3 controller provides a strong motion solution for customers looking for performance and cost competitiveness.

- Supports up to 16 axes of integrated motion
- Together with the Kinetix 350, offers cost-effective, scalable motion solution

### Network Capabilities

With dual Ethernet ports and an integrated Ethernet switch, these controllers now support Device Level Ring (DLR) network topologies, simplifying integration of components in your control system and reducing system cost:

- Provides resiliency from loss of one network connection
- Allows replacement of devices one at a time without stopping production
- Reduces the number of Ethernet switches in the control system

### Features for Hazardous Environments





The No Stored Energy (NSE) version of the CompactLogix 5370 L3 offers additional features for hazardous environments found in industries such as mining and oil and gas.

- Allows safe transport of controller in and out of mining areas
- Powered down controller has less than 200uJ of residual energy stored in each component
- No consequences of arc or spark to cause an explosion in gaseous environment

## CompactLogix 5370 L3 Controller Product Specifications



	1769-L30ER	1769-L30ERM	1769-L30ER-NSE	1769-L33ER	1769-L33ERM	1769-L36ERM	1769-L37ERM	1769-L38ERM	
User Memory	1 MB	1 MB	1 MB	2 MB	2 MB	3 MB	4 MB	5 MB	
Controller Tasks	32	32	32	32	32	32	32	32	
Programs per Task	100	100	100	100	100	100	100	100	
Integrated Motion	--	4 axis CIP motion position loop axis	--	--	8 axis CIP motion position loop axis	16 axis CIP motion position loop axis			
Package Size	55mm wide x 118mm high x 105mm deep								
Certifications	cULH (Class I Division 2), KCC / UL (UL 508), ULH (Class I & II, Division 2 and Class III, Divisions 1 & 2) / ATEX, CE, C-Tick, GOST-R and Marine								
Local Expansion Modules	8	8	8	16	16	30	30	30	
Local Expansion I/O Points (Max)	256	256	256	512	512	960	960	960	
Communication Module Additions	DeviceNet with 1769-SDN or 3rd party								
Flash Memory Card	Industrially rated and certified Secure Digital (SD) memory card (1 and 2 GB options); all controllers shipped with 1 GB card								
Servo Drives (Position Loop CIP)	--	4	--	--	8	16	16	16	
Ethernet I/O IP Nodes	16	16	16	32	32	48	48	48	
Virtual Axes	100	100	100	100	100	100	100	100	
Feedback only, Torque, Velocity, Vhz (max CIP Motion Drives)	--	16	--	--	32	48	48	48	
Axes/ms	--	2	--	--	2	2	2	2	
Kinematics Support	--	yes	--	--	yes	yes	yes	yes	
Software / Firmware	RSLogix 5000 V20 and RSLinx Classic V2.59 Firmware v20.1x or later						RSLogix 5000 V31 and RSLinx Classic V4.0 Firmware v31.x or later		
Conformally Coated Product Available	1769-L30ERK	1769-L30ERMK	no	1769-L33ERK	1769-L33ERMK	no	1769-L37ERMK	1769-L38ERMK	

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## Specifications

### 1769-PA2, 1769-PB2, 1769-PA4, 1769-PB4 - Technical Specifications

Attribute	1769-PA2	1769-PB2	1769-PA4	1769-PB4
Input voltage range	85...265V AC	19.2...31.2V DC	85...132V AC or 170...265V AC, switch selectable	19.2...32V DC
Input frequency range	47...63 Hz	N/A	47...63 Hz	N/A
Power supply distance rating <sup>(1)</sup>	8 (8 I/O modules can be connected on either side of the power supply for a maximum of 16 modules.)			
Operating altitude	2000 m (6562 ft)			
Isolation voltage	265V (continuous), Reinforced Insulation Type (IEC Class 1 grounding required)  Routine tested at 2596V DC for 1s, AC Power Input to System and AC Power Input to 24V DC User Power	75V (continuous), Reinforced Insulation Type (IEC Class 1 grounding required)  Routine tested at 1697V DC for 1s, DC Power Input to System	265V (continuous), Reinforced Insulation Type (IEC Class 1 grounding required)  Routine tested at 2596V DC for 1s, AC Power Input to System	75V (continuous), Reinforced Insulation Type (IEC Class 1 grounding required)  Routine tested at 1697V DC for 1s, DC Power Input to System
Power consumption	100 VA @ 120V AC 130 VA @ 240V AC	50 VA @ 24V DC	200 VA @ 120V AC 240 VA @ 240V AC	100 VA @ 24V DC
Power dissipation	8 W @ 60 °C	7.5 W @ 60 °C	18 W @ 60 °C	14.5 W @ 60 °C
Current capacity at 5V	2.0 A	2.0 A	4.0 A	4.0 A
Current capacity at 24V	0.8 A	0.8 A	2.0 A	2.0 A
Inrush current, max	25 A @ 132V AC	30 A @ 31.2V DC	25 A @ 132V AC	30 A @ 31.2V DC
Fuse type	Wickmann 19195-3.15A Littelfuse 02183.15MXP	Wickmann 19193-6.3A Littelfuse 021706.3MXP	Wickmann 19195-3.15A Littelfuse 02183.15MXP	Wickmann 19193-6.3A Littelfuse 021706.3MXP
Dimensions (HxWxD), approx.	118 x 70 x 87 mm (4.65 x 2.76 x 3.43 in.) height including mounting tabs is 138 mm (5.43 in.)			
Shipping weight, approx	525 g (1.16 lb)		630 g (1.39 lb)	
Wiring category <sup>(2)</sup>	1 on power ports	2 on power ports	1 on power ports	2 on power ports

## 1769 DC Digital Modules

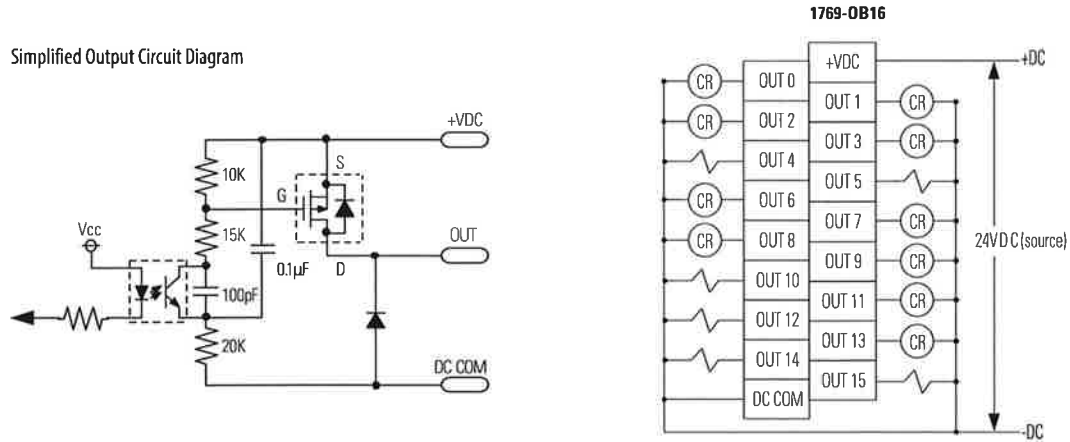
Cat. No.	Inputs/Outputs	Voltage Category	Operating Voltage Range	Backplane Current	Power Supply Distance Rating
1769-IG16	16 inputs	5V DCTTL	4.5...5.5V DC	120 mA @ 5.1V	8
1769-IQ16	16 inputs	24V DC sink/source	10...30V DC @ 30 °C (86 °F) 10...26.4V DC @ 60 °C (140 °F)	115 mA @ 5.1V	8
1769-IQ16F	16 inputs, high speed	24V DC sink/source	10...30V DC @ 30 °C (86 °F) 10...26.4V DC @ 60 °C (140 °F)	100 mA @ 5.1V	8
1769-IQ32	32 inputs	24V DC sink/source	10...30V DC @ 30 °C (86 °F) 10...26.4V DC @ 60 °C (140 °F)	170 mA @ 5.1V	8
1769-IQ32T	32 inputs	24V DC sink/source	20.4...26.4V DC @ 60 °C (140 °F)	170 mA @ 5.1V	8
1769-IQ6XOW4	6 inputs 4 outputs	24V DC sink/source input AC/DC normally open relay contact outputs	10...30V DC @ 30 °C (86 °F) 10...26.4V DC @ 60 °C (140 °F)	105 mA @ 5.1V 50 mA @ 24V	8
1769-OB8	8 outputs	24V DC source	20.4...26.4V DC	145 mA @ 5.1V	8
1769-OB16	16 outputs	24V DC source	20.4...26.4V DC	200 mA @ 5.1V	8
1769-OB16P	16 outputs, protected	24V DC source	20.4...26.4V DC	160 mA @ 5.1V	8
1769-OB32	32 outputs	24V DC source	20.4...26.4V DC	300 mA @ 5.1V	6
1769-OB32T	32 outputs	24V DC source	10.2...26.4V DC	220 mA @ 5.1V	8
1769-OG16	16 outputs	5V DCTTL	4.5...5.5V DC	200 mA @ 5.1V	8
1769-OV16	16 outputs	24V DC sink	20.4...26.4V DC	200 mA @ 5.1V	8
1769-OV32T	32 outputs	24V DC sink	10.2...26.4V DC	300 mA @ 5.1V	8

## 1769 Contact Output Modules

Cat. No.	Inputs/Outputs	Operating Voltage Range	Backplane Current	Power Supply Distance Rating
1769-OW8	8 outputs	5...265V AC 5...125V DC	125 mA @ 5.1V 100 mA @ 24V	8
1769-OW8I	8 outputs, individually isolated	5...265V AC 5...125V DC	125 mA @ 5.1V 100 mA @ 24V	8
1769-OW16	16 outputs	5...265V AC 5...125V DC	205 mA @ 5.1V 180 mA @ 24V	8

# 1769-OB16

Compact solid state 24V DC source output module



**Table 57 - Technical Specifications - 1769-OB16**

Attribute	1769-OB16
Outputs	16 (16 points/group)
Voltage category	24V DC source
Operating voltage range	20.4...26.4V DC
Output delay, on	0.1 ms
Output delay, off	1.0 ms
Current draw @ 5.1V	200 mA
Heat dissipation, max	2.11 W
Off-state leakage current, max <sup>(1)</sup>	1.0 mA @ 26.4V DC
On-state current, min	1.0 mA
On-state voltage drop, max	1.0V DC @ 1 A
Current per point, max	0.5 A @ 60 °C (140 °F) 1.0 A @ 30 °C (86 °F)
Current per module, max	4.0 A @ 60 °C (140 °F) 8.0 A @ 30 °C (86 °F)
Surge current <sup>(2)</sup>	2.0 A for 10 ms, repeatable every 2 s
Isolation voltage	Verified by one of the following dielectric tests: 1200V AC for 1 s or 1697V DC for 1 s, output point to bus 75V DC working voltage (IEC Class 2 reinforced insulation)
Weight, approx	280 g (0.61 lb)
Dimensions (HxWxD), approx	118 x 35 x 87 mm (4.65 x 1.38 x 3.43 in.) Height with mounting tabs 138 mm (5.43 in.)
Slot width	1
Module location	DIN rail or panel mount
Power supply	1769-PA2, 1769-PB2, 1769-PA4, 1769-PB4
Power supply distance rating	8 modules

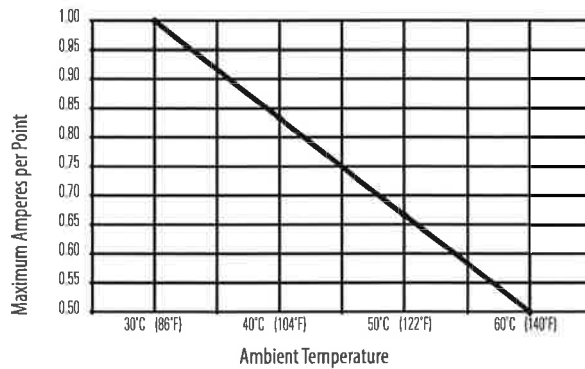
**Table 57 - Technical Specifications - 1769-OB16**

Attribute	1769-OB16
Terminal screw torque	0.68 N•m (6 lb•in)
Retaining screw torque	0.46 N•m (4.1 lb•in)
Wire size	(22...14 AWG) solid (22...16 AWG) stranded
Wire type	Cu-90 °C (194 °F)
Replacement terminal block	1769-RTBN18 (1 per kit)
Replacement door label	1769-RL1 (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	7
Product code	71
Enclosure type rating	None (open style)

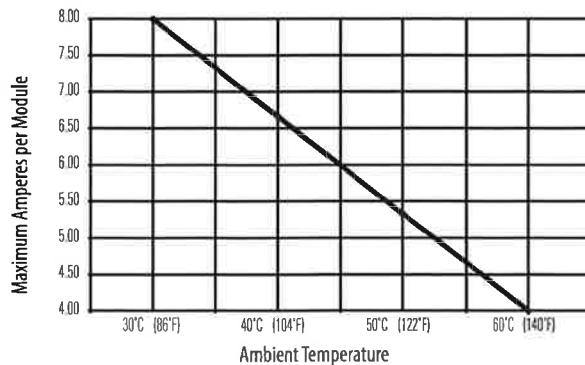
- (1) To limit the effects of leakage current through solid state outputs, a loading resistor can be connected in parallel with your load. Use a 5.6 k $\Omega$ , 1/2 W resistor for transistor outputs, 24V DC operation.
- (2) Use a 1N4004 diode reverse-wired across the load for transistor outputs switching 24V DC inductive loads.

## Temperature Derating - 1769-OB16

**1769-OB16 Maximum Amperes per Point versus Temperature**

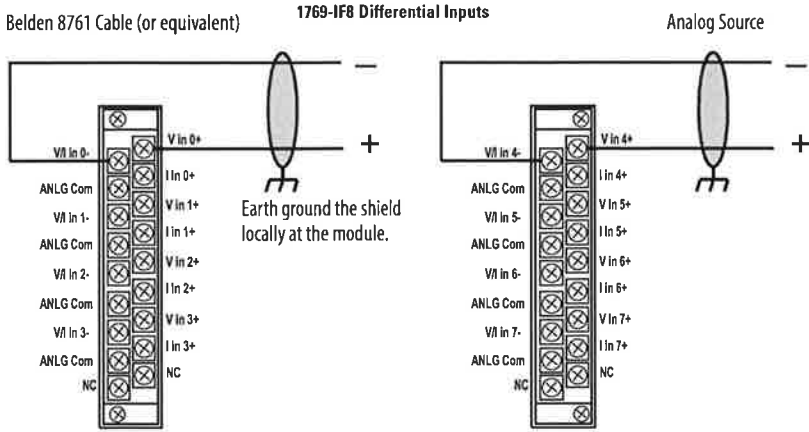


**1769-OB16 Maximum Amperes per Module versus Temperature**



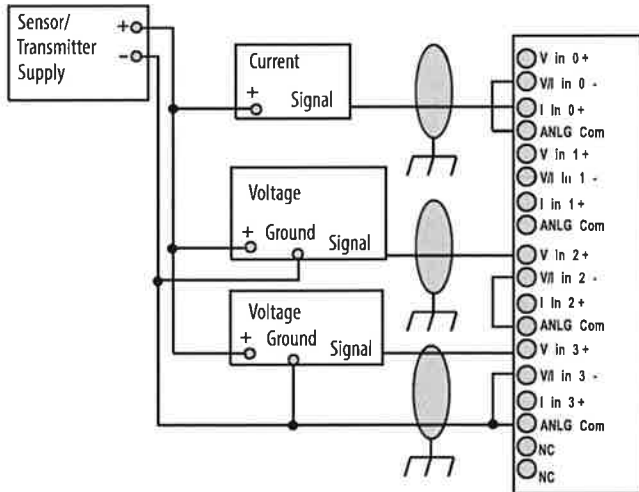
# 1769-IF8

Compact voltage/current analog input module



1769-IF8 Single-ended Sensor/Transmitter Inputs

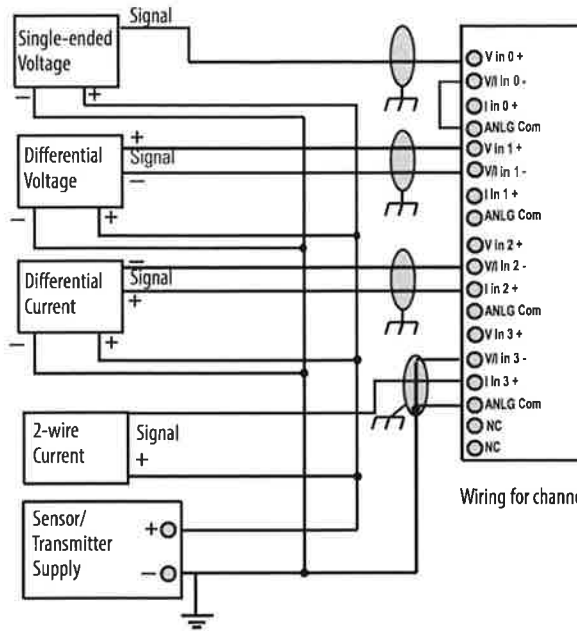
The sensor power supply must be rated Class 2.



Wiring for channels 4...7 are identical.

1769-IF8 Mixed Transmitter Inputs

The sensor power supply must be rated Class 2.



Wiring for channels 4-7 are identical.

Technical Specifications - 1769-IF8

Attribute	1769-IF8
Inputs	8 differential or single-ended
Input range	±10V 0...10V 0...5V 1...5V 0...20 mA 4...20 mA
Full scale range <sup>(1)</sup>	±10.5V -0.5...10.5V -0.5...5.25V 0.5...5.25V 0...21 mA 3.2...21 mA
Current draw @ 5.1V	120 mA
Current draw @ 24V	70 mA
Converter type	Delta Sigma
Heat dissipation, max	3.24 W
Resolution <sup>(2)</sup>	16 bits (unipolar) 15 bits plus sign (bipolar)
Rated working voltage <sup>(3)</sup>	30V AC/30V DC
Common mode voltage range <sup>(4)</sup>	±10V DC max per channel
Common mode rejection	> 60 dB @ 50 and 60 Hz with the 10 Hz filter selected
Normal mode rejection ratio	-50 dB @ 50 and 60 Hz with the 10 Hz filter selected



**Technical Specifications - 1769-IF8**

Attribute	1769-IF8
Input impedance	Voltage: 220 k $\Omega$ Current: 250 $\Omega$
Accuracy <sup>(5)</sup>	Voltage: $\pm 0.2\%$ full scale @ 25 °C (77 °F) Current: $\pm 0.35\%$ full scale @ 25 °C (77 °F)
Accuracy drift with temperature	Voltage: $\pm 0.003\%$ per °C Current: $\pm 0.0045\%$ per °C
Nonlinearity	$\pm 0.03\%$
Repeatability <sup>(6)</sup>	$\pm 0.03\%$
Module error	Voltage: $\pm 0.3\%$ Current: $\pm 0.5\%$
Overload at input terminals, max <sup>(7)</sup>	Voltage: $\pm 30\text{V}$ DC continuous, 0.1 mA Current: $\pm 32$ mA continuous, $\pm 7.6\text{V}$ DC
Isolation voltage	500V AC or 710V DC for 1 minute (qualification test), group to bus 30V AC/30V DC working voltage (IEC Class 2 reinforced insulation)
Weight, approx	450 g (0.99 lb)
Dimensions (HxWxD), approx	118 x 52.5 x 87 mm (4.65 x 2.07 x 3.43 in.) Height with mounting tabs 138 mm (5.43 in.)
Slot width	1.5
Module location	DIN rail or panel mount
Power supply	1769-PA2, 1769-PB2, 1769-PA4, 1769-PB4
Power supply distance rating	8 modules
Terminal screw torque	0.68 N•m (6 lb•in)
Retaining screw torque	0.46 N•m (4.1 lb•in)
Wire size	(22...14 AWG) solid (22...16 AWG) stranded
Wire type	Cu-90 °C (194 °F)
Replacement terminal block	1769-RTBN18 (1 per kit)
Replacement door label	1769-RL2 series B (2 per kit)
Replacement door	1769-RD (2 per kit)
Vendor ID code	1
Product type code	10
Product code	38
Enclosure type rating	None (open-style)

- (1) The over- or under-range flag will come on when the normal operating range (over/under) is exceeded. The module will continue to convert the analog input up to the maximum full scale range. The flag automatically resets when within the normal operating range.
- (2) Resolution is dependent upon your filter selection. The maximum resolution is achieved with either the 50 or 60 Hz filter selected.
- (3) Rated working voltage is the maximum continuous voltage that can be applied at the input terminal, including the input signal and the value that floats above ground potential (for example, 10V DC input signal and 20V DC potential above ground).
- (4) For proper operation, both the plus and minus input terminals must be within  $\pm 10\text{V}$  DC of analog common.
- (5) Includes offset, gain, nonlinearity, and repeatability error terms.
- (6) Repeatability is the ability of the input module to register the same reading in successive measurements for the same input signal.
- (7) Damage may occur to the input circuit if this value is exceeded.

## Select a CompactLogix System

Cat. No.	Inputs/Outputs	Range	Resolution	Backplane Current	Power Supply Distance Rating
1769-OF4VI	4 outputs, differential, individually isolated	±10V 0...10V 0...5V 1...5V	15 bits plus sign (bipolar)	145 mA @ 5.1V 75 mA @ 24V	8
1769-OF8C	8 outputs, single-ended	0...20 mA 4...20 mA	16 bits (unipolar)	140 mA @ 5.1V 145 mA @ 24V	8
1769-OF8V	8 outputs, single-ended	±10V 0...10V 0...5V 1...5V	16 bits plus sign (bipolar)	145 mA @ 5.1V 125 mA @ 24V	8

## 1769 Analog RTD and Thermocouple Modules

Cat. No.	Inputs/Outputs	Sensors Supported	Backplane Current	Power Supply Distance Rating
1769-IR6	6 RTD inputs	100, 200, 500, 1000 Ω Platinum 385 100, 200, 500, 1000 Ω Platinum 3916 120 Ω Nickel 618 120 Ω Nickel 672 10 Ω Nickel-iron 518 0...150 Ω 0...500 Ω 0...1000 Ω 0...3000 Ω	100 mA @ 5.1V 45 mA @ 24V	8
1769-IT6	6 thermocouple inputs	Thermocouple types B, C, E, J, K, N, R, S, T ±50V ±100V	100 mA @ 5.1V 45 mA @ 24V	8 <sup>(1)</sup>

(1) To reduce the effects of electrical noise, install the 1769-IT6 module at least two slots away from the AC power supplies.

## 1769 Communication and Specialty Modules

Cat. No.	Description	Backplane Current	Power Supply Distance Rating
1769-AENTR	The adapter connects 1769 I/O modules to a linear or DLR network and uses two copper network ports to connect to the network.	500 mA @ 5V	5
1769-ARM	Use a 1769-ARM address reserve module to reserve module slots. After creating an I/O configuration and user program, you can remove and replace any I/O module in the system with a 1769-ARM module once you inhibit the removed module in the Logix Designer application.	60 mA @ 5.1V	8
1769-ASCII	The 1769-ASCII module, a general purpose two-channel ASCII interface, provides a flexible network interface to a wide variety of RS-232, RS-485, and RS-422 ASCII devices. The module provides the communication connections to the ASCII device.	425 mA @ 5.1V	4
1769-BOOLEAN	Use the 1769-BOOLEAN module in applications that require repeatability, such as material handling and packaging, when there is a requirement to activate an output based on an input's transition. If the Boolean expression is true, the output is directed to the ON state. If the Boolean expression is false, the output channel is directed to the OFF state. There are four operators that you can configure as OR, AND, XOR, or none.	220 mA @ 5.1V	8

## Specifications

### 1769-ECL, 1769-ECR - Technical Specifications

Attribute	1769-ECL	1769-ECR
Bus current draw, max	5 mA at 5V DC	
Operating altitude	2000 m (6562 ft)	
North American temp code	T3C	
IEC temp code	N/A	T4
Shipping weight, approx	130 g (0.286 lb)	
Enclosure type rating	None (open style)	

### 1769-ECL, 1769-ECR - Environmental Specifications

Attribute	1769-ECL	1769-ECR
Operating temperature IEC 60068-2-1 (Test Ad, Operating Cold) IEC 60068-2-2 (Test Bd, Operating Dry Heat) IEC 60068-2-14 (Test Nb, Operating Thermal Shock)	0...60 °C (32...140 °F)	
Nonoperating temperature IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold) IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat) IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock)	-40...85 °C (-40...185 °F)	
Relative humidity	5...95% noncondensing	
Vibration IEC 60068-2-6 (Test Fc, Operating)	5 g @ 10...500 Hz	
Operating shock IEC 60068-2-27 (Test Ea, Unpackaged Shock)	DIN rail mount: 20 g; Panel mount: 30 g	
Nonoperating shock IEC 60068-2-27 (Test Ea, Unpackaged Shock)	DIN rail mount: 30 g; Panel mount: 40 g	

**1769-ECL, 1769-ECR - Environmental Specifications**

Attribute	1769-ECL	1769-ECR
Emissions CISPR 11	Group 1, Class A	
ESD immunity IEC 61000-4-2	8 kV air discharges	
Radiated RF immunity IEC 61000-4-3	10V/m with 1 kHz sine-wave 80% AM from 80...2000 MHz 10V/m with 200 Hz 50%Pulse 100% AM at 900 MHz	

**1769-ECL, 1769-ECR - Certifications<sup>(1)</sup>**

Certifications <sup>(2)</sup>	1769-ECL	1769-ECR
c-UL-us	UL Listed for Class I, Division 2 Group A, B, C, D Hazardous Locations, certified for U.S. and Canada. See UL File E10314	
CE	European Union 2004/108/EC EMC Directive, compliant with: <ul style="list-style-type: none"> <li>• EN 61000-6-2; Industrial Immunity</li> <li>• EN 61000-6-4; Industrial Emissions</li> </ul>	
C-Tick	Australian Radio Communications Act, compliant with: <ul style="list-style-type: none"> <li>• AS/NZS CISPR 11; Industrial Emissions</li> </ul>	
Ex	N/A	European Union 94/9/EC ATEX Directive, compliant with: <ul style="list-style-type: none"> <li>• EN 60079-15; Potentially Explosive Atmospheres, Protection "n" (II 3 G Ex nA IIC T4 X)</li> <li>• EN 60079-0; General Requirements (Zone 2)</li> </ul>

(1) When product is marked.

(2) See the Product Certification link at <http://www.ab.com> for Declarations of Conformity, Certificates, and other certification details.

## Product data sheet

### Characteristics

JLL36250 

Circuit breaker, PowerPacT J, unit mount,  
thermal-magnetic, 250A, 3 pole, 25kA, 600VAC



Product availability: Stock - Normally stocked in distribution facility

Price\*: 7238.00 USD



### Main

Range	PowerPact
Product name	PowerPact J
Product or Component Type	Circuit breaker
Device Application	Distribution

### Complementary

Line Rated Current	250 A
Poles description	3P
Control Type	Toggle
Breaking capacity code	J
Breaking capacity	100 KA 240 V AC 50/60 Hz UL 489 65 KA 480 V AC 50/60 Hz UL 489 25 KA 600 V AC 50/60 Hz UL 489 20 KA 250 V DC UL 489
[Ue] rated operational voltage	600 V AC 50/60 Hz IEC 60947-3
Network Frequency	50/60 Hz
[Ics] rated service breaking capacity	65 KA 220/240 V AC 50/60 Hz IEC 60947-2 35 KA 380/440/415 V AC 50/60 Hz IEC 60947-2 18 KA 500/525 V AC 50/60 Hz IEC 60947-2 20 KA 250 V DC IEC 60947-2 20 KA 500 V DC IEC 60947-2
[Uimp] rated impulse withstand voltage	8 KV IEC 60947-2
Trip unit technology	Thermal-magnetic
Magnetic tripping current	2500 A
Magnetic hold current	1250 A
Continuous current rating	80 %
[Ui] rated insulation voltage	750 V IEC 60947-2
Protection Type	Overload protection Short-circuit protection
Suitability for isolation	Yes IEC 60947-2
Utilisation category	Category A

AWG gauge	AWG 3/0...350 kcmil aluminium/copper terminals
Local signalling	Switched off (OFF) 1 trip indicator green)
Mounting mode	Unit mount lug)
Mounting Support	Lug
Electrical connection	Lugs line Lugs load
Terminal identifier	AL250JD
Long time pick-up adjustment range	0.25...1 x In
Mounting Height	4.5 In (114.30 mm)
Tightening torque	221.27 Lbf.In (25 N.m) 0.15...0.29 in <sup>2</sup> (95...185 mm <sup>2</sup> ) (AWG 3/0...350 kcmil)
Number of slots	2 auxiliary switch OF plug-in) 1 alarm switch SD plug-in) 1 overcurrent trip switch SDE plug-in) 1 voltage release MN or MX plug-in)
Wire stripping length	0.98 In (25 mm)
Height	7.52 In (191 mm)
Width	4.09 In (104 mm)
Depth	3.39 In (86 mm)
Product Weight	5.29 Lb(US) (2.4 kg)
Phase connection	ABC
Communication interface	Modbus Ethernet

## Environment

Quality labels	CE
Standards	UL CSA NEMA NOM-003-SCFI-2000 IEC 60947-2
Product certifications	UL CSA NOM
IP degree of protection	Front cover IP40
Pollution degree	3 IEC 60947-1
Ambient Air Temperature for Operation	28...158 °F (-2...70 °C)
Ambient Air Temperature for Storage	-58...185 °F (-50...85 °C)
Operating altitude	< 6561.68 ft (2000 m) without derating 5000 m with derating

## Ordering and shipping details

Category	01115 - HG,HJ,JG,JJ UNIT MT BREAKER/SWITCH
Discount Schedule	DE2
GTIN	785901955979
Nbr. of units in pkg.	1
Package weight(Lbs)	4.85 Lb(US) (2.2 kg)
Returnability	Yes
Country of origin	MX

## Packing Units

Unit Type of Package 1	PCE
Package 1 Height	7.10 In (18.034 cm)
Package 1 width	6.40 In (16.256 cm)
Package 1 Length	9.90 In (25.146 cm)

## Offer Sustainability

Sustainable offer status	Green Premium product
California proposition 65	WARNING: This product can expose you to chemicals including: DIN-P, which is known to the State of California to cause cancer, and DID-P, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a>
REACH Regulation	<a href="#">REACH Declaration</a>
EU RoHS Directive	Compliant <a href="#">EU RoHS Declaration</a>
Mercury free	Yes
RoHS exemption information	<a href="#">Yes</a>
China RoHS Regulation	<a href="#">China RoHS Declaration</a>
Environmental Disclosure	<a href="#">Product Environmental Profile</a>
Circularity Profile	<a href="#">End Of Life Information</a>
WEEE	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins.
PVC free	Yes

## Contractual warranty

Warranty	18 months
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# Product data sheet

## Characteristics

# 9422R2

Operating mechanism, flange mounted, variable depth, extra long operating rod, 9422 variable depth mechanism

Product availability : Stock - Normally stocked in distribution facility



Price\* : 73.38 USD



### Main

Range	9422T
Product	Disconnect Switch

### Complementary

Handle Type	Ordered separately
-------------	--------------------

### Ordering and shipping details

Category	21732 - 9422
Discount Schedule	CP1
GTIN	00785901479253
Package weight(Lbs)	1 lb(US) (0.45 kg)
Returnability	Yes
Country of origin	MX

### Offer Sustainability

California proposition 65	WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a>
RECh Regulation	<a href="#">RECh Declaration</a>
EU RoHS Directive	Compliant <a href="#">EU RoHS Declaration</a>
Mercury free	Yes
RoHS exemption information	<a href="#">Yes</a>
China RoHS Regulation	<a href="#">China RoHS declaration</a>

\* Price is "List Price" and may be subject to a trade discount – check with your local distributor or retailer for actual price.






