

# **Heat Exchanger Controls**

## **Submittal for Glycol Heater Panel**

**Prepared by:**

**Your Company**

**Your Address**

**Panel Job: 2013-465**

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**CONCEPT™, TYPE 4 AND 12**

**INDUSTRY STANDARDS**

Wall-mounting brackets required to maintain UL/CSA external mounting requirement.

**CONCEPT solid single-door, door with window and flush-mount models**

UL 508A Listed; Type 4, 12; File No. E61997  
 cUL Listed per CSA C22.2 No. 94; Type 4, 12; File No. E61997

NEMA/EEMAC Type 4, 12, 13  
 CSA, File No. 42186; Type 4, 12  
 VDE IP66  
 IEC 60529, IP66

**CONCEPT two-door models**

UL 508A Listed; Type 12; File No. E61997  
 cUL Listed per CSA C22.2 No. 94; Type 12; File No. E61997

NEMA/EEMAC Type 12  
 CSA, File No. 42186, Type 12  
 VDE IP 55  
 IEC 60529, IP55

**APPLICATION**

CONCEPT™ Enclosures are ideal for machine control applications. With streamlined styling, flush quarter-turn latches and an attractive, durable finish. Available in solid or window single-door and two-door landscape, flush-mount and sloped-top versions for application and mounting flexibility. Two-door landscape models provide full-width access and easy panel installation.

**SPECIFICATIONS**

- 14, 16 or 18 gauge steel (see table)
- Seams continuously welded and ground smooth
- Corner-formed doors
- Simple easy-to-remove and install hinge pins with built-in captivation clip
- High-torque threadless studs and fasteners on door
- Minimum-width body flange provides maximum door opening (210 degrees)
- External formed body flange
- Panel mounting studs fit optional CONCEPT panels and other accessories
- Mounting holes in back of body for optional external wall-mount brackets
- Hidden hinges
- Doors are interchangeable and easily removed by pulling clip-style hinge pins
- Seamless foam-in-place gasket
- Quarter-turn slotted latch(es)
- Door alignment device on doors wider than 30 in.
- Four hinges on 60-in.-high enclosures
- Grounding stud on body; bonding provision on door (except window-door models)
- Provisions for thermoplastic data pocket (right-hand hinged door on two-door models)
- Hardware kit with panel mounting nuts, panel grounding hardware and sealing washers
- Single-door enclosures have a three-point latch system on enclosures where A is equal to or greater than 42-in. with quarter-turn, slotted latch
- Window-door enclosures have a clear polycarbonate window flush with door surface
- Mounting frame on flush-mount enclosures extends completely around enclosure
- Two-door enclosures have an overlapping door design which provides full-width access
- Two door enclosures have a three-point latch system on right-hand hinged door furnished with flush slotted insert
- Illustrated instruction sheet

**FINISH**

Two standard finishes are available: ANSI 61 gray or RAL 7035 textured light-gray polyester powder paint inside and out.

**ACCESSORIES**

Door Stop Kit  
 Handles  
 Lock Inserts  
 CONCEPT™ Panels  
 Mounting-Bracket Kits

**MODIFICATION AND CUSTOMIZATION**

Hoffman excels at modifying and customizing products to your specifications. Contact your local Hoffman sales office or distributor for complete information.

**BULLETIN: CW1**



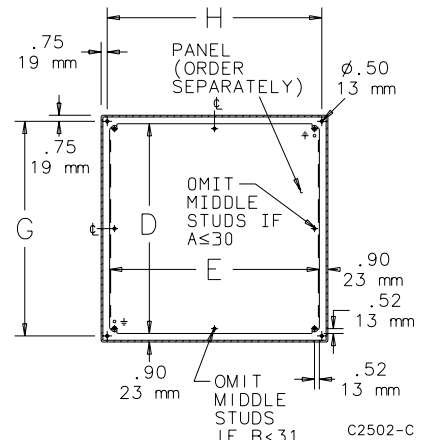
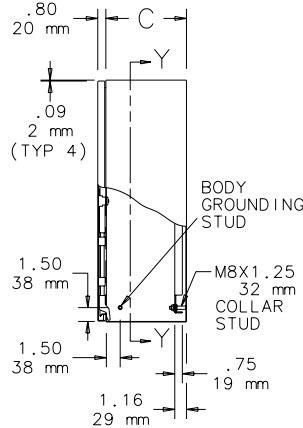
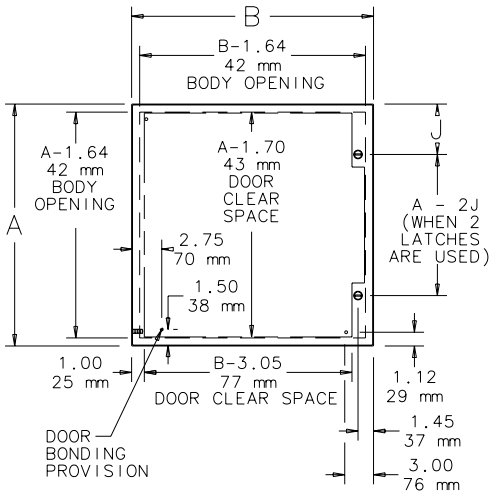




Catalog Number	AxBxC in./mm	Finish	Door Ga.	Body Ga.	CONCEPT Panel	Conductive CONCEPT Panel	Panel Size D x E in./mm	Mounting G x H in./mm	Latches qty.	Latches style	J in./mm
CSD363016	36.00 x 30.00 x 16.00 914 x 762 x 406	ANSI 61 Gray	14	14	CP3630	CP3630G	34.20 x 28.20 869 x 716	34.50 x 28.50 876 x 724	2	Quarter-turn	5.00 127
CSD363016LG	36.00 x 30.00 x 16.00 914 x 762 x 406	RAL 7035 Lt. Gray	14	14	CP3630	CP3630G	34.20 x 28.20 869 x 716	34.50 x 28.50 876 x 724	2	Quarter-turn	5.00 127
CSD483616	48.00 x 36.00 x 16.00 1219 x 914 x 406	ANSI 61 Gray	14	14	CP4836	CP4836G	46.20 x 34.20 1173 x 869	46.50 x 34.50 1181 x 876	1	3-point	24.00 610
CSD483616LG	48.00 x 36.00 x 16.00 1219 x 914 x 406	RAL 7035 Lt. Gray	14	14	CP4836	CP4836G	46.20 x 34.20 1173 x 869	46.50 x 34.50 1181 x 876	1	3-point	24.00 610
CSD242420	24.00 x 24.00 x 20.00 610 x 610 x 508	ANSI 61 Gray	14	14	CP2424	CP2424G	22.20 x 22.20 564 x 564	22.50 x 22.50 572 x 572	2	Quarter-turn	5.00 127
CSD242420LG	24.00 x 24.00 x 20.00 610 x 610 x 508	RAL 7035 Lt. Gray	14	14	CP2424	CP2424G	22.20 x 22.20 564 x 564	22.50 x 22.50 572 x 572	2	Quarter-turn	5.00 127
CSD302420	30.00 x 24.00 x 20.00 762 x 610 x 508	ANSI 61 Gray	14	14	CP3024	CP3024G	28.20 x 22.20 716 x 564	28.50 x 22.50 724 x 572	2	Quarter-turn	5.00 127
CSD302420LG	30.00 x 24.00 x 20.00 762 x 610 x 508	RAL 7035 Lt. Gray	14	14	CP3024	CP3024G	28.20 x 22.20 716 x 564	28.50 x 22.50 724 x 572	2	Quarter-turn	5.00 127
CSD363020	36.00 x 30.00 x 20.00 914 x 762 x 508	ANSI 61 Gray	14	14	CP3630	CP3630G	34.20 x 28.20 869 x 716	34.50 x 28.50 876 x 724	2	Quarter-turn	5.00 127
CSD363020LG	36.00 x 30.00 x 20.00 914 x 762 x 508	RAL 7035 Lt. Gray	14	14	CP3630	CP3630G	34.20 x 28.20 869 x 716	34.50 x 28.50 876 x 724	2	Quarter-turn	5.00 127

Purchase panels separately.

Optional NEMA-size panels require conversion kit Catalog Number CCPM4.



SECTION Y-Y  
(WITH PANEL INSTALLED)



### Hol-Tite® Oil Tight Hole Seals

Extra pushbutton holes, conduit openings, and knockout openings are sealed against dust, dirt, oil, and water with Hoffman Hol-Tite® Seals. Seals will cover any size or shape of

hole from .19-inch diameter to maximum diameter shown in table. Can be used on enclosure walls up to .31-inch thick.

#### Steel Hole Seals

- 12 sizes
- Gray finish over galvanizing
- Galvanized back plate
- Stud (#10-32x<sup>5</sup>/<sub>8</sub>) and wing nut are zinc plated
- Oil resistant gasket
- UL Component Recognized Type 4, Type 12, and Type 13
- CSA Type 4, Type 12, and Type 13

#### Stainless Steel Hole Seals

- 8 sizes
- Polished front surface
- Seal, backplate, stud (#10-24x<sup>5</sup>/<sub>8</sub>) and wing nut are 300 series stainless steel
- Oil resistant gasket
- UL Component Recognized Type 4, Type 4X, Type 12, and Type 13
- CSA Type 4, Type 4X, Type 12, and Type 13



Steel Catalog Number	Stainless Steel Catalog Number	For	Maximum Hole Diameter	Hol-Tite Diameter
A-SPBG	A-SPBGSS	22.5mm oil-tight pushbutton holes	0.88 (22)	1.22 (31)
A-S050	A-S050SS	1/2-inch conduit holes	0.88 (22)	1.38 (35)
A-S075	A-S075SS	3/4-inch conduit holes	1.06 (27)	1.56 (40)
A-SPB	A-SPBSS	30.5mm oil-tight pushbutton holes	1.25 (32)	1.75 (44)
A-S100	A-S100SS	1-inch conduit holes	1.38 (35)	1.88 (48)
A-S125	A-S125SS	1 1/4-inch conduit holes	1.69 (43)	2.19 (56)
A-S150	A-S150SS	1 1/2-inch conduit holes	2.00 (51)	2.50 (64)
A-S200	A-S200SS	2-inch conduit holes	2.50 (64)	3.00 (76)
A-S250	—	2 1/2-inch conduit holes	3.00 (76)	3.50 (89)
A-S300	—	3-inch conduit holes	3.62 (92)	4.12 (105)
A-S350	—	3 1/2-inch conduit holes	4.12 (105)	4.62 (117)
A-S400	—	4-inch conduit holes	4.62 (117)	5.12 (130)



### Touch-Up Paint

Hoffman Touch-Up Paint is used to repair the finish of enclosures and panels. Furnished in 12oz. spray cans.

Catalog Number	Color
A-TPGRAYX	Gray Epoxy
A-TPOSA	OSHA Orange Enamel
A-TPHE	Gray Hammerstone Enamel
A-TPWE	White Enamel
A-TPW60HGS	White Enamel for Bulletin Numbers A12L, A4L, A30, A27, and Catalog Numbers A-723612LP, A-424212WFLP, A-424812WFLP, A-426012WFLP, and A-484812WFLP
A-TPSG	Gray Enamel
A-TPHSGP	High Solids Gray
A-TPPY61	ANSI 61 Gray for Polyester Powder
A-TPG15GLS	ANSI 61 Gray for Bulletin Numbers A12L, A4L, A30, A27, and Catalog Numbers A-723612LP, A-424212WFLP, A-424812WFLP, A-426012WFLP, and A-484812WFLP
A-TPDLB	DesignLine Beige Enamel
A-TPDLBR	DesignLine Dark Brown Enamel
A-TPMG	Light Gray for Polyester Powder
A-TPHS61	High Solids ANSI 61 Gray
A-TPFG	Light Gray for fiberglass
A-TPG7035	RAL 7035 Gray
A-TPG7032	RAL 7032 Gray
A-TPB7021	RAL 7021 Black



**Bulletin 140U**  
**Molded Case Circuit Breakers**  
**Product Selection — 125 A, H-Frame**

- UL 489
- CSA 22.2, No. 5
- IEC 60947-2
- CE
- KEMA-KEUR
- Terminal box lugs provided as standard



**25/25 kA, Thermal-Magnetic, Fixed Thermal-Fixed Magnetic**

Rated Current $I_n$ [A]	Thermal Trip [A] $I_r = I_n$ (Fixed)	Magnetic Trip [A] $I_m = 10 \times I_n$	Breaking Capacity (50 Hz) $I_{cu} / I_{cs}$ [kA]								Interrupting Rating (60 Hz) [kA]			Cat. No.
			220...240V		380...415V		500V		690V		240V	480V	600/347V	
15	15	500	35	35	25	25	22	17	3	3	35	25	18	140U-H2C3-C15
20	20	500	35	35	25	25	22	17	3	3	35	25	18	140U-H2C3-C20
25	25	500	35	35	25	25	22	17	3	3	35	25	18	140U-H2C3-C25
30	30	500	35	35	25	25	22	17	3	3	35	25	18	140U-H2C3-C30
35	35	500	35	35	25	25	22	17	3	3	35	25	18	140U-H2C3-C35
40	40	500	35	35	25	25	22	17	3	3	35	25	18	140U-H2C3-C40
45	45	500	35	35	25	25	22	17	3	3	35	25	18	140U-H2C3-C45
50	50	500	35	35	25	25	22	17	3	3	35	25	18	140U-H2C3-C50
60	60	600	35	35	25	25	22	17	3	3	35	25	18	140U-H2C3-C60
70	70	700	35	35	25	25	22	17	3	3	35	25	18	140U-H2C3-C70
80	80	800	35	35	25	25	22	17	3	3	35	25	18	140U-H2C3-C80
90	90	900	35	35	25	25	22	17	3	3	35	25	18	140U-H2C3-C90
100	100	1000	35	35	25	25	22	17	3	3	35	25	18	140U-H2C3-D10
110	110	1100	35	35	25	25	22	17	3	3	35	25	18	140U-H2C3-D11
125	125	1250	35	35	25	25	22	17	3	3	35	25	18	140U-H2C3-D12

**40/35 kA, Thermal-Magnetic, Fixed Thermal-Fixed Magnetic**

Rated Current $I_n$ [A]	Thermal Trip [A] $I_r = I_n$ (Fixed)	Magnetic Trip [A] $I_m = 10 \times I_n$	Breaking Capacity (50 Hz) $I_{cu} / I_{cs}$ [kA]								Interrupting Rating (60 Hz) [kA]			Cat. No.
			220...240V		380...415V		500V		690V		240V	480V	600/347V	
15	15	500	85	43	40	30	25	18	4	3	85	35	22	140U-H3C3-C15
20	20	500	85	43	40	30	25	18	4	3	85	35	22	140U-H3C3-C20
25	25	500	85	43	40	30	25	18	4	3	85	35	22	140U-H3C3-C25
30	30	500	85	43	40	30	25	18	4	3	85	35	22	140U-H3C3-C30
35	35	500	85	43	40	30	25	18	4	3	85	35	22	140U-H3C3-C35
40	40	500	85	43	40	30	25	18	4	3	85	35	22	140U-H3C3-C40
45	45	500	85	43	40	30	25	18	4	3	85	35	22	140U-H3C3-C45
50	50	500	85	43	40	30	25	18	4	3	85	35	22	140U-H3C3-C50
60	60	600	85	43	40	30	25	18	4	3	85	35	22	140U-H3C3-C60
70	70	700	85	43	40	30	25	18	4	3	85	35	22	140U-H3C3-C70
80	80	800	85	43	40	30	25	18	4	3	85	35	22	140U-H3C3-C80
90	90	900	85	43	40	30	25	18	4	3	85	35	22	140U-H3C3-C90
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110	110	1100	85	43	40	30	25	18	4	3	85	35	22	140U-H3C3-D11
125	125	1250	85	43	40	30	25	18	4	3	85	35	22	140U-H3C3-D12

**70/65 kA, Thermal-Magnetic, Fixed Thermal-Fixed Magnetic**

Rated Current $I_n$ [A]	Thermal Trip [A] $I_r = I_n$ (Fixed)	Magnetic Trip [A] $I_m = 10 \times I_n$	Breaking Capacity (50 Hz) $I_{cu} / I_{cs}$ [kA]								Interrupting Rating (60 Hz) [kA]			Cat. No.
			220...240V		380...415V		500V		690V		240V	480V	600/347V	
15	15	500	100	50	70	35	35	18	6	3	100	65	25	140U-H6C3-C15
20	20	500	100	50	70	35	35	18	6	3	100	65	25	140U-H6C3-C20
25	25	500	100	50	70	35	35	18	6	3	100	65	25	140U-H6C3-C25
30	30	500	100	50	70	35	35	18	6	3	100	65	25	140U-H6C3-C30
35	35	500	100	50	70	35	35	18	6	3	100	65	25	140U-H6C3-C35
40	40	500	100	50	70	35	35	18	6	3	100	65	25	140U-H6C3-C40
45	45	500	100	50	70	35	35	18	6	3	100	65	25	140U-H6C3-C45
50	50	500	100	50	70	35	35	18	6	3	100	65	25	140U-H6C3-C50
60	60	600	100	50	70	35	35	18	6	3	100	65	25	140U-H6C3-C60
70	70	700	100	50	70	35	35	18	6	3	100	65	25	140U-H6C3-C70
80	80	800	100	50	70	35	35	18	6	3	100	65	25	140U-H6C3-C80
90	90	900	100	50	70	35	35	18	6	3	100	65	25	140U-H6C3-C90
100	100	1000	100	50	70	35	35	18	6	3	100	65	25	140U-H6C3-D10
110	110	1100	100	50	70	35	35	18	6	3	100	65	25	140U-H6C3-D11
125	125	1250	100	50	70	35	35	18	6	3	100	65	25	140U-H6C3-D12

**Molded Case Switch — UL 1087**

Rated Current $I_n$ [A]	Thermal Trip $I_r = I_n$ [A]	Magnetic Trip [A] $I_m = 10 \times I_n$	Breaking Capacity (50 Hz) $I_{cu} / I_{cs}$ [kA]								Interrupting Rating (60 Hz) [kA]			Cat. No.
			220...240V		380...415V		500V		690V		240V	480V	600/347V	
125	None	1250	100	50	70	35	35	18	6	3	100	65	25	140U-H6S3-D12

Package Quantity = 1 for all items on this page



## PRODUCT SELECTION

### Variable Depth Rotary Operating Mechanism Kit

Frame Size	Max depth	Color	Catalog Number
G-100A	12 inches (305 mm)	Red	140U-G-RVM12R
	12 inches (305 mm)	Black	140U-G-RVM12B
H-125A	12 inches (305 mm)	Red	140U-H-RVM12R
	12 inches (305 mm)	Black	140U-H-RVM12B
	21 inches (533 mm)	Red	140U-H-RVM21R
	21 inches (533 mm)	Black	140U-H-RVM21B
J-250A	12 inches (305 mm)	Red	140U-J-RVM12R
	12 inches (305 mm)	Black	140U-J-RVM12B
	21 inches (533 mm)	Red	140U-J-RVM21R
	21 inches (533 mm)	Black	140U-J-RVM21B

Frame Size	Max depth	Color	Catalog Number
K-400A	12 inches (305 mm)	Red	140U-K-RVM12R
	12 inches (305 mm)	Black	140U-K-RVM12B
	21 inches (533 mm)	Red	140U-K-RVM21R
	21 inches (533 mm)	Black	140U-K-RVM21B
L-600A	12 inches (305 mm)	Red	140U-L-RVM12R
	12 inches (305 mm)	Black	140U-L-RVM12B
	21 inches (533 mm)	Red	140U-L-RVM21R
	21 inches (533 mm)	Black	140U-L-RVM21B
M-800A	12 inches (305 mm)	Red	140U-M-RVM12R
	12 inches (305 mm)	Black	140U-M-RVM12B
	21 inches (533 mm)	Red	140U-M-RVM21R
	21 inches (533 mm)	Black	140U-M-RVM21B

### Multi-Terminal Lug Kits

Frame	Wires per terminal	Wire size range per terminal	Catalog number (with terminal cover)	Catalog number (without terminal cover)
H-125A	3	14-2 AWG (2...33 mm <sup>2</sup> )	140U-H-MTL3A	140U-H-MTL3AN
	6	14-6 AWG (2...13 mm <sup>2</sup> )	140U-H-MTL6A	140U-H-MTL6AN
J-250A	3	14-2 AWG (2...33 mm <sup>2</sup> )	140U-J-MTL3A	—
	6	14-6 AWG (2...13 mm <sup>2</sup> )	140U-J-MTL6A	—
K-400A	3	12-2/0 AWG (3...67 mm <sup>2</sup> )	140U-K-MTL3A	—
	6	14-3 AWG (2...26mm <sup>2</sup> )	140U-K-MTL6A	—

