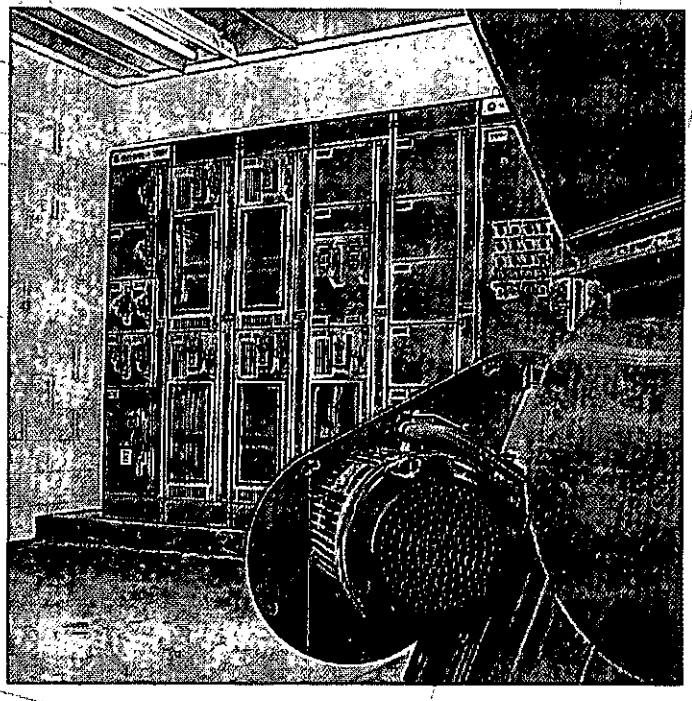
USEMCO Incorporated

USEMCO®

UNIVERSAL SANITARY EQUIPMENT MANUFACTURING CO.

USEMCO CONTROL SYSTEMS KEEP YOU IN CONTROL

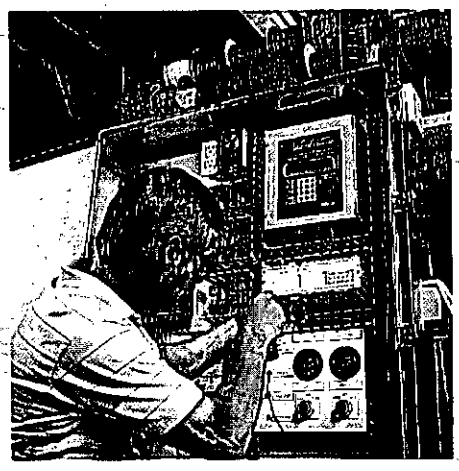


ELECTRICAL CONTROL SYSTEMS

If you need an innovative, quality control system, rely on USEMCO. For more than two decades USEMCO has been designing and manufacturing controls for a variety of industries, including waste water pumping, clean water pumping stations, HVAC boosters and hi–rise buildings. There are a wide range of standard USEMCO controls that can be adapted for your specific requirements or you can work with USEMCO's engineers to create a totally custom solution.

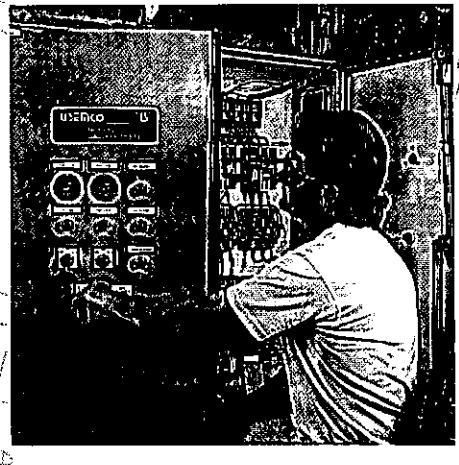
RELIABILITY IS BUILT IN

THE ENGINEERING AND DESIGN DEPARTMENTS CREATE SUBMITTALS WITH CAD GENERATED SCHEMATICS, PANEL LAYOUTS, AND PARTS LISTS FOR YOUR PROJECT APPLICATION.



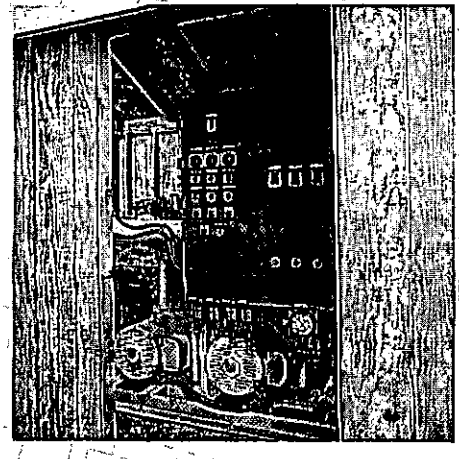
HIGH QUALITY, LOGICALLY DESIGNED COMPONENTS ARE ASSEMBLED AND WIRED USING SPECIFIED OR PREFERRED COMPONENTS.

All USEMCO controls can meet or exceed the standards of the National Electric Code (NEC), the National Electrical Manufacturer's Association (NEMA), the Joint Industry Conference (JIC), Underwriter's Laboratory (UL), the International Electrotechnical Council (IEC), the National Fire Protection Association (NFPA), and other state or local electrical codes as applicable.



BEFORE DELIVERY, USEMCO COMPLETES POWER-ON TESTING OF ALL COMPONENTS AND PROCESS INPUTS AND OUTPUTS WITH STATE-OF-THE-ART TESTING EQUIPMENT.

You're assured of low maintenance and reliability because all power components used in USEMCO control panels are from nationally recognized manufacturers like Allen Bradley, General Electric, Square D, etc. If your job requires power components from a specific manufacturer, USEMCO can meet your specs.



INSTALLATION AND START-UP ARE SIMPLIFIED BY USEMCO'S CAREFUL DESIGN, ENGINEERING AND FABRICATION. COMPLETE PRE-TESTING, AND THOROUGH DOCUMENTATION IS PROVIDED.

For further security, each USEMCO control panel is backed by a full one year warranty.

Control Panel Submittal

Wichita Storm Water 503

USEMCO Job # 15609

SUBMITTAL REVIEW

☐ **APPROVED**

☒ **APPROVED AS CORRECTED**

If checked above, fabrication MAY be undertaken. Approval does not authorize changes to Contract Sum unless stated in a Change Order.

If checked below, fabrication MAY NOT be undertaken. Resubmit corrected copies for final approval. Correction shall be limited to items marked.

☐ **REVISE AND RESUBMIT**

☐ **NOT APPROVED**

Engineers acceptance of Compliance Submittals will not relieve Contractor from his responsibility for any deviations from the requirements of the Contract Documents unless Contractor has in writing called Engineer's attention to such deviation at the time of submission and Engineer has given written approval to the specific deviation, nor shall any acceptance by Engineer relieve Contractor from responsibility for errors or omissions in Compliance Submittals.

PROFESSIONAL ENGINEERING CONSULTANTS
PROFESSIONAL ASSOCIATION

BY MMH RRH DATE 01-12-99

1) Coordinate with electrical contractor for installation i.e. connection pump motor space heater and pump oiler solenoid valve.

2) Coordinate flow switches connection with electrical contractor.

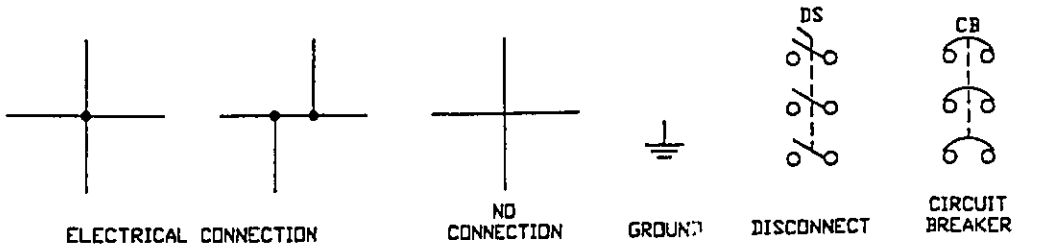
W. B. Carter Construction Co.
Box 4225
Wichita, KS 67204

URGENT

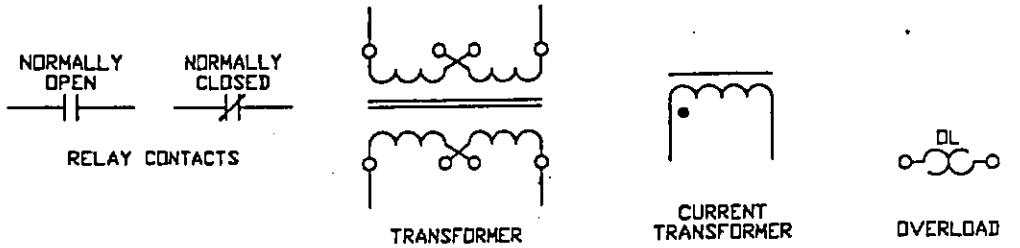
The following information should be confirmed or supplied to USEMCO before this control panel will be entered into the manufacturing schedule.