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**Technical Characteristics**

Type	T
Approvals	UL Recognized File: E52639 CCN WHTY2 - CSA Certified File: LR44199 Class: 4652 04
Catalog Reference Number	9420CT9701
For Use With	NEMA 1/3/3R/4(sheet steel)/12 enclosures
Handle Type	6 Inch

**Shipping and Ordering**

Category	21732 - Disconnect Switches, Flange Mounted
Discount Schedule	CP1
Article Number	785901739739
Package Quantity	1
Weight	2.8 lbs.
Availability Code	Stock Item: This item is normally stocked in our distribution facility.
Returnability	Y

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



**marathon**<sup>™</sup>  
Special Products

Product Data Sheet

143X587 ←

Replace "x" with 1, 2, or 3 for number of poles

Power Terminal Block

## 380 Amps 600 Volts AC/DC

### Wire Range

- Line: (1) 500 kcmil - #4 AWG
- Load: (1) 350 kcmil - #6 AWG and (3) #2 - #14 AWG

### Electrical Ratings

- 380 Amps
- 600V per UL 1059 & CSA 22.2 No.158, class B & C requirements
- Short circuit current ratings (SCCR): See SCCR section below for specifications.
- CU7AL - 75°C connector terminal rating with copper or aluminum wire
- Factory & Field Wiring

### Agency Compliance

- UR - UL Recognized Terminal Block, Evaluated to UL 1059, File No.XCFR2.E62806
- CSA - certified to C22.2 No. 158, File No. LR19766 (wire classes B & C only)
- CE compliant to IEC 60947-7-1

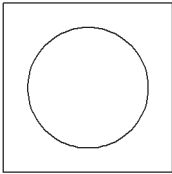
### Material Information

- Insulator base:
  - Phenolic
  - Flammability rating of insulator base UL94V0
  - Insulator base temperature rating: -40°C to 150°C (UL RTI)
- Connector: aluminum, tin plated
- Terminal set screws: aluminum, tin plated
- Connector mounting screws: steel, zinc plated
- RoHS compliant

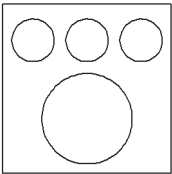
A Regal Brand

**REGAL**

## Termination Specifications

Line Side	Wire Size (CU Stranded)	Torque	Wires / Terminal	Wire Class (UL) <sup>1</sup>
	500 kcmil	42.4 N·m (375 lbf·in)	1	B, C
	400 - 2	42.4 N·m (375 lbf·in)	1	B, C, G, H, I (DLO)
	4	42.4 N·m (375 lbf·in)	1	B, C

- Aluminum wire range: 500 kcmil - #4 AWG
- Wire strip length: 1 3/16in. (30mm)
- Terminal screw drive: 3/8 in.hex

Load Side	Terminal	Wire Size (CU Stranded)	Torque	Wires / Terminal	Wire Class (UL) <sup>1</sup>
	350 - 6	350 - 300	31.1 N·m (275 lbf·in)	1	B, C
		250 - 2	31.1 N·m (275 lbf·in)	1	B, C, G, H, I (DLO)
		4 - 6	31.1 N·m (275 lbf·in)	1	B, C
	2 - 14	2 AWG	5.7 N·m (50 lbf·in)	1	B, C
		4 - 6	5.1 N·m (45 lbf·in)	1	B, C, G, H, I (DLO)
		8	4.5 N·m (40 lbf·in)	1 - 2 <sup>2</sup>	B, C, G, H, I (DLO)
		10	4 N·m (35 lbf·in)	1 - 2	B, C, I (DLO)
		12 - 14	4 N·m (35 lbf·in)	1 - 4	B, C
			1 - 2	I (DLO)	

- Solid copper wire range: 10 - 14
- Aluminum wire range: 2 - 8 AWG
- Wire strip length:
  - top row: 9/16in. (14mm)
  - bottom row: 3/4 in. (19mm)
- Terminal screw drive: 5/16 in. hex & slotted

<sup>1</sup> For information on copper stranded wire classes please reference:  
<http://www.marathonsp.com/CatalogPDFs/Flexible-Stranded-Wire.pdf>

<sup>2</sup> Multiple wire rating applies to classes B, C, & I only

## Short Circuit Current Ratings (SCCR)

- The suitable conductor ranges are limited to the table values only for achieving the SCCR in excess of the default rating of 10,000A.
- Other conductor combinations within the "Terminal Specifications" noted are suitable for achieving a SCCR of 10,000A (the default rating of terminal blocks).
- Enclosure size – Investigated with a minimum 16x12x6 enclosure. Use in smaller enclosures is subject to end use evaluation.

### SCCR With Fuses

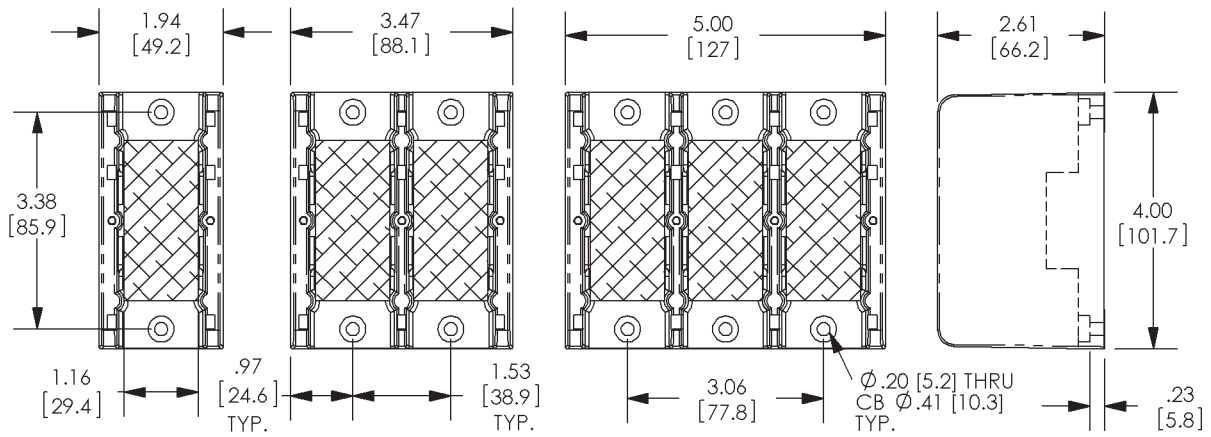
Wire Class	Suitable Conductors		Max Overcurrent Protection <b>Fuse</b> Required Amp Rating / Class						SCCR RMS Sym. Amps 600V. Max
	Line	Load	J	T	RK1	RK5	G	CC	
B, C	500 - 3/0	350 - 6	500	500	400	200	60	30	100,000
B, C	500 - 4	350 - 10	200	200	200	100	60	30	100,000
G, H, I	350 - 2	1 - 6	500	500	400	200	60	30	100,000
G, H, I	350 - 2	1 - 10	200	200	200	100	60	30	100,000
(*)	500 - 4	2 - 14	None						10,000

\* Any wire class evaluated (see terminal specification section)

## Installation & Accessories

- Mounting (Panel):
  - For use with #10 fastener.
  - Torque mounting fastener to 25-30 lbf·in (2.8 - 3.4 N·m).
- Covers:
  - Flat covers available upon request
  - Catalog Number: CH143x (replace "x" with number of poles)
  - Covers are clear polycarbonate
  - Accessory covers are not intended to provide insulation for electrical spacings.
- Marker Strip: white vinyl strip with mounting screws available.
- Printing options available, consult customer service for specifications.

**Drawing**



# Power Block Covers

## Specifications:

### 140/141/142/143/144/145 Series (Figures 1 & 2)

- Material UL Recognized, QMFZ2, 125°C, .06 Clear Protective Plastic
- Thread Cutting Screws Furnished Per Cover
- RoHS Compliant

### 132/133 Series (Figure 3)

- Snap on, Hinged Cover, Black Thermoplastic
- UL Recognized, QMFZ2, 125°C
- RoHS Compliant

### 135 Series (Figure 4)

- Snap on, Hinged Cover, Black Thermoplastic
- UL Recognized, QMFZ2, 125°C
- RoHS Compliant

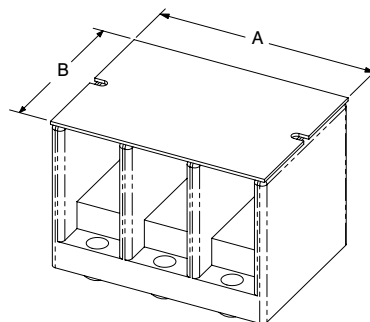


FIGURE 1

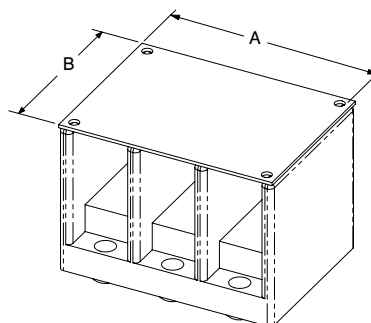


FIGURE 2

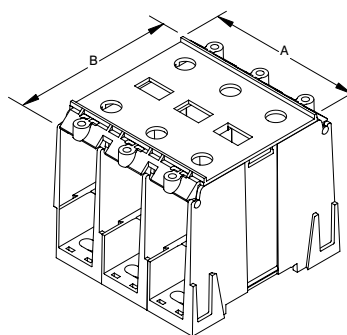


FIGURE 3  
(Hinged Cover)

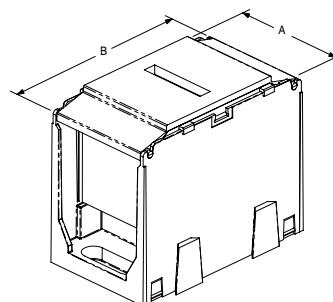


FIGURE 4  
(Hinged Cover)

## Dimensions (inches):

Catalog #	A	B	Figure #
CC1402	2.75	2.25	1
CC1403	4.00		
CC1411	0.77	2.40	2
CC1412	1.42		
CC1413	2.05		
CC1414	2.68		
CC1421	1.06		
CC1422	1.87	2.75	1
CC1423	2.68		
CC1431	1.78	3.38	1
CC1432	3.31		
CC1433	4.84		
CC1441	2.12	4.00	1
CC1442	4.00		
CC1443	5.87		
CC1451	2.87	4.50	1
CC1452	5.56		
CC1453	8.28		
CH1321	0.88	2.87	3
CH1322	1.69		
CH1323	2.50		
CH1331	1.93	3.89	3
CH1332	3.61		
CH1333	5.30		
CH1351 (one pole only)	3.35	5.65	4



## LIMITRON™ 600V Class T



### JJS – 600Vac, 1-800A, Fast-Acting Fuses



**Description:** Advanced protection Class T current-limiting, fast-acting fuses.

**Catalog Symbol:** JJS-(amp)

**Ratings:**

Volts – 600Vac

Amps – 1-800A

IR – 200kA Vac RMS Sym.

**Agency Information:**

CE, UL Listed, Std. 248-15, Class T, Guide JDDZ, File E4273

CSA Certified, C22.2 No. 248.15, Class 1422-02, File 53787

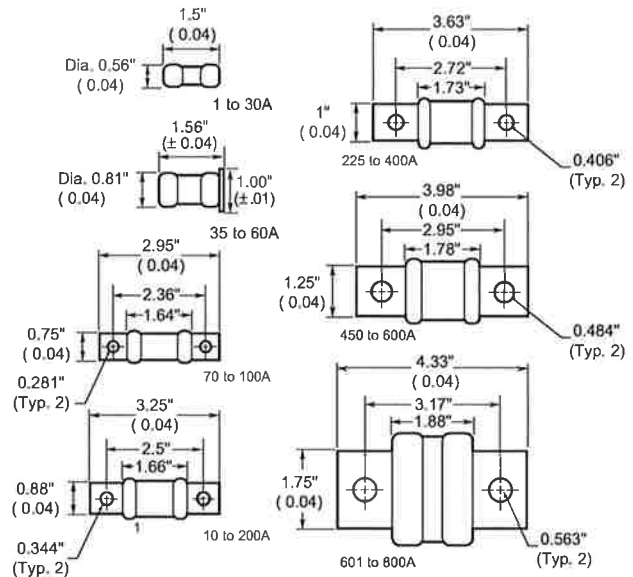
**Catalog Numbers (amps)**

JJS-1	JJS-45	JJS-200
JJS-2	JJS-50	JJS-225
JJS-3	JJS-60	JJS-250
JJS-6	JJS-70	JJS-300
JJS-10	JJS-80	JJS-350
JJS-15	JJS-90	JJS-400
JJS-20	JJS-100	JJS-450
JJS-25	JJS-110	JJS-500
JJS-30	JJS-125	JJS-600
JJS-35	JJS-150	JJS-800
JJS-40	JJS-175	

**Carton Quantity and Weight**

Amp Rating	Carton Qty.
1-30	10
35-60	10
70-100	5
110-200	1
225-400	1
450-600	1
800	1

**Dimensions – in**



**Features:**

- Small, space-saving fuses provide a high degree of current-limitation on short-circuits for excellent component protection
- Commonly applied in electric heat circuits, load center, disconnect switches, and meters
- The small size of the JJS Class T fuses permits installation in panelboards and control centers for system upgrading when existing circuit breakers cannot safely interrupt larger available short-circuit currents
- High speed response for semiconductor protection
- Available for printed circuit board applications

**Recommended Fuse Blocks**

Amps Rating	1-Pole	2-Pole	3-Pole
1-30	T60030-1_	T60030-2_	T60030-3_
35-60	T60060-1_	T60060-2_	T60060-3_
70-100	T60100-1_	T60100-2_	T60100-3_
110-200	T60200-1_		1B0089
225-400	T60400-1_		
450-600	T60600-1_		

For additional information on the 600 volt Class T fuse blocks, see Data Sheet # 1116.

# Class T Fuseblocks

## 600 Volt, 1/2 to 600 Amps

# T600



Catalog Symbol: T600  
 Ampere Rating: 1/2 to 600 Amperes  
 Voltage Rating: 600 Volts  
 Agency Information:  
 UL Listed, UL512, Guide IZLT, File E14853  
 CSA Certified, C22.2 No. 39, Class 6225-01, File 47235  
 Withstand Rating: 200,000A RMS Sym.  
 For use with Class T fuses (Bussmann JJS and LPT).  
 Materials: Glass Polyester, Phenolic on 600A  
 UL Flammability: 94 VO

### Class T Fuseblocks (600V) Catalog Data

Amps	Poles	Catalog Numbers		Figure Number	Max. Wire Size
		Screw	Box Lug		
1/2-30	1	T60030-1SR	T60030-1CR	1	SR #10CU, CR #2CU-AL
	2	T60030-2SR	T60030-2CR		
	3	T60030-3SR	T60030-3CR		
31-60	1	T60060-1SR	T60060-1CR	2	CR#2CU-AL SR #10CU
	2	T60060-2SR	T60060-2CR		
	3	T60060-3SR	T60060-3CR		
61-100	1	—	T60100-1C	3	2/0 CU-AL
	2	—	T60100-2C		
	3	—	T60100-3C		
101-200	1	—	T60200-1C	4	250kcmil CU-AL
	3	—	1B0089		
201-400	1	—	T60400-1C	5	600kcmil CU-AL
401-600	1	—	T60600-1C	6	(2) 600kcmil CU-AL

CE CE logo denotes compliance with European Union Low Voltage Directive (50-1000 VAC, 75-1500 VDC). Refer to Data Sheet #8002 or contact Bussmann Application Engineering at 636-527-1270 for more information.

### Dimensional Data

Figure 1. 1/2A to 30A All dimensions (± 0.016)

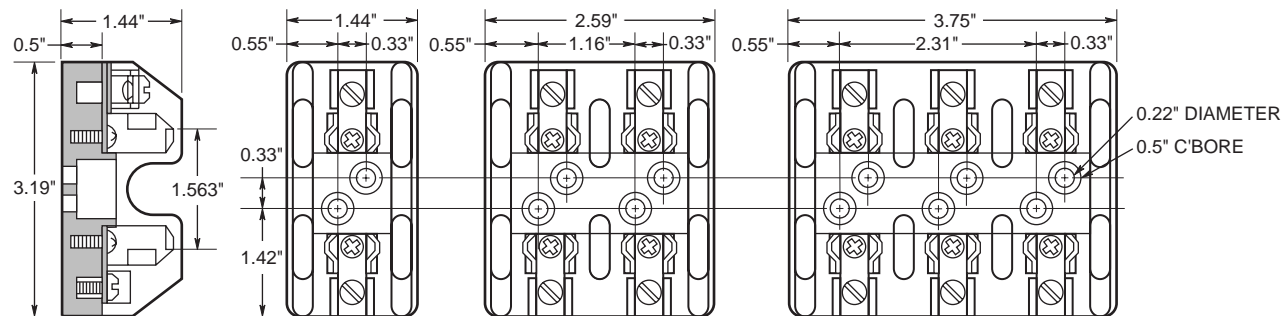
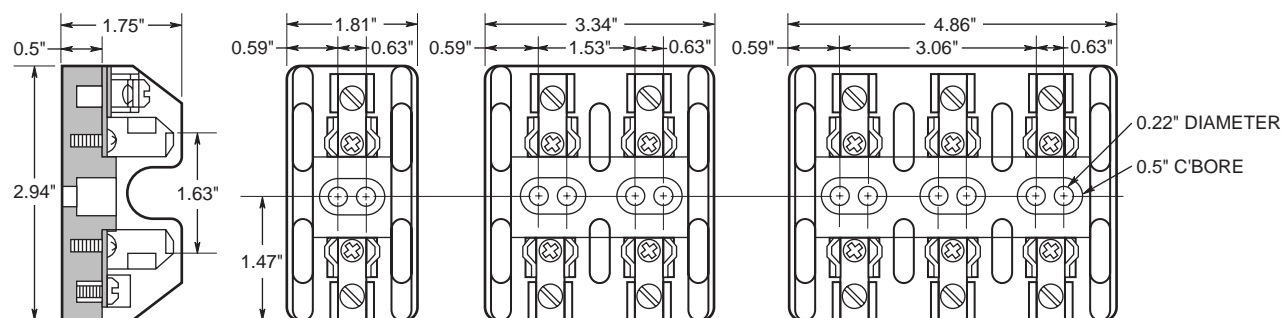


Figure 2. 31A to 60A





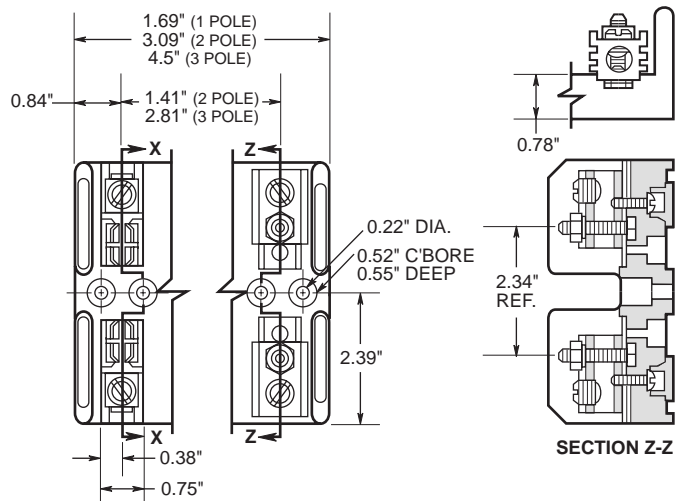
# Class T Fuseblocks

## 600 Volt, 1/2 to 600 Amps

T600



Figure 3. 61A to 100A



All dimensions (± 0.016)

Figure 4. 101A to 200A

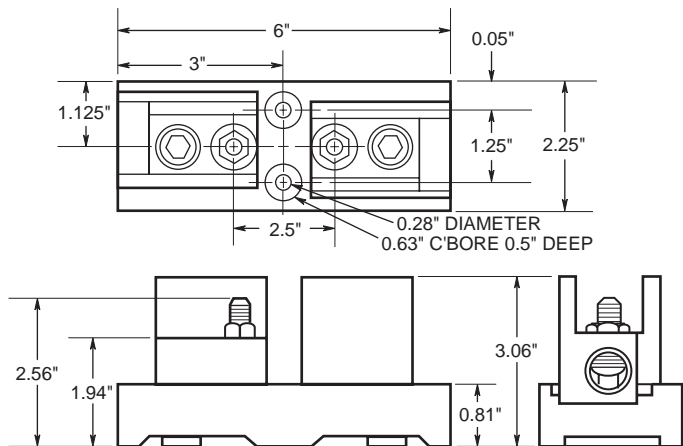


Figure 5. 201A to 400A

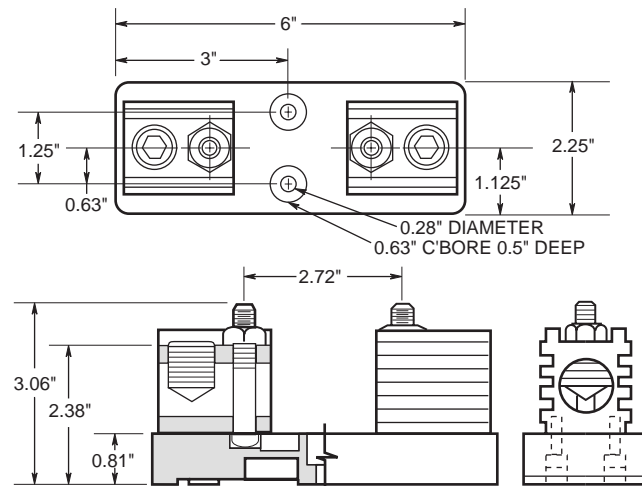
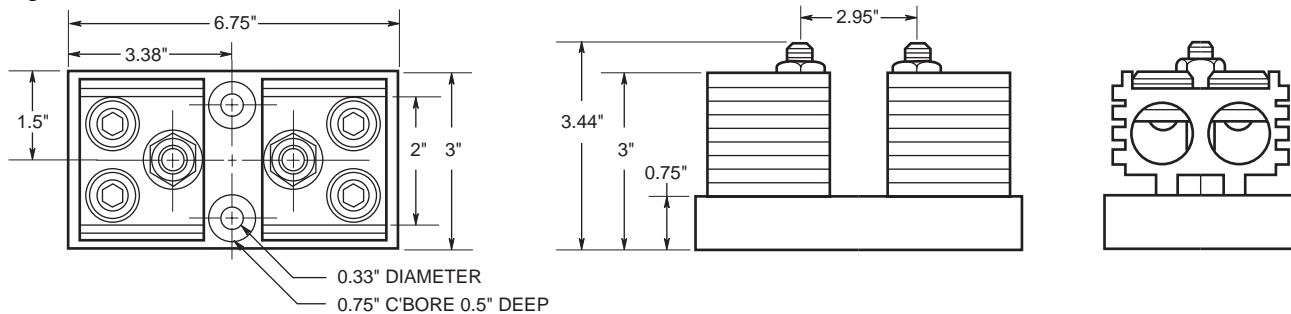


Figure 6. 401A to 600A



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**Description:** Advanced protection Class T current-limiting, fast-acting fuses.

**Catalog Symbol:** JJS-(amp)

**Ratings:**

- Volts — 600Vac
- Amps — 1-800A
- IR — 200kA Vac RMS Sym.

**Agency Information:**

CE, UL Listed, Std. 248-15, Class T, Guide JDDZ, File E4273  
 CSA Certified, C22.2 No. 248.15, Class 1422-02, File 53787

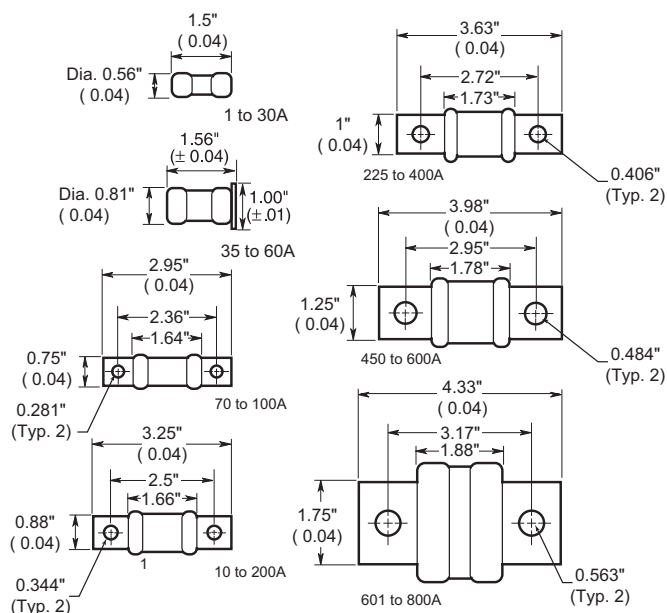
**Catalog Numbers (amps)**

JJS-1	JJS-45	JJS-200
JJS-2	JJS-50	JJS-225
JJS-3	JJS-60	JJS-250
JJS-6	JJS-70	JJS-300
JJS-10	JJS-80	JJS-350
JJS-15	JJS-90	JJS-400
JJS-20	JJS-100	JJS-450
JJS-25	JJS-110	JJS-500
JJS-30	JJS-125	JJS-600
JJS-35	JJS-150	JJS-800
JJS-40	JJS-175	

**Carton Quantity and Weight**

Amp Rating	Carton Qty.
1-30	10
35-60	10
70-100	5
110-200	1
225-400	1
450-600	1
800	1

**Dimensions – in**



**Features:**

- Small, space-saving fuses provide a high degree of current-limitation on short-circuits for excellent component protection
- Commonly applied in electric heat circuits, load center, disconnect switches, and meters
- The small size of the JJS Class T fuses permits installation in panelboards and control centers for system upgrading when existing circuit breakers cannot safely interrupt larger available short-circuit currents
- High speed response for semiconductor protection
- Available for printed circuit board applications

**Recommended Fuse Blocks**

Amps Rating	1-Pole	2-Pole	3-Pole
1-30	T60030-1_	T60030-2_	T60030-3_
35-60	T60060-1_	T60060-2_	T60060-3_
70-100	T60100-1_	T60100-2_	T60100-3_
110-200	T60200-1_		1B0089
225-400	T60400-1_		
450-600	T60600-1_		

For additional information on the 600 volt Class T fuse blocks, see Data Sheet # 1116.

# Class T Fuseblocks

## 600 Volt, 1/2 to 600 Amps

# T600



Catalog Symbol: T600  
 Ampere Rating: 1/2 to 600 Amperes  
 Voltage Rating: 600 Volts  
 Agency Information:  
 UL Listed, UL512, Guide IZLT, File E14853  
 CSA Certified, C22.2 No. 39, Class 6225-01, File 47235  
 Withstand Rating: 200,000A RMS Sym.  
 For use with Class T fuses (Bussmann JJS and LPT).  
 Materials: Glass Polyester, Phenolic on 600A  
 UL Flammability: 94 VO

### Class T Fuseblocks (600V) Catalog Data

Amps	Poles	Catalog Numbers		Figure Number	Max. Wire Size
		Screw	Box Lug		
1/2-30	1	T60030-1SR	T60030-1CR	1	SR #10CU, CR #2CU-AL
	2	T60030-2SR	T60030-2CR		
	3	T60030-3SR	T60030-3CR		
31-60	1	T60060-1SR	T60060-1CR	2	CR#2CU-AL SR #10CU
	2	T60060-2SR	T60060-2CR		
	3	T60060-3SR	T60060-3CR		
61-100	1	—	T60100-1C	3	2/0 CU-AL
	2	—	T60100-2C		
	3	—	T60100-3C		
101-200	1	—	T60200-1C	4	250kcmil CU-AL
	3	—	1B0089		
201-400	1	—	T60400-1C	5	600kcmil CU-AL
401-600	1	—	T60600-1C	6	(2) 600kcmil CU-AL

CE CE logo denotes compliance with European Union Low Voltage Directive (50-1000 VAC, 75-1500 VDC). Refer to Data Sheet #8002 or contact Bussmann Application Engineering at 636-527-1270 for more information.

### Dimensional Data

Figure 1. 1/2A to 30A All dimensions (± 0.016)

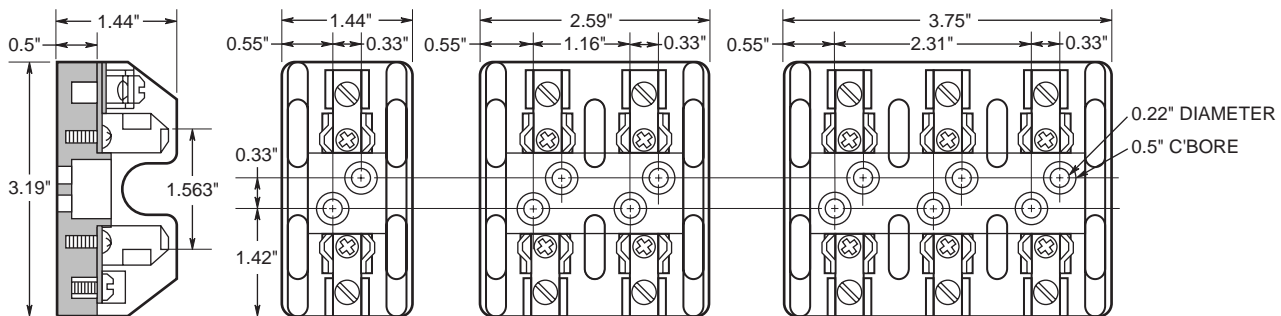
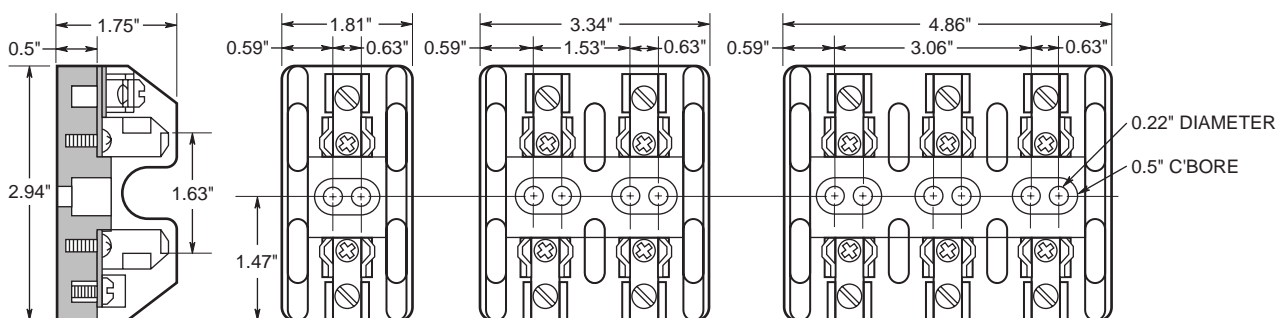


Figure 2. 31A to 60A



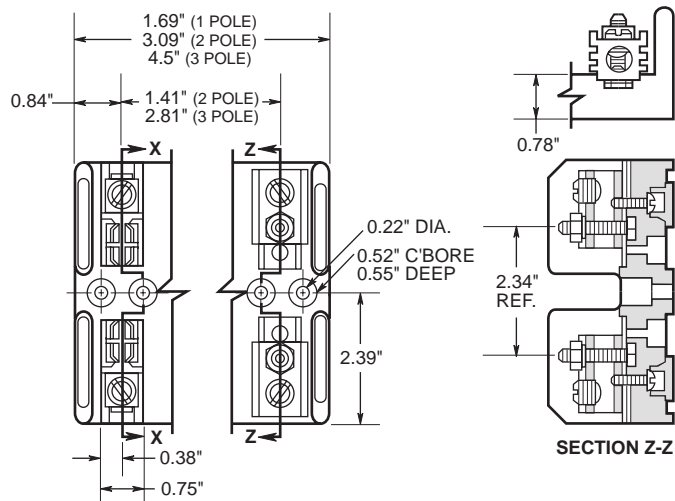
# Class T Fuseblocks

## 600 Volt, 1/2 to 600 Amps

T600



Figure 3. 61A to 100A



All dimensions (± 0.016)

Figure 4. 101A to 200A

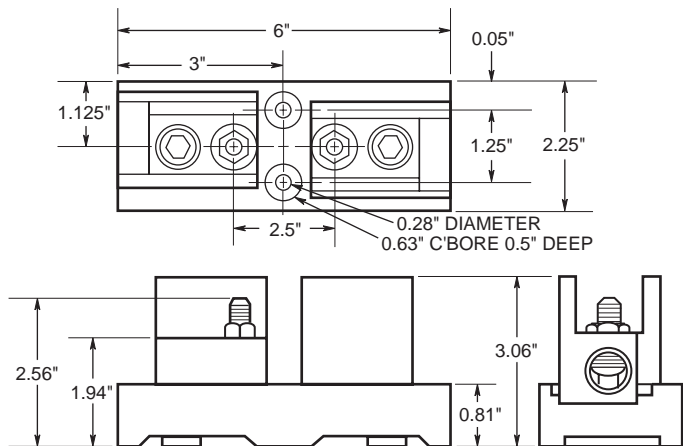


Figure 5. 201A to 400A

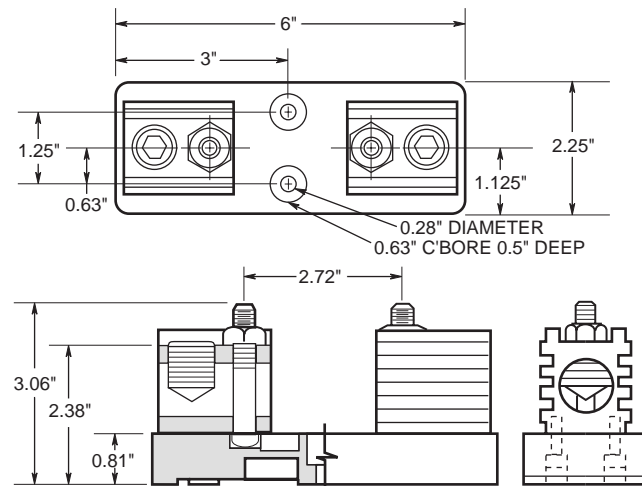
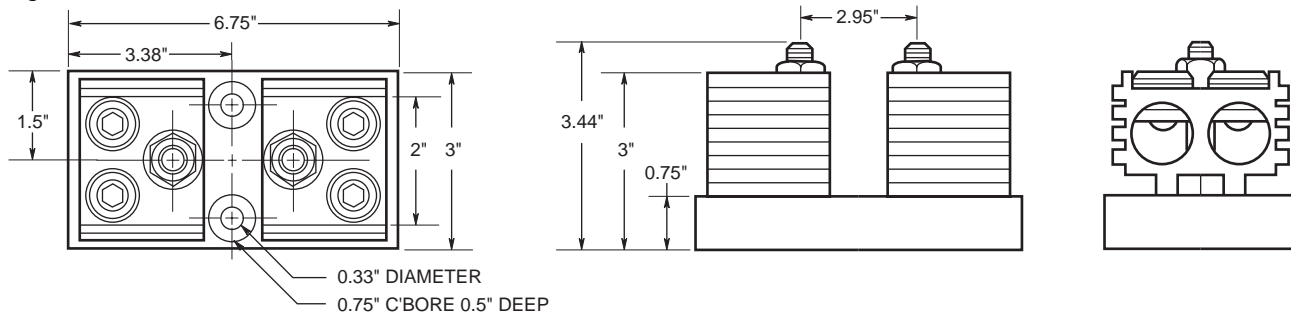