[www.rockwellautomation.com](http://www.rockwellautomation.com)

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## TYPES KA-U, KKA-U

### UNIVERSAL TERMINAL

(One Conductor)  
For Aluminum and  
Copper Conductors

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



AL9CU

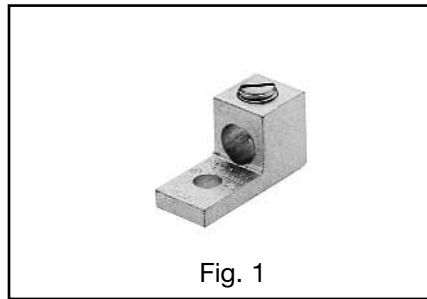


Fig. 1

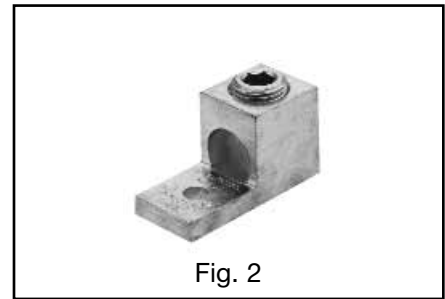


Fig. 2

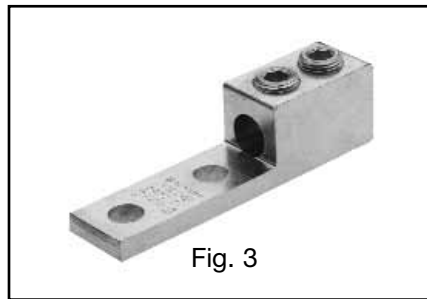


Fig. 3

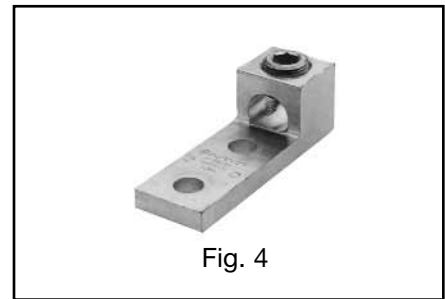
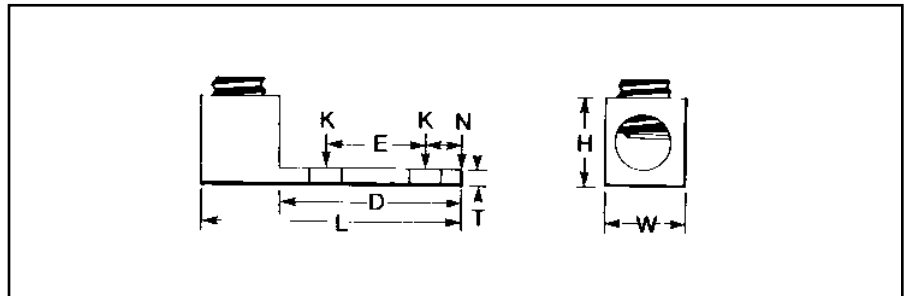


Fig. 4



Catalog Number*	Fig. No.	Wire Range Aluminum or Copper	Stud Hole Size	Dimensions							Recommended Tightening ▲ Torque in-lb
				D	L	N	** W	E	T	** H	
KA6U	1	14 Str. - 6 Str.	1/4	.63	1.06	.25	.50	—	.09	.50	45
KA2U	1	14 Str. - 2 Str.		.63	1.16	.31	.50	—	.10	.55	50
KA25U	1	14 Str. - 1/0 Str.		.81	1.50	.44	.63	—	.19	.80	50
KA26U	2	6 Str. - 2/0 Str.		.81	1.47	.47	.63	—	.19	.80	120
KA29U	2	6 Str. - 250 kcmil	5/16	.94	2.00	.50	1.00	—	.25	1.13	275
KA30U	2	6 Str. - 300 kcmil		.94	2.00	.50	1.00	—	.25	1.12	275
KA31U	2	6 Str. - 350 kcmil	3/8	1.03	2.25	.88	1.13	—	.25	1.25	275
KA34U	2	4 Str. - 500 kcmil		1.50	2.81	.88	1.51	—	.31	1.58	500
KA36U	2	2 Str. - 600 kcmil		1.72	3.19	.78	1.50	—	.44	1.56	500
KA40U	2	300 - 800 kcmil	1/2	1.69	3.38	.88	1.75	—	.50	1.94	550
KA44U	2	500 - 1000 kcmil		1.69	3.38	.88	1.75	—	.50	1.94	550
KKA31U-2N	3	6 Str. - 350 kcmil	1/2	3.16	5.50	.63	1.25	1.75	.38	1.50	275
KA36U-2N	4	2 Str. - 600 kcmil		3.22	4.69	.63	1.50	1.75	.44	1.57	500
KA40U-2N	4	300 - 800 kcmil		3.03	4.75	.63	1.75	1.75	.50	1.94	500
KA44U-2N	4	500 - 1000 kcmil		3.03	4.75	.63	1.75	1.75	.50	1.94	550

\* "N" indicates NEMA standard stud holes.

▲ Listed torque values are for maximum conductor sizes accommodated. Consult UL486 Tables 7-4, 7-5, 7-6 for smaller conductor sizes.

\*\* Maximum dimension.

Blue highlighted items are industry standard and most frequently ordered.

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

Maximum Horsepower Ratings							Maximum Current Utilization Categories		No of Poles		Instantaneous Auxiliary Contacts		Catalog Number ▲	\$ Price			
Single Phase		Three Phase					Inductive AC3 Amperes	Resistive AC1 Amperes	N.O.	N.C.	N.O.	N.C.		AC Coils	DC Coils		
115 V hp	230 V hp	200 V hp	230 V hp	460 V hp	575 V hp	9											
0.5	1	2	2	5	7.5	9	20	3	0	1	1	LC1D09 ♦♦	94.00	119.00			
—	—	—	—	—	—	—		4	—			—	—	—	LC1DT20 ♦♦	94.00	119.00
—	—	—	—	—	—	—		2	2			—	—	—	LC1D098 ♦	94.00	119.00
1	2	3	3	7.5	10	12	25	3	0	1	1	LC1D12 ♦♦	119.00	149.00			
—	—	—	—	—	—	—		4	—			—	—	—	LC1DT25 ♦	119.00	149.00
—	—	—	—	—	—	—		2	2			—	—	—	LC1D128 ♦	119.00	149.00
1	3	5	5	10	15	18	32	3	0	1	1	LC1D18 ♦♦	136.00	160.00			
—	—	—	—	—	—	—		4	—			—	—	—	LC1DT32 ♦♦	149.00	183.00
—	—	—	—	—	—	—		2	2			—	—	—	LC1D188 ♦	149.00	183.00
2	3	7.5	7.5	15	20	25	40	3	0	1	1	LC1D25 ♦♦	151.00	181.00			
—	—	—	—	—	—	—		4	—			—	—	—	LC1DT40 ♦♦	193.00	240.00
—	—	—	—	—	—	—		2	2			—	—	—	LC1D258 ♦	193.00	240.00
2	5	10	10	20	30	32	50	3	0	1	1	LC1D32 ♦♦	172.00	213.00			
3	5	10	10	30	30	40		60	3			0	1	1	LC1D40	296.00	275.00
—	—	—	—	—	—	—			4			0			—	—	—
—	—	—	—	—	—	—	2		2	0	0	—			LC1D40008 ■	296.00	353.00
3	7.5	15	15	40	40	50	80	3	0	1	1	LC1D50	234.00	291.00			
5	10	20	20	50	50	65		125	3			0	0	0	LC1D65	322.00	379.00
—	—	—	—	—	—	—			4			0			—	—	—
—	—	—	—	—	—	—	2		2	—	—	—			LC1D65008 ■	446.00	503.00
7.5	15	25	30	60	60	80	125	3	0	1	1	LC1D80	363.00	420.00			
—	—	—	—	—	—	—		200	4			0	0	0	LC1D80004 ■	489.00	524.00
—	—	—	—	—	—	—			2			2			—	—	—
—	—	30	40	75	100	115	200		3	0	1	1			LC1D115	479.00	479.00
—	—	40	50	100	125	150		200	3	0			0	0	LC1D150	696.00	696.00
—	—	—	—	—	—	—			4	—					—	—	—

- ▲ Complete catalog number with coil voltage code from table on page 18-3; example, LC1D09G7.
- ♦ For DC version of these devices replace the 'C' with 'P' (ex LC1D40004\*\*) becomes LP1D40004\*\*).
- On LC1D09 - LC1D32 and LC1DT20 through LC1DT40, for ring tongue versions add '6' to the catalog number prior to adding the voltage code (ex, LC1D09G7 becomes LC1D096G7). No Price adder for this modification.
- ★ On LC1D09 - LC1D32, for spring terminals versions add '3' to the catalog number prior to adding the voltage code (ex., LC1D09G7 becomes LC1D093G7). No price adder for this modification.

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

Current Setting Range Amperes	For Direct Mounting to LC1LLL	Class 10 with Single Phase Sensitivity	Class 10 without Single Phase Sensitivity	Class 20 with Single Phase Sensitivity	Class 20 without Single Phase Sensitivity	\$ Price
0.10–0.16	D09–D32	LRD01	LR3D01	—	—	60.00
0.16–0.25		LRD02	LR3D02	—	—	
0.25–0.40		LRD03	LR3D03	—	—	
0.40–0.63		LRD04	LR3D04	—	—	
0.63–1		LRD05	LR3D05	—	—	
1–1.6		LRD06	LR3D06	—	—	
1.6–2.5		LRD07	LR3D07	—	—	
2.5–4		LRD08	LR3D08	LRD1508	LR3D1508A1	
4–6		LRD10	LR3D10	LRD1510	LR3D1510A1	
5.5–8		D09–D32	LRD12	LR3D12	LRD1512	
7–10	D09–D32	LRD14	LR3D14	LRD1514	LR3D1514A1	
9–13	D12–D32	LRD16	LR3D16	LRD1516	LR3D1516A1	
12–18	D18–D32	LRD21	LR3D021	LRD1521	LR3D1521A1	
16–24	D25–D32	LRD22	LR3D22	—	—	
17–25	D25–D32	—	—	—	LR3D1522A1	
23–32	D25–D32	LRD32	LR3D32	—	—	
23–28	D25–D32	—	—	LRD1530	LR3D1530A1	73.00
25–32	D25–D32	—	—	LRD1532	LR3D1532A1	
30–38	D32	LRD35	LR3D35	—	—	107.00
17–25	D40–D80	LRD3322	LR3D3322	LR2D3522	LR3D3522	
23–32	D40–D80	LRD3353	LR3D3353	LR2D3553	LR3D3553	
30–40	D40–D80	LRD3355	LR3D3355	LR2D3555	LR3D3555	
37–50	D50–D80	LRD3357	LR3D3357	LR2D3557	LR3D3557	
48–65	D50–D80	LRD3359	LR3D3359	LR2D3559	LR3D3559	
55–70	D65–D80	LRD3361	LR3D3361	LR2D3561	LR3D3561	
63–80	D65–D80	LRD3363	LR3D3363	LR2D3563	LR3D3563	
80–104	D80	LRD3365	—	—	—	
80–104	D115–D150	LRD4365	—	—	—	
95–120	D115–D150	LRD4367	—	—	—	362.00
110–140	D150	LRD4369	—	—	—	

Table 18.3: D-Line Overload Relays — Solid State

Current Setting Range Amperes	For Direct Mounting Beneath Contractor LC1	Class 10	Class 20	\$ Price
60–100	D115–D150	LR9D5367	LR9D5567	298.00
90–150	D115–D150	LR9D5369	LR9D5569	298.00

D-Line contactor accessories . . . . . pages 18-6 to 18-9  
 D-Line overload relay accessories . . . . . page 18-14  
 D-Line replacement coils . . . . . pages 18-16 to 18-18  
 Dimensions . . . . . pages 18-40 to 18-46

18 IEC CONTACTORS AND STARTERS



LC1D09



LC1D093



LC1D115



LRD22



LC1F115

**Table 18.4: 2-, 3-, and 4-Pole Contactors**

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3				Maximum Current		Number of Poles	Catalog Number ▲ Panel Mount with Screws	\$ Price
200 V 208 V	220 V 240 V	460 V 480 V	575 V 600 V	AC-3	AC-1			
HP	HP	HP	HP	A	A			
30	40	75	100	115	200	3	LC1F115	479.00
						4	LC1F1154	630.00
40	50	100	125	150	250	3	LC1F150	696.00
						4	LC1F1504	825.00
50	60	125	150	185	275	3	LC1F185	938.00
						4	LC1F1854	1439.00
Current Rated				225	315	3	LC1F225	1167.00
						4	LC1F2254	1935.00
60	75	150	175	265	350	3	LC1F265	1179.00
						4	LC1F2654	1646.00
75	100	200	250	330	400	3	LC1F330	1621.00
						4	LC1F3304	1846.00
100	125	250	300	400	500	2	LC1F4002	1521.00
						3	LC1F400	1874.00
150	200	400	500	500	700	4	LC1F4004	2133.00
						2	LC1F5002	4324.00
250	300	600	800	630	1000	3	LC1F500	4970.00
						4	LC1F5004	5617.00
Current Rated				780	1600	2	LC1F6302	5917.00
						3	LC1F630	6872.00
—	450	800	900	800	1000	4	LC1F6304	7582.00
						3	LC1F780	7788.00
Current Rated				780	1600	4	LC1F7804	9940.00
						3	LC1F800	6676.00

**Table 18.5: 3-Phase Overload Relays — Solid State Separate Mount ■**

Current Setting Range Amps	For Direct Mounting to Contactor LC1●●●●/CR1F●●●●	Class 10 Trip ♦ Catalog Number	Class 20 ♦ Catalog Number	\$ Price
30–50	F115–F185	LR9F5357	LR9F5557	298.00
48–80	F115–F185	LR9F5363	LR9F5563	298.00
60–100	F115–F185	LR9F5367	LR9F5567	298.00
90–150	F115–F185	LR9F5369	LR9F5569	298.00
132–220	F185 ★ –F265	LR9F5371	LR9F5571	298.00
200–330	F265–F500	LR9F7375 ■	LR9F7575 ■	333.00
300–500	F265–F500	LR9F7379 ■	LR9F7579 ■	737.00
380–630	F400–F630	LR9F7381 ■	LR9F7581 ■	905.00

- ▲ Complete part number by adding coil voltage code from table below. For example: LC1F115G7. All contactors (except F780) include 1 N.O. coil interlock contact.
- When mounting overload relays LR9F5●57 to LR9F5●71 directly beneath the contactor, supporting the relays with a mounting plate is recommended. With overload relays LR9F7●75 to LR9F7●81, use of a support mounting plate is mandatory.
- ♦ IEC standard 60947-4 specifies the following trip times when the overload relay senses 7.2 times the setting current:  
Class 10 — between 4 and 10 seconds  
Class 20 — between 6 and 20 seconds
- ★ Interconnection kit LA7F407 is required to mount an LR9F●71 to an LC1F185.

**Table 18.6: Coil Voltage Codes ♦**

Contactor	Hz	24 V	48 V	110 V	120 V	125 V	208 V	220 V	240 V	250 V	440 V	480 V	600 V
<b>AC</b>													
D09–D150	50/60	B7	E7	F7	G7	—	LE7	M7	U7	—	—	T7 ▼	X7 ▼▲
LC1D40–LC1D150 only	60	B6	E6	F6	G6	—	L6	M6	U6	—	—	T6	X6 ▲
	50	B5	E5	F5	—	—	—	M5 ▼	U5	—	—	—	—
F115, F150, and F185	50	B5	E5	F5	—	—	—	M5	U5	—	—	—	—
	60	B6	E6	F6	G6	—	L6	M6	U6	—	—	Q5	SC
F265, and F330	40–400	B7	E7	F7	G7	—	L7	M7	U7	—	—	S7★	X7
F400–F780	40–400	—	E7	F7	G7	—	L7	M7	U7	—	—	N7	X7 □
<b>DC</b>													
D09–D32 Low Consumption	—	BL	EL	FL	—	—	—	ML	—	UL	—	—	—
D09–D150	—	BD	ED	FD	—	GD	—	MD	—	UD	RD	—	—
F115–F330	—	BD	ED	FD	—	GD	—	MD	—	UD	RD	—	—
F400–F780	—	—	ED	FD	—	GD	—	MD	—	UD	RD	—	—

- ▼ Not available for LC1D40 - LC1D150
- ▲ Not available for LC1D115 or LC1D150
- Not available for LC1F780
- The 600 V coils for the LC1F400 - LC1F630 do not include an auxiliary contact for holding circuits.
- ♦ For additional voltage codes refer to the IEC Contactor and Starter Catalog 8502CT9901.
- ★ For use with F265–F330 only.

**Table 18.7: Coil Voltage Codes for AC and DC Voltages for F800 (includes built-in surge suppressor)**

Volts AC/DC	24	48	110	120	127	208	220	240	277	380	415	440	480	575	600	660
50/60 HZ	—	—	FW	FW	FW	—	MW	MW	—	QW	QW	QW	—	—	—	—

F-Line contactor accessories .....page 18-9  
 F-Line overload relay accessories .....page 18-14  
 F-Line replacement coils and parts ..... pages 18-11, 18-17, 18-19  
 Dimensions ..... pages 18-42 to 18-49

# Accessories

Auxiliary Contacts, Time Delay, Mechanical Latch



Front Mounted Auxiliary Blocks

## Standard, instantaneous auxiliary contact blocks

Snap-On Mounting	Number of Contacts	Composition		Catalog Number	Price
		N.O.	N.C.		
To the front of LC ● D09 to D150★	4	2	2	LADN22	\$40.10
		1	3	LADN13	40.10
		4	0	LADN40	40.10
		0	4	LADN04	40.10
		3	1	LADN31	40.10
		2	2	LADC22 ▲	40.10
	2	1	1	LADN11	20.00
		2	0	LADN20	20.00
		0	2	LADN02	20.00
	To the front of LC ● D25 to D150	1	1	0	LADN10 ■
0			1	LADN01 ■	12.70
To the side of LC ● D09 to D150	2	1	1	LAD8N11 ♦	20.00
		2	0	LAD8N20 ♦	20.00

- ▲ Including 1 N.O. + 1 N.C. make before break contacts.
- 1 block only can be mounted on the LC1/LP1 D25 and D32; 2 blocks can be mounted on the LC1/LP1 D40 to D80.
- ♦ 1 block may be added to each side of the contactor, see limitations below
- ★ For low consumption coils only one 2 front mounted two contact block allowed. No side mounted contact blocks allowed.

## Instantaneous blocks with dusttight auxiliary contacts (IP54) NEMA Type 12

Snap-On Mounting	Standard Contacts		Dusttight Contacts		Catalog Number	Price
	N.O.	N.C.	N.O.	N.C.		
To the front of LC ● D09 to D80	...	...	2	...	LA1DX20	\$63.
	2	...	2	...	LA1DZ40	79.
	1	1	2	...	LA1DZ31	79.
LP ● D09 to D80	...	...	2	...	LA1DY20▼	74.

▼ Device supplied with 4 grounding terminal points.

## Pneumatic time delay contact blocks

Snap-On Mounting	Time Delay Contacts		Type	Range of Time Delay	Catalog Number	Price
	N.O.	N.C.				
To the front of LC ● D09 to D150 LP ● D09 to D150	1	1	On energization (on delay)	0.1 to 3 s Δ	LADT0	\$127.
				0.1 to 30 s	LADT2	127.
				10 to 180 s	LADT4	127.
				1 to 30 s □	LADS2	127.
	1	1	On de-energization (off-delay)	0.1 to 3 s Δ	LADR0	127.
				0.1 to 30 s	LADR2	127.
10 to 180 s				LADR4	127.	

- Δ Scale range is expanded between 0.1 and 0.6 seconds on the dial for more accurate settings at the lower end of the range.
- With switching time of 40 ms ± 15 ms between the opening of the N.C. contact to the closing of the N.O. contact.

## Mechanical latch blocks with manual or electrical unlatch

Front snap-on mounting onto	Application	Catalog number to be completed by the code corresponding to the coil voltage	Price
LC ● LP ● D09 to D65	For silent operation and energy conservation	LA6DK10★ ♦	\$74.
LC1 D80 to D150 LP1 D80	For silent operation and energy conservation	LA6DK20★ ♦	74.