This control panel is designed to operate on a **480** volt, **3** phase, **60** hertz, **3** wire electrical service. To operate **1** pump motor rated at **15** horsepower with a full load amperage of **21.**

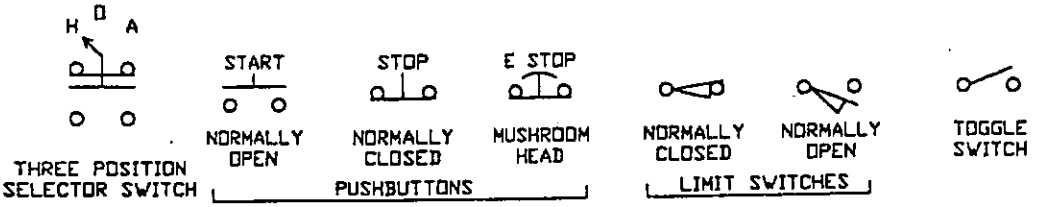
ELECTRIC CONTROL SYMBOLS



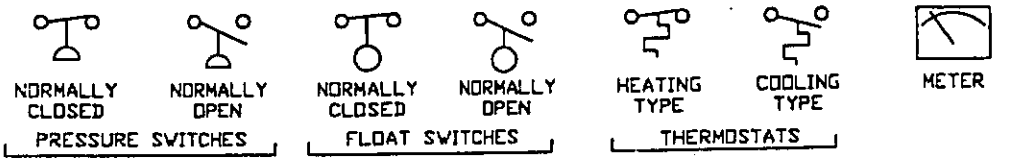
ELECTRICAL CONNECTION
NO CONNECTION
GROUND
DISCONNECT
CIRCUIT BREAKER



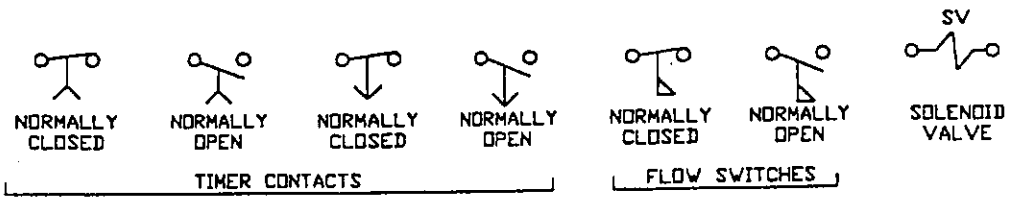
RELAY CONTACTS
TRANSFORMER
CURRENT TRANSFORMER
OVERLOAD



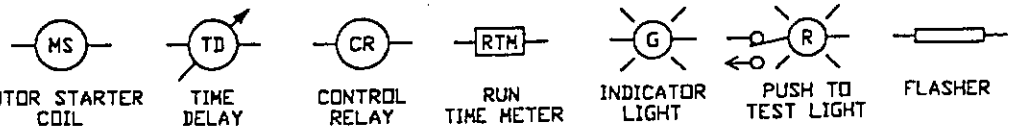
THREE POSITION SELECTOR SWITCH
NORMALLY OPEN
NORMALLY CLOSED
MUSHROOM HEAD
PUSHBUTTONS
NORMALLY CLOSED
NORMALLY OPEN
LIMIT SWITCHES
TOGGLE SWITCH



NORMALLY CLOSED
NORMALLY OPEN
PRESSURE SWITCHES
NORMALLY CLOSED
NORMALLY OPEN
FLOAT SWITCHES
HEATING TYPE
COOLING TYPE
THERMOSTATS
METER



NORMALLY CLOSED
NORMALLY OPEN
TIMER CONTACTS
NORMALLY CLOSED
NORMALLY OPEN
FLOW SWITCHES
SOLENOID VALVE

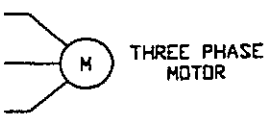


MOTOR STARTER COIL
TIME DELAY
CONTROL RELAY
RUN TIME METER
INDICATOR LIGHT
PUSH TO TEST LIGHT
FLASHER

LETTER INDICATES COLOR

R - RED
G - GREEN
A - AMBER
W - WHITE
B - BLUE
Y - YELLOW

120 VOLT
GROUND FAULT
RECEPTACLES
SINGLE PHASE MOTOR



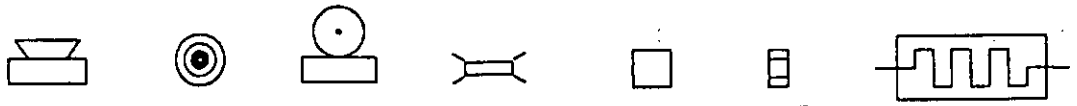
THREE PHASE MOTOR

DIM GLOW

RESISTOR

WIRE COLOR CODING

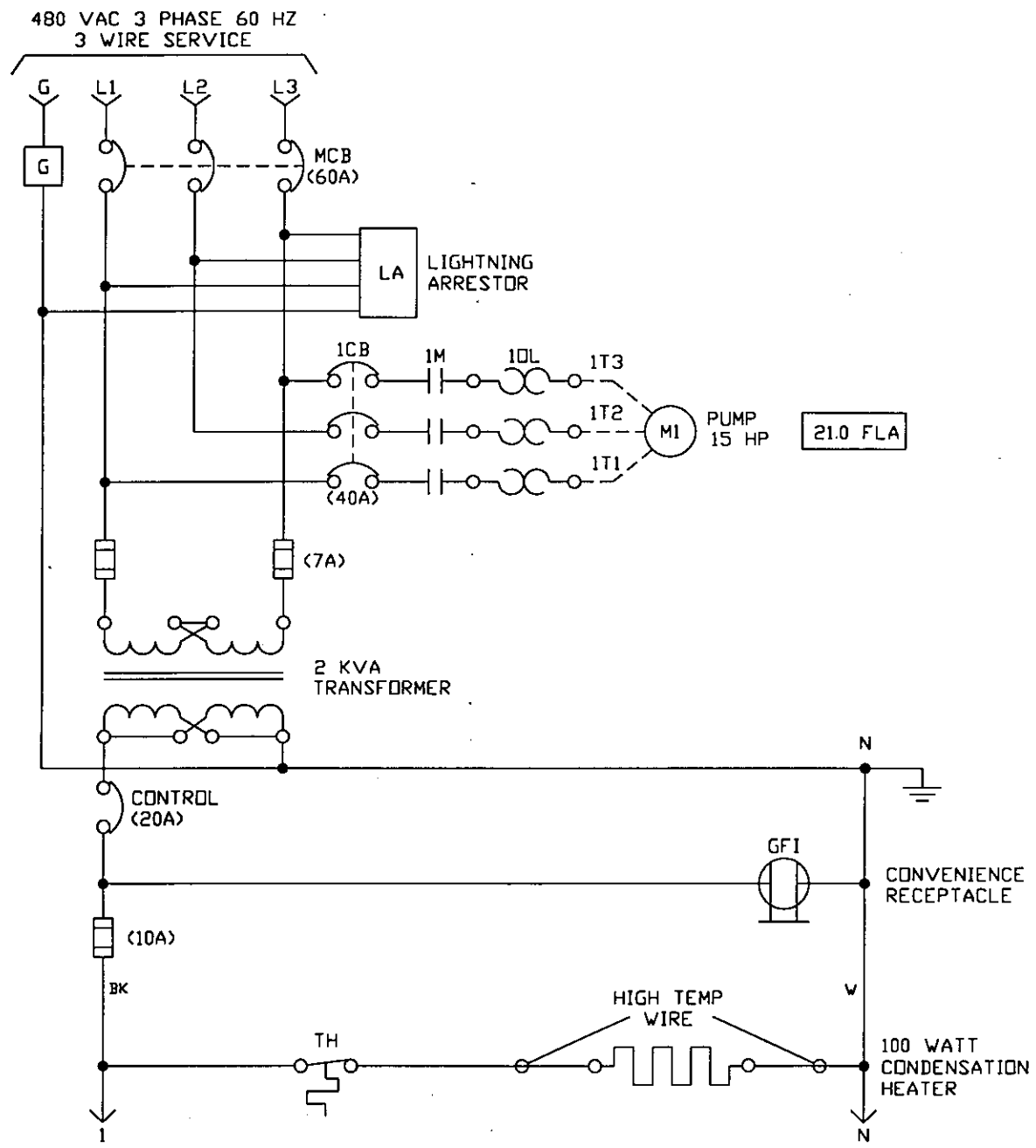
BK - BLACK	BL - BLUE
W - WHITE	GN - GREEN
R - RED	OR - ORANGE
YL - YELLOW	BR - BROWN
GY - GRAY	PK - PINK