Figure 6. 401A to 600A



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**ITEM NUMBER 7 NOT USED**

**ITEM NUMBER 8 NOT USED**

# ACS880-01-124A-5



## ITEM 9

Products Drives Low voltage AC drives Industrial drives ACS880 single drives

### General Information

<b>Global Commercial Alias:</b>	ACS880-01-124A-5
<b>Product ID:</b>	3AUA0000090442
<b>ABB Type Designation:</b>	ACS880-01-124A-5
<b>Catalog Description:</b>	IP21; 3 phase;

### Additional Information

<b>ABB Type Designation:</b>	ACS880-01-124A-5
<b>Country of Origin:</b>	Finland (FI)
<b>Customs Tariff Number:</b>	85044088
<b>Enclosure Class:</b>	IP21
<b>Frequency (f):</b>	50 / 60 (+/- 5%) Hz
<b>Input Voltage (U<sub>in</sub>):</b>	380 ... 500 V
<b>Invoice Description:</b>	ACS880-01-124A-5 Pcont.max:75kW, lcont.max:118A
<b>Made To Order:</b>	Yes
<b>Minimum Order Quantity:</b>	1 piece
<b>Mounting Type:</b>	Wall-mounting
<b>Number of Phases:</b>	3
<b>Order Multiple:</b>	1 piece
<b>Output Current, Heavy-Duty Use:</b>	96 A
<b>Output Current, Light-Overload Use:</b>	118 A
<b>Output Current, Normal Use:</b>	124 A
<b>Output Power, Heavy-Duty Use:</b>	55 kW
<b>Output Power, Light-Overload Use:</b>	75 kW
<b>Output Power, Normal Use:</b>	75 kW
<b>Product Main Type:</b>	ACS880-01-124A-5
<b>Product Name:</b>	Frequency Converter
<b>Product Series:</b>	ACS880
<b>Quote Only:</b>	No
<b>Selling Unit of Measure:</b>	piece
<b>Stocked At (Warehouses):</b>	FIPSEEXPU SGRDC002EXPU CNIAB001EXPU SGIND002EXPU AUABB024EXPU



## General Information

Product ID:	3AUA0000108878
ABB Type Designation:	DPMP-01 Panel flush mounting kit
EAN:	6438177304845
Catalog Description:	DPMP-01 Panel flush mounting kit; Control panel kit, Flush mounted IP55 for ACS-AP

## Categories [\(Show All..\)](#)

Products » Drives » Drive options » User interface options  
 Parts & Services » Drives » Low voltage AC drives » General purpose drives » ACS580-01 - Wall-mounted drive  
 Parts & Services » Drives » Low voltage AC drives » Industrial drives » ACS880 multidrives » ACS880-207 - IGBT supply unit

## Ordering

Country of Origin:	China (CN)
Customs Tariff Number:	85049099
EAN:	6438177304845
Invoice Description:	Control panel kit, Flush mounted IP55 for ACS-AP
Made To Order:	No
Minimum Order Quantity:	1 piece
Order Multiple:	1 piece
Quote Only:	No
Replaced Product ID (OLD):	<a href="#">3AUA0000108938</a>
Selling Unit of Measure:	piece
Stocked At (Warehouses):	Central Stock Europe Central Stock Asia FIPSEEXPU SGRDC002EXPU CNIAB001EXPU SGIND002EXPU AUABB024EXPU

## Container Information

Gross Volume:	0.95 dm <sup>3</sup>
---------------	----------------------

## Dimensions

Product Net Height:	165 mm
Product Net Length:	115 mm
Product Net Weight:	0.3 kg
Product Net Width:	0.4 mm

## Additional Information

Product Main Type:	DPMP-01
Product Name:	Panel flush mounting kit

## Where Used (as a spare part for "Products")

Identifier	Description	Qty	Unit Of Measure
293 Products <span style="float: right;">Filter <input type="text"/></span>			
ACH580-01-017A-4	No Description Available	1	piece
ACH580-01-025A-4	No Description Available	1	piece
ACH580-01-02A6-4	No Description Available	1	piece
ACH580-01-032A-4	No Description Available	1	piece
ACH580-01-038A-4	No Description Available	1	piece
ACH580-01-03A3-4	No Description Available	1	piece
ACH580-01-045A-4	No Description Available	1	piece
ACH580-01-04A0-4	No Description Available	1	piece
ACH580-01-05A6-4	No Description Available	1	piece
ACH580-01-062A-4	No Description Available	1	piece
ACH580-01-073A-4	No Description Available	1	piece
ACH580-01-07A2-4	No Description Available	1	piece
ACH580-01-088A-4	No Description Available	1	piece
ACH580-01-09A4-4	No Description Available	1	piece
ACH580-01-106A-4	No Description Available	1	piece



**General Information**

Global Commercial Alias:	ACS880-01-065A-5
Product ID:	3AUA0000082214
ABB Type Designation:	ACS880-01-065A-5
Catalog Description:	IP21; 3 phase

**Categories**

Products » Drives » Low voltage AC drives » Industrial drives » ACS880 single drives

**Ordering**

Country of Origin:	Finland (FI)
Customs Tariff Number:	85044088
Invoice Description:	ACS880-01-065A-5 Pcont.max:37kW, lcont.max:62A
Made To Order:	Yes
Minimum Order Quantity:	1 piece
Order Multiple:	1 piece
Quote Only:	No
Selling Unit of Measure:	piece
Stocked At (Warehouses):	SGRDC002EXPU CNIAB001EXPU SGIND002EXPU AUABB024EXPU

**Technical**

Enclosure Class:	IP21
Frequency (f):	50 / 60 (+/- 5%) Hz
Input Voltage (U <sub>in</sub> ):	380 ... 500 V
Mounting Type:	Wall-mounting
Number of Phases:	3
Output Current, Heavy-Duty Use:	52 A
Output Current, Light-Overload Use:	62 A
Output Current, Normal Use:	65 A
Output Power, Heavy-Duty Use:	30 kW
Output Power, Light-Overload Use:	37 kW
Output Power, Normal Use:	37 kW

**Additional Information**

Product Main Type:	ACS880-01-065A-5
Product Name:	Frequency Converter

**Classifications**

Product Series:	ACS880
-----------------	--------



## General Information

Product ID:	3AUA0000108878
ABB Type Designation:	DPMP-01 Panel flush mounting kit
EAN:	6438177304845
Catalog Description:	DPMP-01 Panel flush mounting kit; Control panel kit, Flush mounted IP55 for ACS-AP

## Categories [\(Show All..\)](#)

Products » Drives » Drive options » User interface options  
 Parts & Services » Drives » Low voltage AC drives » General purpose drives » ACS580-01 - Wall-mounted drive  
 Parts & Services » Drives » Low voltage AC drives » Industrial drives » ACS880 multidrives » ACS880-207 - IGBT supply unit

## Ordering

Country of Origin:	China (CN)
Customs Tariff Number:	85049099
EAN:	6438177304845
Invoice Description:	Control panel kit, Flush mounted IP55 for ACS-AP
Made To Order:	No
Minimum Order Quantity:	1 piece
Order Multiple:	1 piece
Quote Only:	No
Replaced Product ID (OLD):	<a href="#">3AUA0000108938</a>
Selling Unit of Measure:	piece
Stocked At (Warehouses):	Central Stock Europe Central Stock Asia FIPSEEXPU SGRDC002EXPU CNIAB001EXPU SGIND002EXPU AUABB024EXPU

## Container Information

Gross Volume:	0.95 dm <sup>3</sup>
---------------	----------------------

## Dimensions

Product Net Height:	165 mm
Product Net Length:	115 mm
Product Net Weight:	0.3 kg
Product Net Width:	0.4 mm

## Additional Information

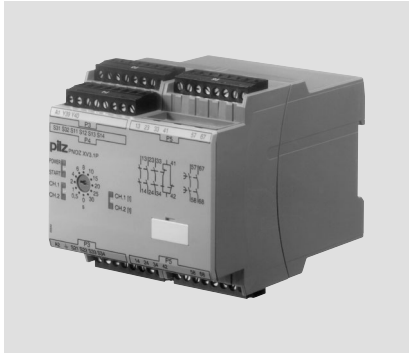
Product Main Type:	DPMP-01
Product Name:	Panel flush mounting kit

## Where Used (as a spare part for "Products")

Identifier	Description	Qty	Unit Of Measure
293 Products <span style="float: right;">Filter <input type="text"/></span>			
ACH580-01-017A-4	No Description Available	1	piece
ACH580-01-025A-4	No Description Available	1	piece
ACH580-01-02A6-4	No Description Available	1	piece
ACH580-01-032A-4	No Description Available	1	piece
ACH580-01-038A-4	No Description Available	1	piece
ACH580-01-03A3-4	No Description Available	1	piece
ACH580-01-045A-4	No Description Available	1	piece
ACH580-01-04A0-4	No Description Available	1	piece
ACH580-01-05A6-4	No Description Available	1	piece
ACH580-01-062A-4	No Description Available	1	piece
ACH580-01-073A-4	No Description Available	1	piece
ACH580-01-07A2-4	No Description Available	1	piece
ACH580-01-088A-4	No Description Available	1	piece
ACH580-01-09A4-4	No Description Available	1	piece
ACH580-01-106A-4	No Description Available	1	piece

## E-STOP relays, safety gate monitors

### Up to PL e of EN ISO 13849-1 PNOZ XV3.1P ←



Safety relay for monitoring E-STOP pushbuttons and safety gates.

#### Approvals

PNOZ XV3.1P	
	◆
	◆
	◆

#### Unit features

- ▶ Positive-guided relay outputs:
  - 3 safety contacts (N/O), instantaneous
  - 2 safety contacts (N/O), delay-on de-energisation
  - 1 auxiliary contact (N/C), instantaneous
- ▶ Connection options for:
  - E-STOP pushbutton
  - Safety gate limit switch
  - Light barriers
  - Reset button
- ▶ Delay-on de-energisation, fixed or adjustable
- ▶ Delay time can be cancelled via reset button
- ▶ LED indicator for:
  - Switch status channel 1/2
  - Supply voltage
  - Reset circuit
- ▶ Plug-in connection terminals (either spring-loaded terminal or screw terminal)
- ▶ See order reference for unit types

#### Unit description

The safety relay meets the requirements of EN 60947-5-1, EN 60204-1 and VDE 0113-1 and may be used in applications with

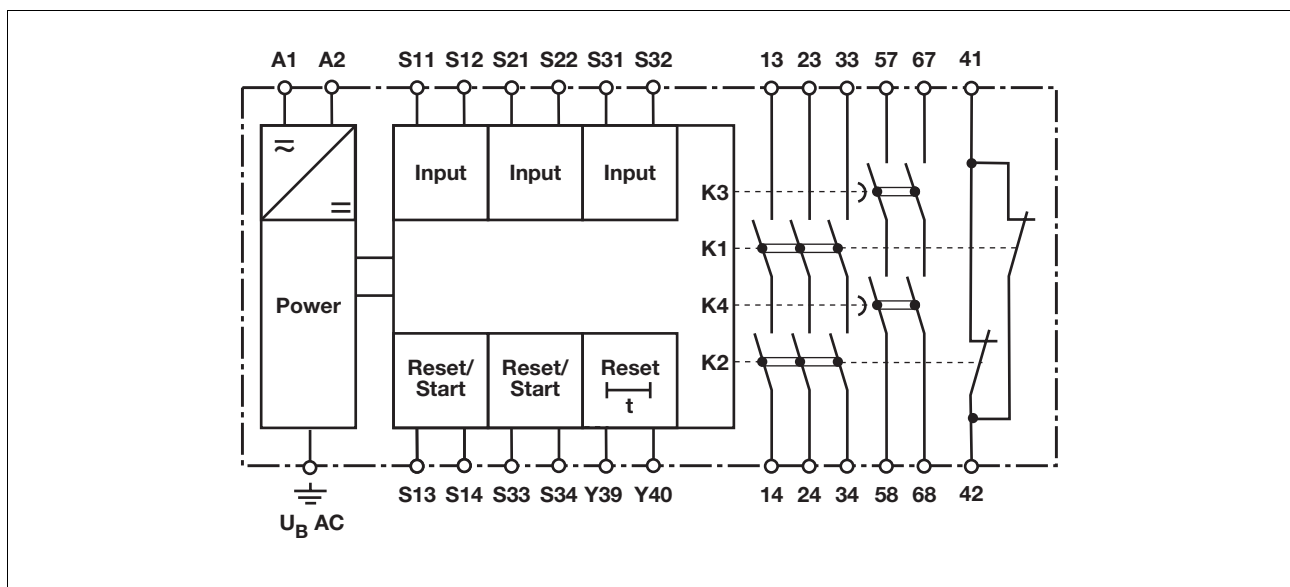
- ▶ E-STOP pushbuttons
- ▶ Safety gates
- ▶ Light beam devices

The max. category the safety contacts can achieve in accordance with EN 954-1 and EN ISO 13849-1 is stated in the technical details.

#### Safety features

- The relay meets the following safety requirements:
- ▶ The circuit is redundant with built-in self-monitoring.
  - ▶ The safety function remains effective in the case of a component failure.
  - ▶ The correct opening and closing of the safety function relays is tested automatically in each on-off cycle.
  - ▶ The transformer is short circuit-proof. An electronic fuse is used on a DC supply.

#### Block diagram

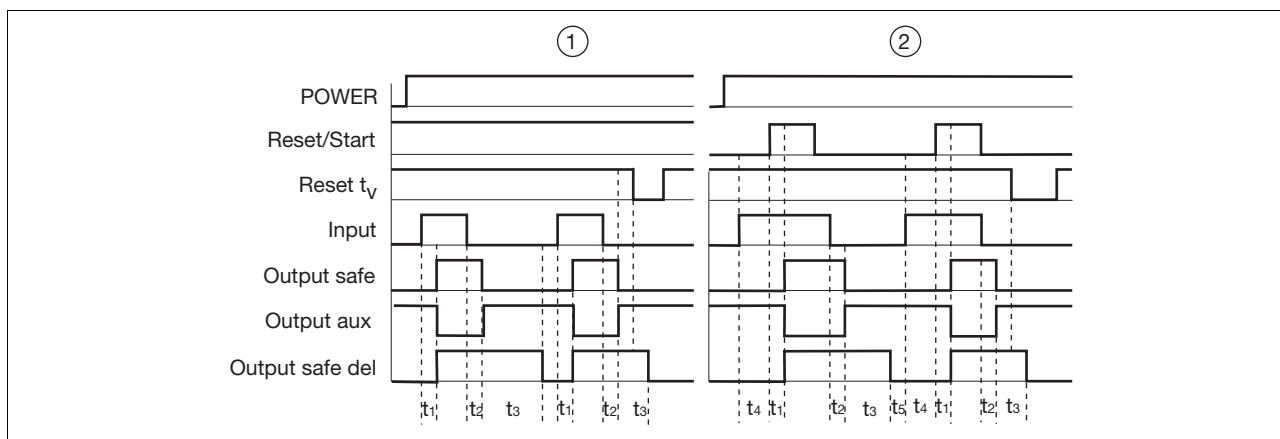


## Up to PL e of EN ISO 13849-1 PNOZ XV3.1P

### Function description

- ▶ Single-channel operation: no redundancy in the input circuit, earth faults in the reset circuit are detected.
- ▶ Dual-channel operation with detection of shorts across contacts: redundant input circuit, detects
  - earth faults in the reset and input circuit,
  - short circuits in the input circuit
- and, with a monitored reset, in the reset circuit too,
  - shorts between contacts in the input circuit.
- ▶ Dual-channel operation without detection of shorts across contacts: redundant input circuit, detects
  - earth faults in the reset and input circuit,
  - short circuits in the input circuit and, with a monitored reset, in the reset circuit too.
- ▶ Automatic start: Unit is active once the input circuit has been closed.
- ▶ Monitored reset: Unit is active once the input circuit is closed and once the reset circuit is closed after the waiting period has elapsed (see technical details).
- ▶ Increase in the number of available instantaneous safety contacts by connecting contact expansion modules or external contactors.

### Timing diagram



### Key

- ▶ Power: Supply voltage
- ▶ Reset/Start: Reset circuit S13-S14, S33-S34
- ▶ Input: Input circuits S11-S12, S21-S22, S31-S32
- ▶ Output safe: Safety contacts, instantaneous 13-14, 23-24, 33-34
- ▶ Output safe del: Safety contacts, delayed 57-58, 67-68
- ▶ Output aux: Auxiliary contacts 41-42
- ▶ ①: Automatic reset
- ▶ ②: Monitored reset
- ▶  $t_1$ : Switch-on delay
- ▶  $t_2$ : Delay-on de-energisation
- ▶  $t_3$ : Delay time
- ▶  $t_4$ : Waiting period
- ▶  $t_5$ : Recovery time

### Wiring

#### Please note:

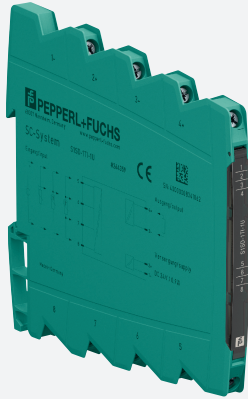
- ▶ Information given in the “Technical details” must be followed.
- ▶ Outputs 13-14, 23-24, 33-34 are instantaneous safety contacts, outputs 57-58, 67-68 are delay-on de-energisation safety contacts, output 41-42 is an instantaneous auxiliary contact (e.g. for display).
- ▶ To prevent contact welding, a fuse should be connected before the output contacts (see technical details).
- ▶ Calculation of the max. cable runs  $l_{max}$  in the input circuit:

$$l_{max} = \frac{R_{lmax}}{R_l / km}$$

$R_{lmax}$  = max. overall cable resistance (see technical details)  
 $R_l / km$  = cable resistance/km

- ▶ Use copper wire that can withstand 60/75 °C.
- ▶ Sufficient fuse protection must be provided on all output contacts with capacitive and inductive loads.

**ITEM NUMBER 12 NOT USED**



## Temperature Converter

### S1SD-1TI-1U

- 1-channel signal conditioner
- 24 V DC supply
- Thermocouple, RTD, potentiometer or mV input
- Input for PTC thermistor
- Current and voltage output
- Line fault (LFD) and sensor burnout detection
- Accuracy 0.1 %
- Connection via screw terminals



## Function

This signal conditioner provides the galvanic isolation between field circuits and control circuits.

The device has an input for signals of the following field devices:

- resistance thermometers
- thermocouples
- PTC thermistors
- potentiometers
- voltage sources
- field device with its own characteristic

The device provides the following standard signals at the output:

- 0/2 mA ... 10 mA signal
- 0/4 mA ... 20 mA signal
- 0/1 V ... 5 V signal
- 0/2 V ... 10 V signal

This device has an integrated cold junction compensation. You can also implement external cold junction compensation.

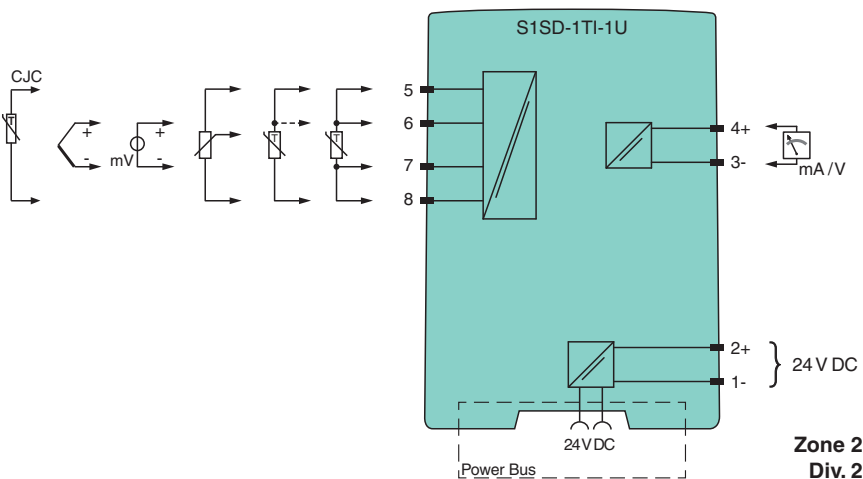
A fault is signalized by LEDs.

The device is easily configured by the use of DIP switches.

The Teach-In function can be used to teach in the potentiometer start value and end value.

The device can be powered via terminals or Power Bus.

## Connection



Release date: 2020-06-16 Date of issue: 2020-06-16 Filename: 276400\_eng.pdf

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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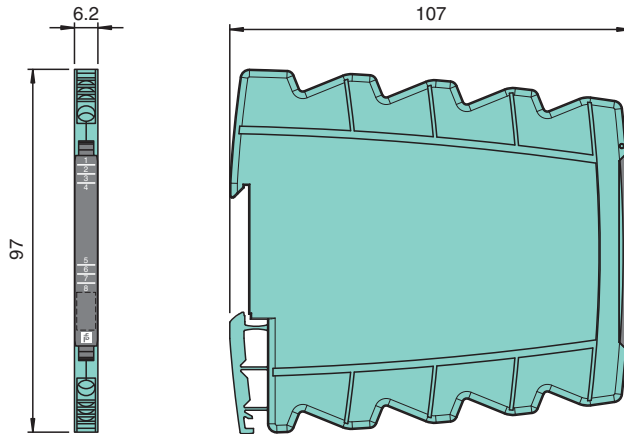
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Singapore: +65 6779 9091  
pa-info@sg.pepperl-fuchs.com

PEPPERL+FUCHS

## Dimensions



## Technical Data

General specifications	
Signal type	Analog input
Operation time	MTBF: 353 a acc. to SN 29500 stationary continuous operating, average ambient temperature 40 °C (104 °F)
Supply	
Connection	Power Bus or terminals 1-, 2+
Rated voltage	$U_r$ 16.8 ... 31.2 V DC
Power dissipation	0.7 W
Power consumption	0.8 W
Interface	
Programming interface	programming socket
Input	
Connection side	field side
Connection	terminals 5, 6, 7, 8
PTC	type KT, KTY, ST
Measuring current	approx. 200 $\mu$ A
Types of measuring	2-, 3-, 4-wire connection
Lead resistance	$\leq$ 100 $\Omega$ per line
Measurement loop monitoring	sensor breakage, lead breakage, short circuit
RTD	type Pt100, Pt200, Pt500, Pt1000 (EN 60751: 1995) type Ni100, Ni200, Ni500, Ni1000 (DIN 43760)
Measuring current	approx. 200 $\mu$ A
Types of measuring	2-, 3-, 4-wire connection
Lead resistance	max. 100 $\Omega$ per line
Measurement loop monitoring	sensor breakage, lead breakage, short circuit
Thermocouples	type B, E, J, K, N, S, T (IEC 584-1:1995) type L, U (DIN 43710:1985) type C, D (ASTM E988)
Cold junction compensation	external (Pt100) and internal, manually
Lead resistance	max. 10 k $\Omega$
Measurement loop monitoring	sensor breakage, lead breakage
Resistor	
Measurement range	0 ... 5 k $\Omega$
Potentiometer	0.2 ... 50 k $\Omega$
Types of measuring	3-wire connection
Voltage	-100 ... 100 mV -1000 ... 1000 mV
Input resistance	$\geq$ 1 M $\Omega$

Release date: 2020-06-16 Date of issue: 2020-06-16 Filename: 276400\_eng.pdf

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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 PEPPERL+FUCHS

## Technical Data

<b>Output</b>	
Connection side	control side
Connection	terminals 3-, 4+
Analog voltage output	0/1 ... 5 V, 0/2 ... 10 V, load $\geq 2 \text{ k}\Omega$
Analog current output	0/2 ... 10 mA, 0/4 ... 20 mA, load $\leq 600 \Omega$
Ripple	$\leq 10 \text{ mV}_{\text{eff}}$
Fault signal	downscale or upscale
<b>Transfer characteristics</b>	
Accuracy	max. 0.1 % of full-scale value
Measuring time	$\leq 300 \text{ ms}$
Deviation	
RTD	$< 0.1 \text{ K}/0.05 \%$ of the measured value
Thermocouples	$< 0.3 \text{ K}/0.1 \%$ of the measured value
Voltage	$< 0.1 \%$ of the measured value
Potentiometer	$< 0.02 \%$ of the measured value
Influence of ambient temperature	$< 100 \text{ ppm/K}$ of full-scale value
<b>Galvanic isolation</b>	
Output/power supply	safe electrical isolation by reinforced insulation according to IEC/EN 61010-1, rated insulation voltage $300 \text{ V}_{\text{eff}}$ test voltage 3 kV, 50 Hz, 1 min
Input/Other circuits	safe electrical isolation by reinforced insulation according to IEC/EN 61010-1, rated insulation voltage $300 \text{ V}_{\text{eff}}$ test voltage 3 kV, 50 Hz, 1 min
<b>Indicators/settings</b>	
Control elements	DIP-switch keys
Configuration	via DIP switches via keys via software
Labeling	space for labeling at the front
<b>Directive conformity</b>	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 61326-1:2013 (industrial locations)
<b>Conformity</b>	
Degree of protection	IEC 60529:2001
Protection against electrical shock	EN 61010-1:2010
<b>Ambient conditions</b>	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
Damaging gas	designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3
<b>Mechanical specifications</b>	
Degree of protection	IP20
Connection	screw terminals
Core cross-section	0.5 ... 2.5 mm <sup>2</sup> (20 ... 14 AWG)
Mass	approx. 70 g
Dimensions	6.2 x 97 x 107 mm (0.24 x 3.82 x 4.21 inch), housing type S1
Mounting	on 35 mm DIN mounting rail acc. to EN 60715:2001
<b>Data for application in connection with hazardous areas</b>	
Certificate	DEMKO 16 ATEX 1750X
Marking	Ⓜ II 3G Ex nA IIC T4 Gc
Directive conformity	
Directive 2014/34/EU	EN 60079-0:2012+A11:2013, EN 60079-15:2010
<b>International approvals</b>	
UL approval	E106378
IECEX approval	IECEX UL 16.0116X
Approved for	Ex nA IIC T4 Gc

Release date: 2020-06-16 Date of issue: 2020-06-16 Filename: 276400\_eng.pdf

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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**PEPPERL+FUCHS**



**ITEM NUMBER 14 NOT USED**

A. System Overview

B1. Cable Ties

B2. Cable Accessories

B3. Stainless Steel Ties

C1. Wiring Duct

C2. Surface Raceway

C3. Abrasion Protection

C4. Cable Management

D1. Terminals

D2. Power Connectors

D3. Grounding Connectors

E1. Labeling Systems

E2. Labels

E3. Pre-Printed & Write-On Markers

E4. Permanent Identification

E5. Lockout/Tagout & Safety Solutions

F. Index

**UL LISTED** **Two-Hole, Single Barrel Lug**

**For Use with Stranded Aluminum or Copper Code Conductors**

**Type LAMB**

- Made from high strength, extruded aluminum alloy to provide premium electrical and mechanical performance
- Tin-plated to inhibit corrosion
- Compact design saves space
- Wide wire range-taking capability minimizes inventory requirements
- Inspection window to visually assure full conductor insertion
- Plated steel or aluminum set screw provides high strength, durable electrical contact between conductor and connector
- LAMLB provided with dual set screws for premium clamping of conductor to connector for heavy duty applications
- UL Listed and CSA Certified for use up to 600 V and UL temperature rated 90°C
- Available with NEMA hole sizes and spacing

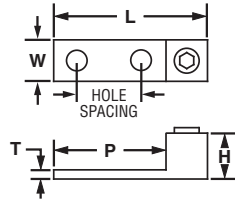


Figure 1

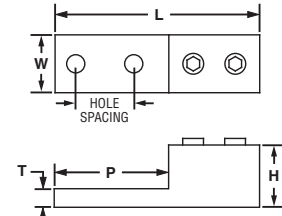


Figure 2

Part Number	Figure No.	Conductor Size Range	Stud Hole Size (In.)	Stud Hole Spacing (In.)	Hex Key Size (In.)	Figure Dimensions (In.)					Std. Pkg. Qty.
						L	W	H	T	P	
LAMB350-12-6Y	1	#6 AWG – 350 kcmil	1/2	1.75	5/16	4.19	1.13	1.28	0.28	3.05	6
LAMB600-12-3Y	1	#2 AWG – 600 kcmil	1/2	1.75	1/2	4.69	1.60	1.57	0.44	3.31	3
LAMLB1000-12-3*	2	500 – 1000 kcmil	1/2	1.75	1/2	6.19	1.63	1.88	0.56	3.44	3

The use of Panduit oxide inhibiting joint compound (CMP-100) is recommended for pad to pad and conductor connections. See page D2.155.

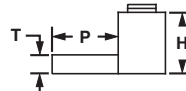
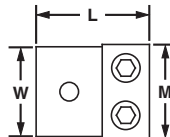
\*UL Listed and CSA Certified.  
uNEMA hole sizes and spacing.

**UL LISTED** **One-Hole, Two-Barrel Lug**

**For Use with Stranded Aluminum or Copper Code Conductors**

**Type LAM2A**

- Dual barrel provides termination of two conductors
- Made from high strength, extruded aluminum alloy to provide premium electrical and mechanical performance
- Tin-plated to inhibit corrosion
- Wide wire range-taking capability minimizes inventory requirements
- Inspection window to visually assure full conductor insertion
- Plated steel or aluminum set screw provides high strength, durable electrical contact between conductor and connector
- UL Listed and CSA Certified for use up to 600 V and UL temperature rated 90°C
- Available with NEMA hole sizes and spacing



Part Number	Conductor Size Range	Stud Hole Size (In.)	Hex Key Size (In.)	Figure Dimensions (In.)						Std. Pkg. Qty.
				L	W	H	T	P	M	
LAM2A1/0-14-6Y	#14 AWG – 1/0 AWG	1/4	**	1.47	1.13	0.78	0.19	0.85	1.13	6
LAM2A2/0-14-6Y	#14 AWG – 2/0 AWG	1/4	3/16	1.47	1.20	0.78	0.19	0.85	1.20	6
LAM2A250-38-6Y	#6 AWG – 250 kcmil	3/8	3/8	2.56	1.50	1.19	0.25	1.56	1.64	6
LAM2A350-12-6Y	#6 AWG – 350 kcmil	1/2	5/16	2.87	1.73	1.25	0.25	1.74	1.91	6
LAM2A600-12-6Y*	#2 AWG – 600 kcmil	1/2	3/8	3.19	2.00	1.56	0.44	1.81	2.38	6
LAM2A1000-58-6Y*	500 kcmil – 1000 kcmil	5/8	3/8	3.50	3.50	1.94	0.50	1.88	3.50	6

The use of Panduit oxide inhibiting joint compound (CMP-100) is recommended for pad to pad and conductor connections. See page D2.155.

\*UL Listed and CSA Certified.

\*\*Uses slotted head set screw.

# ITEM 16 Bulletin 1492

## Screw Connection Terminal Blocks

### Multi-Circuit Feed-Through Blocks

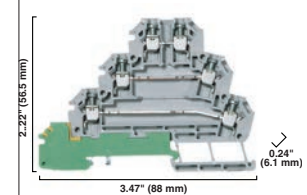
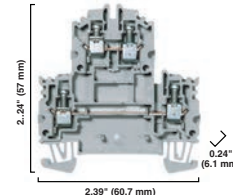
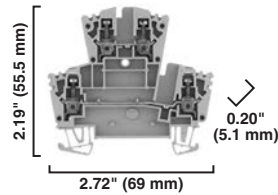


**1492-JD3**

**1492-JD4**

**1492-JT3M**

Dimensions are not intended to be used for manufacturing purposes.  
**Note:** Height dimension is measured from top of rail to top of terminal block.