♦ Does not include internal coil clearing contact.

### ★ Coil Voltages for LA6 DK mechanical latch blocks

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

Dimensions ..... pages 15-25-15-27

For additional information, reference Catalog #8502CT9901R2/01 or D-FAX™ #5497, 5498, 5799, 5500, 5501, 5502.





LRD22

**Ambient Compensated bi-metallic overload relays**

LRD overload relays are designed for direct mounting to D-line contactors. To mount these overloads separately, select separate mount kits from the table below.

**D-Line overload relays**

Current Setting Range Amperes	For direct mounting to LC1●●●	Class 10 with Single Phase Sensitivity	Class 10 without Single Phase Sensitivity	Class 20 with Single Phase Sensitivity	Class 20 without Single Phase Sensitivity	Price
.10-.16	D09-D32	LRD01	LR3D01	...	...	\$ 60.00
.16-.25	D09-D32	LRD02	LR3D02	...	...	
.25-.40	D09-D32	LRD03	LR3D03	...	...	
.40-.63	D09-D32	LRD04	LR3D04	...	...	
.63-1	D09-D32	LRD05	LR3D05	...	...	
1-1.6	D09-D32	LRD06	LR3D06	...	...	
1.6-2.5	D09-D32	LRD07	LR3D07	...	...	
2.5-4	D09-D32	LRD08	LR3D08	LRD1508	LR3D1508A1	
4-6	D09-D32	LRD10	LR3D10	LRD1510	LR3D1510A1	
5-8	D09-D32	LRD12	LR3D12	LRD1512	LR3D1512A1	
7-10	D09-D32	LRD14	LR3D14	LRD1514	LR3D1514A1	
9-13	D12-D32	LRD16	LR3D16	LRD1516	LR3D1516A1	
12-18	D18-D32	LRD21	LR3D21	LRD1521	LR3D1521A1	
16-24	D25-D32	LRD22	LR3D22	...	...	
17-25	D25-D32	...	...	LRD1522	LR3D1522A1	
23-32	D25-D32	LRD32	LR3D32	...	...	73.00
23-28	D25-D32	...	...	LRD1530	LR3D1530A1	
25-32	D25-D32	...	...	LRD1532	LR3D1532A1	
30-38	D32	LRD35	LR3D35	...	...	
17-25	D40-D80	LRD3322	LR3D3322	LR2D3522	LR3D3522	107.00
23-32	D40-D80	LRD3353	LR3D3353	LR2D3553	LR3D3553	
30-40	D40-D80	LRD3355	LR3D3355	LR2D3555	LR3D3555	
37-50	D50-D80	LRD3357	LR3D3357	LR2D3557	LR3D3557	
48-65	D50-D80	LRD3359	LR3D3359	LR2D3559	LR3D3559	
55-70	D65-D80	LRD3361	LR3D3361	LR2D3561	LR3D3561	127.00
63-80	D65-D80	LRD3363	LR3D3363	LR2D3563	LR3D3563	
80-104	D80	LRD3365	...	...	...	
80-104	D115-D150	LRD4365	...	...	...	362.00
95-120	D115-D150	LRD4367	...	...	...	
110-140	D150	LRD4369	...	...	...	

**Mounting Kits and Plates▲**

Description	For use with overload relays:	Catalog Number	Price
Separate mounting kits for mounting to 35 mm omega rail or for panel mounting with screws	LRD01-35 and LR3D01-35	LAD7B10	\$ 8.70
	LRD15●●	LAD7B105	10.40
	LR2D15●●●	LA7D1064	8.70
	LR2D25●●●	LA7D2064	13.10
	LRD3●●●, LR3D3●●●, LR2D35●●●	LA7D3064	17.50
Mounting plates for screw mounting at 110 mm (4.3") centers	LRD01-35, LR3D01-35, LR2D15●●	DX1AP25	11.00
	LR2D25●●	DX1AP26	12.00
	LRD3●●●, LR3D3●●●, LR2D35●●	LA7D902	16.40

▲ When using mounting plates, separate mounting kits are also required.

**Accessories**

Description	For use with	Standard Packaging	Catalog Number	Price
Pre wiring kit allows direct connection of the N.C. contact of relay LRD01-D32 or LR3D01-D32 to the contactor	LC1D09 through D18	10	LAD7C1	\$ 8.70
	LC1D25, D32	10	LAD7C2	8.70
Stop button locking device	All relays except LRD01-D32, LR3D01-D32 and LR9D	10	LA7D901	2.20
Remote stop/tripping or electrical reset◆	LRD01-D32, LR3D01-32	1	LAD703■	43.70
	All relays except LRD01-D32, LR3D01-D31	1	LA7D03■	43.70
Reset by flexible cable 500 mm (19.6 in.)	LRD01-D32	1	LAD7305	100.00

■ Part number to be completed by adding coil voltage code.

**Control Circuit Voltages for LA7D03 and LAD703**

Volts	12	24	48	110	220/230	380/400	415/440
AC 50/60 Hz	J★	B	E	F	M	Q	N
DC	J	B	E	F	M	...	...

◆ The time that the LA7D03 can remain energized depends on its rest time; 1 s pulse with 9 s rest time; 5 s pulse with 30 s rest time; 10 s pulse with 90 s rest time; maximum pulse duration of 20 s with rest time of 300 s. Consumption on inrush and sealed : < 100 VA  
★ Not available for LRD01-D32, LR3D01-D32.



LA7D901



LA7D03

Dimensions..... page 16-30

For additional information, reference Catalog #8502CT9901R5/03.







### Bulletin 1489-A Circuit Breakers

- Energy-limiting design — protects downstream components better than conventional breakers during short circuits
- Field-mountable options for selective applications
- IP2x Finger-Protection (Front)
- North America certifications: UL 489, CSA C22.2 No. 5
- International standards: CE Marked, and IEC (VDE) standards for worldwide acceptance
- Ratings: UL/CSA — max. 480Y/277V AC – up to 14 kA interrupt rating;  
IEC — max. 240/415V AC – 15 000 A interrupt rating
- 48V DC rating, 96V DC — 2-pole series
- A positively trip-free mechanism (breaker operation cannot be defeated by holding the handle in the ON position)
- Trip curves: C and D
- Time delay (D Characteristic) for high inrush currents during inductive start-ups such as motors, transformers and power supplies
- Superior shock and vibration resistance capabilities — helps to prevent nuisance tripping
- Mounts on DIN Rail
- Wire connect, line and load (reversible)
- Optional terminals for ring lug terminals

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### Standards Compliance

UL 489  
 CSA C22.2 No. 5  
 EN/IEC 60947-2

### Certifications

UL Listed  
 CSA Certified  
 CE Marked  
 VDE Certified

### Industrial Circuit Breakers for North American Applications

The Bulletin 1489-A line includes:

- UL 489, CSA C22.2 No. 5
- 240V AC 0.5...40 A
- 480V/277V AC 0.5...32 A
- Miniature Circuit Breaker for EN/IEC Applications  
EN/IEC 60947-2  
415V AC 0.5...40 A
- SWD (0.5...20 A) Switching Duty for fluorescent lighting applications
- HACR
- 1-pole 48V DC 0.5...40 A
- 2-pole (series) 96V DC 0.5...40 A
- 48V DC 0.5...40 A

### Description

Bulletin 1489-A Circuit Breakers for Branch Circuit protection are available in 1-, 2-, and 3-pole construction and are rated 0.5...40 A at 240V AC and 0.5...32 A at 480Y/277V AC for North American applications (UL 489 and CSA C22.2 No. 5). The circuit breakers also have a 1-pole 48V DC, 2-pole (series) 96V DC rating. For EN/IEC applications the products are rated 415V AC, 48V AC 0.5...40 A.

### Thermal Magnetic Circuit Breakers

The Bulletin 1489-A Thermal Magnetic Circuit Breakers are general-purpose devices suitable for the majority of industrial, inverse time circuit breaker applications.

They combine thermal and magnetic trip actions and provide accurate overload and short-circuit protection for conductors and connected equipment.

### Circuit Breaker Application Information

Selection of a Bulletin 1489 circuit breaker with appropriate circuit protection includes consideration of:

- Circuit Voltage
- Circuit Frequency
- Available Short Circuit Current
- Continuous Current Rating
- Application Considerations
- Special Operating Conditions

The following discussion is based upon National Electric Code and UL requirements. Similar considerations are appropriate for Canadian applications.

### Features

- Designed manufactured and listed to UL 489 (CSA 22.2 No. 5)
- Thermal-magnetic protection
- All ratings are HACR rated
- up to 14 kA Interrupting rating
- Finger-safe design (front)
- DIN Rail mounting
- Line and load wire connections
- Optional ring terminal connections (convertible)

### Circuit Voltage

The Bulletin 1489-A circuit breakers are rated by voltage class. Applications should not exceed the listed voltage and current range (see Table 1).

### Circuit Frequency

The Bulletin 1489-A circuit breakers may be applied to frequencies of 50 Hz and 60 Hz without derating. For applications above 60 Hz, contact Rockwell Automation with specific application information for the derating of the circuit breakers.

### Available Short Circuit Current

The Bulletin 1489-A circuit breakers should only be applied in those applications in which the available short-circuit (or fault) current is less than or equal to 10 kA...14 kA (US/Canada) and 15 kA (IEC).

**Table 1. Voltage and Current Ranges**

Region	Max. Voltage	Current Range [A]
EN/IEC Regions	415V AC	0.5...40
	48V DC	0.5...40
North America (UL 489 & CSA C22.2 No. 5)	240V AC	0.5...40
	480Y/277V AC	0.5...32
	1-pole 48V DC	0.5...40
	2-pole 96V DC	0.5...40

Product Selection

Bulletin 1489-A AC Miniature Circuit Breakers

Bulletin 1489 1-Pole AC Miniature Circuit Breakers

No. of Poles	EN/IEC Maximum Voltage	Trip Curve	UL/CSA Max. Volt.	Rated Current [A]	Standard Wire Configuration Cat. No.	Ring Terminal Configuration Cat. No.				
1	415V AC, 48V DC	C	277V AC, 48V DC	0.5	1489-A1C005	1489-A1C005R				
				1	1489-A1C010	1489-A1C010R				
				1.5	1489-A1C015	1489-A1C015R				
				2	1489-A1C020	1489-A1C020R				
				3	1489-A1C030	1489-A1C030R				
				4	1489-A1C040	1489-A1C040R				
				5	1489-A1C050	1489-A1C050R				
				6	1489-A1C060	1489-A1C060R				
				7	1489-A1C070	1489-A1C070R				
				8	1489-A1C080	1489-A1C080R				
				10	1489-A1C100	1489-A1C100R				
				13	1489-A1C130	1489-A1C130R				
				15	1489-A1C150	1489-A1C150R				
				16	1489-A1C160	1489-A1C160R				
				20	1489-A1C200	1489-A1C200R				
				25	1489-A1C250	1489-A1C250R				
				30	1489-A1C300	1489-A1C300R				
				32	1489-A1C320	1489-A1C320R				
					240V AC, 48V DC	D	277V AC, 48V DC	35	1489-A1C350	1489-A1C350R
				40				1489-A1C400	1489-A1C400R	
		0.5	1489-A1D005	1489-A1D005R						
		1	1489-A1D010	1489-A1D010R						
		1.5	1489-A1D015	1489-A1D015R						
		2	1489-A1D020	1489-A1D020R						
		3	1489-A1D030	1489-A1D030R						
		4	1489-A1D040	1489-A1D040R						
		5	1489-A1D050	1489-A1D050R						
		6	1489-A1D060	1489-A1D060R						
		7	1489-A1D070	1489-A1D070R						
		8	1489-A1D080	1489-A1D080R						
		10	1489-A1D100	1489-A1D100R						
		13	1489-A1D130	1489-A1D130R						
		15	1489-A1D150	1489-A1D150R						
		16	1489-A1D160	1489-A1D160R						
		20	1489-A1D200	1489-A1D200R						
		25	1489-A1D250	1489-A1D250R						
		30	1489-A1D300	1489-A1D300R						
		32	1489-A1D320	1489-A1D320R						
			240V AC, 48V DC			35	1489-A1D350	1489-A1D350R		
		40				1489-A1D400	1489-A1D400R			

Bulletin 1489-A  
**Circuit Breaker**  
 Product Selection

Bulletin 1489-A 2-Pole AC Miniature Circuit Breakers

No. of Poles	EN/IEC Maximum Voltage	Trip Curve	UL/CSA Max. Volt.	Rated Current [A]	Standard Wire Terminal Cat. No.	Ring Terminal Configuration Cat. No.		
2	415V AC	C	480Y/277V AC, 96V DC	0.5	1489-A2C005	1489-A2C005		
				1	1489-A2C010	1489-A2C010R		
				1.5	1489-A2C015	1489-A2C015R		
				2	1489-A2C020	1489-A2C020R		
				3	1489-A2C030	1489-A2C030R		
				4	1489-A2C040	1489-A2C040R		
				5	1489-A2C050	1489-A2C050R		
				6	1489-A2C060	1489-A2C060R		
				7	1489-A2C070	1489-A2C070R		
				8	1489-A2C080	1489-A2C080R		
				10	1489-A2C100	1489-A2C100R		
				13	1489-A2C130	1489-A2C130R		
				15	1489-A2C150	1489-A2C150R		
				16	1489-A2C160	1489-A2C160R		
				20	1489-A2C200	1489-A2C200R		
				25	1489-A2C250	1489-A2C250R		
				30	1489-A2C300	1489-A2C300R		
				32	1489-A2C320	1489-A2C320R		
				35	1489-A2C350	1489-A2C350R		
				40	1489-A2C400	1489-A2C400R		
		D	480Y/277V AC, 96V DC	D	480Y/277V AC, 96V DC	0.5	1489-A2D005	1489-A2D005R
						1	1489-A2D010	1489-A2D010R
						1.5	1489-A2D015	1489-A2D015R
						2	1489-A2D020	1489-A2D020R
						3	1489-A2D030	1489-A2D030R
						4	1489-A2D040	1489-A2D040R
						5	1489-A2D050	1489-A2D050R
						6	1489-A2D060	1489-A2D060R
						7	1489-A2D070	1489-A2D070R
						8	1489-A2D080	1489-A2D080R
						10	1489-A2D100	1489-A2D100R
						13	1489-A2D130	1489-A2D130R
						15	1489-A2D150	1489-A2D150R
						16	1489-A2D160	1489-A2D160R
						20	1489-A2D200	1489-A2D200R
						25	1489-A2D250	1489-A2D250R
						30	1489-A2D300	1489-A2D300R
						32	1489-A2D320	1489-A2D320R
						35	1489-A2D350	1489-A2D350R
						40	1489-A2D400	1489-A2D400R

**Bulletin 1489-A 3-Pole AC Miniature Circuit Breakers**

No. of Poles	EN/IEC Maximum Voltage	Trip Curve	UL/CSA Max. Volt.	Rated Current [A]	Standard Wire Terminal Cat. No.	Ring Terminal Configurations Cat. No.
3	415V AC	C	480Y/277V AC	0.5	1489-A3C005	1489-A3C005R
				1	1489-A3C010	1489-A3C010R
				1.5	1489-A3C015	1489-A3C015R
				2	1489-A3C020	1489-A3C020R
				3	1489-A3C030	1489-A3C030R
				4	1489-A3C040	1489-A3C040R
				5	1489-A3C050	1489-A3C050R
				6	1489-A3C060	1489-A3C060R
				7	1489-A3C070	1489-A3C070R
				8	1489-A3C080	1489-A3C080R
				10	1489-A3C100	1489-A3C100R
				13	1489-A3C130	1489-A3C130R
				15	1489-A3C150	1489-A3C150R
				16	1489-A3C160	1489-A3C160R
				20	1489-A3C200	1489-A3C200R
				25	1489-A3C250	1489-A3C250R
				30	1489-A3C300	1489-A3C300R
				32	1489-A3C320	1489-A3C320R
			35	1489-A3C350	1489-A3C350R	
			40	1489-A3C400	1489-A3C400R	
		0.5	1489-A3D005	1489-A3D005R		
		1	1489-A3D010	1489-A3D010R		
		1.5	1489-A3D015	1489-A3D015R		
		2	1489-A3D020	1489-A3D020R		
		3	1489-A3D030	1489-A3D030R		
		4	1489-A3D040	1489-A3D040R		
		5	1489-A3D050	1489-A3D050R		
		6	1489-A3D060	1489-A3D060R		
		7	1489-A3D070	1489-A3D070R		
		8	1489-A3D080	1489-A3D080R		
		10	1489-A3D100	1489-A3D100R		
		13	1489-A3D130	1489-A3D130R		
		15	1489-A3D150	1489-A3D150R		
		16	1489-A3D160	1489-A3D160R		
		20	1489-A3D200	1489-A3D200R		
		25	1489-A3D250	1489-A3D250R		
		30	1489-A3D300	1489-A3D300R		
		32	1489-A3D320	1489-A3D320R		
		35	1489-A3D350	1489-A3D350R		
		40	1489-A3D400	1489-A3D400R		
		D	240V AC			
			480Y/277V AC			
			240V AC			

**Bulletin 1489-A**  
**Circuit Breaker**  
**Accessories**

**Miniature Circuit Breaker Accessories**

Description	CSA/UL Certifications	IEC 60947-2 Compliance	CE	EN/IEC Max. Volt.	UL/CSA Max. Volt.	Connection	Cat. No.
Lockout Attachment	Yes	Yes	—	—	—	—	1489-AALOA
Auxiliary Contact, 2 sets, each are Form C, 1 N.O. & 1 N.C.	Yes	Yes	—	3 A, 250V AC (AC13) 0.5 A, 110V DC	2 A, 240V AC 0.5 A, 110V DC	Cable	1489-AAHH3
Auxiliary/Signal Contact, each are Form C, 1 N.O. & 1 N.C	Yes	Yes	—	3 A, 250V AC (AC13) 0.5 A, 110V DC	2 A, 240V AC 0.5 A, 110V DC	Cable	1489-AAHS3
Auxiliary Contact, Feed Through, 1 N.O. & 1 N.C.	Yes	Yes	—	3 A, 250V AC (AC13) 0.5 A, 110V DC	2 A, 230V AC 0.5 A, 110V DC	Cable	* 1489-ABH12
Shunt Trip Module	Yes	Yes	—	110...415V AC 110...230V DC	110...415V AC 110...230V DC	Cable	1489-AASTA1
Shunt Trip Module	Yes	Yes	—	12...110V AC 12...60V DC	12...110V AC 12...60V DC	Cable	1489-AASTA2

Use of auxiliary or signal contact limits the 1489-A circuit breaker to a maximum voltage of 240V AC for UL/CSA applications.  
 \* Use of this auxiliary contact allows application of the 1489-A circuit breaker to full rating of 480Y/ 277V AC for UL/CSA applications.

**Bulletin 1489-A Bus Bar**

Description	No. of Poles	No. of Phases	Pkg Qty.	Number of Circuit Breakers	Cat. No.
Bus Bar*	6	1	10	6	1489-AACL106
	12			12	1489-AACL112
	18			18	1489-AACL118
	6	2		3	1489-AACL206
	12			6	1489-AACL212
	18			9	1489-AACL218
	6	3		2	1489-AACL306
	12			4	1489-AACL312
	18			6	1489-AACL318

\* UL Recognized (E300325), CE Marked

**Bulletin 1489 Bus Bar Accessories**

Description	No. of Poles	Pkg Qty.	Wire Range	Cat. No.
Terminal Lug	1-pole for circuit breaker termination	10	#14 ... 2 AWG 2.5 ... 35 mm <sup>2</sup>	1489-AACLT35
Protective Cover for Unused Termination	3-pole set (may be separated)	10	—	1489-AACLPS









**Accessories**

The Type T control transformers offer multiple field installable accessories:

**Table 14.32: Fingersafe™ Covers (Not Supplied with Unit)**

Type	Type Accessory Key ▲			Description	\$ Price Each	Order Qty.	Order \$ Price
	I	II	III, IV				
FSC1	T25-T200	T25-T150	—	2 covers per kit	21.00	10	210.00
FSC2	T250-T5000	T250-T5000	—	2 covers per kit	30.00	10	300.00
FSC23	—	—	T25-T5000	2 covers per kit	30.00	10	300.00

▲ Kits must be ordered separately. Also supplied in bulk packages of 100 individual covers. Add "B" to Type number (available only on FSC1B and FSC2B).