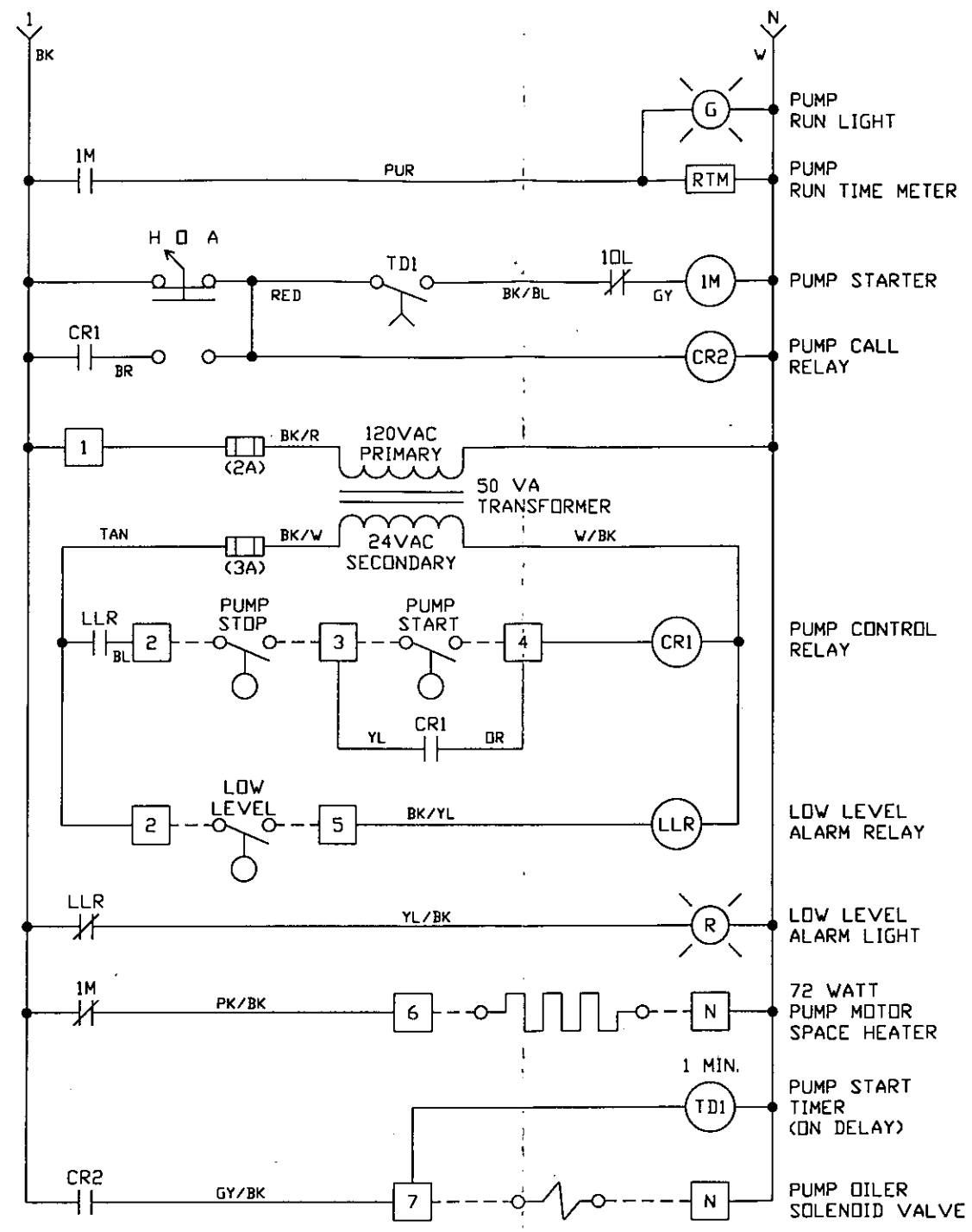


ALARM HORN
ALARM BUZZER
ALARM BELL
FLUORESCENT LIGHT
TERMINAL BLOCK
FUSE
HEATER

USEMCO
USEMCO INCORPORATED
P.O. BOX 550 (608) 372-5911 TOMAH WI. 54660

SYMBOLS





NOTE:
CONTROL PANEL SHALL BEAR SERIALIZED U.L. 508 LABEL.

REV. NO.	REVISION	BY CHK'D	DATE

DESIGNED BY: NB	DATE 12/29
DRAWN BY: SP	DATE 98
CHECKED BY:	DATE
SCALE	

USEMCO
USEMCO INCORPORATED
P.O. BOX 550 (608) 372-5911 TOMAH WI. 54660

DESCRIPTION
WICHITA STORM WATER 503

DWG. NO. AAC 15609

JOB NO.

15609/1
WICHITA STORM WATER 503

Detail	Quantity
----420318.20 STARTER SQD 8536 SDO1V02-H20S 3 POLE NEMA SIZE 2 WITH SOLID STATE CLASS 20 OVERLOADS	1.00
----420410 ROD RESET SINGLE SQD 9066 RA-1	1.00
----421494.07 BAR GROUND KIT SQD PK7GTA	1.00
----421506 BREAKER DOOR MOUNT SQD QOU-120	1.00
----421816 BREAKER 3 PL MLD CA FAL 34040	1.00
----421825 BREAKER 3 PL MLD CA FAL 34060	1.00
----422339.12 RELAY 10A IDEC RH2B-U-AC24V	3.00
----423385.2 ARRESTER SURGE 4W 650V TO GND SQUARE D #SDSA3650	1.00
----423420 BLOCK TERMINAL ENTRELEC-GRAY ENTRELEC PART #29003121	13.00
----423420.1 BLOCK TERMINAL ENTRELEC-GN/YL ENTRELEC PART #29003901	1.00
----423420.4 END STOP ENTRELEC-GRAY ENTRELEC PART #19940802	2.00
----423420.50 END SECTION COVER ENTRELEC ENTRELEC PART #29105122	1.00
----423420.SD SCREW DRIVER-TECHNICAN BLADE PART #L19C100 POCKET W/CLIP WHITE W/2" X 1/4" MAGNETIC STRIP W/ USEMCO IMPRINT	1.00
----423440.01 BLOCK 1PL LINE #2 LOAD #10 1 LINE 4 LOAD MARATHON #1411400	1.00
----423480.2 SOCKET RD 8 PIN IDEC SR2P-06	1.00
----423484 SOCKET MIDGET 2P IDEC SH2B-05	3.00
----423502 THERMOSTAT 15A SPDT WWG #2E158	1.00
----424180.5 INTERLOCK ELEC SQD #9999 SX-7 ONE NORMALLY CLOSED CONTACT	1.00
----425012.00 TIMER 120VAC DIV. TBC-120-ABA	1.00

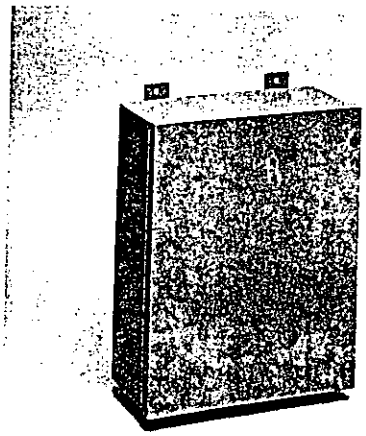
15609/1
WICHITA STORM WATER 503

Detail	Quantity
ON DELAY - 1.0 to 1023 SECONDS	
----425204 RTM REDINGTON 120VAC #711-0165	1.00
----425300 TRNSFMR 2KVA SQD #2S1F	1.00
----425360.3 TRNSFMR 50VA SQD 9070 T50D13	1.00
----426103 FUSE 250V TIME-DELAY 2 AMP CLASS RK5 200,000 A.I.R. 2" LONG x 9/16" DIAMETER (BUSSMANN FRN-R2) (LITTELFUSE FLN-R2) (GOULD-SHAWMUT TR-2R)	1.00
----426111 FUSE 250V TIME-DELAY 10 AMP CLASS RK5 200,000 A.I.R. 2" LONG x 9/16" DIAMETER (BUSSMAN FRN-R10) (LITTLEFUSE FLN-R10) (GOULD-SHAWMUT TR-10R)	1.00
----426211.0070 FUSE 600V TIME-DELAY 7 AMP CLASS CC 200,000 A.I.R. 1-1/2" LONG x 13/32" DIAMETER (LITTLEFUSE KLDR-7)	2.00
----426520 BLOCK FUSE MARATHON 6M30A2SQ	1.00
----426521.01 BLOCK FUSE MARATHON F30A2S	1.00
----426525 BLOCK FUSE LITTELFUSE 354812GY	1.00
----428905.1 WIRE DUCT BASE 1.5" X 3"	5.00
----428908.1 WIRE DUCT COVER 1.5"	5.00
----429094.02 DECAL USEMCO 2 7/16" x 7 1/8"	1.00
----429094.04 DECAL USEMCO 2"x3" MADE IN USA	1.00
----429096 LABEL U.L./INDUSTRIAL PANEL FILE NUMBER E76571 PART NUMBER S1810	1.00
----429105 DECAL USEMCO LIMITED WARRANTY	1.00
----445042 FUSE SLO BLO 3A 250V LITTLEFUSE #313003 3AG	1.00
----460600 NIPPLE CHASE T&B 842 1/2"	1.00
----461022 BSHNG KNOCKOUT T&B #3210 1/2"	2.00

15609/1
WICHITA STORM WATER 503

Detail	Quantity
----461940 TERMINAL RING (HIGH TEMP) WATLOW #R3423 (12-10)	2.00
----461993 LEGEND PLATE SQD 9001 KN 360 HAND OFF AUTO	1.00
----462003 BOX JUNCTION 2X4 RACO 670 OR STEEL CITY 583711 / 2	1.00
----462006 BOX C/AL 2X4 RED DOT IH3-1-LM	1.00
----462357.1 RECEPT GFI 20A 125V AH GF5342I	1.00
----462789 ENCL CH SNGL DR HOF A36C30BLP	1.00
----463216 ENCL BP HOF A36P30	1.00
----469004 LUG ALUM SOLDERLESS MAX. #2 ILSCO TA-2, BLACKBURN ADR-2, BRUNDY KA2U OR EQUAL	3.00
----469005.0004 LUG POWER KIT SQD #PDC3FA2	1.00
----469068.5 HEATER STRIP 120 VOLT 100 WATT WATLOW #S1A6AU1	1.00
----470620 SWITCH SEL 3 SQD 9001 KS-43B	1.00
----472080 BLOCK CONTACT SQD 9001 KA-1	1.00
----480150.1 LIGHT SQD TRANS 9001 KP-1R9	1.00
----480151.1 LIGHT SQD TRANS 9001 KP-1G9	1.00
----500253 SHIELD PANEL HEATER-ALUMINUM	1.00
----500584.07 STANDOFF 1FAL3P FOR 8" DEPTH	2.00
----------320363 FLOAT CONERY NO 2900-30ft	3.00

Bulletin A-52



Application

Designed to house electrical and electronic controls, instruments, and components. Provide protection from dust, dirt, oil, and water.