Specifications	Two-level, two-circuit feed-through terminal block				Two-level, two-circuit feed-through terminal block				Three-level, three-circuit terminal block with ground point		
Certifications		CSA	IEC	ATEX		CSA	IEC	ATEX		CSA	IEC
Voltage Rating	600V AC/DC	300V AC/DC	400V AC/DC	275V AC/DC	600V AC/DC	300V AC/DC	800V AC/DC	550V AC/DC	300V AC/DC		400V AC/DC
Maximum Current	20 A	10 A	24 A	21 A	35 A	30 A	32 A	28 A	10 A		24 A
Wire Range (Rated Cross Section)	#22...12 AWG	26...12 AWG	2.5 mm <sup>2</sup>	2.5 mm <sup>2</sup> (20...14 AWG)	#26...10 AWG		0.5...4 mm <sup>2</sup>	4 mm <sup>2</sup> (20...12 AWG)	#22...12 AWG	#26...10 AWG	0.5...2.5 mm <sup>2</sup>
Wire Strip Length	0.39 in. (10 mm)				0.315 in. (8 mm)				0.28 in. (7 mm)		
Recommended Tightening Torque	4.5...7.1 lb•in (0.5...0.8 N•m)				4.5 lb•in (0.5 N•m)				4.4 lb•in (0.5 N•m)		
Density	59 pcs/ft (196 pcs/m)				49 pcs/ft (163 pcs/m)				49 pcs/ft (163 pcs/m)		
Housing Temperature Range	-58...+248 °F (-50...+120 °C)				-58...+248 °F (-50...+120 °C)				-58...+248 °F (-50...+120 °C)		
Short-Circuit Current Rating	See page 12-42										

Terminal Blocks		Cat. No.	Pkg Qty.	Cat. No.	Pkg Qty.	Cat. No.	Pkg Qty.
Color:	Grey	<b>1492-JD3</b>	100	<b>1492-JD4</b>	100	<b>1492-JT3M</b>	50
	Red	<b>1492-JD3-RE</b>	100	<b>1492-JD4-RE</b>	100	—	—
	Blue	<b>1492-JD3-B</b>	100	<b>1492-JD4-B</b>	100	—	—
	Black	<b>1492-JD3-BL</b>	100	1492-JD4-BL	100	—	—
	Green	<b>1492-JD3-G</b>	100	1492-JD4-G	100	—	—
	Yellow	<b>1492-JD3-Y</b>	100	1492-JD4-Y	100	—	—
	Orange	<b>1492-JD3-OR</b>	100	<b>1492-JD4-OR</b>	100	—	—
	Brown	<b>1492-JD3-BR</b>	100	1492-JD4-BR	100	—	—
	White	<b>1492-JD3-W</b>	100	<b>1492-JD4-W</b>	100	—	—

Accessories		Cat. No.	Pkg Qty.	Cat. No.	Pkg Qty.	Cat. No.	Pkg Qty.
Mounting Rails:							
1 m Symmetrical DIN (Steel)		<b>199-DR1</b>	10	<b>199-DR1</b>	10	<b>199-DR1</b>	10
1 m Symmetrical DIN (Aluminum)		<b>1492-DR5</b>	10	<b>1492-DR5</b>	10	<b>1492-DR5</b>	10
1 m Hi-Rise Sym. DIN (Aluminum)		<b>1492-DR6</b>	2	<b>1492-DR6</b>	2	<b>1492-DR6</b>	2
1 m Angled Hi-Rise Sym. DIN (Steel)		<b>1492-DR7</b>	2	<b>1492-DR7</b>	2	<b>1492-DR7</b>	2
End Barrier	Grey	<b>1492-EBJD3</b>	20	<b>1492-EBJD4</b>	20	<b>1492-EBJ3TM</b>	20
	Blue	<b>1492-EBJD3-B</b>	20	<b>1492-EBJD4-B</b>	20	—	—
	Yellow	<b>1492-EBJD3-Y</b>	20	—	—	—	—
End Anchor and Retainers:							
Screwless End Retainer		<b>1492-ERL35</b>	20	—	—	—	—
DIN Rail — Normal Duty		<b>1492-EAJ35</b>	100	—	—	—	—
DIN Rail — Heavy Duty		<b>1492-EAHJ35</b>	50	<b>1492-EAHJ35</b>	50	<b>1492-EAHJ35</b>	50
Jumpers:							
Center Jumper — 41-pole		—	—	‡	<b>1492-CJLJ6-41</b>	10	—
Center Jumper — 10-pole	⊛	<b>1492-CJJ5-10</b>	20	‡	<b>1492-CJLJ6-10</b>	20	—
Center Jumper — 4-pole	⊛	<b>1492-CJJ5-4</b>	50	‡	<b>1492-CJLJ6-4</b>	60	—
Center Jumper — 3-pole	⊛	<b>1492-CJJ5-3</b>	50	‡	<b>1492-CJLJ6-3</b>	60	—
Center Jumper — 2-pole	⊛	<b>1492-CJJ5-2</b>	50	‡	<b>1492-CJLJ6-2</b>	60	—
Insulated Side Jumper — 50-Pole		—	—	—	—	<b>1492-SJ6A-50</b>	5
Insulated Side Jumper — 24-Pole		<b>1492-SJ5A-24</b>	50	—	—	—	—
Insulated Side Jumper — 10-Pole		<b>1492-SJ5A-10</b>	50	—	—	—	—
Screw Type Jumper Notching Tool		<b>1492-T1</b>	1	—	—	—	—
Other Accessories:							
Partition Plate		<b>1492-PPJD3</b>	20	<b>1492-PPJD3</b>	20	<b>1492-PPJD3</b>	20
Test Plug Socket		<b>1492-TPS23</b>	20	—	—	—	—
Test Plug		<b>1492-TP23</b>	20	—	—	—	—
Snap-in marker cards		<b>1492-M5X5</b> (200/card)	5	<b>1492-M6X5</b> (200/card)	5	<b>1492-M6X5</b> (200/card)	5
Snap-in marker cards		<b>1492-M5X8</b> (144/card)	5	<b>1492-MR6X8</b> (120/card)	5	<b>1492-MR6X8</b> (120/card)	5

⊛ Screw Center Jumpers, ‡ Plug-in Center Jumpers

# Screw Connection Terminal Blocks

## Short-Circuit Current Ratings

### Fuse Ratings

Cat. No.	Wire Range Cu [AWG]		Overcurrent Protection Fuse Required Class/Max. Current Rating [A]						Maximum Voltage [V]	SCCR, RMS SYM [A]
	Line	Load	J	T	RK1	RK5	G	CC		
1492-J3	14...12	14...12	30	30	—	—	30	30	600	100,000
1492-J3P										
1492-JD3SS										
1492-JD3										
1492-JD3C										
1492-JG3TW										
1492-JDG3C										
1492-JG3										
1492-J3F	14...12	14...12	30	30	—	—	30	30	300	100,000
1492-J3TW										
1492-JC3										
1492-JDC3										
1492-JKD3										
1492-JD3FB										
1492-JD3F										
1492-JDG3FB										
1492-JD3PSSTP										
1492-JD3PTP										
1492-JDG3P										
1492-JDG3PSS										
1492-JDG3PSSTP										
1492-JDG3PTP										
1492-JDG3										
1492-JD3PSS										
1492-JD3P										
1492-J4										
1492-JG4										
1492-JKD4										
1492-J4TW										
1492-J4Q										
1492-JG4TW										
1492-JG4Q										
1492-JKD4TW										
1492-JKD4Q										
1492-JKD4TP										
1492-JD4C										
1492-JD4										
1492-JKD4QTP										
1492-JKD4TWTP										
1492-JSD4										
1492-JKD4	14...10	14...10	60	60	30	—	60	30	300	100,000
1492-J4CTB										
1492-J6	14...8	14...8	100	100	60	30	60	30	600	100,000
1492-JG6										
1492-J10	14...6	14...6	100	100	60	30	60	30	600	100,000
1492-JG10										
1492-J16	14...4	14...4	100	100	60	30	60	30	600	100,000
1492-JG16										
1492-J16ND										
1492-J35	12...1/0	12...1/0	200	200	100	30	60	30	600	100,000
1492-JG35										
1492-J50	6...1/0	6...1/0	200	200	100	30	60	30	600	100,000
1492-JG50										
1492-J70	1/0...3/0	1/0...3/0	400	400	200	100	60	30	600	100,000
1492-JG70										
1492-J120	4...4/0	4...4/0	400	400	200	100	60	30	600	100,000
1492-JG120										



## Screw Connection Terminal Blocks

### Short-Circuit Current Ratings — Overcurrent Ratings

#### Overcurrent Ratings

Cat. No.	Wire Range Cu [AWG] (Line and Load)	Overcurrent Protection Device Required	Max. Current [A]	SCCR, RMS Sym A 480Y/277V	SCCR, RMS Sym. A 600Y/347V		
1492-J3	14...12	140M-D8E-__	16	65,000	30,000		
1492-JG3TW		140M-C2E-B10		65,000	30,000		
1492-J3P		140M-C2E-B16		65,000	30,000		
1492-J3		140M-C2E-B25		65,000	30,000		
1492-JD3		140M-C2E-B40		65,000	25,000		
1492-JD3C		140M-C2E-B63		65,000	*		
1492-JD3SS		140M-C2E-A__		65,000	30,000		
1492-JDG3C		140M-C2E-C10		65,000	*		
1492-JG3		140MC2E-C16		30,000	*		
1492-J4		14...10		140M-F8E-__	32	65,000	30,000
1492-JG4	140M-D8E-C10		65,000	30,000			
1492-J4TW	140M-D8E-C16		65,000	30,000			
1492-J4Q	140M-D8E-C20		65,000	*			
1492-JG4TW	140M-D8E-C25		30,000	*			
1492-JG4Q	140M-D8E-B__		65,000	30,000			
1492-JKD4TW	140M-C2E-B10		65,000	30,000			
1492-JKD4Q	140M-C2E-B16		65,000	30,000			
1492-JKD4TP	140M-C2E-B25		65,000	30,000			
1492-JD4C	140M-C2E-B40		65,000	25,000			
1492-JD4	140M-C2E-B63		65,000	*			
1492-JKD4QTP	140M-C2E-C10		65,000	*			
1492-JKD4TWTP	140M-C2E-C16		30,000	*			
	140M-C2E-A__		65,000	30,000			
1492-J6	14...8		140M-F8E-__	32		65,000	30,000
1492-JG6			140M-D8E-C10			65,000	30,000
		140M-D8E-C16	65,000		30,000		
		140M-D8E-C20	65,000		*		
		140M-D8E-C25	30,000		*		
		140M-D8E-B__	65,000		30,000		
		140M-C2E-B10	65,000		30,000		
		140M-C2E-B16	65,000		30,000		
		140M-C2E-B25	65,000		30,000		
		140M-C2E-B40	65,000		25,000		
		140M-C2E-B63	65,000		*		
		140M-C2E-C10	65,000		*		
		140M-C2E-C16	30,000		*		
		140M-C2E-A__	65,000		30,000		

\* Bulletin 140M does not have ratings at this voltage.

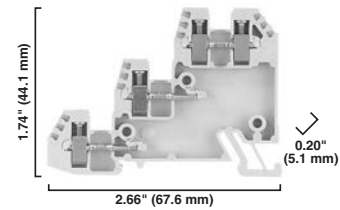
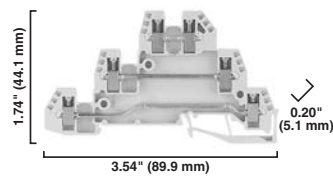
# Screw Connection Terminal Blocks

## Sensor Blocks



1492-WTS3...

Dimensions are not intended to be used for manufacturing purposes.  
**Note:** Height dimension is measured from top of rail to top of terminal block.



Specifications	Three-circuit terminal block.			Three-level sensor block.		
Certifications		<b>CSA</b>	<b>IEC</b>		<b>CSA</b>	<b>IEC</b>
Voltage Rating	300V AC/DC		250V AC/DC	300V AC/DC		250V AC/DC
Maximum Current	10 A		24 A	10 A		24 A
Wire Range (Rated Cross Section)	#26...14 AWG		0.5...2.5mm <sup>2</sup>	#26...14 AWG		0.5...2.5mm <sup>2</sup>
Recommended Tightening Torque	4.2...4.6 lb•in (0.5 N•m)			4.2...4.6 lb•in (0.5 N•m)		
Density	60 pcs/ft (197 pcs/m)			60 pcs/ft (197 pcs/m)		
Housing Temperature Range	-40...+195 °F (-40...+90 °C)			-40...+195 °F (-40...+90 °C)		
Indicator Type WTF3/WTS3	No indicator			No indicator		
WTF3LP/WTS3LP	Red LED for PNP devices (10...50V)			Red LED for PNP devices (10...50V)		
WTF3LN/WTS3LN	Red LED for NPN devices (10...50V)			Red LED for NPN devices (10...50V)		
Leakage Current WTF3/WTS3	—			—		
WTF3LP/WTS3LP	2.69 mA @ 50V			2.69 mA @ 50V		
WTF3LN/WTS3LN	2.69 mA @ 50V			2.69 mA @ 50V		
Wire Strip Length	0.31 in. (8 mm)			0.31 in. (8 mm)		
Short-Circuit Current Rating	See page 12-42					

Terminal Blocks		Cat. No.	Pkg Qty.	Cat. No.	Pkg Qty.
Color:	Grey	<b>1492-WTF3</b>	50	<b>1492-WTS3</b>	50
	Blue	—	—	<b>1492-WTS3-B</b>	50
	Grey for PNP devices	<b>1492-WTF3LP</b>	50	<b>1492-WTS3LP</b>	50
	Grey for NPN devices	1492-WTF3LN	50	<b>1492-WTS3LN</b>	50
Accessories		Cat. No.	Pkg Qty.	Cat. No.	Pkg Qty.
Mounting Rails:					
1 m Symmetrical DIN (Steel)		<b>199-DR1</b>	10	<b>199-DR1</b>	10
1 m Symmetrical DIN (Aluminum)		<b>1492-DR5</b>	10	<b>1492-DR5</b>	10
1 m Hi-Rise Sym. DIN (Aluminum)		<b>1492-DR6</b>	2	<b>1492-DR6</b>	2
1 m Angled Hi-Rise Sym. DIN (Steel)		<b>1492-DR7</b>	2	<b>1492-DR7</b>	2
End Barrier		<b>1492-EBTF3</b>	50	<b>1492-EBTS3</b>	50
End Anchors and Retainers:					
Screwless End Retainer		<b>1492-ERL35</b>	20	<b>1492-ERL35</b>	20
DIN Rail — Normal Duty		<b>1492-EAJ35</b>	100	<b>1492-EAJ35</b>	100
DIN Rail — Heavy Duty		<b>1492-EAHJ35</b>	50	<b>1492-EAHJ35</b>	50
Jumpers:					
Center Jumper — 50-pole		<b>1492-CJT5-50</b>	5	<b>1492-CJT5-50</b>	5
Center Jumper — 10-pole		<b>1492-CJT5-10</b>	10	<b>1492-CJT5-10</b>	10
Center Jumper — 3-pole		1492-CJT5-3	10	1492-CJT5-3	10
Center Jumper — 2-pole		<b>1492-CJT5-2</b>	10	<b>1492-CJT5-2</b>	10
Center Jumper Link		<b>1492-CJL5</b>	10	<b>1492-CJL5</b>	10
Center Jumper Cover — Red		<b>1492-CJCR5</b>	10	<b>1492-CJCR5</b>	10
Center Jumper Cover — Blue		<b>1492-CJCB5</b>	10	<b>1492-CJCB5</b>	10
Side — 20-pole Insulated Red		<b>1492-SJT5-20-R</b>	10	<b>1492-SJT5-20-R</b>	10
Side — 20-pole Insulated Blue		<b>1492-SJT5-20-B</b>	10	<b>1492-SJT5-20-B</b>	10
Other Accessories:					
Partition Plate		<b>1492-PPTS3</b>	50	<b>1492-PPTS3</b>	50
Test Plug Adapter		<b>1492-TA285</b>	10	<b>1492-TA285</b>	10
Electrical Warning Plate	4-Pole	1492-EWP5-4	10	1492-EWP5-4	10
	1-Pole	1492-EWP5	10	1492-EWP5	10
Marking Systems:					
Snap-in Marker Card		<b>1492-MS5X9</b> (80/card)	5	<b>1492-MS5X9</b> (80/card)	5

## Angled brackets - BG/SH - 1201099



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Angled brackets with M6 screw, for fixing DIN rails at an angle of 30°, height: 46 mm

### Product Features

- The BG/S brackets can be used to fix DIN rails at a distance from the mounting surface
- 30° tilt angle

### Key commercial data

Packing unit	1 pc
Minimum order quantity	10 pc
GTIN	 4 017918 017217
Weight per Piece (excluding packing)	49.9 GRM
Custom tariff number	73269098
Country of origin	Germany

### Technical data

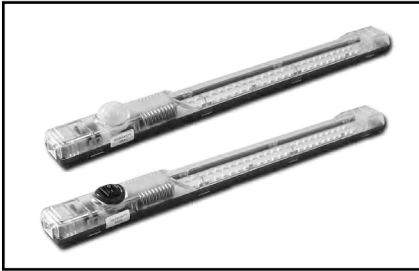
#### Dimensions

Height	46 mm
Length	84 mm
Width	20 mm

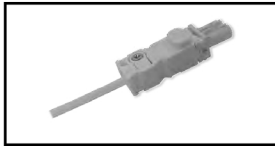
#### General

Material	Steel
Coating	Galvanized, passivated with a thick layer
Color	silver

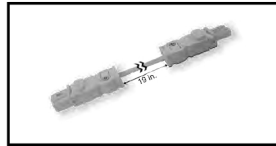
Catalog No.	Description	Height (A)	Width (B)	Depth (C)	Volt AC/DC	Hz	Product Code
SCE-SLMS	w/ Motion Sensor	13.80	1.38	1.25	24 - 265	50/60	P2
SCE-SLOF	w/ On/Off Switch	13.80	1.38	1.25	24 - 265	50/60	P2



Catalog No.	Description	Length	Product Code
SCE-SLCC	LED Strip Light Connection Cord	118 inch	P2
SCE-SLDCC	LED Strip Light Daisy Chain Cord	19 inch	P2



SCE-SLCC



SCE-SLDCC

## GENERAL ACCESSORIES

### LED Strip Light

#### Application -

LED Strip Lights have a compact design to provide interior lighting for smaller enclosures.

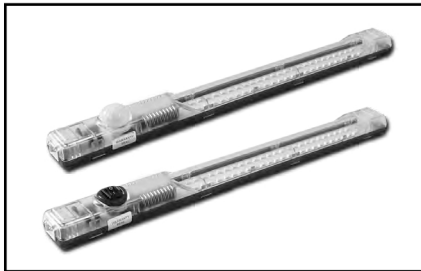
#### Construction -

- Magnets provided for quick installation to any surface inside the enclosure, also provided with clips that can be mechanically fastened.
- Wire connector for direct power supply wiring.
- Feed in / Feed out Push Fit Connector on each end of fixture.
- Daisy chain multiple lights continuously up to 16 lights AC or 8 lights DC.
- Combined AC and DV voltage range in one light 24 VDC to 265 VAC 50/60 Hz.
- ON/OFF switch or motion sensor available.
- 6500K Cool White
- 400 Lumens

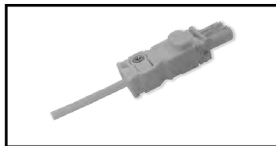
**IS24 - Industry Standards -**  
UL Component Recognized



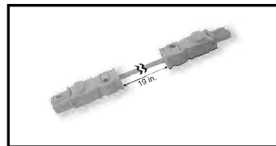
Catalog No.	Description	Height (A)	Width (B)	Depth (C)	Volt AC/DC	Hz	Product Code
SCE-SLMS	w/ Motion Sensor	13.80	1.38	1.25	24 - 265	50/60	P2
SCE-SLOF	w/ On/Off Switch	13.80	1.38	1.25	24 - 265	50/60	P2



Catalog No.	Description	Length	Product Code
SCE-SLCC	LED Strip Light Connection Cord	118 inch	P2
SCE-SLDCC	LED Strip Light Daisy Chain Cord	19 inch	P2



SCE-SLCC



SCE-SLDCC

## GENERAL ACCESSORIES

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#### Application -

LED Strip Lights have a compact design to provide interior lighting for smaller enclosures.

#### Construction -

- Magnets provided for quick installation to any surface inside the enclosure, also provided with clips that can be mechanically fastened.
- Wire connector for direct power supply wiring.
- Feed in / Feed out Push Fit Connector on each end of fixture.
- Daisy chain multiple lights continuously up to 16 lights AC or 8 lights DC.
- Combined AC and DV voltage range in one light 24 VDC to 265 VAC 50/60 Hz.
- ON/OFF switch or motion sensor available.
- 6500K Cool White
- 400 Lumens

**IS24 - Industry Standards -**  
UL Component Recognized



*Your Enclosure Source*®

Saginaw Control & Engineering  
95 Midland Road  
Saginaw, MI 48638-5770  
Phone: (800)234-6871  
Fax: (989)799-4524  
<http://www.saginawcontrol.com>

## Part Information - SCE-LSA



### → SCE-LSA

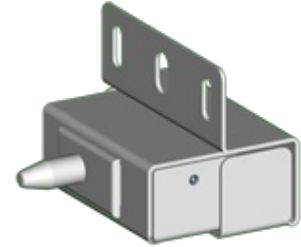
#### Application -

Designed to remote mount the light switch when space is limited.

**Industry Standards - (IS24)**  
UL Component Recognized

#### Product Specifications -

Part Number: SCE-LSA  
Description: Assembly, Light Switch  
Height: 2.00"  
Width: 2.68"  
Depth: 1.00"  
Price Code: P2  
List Price: \$38.34  
Catalog Page: 301  
Est. Ship Weight: 1.00 lbs  
MAX Amp: 10  
MAX Volt AC: 277



[Download CAD Package](#)  
[Add to Bill of Material](#)

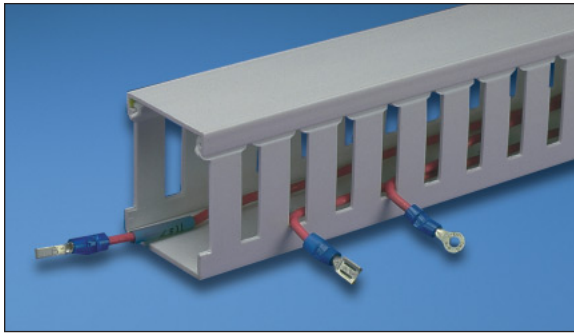
**Installation Information -**  
[Light Switch Mounting Bracket](#)

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Overview

## Wiring Duct *Control Panel*

### PANDUCT® Type G ← Wide Slot Wiring Duct

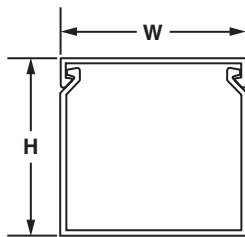


- Wide slot/finger design provides greater sidewall rigidity and can be used with a wide range of wire bundle sizes
- Made of rigid PVC
- UL Recognized continuous use temperature: 50°C (122°F)
- UL94 Flammability Rating of V-0
- Provided with mounting holes
- Conforms with NFPA 79-2002 section 14.3.1 requirement for flame retardant material

Control Panel



- nonmetallic, non-flame propagating CDS
- medium impact resistance
- 331 temperature classification
- cover removal without tools



Special Environment

Voice & Data

Tools & Accessories

Technical Info

Index

Part Number	Duct Size W x H		Cover Part Number	Duct Std. Ctn. Qty.	Cover Std. Ctn. Qty.	Length (ft)
	In.	mm				
G.5X.5LG6	.69 x .60	17.5 x 15.2	C.5LG6	120	120	6
G.5X1LG6	.69 x 1.06	17.5 x 26.9		120		
G.5X2LG6	.69 x 2.03	17.5 x 51.6		120		
G.5X4LG6	.69 x 4.10	17.5 x 104.1		60		
G.75X.75LG6	.93 x .82	23.6 x 20.8	C.75LG6	120	120	6
G.75X1LG6	.93 x 1.06	23.6 x 26.9		120		
G.75X1.5LG6	.93 x 1.57	23.6 x 39.9		120		
G.75X2LG6	.93 x 2.03	23.6 x 51.6		120		
G1X1LG6	1.26 x 1.12	32.0 x 28.4	C1LG6	120	120	6
G1X1.5LG6	1.26 x 1.62	32.0 x 41.1		120		
G1X2LG6	1.26 x 2.12	32.0 x 53.8		120		
G1X3LG6	1.26 x 3.12	32.0 x 79.2		120		
G1X4LG6	1.26 x 4.10	32.0 x 104.1		60		
G1.5X1LG6	1.75 x 1.12	44.5 x 28.4	C1.5LG6	120	120	6
G1.5X1.5LG6	1.75 x 1.62	44.5 x 41.1		120		
G1.5X2LG6	1.75 x 2.12	44.5 x 53.8		120		
G1.5X3LG6	1.75 x 3.12	44.5 x 79.2		120		
G1.5X4LG6	1.75 x 4.10	44.5 x 104.1		60		
G2X1LG6	2.25 x 1.12	57.2 x 28.4	C2LG6	120	120	6
G2X1.5LG6	2.25 x 1.62	57.2 x 41.1		120		
G2X2LG6	2.25 x 2.12	57.2 x 53.8		120		
G2X3LG6	2.25 x 3.12	57.2 x 79.2		60		
G2X4LG6	2.25 x 4.10	57.2 x 104.1		60		
G2X5LG6	2.25 x 5.10	57.2 x 129.5		60		
G2.5X3LG6	2.75 x 3.12	69.9 x 79.2	C2.5LG6	120	120	6
G3X1LG6	3.25 x 1.12	82.6 x 28.4	C3LG6	120	120	6
G3X2LG6	3.25 x 2.12	82.6 x 53.8		120		
G3X3LG6	3.25 x 3.12	82.6 x 79.2		60		
G3X4LG6	3.25 x 4.10	82.6 x 104.1		60		
G3X5LG6	3.25 x 5.10	82.6 x 129.5		60		
G4X1.5LG6	4.25 x 1.62	108.0 x 41.1	C4LG6	120	120	6
G4X2LG6	4.25 x 2.12	108.0 x 53.8		60		
G4X3LG6	4.25 x 3.12	108.0 x 79.2		60		
G4X4LG6	4.25 x 4.10	108.0 x 104.1		60		
G4X5LG6	4.25 x 5.10	108.0 x 129.5		60		
G6X4LG6	6.25 x 4.15	158.8 x 105.4	C6LG6	60	120	6

Part Number shown for LG (Light Gray). For other color availability see Color Selection Guide, [page F14](#).

Reference	Page(s)
Color Availability	<b>F14</b>
Adhesive Tape	<b>E12, E13</b>
Dimensions	<b>F2</b>
Wirefill Guide	<b>F8</b>
Material Specifications	<b>F13</b>
Tools & Accessories	<b>D11, D12, Section E</b>
Installation Tips	<b>F15</b>

**ITEM NUMBER 19 NOT USED**

## EMC filter surge protection device - SFP 1-20/120AC - 2856702



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Device protection, according to type 3/class III, with network interference suppression filter to prevent high-frequency interference voltages, for 1-phase power supply networks with separate N and PE (3-conductor system: L1, N, PE), with remote indication contact.

### Product Description

Device protection with interference filter

### Why buy this product

- ✓ Can be installed in industrial environments
- ✓ Thermal monitoring of the protective circuit
- ✓ Combined protective circuit for absorbing transient surge voltages and high-frequency interference voltages
- ✓ Disconnection status signaled via floating remote indication contact
- ✓ Integrated power display switches off automatically when there is a malfunction due to overload.

RoHS

### Key Commercial Data

Packing unit	1 STK
GTIN	 4 017918 952648
GTIN	4017918952648
Weight per Piece (excluding packing)	615.200 g
Custom tariff number	85363010
Country of origin	Germany

### Technical data

#### Dimensions

Height	93 mm
Width	112 mm
Depth	79 mm

## EMC filter surge protection device - SFP 1-20/120AC - 2856702

### Technical data

#### Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-25 °C ... 70 °C
Ambient temperature (storage/transport)	-25 °C ... 70 °C
Permissible humidity (operation)	5 % ... 95 %

#### General

IEC test classification	III
	T3
EN type	T3
Number of ports	Two
Mode of protection	L-N
	L-PE
	N-PE
Mounting type	DIN rail: 35 mm
Color	black
	silver
Housing material	Aluminum
Degree of pollution	2
Flammability rating according to UL 94	V-0
Type	Rail-mountable module, one-piece
Number of positions	2
Surge protection fault message	Optical, remote indicator contact
For country-specific use in	USA, CN, BR

#### Protective circuit

Nominal voltage $U_N$	120 V AC (TN)
	120 V AC (TT - only in use with RCD)
	120 V AC (IT)
Nominal frequency $f_N$	50 Hz (60 Hz)
Maximum continuous voltage $U_C$	150 V AC
Rated load current $I_L$	20 A (40 °C)
Residual current $I_{PE}$	$\leq 0.6$ mA
Nominal discharge current $I_n$ (8/20) $\mu$ s	3 kA
Standby power consumption $P_C$	$\leq 7.5$ VA (at $U_{REF}$ )
	$\leq 10$ VA (at $U_C$ )
Reference test voltage $U_{REF}$	132 V AC
Combination wave $U_{OC}$	6 kV (3 kA)
Voltage protection level $U_p$	$\leq 0.45$ kV

## EMC filter surge protection device - SFP 1-20/120AC - 2856702

### Technical data

#### Protective circuit

TOV behavior at $U_T$ (L-N)	175 V AC (5 s / withstand mode)
	240 V AC (5 s / safe failure mode)
	208 V AC (120 min / safe failure mode)
TOV behavior at $U_T$ (L-PE)	208 V AC (5 s / withstand mode)
	175 V AC (120 min / withstand mode)
	1332 V AC (200 ms / safe failure mode)
TOV behavior at $U_T$ (N-PE)	1200 V AC (200 ms / safe failure mode)
Response time $t_A$	$\leq 25$ ns
Capacity (L-N)	1 $\mu$ F $\pm 10$ %
	10 nF $\pm 10$ % (X2-275 V)
Capacity (L-PE)	2.2 nF $\pm 20$ % (Y2-250 V)
Capacity (L-PEN)	2.2 nF $\pm 20$ % (Y2-250 V)
Max. required back-up fuse	20 A (MCB B/general purpose)
	16 A (IT - MCB B/general purpose)
Input attenuation aE, sym.	20 dB ( $\geq 100$ kHz / 50 $\Omega$ )
Input attenuation aE, asym.	30 dB ( $\geq 1$ MHz / 50 $\Omega$ )
Short-circuit current rating $I_{SCCR}$	5 kA AC (TN/TT)
	1 kA AC (IT)

#### Indicator/remote signaling

Switching function	PDT contact
Operating voltage	12 V AC ... 250 V AC
	250 V DC (250 mA DC)
Operating current	100 mA AC ... 1 A AC
	1 A DC (48 V DC)
Connection method	Pluggable screw connection
Conductor cross section flexible	0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross section solid	0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross section AWG	26 ... 16
Screw thread	M2
Tightening torque	0.25 Nm
Stripping length	7 mm

#### Connection data

Connection method	Screw terminal blocks
Conductor cross section flexible	2.5 mm <sup>2</sup> ... 4 mm <sup>2</sup>
Conductor cross section solid	2.5 mm <sup>2</sup> ... 6 mm <sup>2</sup>
Conductor cross section AWG	14 ... 10

## EMC filter surge protection device - SFP 1-20/120AC - 2856702

### Technical data

#### Connection data

Screw thread	M3
Tightening torque	0.5 Nm ... 0.6 Nm
	4.5 lb <sub>f</sub> -in. ... 5.5 lb <sub>f</sub> -in.
Stripping length	8 mm

#### UL specifications

SPD Type	2CA
Maximum continuous operating voltage MCOV (L-N)	150 V AC
Maximum continuous operating voltage MCOV (L-G)	150 V AC
Maximum continuous operating voltage MCOV (N-G)	150 V AC
Mode of protection	L-N
	L-G
	N-G
Power distribution system	1
Nominal frequency	50/60 Hz
Voltage protection rating VPR (L-N)	500 V
Voltage protection rating VPR (L-G)	500 V
Voltage protection rating VPR (N-G)	500 V
Nominal discharge current I <sub>n</sub>	3 kA
Short-circuit current rating (SCCR)	5 kA

#### Protective circuit, filter

Discharge resistance	820 kΩ
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# Rockwell Automation

## 1606-XLS480E & 1606-XLS240EC 24V, 20A; Single Phase Input

# 1606-XLS480E ←

# &

# 1606-XLS480EC

## 24V, 20A Single Phase Input

### POWER SUPPLY

- Ultra-small size
- Extra-low inrush current
- Active power factor correction
- Wide range AC/DC input; auto select input
- Superior reserve power (can support 150% rated power for five seconds)
- Superior efficiency and temperature rating
- DC-OK and overload LED



## 1. GENERAL DESCRIPTION

The most outstanding features of this 1606-XLS power supply are the high efficiency and the small size, which are achieved by a synchronous rectification and further novel design details.