**Table 14.33: Separate NEMA Type 1 Enclosures for Transformers**

Class 9991 Type	For Use With
UE7	EO1, EO17, T50
LG1	EO2, EO3, EO4, EO15, EO16, EO18, EO19, T75, T100, T150, T200, T250, T300, T350, T500
SDG4	EO51, EO61, T750, T1000, EO71

NOTE: User must drill mounting holes. See pages 16-106 and 16-107 for dimensions.

**Table 14.34: Jumper Kits**

Catalog No.	Type Accessory Key			Description	\$ Price Each	Order Qty.	Order \$ Price
	I	II	III, IV				
3003302753	T25-T200	T25-T150	—	Two jumpers per bag	8.00	50	400.00
3003302754	T250-T5000	T200-T3000	T25-T3000	Minimum order of 50 kits	5.00	50	250.00

NOTE: Jumpers are supplied with voltage codes that require them. If additional kits are required, order per above chart.

**Table 14.35: Fuse Pullers (For Use on TF and FB Accessory)**

Catalog No.	\$ Price Each	Order Qty.	Order \$ Price
9070FP1	33.00	10	330.00

**Field Installed Fuse Options**

**Table 14.36: Primary and Secondary Fusing**

Type	Type Accessory Key			Description	\$ Price Each	Order Qty.	Order \$ Price
	I	II	III, IV				
FB3A	25-200	25-150	—	Three pole fuse block for primary and secondary fusing, accommodates 1-1/2 x 13/32 inch midget fuse (2 rejection and 1 non-rejection)	87.00	1	87.00
FB3B	250-2000	200-2000	25-2000	Three pole fuse block for primary and secondary fusing, accommodates 1-1/2 x 13/32 inch midget fuse (2 rejection and 1 non-rejection)	87.00	1	87.00

**Table 14.37: Primary Fusing**

Type	Type Accessory Key			Description	\$ Price Each	Order Qty.	Order \$ Price
	I	II	III, IV				
FB2A	25-200	25-150	—	Two pole fuse block for primary fusing, accommodates 1-1/2 x 13/32 inch midget fuse (2 rejection)	75.00	1	75.00
FB2B	250-2000	200-2000	25-2000	Two pole fuse block for primary fusing, accommodates 1-1/2 x 13/32 inch midget fuse (2 rejection)	75.00	1	75.00

**Table 14.38: Field-Installable Secondary Fuse Clips**

Type	Type Accessory Key ◆			Description	\$ Price Each	Order Qty.	Order \$ Price
	I	II	III, IV				
SF25A	25-200	25-150	—	Secondary fuse block accommodates 1-1/4 x 1/4 inch fuse	21.00	10	210.00
SF25B	250-2000	200-2000	25-2000	Secondary fuse block accommodates 1-1/4 x 1/4 inch fuse	21.00	10	210.00
SF41A	25-200	25-150	—	Secondary fuse clip accommodates 1-1/2 x 13/32 inch midget fuse	18.00	10	180.00
SF41B	250-2000	200-2000	25-2000	Secondary fuse clip accommodates 1-1/2 x 13/32 inch midget fuse	18.00	10	180.00
FB1A	25-200	25-150	—	One pole fuse block for secondary fusing, accommodates 1-1/2 x 13/32 inch midget fuse (1 non-rejection)	53.00	1	53.00
FB1B	250-2000	200-2000	25-2000	One pole fuse block for secondary fusing, accommodates 1-1/2 x 13/32 inch midget fuse (1 non-rejection)	53.00	1	53.00

- SF41 can be installed on the following voltage codes: D1, D5, D24, D3, D4, D51, D2, D23, D14, D25, D20, D95, D19, D22, D36.
- ◆ I = voltage codes D1, D2, D3, D4, D5, D12, D13, D14, D15, D23, D24, D25, D31, D32, D33, D36, D5  
II = voltage codes D18, D20  
III, IV = voltage codes D19, D50

**Selection Guide**

1. Determine the inrush and sealed VA of each coil in the control circuit and the VA of all other components.
2. Total the **sealed** VA of all operating coils and the VA of all other loads. (This determines the minimum VA size required for the circuit.)
3. Total the **inrush** VA of all coils that are starting at the same time and all loads and coils that are running.
4. Locate a value in the VA column of Table 14.39 that is **equal to or greater than** the value calculated in step 2.
5. In the VA row selected in step 4, find the inrush value under the appropriate voltage regulation column of Table 14.39. If this value is **greater than** the calculated value from step 3, this is the correct transformer VA rating.

If the inrush value on the selected VA row is **not greater than** the calculated value from step 3, use the next higher transformer VA rating, that is, the rating on the next row.

If your supply voltage is stable and fluctuates less than 5%, Schneider Electric recommends you use the 90% secondary voltage column. If your supply voltage is not stable and fluctuates more than 10% we recommend you use the 95% secondary voltage column. We recommend that you never use the 85% secondary voltage column since magnetic devices lose life expectancy if they are continuously started at 85% of rated voltage.

**Table 14.39: Regulation Chart for Type T**

VA	Inrush VA @ 20% power factor			Inrush VA @ 40% power factor		
	95% Secondary Voltage	90% Secondary Voltage	85% Secondary Voltage	95% Secondary Voltage	90% Secondary Voltage	85% Secondary Voltage
50	193	266	339	151	215	282
75	271	396	20	210	318	430
100	339	499	659	266	404	549
150	666	893	1120	529	731	942
200	588	815	1041	459	659	866
250	1416	1910	2388	1057	1494	1936
300	1634	2184	2709	1194	1681	2169
350	1894	2592	3261	1392	2005	621
500	3197	4104	4981	2374	3195	4019
750	3770	5515	7231	2887	4391	5945
1000	6587	9079	11430	4706	6886	9051
1500	19324	23983	28607	15066	19361	23756
2000	31384	38777	6161	24794	31630	38667
3000	26539	39934	52713	19355	30721	42216
5000	53111	85265	116277	39368	66309	93882

## AT120A-E; AT140A-E; AT150A,B,D-F; AT160B; AT175A-D,F Transformers

### PRODUCT DATA



### FEATURES

- AT120 is rated at 20 VA.
- AT140 is rated at 40 VA.
- AT150 is rated at 50 VA.
- AT160 is rated at 60 VA.
- AT175 is rated at 75 VA.
- All models meet National Electrical Code Class 2 not wet, Class 3 wet transformer requirements.
- All models conform to Underwriters Laboratories Inc. Standard UL 1585.
- Color-coded leadwires for primary connections and screw terminals for secondary connections, fixed 1/4 inch (6 mm) male quick-connects or color-coded leadwires for both primary and secondary, are standard.
- Models available with stripped leadwires, leadwires with variety of terminals, or special terminations as required on both primary and secondary.
- Mounting options include clamp mounting on outlet box knockout, plate mounting, foot mounting, panel mounting, conduit/panel and a combination.
- Models available for 120V, 240V, 277V, 480V, 120/240V, 208/240V, 277/480V, 120/208/240V, 208/240/480V, or 208/277/480V supply at 60 Hz.
- "F" models include a button for manually resetting the circuit breaker.

### APPLICATION

These general purpose transformers provide power to 24 Vac circuits. They are typically used in heating/cooling control systems, but can be used in any application that doesn't exceed the load ratings.

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## SPECIFICATIONS

### IMPORTANT

The specifications given in this publication do not include normal manufacturing tolerances. Therefore, a sample unit may not match the listed specifications exactly. Also, this product is built and tested under closely controlled conditions, and some minor differences in performance can be expected if those conditions are changed.

### TRADELINE® Models

TRADELINE models are selected and packaged to provide ease of stocking, ease of handling, and maximum

replacement value. TRADELINE model specifications are the same as those of standard models except as noted below.

### TRADELINE Models Available:

- AT150F Transformers with circuit breaker reset button; 50 VA.
- AT175F Transformers with circuit breaker reset button; 75 VA.

### Models:

AT120A-E; AT140A-E; AT150A,B,D-F; AT160B; AT175A-D,F.

### Electrical Ratings:

See Table 1.

Table 1. Electrical Ratings.

Model Number	Output Rating at 100 Percent Power Factor <sup>a</sup>	Primary Input Voltage (60 Hz)	Secondary Output Voltage	
			Open Circuit	At Rated Power Output
AT120	20 VA	120, 240, 277, 480, 120/240, 208/240, 240/277, 277/480, 120/208/240, 208/240/480, or 208/277/480V	27.0	24.0
AT140	40 VA		27.5 <sup>b</sup>	
AT150	50 VA			
AT160	60 VA			
AT175	75 VA			

<sup>a</sup>Refer to regulation curves.

<sup>b</sup>Voltage is 27.0V on AT150F and AT175F models.

### Wiring Connections:

- \*A\*, \*C\*, and \*D\* models: Primary—9 inch (230 mm) leadwires; Secondary—screw terminals.
- \*B\* and \*E\* models: Primary—9 inch (230 mm) leadwires or fixed 1/4 inch (6 mm) quick-connects. Different length leadwires and leadwires with stripped ends or with terminals attached also available. Specify when ordering.

Secondary—9 inch (230 mm) leadwires or fixed 1/4 inch (6 mm) quick-connects. Different length leadwires, leadwires with stripped ends or with terminals attached, and screw terminals also available. Specify when ordering.

\*F\* models: Primary and Secondary—9 inch (230 mm) leadwires.

## ORDERING INFORMATION

When purchasing replacement and modernization products from your TRADELINE® wholesaler or distributor, refer to the TRADELINE® Catalog or price sheets for complete ordering number, or specify—

1. Order number; TRADELINE, if desired.
2. Primary voltage capability desired.
3. Wiring connections desired.
4. Optional specifications, if desired.

If you have additional questions, need further information, or would like to comment on our products or services, please write or phone:

1. Your local Home and Building Control Sales Office (check white pages of your phone directory).
2. Home and Building Control Customer Relations  
Honeywell, 1885 Douglas Drive North  
Minneapolis, Minnesota 55422-4386

In Canada—Honeywell Limited/Honeywell Limitée, 35 Dynamic Drive, Scarborough, Ontario M1V 4Z9.

International Sales and Service Offices in all principal cities of the world. Manufacturing in Australia, Canada, Finland, France, Germany, Japan, Mexico, Netherlands, Spain, Taiwan, United Kingdom, U.S.A.

**Mounting Means:**

Model Suffix Letter	Mounting Means
A	Includes clamp for outlet box knockout, 4 x 4 inch mounting plate for 2 x 4 inch or 4 x 4 inch outlet box, and mounting feet for surface mount.
B	Foot-mounted.
C	Includes clamp for outlet box knockout.
D	Integral 4 x 4 inch mounting plate fits 2 x 4 inch or 4 x 4 inch outlet box.
E	Panel mounted with two No. 8 screws (not included).
F	Includes 1/2-14 NPSM conduit connector and lock nut for mounting on plate or panel (not included) with 7/8 in. knockout, and mounting feet for surface mount.

**Dimensions:**

See Fig. 1 through 5.

All models conform to Underwriters Laboratories Inc. Standard UL 1585.

NATIONAL ELECTRICAL CODE: Class 2 not wet, Class 3 wet.

**Regulation:**

See transformer regulation curves, Fig. 6 through 10.

**Optional Specifications:**

End bells or caps on "B" through "E" models.

Terminations on "B" through "E" models.

Circuit breaker reset button on "F" models.

**Overcurrent Protection:**

Inherent on AT120, AT140, and AT150. Thermal fusible link on AT160 and AT175. Circuit breaker on AT150F and AT175F models.

**National Electrical Code:**

Class 2 not wet, Class 3 wet

**Approvals:**

UNDERWRITERS LABORATORIES INC. LISTED ("A", "C" and "F" models): File No. E14881, Guide No. XOKV.

UNDERWRITERS LABORATORIES INC. COMPONENT RECOGNIZED ("B," "D," "E" models): File No. E14881, Guide No. XOKV2.

Refer to Catalog 8501CT0601

**Zelio® Plug-In Relays**

Zelio RXM plug-in relays and sockets provide a comprehensive selection of relays responding to the most demanding standards ranging from 3A to 12A. Some of the features include:

- Spring return test button for testing the contacts (standard)
- Green LED indication of relay status (depending on version)

- Mechanical indication of relay status (standard)
- Plug-in protection module to protect against electrical spikes
- Plug-in jumper bars for coil terminals to avoid time-consuming wiring



RXM2AB1F7

**Table 23.1: Miniature relays without LED (sold in lots of 10)**

Coil Voltage	Number and type of contacts - Thermal current (Ith)					
	2 C/O - 12 A Res.		3 C/O - 10 A Res.		4 C/O - 8 A Res.	
	Catalog Number	\$ Price ea.	Catalog Number	\$ Price ea.	Catalog Number	\$ Price ea.
12 Vdc	RXM2AB1JD	6.30	RXM3AB1JD	6.80	RXM4AB1JD	7.10
24 Vdc	RXM2AB1BD	6.30	RXM3AB1BD	6.80	RXM4AB1BD	7.10
48 Vdc	RXM2AB1ED	6.30	RXM3AB1ED	6.80	RXM4AB1ED	7.10
110 Vdc	RXM2AB1FD	6.30	RXM3AB1FD	6.80	RXM4AB1FD	7.10
220 Vdc	—	—	—	—	RXM4AB1MD	7.10
24 Vac	RXM2AB1B7	6.30	RXM3AB1B7	6.80	RXM4AB1B7	7.10
48 Vac	RXM2AB1E7	6.30	RXM3AB1E7	6.80	RXM4AB1E7	7.10
120 Vac	RXM2AB1F7	6.30	RXM3AB1F7	6.80	RXM4AB1F7	7.10
230 Vac	RXM2AB1P7	6.30	RXM3AB1P7	6.80	RXM4AB1P7	7.10
240 Vac	—	—	—	—	RXM4AB1U7	7.10

**Table 23.2: Miniature relays with LED (sold in lots of 10)**

Coil Voltage	Number and type of contacts - Thermal current (Ith)					
	2 C/O - 12 A Res.		3 C/O - 10 A Res.		4 C/O - 8 A Res.	
	Catalog Number	\$ Price ea.	Catalog Number	\$ Price ea.	Catalog Number	\$ Price ea.
12 Vdc	RXM2AB2JD	7.40	RXM3AB2JD	7.80	RXM4AB2JD	8.10
24 Vdc	RXM2AB2BD	7.40	RXM3AB2BD	7.80	RXM4AB2BD	8.10
48 Vdc	RXM2AB2ED	7.40	RXM3AB2ED	7.80	RXM4AB2ED	8.10
110 Vdc	RXM2AB2FD	7.40	RXM3AB2FD	7.80	RXM4AB2FD	8.10
125 Vdc	—	—	—	—	RXM4AB2GD	8.10
24 Vac	RXM2AB2B7	7.40	RXM3AB2B7	7.80	RXM4AB2B7	8.10
48 Vac	RXM2AB2E7	7.40	RXM3AB2E7	7.80	RXM4AB2E7	8.10
120 Vac	RXM2AB2F7	7.40	RXM3AB2F7	7.80	RXM4AB2F7	8.10
230 Vac	RXM2AB2P7	7.40	RXM3AB2P7	7.80	RXM4AB2P7	8.10

**Table 23.3: Miniature relays with LED without Push Button (sold in lots of 10)**

Coil Voltage	Number and type of contacts - Thermal current (Ith)					
	2 C/O - 12 A Res.		3 C/O - 10 A Res.		4 C/O - 8 A Res.	
	Catalog Number	\$ Price ea.	Catalog Number	\$ Price ea.	Catalog Number	\$ Price ea.
12 Vdc	RXM2AB3JD	6.80	—	—	RXM4AB3JD	7.50
24 Vdc	RXM2AB3BD	6.80	—	—	RXM4AB3BD	7.50
48 Vdc	RXM2AB3ED	6.80	—	—	RXM4AB3ED	7.50
110 Vdc	RXM2AB3FD	6.80	—	—	RXM4AB3FD	7.50
125 Vdc	—	—	—	—	RXM4AB3GD	7.50
24 Vac	RXM2AB3B7	6.80	—	—	RXM4AB3B7	7.50
48 Vac	RXM2AB3E7	6.80	—	—	RXM4AB3E7	7.50
120 Vac	RXM2AB3F7	6.80	—	—	RXM4AB3F7	7.50
230 Vac	RXM2AB3P7	6.80	—	—	RXM4AB3P7	7.50

**Table 23.4: Miniature relays with low level contacts, without LED (sold in lots of 10)**

Number and type of contacts - Thermal current (Ith)		
4 C/O - 3 A Res.		
Coil Voltage	Catalog Number	\$ Price ea.
12 Vdc	RXM4GB1JD	7.10
24 Vdc	RXM4GB1BD	7.10
48 Vdc	RXM4GB1ED	7.10
110 Vdc	RXM4GB1FD	7.10
24 Vac	RXM4GB1B7	7.10
48 Vac	RXM4GB1E7	7.10
120 Vac	RXM4GB1F7	7.10
230 Vac	RXM4GB1P7	7.10

**Table 23.6: Miniature relays with low level contacts, with LED without Push Button (sold in lots of 10)**

Number and type of contacts - Thermal current (Ith)		
4 C/O - 3 A Res.		
Coil Voltage	Catalog Number	\$ Price ea.
12 Vdc	RXM4GB3JD	7.50
24 Vdc	RXM4GB3BD	7.50
48 Vdc	RXM4GB3ED	7.50
110 Vdc	RXM4GB3FD	7.50
125 Vdc	—	—
24 Vac	RXM4GB3B7	7.50
48 Vac	RXM4GB3E7	7.50
120 Vac	RXM4GB3F7	7.50
230 Vac	RXM4GB3P7	7.50

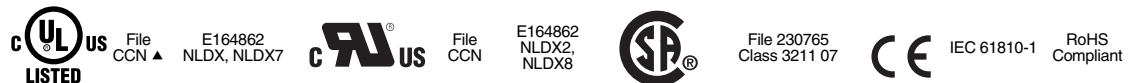
**Table 23.5: Miniature relays with low level contacts, with LED (sold in lots of 10)**

Number and type of contacts - Thermal current (Ith)		
4 C/O - 3 A Res.		
Coil Voltage	Catalog Number	\$ Price ea.
12 Vdc	RXM4GB2JD	8.10
24 Vdc	RXM4GB2BD	8.10
48 Vdc	RXM4GB2ED	8.10
110 Vdc	RXM4GB2FD	8.10
24 Vac	RXM4GB2B7	8.10
48 Vac	RXM4GB2E7	8.10
120 Vac	RXM4GB2F7	8.10
230 Vac	RXM4GB2P7	8.10
240 Vac	RXM4GB2U7	8.10



RXM4GB2F7

**Approvals for Relays:**



▲ When used with the appropriate socket.