Construction

- 14 gauge steel
- Seams continuously welded and ground smooth, no holes or knockouts
- Door and body stiffeners in larger boxes for extra rigidity
- Captivated door screws thread into sealed wells
- Heavy gauge continuous hinge
- Data pocket is high-impact thermoplastic
- Oil-resistant gasket and adhesive
- Collar studs provided for mounting optional panels

Finish

ANSI 61 gray polyester powder coating inside and out over phosphatized surfaces. Optional panels are white enamel.

Industry Standards

NEMA/EEMAC Type 12
UL 50 Type 12
JIC standard EGP-1-1967
CSA Type 12
IEC 529, IP65

Accessories

Air conditioners and heat exchangers for this enclosure can be found in Hoffman's Specifier's Guide for Climate Control Products.

Need More Information?

Modifying Your Enclosure?

We can modify or customize this enclosure to your specs. See page 502 for more information.

Standard Sizes

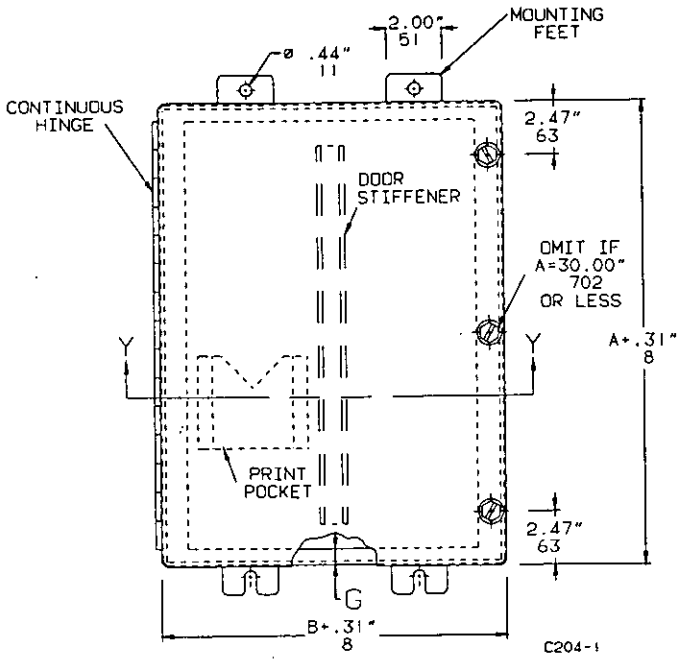
Oil Tight Type 12 "CH" Boxes

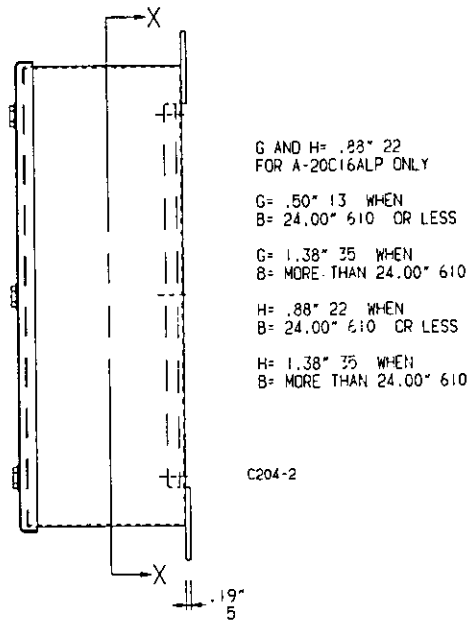
Box Catalog Number	Box Size AxBxC	AxBxC	*Panel Catalog Number	Panel Size DxE	DxE	Door Screws	Stiffener Door	Stiffener Body
A-20C16ALP	20.00x16.00x7.00	(508x406x178)	A-20P16	17.00x13.00	(432x330)	2	0	0
A-20C20ALP	20.00x20.00x7.00	(508x508x178)	A-20P20	17.00x17.00	(432x432)	2	0	0
A-24C20ALP	24.00x20.00x7.00	(610x508x178)	A-24P20	21.00x17.00	(533x432)	2	0	0
A-24C24ALP	24.00x24.00x7.00	(610x610x178)	A-24P24	21.00x21.00	(533x533)	2	0	0
A-30C20ALP	30.00x20.00x7.00	(762x508x178)	A-30P20	27.00x17.00	(686x432)	2	0	0
A-30C24ALP	30.00x24.00x7.00	(762x610x178)	A-30P24	27.00x21.00	(686x533)	2	0	0
A-36C24ALP	36.00x24.00x7.00	(914x610x178)	A-36P24	33.00x21.00	(838x533)	3	0	0
A-20C16BLP	20.00x16.00x9.00	(508x406x229)	A-20P16	17.00x13.00	(432x330)	2	0	0
A-20C20BLP	20.00x20.00x9.00	(508x508x229)	A-20P20	17.00x17.00	(432x432)	2	0	0
A-24C20BLP	24.00x20.00x9.00	(610x508x229)	A-24P20	21.00x17.00	(533x432)	2	0	0
A-24C24BLP	24.00x24.00x9.00	(610x610x229)	A-24P24	21.00x21.00	(533x533)	2	0	0
A-30C20BLP	30.00x20.00x9.00	(762x508x229)	A-30P20	27.00x17.00	(686x432)	2	0	0
A-30C24BLP	30.00x24.00x9.00	(762x610x229)	A-30P24	27.00x21.00	(686x533)	2	0	0
A-36C24BLP	36.00x24.00x9.00	(914x610x229)	A-36P24	33.00x21.00	(838x533)	3	0	0
A-36C30BLP	36.00x30.00x9.00	(914x762x229)	A-36P30	33.00x27.00	(838x686)	3	0	1
A-24C24CLP	24.00x24.00x11.00	(610x610x279)	A-24P24	21.00x21.00	(533x533)	2	0	0
A-36C24CLP	36.00x24.00x11.00	(914x610x279)	A-36P24	33.00x21.00	(838x533)	3	0	0
A-48C36CLP	48.00x36.00x11.00	(1219x914x279)	A-48P36	45.00x33.00	(1143x838)	3	1	1
A-30C24DLP	30.00x24.00x13.00	(762x610x330)	A-30P24	27.00x21.00	(686x533)	2	0	0
A-36C30DLP	36.00x30.00x13.00	(914x762x330)	A-36P30	33.00x27.00	(838x686)	3	0	1

Millimeter dimensions ( ) are for reference only; do not convert metric dimensions to inch.

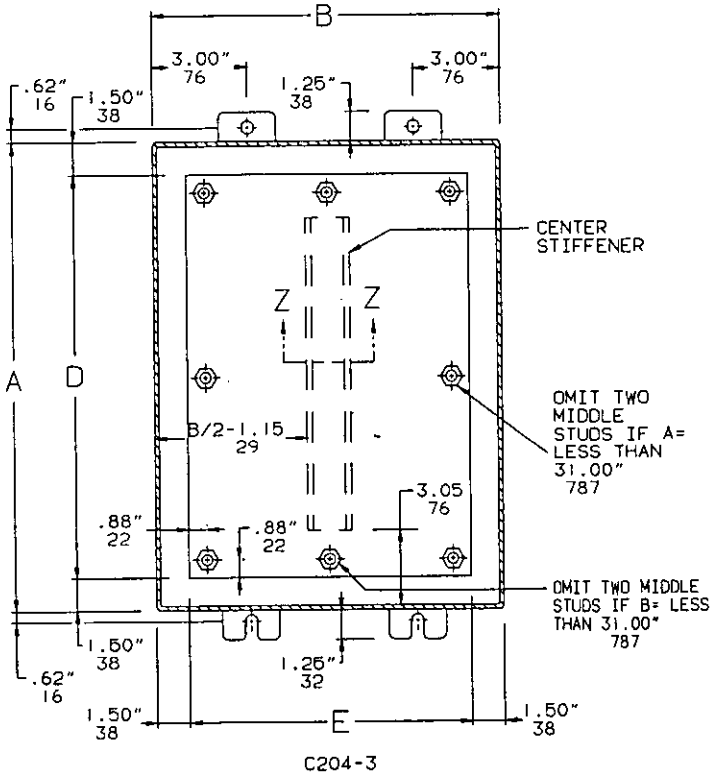
* Panels must be ordered separately. Optional aluminum panels are available for most sizes. See Accessories.

900 Ehlen Drive
Anoka, MN 55303
Hoffman
A Pentair Company

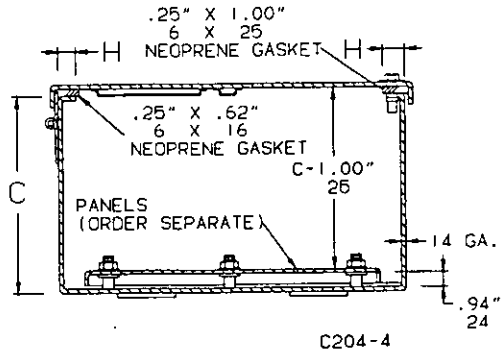




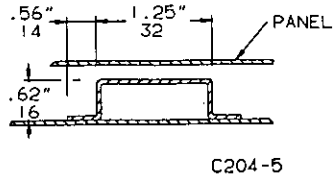
NOTE: 1. Large data pocket furnished if A=30.00 (762) and B=20.00 (508) or more.
2. Panels have flanges along sides which are more than 21.00 inches (533 millimeters) long, except A-24P20 and A-24P24 have flanges on two sides.
3. Panels are 12 gauge steel.