With short-term power capability of 150% and built-in large sized output capacitors, these features help start motors, charge capacitors and absorb reverse energy. A wide range input voltage design and a negligible low input inrush current make installation and usage simple. Diagnostics are easy due to the DC-ok relay, a green DC-ok and a red overload LED.

Unique quick-connect spring-clamp terminals allow a safe and fast installation. Many global approvals make this unit suitable for nearly every situation.

## 2. SPECIFICATION QUICK REFERENCE

Output voltage	DC 24V	
Adjustment range	24-28V	
Output current	20A	continuous, 24V
	30A	for typ. 4s, 24V
Output power	480W	continuous, 24V
	720W	for typ. 4s, 24V
Output ripple	< 100mVpp	20Hz to 20MHz
Input voltage	AC 100-240V	±15%
Line frequency	50-60Hz	±6%
AC Input current	4.56 / 2.48A	at 120 / 230Vac
Power factor	0.95 / 0.90	at 120 / 230Vac
AC Inrush current	typ. 9 / 7A peak	at 120 / 230Vac
DC Input voltage	DC 110-300V	-20%/+25%
DC Input current	4.7 / 1.7A	at 110 / 300Vdc
Efficiency	92.4 / 93.9%	at 120 / 230Vac
Losses	39.6 / 31.4W	at 120 / 230Vac
Temperature range	-25°C to +70°C	operational
Derating	12W/°C	+60 to +70°C
Hold-up time	typ. 32 / 51ms	at 120 / 230Vac
Dimensions	82x124x127mm	WxHxD

## 3. AGENCY APPROVALS

## 4. RELATED PRODUCTS

1606-XLB	Wall mount bracket
1606-XLSRED	Redundancy Module
1606-XLBUFFER	Buffer unit



Miniature circuit breaker (MCB), 1 A, 1p, characteristic: C

Part no. **FAZ-C1/1-NA** ←  
 Catalog No. **102078**  
 Alternate Catalog No. **FAZ-C1/1-NA**  
 EL-Nummer (Norway) **1691567**

Similar to illustration

## Delivery program

Basic function			Miniature circuit-breakers
Number of poles			1 pole
Tripping characteristic			C
Application			Switchgear for export to North America (UL-listed)
Rated current	$I_n$	A	1
Rated switching capacity acc. to IEC/EN 60947-2	$I_{cu}$	kA	15
Product range			FAZ-NA

## Technical data

### Electrical

Standards			UL 489, CSA C22.2 No. 5 IEC 60947-2
Rated operational voltage	$U_e$	V	
		V AC	277/480 Y
		V DC	60
Rated voltage according to IEC/EN 60947-2	$U_n$	V AC	254
Rated voltage according to UL	$U_n$	V AC	277
Rated switching capacity acc. to IEC/EN 60947-2	$I_{cu}$	kA	15
Breaking capacity according to UL		kA	10 (UL489)
Characteristic			B, C, D
Selectivity Class			3
lifespan			
Lifespan	Operations		> 20000
Direction of incoming supply			as required

### Mechanical

Standard front dimension		mm	45
Enclosure height		mm	105
Mounting width per pole		mm	17.7
Mounting			IEC/EN 60715 top-hat rail
Degree of Protection			IP20, IP40 (when fitted)
Terminals top and bottom			Twin-purpose terminals
Terminal protection			Finger and back-of-hand proof to BGV A2
Tightening torque of fixing screws		N/m	max. 2.4 UL: #18-12 AWG: 2.4 Nm (21 lb-in) #10-8 AWG: 2.8 Nm (25 lb-in) #6 AWG: 4 Nm (36 lb-in)
Mounting position			As required

## Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	$I_n$	A	1

Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	1.1
Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W	0
Heat dissipation capacity	P <sub>diss</sub>	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	75
			linear, per +1 °C, results in a 0.5% reduction of current carrying capacity
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			
			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			
			Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat			
			Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects			
			Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation			
			Meets the product standard's requirements.
10.2.5 Lifting			
			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			
			Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions			
			Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES			
			Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances			
			Meets the product standard's requirements.
10.5 Protection against electric shock			
			Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components			
			Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections			
			Is the panel builder's responsibility.
10.8 Connections for external conductors			
			Is the panel builder's responsibility.
10.9 Insulation properties			
10.9.2 Power-frequency electric strength			
			Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage			
			Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material			
			Is the panel builder's responsibility.
10.10 Temperature rise			
			The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating			
			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility			
			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function			
			The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

## Technical data ETIM 7.0

Circuit breakers and fuses (EG000020) / Miniature circuit breaker (MCB) (EC000042)			
Electric engineering, automation, process control engineering / Electrical installation, device / Miniature circuit breaker system (MCB) / Miniature circuit breaker (MCB) (ec1@ss10.0.1-27-14-19-01 [AAB905014])			
Release characteristic			C
Number of poles (total)			1
Number of protected poles			1
Rated current	A		1
Rated voltage	V		240
Rated insulation voltage U <sub>i</sub>	V		440
Rated impulse withstand voltage U <sub>imp</sub>	kV		4
Rated short-circuit breaking capacity I <sub>cn</sub> EN 60898 at 230 V	kA		0
Rated short-circuit breaking capacity I <sub>cn</sub> EN 60898 at 400 V	kA		0
Rated short-circuit breaking capacity I <sub>cu</sub> IEC 60947-2 at 230 V	kA		15
Rated short-circuit breaking capacity I <sub>cu</sub> IEC 60947-2 at 400 V	kA		15
Voltage type			AC
Frequency	Hz		50 - 60
Current limiting class			3
Suitable for flush-mounted installation			No
Concurrently switching N-neutral			No


Over voltage category			3
Pollution degree			2
Additional equipment possible			Yes
Width in number of modular spacings			1
Built-in depth		mm	70.5
Degree of protection (IP)			IP20
Ambient temperature during operating		°C	-25 - 75
Connectable conductor cross section multi-wired		mm <sup>2</sup>	1 - 25
Connectable conductor cross section solid-core		mm <sup>2</sup>	1 - 25

## Approvals

Product Standards			IEC/EN 60947-2; EN 45545-2; IEC 61373; UL 489; CSA-C22.2 No. 5-09; CE marking
UL File No.			E235139
UL Category Control No.			DIVQ
CSA File No.			204453
CSA Class No.			1432-01
North America Certification			UL listed, CSA certified
Specially designed for North America			Yes, suitable as BCPD
Suitable for			Feeder circuits, branch circuits
Current Limiting Circuit-Breaker			Yes
Max. Voltage Rating			≤ 32 A
Degree of Protection			IEC: IP20, UL/CSA Type: -



Miniature circuit breaker (MCB), 2 A, 1p, characteristic: C

Part no. **FAZ-C2/1-NA**   
 Catalog No. **102080**  
 Alternate Catalog No. **FAZ-C2/1-NA**  
 EL-Nummer (Norway) **1691569**

Similar to illustration

## Delivery program

Basic function			Miniature circuit-breakers
Number of poles			1 pole
Tripping characteristic			C
Application			Switchgear for export to North America (UL-listed)
Rated current	$I_n$	A	2
Rated switching capacity acc. to IEC/EN 60947-2	$I_{cu}$	kA	15
Product range			FAZ-NA

## Technical data

### Electrical

Standards			UL 489, CSA C22.2 No. 5 IEC 60947-2
Rated operational voltage	$U_e$	V	
		V AC	277/480 Y
		V DC	60
Rated voltage according to IEC/EN 60947-2	$U_n$	V AC	254
Rated voltage according to UL	$U_n$	V AC	277
Rated switching capacity acc. to IEC/EN 60947-2	$I_{cu}$	kA	15
Breaking capacity according to UL		kA	10 (UL489)
Characteristic			B, C, D
Selectivity Class			3
lifespan			
Lifespan	Operations		> 20000
Direction of incoming supply			as required

### Mechanical

Standard front dimension		mm	45
Enclosure height		mm	105
Mounting width per pole		mm	17.7
Mounting			IEC/EN 60715 top-hat rail
Degree of Protection			IP20, IP40 (when fitted)
Terminals top and bottom			Twin-purpose terminals
Terminal protection			Finger and back-of-hand proof to BGV A2
Tightening torque of fixing screws		N/m	max. 2.4 UL: #18-12 AWG: 2.4 Nm (21 lb-in) #10-8 AWG: 2.8 Nm (25 lb-in) #6 AWG: 4 Nm (36 lb-in)
Mounting position			As required

## Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	$I_n$	A	2

Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	1.4
Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W	0
Heat dissipation capacity	P <sub>diss</sub>	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	75
			linear, per +1 °C, results in a 0.5% reduction of current carrying capacity
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			
			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			
			Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat			
			Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects			
			Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation			
			Meets the product standard's requirements.
10.2.5 Lifting			
			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			
			Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions			
			Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES			
			Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances			
			Meets the product standard's requirements.
10.5 Protection against electric shock			
			Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components			
			Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections			
			Is the panel builder's responsibility.
10.8 Connections for external conductors			
			Is the panel builder's responsibility.
10.9 Insulation properties			
10.9.2 Power-frequency electric strength			
			Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage			
			Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material			
			Is the panel builder's responsibility.
10.10 Temperature rise			
			The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating			
			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility			
			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function			
			The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

## Technical data ETIM 7.0

Circuit breakers and fuses (EG000020) / Miniature circuit breaker (MCB) (EC000042)			
Electric engineering, automation, process control engineering / Electrical installation, device / Miniature circuit breaker system (MCB) / Miniature circuit breaker (MCB) (ec1@ss10.0.1-27-14-19-01 [AAB905014])			
Release characteristic			C
Number of poles (total)			1
Number of protected poles			1
Rated current	A		2
Rated voltage	V		240
Rated insulation voltage U <sub>i</sub>	V		440
Rated impulse withstand voltage U <sub>imp</sub>	kV		4
Rated short-circuit breaking capacity I <sub>cn</sub> EN 60898 at 230 V	kA		0
Rated short-circuit breaking capacity I <sub>cn</sub> EN 60898 at 400 V	kA		0
Rated short-circuit breaking capacity I <sub>cu</sub> IEC 60947-2 at 230 V	kA		15
Rated short-circuit breaking capacity I <sub>cu</sub> IEC 60947-2 at 400 V	kA		15
Voltage type			AC
Frequency	Hz		50 - 60
Current limiting class			3
Suitable for flush-mounted installation			No
Concurrently switching N-neutral			No



**Miniature circuit breaker (MCB), 3 A, 1p, characteristic: C**

**Part no.** FAZ-C3/1-NA  
**Catalog No.** 102081  
**Alternate Catalog No.** FAZ-C3/1-NA  
**EL-Nummer (Norway)** 1691570



Similar to illustration

### Delivery program

Basic function			Miniature circuit-breakers
Number of poles			1 pole
Tripping characteristic			C
Application			Switchgear for export to North America (UL-listed)
Rated current	$I_n$	A	3
Rated switching capacity acc. to IEC/EN 60947-2	$I_{cu}$	kA	15
Product range			FAZ-NA

### Technical data

#### Electrical

Standards			UL 489, CSA C22.2 No. 5 IEC 60947-2
Rated operational voltage	$U_e$	V	
	$U_e$	V AC	277/480 Y
		V DC	60
Rated voltage according to IEC/EN 60947-2	$U_n$	V AC	254
Rated voltage according to UL	$U_n$	V AC	277
Rated switching capacity acc. to IEC/EN 60947-2	$I_{cu}$	kA	15
Breaking capacity according to UL		kA	10 (UL489)
Characteristic			B, C, D
Selectivity Class			3
lifespan			
Lifespan	Operations		> 20000
Direction of incoming supply			as required

#### Mechanical

Standard front dimension		mm	45
Enclosure height		mm	105
Mounting width per pole		mm	17.7
Mounting			IEC/EN 60715 top-hat rail
Degree of Protection			IP20, IP40 (when fitted)
Terminals top and bottom			Twin-purpose terminals
Terminal protection			Finger and back-of-hand proof to BGV A2
Tightening torque of fixing screws		N/m	max. 2.4 UL: #18-12 AWG: 2.4 Nm (21 lb-in) #10-8 AWG: 2.8 Nm (25 lb-in) #6 AWG: 4 Nm (36 lb-in)
Mounting position			As required

### Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	$I_n$	A	3

Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	1.2
Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W	0
Heat dissipation capacity	P <sub>diss</sub>	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	75
			linear, per +1 °C, results in a 0.5% reduction of current carrying capacity
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			
			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			
			Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat			
			Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects			
			Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation			
			Meets the product standard's requirements.
10.2.5 Lifting			
			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			
			Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions			
			Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES			
			Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances			
			Meets the product standard's requirements.
10.5 Protection against electric shock			
			Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components			
			Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections			
			Is the panel builder's responsibility.
10.8 Connections for external conductors			
			Is the panel builder's responsibility.
10.9 Insulation properties			
10.9.2 Power-frequency electric strength			
			Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage			
			Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material			
			Is the panel builder's responsibility.
10.10 Temperature rise			
			The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating			
			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility			
			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function			
			The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.


## Technical data ETIM 7.0

Circuit breakers and fuses (EG000020) / Miniature circuit breaker (MCB) (EC000042)			
Electric engineering, automation, process control engineering / Electrical installation, device / Miniature circuit breaker system (MCB) / Miniature circuit breaker (MCB) (ec1@ss10.0.1-27-14-19-01 [AAB905014])			
Release characteristic			C
Number of poles (total)			1
Number of protected poles			1
Rated current	A		3
Rated voltage	V		240
Rated insulation voltage U <sub>i</sub>	V		440
Rated impulse withstand voltage U <sub>imp</sub>	kV		4
Rated short-circuit breaking capacity I <sub>cn</sub> EN 60898 at 230 V	kA		0
Rated short-circuit breaking capacity I <sub>cn</sub> EN 60898 at 400 V	kA		0
Rated short-circuit breaking capacity I <sub>cu</sub> IEC 60947-2 at 230 V	kA		15
Rated short-circuit breaking capacity I <sub>cu</sub> IEC 60947-2 at 400 V	kA		15
Voltage type			AC
Frequency	Hz		50 - 60
Current limiting class			3
Suitable for flush-mounted installation			No
Concurrently switching N-neutral			No





**Miniature circuit breaker (MCB), 5 A, 1p, characteristic: C**

**Part no.** FAZ-C5/1-NA   
**Catalog No.** 102083  
**Alternate Catalog No.** FAZ-C5/1-NA  
**EL-Nummer (Norway)** 1691572

Similar to illustration

### Delivery program

Basic function			Miniature circuit-breakers
Number of poles			1 pole
Tripping characteristic			C
Application			Switchgear for export to North America (UL-listed)
Rated current	$I_n$	A	5
Rated switching capacity acc. to IEC/EN 60947-2	$I_{cu}$	kA	15
Product range			FAZ-NA

### Technical data

#### Electrical

Standards			UL 489, CSA C22.2 No. 5 IEC 60947-2
Rated operational voltage	$U_e$	V	
		V AC	277/480 Y
		V DC	60
Rated voltage according to IEC/EN 60947-2	$U_n$	V AC	254
Rated voltage according to UL	$U_n$	V AC	277
Rated switching capacity acc. to IEC/EN 60947-2	$I_{cu}$	kA	15
Breaking capacity according to UL		kA	10 (UL489)
Characteristic			B, C, D
Selectivity Class			3
lifespan			
Lifespan	Operations		> 20000
Direction of incoming supply			as required

#### Mechanical

Standard front dimension		mm	45
Enclosure height		mm	105
Mounting width per pole		mm	17.7
Mounting			IEC/EN 60715 top-hat rail
Degree of Protection			IP20, IP40 (when fitted)
Terminals top and bottom			Twin-purpose terminals
Terminal protection			Finger and back-of-hand proof to BGV A2
Tightening torque of fixing screws		N/m	max. 2.4 UL: #18-12 AWG: 2.4 Nm (21 lb-in) #10-8 AWG: 2.8 Nm (25 lb-in) #6 AWG: 4 Nm (36 lb-in)
Mounting position			As required

### Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	$I_n$	A	5

Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	1.9
Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W	0
Heat dissipation capacity	P <sub>diss</sub>	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	75
			linear, per +1 °C, results in a 0.5% reduction of current carrying capacity
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			
			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			
			Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat			
			Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects			
			Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation			
			Meets the product standard's requirements.
10.2.5 Lifting			
			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			
			Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions			
			Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES			
			Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances			
			Meets the product standard's requirements.
10.5 Protection against electric shock			
			Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components			
			Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections			
			Is the panel builder's responsibility.
10.8 Connections for external conductors			
			Is the panel builder's responsibility.
10.9 Insulation properties			
10.9.2 Power-frequency electric strength			
			Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage			
			Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material			
			Is the panel builder's responsibility.
10.10 Temperature rise			
			The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating			
			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility			
			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function			
			The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

## Technical data ETIM 7.0

Circuit breakers and fuses (EG000020) / Miniature circuit breaker (MCB) (EC000042)			
Electric engineering, automation, process control engineering / Electrical installation, device / Miniature circuit breaker system (MCB) / Miniature circuit breaker (MCB) (ec1@ss10.0.1-27-14-19-01 [AAB905014])			
Release characteristic			C
Number of poles (total)			1
Number of protected poles			1
Rated current	A		5
Rated voltage	V		240
Rated insulation voltage U <sub>i</sub>	V		440
Rated impulse withstand voltage U <sub>imp</sub>	kV		4
Rated short-circuit breaking capacity I <sub>cn</sub> EN 60898 at 230 V	kA		0
Rated short-circuit breaking capacity I <sub>cn</sub> EN 60898 at 400 V	kA		0
Rated short-circuit breaking capacity I <sub>cu</sub> IEC 60947-2 at 230 V	kA		15
Rated short-circuit breaking capacity I <sub>cu</sub> IEC 60947-2 at 400 V	kA		15
Voltage type			AC
Frequency	Hz		50 - 60
Current limiting class			3
Suitable for flush-mounted installation			No
Concurrently switching N-neutral			No



**Miniature circuit breaker (MCB), 6 A, 1p, characteristic: C**

Part no. **FAZ-C6/1-NA** ←  
 Catalog No. **102084**  
 Alternate Catalog No. **FAZ-C6/1-NA**  
 EL-Nummer (Norway) **1691573**

Similar to illustration

**Delivery program**

Basic function			Miniature circuit-breakers
Number of poles			1 pole
Tripping characteristic			C
Application			Switchgear for export to North America (UL-listed)
Rated current	$I_n$	A	6
Rated switching capacity acc. to IEC/EN 60947-2	$I_{cu}$	kA	15
Product range			FAZ-NA

**Technical data**

**Electrical**

Standards			UL 489, CSA C22.2 No. 5 IEC 60947-2
Rated operational voltage	$U_e$	V	
	$U_e$	V AC	277/480 Y
		V DC	60
Rated voltage according to IEC/EN 60947-2	$U_n$	V AC	254
Rated voltage according to UL	$U_n$	V AC	277
Rated switching capacity acc. to IEC/EN 60947-2	$I_{cu}$	kA	15
Breaking capacity according to UL		kA	10 (UL489)
Characteristic			B, C, D
Selectivity Class			3
lifespan			
Lifespan	Operations		> 20000
Direction of incoming supply			as required

**Mechanical**

Standard front dimension		mm	45
Enclosure height		mm	105
Mounting width per pole		mm	17.7
Mounting			IEC/EN 60715 top-hat rail
Degree of Protection			IP20, IP40 (when fitted)
Terminals top and bottom			Twin-purpose terminals
Terminal protection			Finger and back-of-hand proof to BGV A2
Tightening torque of fixing screws		N/m	max. 2.4 UL: #18-12 AWG: 2.4 Nm (21 lb-in) #10-8 AWG: 2.8 Nm (25 lb-in) #6 AWG: 4 Nm (36 lb-in)
Mounting position			As required

**Design verification as per IEC/EN 61439**

Technical data for design verification			
Rated operational current for specified heat dissipation	$I_n$	A	6


Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	1.2
Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W	0
Heat dissipation capacity	P <sub>diss</sub>	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	75
			linear, per +1 °C, results in a 0.5% reduction of current carrying capacity
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			
			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			
			Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat			
			Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects			
			Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation			
			Meets the product standard's requirements.
10.2.5 Lifting			
			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			
			Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions			
			Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES			
			Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances			
			Meets the product standard's requirements.
10.5 Protection against electric shock			
			Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components			
			Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections			
			Is the panel builder's responsibility.
10.8 Connections for external conductors			
			Is the panel builder's responsibility.
10.9 Insulation properties			
10.9.2 Power-frequency electric strength			
			Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage			
			Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material			
			Is the panel builder's responsibility.
10.10 Temperature rise			
			The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating			
			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility			
			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function			
			The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

## Technical data ETIM 7.0

Circuit breakers and fuses (EG000020) / Miniature circuit breaker (MCB) (EC000042)			
Electric engineering, automation, process control engineering / Electrical installation, device / Miniature circuit breaker system (MCB) / Miniature circuit breaker (MCB) (ec1@ss10.0.1-27-14-19-01 [AAB905014])			
Release characteristic			C
Number of poles (total)			1
Number of protected poles			1
Rated current	A		6
Rated voltage	V		240
Rated insulation voltage U <sub>i</sub>	V		440
Rated impulse withstand voltage U <sub>imp</sub>	kV		4
Rated short-circuit breaking capacity I <sub>cn</sub> EN 60898 at 230 V	kA		0
Rated short-circuit breaking capacity I <sub>cn</sub> EN 60898 at 400 V	kA		0
Rated short-circuit breaking capacity I <sub>cu</sub> IEC 60947-2 at 230 V	kA		15
Rated short-circuit breaking capacity I <sub>cu</sub> IEC 60947-2 at 400 V	kA		15
Voltage type			AC
Frequency	Hz		50 - 60
Current limiting class			3
Suitable for flush-mounted installation			No
Concurrently switching N-neutral			No



Miniature circuit breaker (MCB), 15 A, 1p, characteristic: C

Part no. **FAZ-C15/1-NA**   
 Catalog No. **102089**  
 Alternate Catalog No. **FAZ-C15/1-NA**  
 EL-Nummer (Norway) **1691578**

Similar to illustration

## Delivery program

Basic function			Miniature circuit-breakers
Number of poles			1 pole
Tripping characteristic			C
Application			Switchgear for export to North America (UL-listed)
Rated current	$I_n$	A	15
Rated switching capacity acc. to IEC/EN 60947-2	$I_{cu}$	kA	15
Product range			FAZ-NA

## Technical data

### Electrical

Standards			UL 489, CSA C22.2 No. 5 IEC 60947-2
Rated operational voltage	$U_e$	V	
		V AC	277/480 Y
		V DC	60
Rated voltage according to IEC/EN 60947-2	$U_n$	V AC	254
Rated voltage according to UL	$U_n$	V AC	277
Rated switching capacity acc. to IEC/EN 60947-2	$I_{cu}$	kA	15
Breaking capacity according to UL		kA	14 (UL489)
Characteristic			B, C, D
Selectivity Class			3
lifespan			
Lifespan	Operations		> 20000
Direction of incoming supply			as required

### Mechanical

Standard front dimension		mm	45
Enclosure height		mm	105
Mounting width per pole		mm	17.7
Mounting			IEC/EN 60715 top-hat rail
Degree of Protection			IP20, IP40 (when fitted)
Terminals top and bottom			Twin-purpose terminals
Terminal protection			Finger and back-of-hand proof to BGV A2
Tightening torque of fixing screws		N/m	max. 2.4 UL: #18-12 AWG: 2.4 Nm (21 lb-in) #10-8 AWG: 2.8 Nm (25 lb-in) #6 AWG: 4 Nm (36 lb-in)
Mounting position			As required

## Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	$I_n$	A	15

Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	1.9
Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W	0
Heat dissipation capacity	P <sub>diss</sub>	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	75
			linear, per +1 °C, results in a 0.5% reduction of current carrying capacity
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			
			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			
			Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat			
			Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects			
			Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation			
			Meets the product standard's requirements.
10.2.5 Lifting			
			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			
			Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions			
			Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES			
			Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances			
			Meets the product standard's requirements.
10.5 Protection against electric shock			
			Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components			
			Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections			
			Is the panel builder's responsibility.
10.8 Connections for external conductors			
			Is the panel builder's responsibility.
10.9 Insulation properties			
10.9.2 Power-frequency electric strength			
			Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage			
			Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material			
			Is the panel builder's responsibility.
10.10 Temperature rise			
			The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating			
			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility			
			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function			
			The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

## Technical data ETIM 7.0

Circuit breakers and fuses (EG000020) / Miniature circuit breaker (MCB) (EC000042)			
Electric engineering, automation, process control engineering / Electrical installation, device / Miniature circuit breaker system (MCB) / Miniature circuit breaker (MCB) (ec1@ss10.0.1-27-14-19-01 [AAB905014])			
Release characteristic			C
Number of poles (total)			1
Number of protected poles			1
Rated current	A		15
Rated voltage	V		240
Rated insulation voltage U <sub>i</sub>	V		440
Rated impulse withstand voltage U <sub>imp</sub>	kV		4
Rated short-circuit breaking capacity I <sub>cn</sub> EN 60898 at 230 V	kA		0
Rated short-circuit breaking capacity I <sub>cn</sub> EN 60898 at 400 V	kA		0
Rated short-circuit breaking capacity I <sub>cu</sub> IEC 60947-2 at 230 V	kA		15
Rated short-circuit breaking capacity I <sub>cu</sub> IEC 60947-2 at 400 V	kA		15
Voltage type			AC
Frequency	Hz		50 - 60
Current limiting class			3
Suitable for flush-mounted installation			No
Concurrently switching N-neutral			No



**Miniature circuit breaker (MCB), 20 A, 1p, characteristic: C**

Part no. **FAZ-C20/1-NA** ←  
 Catalog No. **102091**  
 Alternate Catalog No. **FAZ-C20/1-NA**  
 EL-Nummer (Norway) **1691580**

Similar to illustration

**Delivery program**

Basic function			Miniature circuit-breakers
Number of poles			1 pole
Tripping characteristic			C
Application			Switchgear for export to North America (UL-listed)
Rated current	$I_n$	A	20
Rated switching capacity acc. to IEC/EN 60947-2	$I_{cu}$	kA	15
Product range			FAZ-NA

**Technical data**

**Electrical**

Standards			UL 489, CSA C22.2 No. 5 IEC 60947-2
Rated operational voltage	$U_e$	V	
	$U_e$	V AC	277/480 Y
		V DC	60
Rated voltage according to IEC/EN 60947-2	$U_n$	V AC	254
Rated voltage according to UL	$U_n$	V AC	277
Rated switching capacity acc. to IEC/EN 60947-2	$I_{cu}$	kA	15
Breaking capacity according to UL		kA	14 (UL489)
Characteristic			B, C, D
Selectivity Class			3
lifespan			
Lifespan	Operations		> 20000
Direction of incoming supply			as required

**Mechanical**

Standard front dimension		mm	45
Enclosure height		mm	105
Mounting width per pole		mm	17.7
Mounting			IEC/EN 60715 top-hat rail
Degree of Protection			IP20, IP40 (when fitted)
Terminals top and bottom			Twin-purpose terminals
Terminal protection			Finger and back-of-hand proof to BGV A2
Tightening torque of fixing screws		N/m	max. 2.4 UL: #18-12 AWG: 2.4 Nm (21 lb-in) #10-8 AWG: 2.8 Nm (25 lb-in) #6 AWG: 4 Nm (36 lb-in)
Mounting position			As required

**Design verification as per IEC/EN 61439**

Technical data for design verification			
Rated operational current for specified heat dissipation	$I_n$	A	20

Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	2.9
Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W	0
Heat dissipation capacity	P <sub>diss</sub>	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	75
			linear, per +1 °C, results in a 0.5% reduction of current carrying capacity
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			
			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			
			Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat			
			Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects			
			Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation			
			Meets the product standard's requirements.
10.2.5 Lifting			
			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			
			Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions			
			Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES			
			Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances			
			Meets the product standard's requirements.
10.5 Protection against electric shock			
			Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components			
			Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections			
			Is the panel builder's responsibility.
10.8 Connections for external conductors			
			Is the panel builder's responsibility.
10.9 Insulation properties			
10.9.2 Power-frequency electric strength			
			Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage			
			Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material			
			Is the panel builder's responsibility.
10.10 Temperature rise			
			The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating			
			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility			
			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function			
			The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.


## Technical data ETIM 7.0

Circuit breakers and fuses (EG000020) / Miniature circuit breaker (MCB) (EC000042)			
Electric engineering, automation, process control engineering / Electrical installation, device / Miniature circuit breaker system (MCB) / Miniature circuit breaker (MCB) (ec1@ss10.0.1-27-14-19-01 [AAB905014])			
Release characteristic			C
Number of poles (total)			1
Number of protected poles			1
Rated current	A		20
Rated voltage	V		240
Rated insulation voltage U <sub>i</sub>	V		440
Rated impulse withstand voltage U <sub>imp</sub>	kV		4
Rated short-circuit breaking capacity I <sub>cn</sub> EN 60898 at 230 V	kA		0
Rated short-circuit breaking capacity I <sub>cn</sub> EN 60898 at 400 V	kA		0
Rated short-circuit breaking capacity I <sub>cu</sub> IEC 60947-2 at 230 V	kA		15
Rated short-circuit breaking capacity I <sub>cu</sub> IEC 60947-2 at 400 V	kA		15
Voltage type			AC
Frequency	Hz		50 - 60
Current limiting class			3
Suitable for flush-mounted installation			No
Concurrently switching N-neutral			No





Miniature circuit breaker (MCB), 25 A, 1p, characteristic: C

Part no. **FAZ-C25/1-NA**   
 Catalog No. **102092**  
 Alternate Catalog No. **FAZ-C25/1-NA**  
 EL-Nummer (Norway) **1691581**

Similar to illustration

## Delivery program

Basic function			Miniature circuit-breakers
Number of poles			1 pole
Tripping characteristic			C
Application			Switchgear for export to North America (UL-listed)
Rated current	$I_n$	A	25
Rated switching capacity acc. to IEC/EN 60947-2	$I_{cu}$	kA	15
Product range			FAZ-NA

## Technical data

### Electrical

Standards			UL 489, CSA C22.2 No. 5 IEC 60947-2
Rated operational voltage	$U_e$	V	
		V AC	277/480 Y
		V DC	60
Rated voltage according to IEC/EN 60947-2	$U_n$	V AC	254
Rated voltage according to UL	$U_n$	V AC	277
Rated switching capacity acc. to IEC/EN 60947-2	$I_{cu}$	kA	15
Breaking capacity according to UL		kA	14 (UL489)
Characteristic			B, C, D
Selectivity Class			3
lifespan			
Lifespan	Operations		> 20000
Direction of incoming supply			as required

### Mechanical

Standard front dimension		mm	45
Enclosure height		mm	105
Mounting width per pole		mm	17.7
Mounting			IEC/EN 60715 top-hat rail
Degree of Protection			IP20, IP40 (when fitted)
Terminals top and bottom			Twin-purpose terminals
Terminal protection			Finger and back-of-hand proof to BGV A2
Tightening torque of fixing screws		N/m	max. 2.4 UL: #18-12 AWG: 2.4 Nm (21 lb-in) #10-8 AWG: 2.8 Nm (25 lb-in) #6 AWG: 4 Nm (36 lb-in)
Mounting position			As required

## Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	$I_n$	A	25

Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	3.1
Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W	0
Heat dissipation capacity	P <sub>diss</sub>	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	75
			linear, per +1 °C, results in a 0.5% reduction of current carrying capacity
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			
			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			
			Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat			
			Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects			
			Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation			
			Meets the product standard's requirements.
10.2.5 Lifting			
			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			
			Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions			
			Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES			
			Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances			
			Meets the product standard's requirements.
10.5 Protection against electric shock			
			Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components			
			Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections			
			Is the panel builder's responsibility.
10.8 Connections for external conductors			
			Is the panel builder's responsibility.
10.9 Insulation properties			
10.9.2 Power-frequency electric strength			
			Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage			
			Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material			
			Is the panel builder's responsibility.
10.10 Temperature rise			
			The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating			
			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility			
			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function			
			The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

## Technical data ETIM 7.0

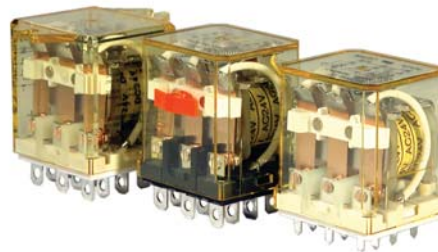
Circuit breakers and fuses (EG000020) / Miniature circuit breaker (MCB) (EC000042)			
Electric engineering, automation, process control engineering / Electrical installation, device / Miniature circuit breaker system (MCB) / Miniature circuit breaker (MCB) (ec1@ss10.0.1-27-14-19-01 [AAB905014])			
Release characteristic			C
Number of poles (total)			1
Number of protected poles			1
Rated current	A		25
Rated voltage	V		240
Rated insulation voltage U <sub>i</sub>	V		440
Rated impulse withstand voltage U <sub>imp</sub>	kV		4
Rated short-circuit breaking capacity I <sub>cn</sub> EN 60898 at 230 V	kA		0
Rated short-circuit breaking capacity I <sub>cn</sub> EN 60898 at 400 V	kA		0
Rated short-circuit breaking capacity I <sub>cu</sub> IEC 60947-2 at 230 V	kA		15
Rated short-circuit breaking capacity I <sub>cu</sub> IEC 60947-2 at 400 V	kA		15
Voltage type			AC
Frequency	Hz		50 - 60
Current limiting class			3
Suitable for flush-mounted installation			No
Concurrently switching N-neutral			No

**RH Series Compact Power Relays**

**ITEM 23**

**SPDT through 4PDT, 10A contacts**  
**Compact power type relays**

The RH series are miniature power relays with a large capacity. The RH relays feature 10A contact capacity as large as the RR series but in a miniature package. The compact size saves space.