For sockets and accessories, see page 23-3



RXZE2M114M with Relay RXM4AB2P7TQ

**Table 23.7: Miniature relays (sold in lots of 100)**

Coil Voltage	Number and type of contacts - Thermal current (Ith)			
	2 C/O - 12 A Res.		4 C/O - 8 A Res.	
	Catalog Number	\$ Price ea.	Catalog Number	\$ Price ea.
<b>Without LED</b>				
12 Vdc	—	—	RXM4AB1JDTQ	7.10
24 Vdc	RXM2AB1BDTQ	6.30	RXM4AB1BDTQ	7.10
48 Vdc	—	—	RXM4AB1EDTQ	7.10
110 Vdc	—	—	RXM4AB1FDTQ	7.10
220 Vdc	—	—	RXM4AB1MDTQ	7.10
24 Vac	RXM2AB1B7TQ	6.30	RXM4AB1B7TQ	7.10
48 Vac	—	—	RXM4AB1E7TQ	7.10
120 Vac	RXM2AB1F7TQ	6.30	RXM4AB1F7TQ	7.10
230 Vac	RXM2AB1P7TQ	6.30	RXM4AB1P7TQ	7.10
<b>With LED</b>				
24 Vdc	—	—	RXM4AB2BDTQ	8.10
24 Vac	RXM2AB2B7TQ	7.40	RXM4AB2B7TQ	8.10
230 Vac	RXM2AB2P7TQ	7.40	RXM4AB2P7TQ	8.10

**Table 23.8: Miniature relays with LED without Push Button (sold in lots of 100)**

Coil Voltage	Number and type of contacts - Thermal current (Ith)			
	2 C/O - 12 A Res.		4 C/O - 8 A Res.	
	Catalog Number	\$ Price ea.	Catalog Number	\$ Price ea.
24 Vdc	RXM2AB3BDTQ	6.80	RXM4AB3BDTQ	7.50
24 Vac	RXM2AB3B7TQ	6.80	RXM4AB3B7TQ	7.50
230 Vac	RXM2AB3P7TQ	6.80	RXM4AB3P7TQ	7.50

**Table 23.9: Sockets (sold in lots of 10)**

Contact terminal arrangement	Connection	Relay type	Catalog Number	\$ Price ea.
Mixed	Screw clamp terminals	RXM2*****▲ RXM4*****▲	RXZE2M114 ■	5.90
	Box lug connector	RXM2***** RXM4*****	RXZE2M114M ■	5.90
Separate	Box lug connector	RXM2*****	RXZE2S108M ◆	5.90
		RXM3*****	RXZE2S111M ■	5.90
		RXM4*****	RXZE2S114M ■	5.90

- ▲ When mounting relay RXM2\*\*\*\*\* on socket RXZE2M\*\*\*\*, the thermal current must not exceed 10 A.
- Thermal current Ith: 10 A
- ◆ Thermal current Ith: 12 A

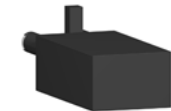
**Table 23.10: Protection modules (sold in lots of 20)**

Description	Voltage	For use with	Catalog Number	\$ Price ea.
Diode	6-250 Vdc	All sockets	RXM040W	2.30
RC circuit	24-60 Vac	All sockets	RXM041BN7	2.30
	110-240 Vac	All sockets	RXM041FU7	2.30
Varistor	6-24 Vac/Vdc	All sockets	RXM021RB	2.30
	24-60 Vac/Vdc	All sockets	RXM021BN	2.30
	110-240 Vac/Vdc	All sockets	RXM021FP	2.30

**Table 23.11: Accessories (sold in lots of 10)**

Description	For use with	Catalog Number	\$ Price ea.
Metal hold-down clip	All sockets	RXZ400	.57
Plastic hold-down clip	All sockets	RXZR335	.57
Bus jumper, 2-pole (Ith: 5 A)	All sockets with separate contacts	RXZS2	.84
Mounting adapter for DIN rail	All relays	RXZE2DA	.84
Mounting adapter for mounting directly to a panel	All relays	RXZE2FA	.57
Clip-in markers	All relays (sheet of 108 markers)	RXZL520	.05
	All sockets except RXZE2M114	RXZL420	.05

RXZE2S114M with relay RXM4AB2F7TQ



RXM041BN7



RXZ400

**Approvals for Sockets:**



File CCN E172326 SWIV2, SWIV8



File 230765 Class 3211 07



IEC 61810-1 RoHS Compliant

### Output, 2 C/O and 4 C/O contacts

- Miniature and plug-in (21 x 27 mm/0.827 x 1.062 in.)
- Single function: function A = delay on energization
- Rated current ~ 5 A
- 7 timing ranges (0.1 s to 100 h)
- Multivoltage
- Excellent immunity to interference
- Power on and relay energized indication by 2 LEDs



REXL2TM●●



REXL4TM●●

### References

#### Single function

Timing ranges	Functions	No. of relay outputs	Voltages		Reference	Weight
			V	kg/lb		
<b>0.1 s...1 s,</b> <b>1 s...10 s,</b> <b>0.1 min...1 min,</b> <b>1 min...10 min,</b> <b>0.1 h...1 h,</b> <b>1 h...10 h,</b> <b>10 h...100 h</b> (7 switchable ranges)	A	2	⎓	12	REXL2TMJD	0.050/ 0.110
				24	REXL2TMBD	0.050/ 0.110
			~	24 (50/60 Hz)	REXL2TMB7	0.050/ 0.110
				120 (50/60 Hz)	REXL2TMF7	0.050/ 0.110
			230 (50/60 Hz)	REXL2TMP7	0.050/ 0.110	
			4	⎓	12	REXL4TMJD
		24			REXL4TMBD	0.050/ 0.110
		~		24 (50/60 Hz)	REXL4TMB7	0.050/ 0.110
				120 (50/60 Hz)	REXL4TMF7	0.050/ 0.110
		230 (50/60 Hz)		REXL4TMP7	0.050/ 0.110	

### Sockets for relays

Contact terminal arrangement	For use with relays	Connection	Unit reference (2)	Weight
Mixed (3)	REXL2TM●●, REXL4TM●●	Screw clamp	RXZE2M114 (5)	0.048/ 0.106
	REXL2TM●●, REXL4TM●●	Connector	RXZE2M114M (6)	0.056/ 0.123
Separate (4)	REXL2TM●●	Connector	RXZES108M	0.070/ 0.154
	REXL4TM●●	Connector	RXZE2S114M	0.058/ 0.128

(1) For ⎓ 48 V supply, additional resistor 560 Ω 2 W / ⎓ 24 V.  
For ~ 48 V, additional resistor 390 Ω 4 W / ~ 24 V.

(2) These products are sold in lots of 10.

(3) The inputs are mixed with the relay's supply, with the outputs being located on the opposite side of the socket.

(4) The inputs and outputs are separated from the relay supply.

(5) Thermal current I<sub>th</sub>: 10 A.

(6) Thermal current I<sub>th</sub>: 12 A.

# Price List for Spring Clamp Products

## ZB5 Electrical Components—22 mm Push Buttons






ZB5AZ009



ZBE1015



ZB5AZ1015

Body/Mounting Collar					
For use with			Catalog Number	\$ Price	
Contact block or light module			ZB5AZ009	5.40	
Contact Blocks					
Spring terminal connections (1)					
Contacts for standard applications					
Description	Type of contact		Catalog Number	\$ Price	
		 N/O  N/C			
Contact blocks	Single	1	–	ZBE1015	18.00
		–	1	ZBE1025	18.00
	Single with body/mounting collar	1	–	ZB5AZ1015	24.00
		–	1	ZB5AZ1025	24.00
		2	–	ZB5AZ1035	42.00
		–	2	ZB5AZ1045	42.00
Light Modules					
Spring terminal connections (1)					
Description	Supply voltage	Color of light source	Catalog Number	\$ Price	
Integral LED (to combine with heads for integral LED)  	12 Vac/Vdc	White	ZBVJ15	57.00	
		Green	ZBVJ35	57.00	
		Red	ZBVJ45	57.00	
		Orange	ZBVJ55	57.00	
		Blue	ZBVJ65	57.00	
		24 Vac/Vdc	White	ZBVB15	57.00
	Green		ZBVB35	57.00	
	Red		ZBVB45	57.00	
	Orange		ZBVB55	57.00	
	Blue		ZBVB65	57.00	
	110–120 Vac		White	ZBVG15	57.00
		Green	ZBVG35	57.00	
		Red	ZBVG45	57.00	
		Orange	ZBVG55	57.00	
		Blue	ZBVG65	57.00	
		230–240 Vac	White	ZBVM15	57.00
	Green		ZBVM35	57.00	
	Red		ZBVM45	57.00	
	Orange		ZBVM55	57.00	
	Blue		ZBVM65	57.00	

(1) Additional blocks **cannot** be attached to the back of these contact blocks or light modules.

PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

Sales transactions (including those for Telemecanique® brand and other products) are subject to the latest published Conditions of Sale of the Square D Company.

Possession of this Price List by any individual or company is not to be construed as our offer to sell any of the products listed herein at the price shown.

Schneider Electric USA  
 8001 Knightdale Blvd.  
 Knightdale, NC 27545 USA  
 1-888 Square D  
 (1-888-778-2733)  
 www.Schneider-Electric.us



# Push Buttons & Operator Interface - XB5 22 mm Double Insulated Selector Switches

## Non-Illuminated Selector Switches ■ ▲



Shape of Head	Type of Operator	Number and Type of Positions		Catalog Number		
	<b>Standard lever, black</b> For colored lever add the following code to the end of the part number: 01 - white 03 - green 04 - red 05 - yellow 06 - blue (example ZB5AD204)	2 - maintained		<b>ZB5AD2</b>		
		2 - momentary from right to left		<b>ZB5AD4</b>		
		3 - maintained		<b>ZB5AD3</b>		
		3 - momentary to center		<b>ZB5AD5</b>		
		3 - momentary from left to center		<b>ZB5AD7</b>		
		3 - momentary from right to center		<b>ZB5AD8</b>		
			<b>Extended lever, black</b>	2 - maintained		<b>ZB5AJ2</b>
				2 - momentary from right to left		<b>ZB5AJ4</b>
3 - maintained				<b>ZB5AJ3</b>		
3 - momentary to center				<b>ZB5AJ5</b>		
3 - momentary from left to center				<b>ZB5AJ7</b>		
3 - momentary from right to center				<b>ZB5AJ8</b>		

## Non-Illuminated Key Switches ■



Shape of Head	Type of Operator	Number and Type of Positions ▲		Catalog Number ●
	<b>Key (No. 455)</b>	2 - maintained		<b>ZB5AG2</b>
				<b>ZB5AG4</b>
		2 - momentary from right to left		<b>ZB5AG6</b>
				<b>ZB5AG0</b>
		3 - maintained		<b>ZB5AG3</b>
				<b>ZB5AG5</b>
				<b>ZB5AG9</b>
				<b>ZB5AG09</b>
				<b>ZB5AG1</b>
		3 - momentary from left to center		<b>ZB5AG1</b>
		3 - momentary to center		<b>ZB5AG7</b>
		3 - momentary from right to center		<b>ZB5AG8</b>
	<b>ZB5AG08</b>			

The symbol indicates key withdrawal position(s).

- For actuation of outside contacts only.
- ▲ See selector switch sequence charts on page 91.
- Other key numbers:
  - key No. 421E: add the suffix 12 to the reference.
  - key No. 458A: add the suffix 10 to the reference.
  - key No. 520E: add the suffix 14 to the reference.
  - key No. 3131A: add the suffix 20 to the reference.

Example:

The catalog number for a head with key No. 421E for a 2 position maintained, lockable selector switch, with key withdrawal from the left-hand position, becomes: ZB5AG212.



ZB5AZ009



ZBE101



ZBE203



ZBVB\*

**Table 19.138: Body/Mounting Collar**

For use with	Catalog Number	\$ Price
Electrical block (contact or light module)	ZB5AZ009	5.40

**Table 19.139: Add-On Contact Block (with screw clamp terminal connections) \*▼**

Description	Type of Contact		Catalog Number	\$ Price
	N.O.	N.C.		
Standard single contact blocks▲■	1	—	ZBE101	16.40
	—	1	ZBE102	16.40
Standard double contact blocks▲■	2	—	ZBE203	33.20
	—	2	ZBE204	33.20
	1	1	ZBE205	33.20
	1	—	ZBE1016	32.80
Special contact blocks (for low power switching and dust protected)◆	—	1	ZBE1026	32.80

- ▲ For Quick-Connect version add "3" to the end of the catalog number (Example: ZBE1013) (Quick-Connect size 1 x 0.250" or 2 x 0.110").
- For Ring Tongue compatible blocks add "9" to the end of the catalog number (Example: ZBE1029).
- ◆ Cannot stack additional contact blocks onto these blocks.

**Table 19.140: Light Modules (with screw clamp terminal connections)\*▼**

Description	Supply Voltage	Color of Light Source	Catalog Number	\$ Price
	12 Vac/dc	White	ZBVJ1	52.00
		Green	ZBVJ3	
		Red	ZBVJ4	
		Yellow	ZBVJ5	
		Blue	ZBVJ6	
		White	ZBVB1	
Green	ZBVB3			
Red	ZBVB4			
Yellow	ZBVB5			
Blue	ZBVB6			
	24 Vac/dc	White	ZBVB1	52.00
		Green	ZBVB3	
		Red	ZBVB4	
		Yellow	ZBVB5	
		Blue	ZBVB6	
			110–120 Vac	
Green	ZBVG3			
Red	ZBVG4			
Yellow	ZBVG5			
Blue	ZBVG6			
	24–120 Vac/dc			White
		Green	ZBVBG3	
		Red	ZBVBG4	
		Yellow	ZBVBG5	
		Blue	ZBVBG6	
			230–240 Vac	White
Green	ZBVM3			
Red	ZBVM4			
Yellow	ZBVM5			
Blue	ZBVM6			
Direct supply for BA9s 2.4 W max. bulb Not included See page 19-53	≤250 Vac/dc			—

- ★ Electrical components with connection by printed circuit board pins are available. Refer to Catalog 9001CT0001 for more details.
- ▼ Electrical components with connection by plug-in connector are available. Refer to Catalog 9001CT0001 for more details.

**When ordering, please specify:**

- Quantity
- Catalog Number



New!

# Push Buttons & Operator Interface - XB5 22 mm Double Insulated Pilot Lights and Light Modules



ZB5AV053



ZB5AV01



ZB5CV063



ZB5AV6





ZB5AV3



ZB5AV\*\*

## Pilot Light Heads


Shape of Head	For Use with Body Comprising Light Source Type	Color of Lens	Catalog Number	
	Protected LED only	White	ZB5AV013	
		Green	ZB5AV033	
		Red	ZB5AV043	
		Yellow	ZB5AV053	
		Blue	ZB5AV063	
		White	ZB5AV013S	
	Protected LED only Fresnel lens	Green	ZB5AV033S	
		Red	ZB5AV043S	
		Yellow	ZB5AV053S	
		Blue	ZB5AV063S	
		For BA 9s incandescent bulb, neon or LED only	White	ZB5AV01
			Green	ZB5AV03
Red	ZB5AV04			
Yellow	ZB5AV05			
Blue	ZB5AV06			
Clear	ZB5AV07			
	Protected LED only	White	ZB5CV013	
		Green	ZB5CV033	
		Red	ZB5CV043	
		Yellow	ZB5CV053	
		Blue	ZB5CV063	

## Complete Bodies (Mounting Collar + Light Module for BA 9s Incandescent Bulb, Neon or LED)

Description	Light Source	Supply Voltage	Catalog Number
Screw clamp terminal connections ▼			
Direct supply	BA 9s bulb 2.4 W max. Not included ■	≤ 250 Vac or Vdc	ZB5AV6
Transformer type 1.2 VA, 6 V secondary	BA 9s incandescent bulb included	110-120 Vac, 50/60 Hz	ZB5AV3
		230-240 Vac, 50/60 Hz	ZB5AV4
		400-50 Hz	ZB5AV5
		440-480 Vac, 60 Hz	ZB5AV8
		550-600 Vac, 60 Hz	ZB5AV9

■ Bulb can be ordered separately, see page 101, or add voltage (24, 120) for bulb supplied.

## Complete Bodies (Mounting Collar + Light Module with Protected LED)

Light Source	Supply Voltage	Color of Light Source	Catalog Number
Screw clamp terminal connections ▼			
	24 Vac or Vdc	White	ZB5AVB1
		Green	ZB5AVB3
		Red	ZB5AVB4
		Yellow	ZB5AVB5
		Blue	ZB5AVB6
		110-120 Vac	White
Green	ZB5AVG3		
Red	ZB5AVG4		
Yellow	ZB5AVG5		
Blue	ZB5AVG6		

▼ For "Quick-Connect" version, add 3 to the end of the part number (Example: ZB5AV63) (1 x 0.250" or 2 x 0.110").

# Push Buttons & Operator Interface - XB5 22 mm Double Insulated Illuminated Operators

## Heads for Momentary Illuminated Push Buttons



ZB5AW313



ZB5AW363



ZB5AW143



ZB5CW113



ZB5AW33

Shape of Head	Type of Push	Color	Catalog Number
<b>Only use with protected LED light modules</b>			
	<b>Flush</b>	White	ZB5AW313
		Green	ZB5AW333
		Red	ZB5AW343
		Yellow	ZB5AW353
		Blue	ZB5AW363
	<b>Flush with clear boot</b>	White	ZB5AW513
		Green	ZB5AW533
		Red	ZB5AW543
		Yellow	ZB5AW553
		Blue	ZB5AW563
	<b>Flush for insertion of legend (lens supplied (not installed))</b>	White	ZB5AA18
		Green	ZB5AA38
		Red	ZB5AA48
		Yellow	ZB5AA58
		Blue	ZB5AA68
	<b>Extended</b>	White	ZB5AW113
		Green	ZB5AW133
		Red	ZB5AW143
		Yellow	ZB5AW153
		Blue	ZB5AW163
	<b>Mushroom (40 mm)</b>	Green	ZB5AW433
		Red	ZB5AW443
		Yellow	ZB5AW453
		Blue	ZB5AW463
		Clear	ZB5AW473
	<b>Flush for insertion of legend</b>	White	ZB5CW313
		Green	ZB5CW333
		Red	ZB5CW343
		Yellow	ZB5CW353
		Blue	ZB5CW363
	<b>Extended</b>	White	ZB5CW113
		Green	ZB5CW133
		Red	ZB5CW143
		Yellow	ZB5CW153
		Blue	ZB5CW163
<b>Only use with light modules for a BA 9s incandescent bulb, neon or LED</b>			
	<b>Flush</b>	White	ZB5AW31
		Green	ZB5AW33
		Red	ZB5AW34
		Yellow	ZB5AW35
		Blue	ZB5AW36
		Clear	ZB5AW37
	<b>Extended</b>	White	ZB5AW11
		Green	ZB5AW13
		Red	ZB5AW14
		Yellow	ZB5AW15
		Blue	ZB5AW16
		Clear	ZB5AW17

# Push Buttons & Operator Interface - XB5 22 mm Double Insulated Non-Illuminated Operators

## Non-Illuminated Operators, Momentary - Unmarked



ZB5AA0



ZB5AA5



ZB5AL3



ZB5AP1



ZB5CA2



ZB5CA5

Shape of Head	Type of Push	Color of Cap	Catalog Number
	Flush, without color cap ■	–	ZB5AA0
	Flush, with set of 6 color caps	6 colors ▲	ZB5AA9
	Flush	White	ZB5AA1
		Black	ZB5AA2
		Green	ZB5AA3
		Red	ZB5AA4
		Yellow	ZB5AA5
		Blue	ZB5AA6
	Flush with transparent cap, for insertion of legend ●	Grey	ZB5AA8
		White	ZB5AA18
		Green	ZB5AA38
		Red	ZB5AA48
	Extended	Yellow	ZB5AA58
		Blue	ZB5AA68
		White	ZB5AL1
		Black	ZB5AL2
		Green	ZB5AL3
		Red	ZB5AL4
	Booted (clear) Color of cap unobscured	Yellow	ZB5AL5
		Blue	ZB5AL6
		White	ZB5AP1
		Black	ZB5AP2
		Green	ZB5AP3
		Red	ZB5AP4
	Booted (clear) for insertion of legend ● Color of cap unobscured	Yellow	ZB5AP5
		Blue	ZB5AP6
		White	ZB5AP18
		Green	ZB5AP38
		Red	ZB5AP48
		Yellow	ZB5AP58
	Flush Plunger (with high guard)	Blue	ZB5AP68
		White	ZB5AA14
		Black	ZB5AA24
		Green	ZB5AA34
		Red	ZB5AA44
		Yellow	ZB5AA54
	Flush	Blue	ZB5AA64
		White	ZB5CA1
		Black	ZB5CA2
		Green	ZB5CA3
		Red	ZB5CA4
		Yellow	ZB5CA5
	Extended	Blue	ZB5CA6
		White	ZB5CL1
		Black	ZB5CL2
		Green	ZB5CL3
		Red	ZB5CL4
		Yellow	ZB5CL5
	Blue	ZB5CL6	

- Color cap to be ordered separately, see page 100.
- ▲ Six different color caps included with head (white, black, green, red, yellow, blue).
- For legend ordering information see page 99.

Bulletin 855PS — Panel Mount Xenon Strobe

855PS – B    10    ME    3    22  
                   *a*        *b*        *c*        *d*        *e*



30 mm Panel Mount Strobe



45 mm Panel Mount Strobe



65 mm Panel Mount Strobe

*a*

Housing Color	
Code	Description
B	Black

*b*

Voltage	
Code	Description
12	12V AC/DC
24	24V AC/DC
10	120V AC
20	240V AC
30	12...24V AC/DC

*c*

Diameter	
Code	Description
SE	30 mm*
ME	45 mm*
LE	65 mm*

\* Only available in 12V AC/DC, 24V AC/DC, 120V AC, or 240V AC.

\* Only available in 12...24V AC/DC, 120V, or 240V AC.