SECTION X - X



SECTION Y - Y



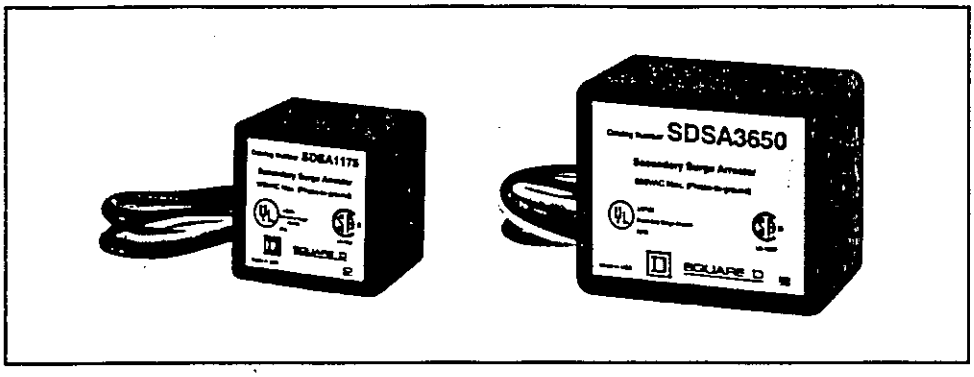
SECTION Z - Z

Inch
Millimeter

Product Data Bulletin

Class 6671
May, 1993
Lexington, KY

Secondary Surge Arresters SDSA1175 and SDSA3650



INTRODUCTION

Voltage surges are brief changes of voltage caused by unpredictable occurrences. Typical causes of these overvoltages include lightning, inductive switching, and power switching. Voltage surges may damage the insulation in building wiring and electrical appliances, as well as electronic equipment.

At service entrance locations, voltage surges can produce high currents, requiring rugged surge arresters. Square D Secondary Surge Arresters utilize a technology that can handle high transient currents and also provide excellent clamping voltage performance. The lower the clamping voltage of the surge arrester, the better the protection.

When a surge causes the voltage to exceed its normal value, the surge arrester clamps the voltage and diverts the transient current until the surge passes. After the surge passes, there is nothing to replace or reset on the surge arrester.

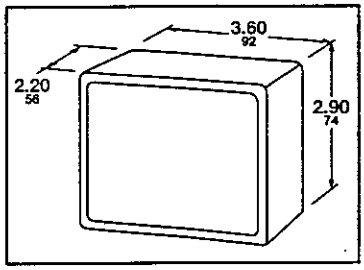
The SDSA1175 and the SDSA3650 offer the following distinctive features:

- UL Listed and CSA Certified secondary surge arresters.
- Meet ANSI/IEEE C62.11-1987.
- Suitable for use in Category C locations.
- Metal oxide varistor (MOV) design.
- Excellent clamping voltage performance.
- Fast response time.
- Maintenance-free, long life.

The SDSA1175 and SDSA3650 secondary surge arresters will protect most secondary distribution wiring against surge-related damage but **may not protect solid state or electronic equipment from all lightning-induced or other large power surges.** Secondary surge arresters help transient voltage surge suppressors (TVSS) installed in Category A or B locations to protect sensitive electronic equipment. It may be necessary to install a plug-in surge suppressor at the point of use of electronic equipment for additional protection.

SQUARE D

SDSA3650 DESCRIPTION



UL LISTED 75YO FILE NO. E151562
CSA CERTIFIED FILE NO. LR78887

The SDSA3650 is a UL Listed and CSA Certified Secondary Surge Arrester designed for use on secondary services where maximum phase-to-ground system voltage does not exceed 650Vac. The device may also be used for surge protection of irrigation pumps, oil pumps, and motors operating below 650V.

FEATURES

Housing: The housing of the arrester is made of high temperature thermoplastic. The cover is permanently bonded to the housing by an ultrasonic welding process. Because the arrester is completely sealed, it may be used for both indoor and outdoor applications.

MOV Technology: Metal Oxide Varistors (MOV) provide voltage surges with a low resistance path line-to-line or line-to-neutral or line-to-ground while providing a high resistance to the 60Hz power. The MOV responds faster and has a lower clamping voltage because it does not have a gap structure.

Fuse Link: A non-replaceable internal fuse link opens in the event of a damaging varistor overload.

APPLICATIONS

This secondary surge arrester is suitable for use in Category C locations. The threat at these locations is characterized by ANSI/IEEE C62.41-1991 as a 20,000V potential and a 10,000A current. The device clamps the voltage during surges while diverting transient current. Electronic equipment may need to be additionally protected at the point of use with transient voltage surge suppressors

ELECTRICAL CHARACTERISTICS

Voltage Rating;
650Vac Maximum phase-to-ground 50/60 Hz

Typical Clamping Voltages:
For 8/20μs combination wave surge current each phase to ground with specified lead length:

	1" lead	3" lead	6" lead	12" lead	18" lead
1,500A surge current	1525V	1750V	1775V	1800V	1825V
5,000A surge current	1700V	2100V	2125V	2325V	2425V
10,000A surge current	1925V	2375V	2400V	2700V	3000V

Minimum Life:
2,500 operations for 1.5kA 8/20μs Wave each line-to-ground.

Rated Peak Single Pulse Transient Current:
36,000A peak (8/20μs wave)

Power Consumption per line:
Less than 120 milliwatts

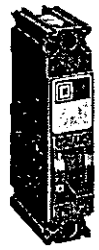
Response Time:
Less than 1 ns.

Operating Temperature Range:
-40° to 65°C (-40° to 140°F)

Surge Energy Capability Per Line:
2,100 Joules (8/20μs wave)

Thermal-Magnetic Molded Case
100 Ampere Frame
Class 650

Thermal-magnetic molded case circuit breakers shown on Pages 5-8 thru 5-12 are permanent trip UL Listed, CSA certified, IEC rated, and also meet the requirements of Federal Specification W–C–375B/GEN as indicated on Pages 5-4 thru 5-6. For I-LINE® molded case circuit breakers, see listings on Pages 7-24–7-27.



FAL
1-pole
15-100 Amperes

FAL/FHL
2-pole
15-100 Amperes

FAL/FHL/FCL
3-pole
15-100 Amperes

Interrupting Ratings (kA)

	FAL240	FAL480	FCL
240V	10	18 (1P), 25 (2, 3P)	100
480V	...	18	65
600V	...	...	...

F Frame – 100A, Thermal-Magnetic (240Vac)

Continuous Current Rating A 40° C	AC Magnetic Trip Settings Hold	Trip	Standard Interrupting Catalog Number	Terminal Wire Range
1-Pole, 120Vac				
15	275	600	FAL12015	AL50FA #14-#4 AWG Cu or #12-#4 AWG Al
20	275	600	FAL12020	
25	275	600	FAL12025	
30	275	600	FAL12030	
35	400	850	FAL12035	AL100FA #14-#1/0 AWG Cu or #12-#1/0 AWG Al
40	400	850	FAL12040	
45	400	850	FAL12045	
50	400	850	FAL12050	
60	800	1450	FAL12060	
70	800	1450	FAL12070	
80	800	1450	FAL12080	
90	900	1700	FAL12090	
100	900	1700	FAL12100	
2-Pole, 240Vac				
15	275	600	FAL22015	AL50FA #14-#4 AWG Cu or #12-#4 AWG Al
20	275	600	FAL22020	
25	275	600	FAL22025	
30	275	600	FAL22030	
35	400	850	FAL22035	AL100FA #14-#1/0 AWG Cu or #12-#1/0 AWG Al
40	400	850	FAL22040	
45	400	850	FAL22045	
50	400	850	FAL22050	
60	800	1450	FAL22060	
70	800	1450	FAL22070	
80	800	1450	FAL22080	
90	900	1700	FAL22090	
100	900	1700	FAL22100	
3-Pole, 240Vac				
15	275	600	FAL32015	AL50FA #14-#4 AWG Cu or #12-#4 AWG Al
20	275	600	FAL32020	
25	275	600	FAL32025	
30	275	600	FAL32030	
35	400	850	FAL32035	AL100FA #14-#1/0 AWG Cu or #12-#1/0 AWG Al
40	400	850	FAL32040	
45	400	850	FAL32045	
50	400	850	FAL32050	
60	800	1450	FAL32060	
70	800	1450	FAL32070	
80	800	1450	FAL32080	
90	900	1700	FAL32090	
100	900	1700	FAL32100	

F Frame – 100A, Thermal-Magnetic (480Vac)