**Part Number Selection**

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

- 1. \*Carries no UL recognition mark.
- 2. 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**    **AC120V**  
Part No.                      Coil Voltage Code

Switches & Pilot Lights

Display Lights

Relays & Sockets

Timers

Terminal Blocks

Circuit Breakers


Switches & Pilot Lights

**Sockets** (for Blade Terminal Models)

Relays	Standard DIN Rail Mount <sup>1</sup>	Finger-safe DIN Rail Mount <sup>1</sup>	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.

Signaling Lights

**Hold Down Springs & Clips**

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

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

Relays & Sockets

**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	Max. Continuous Applied Voltage	Pickup Voltage	Dropout Voltage
	SPDT	DPDT	3PDT	4PDT	SPDT	DPDT	3PDT	4PDT							
6	170	240	330	387	150	200	280	330	330	9.4	6.4	5.4			
12	86	121	165	196	75	100	140	165	165	39.3	25.3	21.2			
<b>24</b>	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			
<b>110-120</b>	—	9.4-10.8	—	—	—	8.0-9.2	—	—	—	—	—	—			
<b>120</b>	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			
<b>220-240</b>	—	4.7-5.4	—	—	—	4.0-4.6	—	—	—	18,820	—	—			
<b>240</b>	4.9	—	8.2	9.8	4.3	—	7.1	8.3	8.3	—	12,100	9,120			

Timers

Contactors

**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			
<b>24</b>	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**.

Terminal Blocks

Circuit Breakers

**ITEM NUMBER 24 NOT USED**

**ITEM NUMBER 25 NOT USED**

**ITEM NUMBER 26 NOT USED**

# ITEM 27

## Features

- 1-channel signal conditioner
- AC/DC wide range supply
- Dry contact or NAMUR inputs
- Input frequency 1 mHz ... 12 kHz
- Current output 0/4 mA ... 20 mA
- Relay and transistor output
- Start-up override
- Configurable by **PACTware™** or keypad
- Line fault detection (LFD)
- Up to SIL2 acc. to IEC 61508

## Function

This signal conditioner is an universal frequency converter that changes a digital input (NAMUR sensor/mechanical contact) into a proportional free adjustable 0/4 mA ... 20 mA analog output and functions as a switch amplifier and a trip alarm.

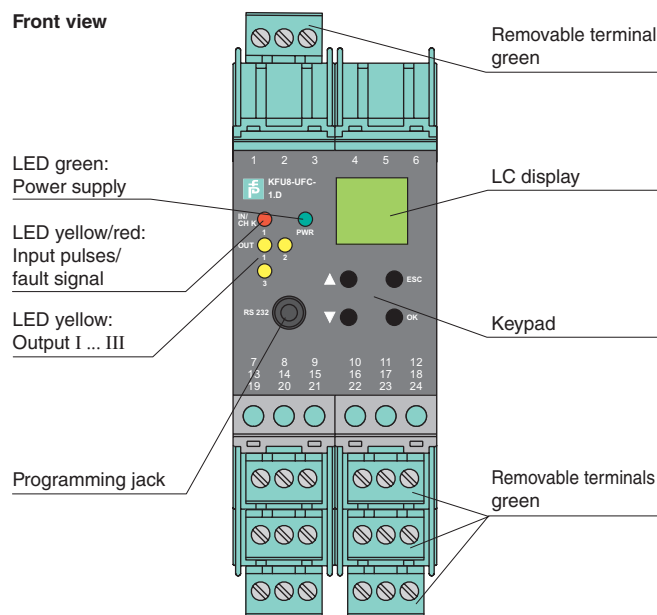
Also the functions of the switch outputs (2 relay outputs and 1 potential free transistor output) are easily adjustable [trip value display (min/max alarm), serially switched output, pulse divider output, error signal output].

The unit is easily programmed by the use of a keypad located on the front of the unit or with the **PACTware™** configuration software.

Line fault detection of the field circuit is indicated by a red LED.

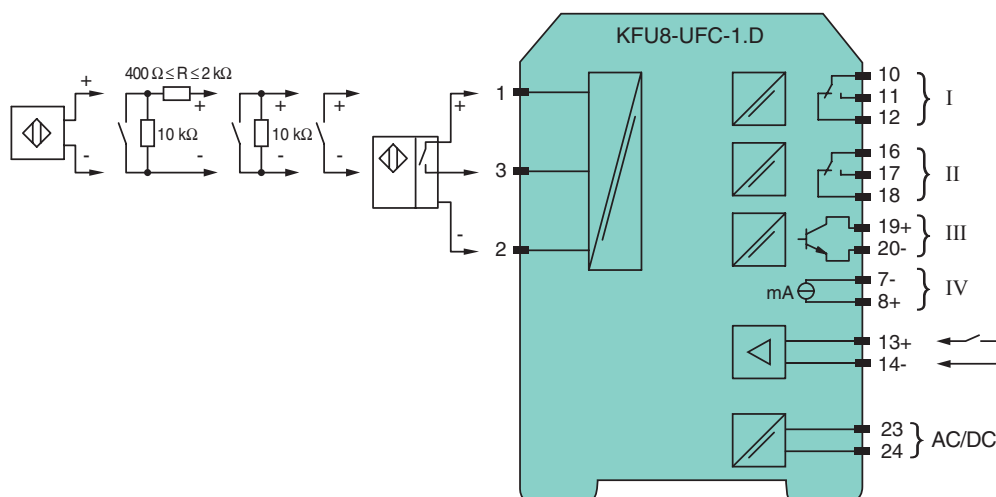
For additional information, refer to the manual and [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com).

## Assembly



**SIL2**

## Connection



Release date 2010-11-04 14:00 Date of issue 2010-11-16 188371\_ENG.xml



<b>General specifications</b>	
Signal type	Digital input
<b>Supply</b>	
Connection	terminals 23, 24
Rated voltage	20 ... 90 V DC / 48 ... 253 V AC 50 ... 60 Hz
Power loss/power consumption	≤ 2 W ; 2.5 VA / 2.2 W ; 3 VA
<b>Input</b>	
Connection	Input I: 2-wire sensor: terminals 1+, 3- three wire sensor: terminals 1+, 2- and 3 input II: terminals 13+, 14- start-up override;
Input I	sensor acc. to EN 60947-5-6 (NAMUR) or mechanical contact
Open circuit voltage/short-circuit current	22 V / 40 mA
Input resistance	4.7 kΩ
Switching point/switching hysteresis	logic 1: > 2.5 mA ; logic 0: < 1.9 mA
Pulse duration	> 50 μs
Input frequency	0.001 ... 12000 Hz
Lead monitoring	breakage I ≤ 0.15 mA; short-circuit I > 4 mA
Input II	startup override: 1 ... 1000 s, adjustable in steps of 1 s
Active/Passive	I > 4 mA (for min. 100 ms) / I < 1.5 mA
Open circuit voltage/short-circuit current	18 V / 5 mA
<b>Output</b>	
Connection	output I: terminals 10, 11, 12 output II: terminals 16, 17, 18 output III: terminals 19+, 20- output IV: terminals 8+, 7-
Output I, II	signal, relay
Contact loading	250 V AC / 2 A / cos φ ≥ 0.7 ; 40 V DC / 2 A
Mechanical life	5 x 10 <sup>7</sup> switching cycles
Energized/De-energized delay	approx. 20 ms / approx. 20 ms
Output III	electronic output, passive
Contact loading	40 V DC
Signal level	1-signal: (L+) -2.5 V (50 mA, short-circuit/overload proof) 0-signal: blocked output (off-state current ≤ 10 μA)
Output IV	analog
Current range	0 ... 20 mA or 4 ... 20 mA
Open loop voltage	≤ 24 V DC
Load	≤ 650 Ω
Fault signal	downscale I ≤ 3.6 mA , upscale ≥ 21.5 mA (acc. NAMUR NE43)
<b>Transfer characteristics</b>	
Input I	
Measurement range	0.001 ... 12000 Hz
Resolution	0.1 % of the measurement value , ≥ 0.001 Hz
Accuracy	0.1 % of the measurement value , > 0.001 Hz
Measuring time	< 100 ms
Influence of ambient temperature	0.003 %/K (30 ppm)
Output I, II	
Response delay	≤ 200 ms
Output IV	
Resolution	< 10 μA
Accuracy	< 20 μA
Influence of ambient temperature	0.005 %/K (50 ppm)
<b>Electrical isolation</b>	
Input I/other circuits	safe galvanic isolation acc. to EN 50020, voltage peak value 375 V
Output I, II/other circuits	reinforced insulation according to IEC 61140, rated insulation voltage 300 V <sub>eff</sub>
Mutual output I, II, III	reinforced insulation according to IEC 61140, rated insulation voltage 300 V <sub>eff</sub>
Output III/power supply	reinforced insulation according to IEC 61140, rated insulation voltage 300 V <sub>eff</sub>
Output III/IV	basic insulation according to IEC 62103, rated insulation voltage 50 V <sub>eff</sub>
Output IV/power supply	reinforced insulation according to IEC 61140, rated insulation voltage 300 V <sub>eff</sub>
Start-up override/power supply	reinforced insulation according to IEC 61140, rated insulation voltage 300 V <sub>eff</sub>
Interface/power supply	reinforced insulation according to IEC 61140, rated insulation voltage 300 V <sub>eff</sub>
Interface/output III	basic insulation according to IEC 62103, rated insulation voltage 50 V <sub>eff</sub>
<b>Directive conformity</b>	
Electromagnetic compatibility	
Directive 2004/108/EC	EN 61326-1:2006
Low voltage	

Release date 2010-11-04 14:00 Date of issue 2010-11-16 188371\_ENG.xml

Directive 2006/95/EC	EN 50178:1997
<b>Conformity</b>	
Insulation coordination	IEC 62103
Electrical isolation	IEC 62103
Electromagnetic compatibility	NE 21
Protection degree	IEC 60529
Protection against electric shock	IEC 61140
<b>Ambient conditions</b>	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
<b>Mechanical specifications</b>	
Protection degree	IP20
Mass	300 g
Dimensions	40 x 119 x 115 mm (1.6 x 4.7 x 4.5 in) , housing type C3
<b>General information</b>	
Supplementary information	Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For information see <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> .

## Accessories

### PACT<sup>ware</sup>™

Device-specific drivers (DTM)

### Adapter K-ADP1

Programming adapter for parameterisation via the serial RS 232 interface of a PC/Notebook

For programming, please use the new version of adapter K-ADP1 (part no. 181953, connector length 14mm). When using the previous version K-ADP1 (connector length 18 mm) the plug is exposed by approx. 3 mm. The function is not affected.

### Adapter K-ADP-USB

Programming adapter for parameterisation via the serial USB interface of a PC/Notebook

# StructuredGround™ Universal Ground Bar System

### specifications

Provide a field wiring terminal for the connection of an equipment grounding conductor in each control panel and enclosure. The terminal shall be UL 467 Listed or CSA 22.2 certified. The equipment grounding conductor shall have electrical continuity with the enclosure or sub-panel. The field wiring terminal may also provide multiple locations or ports for terminating equipment ground conductors from devices inside the panel or enclosure, functioning as the ground bar within the panel or enclosure. The ground bar shall provide a means to attach and to identify the main equipment grounding conductor.

**PATENTED**



### technical information

<b>Performance level:</b>	UL 467 Listed and CSA 22.2 Certified for grounding and bonding an equipment grounding conductor up to 2/0 AWG; meets UL 508A requirements
<b>Main:</b>	Provides a location for the main equipment grounding conductor using a compression or mechanical connector
<b>Wire ports:</b>	Accept bare stripped copper wire from #14 to #4 AWG Accept wire ferrules from #14 AWG to #6 AWG  Top of ground bar accepts ring terminals, compression connectors or mechanical connectors with a 1/4" stud hole size and maximum width of 0.55"
<b>Materials:</b>	Ground bars and bonding stand-offs precision machined from 110 electrolytic copper with a 99.9% copper content and then tin-plated for additional corrosion resistance
<b>Packaging:</b>	Each part is provided with all fasteners required for terminating wires and for each mounting option

### key features and benefits

<b>Flexible design</b>	Works with all types of wire termination methods including stripped wire, ferrules, terminals, and compression or mechanical connectors; compatible with over 140 Panduit connectors
<b>Multiple mounting options</b>	In addition to surface mounting, two mounting stand-off options are available, one that bonds to the mounting surface and one that isolates from the mounting surface; both options provide additional finger wiring space in tight places
<b>Unique geometry</b>	The unique shape of the universal ground bar allows more surface contact between the wire connectors and the ground bar

### applications

The patented StructuredGround™ Universal Ground Bar System (UGB) offers multiple termination methods and mounting options making it ideal for any control panel or enclosure application. The UGB enables the end user to choose the method in which to

terminate conductors with connectors of their choice or simply cut and strip the wires. The UGB system will help reduce the types of ground bars that a panel shop or distributor needs to keep in stock to meet the various applications and customer requirements.

#### Universal Ground Bar System

<b>6-port ground bar:</b>	UGB2/0-414-6
<b>12-port ground bar:</b>	UGB2/0-414-12
<b>18-port ground bar:</b>	UGB2/0-414-18
<b>Isolation standoffs:</b>	UGB-IN-SO
<b>Bonding standoffs:</b>	UGB-B-SO

#### Recommended Connectors for Main Equipment Ground Conductor, Maximum 2/0 AWG

##### Copper Mechanical with Anti-Rotation

**#14 – 2/0 AWG:** CLMAR2/0-14-Q

##### Two-Hole Copper Compression, 1/4" Stud Hole with 5/8" Spacing; #14 to 2/0 AWG

<b>#14 – 10 AWG:</b>	LCA10-14A-L
<b>#8 AWG:</b>	LCD8-14A-L
<b>#6 AWG:</b>	LCD6-14A-L
<b>#4 AWG:</b>	LCD4-14A-L
<b>#2 AWG:</b>	LCD2-14A-Q
<b>#1 AWG:</b>	LCD1-14A-E
<b>1/0 AWG:</b>	LCD1/0-14A-X
<b>2/0 AWG:</b>	LCD2/0-14A-X

##### One-Hole Copper Compression, 1/4" Stud Hole; #14 to 2/0 AWG

<b>#14 – 10 AWG:</b>	LCA10-14-L
<b>#8 AWG:</b>	LCAS8-14-L
<b>#6 AWG:</b>	LCAS6-14-L
<b>#4 AWG:</b>	LCAS4-14-L
<b>#2 AWG:</b>	LCAS2-14-Q
<b>#1 AWG:</b>	LCAS1-14-E
<b>1/0 AWG:</b>	LCAS1/0-14-X
<b>2/0 AWG:</b>	LCAS2/0-14-X

One and two-hole copper compression connectors available for both code and flex conductors, with narrow tongue and bent tongue configurations.

#### Recommended Connectors for Port Connections

##### Ring Terminals, 1/4" Stud Hole, Maximum Width of 0.55"; #22 to #4 AWG

Ring terminals available with vinyl, nylon, KYNAR®, high-temp, or heavy duty insulation or non-insulated.

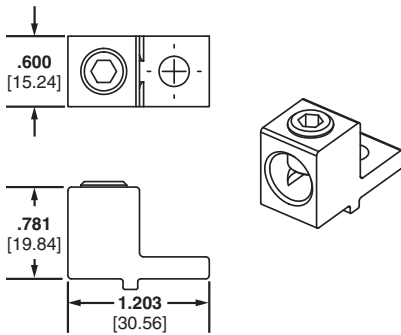
##### Compression Connectors, Maximum Width of 0.55"; up to #4 AWG Typical

##### Ferrules, Minimum Pin Depth of 12mm; #14 to #6 AWG

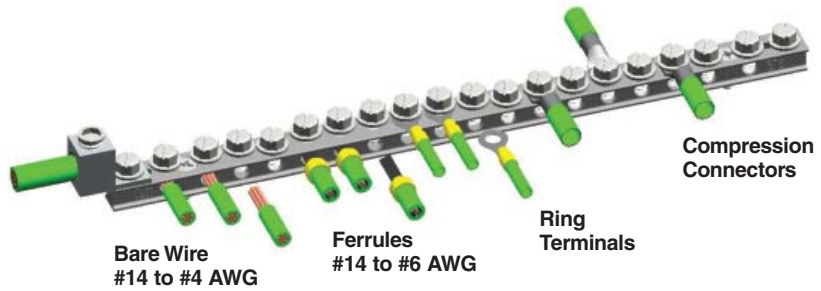
\*KYNAR is a registered trademark of Atofina Chemicals, Inc.

# StructuredGround™ Universal Ground Bar System

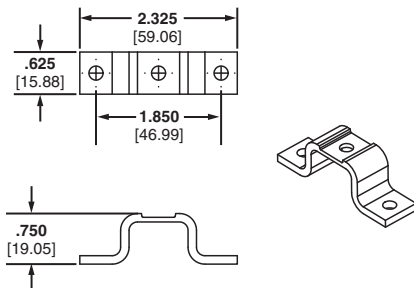
**CLMAR2/0-14-Q:** Tin-plated copper connector with anti-rotational feature.



**UGB2/0-414-18:** 18-port UGB mounted directly to surface with the equipment grounding conductor terminated in an anti-rotational, copper mechanical connector.



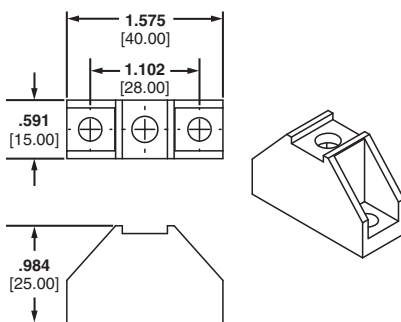
**UGB-B-SO:** Bonding stand-off.



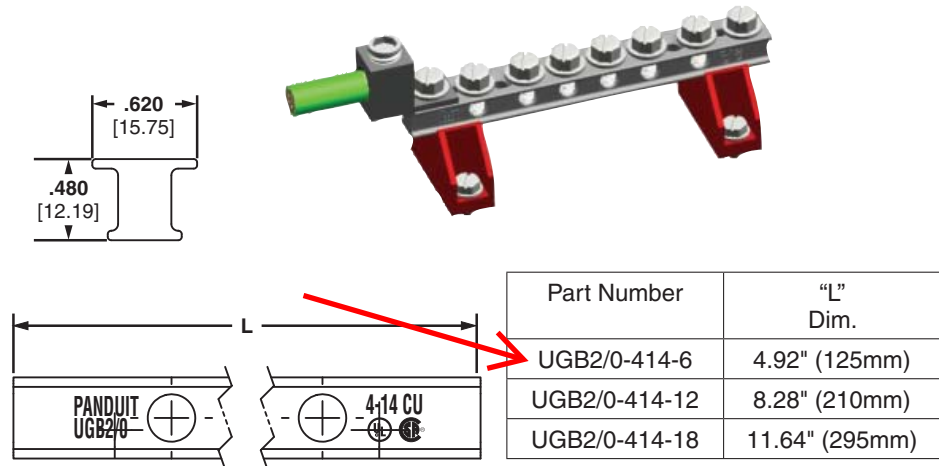
**UGB2/0-414-12:** 12-port UGB mounted on bonding stand-offs with the equipment grounding conductor terminated in a two-hole compression lug.



**UGB-IN-SO:** Isolation stand-off.



**UGB2/0-414-6:** 6-port UGB mounted on isolation stand-offs with the equipment grounding conductor terminated in an anti-rotational, copper mechanical connector.



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For more information

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Contact Customer Service by email: [cs@panduit.com](mailto:cs@panduit.com)  
or by phone: 800.777.3300

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GRSP01--SA-ENG  
Replaces SA-GRSP08  
9/2013



### Technical Characteristics

Insulation Temperature	180 Degrees C
Application	Specifically designed to handle high inrush associated with contactors and relays for applications such as conveyor systems, paint lines, punch presses or overhead cranes
Approvals	UL Listed File Number: E61239 - CSA Certified File Number: LR37055 Guide: 184-N-90 - CE Marked
Catalog Reference Number	9070CT9901
Enclosure Type	Open
Winding Material	Copper
Secondary	120V or 115V or 110V
Type	T
Fuse Block	None
Depth	6.86 Inches
Phase	1-Phase
Mounting Type	Panel
Width	9.00 Inches
Rating	3000VA
Terminal Type	Screw Clamp
Temperature Rise	115 Degrees C
Height	8.46 Inches
Primary	240x480V or 230x460V or 220x440V

### Shipping and Ordering

Category	16205 - Transformers, Industrial Control, 3000 - 5000 va, Type T
Discount Schedule	CP8
Article Number	785901876083
Package Quantity	1
Weight	59.81 lbs.
Availability Code	Stock Item: This item is normally stocked in our distribution facility.
Returnability	Y

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

# Industrial Control Transformers

Catalog  
August

# 05

Class 9070



## CONTENTS

Description . . . . .	Page
Product Description . . . . .	3
Type T Transformers . . . . .	4
Type EO Transformers . . . . .	27
Fuse Protection . . . . .	35
Type TF Transformers . . . . .	42
Field Installed Fuse Options . . . . .	44
Application . . . . .	55
Frequently Asked Questions . . . . .	58



**CUSTOM**

**PLEXI-GLASS ARC FLASH DIVIDER**

# TopTherm fan-and-filter units – SK 3244.110

created: 13.10.2021 on [www.rittal.com/com-en](http://www.rittal.com/com-en)



## Product description

<b>Protection category IP to IEC 60 529:</b>	IP 54 with standard filter and additional fine filter mat: IP 55 with standard filter and hose-proof hood: IP 56
<b>Protection category NEMA:</b>	Type 12 with standard filter and additional fine filter mat: Type 12 with standard filter and hose-proof hood: Type 3, 3R, 4, 4X
<b>Supply includes:</b>	Complete unit ready to install, including filter mat
<b>Note:</b>	With the fan-and-filter unit 3237.XXX, electrical connection is made via two single wires (length approx. 300 mm) on the unit, for all other fan-and-filter units, a screwless spring terminal is used

## Product description

<b>Air throughput (unimpeded air flow):</b>	At 50 Hz: 700 m <sup>3</sup> /h At 60 Hz: 770 m <sup>3</sup> /h
<b>Air throughput with outlet filter including standard filter mat (quantity x order number, output 50/60 Hz):</b>	1 x 3243200: 544/587 m <sup>3</sup> /h 2 x 3243200: 630/690 m <sup>3</sup> /h
<b>Rated operating voltage:</b>	115 V, 1~, 50 Hz/60 Hz
<b>Dimensions:</b>	Width: 323 mm Height: 323 mm
<b>Required mounting</b>	Width: 292 mm



<b>cut-out:</b>	Height: 292 mm
<b>Build depth:</b>	25 mm
<b>Installation depth:</b>	130.5 mm
<b>Temperature range:</b>	Bearing: -30 °C...+70 °C Operation (environment): -30 °C...+55 °C
<b>Power consumption P<sub>el</sub>:</b>	At 50 Hz: 100 W At 60 Hz: 145 W
<b>Rated current max.:</b>	At 50 Hz: 0.9 A At 60 Hz: 1.25 A
<b>Miniature circuit- breaker/fuse:</b>	6 A
<b>Service life at 50 Hz:</b>	66000 h
<b>Service life at 60 Hz:</b>	62000 h
<b>Noise level:</b>	At 50 Hz: 65 dB(A) At 60 Hz: 66 dB(A)
<b>Colour:</b>	RAL 7035
<b>Fan:</b>	Diagonal, 1~ capacitor motor
<b>eCl@ss 8.0/8.1:</b>	27180716
<b>Packs of:</b>	1 pc(s).
<b>Weight/pack:</b>	4.3 kg
<b>EAN:</b>	4028177652187
<b>Customs tariff number:</b>	84145915
<b>ETIM 7.0:</b>	EC000320
<b>ETIM 6.0:</b>	EC000320
<b>eCl@ss 8.0/8.1:</b>	27180716
<b>eCl@ss 6.0/6.1:</b>	27180716
<b>Product description:</b>	SK fan and filter units TopTherm, 700/770 m <sup>3</sup> /h, 115 V, 1~, 50/60 Hz, WHD: 323 x 323 x 25 mm

## Approvals

<b>Approvals:</b>	Approval overview CCC exception letter CSA UL + C-UL - FTFA UR + C-UR
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<b>Certificates:</b>	EAC
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<b>Declarations:</b>	Declaration of conformity
----------------------	---------------------------

# Outlet filter Standard – SK 3243.200



created: 13.10.2021 on [www.rittal.com/com-en](http://www.rittal.com/com-en)



## Product description

<b>Description:</b>	For ventilation by convection, an outlet filter can be installed in the upper and lower sections of the enclosure.
<b>Material:</b>	ABS
<b>Protection category IP to IEC 60 529:</b>	IP 54 including filter mat IP 55 with standard filter and additional fine filter IP 56 with standard filter and hose-proof hood
<b>Protection category NEMA:</b>	NEMA 12
<b>Supply includes:</b>	Outlet filter Filter mat

## Product description

<b>Dimensions:</b>	Width: 323 mm Height: 323 mm Depth: 25 mm
<b>Required mounting cut-out:</b>	Width: 292 mm Height: 292 mm
<b>Colour:</b>	RAL 7035
<b>eCl@ss 8.0/8.1:</b>	27180706
<b>Packs of:</b>	1 pc(s).

<b>Weight/pack:</b>	0.84 kg
<b>EAN:</b>	4028177652149
<b>Customs tariff number:</b>	39269097
<b>ETIM 7.0:</b>	EC002513
<b>ETIM 6.0:</b>	EC002513
<b>eCl@ss 8.0/8.1:</b>	27180706
<b>eCl@ss 6.0/6.1:</b>	27180706
<b>Product description:</b>	SK outlet filter, Standard, WHD: 323 x 323 x 25 mm
<b>Approvals</b>	
<b>Approvals:</b>	CSA UL + C-UL - FTTA UR + C-UR
<b>Certificates:</b>	EAC

# PF 65000

## Filter Fan

# PFA 60000

## Exhaust filter

- Installation size 6, air flow rate up to 297 CFM
- Three performance classes, cut-out compatible
- System of protection IP 54 and IP 55, NEMA type 12
- UL, cUL to NITW2 Category and CE approved, CSA pending



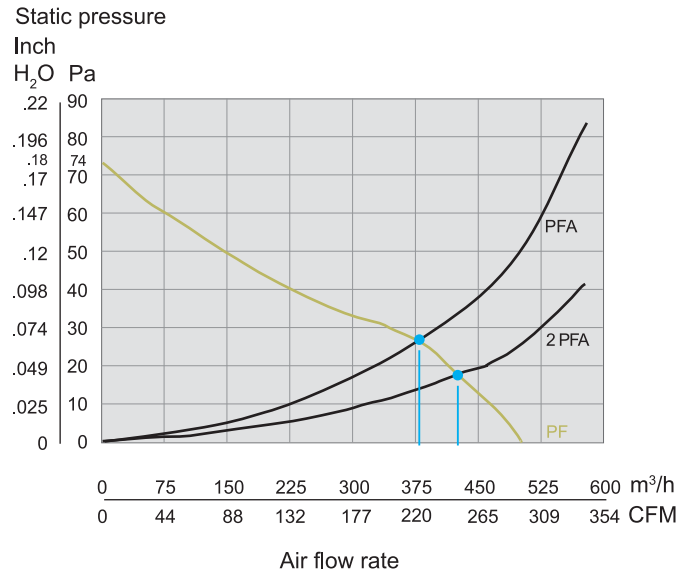
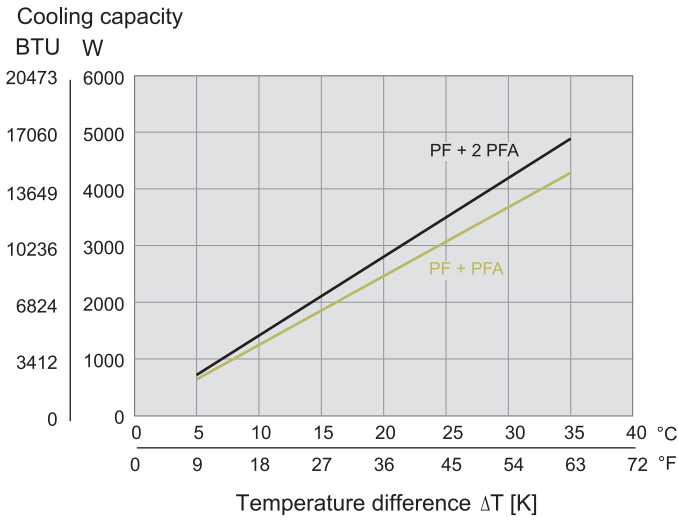
Data		PF 65000		Unit
Part number	RAL 9011 (Black Grill)	11665104050	11665154050	
	RAL 7035 (Lt. Gray Grill)	11665104055	11665154055	
		AC 50 Hz / 60 Hz		
Rated voltage ± 10 %		230	115	V
Unimpeded airflow (CFM2)		297 (505)		CFM (m <sup>3</sup> /h)
Air flow rate in combination (PF + PFA 60000) (CFM3)		230 (391)		
Power consumption		65 / 80	75 / 90	W
Current consumption		0.3 / 0.36	0.66 / 0.8	A
Noise level (according to EN ISO 3741)		54 / 52		dB(A)
Weight		7 (3.2)		lb (kg)
Type of connection		spring-type terminal		
Fuse (Recommended)		6		A
System of protection according to EN 60529 / UL 50	IP 55	NEMA Type 12 - fluted filter / IP55		
Filtration efficiency	IP 55	91		%
Filter mat quality class <sup>1</sup>	IP 55	G 4		
Duty cycle		100		%
Bearing type		ball bearing		
Service life L <sub>10</sub> (+ 40 °C) <sup>2</sup>		40000		h
Temperature range		+ 5 ... + 131 / - 15 ... + 55		°F / °C
Material Protection Rating		made of injection-molded thermoplastic, self-extinguishing, UL 94 VO, UV-resistant optional		

Accessories		Piece	Part number	Information on page
Exhaust filter PFA 60000	RAL 9011 (Black Grill)	1	11760004050	164
	RAL 7035 (Lt. Gray Grill)	1	11760004055	164
Thermostat FLZ 530° F		1	17121000010	174

<sup>1</sup> according to DIN EN 779

<sup>2</sup> fan failure is defined as being when the current and speed deviate or the operating noises are out of the ordinary

Cooling Capacity Performance Curves	Static Pressure Performance Curves
PF 65000 T12 / IP 55 (& UV option)	PF 65000 T12 / IP 55 (& UV option)

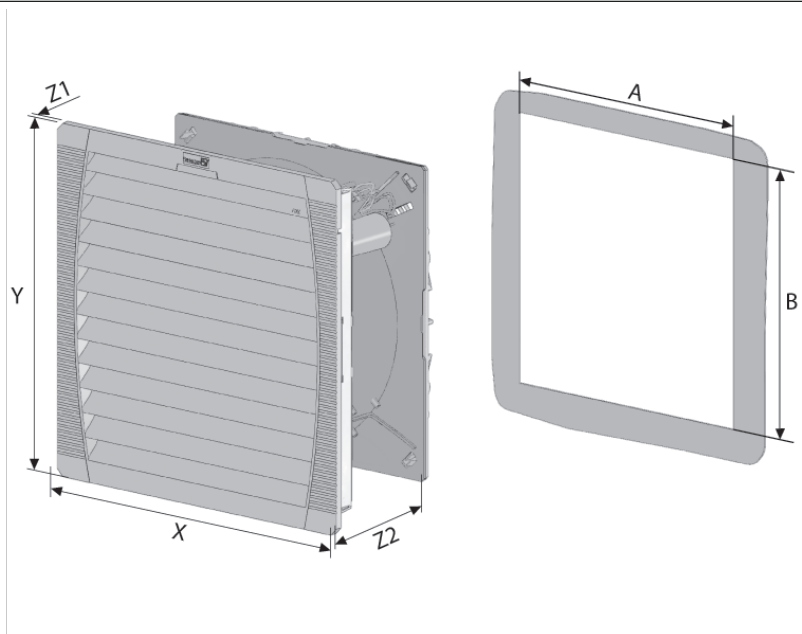


### Dimensions

inches (mm)	PF 65000	PFA 60000
<b>X</b>	12.6 (320)	12.6 (320)
<b>Y</b>	12.6 (320)	12.6 (320)
<b>Z1</b>	.28 (7)	.28 (7)
<b>Z2</b>	5.91 (150)	1.54 (39)
<b>A<sup>1</sup></b>	11.46 (291) <sup>2</sup>	11.46 (291) <sup>2</sup>
<b>B<sup>1</sup></b>	11.46 (291) <sup>2</sup>	11.46 (291) <sup>2</sup>

<sup>1</sup> for material thicknesses up to .08" (2 mm)  
+.039 (+1 mm) for thickness of material > .08" (2 mm) ≤ .19" (3 mm)

<sup>2</sup> add .039" (1 mm) for EMC version





## Unmanaged DIN Rail Mount Switches



### Entry-level Unmanaged Switches SPIDER Family



All ports are 10/100 Mbps. Now available with POE. The SPIDER family of switches provides users with an economical, yet highly reliable Ethernet switch. All copper/RJ45 ports are 10/100 auto-negotiating and auto-crossing – the SPIDERS will work with either patch or cross-over cables. The fiber ports are all 100 Mbps and available in multimode (MM) and singlemode (SM) with either SC or ST sockets. Unless specified, all switches are rated 0° C to +60° C, have a 24 VDC power input via pluggable terminal block and have an average MTBF exceeding 100 years.