*d*

Lens Color	
Code	Description
3	Green
4	Red
5	Amber
6	Blue
7	Clear
8	Yellow

*e*

Mounting Hole	
Code	Description
22	22.5 mm

Voltage	Diameter [mm]	Lens Color	Cat. No.	
24V AC/DC	30	Green	<b>855PS-B24SE322</b>	
		Red	<b>855PS-B24SE422</b>	
12...24V AC/DC	45	Green	<b>855PS-B30ME322</b>	
		Red	<b>855PS-B30ME422</b>	
	65	Green	<b>855PS-B30LE322</b>	
		Red	<b>855PS-B30LE422</b>	
	120V AC	30	Green	<b>855PS-B10SE322</b>
			Red	<b>855PS-B10SE422</b>
45		Green	<b>855PS-B10ME322</b>	
		Red	<b>855PS-B10ME422</b>	
65	Green	<b>855PS-B10LE322</b>		
	Red	<b>855PS-B10LE422</b>		

	<p><b>Bulletin 855P — Panel Mount Signaling Alarms</b></p> <ul style="list-style-type: none"> <li>• Mounts in standard 22.5 mm hole</li> <li>• Watertight panel alarms in three different sizes</li> <li>• Sound output 72...105 dB @ 1 meter</li> <li>• UL Type 4/4X/13, IP65</li> <li>• Combination sounder and LED products</li> <li>• Panel mount strobe or LED indicator products</li> <li>• Plug-in terminal blocks, IP2X finger-safe rated</li> <li>• Single-circuit functions include:                     <ul style="list-style-type: none"> <li>- Sounder with selectable continuous or pulsing tone (also wobble on 65 mm)</li> <li>- Combined sounder with LED beacon</li> <li>- Xenon flashing strobe</li> <li>- LED beacon, selectable steady, or flashing</li> </ul> </li> <li>• Dual-circuit functions include:                     <ul style="list-style-type: none"> <li>- Two-color LED beacon half-lens illumination</li> <li>- Two-color LED beacon full-lens illumination</li> <li>- Combined sounder with LED beacon</li> </ul> </li> </ul>	<p><b>Table of Contents</b></p> <p>Product Selection ..... this page</p> <p>Accessories..... 11-5</p> <p>Specifications..... 11-6</p> <p>Approximate Dimensions..... 11-7</p> <p><b>Standards Compliance</b></p> <p>EN/IEC 60947-1              EN/IEC 60947-5-1              UL 508              CSA C22.2 No. 14</p> <p><b>Certifications</b></p> <p>cULus Listed (File No. E14840,              Guides NKCR, NKCR7)              CE Marked</p>
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**Bulletin 855P — Panel Mount Sounder**

855P –  $\frac{B}{a}$   $\frac{10}{b}$   $\frac{ME}{c}$   $\frac{22}{d}$



Housing Color	
Code	Description
B	Black

Voltage	
Code	Description
30	12...24V AC/DC
10	120V AC
20	240V AC

Size	
Code	Description
SE	30 mm, fully-enclosed, smooth front, 72 dB
SH	30 mm, high output, 80 dB
ME	45 mm
LE	65 mm

Mounting Hole	
Code	Description
22	22.5 mm

Voltage	Description	Cat. No.
12...24V AC/DC	30 mm diameter, fully-enclosed, smooth front, 72 dB	<b>855P-B30SE22</b>
	30 mm diameter, high output, 80 dB	<b>855P-B30SH22</b>
	45 mm diameter, 100 dB	<b>855P-B30ME22</b>
	65 mm diameter, 105 dB	<b>855P-B30LE22</b>
120V AC	30 mm diameter, fully-enclosed, smooth front, 72 dB	<b>855P-B10SE22</b>
	30 mm diameter, high output, 80 dB	<b>855P-B10SH22</b>
	45 mm diameter, 100 dB	<b>855P-B10ME22</b>
	65 mm diameter, 105 dB	<b>855P-B10LE22</b>

**NEW!**  
See  
reverse

# Low-Profile Strain-Relief Cord Connector

*Lowest Cost in the Industry • Widest Cable Ranges*

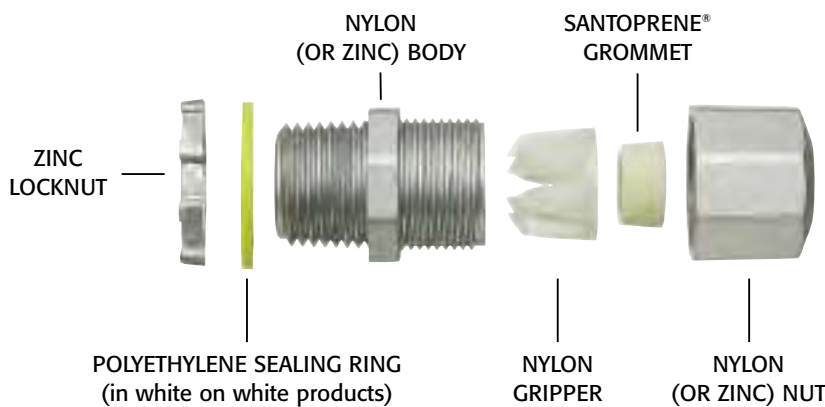


Put the squeeze on cable with Arlington's non-metallic, low-profile, strain-relief cord grips! They have the widest cord ranges in the industry at the lowest cost, so there are fewer items to stock.

They deliver superior pullout resistance. The nylon gripper squeezes down on the cable or cord as the nut is tightened, locking it firmly in place. Plus, the unique internal grommet assures a liquid-tight and oil-tight seal.

- Available with nylon body and nut, or zinc body and nut
- Available in white with sealing ring in white to match
- Non-metallic or zinc
- Includes sealing ring and locknut

## Low-Profile Connector Assembly



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1 Stauffer Industrial Park  
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**800/233.4717**  
**Fax 570/562.0646**  
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# Low-Profile Strain-Relief Cord Connector

*Liquid-Tight • Oil-Tight*

## Low-Profile Strain-Relief Cord Connectors

**Non-metallic.** Liquid-tight • Oil-tight.  
Furnished with sealing ring and locknut.



LPCG50

LPCG50W

CATALOG NUMBER	UPC/DCI/NAED MFG #01 8997	TRADE SIZE	CORD RANGE	UNIT PKG	STD PKG
LPCG503	50350	1/2	.100 - .300	25	100
LPCG50W (wht)	32875	1/2	.200 - .472	25	100
LPCG50	80086	1/2	.200 - .472	25	100
LPCG507	50354	1/2	.385 - .750	25	100
LPCG753	50760	3/4	.100 - .300	10	50
LPCG754	50762	3/4	.200 - .472	10	50
LPCG757	36100	3/4	.385 - .750	10	50
50LPCGBAG†	55080	1/2	.100 - .472	-	500
75LPCGBAG†	55082	3/4	.100 - .472	-	100

**LPCG503** and **LPCG753**: UL not applicable for .100 - .240 wire diameter – wire strength will not meet UL's 35 lb. pullout test requirement for the fitting.

**LPCG50**: UL not applicable for .200 to .240 wire diameter – wire strength will not meet UL's 35 lb. test requirement for the fitting.

†Includes UF grommet 14/2 to 12/2. Bags not available in black.

When ordering in black, add suffix "BL" to catalog #.

When ordering in white, add suffix "W" to catalog # (ie. LPCG50W).

Patented.

## Low-Profile Strain-Relief Cord Connectors

**Zinc die-cast.** Liquid-tight • Oil-tight.  
Furnished with sealing ring and locknut.



LPCG50Z

CATALOG NUMBER	UPC/DCI/NAED MFG #01 8997	TRADE SIZE	CORD RANGE	UNIT PKG	STD PKG
LPCG503Z	50352	1/2	.100-.300	25	100
LPCG50Z	36110	1/2	.200-.472	25	100
LPCG507Z	50356	1/2	.385-.750	25	100
LPCG753Z	36105	3/4	.100-.300	10	50
LPCG754Z	50764	3/4	.200-.472	10	50
LPCG757Z	50766	3/4	.385-.750	10	50

**LPCG503Z** and **LPCG753Z**: UL not applicable for .100 - .240 wire diameter – wire strength will not meet UL's 35 lb. pullout test requirement for the fitting.

**LPCG50Z**: UL not applicable for .200 to .240 wire diameter – wire strength will not meet UL's 35 lb. test requirement for the fitting.

Patented.

## Cable Chart for Arlington Cord Grip Fittings

Check outside wire diameter or manufacturer's specifications for dimensions.

CABLE RANGE	COMMUNICATION & CONTROL WIRE	SJ & SJO	S & SO	SJTO	STO
<b>.100 to .200</b>	22-2 to 14-1				
	14-1				
	12-1				
<b>.200 to .300</b>	22-2	18-2	18-2	18-2	18-2
	20-2 to 20-4	18-3	18-3	18-3	18-3
	18-2	16-2		16-2	16-2
	18-3	16-4		16-4	
<b>.300 to .385</b>		16-3		16-3	
				14-2	
<b>.385 to .472</b>		16-4	16-2 to 16-4	16-4	18-4
		14-2 to 14-4	14-2	14-3	16-3
		12-2		14-4	14-2
		12-3		12-3	
				12-4	
<b>.472 to .625</b>	12-4	14-3	10-2 to 10-4	14-3	
	10-2 to 10-4	14-4		14-4	
		12-2 to 12-4		12-2 to 12-4	
		10-3		10-2	
		8-2		10-3	
<b>.625 to .750</b>	10-4	12-4	10-4	12-4	
		10-2 to 10-4		10-2 to 10-4	
		8-2			
		8-3			
<b>.750 to .875</b>		8-4			
		8-5			
		6-2			
<b>.875 to 1.000</b>		6-3			
		6-4		6-4	
		4-2		4-3	
		4-3			



**Arlington**

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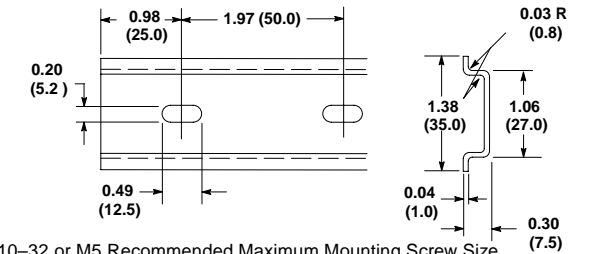
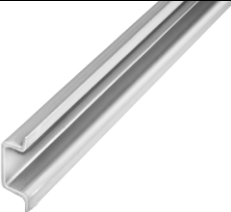
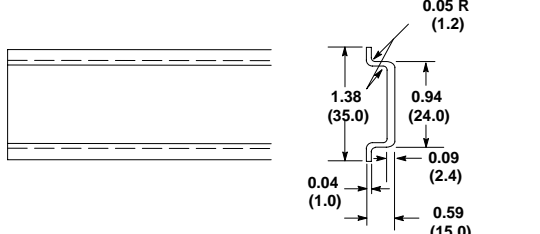

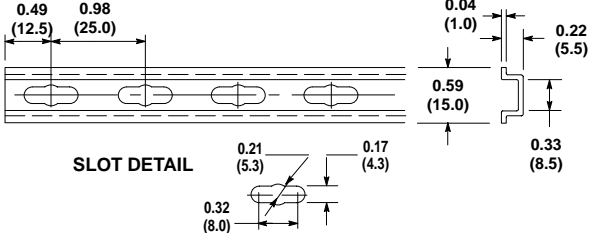

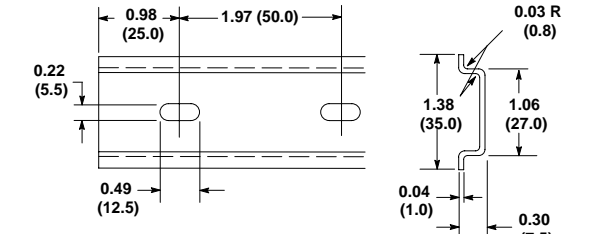

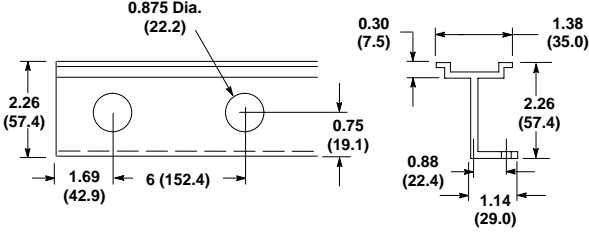

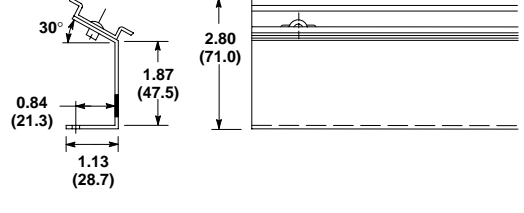
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Patented. Other patents pending  
Rev 0510

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DIN Mounting Rails

Item	Description	Pcs./Pkg.	Dimensions ①
<p><b>199-DR1</b></p> 	<p>Symmetrical Rail 35 mm x 7.5 mm 3.28' (1 m) long Zinc-Plated, Yellow Chromated Steel EN50022</p> <p><b>DIN #3</b></p>	<p>10</p>	 <p>#10–32 or M5 Recommended Maximum Mounting Screw Size</p>
<p><b>199-DR4</b></p> 	<p>Heavy Duty Symmetrical Rail 35 mm x 15 mm 3.28' (1 m) long Zinc-Plated, Yellow Chromated Steel EN50022</p> <p><b>DIN #3</b></p>	<p>5</p>	
<p><b>1492-DR3</b></p> 	<p>Mini 15 mm x 5.5 mm Rail 3.28' (1 m) long Zinc-Plated, Yellow Chromated Steel EN50045</p> <p><b>DIN #2</b></p>	<p>5</p>	 <p>SLOT DETAIL</p> <p>#8–32 or M4 Recommended Maximum Mounting Screw Size</p>
<p><b>1492-DR5</b></p> 	<p>Symmetrical Rail 35 mm x 7.5 mm 3.28' (1 m) long Copper-Free Aluminum EN50022</p> <p>For 1492 Terminal Blocks Only</p> <p><b>DIN #3</b></p>	<p>10</p>	 <p>#12–24 or M5 Recommended Maximum Mounting Screw Size</p>
<p><b>1492-DR6 ②</b></p> 	<p>Symmetrical Rail 35 mm x 7.5 mm 2.26" (57.4 mm) high 3.28' (1 m) long Copper-Free Aluminum</p> <p>For 1492 Terminal Blocks Only</p> <p><b>DIN #3</b></p>	<p>2</p>	 <p>Wire insulator plug for wire access through rail — use Heyco</p>
<p><b>1492-DR7 ②</b></p> 	<p>Symmetrical Rail 35 mm x 7.5 mm 2.80" (71.0 mm) high 3.28' (1 m) long Angled 30° Zinc-Plated, Chromated Steel</p> <p><b>DIN #3</b></p>	<p>2</p>	 <p>For mounting rail details, see Cat. No. 199-DR1</p>

① Dimensions shown in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.  
 ② 0.218" (5.5 mm) x 0.50" (12.7 mm) slotted mounting holes every 3" (76.2 mm) starting 1.69" (42.9 mm) from end.

# Screw Connection Terminal Blocks

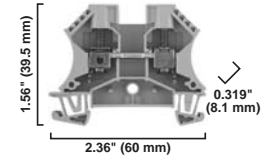
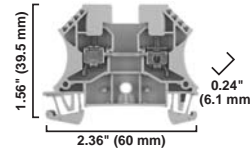
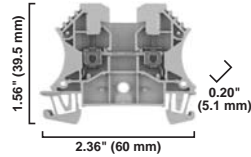
## Standard Feed-Through Blocks

**1492-J3**

**1492-J4**

**1492-J6**

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	Feed-Through Terminal Block				Feed-Through Terminal Block				Feed-Through Terminal Block			
	UL	CSA	IEC	ATEX	UL	CSA	IEC	ATEX	UL	CSA	IEC	ATEX
Certifications	UL	CSA	IEC	ATEX	UL	CSA	IEC	ATEX	UL	CSA	IEC	ATEX
Voltage Rating	600V AC/DC				600V AC/DC				600V AC/DC			
Maximum Current	65 A	50 A	24 A	21 A	35 A	25 A	32 A	28 A	50 A	41 A	36 A	36 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)	#22... 10 AWG	#26... 10 AWG	4 mm <sup>2</sup>	4 mm <sup>2</sup> (#20... 12 AWG)	#22...8 AWG	6 mm <sup>2</sup>	6 mm <sup>2</sup> (#20... 10 AWG)	6 mm <sup>2</sup> (#20... 10 AWG)
Wire Strip Length	0.39 in. (10 mm)				0.39 in. (10 mm)				0.47 in (12 mm)			
Recommended Tightening Torque	4.5...7.1 lb•in. (0.5...0.8 N•m)				9.0 lb•in. (1.0 N•m)				14.2 lb•in (1.6 N•m)			
Density	59 pcs/ft (196 pcs/m)				49 pcs/ft (163 pcs/m)				37 pcs/ft (123 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 12-43											

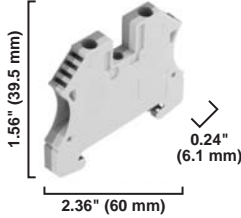
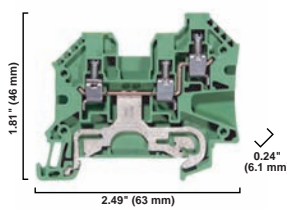
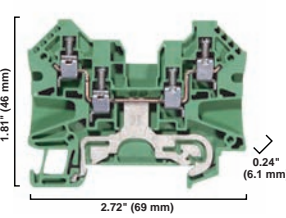
Terminal Blocks	Cat. No.	Pkg Qty.	Cat. No.	Pkg Qty.	Cat. No.	Pkg Qty.
Color:	Grey	100	1492-J3	100	1492-J4	100
	Red	100	1492-J3-RE	100	1492-J4-RE	100
	Blue	100	1492-J3-B	100	1492-J4-B	100
	Black	100	1492-J3-BL	100	1492-J4-BL	100
	Green	100	1492-J3-G	100	1492-J4-G	100
	Yellow	100	1492-J3-Y	100	1492-J4-Y	100
	Orange	100	1492-J3-OR	100	1492-J4-OR	100
	Brown	100	1492-J3-BR	100	1492-J4-BR	100
	White	100	1492-J3-W	100	1492-J4-W	100

Accessories	Cat. No.	Pkg Qty.	Cat. No.	Pkg Qty.	Cat. No.	Pkg Qty.
Mounting Rails:						
1 m Symmetrical DIN (Steel)	199-DR1	10	199-DR1	10	199-DR1	10
1 m Symmetrical DIN (Aluminum)	1492-DR5	10	1492-DR5	10	1492-DR5	10
1 m Hi-Rise Sym. DIN (Aluminum)	1492-DR6	2	1492-DR6	2	1492-DR6	2
1 m Angled Hi-Rise Sym. DIN (Steel)	1492-DR7	2	1492-DR7	2	1492-DR7	2
End Barriers						
Grey	1492-EBJ3	50	1492-EBJ3	50	1492-EBJ3	50
Blue	1492-EBJ3-B	50	1492-EBJ3-B	50	1492-EBJ3-B	50
Yellow	1492-EBJ3-Y	50	1492-EBJ3-Y	50	1492-EBJ3-Y	50
End Anchors and Retainers:						
Screwless End Retainer	1492-ERL35	20	1492-ERL35	20	1492-ERL35	20
DIN Rail — Normal Duty	1492-EAJ35	100	1492-EAJ35	100	1492-EAJ35	100
DIN Rail — Heavy Duty	1492-EAHJ35	50	1492-EAHJ35	50	1492-EAHJ35	50
Jumpers:*						
Screw Center Jumper — 10-pole	1492-CJJ5-10	20	1492-CJJ6-10	20	1492-CJJ8-10	20
Screw Center Jumper — 4-pole	1492-CJJ5-4	50	1492-CJJ6-4	50	1492-CJJ8-4	50
Screw Center Jumper — 3-pole	1492-CJJ5-3	50	1492-CJJ6-3	50	1492-CJJ8-3	50
Screw Center Jumper — 2-pole	1492-CJJ5-2	50	1492-CJJ6-2	50	1492-CJJ8-2	50
Plug-in Center Jumper — 50-Pole	1492-CJLJ5-50	10	1492-CJLJ6-41 (41-pole)	10	—	—
Plug-in Center Jumper — 10-Pole	1492-CJLJ5-10	20	1492-CJLJ6-10	20	—	—
Plug-in Center Jumper — 9-Pole	1492-CJLJ5-9	20	—	—	—	—
Plug-in Center Jumper — 8-Pole	1492-CJLJ5-8	20	—	—	—	—
Plug-in Center Jumper — 7-Pole	1492-CJLJ5-7	20	—	—	—	—
Plug-in Center Jumper — 6-Pole	1492-CJLJ5-6	20	—	—	—	—
Plug-in Center Jumper — 5-Pole	1492-CJLJ5-5	20	—	—	—	—
Plug-in Center Jumper — 4-Pole	1492-CJLJ5-4	60	1492-CJLJ6-4	60	—	—
Plug-in Center Jumper — 3-Pole	1492-CJLJ5-3	60	1492-CJLJ6-3	60	—	—
Plug-in Center Jumper — 2-Pole	1492-CJLJ5-2	60	1492-CJLJ6-2	60	—	—
Insulated Side Jumper — 24-Pole	1492-SJ5B-24	50	—	—	—	—
Insulated Side Jumper — 10-Pole	1492-SJ5B-10	50	—	—	—	—
Screw Type Jumper Notching Tool	1492-T1	1	1492-T1	1	1492-T1	1
Other Accessories:						
Partition Plate	1492-EBJ16	20	1492-EBJ16	20	1492-EBJ16	20
Test Plug Socket	1492-TPS23	20	1492-TPS23L	50	1492-TPS23L	50
Test Plug	1492-TP23	20	1492-TP23	20	1492-TP23	20
Test Plug (Stackable)	1492-TPJ5	25	1492-TPJ6	25	—	—
Electrical Warning Plate	1492-EWPJ5	25	1492-EWPJ5	25	1492-EWPJ8	50
Group Marking Carrier	1492-GM35	25	1492-GM35	25	1492-GM35	25
Marking Systems:						
Snap-in Marker Cards	1492-M5X12 (144/card)	5	1492-M6X12 (120/card)	5	1492-MR8X12 (84/card)	5
	1492-M5X5 (200/card)	5	1492-M6X5 (200/card)	5	1492-M8X5 (160/card)	5