Continuous Current Rating A 40° C	AC Magnetic Trip Settings Hold	Trip	Standard Interrupting Catalog Number	Extra High Interrupting Catalog Number	Price	Terminal Wire Range
1-Pole, 277Vac, 125Vdc						
15	275	600	FAL14015	...	...	AL50FA #14-#4 AWG Cu or #12-#4 AWG Al
20	275	600	FAL14020	...	...	
25	275	600	FAL14025	...	...	
30	275	600	FAL14030	...	...	
35	400	850	FAL14035	...	...	AL100FA #14-#1/0 AWG Cu or #12-#1/0 AWG Al
40	400	850	FAL14040	...	...	
45	400	850	FAL14045	...	...	
50	400	850	FAL14050	...	...	
60	800	1450	FAL14060	...	...	
70	800	1450	FAL14070	...	...	
80	800	1450	FAL14080	...	...	
90	900	1700	FAL14090	...	...	
100	900	1700	FAL14100	...	...	
2-Pole, 480Vac, 250Vdc†▲						
15	275	600	FAL24015	FCL24015		AL50FA #14-#4 AWG Cu or #12-#4 AWG Al
20	275	600	FAL24020	FCL24020		
25	275	600	FAL24025	FCL24025		
30	275	600	FAL24030	FCL24030		
35	400	850	FAL24035	FCL24035		AL100FA #14-#1/0 AWG Cu or #12-#1/0 AWG Al
40	400	850	FAL24040	FCL24040		
45	400	850	FAL24045	FCL24045		
50	400	850	FAL24050	FCL24050		
60	800	1450	FAL24060	FCL24060		
70	800	1450	FAL24070	FCL24070		
80	800	1450	FAL24080	FCL24080		
90	900	1700	FAL24090	FCL24090		
100	900	1700	FAL24100	FCL24100		
3-Pole, 480Vac, 250Vdc†						
15	275	600	FAL34015	FCL34015		AL50FA #14-#4 AWG Cu or #12-#4 AWG Al
20	275	600	FAL34020	FCL34020		
25	275	600	FAL34025	FCL34025		
30	275	600	FAL34030	FCL34030		
35	400	850	FAL34035	FCL34035		AL100FA #14-#1/0 AWG Cu or #12-#1/0 AWG Al
40	400	850	FAL34040	FCL34040		
45	400	850	FAL34045	FCL34045		
50	400	850	FAL34050	FCL34050		
60	800	1450	FAL34060	FCL34060		
70	800	1450	FAL34070	FCL34070		
80	800	1450	FAL34080	FCL34080		
90	900	1700	FAL34090	FCL34090		
100	900	1700	FAL34100	FCL34100		

▲ FCL 2-pole circuit breaker built using 3-pole module.
† FCL circuit breakers are not rated for 250Vdc.

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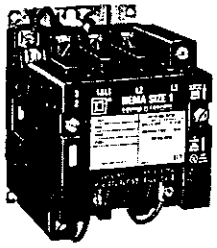
Class 8502, 8536

AC Magnetic Contactors
Class 8502

General Information — Class 8502 Type S magnetic contactors are used to switch heating loads, capacitors, transformers, and electric motors where overload protection is separately provided. Class 8502 contactors are available in NEMA Sizes 00 - 7. Type S contactors are designed for operation at 600 Volts AC, 50 - 60 Hertz.



Type SCO2
Size 1, 3 Pole Contactor

Holding Circuit Contact — A normally open holding circuit contact for three wire control is provided on all contactors as standard. Sizes 00-2 contactors use a Class 9999 SX11 auxiliary contact as the holding circuit contact. Sizes 3-7 contactors use a Class 9999 SX6 auxiliary contact as the holding circuit contact. See Class 9999, page 23-12 for the holding circuit contact electrical ratings. On Sizes 00-1 single phase contactors, a power pole is used as the holding circuit contact and therefore has the same rating as the power contacts.

Enclosures — Class 8502 magnetic contactors are available in the following enclosures:

- NEMA Type 1 General Purpose
- NEMA Type 4 & 4X Watertight and Dusttight Stainless Steel
- NEMA Type 4X Watertight, Dusttight, and Corrosion Resistant Glass—Polyester
- NEMA Type 7 & 9 Bolted and Spin-Top for Hazardous Locations
- NEMA Type 12 Dusttight and Driptight for Industrial Use

The NEMA Type 4 & 4X stainless steel enclosure (Sizes 0 - 5) has a brushed finish. For an electropolished finish, specify Form G16 and add 15% to the price of the standard device.

Also, NEMA Type 12 devices are available UL listed for use in Class II, Division 2, Group G and Class III, Divisions 1 and 2 locations. Request Form G21, no additional charge.

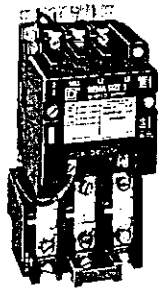
Separate enclosures are available, see Class 9991, pages 12-153–12-160.

AC Magnetic Starters
Class 8536

General Information — Class 8536 Type S magnetic starters are used for full voltage starting and stopping AC squirrel cage motors. Motor overload protection is provided by melting alloy type thermal overload relays. Class 8536 starters are available in NEMA Sizes 00-7. Type S starters are designed for operation at 600 Volts AC, 50 - 60 Hertz.

Holding Circuit Contact — A normally open holding circuit contact for three wire control is provided on all contactors as standard. Sizes 00-2 contactors use a Class 9999 SX11 auxiliary contact as the holding circuit contact. Sizes 3-7 contactors use a Class 9999 SX6 auxiliary contact as the holding circuit contact. See Class 9999, page 23-11 for the holding circuit contact electrical ratings.

Overload Relays — Class 8536 Type S Size 00-6 starters are provided with a melting alloy thermal overload relay as standard. Interchangeable thermal units are available in standard trip Sizes 00-6, quick trip Sizes 00-4, and slow trip Sizes 00-3. Single phase starters use one thermal unit, three phase starters use three thermal units.



Type SCO3
Size 1, 3 Pole Starter

Class 8536 Size 7 starters are provided with a solid state Motor System Monitor whose features include: Class 20 ambient compensated overload protection, phase failure and underload protection, and manual or automatic reset.

NEW – Solid State Overload Relays are also available for sizes 0-4. These ambient insensitive overload relays provide phase loss protection, phase unbalance protection, and a LED power indication. For additional application information, see Class 9065 page 12-148. To order a Type S Starter with a solid state overload relay, see Factory Modifications (Forms) on page 12-163.

Bimetallic overload relays are also available for Sizes 0 - 6. Ambient compensated and non-compensated versions are supplied with manual or automatic reset, trip current adjustment, and an alarm contact on Sizes 0-2. For additional application information see Class 9065 section, pages 12-147–12-148. To order a Type S starter with a bimetallic overload relay, see Factory Modifications (Forms) on pages 12-161–12-168.

Enclosures — Class 8536 magnetic starters are available in the following enclosures:

- NEMA Type 1 General Purpose Enclosure
- NEMA Type 3R Rainproof, Sleet Resistant for Outdoor Use
- NEMA Type 4 & 4X Watertight and Dusttight
- NEMA Type 4X Watertight, Dusttight, and Corrosion Resistant Glass—Polyester
- NEMA Type 7 & 9 Bolted and Spin-Top for Hazardous Locations
- NEMA Type 9 Bolted for Hazardous Locations
- NEMA Type 12 Dusttight and Driptight for Industrial Use

The NEMA Type 4 & 4X stainless steel enclosure (Sizes 0-5) has a brushed finish. For an electropolished finish, specify Form G16 and add 15% to the price of the standard device. Sizes 6 & 7 are painted sheet steel and are rated NEMA 4 ONLY.

Also, NEMA Type 12 devices are available UL listed for use in Class II, Division 2, Group G and Class III, Divisions 1 and 2 locations. Specify Form G21, no additional charge.

Separate enclosures are available, see Class 9991, pages 12-153–12-160.

Coil Voltages — AC coils are available for application on 50 - 60 Hertz. NEMA Sizes 00 - 5 are supplied with coils that are designed to operate satisfactorily on line voltages of 85% - 110% of rated voltage. NEMA Size 6 and 7 contactors are supplied with a DC coil operated by a solid state rectifier circuit that is powered by an AC source.

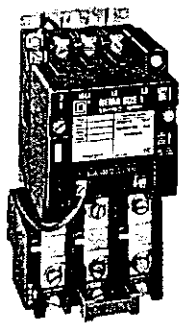
This system is designed to operate satisfactorily on line voltages 90 to 110% of rated voltage

Please note that **Voltage Codes** have been added to the Type designations in order to improve customer service. It is necessary to include the Voltage Code when ordering contactors and starters. Also, 120 Volt Polyphase contactors and starters will be wired for separate control.

Auxiliary Contacts — Additional auxiliary contacts may be added to Type S contactors. See page 12-27 for maximum number of auxiliary units and Form designations for factory installed auxiliary contacts. See Class 9999, page 23-12 for auxiliary contact kits for field installation.

Type S Accessories — Additional accessories such as power poles, pneumatic timer attachments, and cover mounted control stations are available as factory or field modifications. For factory modifications (Forms), see pages 12-161–12-168. For field modification kits, see Class 9999, pages 23-10–23-16.

Full Voltage Starters – NEMA Rated
Class 8536



Type SCO3
Size 1, 3-Pole Starter

General Information

Type S magnetic starters are used for full-voltage starting and stopping of AC squirrel cage motors. Motor overload protection is provided via melting alloy type thermal overload relays. Type S starters are available in NEMA sizes 00 through 7, and are designed for operation at 600 volts AC, 50 to 60 Hz.

Solid State Overload Relay Protection (Motor Logic™)

These ambient insensitive overload relays are available on sizes 00 through 6 and standard on size 7. They provide phase loss, phase unbalance protection and a power LED indication. To order, add Form **H10** (for Class 10), **H20** (for Class 20), or **H30** (for selectable trip class protection). For more information about Motor Logic™, see page 12-104.