#### ALL COPPER/RJ45 - SPIDER FAMILY / Entry-level Unmanaged Switches

Part No.	Order No.	Ports
SPIDER 3TX-TAP	943 899-001	3 x RJ45
SPIDER 5TX	943 824-002	5 x RJ45
SPIDER 5TX EEC	943 824-102	5 x RJ45
SPIDER II 8TX	943 957-001	8 x RJ45
SPIDER II 8TX EEC	943 958-001	8 x RJ45
NEW SPIDER II 8TX POE	942 008-001	8 x RJ45 and 4 X POE, with metal housing and 24 VDC input

#### COPPER/RJ45 and FIBER - SPIDER FAMILY / Entry-level Unmanaged Switches

Part No.	Order No.	Ports
SPIDER 4TX/1FX	943 221-001	4 x RJ45 and 1 x MM, SC
SPIDER 4TX/1FX EEC	943 221-101	4 x RJ45 and 1 x MM, SC
SPIDER 4TX/1FX-S EEC	943 914-001	4 x RJ45 and 1 x MM, ST
SPIDER 4TX/1FX SM EEC	943 880-001	4 x RJ45 and 1 x SM, SC
SPIDER 1TX/1FX	943 890-001	1 x RJ45 and 1 x MM, SC
SPIDER 1TX/1FX EEC	943 927-101	1 x RJ45 and 1 x MM, SC
SPIDER 1TX/1FX-SM	943 891-001	1 x RJ45 and 1 x MM, SC
SPIDER 1TX/1FX SM EEC	943 928-001	1 x RJ45 and 1 x SM, SC
SPIDER II 8TX/1FX EEC	943 958-111	8 x RJ45 and 1 x MM, SC
SPIDER II 8TX/1FX-ST EEC	943 958-121	8 x RJ45 and 1 x MM, ST
SPIDER II 8TX/2FX EEC	943 958-211	8 x RJ45 and 2 x MM, SC
SPIDER II 8TX/2FX-ST EEC	943 958-221	8 x RJ45 and 2 x MM, ST
SPIDER II 8TX/1FX-SM EEC	943 958-131	8 x RJ45 and 1 x SM, SC
SPIDER II 8TX/2FX-SM EEC	943 958-231	8 x RJ45 and 2 x SM, SC

#### FULL GIGABIT - SPIDER FAMILY / Entry-level Unmanaged Switches

Part No.	Order No.	Ports
SPIDER II Giga 5T EEC	943 962-002	5 x RJ45 (10/100/1000)
SPIDER II Giga 5T/2S EEC	943 963-002	5 x RJ45 (10/100/1000), and 2 x SFP Slot (1000)

NOTE: EEC stands for extended environmental conditions (-40° C to +70° C).

## Feature-rich Unmanaged Switches

### RS2 Switches

These switches offer advanced features such as redundant power inputs and most offer fault relay (triggerable by loss of power and/or port-link). Standard features include 10/100 auto-negotiating and auto-crossing (either patch or cross-over cables will work in the ports), a 0° C to +60° C operating range, a 24 VDC power input via pluggable terminal block and have an average MTBF exceeding 100 years. All of the multimode (MM) and singlemode (SM) fiber optic ports are 100 Mbps and are available in a variety of connector options.



# Infrastructure Solutions

## Network Cables

Organize and secure your network equipment

### CAT5e Unshielded (UTP) Network Cables

Belkin CAT5e cables offer reliable, practical, Gigabit-Ethernet performance.

#### CAT5e Snagless Patch Cables

Feet	Black	Blue	Green	Red	White	Yellow	Gray
3	A3L791-03-BLK-S	A3L791-03-BLU-S	A3L791-03-GRN-S	A3L791-03-RED-S	A3L791-03-WHT-S	A3L791-03-YLW-S	A3L791-03-S
5	A3L791-05-BLK-S	A3L791-05-BLU-S	A3L791-05-GRN-S	A3L791-05-RED-S	A3L791-05-WHT-S	A3L791-05-YLW-S	A3L791-05-S
7	A3L791b07-BLK-S	A3L791b07-BLU-S	A3L791b07-GRN-S	A3L791b07-RED-S	A3L791-07-WHT-S	A3L791b07-YLW-S	A3L791b07-S
10	A3L791-10-BLK-S	A3L791-10-BLU-S	A3L791-10-GRN-S	A3L791-10-RED-S	A3L791-10-WHT-S	A3L791-10-YLW-S	A3L791b10-S
14	A3L791b14-BLK-S	A3L791b14-BLU-S	A3L791b14-GRN-S	A3L791b14-RED-S	A3L791-14-WHT-S	A3L791b14-YLW-S	A3L791b14-S
20	A3L791-20-BLK-S	A3L791-20-BLU-S	A3L791-20-GRN-S	A3L791-20-RED-S	A3L791-20-WHT-S	A3L791-20-YLW-S	A3L791-20-S
25	A3L791b25-BLK-S	A3L791b25-BLU-S	A3L791b25-GRN-S	A3L791b25-RED-S	A3L791-25-WHT-S	A3L791b25-YLW-S	A3L791b25-S
50	A3L791b50-BLK-S	A3L791b50-BLU-S	A3L791b50-GRN-S	A3L791b50-RED-S	A3L791-50-WHT-S	A3L791b50-YLW-S	A3L791b50-S

### CAT6 Unshielded (UTP) Network Cables

Belkin CAT6 delivers higher performance and reliability than CAT5e by reducing packet loss and the need for retransmissions. Belkin CAT6 cables are tested to exceed the industry standard for throughput, offering headroom in your network for growth.

#### CAT6 Snagless Patch Cables

Feet	Black	Blue	Green	Red	White	Yellow	Gray
3	A3L980b03-BLK-S	A3L980b03-BLU-S	A3L980-03-GRN-S	A3L980-03-RED-S	A3L980-03-WHT-S	A3L980-03-YLW-S	A3L980b03-S
5	A3L980-05-BLK-S	A3L980-05-BLU-S	A3L980-05-GRN-S	A3L980-05-RED-S	A3L980-05-WHT-S	A3L980-05-YLW-S	A3L980-05-S
7	A3L980b07-BLK-S	A3L980b07-BLU-S	A3L980b07-GRN-S	A3L980b07-RED-S	A3L980-07-WHT-S	A3L980-07-YLW-S	A3L980b07-S
10	A3L980-10-BLK-S	A3L980-10-BLU-S	A3L980-10-GRN-S	A3L980-10-RED-S	A3L980-10-WHT-S	A3L980-10-YLW-S	A3L980-10-S
14	A3L980b14-BLK-S	A3L980b14-BLU-S	A3L980-14-GRN-S	A3L980b14-RED-S	A3L980-14-WHT-S	A3L980-14-YLW-S	A3L980b14-S
20	A3L980-20-BLK-S	A3L980-20-BLU-S	A3L980-20-GRN-S	A3L980-20-RED-S	A3L980-20-WHT-S	A3L980-20-YLW-S	A3L980-20-S
25	A3L980b25-BLK-S	A3L980b25-BLU-S	A3L980-25-GRN-S	A3L980b25-RED-S	A3L980-25-WHT-S	A3L980-25-YLW-S	A3L980b25-S
50	A3L980b50-BLK-S	A3L980b50-BLU-S	A3L980-50-GRN-S	A3L980-50-RED-S	A3L980-50-WHT-S	A3L980-50-YLW-S	A3L980b50-S

### Component-Certified CAT6 Network Cables

Belkin component-certified CAT6 cables are built and tested to the highest-quality levels. Belkin component-certified CAT6 cables offer additional headroom and include test results in each bag.

Feet	Black	Blue	Red	White	Yellow	Gray
3	A3L9006-03-BLKS	A3L9006-03-BLUS	A3L9006-03-REDS	A3L9006-03-WHTS	A3L9006-03-YLWS	A3L9006-03-S
7	A3L9006-07-BLKS	A3L9006-07-BLUS	A3L9006-07-REDS	A3L9006-07-WHTS	A3L9006-07-YLWS	A3L9006-07-S
14	A3L9006-14-BLKS	A3L9006-14-BLUS	A3L9006-14-REDS	A3L9006-14-WHTS	A3L9006-14-YLWS	A3L9006-14-S
25	A3L9006-25-BLKS	A3L9006-25-BLUS	A3L9006-25-REDS	A3L9006-25-WHTS	A3L9006-25-YLWS	A3L9006-25-S

**Don't see the color or length you need?**  
**Belkin can manufacture virtually any cable type, length, or color.**  
**Contact your sales team today to get pricing and lead times.**



## E90CC Series Fuseholders



E90CC Fuseholders



**ABB is pleased to announce the release of the UL approved E90CC fuseholders with rejection.**

Class CC fuses have limiting characteristics dedicated to terminal protection of components and apparatuses against short-term overloads and to protect motors against short-circuit. Maximum rated current of a Class CC fuse is 30A at a maximum rated voltage of 600V. The breaking capacity reaches 200 kA.

The limiting properties of the Class CC fuses are particularly appreciated in the North American market, allowing suitable protection of equipment with limited resistance to short circuit. The use of Class CC fuses is continuously increasing in the American market, as the safety and reliability prescriptions of end users have become stricter and do not tolerate any permanent damage to motor starts.

### Product range

The E90CC fuseholders are DIN rail mountable, available in 1, 1N, 2, 3, 3N and 4 pole versions and feature optional blown fuse indication.

### Features

- UL Listed according to UL 4248-1 and 4248-4
- Rejection member to allow the insertion of Class CC fuses only
- Rated voltage: 600V AC/DC
- Rated current: 30A
- 1, 1N, 2, 3, 3N and 4 pole versions

Technical data		E91/30CC	E91/30CCs	E91N/30CC	E91N/30CCs	E92/30CC	E92/30CCs	E93/30CC	E93/30CCs	E93N/30CC	E93N/30CCs	E94/30CC	E94/30CCs
Number of poles		1	1	1+N	1+N	2	2	3	3	3+N	3+N	4	4
Fuse size	mm	10.4 x 38.1 Class CC											
Rated current	A	30											
Rated voltage	V	600 AC/DC											
Short circuit current	kA	200											
Rated frequency	Hz	60											
Tightening torque	in-lb	PZ2 18-22											
	Nm	PZ2 2-2.5											
Protection degree		IP20											
Terminal cross section	mm <sup>2</sup>	25											
Wire range - solid copper conductors	AWG	16-10											
Wire range - stranded copper conductors	AWG	16-3											
Padlockable (when open)		Yes											
Sealable (when closed)		Yes											
Blown fuse indicator		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Approvals		UL 4248-1 and 4248-4											
Marking		cULus and CSA											



# CC-TRON®

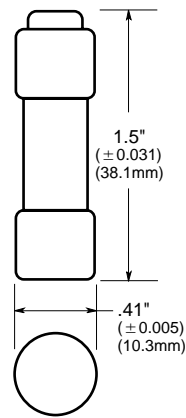
# FNQ-R

## Time-Delay Fuses

1 3/32" x 1 1/2", 600 Volt, 1/4 to 30 Amps



### Dimensional Data



### General Information:

- The Bussmann CC-TRON® (FNQ-R) was designed to meet the needs of control circuit transformer protection.
- Current-limitation protects down stream components against damaging thermal and magnetic effects of short-circuit currents.
- **High inrush time-delay.** Control circuit transformers can experience inrush currents up to 85 times their full-load current rating. FNQ-R fuses can be sized according to NEC and UL requirements and still allow the high inrush currents, with significantly more time-delay than the UL minimum value of 12 seconds at 200% for Class CC fuses.
- Melamine tube. Nickel-plated brass endcaps.

Catalog Symbol: FNQ-R

Time-Delay

Application: Circuit Transformer Protection

Ampere Rating: 1/4 to 30A

Voltage Rating: 600Vac (or less)†

Interrupting Rating: 200,000A RMS Sym. (UL)

Agency Information:

UL Listed, Std. 248-4, Class CC, Guide JDDZ, File E4273

CSA Certified, Class CC CSA, Class 1422-01,

File 53787-HRC-MISC

†12-30A is 300Vdc and 10k AIR.

### Maximum Acceptable Rating of Overcurrent Device\*

Rated Primary Current (Amperes)	Maximum Rating of Overcurrent Protective Device Expressed As A Percent of Transformer Primary Current Rating
Less than 2A	500**
2A to less than 9A	167
9A or more	125

\*UL 508A Table 42.1.

\*\*300% for other than motor control applications.

CE CE logo denotes compliance with European Union Low Voltage Directive (50-1000Vac, 75-1500Vdc). Refer to Data Sheet: 8002 or contact Bussmann Application Engineering at 636-527-1270 for more information.

### Electrical Ratings (Catalog Symbol and Amperes)

FNQ-R-1/4	FNQ-R-1 3/10	FNQ-R-3 2/10	FNQ-R-8
FNQ-R-3/10	FNQ-R-1 1/10	FNQ-R-3 1/2	FNQ-R-9
FNQ-R-4/10	FNQ-R-1 1/2	FNQ-R-4	FNQ-R-10
FNQ-R-1/2	FNQ-R-1 9/10	FNQ-R-4 1/2	FNQ-R-12
FNQ-R-5/10	FNQ-R-1 8/10	FNQ-R-5	FNQ-R-15
FNQ-R-3/4	FNQ-R-2	FNQ-R-5 8/10	FNQ-R-17 1/2
FNQ-R-8/10	FNQ-R-2 1/4	FNQ-R-6	FNQ-R-20
FNQ-R-1	FNQ-R-2 1/2	FNQ-R-6 1/4	FNQ-R-25
FNQ-R-1 1/8	FNQ-R-2 9/10	FNQ-R-7	FNQ-R-30
FNQ-R-1 1/4	FNQ-R-3	FNQ-R-7 1/2	—

### Carton Quantity and Weight

Ampere Ratings	Carton Qty.	Weight*	
		Lbs.	Kg.
1/4-30	10	.200	.091

\*Weight per carton

# Fuse modular terminal block - UT 4-HESILED 24-P/P - 3046540




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Lever-type fuse terminal block, black, for 5 x 20 mm G fuse inserts, with LED for 24 V DC



## Key Commercial Data

Packing unit	50 pc
GTIN	 4 046356 148092
GTIN	4046356148092

## Technical data

### General

Number of levels	1
Number of connections	2
Nominal cross section	4 mm <sup>2</sup>
Color	black
Insulating material	PA
Flammability rating according to UL 94	V0
Maximum power dissipation for nominal condition	1.6 W
Fuse	G / 5 x 20
Fuse type	Glass / ceramics / ...
Rated surge voltage	4 kV
Degree of pollution	3
Overvoltage category	III
Insulating material group	I
Maximum power dissipation	max. 1.6 W (with single arrangement of the fuse terminal block in the event of overload)
	max. 1.6 W (With interconnected arrangement of several fuse terminal blocks in the event of overload)

# Fuse modular terminal block - UT 4-HESILED 24-P/P - 3046540

## Technical data

### General

	max. 4 W (with single arrangement of the fuse terminal block in the event of a short-circuit)
	max. 2.5 W (With interconnected arrangement of several fuse terminal blocks in the event of a short-circuit)
Maximum current with single arrangement	6.3 A
LED voltage range	12 V AC/DC ... 30 V AC/DC
Current LED	6.3 A
LED current range	0.31 mA ... 0.95 mA
Switching capacity (UL 1077)	6.3 A
Connection in acc. with standard	IEC 60947-7-3
Maximum load current	6.3 A (the current is determined by the fuse used)
Nominal current $I_N$	6.3 A
Nominal voltage $U_N$	24 V
Open side panel	No
Number of positions	1
Relative insulation material temperature index (Elec., UL 746 B)	130 °C
Temperature index of insulation material (DIN EN 60216-1 (VDE 0304-21))	125 °C
Static insulating material application in cold	-60 °C
Surface flammability NFPA 130 (ASTM E 162)	passed
Specific optical density of smoke NFPA 130 (ASTM E 662)	passed
Smoke gas toxicity NFPA 130 (SMP 800C)	passed
Calorimetric heat release NFPA 130 (ASTM E 1354)	27,5 MJ/kg
Fire protection for rail vehicles (DIN EN 45545-2) R22	HL 1 - HL 3
Fire protection for rail vehicles (DIN EN 45545-2) R23	HL 1 - HL 3
Fire protection for rail vehicles (DIN EN 45545-2) R24	HL 1 - HL 3
Fire protection for rail vehicles (DIN EN 45545-2) R26	HL 1 - HL 3

### Dimensions

Width	6.2 mm
Length	57.8 mm
Height NS 35/7,5	73 mm
Height NS 35/15	80.5 mm

### Ambient conditions

Ambient temperature (operation)	-60 °C ... 85 °C
Ambient temperature (storage/transport)	-25 °C ... 55 °C (For a short time, not exceeding 24 h, -60 to +70 °C)
Permissible humidity (storage/transport)	30 % ... 70 %
Ambient temperature (assembly)	-5 °C ... 70 °C
Ambient temperature (actuation)	-5 °C ... 70 °C

### Connection data

Conductor cross section solid min.	0.14 mm <sup>2</sup>
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## Fuse modular terminal block - UT 4-HESILED 24-P/P - 3046540

### Technical data

#### Connection data

Conductor cross section solid max.	6 mm <sup>2</sup>
Conductor cross section flexible min.	0.14 mm <sup>2</sup>
Conductor cross section flexible max.	6 mm <sup>2</sup>
Conductor cross section AWG min.	26
Conductor cross section AWG max.	10
Conductor cross section flexible, with ferrule without plastic sleeve min.	0.14 mm <sup>2</sup>
Conductor cross section flexible, with ferrule without plastic sleeve max.	4 mm <sup>2</sup>
Conductor cross section flexible, with ferrule with plastic sleeve min.	0.14 mm <sup>2</sup>
Conductor cross section flexible, with ferrule with plastic sleeve max.	4 mm <sup>2</sup>
2 conductors with same cross section, solid min.	0.14 mm <sup>2</sup>
2 conductors with same cross section, solid max.	1.5 mm <sup>2</sup>
2 conductors with same cross section, stranded min.	0.14 mm <sup>2</sup>
2 conductors with same cross section, stranded max.	1.5 mm <sup>2</sup>
Two conductors with the same cross section stranded, with ferrule and without plastic sleeve, minimum	0.14 mm <sup>2</sup>
Two conductors with the same cross section stranded, with ferrule and without plastic sleeve, maximum	1.5 mm <sup>2</sup>
Two conductors with the same cross section, flexible, with TWIN ferrules, with plastic sleeve, minimum	0.5 mm <sup>2</sup>
Two conductors with the same cross section, flexible, with TWIN ferrules, with plastic sleeve, maximum	2.5 mm <sup>2</sup>
Connection method	Screw connection
Stripping length	9 mm
Internal cylindrical gage	A4
Screw thread	M3
Tightening torque, min	0.6 Nm
Tightening torque max	0.8 Nm

#### Standards and Regulations

Connection in acc. with standard	IEC 60947-7-3
Flammability rating according to UL 94	V0

#### Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

### Drawings

# GMA

## 5 mm x 20 mm Fast-acting glass tube fuses



### Agency information

- UL Listed, Guide JDYX, File E19180, 63mA-6A
- UL Recognized, Guide JDYX2, File E19180, 7-15A
- CSA Certified, Class 1422-01, File 53787, 63mA-6A
- PSE Approval, 1A-15A

### Ordering

- Specify packaging, product, and option code
- Ratings above 6.3A have a 0.8 mm diameter lead
- With TR2 packaging code, lead wire length is 19.05 mm

### Product features

- Fast-acting, low breaking capacity
- Optional axial leads available
- 5 x 20mm physical size
- Glass tube, silver-plated (63mA-315mA) and nickel-plated (500mA-15A) brass endcap construction
- Designed to UL/CSA 248-14

Electrical Characteristics		
Rated Current	% of Amp Rating	Opening Time
63mA - 15A	100%	None
	135%	60 minutes maximum
	200%	2 minutes maximum

Product Code	Amp Rating	Voltage Rating Vac	Interrupting Rating (amps)*		Typical DC Cold Resistance (Ω)**	Typical Pre-Arc I <sup>2</sup> t Vac†	Maximum Voltage Drop (mV)‡
			250Vac	125Vac			
			GMA-63-R	63mA			
GMA-100-R	100mA	250	35	10,000	7.840	0.0001	4300
GMA-125-R	125mA	250	35	10,000	4.895	0.0024	2600
GMA-200-R	200mA	250	35	10,000	2.500	0.001	3400
GMA-250-R	250mA	250	35	10,000	1.735	0.018	2200
GMA-300-R	300mA	250	35	10,000	0.906	0.019	470
GMA-315-R	315mA	250	35	10,000	0.839	0.019	450
GMA-500-R	500mA	250	35	10,000	0.454	0.15	230
GMA-600-R	600mA	250	35	10,000	0.256	0.32	200
GMA-750-R	750mA	250	35	10,000	0.186	0.47	200
GMA-800-R	800mA	250	35	10,000	0.170	0.70	180
GMA-1-R	1	250	35	10,000	0.163	0.48	300
GMA-1.25-R	1.25	250	100	10,000	0.122	0.84	290
GMA-1.5-R	1.5	250	100	10,000	0.090	1.6	270
GMA-1.6-R	1.6	250	100	10,000	0.080	2.0	260
GMA-2-R	2	250	100	10,000	0.066	3.1	250
GMA-2.5-R	2.5	250	100	10,000	0.046	4.9	240
GMA-3-R	3	250	100	10,000	0.039	8.8	215
GMA-3.15-R	3.15	125	-	10,000	0.036	9.7	210
GMA-3.5-R	3.5	125	-	10,000	0.030	13	210
GMA-4-R	4	125	-	10,000	0.026	19	205
GMA-5-R	5	125	-	10,000	0.021	29	200
GMA-6-R	6	125	-	10,000	0.017	45	180
GMA-7-R	7	125	-	200	0.012	150	110
GMA-8-R	8	125	-	200	0.009	280	110
GMA-10-R	10	125	-	200	0.006	280	110
GMA-15-R	15	125	-	150	0.004	950	100

\* Interrupting ratings: Interrupting ratings for 63mA - 6A were measured at 70% - 80% power factor on AC. The interrupting ratings for 7A - 15A were measured at 100% power factor on AC.

\*\* DC Cold Resistance (Measured at <10% of rated current)

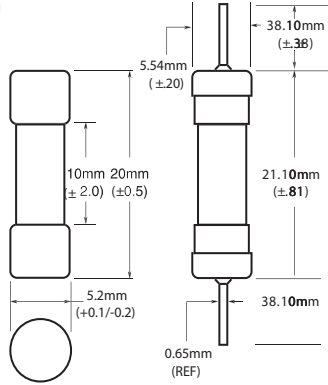
† Typical Pre-Arching I<sup>2</sup>t (I<sup>2</sup>t was measured at listed interrupting rating and rated voltage)

‡ Maximum Voltage drop (Voltage drop was measured at 20°C ambient temperature at rated current)

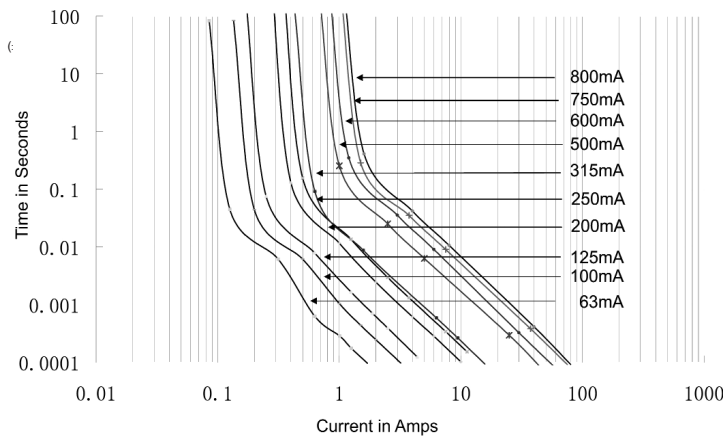


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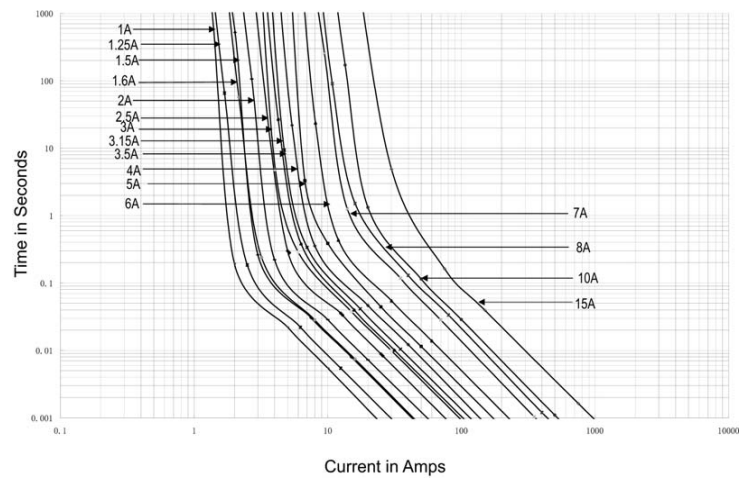
**Dimensions - mm**



**Time-Current Curve – GMA-R 63mA-800mA**



**Time-Current Curve – GMA-R 1-15A**



Packaging Code	
Packaging Code	Description
BK	100 fuses packed into a cardboard carton
BK1	1000 fuses packed into a poly bag
TR2	1500 fuses packed into tape on a reel (19.05mm lead wire length)

Option Code	
Option Code	Description
V	Axial leads - copper tinned wire with nickel-plated brass overcaps

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Thermistor motor protection relay Compact evaluation unit 17.5 mm enclosure Screw terminal 1 NO contact, 1 NC contact US = 24 V-240 V AC/DC Auto RESET suitable for bimetallic switch 2 LEDs (Ready/Tripped) galvanic isolation



Figure similar

Product brand name	SIRIUS
Product category	SIRIUS 3RN2 thermistor motor protection
Product designation	Thermistor motor protection relay
Design of the product	Compact evaluation unit, suitable for bimetallic switch
Product type designation	3RN2

General technical data	
Display version LED	Yes
Power loss [W] for rated value of the current	
• at AC in hot operating state	0.9 W
• at DC in hot operating state	0.9 W
Insulation voltage	
• for overvoltage category III according to IEC 60664	
— with degree of pollution 3 rated value	300 V
Degree of pollution	3
Surge voltage resistance rated value	4 kV
Protection class IP	IP20



<b>Shock resistance</b>	
<ul style="list-style-type: none"> <li>• acc. to IEC 60068-2-27</li> </ul>	11g / 15 ms
<b>Vibration resistance</b>	
<ul style="list-style-type: none"> <li>• acc. to IEC 60068-2-6</li> </ul>	10 ... 55 Hz: 0.35 mm
<b>Mechanical service life (switching cycles)</b>	
<ul style="list-style-type: none"> <li>• typical</li> </ul>	10 000 000
<b>Electrical endurance (switching cycles)</b>	
<ul style="list-style-type: none"> <li>• at AC-15 at 230 V typical</li> </ul>	100 000
<b>Thermal current of the switching element with contacts maximum</b>	5 A
<b>Reference code acc. to DIN 40719 extended according to IEC 204-2 acc. to IEC 750</b>	K
<b>Reference code acc. to DIN EN 81346-2</b>	K
<b>Reference code acc. to DIN EN 61346-2</b>	K

#### Control circuit/ Control

<b>Type of voltage of the control supply voltage</b>	AC/DC
<b>Control supply voltage at AC</b>	
<ul style="list-style-type: none"> <li>• at 50 Hz rated value</li> </ul>	24 ... 240 V
<ul style="list-style-type: none"> <li>• at 60 Hz rated value</li> </ul>	24 ... 240 V
<b>Control supply voltage at DC</b>	
<ul style="list-style-type: none"> <li>• rated value</li> </ul>	24 ... 240 V
<b>Operating range factor control supply voltage rated value at DC</b>	
<ul style="list-style-type: none"> <li>• initial value</li> </ul>	0.85
<ul style="list-style-type: none"> <li>• Full-scale value</li> </ul>	1.1
<b>Operating range factor control supply voltage rated value at AC at 50 Hz</b>	
<ul style="list-style-type: none"> <li>• initial value</li> </ul>	0.85
<ul style="list-style-type: none"> <li>• Full-scale value</li> </ul>	1.1
<b>Operating range factor control supply voltage rated value at AC at 60 Hz</b>	
<ul style="list-style-type: none"> <li>• initial value</li> </ul>	0.85
<ul style="list-style-type: none"> <li>• Full-scale value</li> </ul>	1.1
<b>Inrush current peak</b>	
<ul style="list-style-type: none"> <li>• at 24 V</li> </ul>	0.3 A
<ul style="list-style-type: none"> <li>• at 240 V</li> </ul>	8 A
<b>Duration of inrush current peak</b>	
<ul style="list-style-type: none"> <li>• at 24 V</li> </ul>	0.15 ms
<ul style="list-style-type: none"> <li>• at 240 V</li> </ul>	0.15 ms

#### Measuring circuit

<b>Buffering time in the event of power failure minimum</b>	40 ms
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#### Precision

Relative metering precision	9 %
<b>Auxiliary circuit</b>	
Material of switching contacts	AgSnO <sub>2</sub>
Number of NC contacts for auxiliary contacts	1
Number of NO contacts for auxiliary contacts	1
Number of CO contacts	
• for auxiliary contacts	0
Operating current of auxiliary contacts at DC-13	
• at 24 V	1 A
• at 125 V	0.2 A
• at 250 V	0.1 A
<b>Main circuit</b>	
Operating frequency rated value	50 ... 60 Hz
<b>Outputs</b>	
Ampacity of the output relay at AC-15	
• at 250 V at 50/60 Hz	3 A
Ampacity of the output relay at DC-13	
• at 24 V	1 A
• at 125 V	0.2 A
Continuous current of the DIAZED fuse link of the output relay	6 A
<b>Electromagnetic compatibility</b>	
Conducted interference	
• due to burst acc. to IEC 61000-4-4	2 kV (power ports) / 1 kV (signal ports)
• due to conductor-earth surge acc. to IEC 61000-4-5	2 kV (line to ground)
• due to conductor-conductor surge acc. to IEC 61000-4-5	1 kV (line to line)
Electrostatic discharge acc. to IEC 61000-4-2	6 kV contact discharge / 8 kV air discharge
<b>Galvanic isolation</b>	
Design of the electrical isolation	galvanic
Galvanic isolation	
• between entrance and outlet	Yes
• between the outputs	Yes
• between the voltage supply and other circuits	Yes
<b>Connections/Terminals</b>	
Product function	
• removable terminal for auxiliary and control circuit	Yes
Type of electrical connection	screw-type terminals
Type of connectable conductor cross-sections	