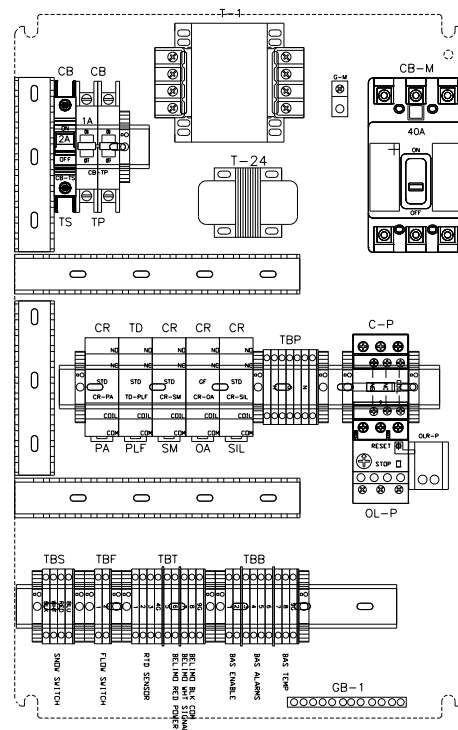
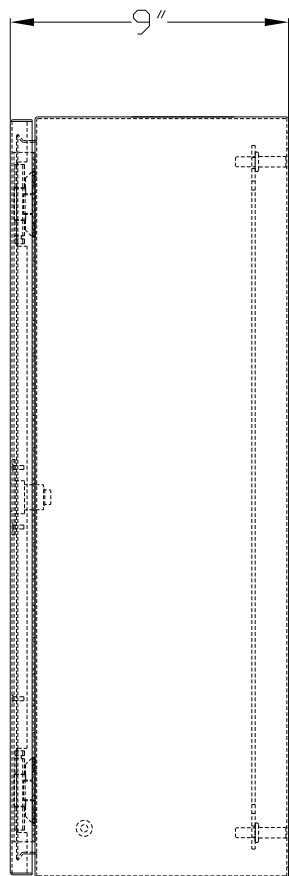
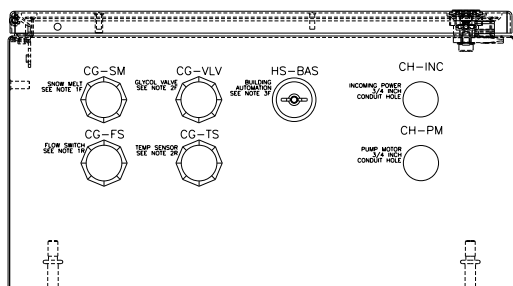
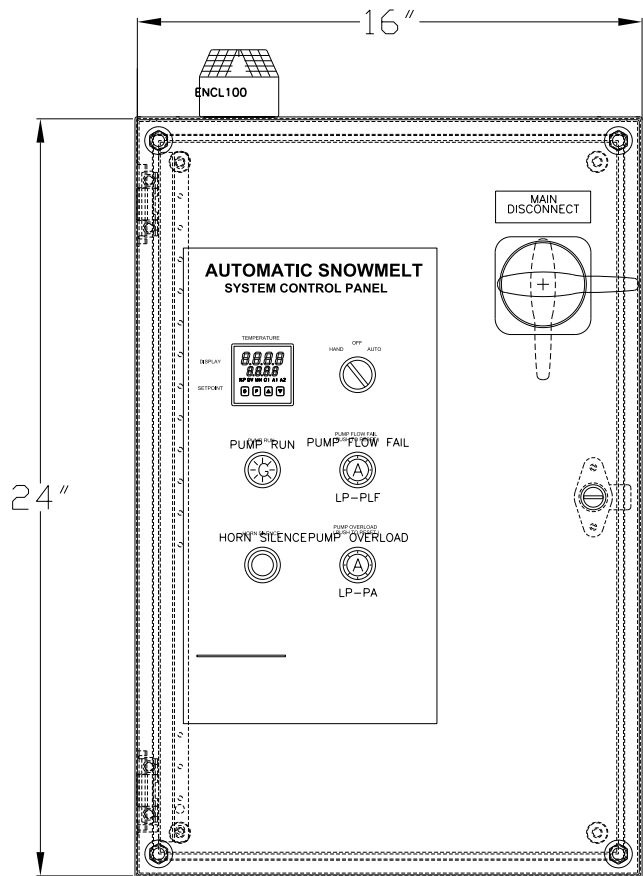
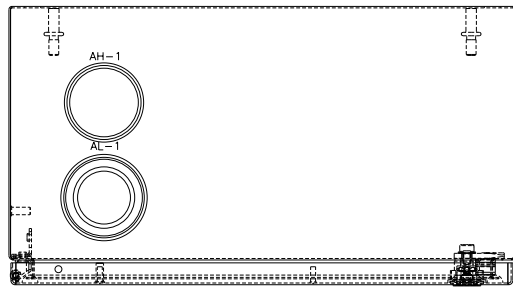
\* Use of center jumpers may affect spacings, requiring derating of terminal blocks. See page 12-78 for details.

# Screw Connection Terminal Blocks

## Grounding Blocks, Continued

	1492-JG4				1492-JG4TW			1492-JG4Q		
Dimensions are not intended to be used for manufacturing purposes. Note: Height dimension is measured from top of rail to top of terminal block.										
<b>Specifications</b>	<i>Feed-Through Ground Block</i>				<i>Single-level ground block with twin connection points on one side</i>			<i>Single-level ground block with twin connection points on both sides</i>		
Certifications	<b>UL</b>	<b>CSA</b>	<b>IEC</b>	<b>ATEX</b>	<b>UL</b>	<b>CSA</b>	<b>IEC</b>	<b>UL</b>	<b>CSA</b>	<b>IEC</b>
Voltage Rating	—	—	—	—	—	—	—	—	—	—
Maximum Current	Grounding				Grounding			Grounding		
Wire Range (Rated Cross Section)	#22...10 AWG		4 mm <sup>2</sup>	4 mm <sup>2</sup> (#20...12 AWG)	#30...10 AWG		0.5...4 mm <sup>2</sup>	#30...10 AWG		0.5...4 mm <sup>2</sup>
Wire Strip Length	0.39 in. (10 mm)				0.394 in. (10 mm)			0.394 in. (10 mm)		
Recommended Tightening Torque	9 lb•in. (1.0 N•m)				6.2 lb•in. (0.7 N•m)			6.2 lb•in. (0.7 N•m)		
Mounting Torque - Center Screw	4.4...7.1 lb•in. (0.5...0.8 N•m)				—			—		
Density	49 pcs/ft (163 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 12-43									
<b>Terminal Blocks</b>	<b>Cat. No.</b>	<b>Pkg Qty.</b>	<b>Cat. No.</b>	<b>Pkg Qty.</b>	<b>Cat. No.</b>	<b>Pkg Qty.</b>	<b>Cat. No.</b>	<b>Pkg Qty.</b>	<b>Cat. No.</b>	<b>Pkg Qty.</b>
Color: Green/Yellow	<b>1492-JG4</b>	100	<b>1492-JG4TW</b>	50	<b>1492-JG4Q</b>	50				
<b>Accessories</b>	<b>Cat. No.</b>	<b>Pkg Qty.</b>	<b>Cat. No.</b>	<b>Pkg Qty.</b>	<b>Cat. No.</b>	<b>Pkg Qty.</b>	<b>Cat. No.</b>	<b>Pkg Qty.</b>	<b>Cat. No.</b>	<b>Pkg Qty.</b>
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 Yellow	Not Required	—	1492-EBJ4TW-Y	50	<b>1492-EBJ4Q-Y</b>	50				
End Anchors:										
Screwless End Retainer	<b>1492-ERL35</b>	20	<b>1492-ERL35</b>	20	<b>1492-ERL35</b>	20				
DIN Rail - Normal Duty	<b>1492-EAJ35</b>	100	<b>1492-EAJ35</b>	100	<b>1492-EAJ35</b>	100				
DIN Rail - Heavy Duty	<b>1492-EAHJ35</b>	50	<b>1492-EAHJ35</b>	50	<b>1492-EAHJ35</b>	50				
Group Marking Rail Mount Group Marking Carrier	<b>1492-GM35</b>	25	<b>1492-GM35</b>	25	<b>1492-GM35</b>	25				
End Anchor Top Marker Carrier*	—	—	<b>1492-GMC</b>	50	<b>1492-GMC</b>	50				
Cat. No. 1492-GMC Top Marker Tag	—	—	<b>1492-M5X30</b> (20/card)	5	<b>1492-M5X30</b> (20/card)	5				
Marking Systems:										
Snap-in marker cards	<b>1492-M6X12</b> (120/card)	5	<b>1492-MR6X12</b> (120/card)	5	<b>1492-MR6X12</b> (120/card)	5				
Snap-in marker cards	<b>1492-M6X5</b> (200/card)	5	<b>1492-M6X12</b> (120/card)	5	<b>1492-M6X12</b> (120/card)	5				

\* The Bulletin 1492-GMC marker carrier installs directly on the top of a 1492-EAJ35 end anchor or a 1492-ERL35 end retainer for group marking purposes.



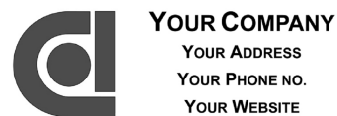
PANEL TO BE UL LISTED (usUL, cUL)  
INDUSTRIAL CONTROL PANEL  
UL508A FILE NO E109698

TAG LEGEND  
L- = LIGHT  
LP- = LIGHTED PUSHBUTTON  
P- = PUSHBUTTON  
S- = SELECTOR SWITCH  
T- = TAG

NAME LEGEND  
LP-PA PUMP OVERLOAD  
(RESET)  
LP-PLF PUMP FLOW FAIL  
(RESET)  
L-PR PUMP RUN  
P-AS HORN SILENCE  
S-P HAND-OFF-AUTO  
T-MD MAIN  
DISCONNECT

- NOTES:  
LOOSE CORD GRIPS AND CABLES PACKAGED IN SEPARATE BOX FOR SHIPMENT
- 1F) SNOW MELT SENSOR - CUSTOMER TO INSTALL CORD GRIP (IN SEPARATE BOX) ON END OF SNOW MELT SENSOR CABLE AND INSTALL HERE
- 1R) FLOW SWITCH - CUSTOMER TO INSTALL FLOW SWITCH CABLE (IN SEPARATE BOX) WITH CORD GRIP HERE
- 2F) MOTORIZED VALVE - CUSTOMER TO INSTALL VALVE CABLE (IN SEPARATE BOX) WITH CORD GRIP HERE
- 2R) TEMPERATURE SENSOR - CUSTOMER TO INSTALL TEMPERATURE SENSOR CABLE (IN SEPARATE BOX) WITH CORD GRIP HERE
- 3F) BAS MONITORING SYSTEM - INSTALL HOLE SEAL.
- 4F) INCOMING POWER - CUSTOMER TO CONNECT INCOMING POWER WITH UL/NEMA TYPE 4 OR 4X 3/4 INCH CONDUIT FITTINGS
- 4R) PUMP MOTOR - CUSTOMER TO CONNECT PUMP MOTOR POWER USING UL/NEMA TYPE 4 OR 4X 3/4 INCH CONDUIT HOLE CONDUIT FITTINGS

REV	DATE	PURPOSE:	BY	CHKD



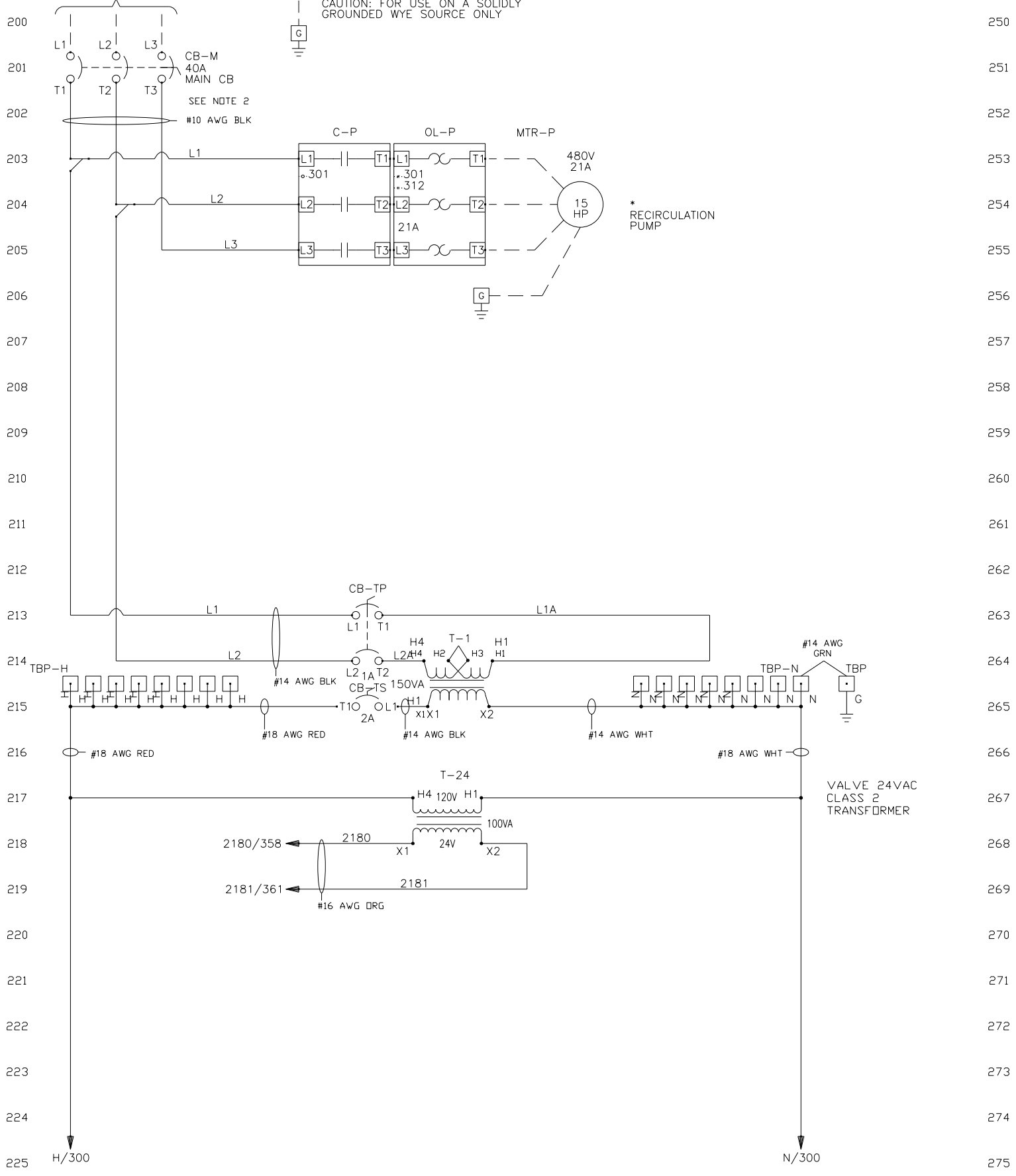
DESIGNED	DATE	FOR:
BL	11/2013	YOUR CUSTOMER
DRAWN	DATE	
	11/2013	
CHECKED	DATE	

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ENCLOSURE LAYOUT HEAT EXCHANGER GLYCOL HEATER PANEL	DRAWING SET: 2013-465 GLYCOL PANEL	SHEET: 1 OF 5
---	---------------------------------------	------------------

480Y/277V-3PH 60 Hz 22 FLA  
SCCR 10KA RMS SYMMETRICAL AT 480V

GND  
CAUTION: FOR USE ON A SOLIDLY  
GROUNDED WYE SOURCE ONLY



1) DASHED LINES INDICATE DEVICES SUPPLIED,  
INSTALLED, AND WIRED BY OTHERS.

2) WARNING: RISK OF FIRE OR ELECTRIC  
SHOCK-THE OPENING OF THE BRANCH-CIRCUIT  
PROTECTIVE DEVICE MAY BE AN INDICATION  
THAT A FAULT CURRENT HAS BEEN  
INTERRUPTED. ALL CURRENT-CARRYING PARTS  
AND OTHER COMPONENTS DETECTED  
BY THIS DEVICE SHOULD BE EXAMINED AND  
REPLACED IF DAMAGED. IF BURNOUT OF A  
CURRENT ELEMENT OF AN OVERLOAD  
RELAY OCCURS, THE COMPLETE OVERLOAD  
RELAY MUST BE REPLACED.