3-Pole Polyphase – 600 Volts AC Maximum – 50-60 Hz

Note that prices shown do not include thermal units. Devices require 3 thermal units (Sizes 00-6). Standard trip thermal units are **$9.50** each. See page 12-136 for selection information.

NEMA Size	Continuous Current Ratings	Motor Volts	Max. HP	Coil Voltage *	Open Type		NEMA Type 1 General Purpose Enclosure		NEMA Type 4 & 4X Watertight, Dusttight Brushed Stainless Steel Enclosure (Size 0-5)‡		NEMA Type 4X Watertight, Dusttight, Corrosion-Resistant Glass-Polyester Enclosure	
					Type	Price	Type	Price	Type	Price	Type	Price
00	9	Separate Control† 200 230 460 575	1½ 1½ 2 2	120 208 240 480 600	SAO12V02S SAO12V08 SAO12V03 SAO12V06 SAO12V07		SAG12V02S SAG12V08 SAG12V03 SAG12V06 SAG12V07		Use Size 0		Use Size 0	
0	18	Separate Control† 200 230 460 575	3 3 5 5	120 208 240 480 600	SBO2V02S SBO2V08 SBO2V03 SBO2V06 SBO2V07		SBG2V02S SBG2V08 SBG2V03 SBG2V06 SBG2V07		SBW12V02S SBW12V08 SBW12V03 SBW12V06 SBW12V07		SBW22V02S SBW22V08 SBW22V03 SBW22V06 SBW22V07	
1	27	Separate Control† 200 230 460 575	7½ 7½ 10 10	120 208 240 480 600	SCO3V02S SCO3V08 SCO3V03 SCO3V06 SCO3V07		SCG3V02S SCG3V08 SCG3V03 SCG3V06 SCG3V07		SCW13V02S SCW13V08 SCW13V03 SCW13V06 SCW13V07		SCW23V02S SCW23V08 SCW23V03 SCW23V06 SCW23V07	
2	45	Separate Control† 200 230 460 575	10 15 25 25	120 208 240 480 600	SDO1V02S SDO1V08 SDO1V03 SDO1V06 SDO1V07		SDG1V02S SDG1V08 SDG1V03 SDG1V06 SDG1V07		SDW11V02S SDW11V08 SDW11V03 SDW11V06 SDW11V07		SDW21V02S SDW21V08 SDW21V03 SDW21V06 SDW21V07	
3	90	Separate Control† 200 230 460 575	25 30 50 50	120 208 240 480 600	SEO1V02S SEO1V08 SEO1V03 SEO1V06 SEO1V07		SEG1V02S SEG1V08 SEG1V03 SEG1V06 SEG1V07		SEW11V02S SEW11V08 SEW11V03 SEW11V06 SEW11V07		SEW21V02S SEW21V08 SEW21V03 SEW21V06 SEW21V07	
4	135	Separate Control† 200 230 460 575	40 50 100 100	120 208 240 480 600	SFO1V02S SFO1V08 SFO1V03 SFO1V06 SFO1V07		SFG1V02S SFG1V08 SFG1V03 SFG1V06 SFG1V07		SFW11V02S SFW11V08 SFW11V03 SFW11V06 SFW11V07		SFW21V02S SFW21V08 SFW21V03 SFW21V06 SFW21V07	
5	270	Separate Control† 200 230 460 575	75 100 200 200	120 208 240 480 600	SGO1V02S SGO1V08 SGO1V03 SGO1V06 SGO1V07		SGG1V02S SGG1V08 SGG1V03 SGG1V06 SGG1V07		SGW11V02S SGW11V08 SGW11V03 SGW11V06 SGW11V07		.....	.....
6	540	Separate Control† 200 230 460 575	150 200 400 400	120 208 240 480 600	SHO2V02S SHO2V08 SHO2V03 SHO2V06 SHO2V07		SHG2V02S SHG2V08 SHG2V03 SHG2V06 SHG2V07		SHW2V02S SHW2V08 SHW2V03 SHW2V06 SHW2V07		.....	.....
7	810	Separate Control† 200 230 460 575	– 300 600 600	120 208 240 480 600	SJO2V02S SJO2V08 SJO2V03 SJO2V06 SJO2V07		SJG2V02S SJG2V08 SJG2V03 SJG2V06 SJG2V07		SJW2V02S SJW2V08 SJW2V03 SJW2V06 SJW2V07		.....	.....

‡ Size 6 and 7 are rated NEMA Type 4 only.

† 120 Volt Polyphase starters are wired for separate control.

* Coil voltage code must be specified to order this product. Refer to standard coil voltage codes listed in selection table above or additional standard voltage codes shown below.

Coil Voltage Codes

Voltage 60 Hz	Voltage 50 Hz	Code	Price Adder
24▲	...	V01	N.C.
120†	110	V02	N.C.
208	...	V08	N.C.
240	220	V03	N.C.
480	440	V06	N.C.
600	550	V07	N.C.
Specify	Specify	V99	

▲ 24V coils are not available on Sizes 4-7. On sizes 00-3, where 24V coils are available, **Form S** (separate control) must be specified.

† 120 Volt Polyphase contactors are wired for separate control.

For additional information, reference Catalog # 8502CT9701 or D-FAX™ # 1504.

Full Voltage Controllers Only

CLASSES 8502, 8536, 8538, 8539, 8702, 8736, 8738, 8739, 8810, 8811 and 8812

	Factory Modifications	Enclosure Type	Form Letters	NEMA SIZE 00	0	1	2	3	4	5	6	7
OVERLOAD RELAYS	**Non-Compensated Bimetallic Overload Relays**											
	Single Phase:											
	Types SB—SD (Sizes 0—2)❶ .	Any	B1	....		!	!	....	....	....	....	....
	Polyphase:											
	Two Element – For 2 Phase Only											
	Types SB—SD (Sizes 0—2)	Any	B1	....				....	....	....	....	....
	Three Element											
	Types SB—SD (Sizes 0—2)	Any	B2	....							....	....
	Types SE—SF (Sizes 3—4)	Any	B5	....				$	!		....	....
	Type SG (Size 5)	Any	B2Y500	....						$		....
	Type SH (Size 6)	Any	B2	....							!	❷
	Ambient Compensated Bimetallic Overload Relays											
	Three Element											
	Types SB—SD (Sizes 0—2)	1, 4, 12	B	....								....
	Types SE—SF (Sizes 3 & 4)	Any	Y59	....								....
	Type SG (Size 5)	Any	BY500	....								
	Type SH (Sizes 6)	Any	B	....								
	Overload Relays — General											
	Substitute Class 9065 SSRO100 For Standard Overload Protection	Any	B11	....								
	Omit overload protection from combination starters. (Classes 8538, 8539, 8738, 8739 only) Do not use with MAG—GARD® Circuit Breakers. Deduct per starter	Any	Y76	....								
	Modify Size 3 Type SE starters with melting alloy overload relays to accept Type FB quick trip or SB slow trip thermal units and Size 4 Type SF starters to accept Type FB quick trip thermal units. (Rejects Type CC standard trip thermal units.)	Any	Y81	....				!				
	Substitute 9999 SO4 isolated alarm contact on melting alloy overload relay	Any	Y342									
	Substitute 9999 SO5 isolated alarm contact on melting alloy overload relay	Any	Y344									

❶ Addition of terminal block type 9080 CA or 9080 GR6 only. Number of circuits is same as ending of form number. (Ex.: G507 is 7 wire terminal block.)
❷ Size 7 uses a solid state overload relay. See Class 8536 for complete details.
❸ Single phase bimetallic overload relays for Type S Sizes 0—2 require two (2) thermal units per starter.
❹ For Classes 8736, 8738 and 8739, Type SG, consult Local Square D Field Office.
❺ When adding a power pole to a Size 2 device, it is necessary to also specify Form Y118 and add $59.00.

Solid State Overload Relay Factory Modifications (Forms)

The solid state overload relay is available on NEMA Size 0-4.
For Class 8536, 8538, 8539 and 8810.

Form Description

H # #

Starter with Motor Logic
Solid State Overload Relay

1- Solid State Overload Relay Trip Class 10
2- Solid State Overload Relay Trip Class 20
3- Solid State Overload Relay Trip Class 10 for use with communication modules.
4- Solid State Overload Relay Trip Class 20 for use with communication modules.✱

0- No additional modifications
1- NO Auxiliary Contact (Field Convertible to NC)

Classes 8536, 8538, 8539, 8736, 8738, 8739 and 8810

Factory Modifications		Form	NEMA Size/OL Current Range✱ 0 6-18A■	1 9-27A▲	2 15-45A	3 30-90A	4 45-135A
Motor Logic Solid State Overload Relay▼	Solid State OVerload Relay Trip Class 10	H10	$	$			
	Solid State Overload Relay Trip Class 20	H20					
	Solid State Overload Relay Trip Class 10 for use with communication modules.	H30					
	Solid State Overload Relay Trip Class wo for use with communication modules.	H40					
Motor Logic Solid State Overload Relay with Auxiliary Contact	Solid State OVerload Relay Trip Class 10	H11					
	Solid State Overload Relay Trip Class 20	H21					
	Solid State Overload Relay Trip Class 10 for use with communication modules.	H31					
	Solid State Overload Relay Trip Class wo for use with communication modules.	H41					

■ Motor Leads can be looped to achieve 2-18 FLA.
▲ Motor Leads can be looped to achieve 3-27 FLA.
✱ The following configurations are available:

6-18A Overload on a Size 1 Contactor
6-18A Overload on a Size 2 Contactor
9-27A Overload on a Size 2 Contactor
30-90A Overload on a Size 4 Contactor

Please contact your local Square D Field Sales Office for ordering information for these special configurations.