<ul style="list-style-type: none"> <li>• solid</li> <li>• finely stranded with core end processing</li> <li>• at AWG conductors solid</li> </ul>	<p>1x (0.5 ... 4.0 mm<sup>2</sup>), 2x (0.5 ... 2.5 mm<sup>2</sup>)</p> <p>1x (0.5 ... 4 mm<sup>2</sup>), 2x (0.5 ... 1.5 mm<sup>2</sup>)</p> <p>1x (20 ... 12), 2x (20 ... 14)</p>
<b>Connectable conductor cross-section</b> <ul style="list-style-type: none"> <li>• solid</li> <li>• finely stranded with core end processing</li> </ul>	<p>0.5 ... 4 mm<sup>2</sup></p> <p>0.5 ... 4 mm<sup>2</sup></p>
<b>AWG number as coded connectable conductor cross section</b> <ul style="list-style-type: none"> <li>• solid</li> <li>• stranded</li> </ul>	<p>20 ... 12</p> <p>20 ... 12</p>
<b>Tightening torque</b> <ul style="list-style-type: none"> <li>• with screw-type terminals</li> </ul>	<p>0.6 ... 0.8 N·m</p>

### Installation/ mounting/ dimensions

<b>Mounting position</b>	any
<b>Mounting type</b>	screw and snap-on mounting onto 35 mm standard mounting rail
<b>Height</b>	100 mm
<b>Width</b>	17.5 mm
<b>Depth</b>	90 mm
<b>Required spacing</b> <ul style="list-style-type: none"> <li>• with side-by-side mounting <ul style="list-style-type: none"> <li>— forwards</li> <li>— Backwards</li> <li>— upwards</li> <li>— downwards</li> <li>— at the side</li> </ul> </li> <li>• for grounded parts <ul style="list-style-type: none"> <li>— forwards</li> <li>— Backwards</li> <li>— upwards</li> <li>— at the side</li> <li>— downwards</li> </ul> </li> <li>• for live parts <ul style="list-style-type: none"> <li>— forwards</li> <li>— Backwards</li> <li>— upwards</li> <li>— downwards</li> <li>— at the side</li> </ul> </li> </ul>	<p>0 mm</p> <p>0 mm</p> <p>0 mm</p> <p>0 mm</p> <p>0 mm</p> <p>0 mm</p> <p>0 mm</p> <p>0 mm</p> <p>0 mm</p> <p>0 mm</p> <p>0 mm</p> <p>0 mm</p> <p>0 mm</p> <p>0 mm</p>

### Ambient conditions

<b>Installation altitude at height above sea level</b> <ul style="list-style-type: none"> <li>• maximum</li> </ul>	<p>2 000 m</p>
<b>Ambient temperature</b>	

# Part Number: P-R2-F2R0

Panel Interface Connector with Category 5e RJ45; Panel Mount Housing; UL Type 4X; Simplex Outlet; No Circuit Breaker

<https://shop.graceport.com/products/p-r2-f2r0>



## Product Specifications






Description Detail	
Panel Interface Connector that typically mounts to the outside of a control panel housing. These programming ports eliminate the need to open the panel door and improve safety and compliance to NFPA 70e. We offer 15,000+ combinations of components and outlets.	
Component Details	
Component Code	R2
Component Quantity	1
Component Description	Category 5e RJ45
Component Type	Bulkhead
Gender Front	RJ45 Female
Gender Back	RJ45 Female
Electrical Specifications	
Power Type	Domestic Simplex Outlet
Power VAC	120
Power AMPs	15
SCCR Rating	10kA

Mechanical Specifications	
Enclosure Rating	IP65
Housing Size	F Size Housing
UL Type	Type 4X
Latch	Type 304 Stainless Steel
Cover	Polycarbonate, UV rated

Geometric Data	
Width	4.45 in
Height	1.72 in
Depth	1.60 in

Commercial Data	
Country of Origin	US
Schedule B Code	8537.10.9090
UPC Code	842864101581

### Approval Certifications

Logo	Approval	Additional Text	Certificate Name	
	UL Underwriters Laboratories Inc.	Outlets UL Recognized for 15A	E207344	
	CSA Canadian Standards Association	Outlets Rated for 5A Max for Computer Use Only	File # LR110845	
<b>RoHS</b>	RoHS Restriction of Hazardous Substances		GP0022-0916-B-RH	
	CE European Conformity		GP0009-0217-A-CE	



Product availability : Stock - Normally stocked in distribution facility



Price\* : 25.70 USD



### Main

Range of product	9080LB
Product or component type	Power Distribution Block
[In] rated current	175 A for copper cable(s) 135 A for aluminium cable(s)

### Complementary

System Voltage	600 V AC/DC
Mounting support	Surface mount
Number of poles	3
Number of terminals	1 line 1 load
Number of cables	2 cable(s) AWG 14...AWG 2/0 (copper or aluminium) for line 1 cable(s) AWG 14...AWG 2/0 (copper or aluminium) for load
Electrical connection	Tin plated aluminium lugs
[Ics] rated service breaking capacity	Up to 65 kA per UL 508 A
Ambient air temperature for operation	-40...302 °F
Material	Phenolic block
Connections - terminals	Lug 40 lbf.in for AWG 8 (copper or aluminium) line Lug 35 lbf.in for AWG 12...AWG 10 (copper or aluminium) line Lug 35 lbf.in for AWG 14 (copper) line Lug 40 lbf.in for AWG 8 (copper or aluminium) load Lug 35 lbf.in for AWG 12...AWG 10 (copper or aluminium) load Lug 35 lbf.in for AWG 14 (copper) load Lug 120 lbf.in for AWG 6...AWG 2/0 (copper or aluminium) line Lug 120 lbf.in for AWG 6...AWG 2/0 (copper or aluminium) load
Wire stripping length	0.5 in line connection 0.5 in load connection
Height	2.88 in
Width	1.94 in

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

Depth	1.78 in
Product compatibility	9080LB23

### Environment

Product certifications	CE CSA file 70361 class 6228 01 UL recognized E60616 CCN XCFR2
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### Ordering and shipping details

Category	21711 - 9080 LB
Discount Schedule	CP1
GTIN	00785901097440
Nbr. of units in pkg.	4
Package weight(Lbs)	0.47000000000000003
Returnability	Y
Country of origin	US

### Offer Sustainability

RoHS (date code: YYWW)	Compliant - since 0620 - Schneider Electric declaration of conformity <a href="#">Schneider Electric declaration of conformity</a>
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### Contractual warranty

Warranty period	18 months
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# Product data sheet

## Characteristics

# 9080LB23



## Power Distribution Block Covers for 9080LBA362 or 9080LBC362 blocks

Product availability : Stock - Normally stocked in distribution facility



Price\* : 15.80 USD



### Main

Range of product	9080LB
Product or component type	Cover
Fixing mode	Screwed
Quantity per set	Set of 5

### Complementary

Height	2.75 in
Width	2.69 in
Depth	0.06 in

### Ordering and shipping details

Category	21711 - 9080 LB
Discount Schedule	CP1
GTIN	00785901139317
Nbr. of units in pkg.	5
Package weight(Lbs)	0.02
Returnability	Y
Country of origin	US

### Offer Sustainability

RoHS (date code: YYWW)	Compliant - since 0620 - Schneider Electric declaration of conformity <a href="#">Schneider Electric declaration of conformity</a>
------------------------	---

### Contractual warranty

Warranty period	18 months
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**Dual-Rated  
T&B Catalog Number:**

ADR21-21



**UPC Number:**

78378661009

**Status:**

Active

**Description:**

Type ADR-ALCUL Two-Conductor, One-Hole Mount for Conductor Range Max 2/0 Str., Min 14 AWG

**Features**

Easy Installation - no special tools required.

**General**

Style	ALCUL Two-Conductor, One-Hole Mount
Material	Aluminum
Plating	Tin-Plated
Conductor Range (AL or CU) Maximum	2/0 Str.
Conductor Range (AL or CU) Minimum	14 AWG

**Dimension Information**

Length (inches)	1 15/32
Width (inches)	1 1/4
Height (inches)	25/32
D (inches)	27/64
E (inches)	1/4
F (inches)	3/16
G (inches)	27/32
I (inches)	21/32

**Packaging**

T&B Inner Pack	12
Package in Units	120
T&B Sold in UOM	Each
T&B Weight Per UOM	6.5 lbs. per 100

**Notes**

UL 486B tested, AL9CU rated

**Certifications**

RoHS Compliance	Yes
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**Certifications**



File Nbr:

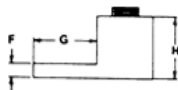
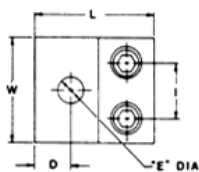
E9809

**For further technical assistance, please contact us...**

Thomas & Betts - USA  
8155 T&B Blvd.  
Memphis, TN 38125  
www.tnb.com

T&B Technical Support  
MS 3B-50  
8155 T&B Blvd.  
Memphis, TN 38125

Hours: 7AM - 6PM CDT  
Monday-Friday  
Phone: (888) 862-3289  
Fax: (901) 252-1321  
Email:techsupport@tnb.com





## PRODUCT INFORMATION

SKU: KDRH3L. Categories: Input, Line Reactor, KDR.

## SPECIFICATIONS



### KDRH3L

KDR, 480V, 150A, 100HP, 3 Phase, Open, Input Line Inductor, Low Impedance, UL Listed

<b>Rated Voltage</b>	480
<b>Hertz (Hz)</b>	50/60
<b>Horsepower (HP)</b>	100
<b>Phase</b>	3
<b>Amps</b>	150
<b>Impedance Value</b>	3% Low Z
<b>UL</b>	UL Listed
<b>Enclosure Type</b>	Open
<b>Watts Loss</b>	225
<b>Country of Origin</b>	US
<b>RoHS Indicator</b>	Compliant
<b>Dimensions</b>	Height: 7 in Width: 11 in Depth: 7 in
<b>Weight</b>	40 lbs

Contact TCI for more information or to place an order:  
800-824-8282 | sales@transcoil.com | transcoil.com



## PRODUCT INFORMATION



SKU: KDRF2L. Categories: Input, Line Reactor, KDR.

## SPECIFICATIONS



### KDRF2L

KDR, 480V, 65A, 50HP, 3 Phase, Open, Input Line Inductor, Low Impedance, UL Listed

<b>Rated Voltage</b>	480
<b>Hertz (Hz)</b>	50/60
<b>Horsepower (HP)</b>	50
<b>Phase</b>	3
<b>Amps</b>	65
<b>Impedance Value</b>	Low Z
<b>UL</b>	UL Listed
<b>Enclosure Type</b>	Open
<b>Watts Loss</b>	114
<b>Country of Origin</b>	US
<b>RoHS Indicator</b>	Compliant
<b>Dimensions</b>	Height: 7 in Width: 9 in Depth: 6 in
<b>Weight</b>	25 lbs

Contact TCI for more information or to place an order:  
800-824-8282 | sales@transcoil.com | transcoil.com



Eaton 9SX (700-3000 VA) UPS 

The Eaton 9SX network UPS boasts an easy-to-read LCD display, double conversion topology and an internal static bypass, all in a convenient tower form. Compatible with Eaton's network connectivity cards and Intelligent Power Management (IPM) software, this UPS is a vital piece of any physical or virtualized IT environment.




- Technical Specs
- Features
- Documentation
- Options
- Service & Support

Eaton 9SX - Technical Specifications

Product Snapshot

Power Rating	700-3000 VA
Voltage	120, 208V
Frequency	50/60HZ
Topology	Double conversion
Configuration	Tower

UPS Models


Part Number	Power Rating (VA/Watts)	Input Plug	Output Receptacles	Canadian List Price
<b>9SX North American tower models: 120V, 50/60 Hz</b>				
<a href="#">9SX700</a>	700 / 630	5-15P	(6) 5-15R	\$1,400
<a href="#">9SX1000</a>	1000 / 900	5-15P	(6) 5-15R	\$1,759
 <a href="#">9SX1500</a>	1500 / 1350	5-15P	(6) 5-15R	\$2,444
<a href="#">9SX2000</a>	1960 / 1770	5-20P	(6) 5-20R, (1) L5-20R	\$3,143
<a href="#">9SX3000</a>	3000 / 2700	L5-30P	(4) 5-20R, (1) L5-30R	\$5,131
<a href="#">9SX3000HW</a>	3000 / 2700	Hardwired	Hardwired	\$5,131
<b>9SX Global tower models: 208V, 50/60 Hz</b>				
<a href="#">9SX1000G</a>	1000 / 900	C14	(6) C13	\$1,759
<a href="#">9SX1500G</a>	1500 / 1350	C14	(6) C13	\$2,444
<a href="#">9SX2000G</a>	2000 / 1800	C14 / L6-20P	(8) C13	\$3,143
<a href="#">9SX3000G</a>	3000 / 2700	C20 / L6-20P	(8) C13, (1) C19	\$5,131
<a href="#">9SX3000GL</a>	3000 / 2700	C20 / L6-20P	(2) 6-20R, (2) L6-20R, (1) L6-30R	\$5,131

Eaton 9SX - Features

- Reduces total cost of ownership thanks to a 0.9 power factor and highly efficient energy usage.
- Eaton's advanced LCD menu displays alarm history, energy logs, unit serial numbers and firmware versions making first-time issue resolution easy.
- Provides up to 28 percent more wattage compared to traditional UPSs, which allows for more connected devices.
- Increases battery service life by 50 percent with ABM technology.
- Compatible with IPM software and Eaton connectivity cards make it possible to monitor and manage UPSs and connect devices remotely.
- Add up to 4 external hot-swappable battery modules for increased battery runtime.
- Easy integration within Virtual environment (VMware, HyperV, RedHat, Citrix)

Eaton 9SX - Documentation

Product Literature -

 <a href="#">Eaton 9SX UPS brochure</a> English (US)	31-Oct-2019	550 kB
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Manual(s) -

 <a href="#">Eaton 9SX UPS installation and user manual</a> English	23-Oct-2018	9901 kB
<a href="#">Eaton 9SX UPS installation and user manual</a>	23-Oct-2018	10132 kB



### 9SXEBM48



Eaton 9SX extended battery module (EBM).  
9.9"Hx6.3"Wx15.1"D, 52.9 lb. Used with, 9SX1500  
9SX1500G  
List price \$935

**\* List Prices are not a reflection of the actual product Street Price. Check with your Eaton reseller or partner to get actual pricing**

Contact me about this product (/content/eaton/us/en-us/support/backup-power-ups-surge-it-power-distribution/contact-me-pq.html/content/eaton/us/en-us/catalog/backup-power-ups-surge-it-power-distribution/eaton-9sx-ups.SKUID.9SXEBM48)

[View StorageReview.com review](https://www.storagereview.com/eaton_9sx3000_ups_review)  
(https://www.storagereview.com/eaton\_9sx3000\_ups\_review)



### Need product support?

#### Contact me

Phone: (800) 356-5737 (\_tel\_ 1-800-356-5737)

Or visit our tech support knowledge base (<http://pqcustomersupport.eaton.com/>)

## Specifications

### GENERAL SPECIFICATIONS

#### PRODUCT NAME

Eaton 9SX extended battery module (EBM)

#### CATALOG NUMBER

9SXEBM48

#### UPC

743172091055

#### PRODUCT LENGTH/DEPTH

15.1 IN

#### PRODUCT HEIGHT

9.9 IN

### ENVIRONMENTAL

#### TEMPERATURE RANGE

0° to 40°C (32° to 104°F)

### ADDITIONAL SPECIFICATIONS

#### FORM FACTOR

Tower

#### CONSTRUCTION TYPE

Free standing model

#### PACKAGE CONTENTS

EHBPL1500R-PDU1U 

### List Pricing

Canadian List Price	\$516
---------------------	-------

### General

Style Number	58115
Part Number	EHBPL1500R-PDU1U
Product Code	50005
Availability	Top Sellers 0-2 week lead time
U Height	1
MIB	N/A

### Physical

Dimensions (H x W x D, inches)	Box: 2.76 x 7.48 x 18.7 Unit: 2.1 x 17.3 x 3.8
Mounting Style	Horizontal
Form factor	2U

### Input

Max kW	1.44
Plug	(1) NEMA 5-15P
	
Cable Length (ft)	3'
Voltage	1-Phase 110-125
Current	12A
Current Monitoring	None
Phase	Single Phase

### Output

Outlets

**CUSTOM**

**F-UPS STAND 17 x 7 x 4**

**UPS STAND, ALUMINUM**

**17"H x 7"W x 4"H**

## PILOT LIGHT DEVICES

### TYPE 4/13 METAL (800T)

### TYPE 4/4X/13 PLASTIC (800H)

#### STANDARD TYPE

#### PUSH-TO-TEST

#### STANDARD TYPE

#### PUSH-TO-TEST

TYPE	COLOR	800T-QH2R	800T-QTH2R	800H-QRH2R	800H-QRTH2R
<ul style="list-style-type: none"> <li>UNIVERSAL LED</li> <li>12-130V AC/DC</li> </ul>	●	800T-QH2R	800T-QTH2R	800H-QRH2R	800H-QRTH2R
	●	800T-QH2G	800T-QTH2G	800H-QRH2G	800H-QRTH2G
	●	800T-QH2A	800T-QTH2A	800H-QRH2A	800H-QRTH2A
<ul style="list-style-type: none"> <li>TRANSFORMER</li> <li>LED</li> <li>120V AC, 50/60 HZ</li> </ul>	●	800T-PH16R	800T-PTH16R	800H-PRH16R	800H-PRTH16R
	●	800T-PH16G	800T-PTH16G	800H-PRH16G	800H-PRTH16G
	●	800T-PH16A	800T-PTH16A	800H-PRH16A	800H-PRTH16A



For a full product offering, please refer to the Industrial Controls catalog or contact your local Rockwell Automation sales office or Allen-Bradley distributor. You can also visit our website at: [www.ab.com/components](http://www.ab.com/components).

## EMERGENCY-STOP & I

### 2-POSITION PUSH-PULL AND PUSH-PULL/TWIST RELEASE, NON-ILLUMINATED

#### TYPE 4/13 METAL (800T)

#### TYPE 4/4X/13 PLASTIC (800H)

#### CONTACT CONFIGURATION

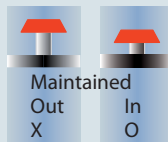
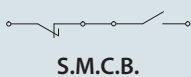
#### OPERATOR POSITION

#### RED PUSH-PULL

#### RED PUSH-PULL

#### RED PUSH-PULL/ TWIST RELEASE

#### RED PUSH- PULL/ TWIST RELEASE



800TC-FXLE6D4S



800T-FX6D4



800T-FXT6D4



800H-FRXT6D4




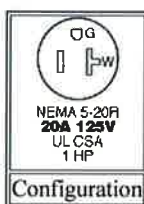
→ HBL53CM61 -- Straight Blade Receptacle



HBL53CM61

Single version of #HBL53CM62 duplex yellow receptacle .

Product Specifications	
Product Type	Straight Blade Receptacles
Rating	20A 125V, 2p3w
Blade Type	Straight Blade
Receptacle Type	Corrosion Resistant
Receptacle Style	Single
Color	 Yellow
Poles and Wires	2 Pole, 3 Wire Grounding
Approvals	UL
UPC Number	78358580832
Weight in LBs	0.2
Link to Drawing Library	<a href="#">Click here for Library</a>
Link to PDF Catalog	<a href="#">Click here for Catalog</a>



## Wallplates Single Receptacle Wallplates

# HUBBELL



### Features

- Ideal for highly corrosive environments
- Non-magnetic
- Protective plastic film helps to prevent scratches and damage
- 1-Single 1.40 in. (35.6) Diameter Opening



### Ordering Information

Description	Catalog Number	UPC
1-Gang, 1-Single Receptacle Opening, 1.40" (35.6) Dia. Hole	 <b>SS7</b>	883778201103

### Listings

UL Listed  
CSA Certified

### Specifications

Plate Material	Stainless steel 302/304
Plate Type	Wall Plate
Plate Openings	Single Receptacle
Mounting Screws	302/304 SS, Slotted Head
Appearance	Horizontal brushed finish

### Online Resources

[eCatalog](#)

Dimensions in Inches (mm)

Hubbell Wiring Device-Kellems • Hubbell Incorporated (Delaware) • 40 Waterview Drive • Shelton, CT 06484

Phone (800) 288-6000 • Fax (800) 255-1031 • Specifications subject to change without notice.



**SINGLE-GANG BOXES  
DIE CAST ALUMINUM**



**Applications**

- For use in branch circuit wiring in wet, damp, or dry locations
- May be used as a weatherproof junction box, or as a housing for receptacles, switches, and GFCI's

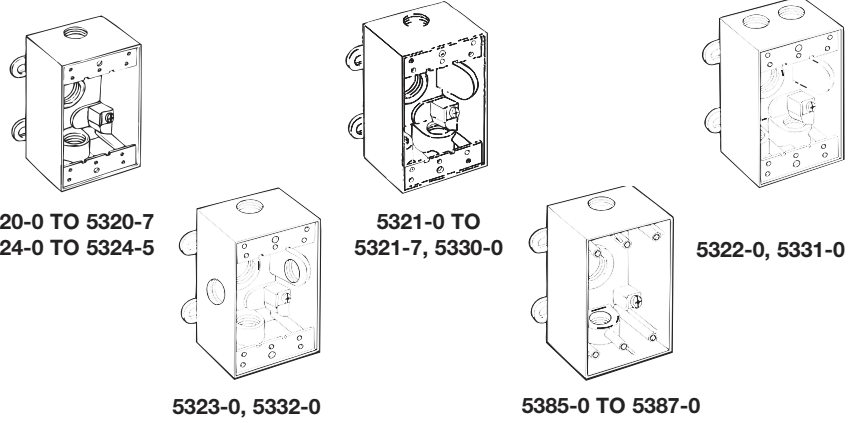
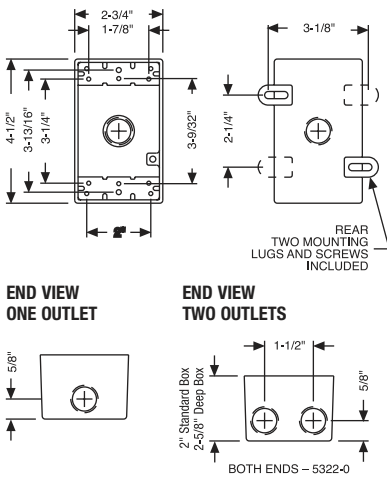
**Product Features**

- Reinforced connector outlets
- State-of-the-art powder coat finish
- Eight box mounting options with detachable lugs provided
- Two closure plugs included
- Ground screw installed
- Multi-lingual instructions in each package

**Compliances**

- - Standard 514A
- - C22.2 No. 18
- NEMA 3R Rated

**SINGLE-GANG BOXES: GENERAL DIMENSIONS**



**ORDERING INFORMATION - DIMENSIONS**

2" DEEP, WITH LUGS - THREE THREADED OUTLETS - 4-1/2" x 2-3/4"						
CATALOG NUMBER	CUBIC IN.	DESCRIPTION		PKG. TYPE	STD. PKG.	UPC BAR CODE
		COLOR	OUTLETS			
5320-0	17.5	Gray	3-1/2"	Shrink	20	■■■■■
5320-1	17.5	White	3-1/2"	Shrink	20	■■■■■
5320-2	17.5	Bronze	3-1/2"	Shrink	20	■■■■■
5320-5	17.5	Gray	3-1/2"	Carded	6	■■■■■
5320-6	17.5	White	3-1/2"	Carded	6	■■■■■
5320-7	17.5	Bronze	3-1/2"	Carded	6	■■■■■
5324-0	17.0	Gray	3-3/4"	Shrink	20	■■■■■
5324-5	17.0	Gray	3-3/4"	Carded	6	■■■■■

2" DEEP, WITH LUGS - FOUR THREADED OUTLETS - 4-1/2" x 2-3/4"						
CATALOG NUMBER	CUBIC IN.	DESCRIPTION		PKG. TYPE	STD. PKG.	UPC BAR CODE
		COLOR	OUTLETS			
5321-0	17.0	Gray	4-1/2"	Shrink	20	■■■■■
5321-1	17.0	White	4-1/2"	Shrink	20	■■■■■
5321-2	17.0	Bronze	4-1/2"	Shrink	20	■■■■■
5321-5	17.0	Gray	4-1/2"	Carded	6	■■■■■
5321-6	17.0	White	4-1/2"	Carded	6	■■■■■
5321-7	17.0	Bronze	4-1/2"	Carded	6	■■■■■
5330-0	16.5	Gray	4-3/4"	Shrink	20	■■■■■

2" DEEP, WITH LUGS - FIVE THREADED OUTLETS - 4-1/2" x 2-3/4"						
CATALOG NUMBER	CUBIC IN.	DESCRIPTION		PKG. TYPE	STD. PKG.	UPC BAR CODE
		COLOR	OUTLETS			
5322-0	16.5	Gray	5-1/2"	Shrink	20	■■■■■
5331-0	16.0	Gray	5-3/4"	Shrink	20	■■■■■
5323-0	17.0	Gray	5-1/2"	Shrink	20	■■■■■
5332-0	16.5	Gray	5-3/4"	Shrink	20	■■■■■

2-5/8" DEEP, WITH LUGS - THREE THREADED OUTLETS - 4-1/2" x 2-3/4"						
CATALOG NUMBER	CUBIC IN.	DESCRIPTION		PKG. TYPE	STD. PKG.	UPC BAR CODE
		COLOR	OUTLETS			
5385-0	21.3	Gray	3-1/2"	Shrink	15	■■■■■
5386-0	21.3	Gray	3-3/4"	Shrink	15	■■■■■
5387-0	21.3	Gray	3-1"	Shrink	15	■■■■■

WEATHERPROOF BOXES,  
COVERS AND LIGHTING



## E90CC Series Fuseholders



E90CC Fuseholders



**ABB is pleased to announce the release of the UL approved E90CC fuseholders with rejection.**

Class CC fuses have limiting characteristics dedicated to terminal protection of components and apparatuses against short-term overloads and to protect motors against short-circuit. Maximum rated current of a Class CC fuse is 30A at a maximum rated voltage of 600V. The breaking capacity reaches 200 kA.

The limiting properties of the Class CC fuses are particularly appreciated in the North American market, allowing suitable protection of equipment with limited resistance to short circuit. The use of Class CC fuses is continuously increasing in the American market, as the safety and reliability prescriptions of end users have become stricter and do not tolerate any permanent damage to motor starts.

### Product range

The E90CC fuseholders are DIN rail mountable, available in 1, 1N, 2, 3, 3N and 4 pole versions and feature optional blown fuse indication.

### Features

- UL Listed according to UL 4248-1 and 4248-4
- Rejection member to allow the insertion of Class CC fuses only
- Rated voltage: 600V AC/DC
- Rated current: 30A
- 1, 1N, 2, 3, 3N and 4 pole versions



Technical data		E91/30CC	E91/30CCs	E91N/30CC	E91N/30CCs	E92/30CC	E92/30CCs	E93/30CC	E93/30CCs	E93N/30CC	E93N/30CCs	E94/30CC	E94/30CCs
Number of poles		1	1	1+N	1+N	2	2	3	3	3+N	3+N	4	4
Fuse size	mm	10.4 x 38.1 Class CC											
Rated current	A	30											
Rated voltage	V	600 AC/DC											
Short circuit current	kA	200											
Rated frequency	Hz	60											
Tightening torque	in-lb	PZ2 18-22											
	Nm	PZ2 2-2.5											
Protection degree		IP20											
Terminal cross section	mm <sup>2</sup>	25											
Wire range - solid copper conductors	AWG	16-10											
Wire range - stranded copper conductors	AWG	16-3											
Padlockable (when open)		Yes											
Sealable (when closed)		Yes											
Blown fuse indicator		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Approvals		UL 4248-1 and 4248-4											
Marking		cULus and CSA											

# CC-TRON®

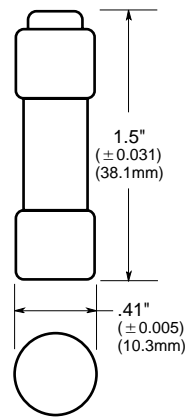
# FNQ-R

## Time-Delay Fuses

1 3/32" x 1 1/2", 600 Volt, 1/4 to 30 Amps



### Dimensional Data



### General Information:

- The Bussmann CC-TRON® (FNQ-R) was designed to meet the needs of control circuit transformer protection.
- Current-limitation protects down stream components against damaging thermal and magnetic effects of short-circuit currents.
- **High inrush time-delay.** Control circuit transformers can experience inrush currents up to 85 times their full-load current rating. FNQ-R fuses can be sized according to NEC and UL requirements and still allow the high inrush currents, with significantly more time-delay than the UL minimum value of 12 seconds at 200% for Class CC fuses.
- Melamine tube. Nickel-plated brass endcaps.

Catalog Symbol: FNQ-R

Time-Delay

Application: Circuit Transformer Protection

Ampere Rating: 1/4 to 30A

Voltage Rating: 600Vac (or less)†

Interrupting Rating: 200,000A RMS Sym. (UL)

Agency Information:

UL Listed, Std. 248-4, Class CC, Guide JDDZ, File E4273

CSA Certified, Class CC CSA, Class 1422-01,

File 53787-HRC-MISC

†12-30A is 300Vdc and 10k AIR.

### Maximum Acceptable Rating of Overcurrent Device\*

Rated Primary Current (Amperes)	Maximum Rating of Overcurrent Protective Device Expressed As A Percent of Transformer Primary Current Rating
Less than 2A	500**
2A to less than 9A	167
9A or more	125

\*UL 508A Table 42.1.

\*\*300% for other than motor control applications.

CE CE logo denotes compliance with European Union Low Voltage Directive (50-1000Vac, 75-1500Vdc). Refer to Data Sheet: 8002 or contact Bussmann Application Engineering at 636-527-1270 for more information.

### Electrical Ratings (Catalog Symbol and Amperes)

FNQ-R-1/4	FNQ-R-1 3/10	FNQ-R-3 2/10	FNQ-R-8
FNQ-R-3/10	FNQ-R-1 1/10	FNQ-R-3 1/2	FNQ-R-9
FNQ-R-4/10	FNQ-R-1 1/2	FNQ-R-4	FNQ-R-10
FNQ-R-1/2	FNQ-R-1 9/10	FNQ-R-4 1/2	FNQ-R-12
FNQ-R-5/10	FNQ-R-1 8/10	FNQ-R-5	FNQ-R-15
FNQ-R-3/4	FNQ-R-2	FNQ-R-5 8/10	FNQ-R-17 1/2
FNQ-R-8/10	FNQ-R-2 1/4	FNQ-R-6	FNQ-R-20
FNQ-R-1	FNQ-R-2 1/2	FNQ-R-6 1/4	FNQ-R-25
FNQ-R-1 1/8	FNQ-R-2 9/10	FNQ-R-7	FNQ-R-30
FNQ-R-1 1/4	FNQ-R-3	FNQ-R-7 1/2	—

### Carton Quantity and Weight

Ampere Ratings	Carton Qty.	Weight*	
		Lbs.	Kg.
1/4-30	10	.200	.091

\*Weight per carton



### Technical Characteristics

Insulation Temperature	180 Degrees C
Application	Specifically designed to handle high inrush associated with contactors and relays for applications such as conveyor systems, paint lines, punch presses or overhead cranes
Approvals	UL Listed File Number: E61239 - CSA Certified File Number: LR37055 Guide: 184-N-90 - CE Marked
Catalog Reference Number	9070CT9901
Enclosure Type	Open
Winding Material	Copper
Secondary	120V or 115V or 110V
Type	T
Fuse Block	None
Depth	6.86 Inches
Phase	1-Phase
Mounting Type	Panel
Width	9.00 Inches
Rating	3000VA
Terminal Type	Screw Clamp
Temperature Rise	115 Degrees C
Height	8.46 Inches
Primary	240x480V or 230x460V or 220x440V

### Shipping and Ordering

Category	16205 - Transformers, Industrial Control, 3000 - 5000 va, Type T
Discount Schedule	CP8
Article Number	785901876083
Package Quantity	1
Weight	59.81 lbs.
Availability Code	Stock Item: This item is normally stocked in our distribution facility.
Returnability	Y

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

# Industrial Control Transformers

Catalog  
August

# 05

Class 9070



## CONTENTS

Description . . . . .	Page
Product Description . . . . .	3
Type T Transformers . . . . .	4
Type EO Transformers . . . . .	27
Fuse Protection . . . . .	35
Type TF Transformers . . . . .	42
Field Installed Fuse Options . . . . .	44
Application . . . . .	55
Frequently Asked Questions . . . . .	58



**ITEM NUMBER 47 NOT USED**



**ITEM NUMBER 48 NOT USED**

**ITEM NUMBER 49 NOT USED**

**ITEM NUMBER 50 NOT USED**