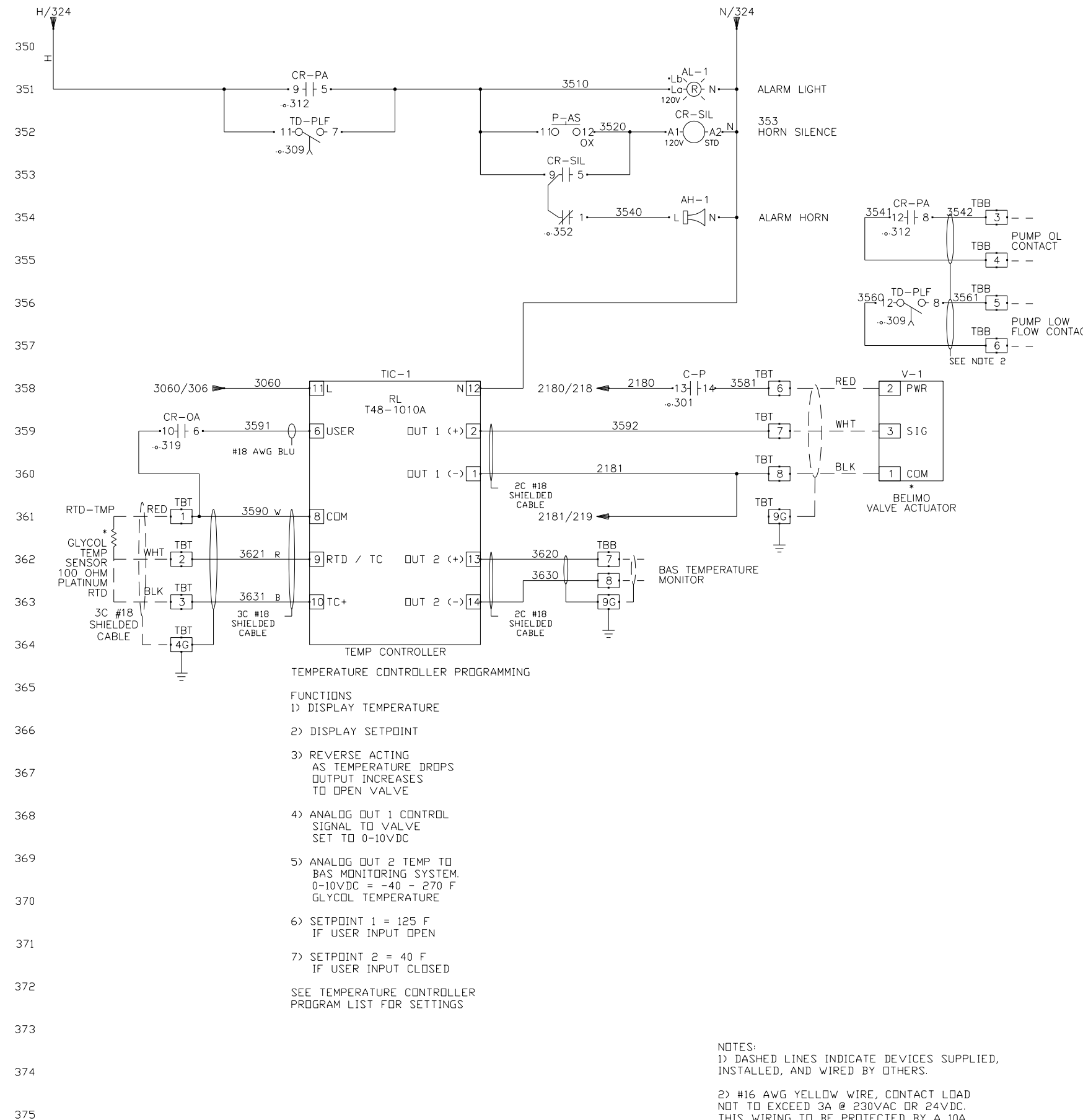
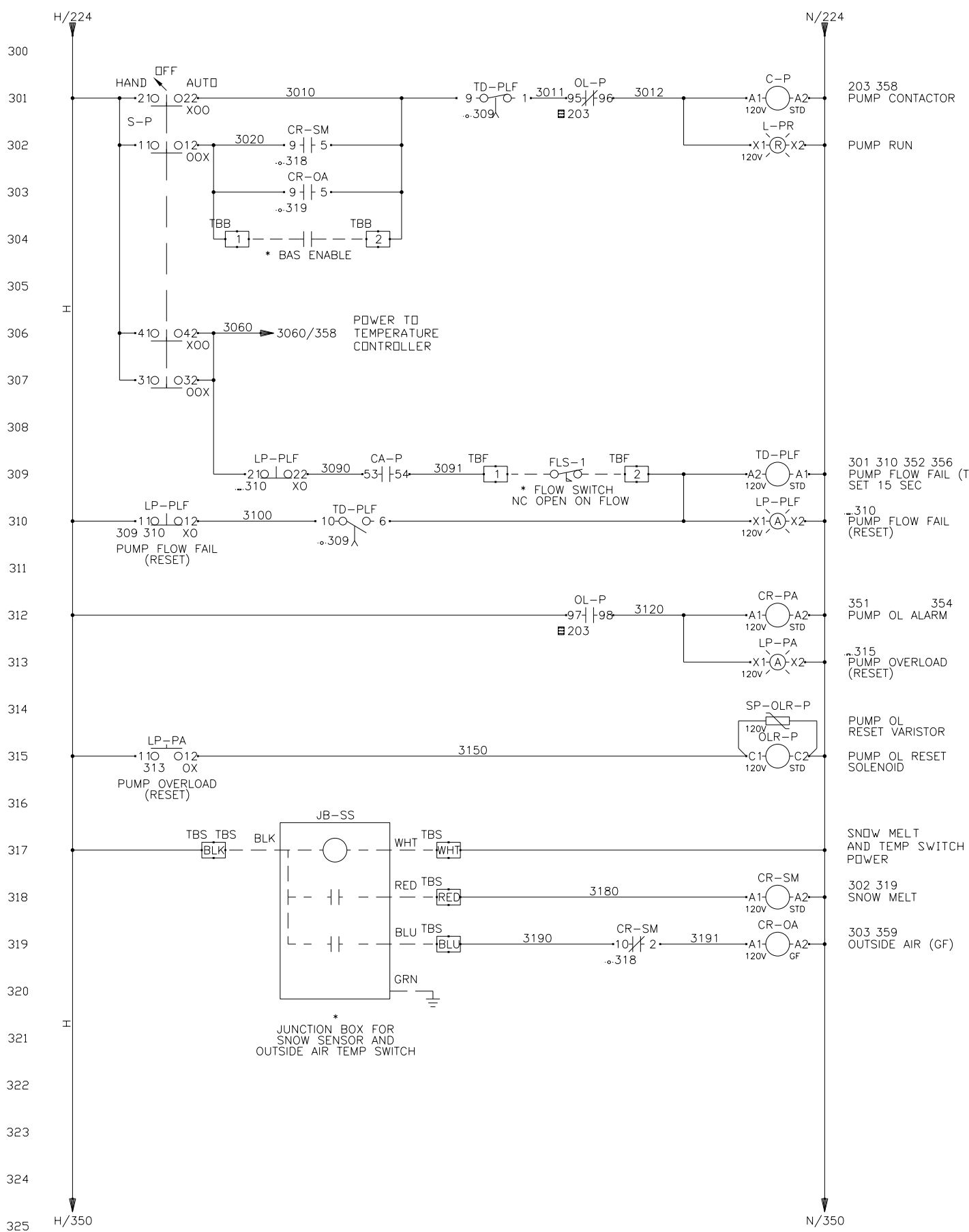
REV	DATE	PURPOSE:	BY	CHKD

**YOUR COMPANY**  
YOUR ADDRESS  
YOUR PHONE NO.  
YOUR WEBSITE

DESIGNED BL	DATE 11/2013	FOR: YOUR CUSTOMER
DRAWN BL	DATE 11/2013	
CHECKED	DATE	

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POWER SCHEMATIC HEAT EXCHANGER GLYCOL HEATER PANEL	DRAWING SET: 2013-465 GLYCOL PANEL	SHEET: 2 OF 5
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TEMPERATURE CONTROLLER PROGRAMMING

FUNCTIONS

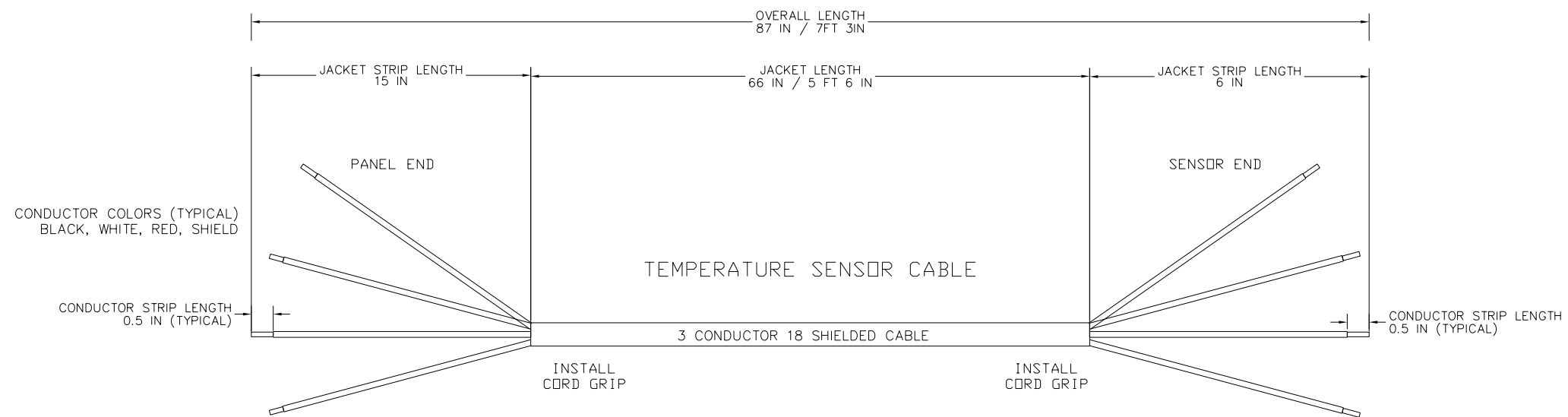
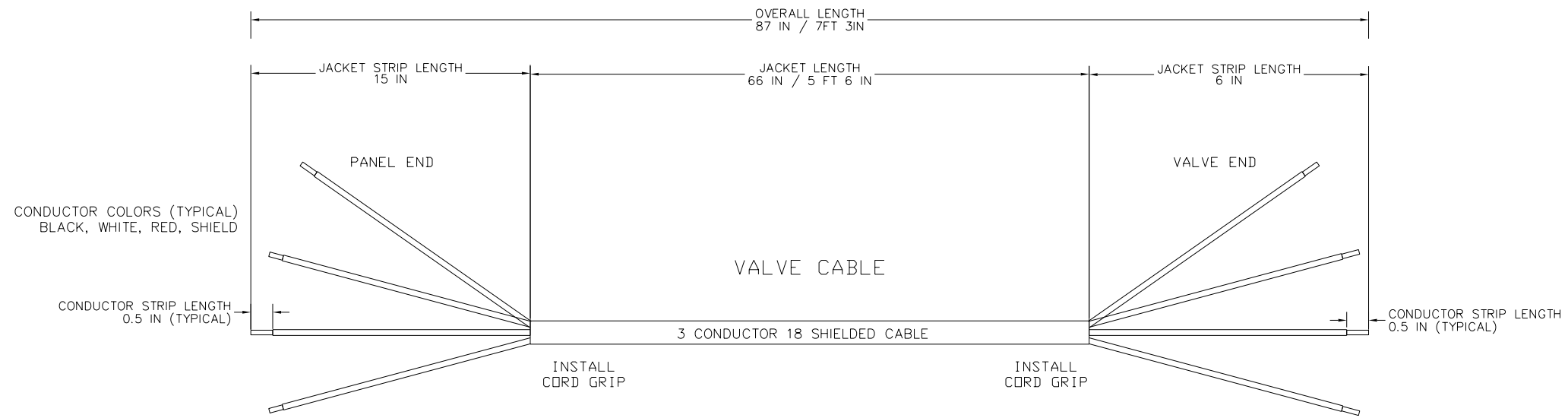
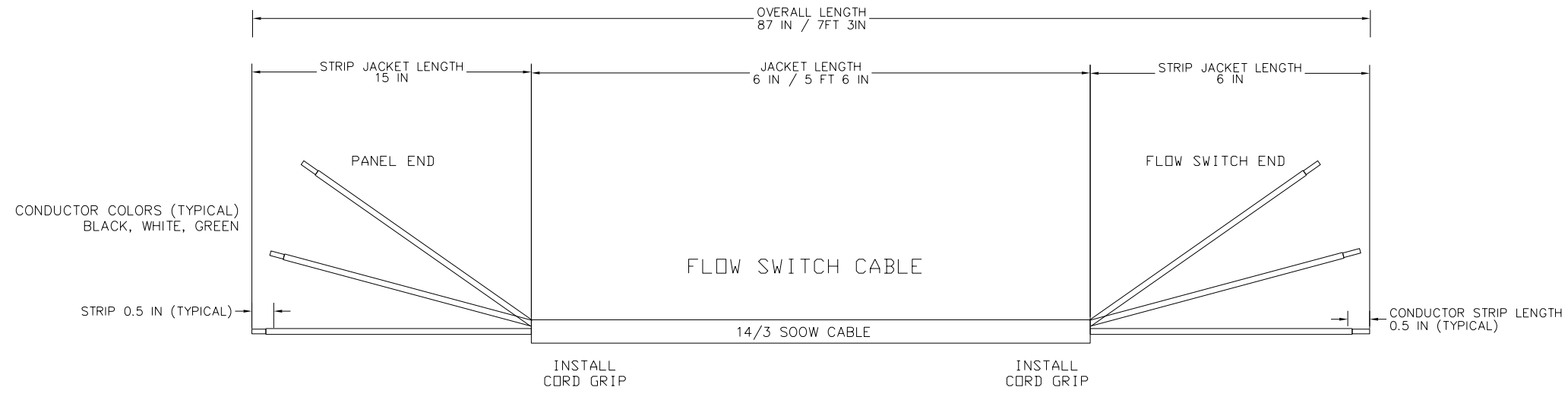
- 1) DISPLAY TEMPERATURE
  - 2) DISPLAY SETPOINT
  - 3) REVERSE ACTING AS TEMPERATURE DROPS OUTPUT INCREASES TO OPEN VALVE
  - 4) ANALOG OUT 1 CONTROL SIGNAL TO VALVE SET TO 0-10VDC
  - 5) ANALOG OUT 2 TEMP TO BAS MONITORING SYSTEM. 0-10VDC = -40 - 270 F GLYCOL TEMPERATURE
  - 6) SETPOINT 1 = 125 F IF USER INPUT OPEN
  - 7) SETPOINT 2 = 40 F IF USER INPUT CLOSED
- SEE TEMPERATURE CONTROLLER PROGRAM LIST FOR SETTINGS

NOTES:  
 1) DASHED LINES INDICATE DEVICES SUPPLIED, INSTALLED, AND WIRED BY OTHERS.  
 2) #16 AWG YELLOW WIRE, CONTACT LOAD NOT TO EXCEED 3A @ 230VAC OR 24VDC. THIS WIRING TO BE PROTECTED BY A 10A OR LESS FUSE OR CIRCUIT BREAKER

REV	DATE	PURPOSE:	BY	CHKD

**YOUR COMPANY**  
 YOUR ADDRESS  
 YOUR PHONE NO.  
 YOUR WEBSITE

DESIGNED BL	DATE 11/2013	FDR: YOUR CUSTOMER	CONTROL CONNECTIONS HEAT EXCHANGER GLYCOL HEATER PANEL
DRAWN BL	DATE 11/2013	THIS DRAWING, AND ALL REPRESENTED DATA, ARE THE PROPERTY OF THE NAMED COMPANY IN THE TITLE BLOCK. THIS DRAWING SHALL NOT BE REPRODUCED, COPIED, OR DISCLOSED EXCEPT FOR MAINTENANCE PURPOSES BY THE USING CUSTOMER.	
CHECKED	DATE		
DRAWING SET: 2013-465 GLYCOL PANEL			SHEET: 3 OF 5



REV	DATE	PURPOSE:	BY	CHKD



DESIGNED BL	DATE 11/2013
DRAWN BL	DATE 11/2013
CHECKED	DATE

FOR:  
**YOUR CUSTOMER**

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CABLE DIAGRAM  
HEAT EXCHANGER  
GLYCOL HEATER PANEL

DRAWING SET:  
2013-465 GLYCOL PANEL



# Your Company

Project Name: Heat Exchanger Controls

Job No: 2013-465

# Bill of Material

Panel Name: Glycol Heater Panel					Typical of	4	Panel(s)
Device ID	Qty	Mfg	Part No	Description			
ENCL-1	1	HO	C-SD-24168	ENCL,NEMA 4,24X16X08			
BP-1	1	HO	C-P2416	BACKPANEL,24X16			
CB-M	1	AB	140U-H2C3-C20	CB,H FRAME,3P,600V,18K/25K/35KAIC,020A			
CBO-M	1	AB	140U-H-RVM12R	CB OPER,KIT,140U-H,THRU-DR,NEMA 4X,12 IN MAX,RED/YEL			
G-M	1	BURNDY	KA2U	LUG,ONE HOLE,SCREW COMP,AL,115A,14-2			
GB-M	1	SD	PK9GTA	GROUND BAR KIT,ALUM,09 CKTS			
C-P	1	SD	LC1-D12-G7	CONTACTOR,IEC,D LINE,600V,012A,1NO,1NC,120V			
AUX-P	1	SD	LAD-N20	AUX CONT,TOP,2 NO,D09-D150 & F SERIES			
OL-P	1	SD	LRD-16	OL RELAY,IEC,D LINE,009-13A,1NO,1NC,D12-D32			
OLR-P	1	SD	LAD-703F	OL RESET,SOLENOID,FOR LRD01 TO LRD32,120V			
SP-OLR-P	1	ACI	V130-LA10A	VARISTOR,130V,175VDC,38VA,4500A			
CB-TP	1	AB	1489-A2D-010	CB,2P,480Y/277V,10KAIC,01A,D CURVE,DIN MNT			
T-1	1	SD	9070T-150-D1	XFMR,OPEN,1 PH,NO FB,240/480V-120V,0150VA			
CB-TS	1	AB	1489-A1D-020	CB,1P,480Y/277V,10KAIC,02A,D CURVE,DIN MNT			
T-2	1	HW	AT140A1000	TRANSFORMER,120 TO 24V,40VA			
CR-HS, CR-OA, CR-PA, CR-SM, TD-PF	5	SD	RXZ-E2M114-M	SOCKET,RX,4PDT,240V,06A,14 BL,DIN MNT			
CR-HS, CR-PA, CR-SM	3	SD	RXM-4AB2-F7	RELAY,RXM,4PDT,240V,06A,W/IND,MAN OP,120V,14 BL			
TD-PF	1	SD	REX-L4TM-F7	TIME DELAY,ZELIO,ON,1S TO 100H,4PDT,240V,3A,120V,14 BL			
CR-OA	1	SD	RXM-4GB2-F7	RELAY,RXM,4PDT,240V,03A GOLD FL,W/IND,MAN OP,120V,14 BL			
LP-PF, LP-PO, P-HS, S-P	5	SD	ZBE-1015	CONTACT,1 NO,SPRING CLAMP			
LP-PF, LP-PO, L-PR, P-HS, S-P	5	SD	ZB5-AZ009	MNTG COLLAR ONLY			
S-P	1	SD	ZB5-AJ3	OPER,SEL,3 POS,MAINT			
PA-P	2	SD	ZBE-101	CONTACT,1 NO			
L-PR	1	SD	ZBV-G35	LIGHT MODULE,LED,GRN,120V,SPRING CLAMP			
L-PR	1	SD	ZB5-AV033	OPER,PILOT LIGHT,LED ONLY,GRN			
LP-PF, LP-PO	2	SD	ZBV-G55	LIGHT MODULE,LED,AMB,120V,SPRING CLAMP			
LP-PF, LP-PO	2	SD	ZBE-1025	CONTACT,1 NC,SPRING CLAMP			
LP-PF, LP-PO	2	SD	ZB5-AW353	OPER,PB,ILLUM,LED TYPE,FLUSH,AMB			
P-HS	1	SD	ZB5-AA2	OPER,PB,FLUSH,BLK			
AL-1	1	AB	855PS-B10LE-422	ALARM,LIGHT,STRB,NEMA 4X,065mm,RED,120V			

# Your Company

Project Name: Heat Exchanger Controls

Job No: 2013-465

# Bill of Material

AH-1	1	AB	855P-B10LE22	ALARM,SONALERT,NEMA 4X,65mm,105 dB,120V
PRC-1	1	RL	T48-1010A	CONTROLLER,TEMP,T48,NEMA 4X,1/6 DIN,2 REL/AO,120V
CG-F, CG-FE, CG-S	3	ARL	LPCG50-7	CORD GRIP,NON-MET, 1/2 IN,.385-.750 CORD DIA
CBL-F	1	ACI	14/3-SOOW-07FT 3IN-FS	14/3,SOOW,07FT 3IN,END A STRIP JKT 15 IN/CND 0.5 IN,END B STRIP JKT 6 IN/CND 0.5 IN
CG-T, CG-TE, CG-V, CG-VE	4	ARL	LPCG50	CORD GRIP,NON-MET, 1/2 IN,.200-.472 CORD DIA
CBL-T, CBL-V	2	ACI	18/3-TSP-7FT-3IN-MOD	18/3,TSP,07FT 3IN,END A STRIP JKT 15 IN/CND 0.5 IN,END B STRIP JKT 6 IN/CND 0.5 IN
HS-B	1	HO	A-S050	HOLE SEAL FOR 1/2IN CONDUIT
CG-INC, CG-P, CG-PE	3	ARL	LPCG75-7	CORD GRIP,NON-MET, 3/4 IN,.385-.750 CORD DIA
TB-	1	AB	199-DR1	ACC,DIN RAIL,3FT
TB-	30	AB	1492-J4	J 1 TIER,TERMINAL,0.24 IN
TB-	3	AB	1492-JG4	J 1 TIER,TERMINAL,0.24 IN,GROUND
TB-	66	ACI	1492-M6X12-ACI	1 TIER,MARKER,BLANK,FOR 1492-J4
TB-	4	AB	1492-EBJ3	J 1 TIER,END BARRIER,FOR J3/J4/J10
TB-	13	AB	1492-EAJ35	ACC,END ANCHOR
TB-	4	AB	1492-EBJ16	J 1 TIER,PARTITION PLATE,FOR J3/J4/J10