▼ Accessories available on Page 23-12.

Class 7400

Single Phase — General Purpose Transformers

These general purpose transformers are detailed in Selection Guide 0150SC9401. Contact local Square D Sales Office for ratings not shown. Enclosures are phosphatized and finished with gray baked enamel to provide corrosion resistance.

UL Listed through 750 kVA Three Phase, 167 kVA Single Phase.

kVA	Catalog Number▲	Price	Full Capacity Taps	Degree C Temp. Rise	Dimensions (Inches) ♦ Height	Width	Depth	Weight (Pounds)	Mounting	Enclosure■ (See Page 11-3)	Wiring (See Page 11-2)	Accessories (See Page 11-3)
Single Phase — 240X480 Volts Primary 120/240 Volts Secondary 60 Hertz												
.050	50SV1A		None	55	5	4.5	3.5	4.2	Wall	I-O(A)	1	N/A
.100	100SV1A		None	55	5.5	4.5	3.5	4.5	Wall	I-O(A)	1	N/A
.150	150SV1A		None	55	5	4.9	3.8	6.2	Wall	I-O(A)	1	N/A
.250	250SV1B		None	80	5.5	5.3	4.1	10.5	Wall	I-O(A)	1	N/A
.500	500SV1B		None	80	6.2	6.2	4.7	13.8	Wall	I-O(A)	1	N/A
.750	750SV1F		None	115	6.7	6.2	4.7	15.5	Wall	I-O(A)	1	N/A
1	1S1F		None	115	8.2	7	5.4	21.2	Wall	I-O(A)	1	N/A
1.5	1.5S1F		None	115	8.3	7	6.6	30.1	Wall	I-O(A)	1	N/A
2	2S1F		None	115	9.6	8.7	6.6	39.1	Wall	I-O(A)	1	N/A
3	3S1F		None	115	10.5	8.7	6.5	60	Wall	I-O(A)	1	N/A
5	5S1F		None	115	14.8	9.8	11.8	115	Wall	I-O(B)	1	N/A
7.5	7S1F		None	115	14.8	9.8	11.8	135	Wall	I-O(B)	1	N/A
10	10S1F		None	115	14.8	9.8	11.8	165	Wall	I-O(B)	1	N/A
15	15S1H		None	150	27	20	16	200	Floor	I-●(D)	1	A
25	25S3H		6—2.5%2+4—★	150	27	20	16	245	Floor	I-●(D)	3	A
37.5	37S3H		6—2.5%2+4—★	150	30	20	20	325	Floor	I-●(D)	3	C
50	50S3H		6—2.5%2+4—★	150	30	20	20	350	Floor	I-●(D)	3	C
75	75S3H		6—2.5%2+4—★	150	37	20	20	450	Floor	I-●(D)	3	C
100	100S3H		6—2.5%2+4—★	150	42	24	24	640	Floor	I-●(D)	3	D
167	167S3H		6—2.5%2+4—★	150	48	32	29.5	975	Floor	I-●(D)	3	E
Single Phase — 480 Volts Primary 120/240 Volts Secondary 60 Hertz												
3	3S40F		2—5%FCBN	115	10.5	8.7	6.5	60	Wall	I-O(A)	28	N/A
5	5S40F		2—5%FCBN	115	14.8	9.8	11.8	115	Wall	I-O(B)	28	N/A
7.5	7S40F		2—5%FCBN	115	14.8	9.8	11.8	135	Wall	I-O(B)	28	N/A
10	10S40F		2—5%FCBN	115	14.8	9.8	11.8	165	Wall	I-O(B)	28	N/A
15	15S40F		2—5%FCBN	115	20	15.3	13.5	225	Wall	I-O(B)	28	N/A
15	15S40H		2—5%FCBN	150	27	20	16	200	Floor	I-●(D)	18	A
25	25S40F		2—5%FCBN	115	20	15.3	13.5	300	Wall	I-O(B)	28	N/A
Single Phase — 600 Volts Primary 120/240 Volts Secondary 60 Hertz												
.050	50SV51A		None	55	5	4.5	3.5	4.2	Wall	I-O(A)	6	N/A
.100	100SV51A		None	55	5.5	4.5	3.5	4.5	Wall	I-O(A)	6	N/A
.150	150SV51A		None	55	5	4.9	3.8	6.2	Wall	I-O(A)	6	N/A
.250	250SV51B		None	80	5.5	5.3	4.1	10.5	Wall	I-O(A)	6	N/A
.500	500SV51B		None	80	6.2	6.2	4.7	13.8	Wall	I-O(A)	6	N/A
.750	750SV51F		None	115	6.7	6.2	4.7	15.5	Wall	I-O(A)	6	N/A
1	1S51F		None	115	8.2	7	5.4	21.2	Wall	I-O(A)	6	N/A
1.5	1.5S51F		None	115	8.3	7	6.6	30.1	Wall	I-O(A)	6	N/A
2	2S51F		None	115	9.6	8.7	6.6	39.1	Wall	I-O(A)	6	N/A
3	3S4F		2—5%FCBN	115	10.5	8.7	6.5	60	Wall	I-O(A)	28	N/A
5	5S4F		2—5%FCBN	115	14.8	9.8	11.8	115	Wall	I-O(B)	28	N/A
7.5	7S4F		2—5%FCBN	115	14.8	9.8	11.8	135	Wall	I-O(B)	28	N/A
10	10S4F		2—5%FCBN	115	14.8	9.8	11.8	165	Wall	I-O(B)	28	N/A
15	15S5H		4—2.5%FCBN	150	27	20	16	200	Floor	I-●(D)	19	A
25	25S5H		4—2.5%FCBN	150	27	20	16	245	Floor	I-●(D)	19	A
37.5	37S5H		4—2.5%FCBN	150	30	20	20	325	Floor	I-●(D)	19	C
50	50S5H		4—2.5%FCBN	150	30	20	20	350	Floor	I-●(D)	19	C
75	75S5H		4—2.5%FCBN	150	37	20	20	450	Floor	I-●(D)	19	C
100	100S5H		4—2.5%FCBN	150	42	24	24	640	Floor	I-●(D)	19	D
167	167S5H		4—2.5%FCBN	150	48	32	29.5	975	Floor	I-●(D)	19	E

▲ **Catalog Numbers** shown in bold type are available from Distribution Center.
★ When 240 volt connection is used, there will be 3—5% taps, 1 above and 2 below 240 volts.
■ **Enclosure Code** — I = Indoor, O = Outdoor, ● = Convertible to outdoor by use of weathershields shown on page 11-3. Letters in parentheses refer to enclosure styles on page 11-3.
Lugs: Furnished by customer.
♦ **Dimensions** — DO NOT use for construction. Contact Local Square D Sales Office for certified prints.

Sound Levels

kVA	NEMA Standard Sound Level
0–9	40 dB
10–50	45 dB
51–150	50 dB
151–300	55 dB
301–500	60 dB
501–700	62 dB
701–1000	64 dB

Square D transformers meet NEMA standards for sound level. Lower sound levels are available at an additional charge.

Class 720

Low Ampere QOU Series 3 Circuit Breaker

No. of Poles	Description	AIR Rating	Voltage Rating	Ampere Rating	Catalog Number	Order Qty.
One	Thermal-Magnetic Circuit Breaker	10,000 AIR	120/240 Vac	10	QOU110 QOU110B	1 40
		5,000 AIR	277 Vac	10	QYU110□ QYU110B□	1 40
		10,000 AIR	120/240 Vac	15	QOU115 QOU115B	1 40
				15	QOU115HM QOU115HMB	1 40
		5,000 AIR	277 Vac	15	QYU115□ QYU115B□	1 40
		10,000 AIR	120/240 Vac	20	QOU120 QOU120B	1 40
				20	QOU120HM QOU120HMB	1 40
		5,000 AIR	277 Vac	20	QYU120 QYU120B□	1 40
		10,000 AIR	120/240 Vac	25	QOU125 QOU125B	1 40
		5,000 AIR	277 Vac	25	QYU125□ QYU125B□	1 40
		10,000 AIR	120/240 Vac	30	QOU130 QOU130B	1 40
		5,000 AIR	277 Vac	30	QYU130□ QYU130B□	1 40
		10,000 AIR	120/240 Vac	35	QOU135 QOU135B	1 40
				40	QOU140 QOU140B	1 40
				45	QOU145 QOU145B	1 40
				50	QOU150 QOU150B	1 40
				60	QOU160 QOU160B	1 40
				70	QOU170 QOU170B	1 40
Two	Thermal-Magnetic Circuit Breaker	10,000 AIR	120/240 Vac	10	QOU210 QOU210B	1 20
				15	QOU215 QOU215B	1 20
			240 Vac	15	QOU215H QOU215HB	1 20
			120/240 Vac	20	QOU220 QOU220B	1 20
			240 Vac	20	QOU220H QOU220HB	1 20

No. of Poles	Description	AIR Rating	Voltage Rating	Ampere Rating	Catalog Number	Order Qty.
Two	Thermal-Magnetic Circuit Breaker	10,000 AIR	120/240 Vac	25	QOU225 QOU225B	1 20
			240 Vac	25	QOU225H QOU225HB	1 20
			120/240 Vac	30	QOU230 QOU230B	1 20
			240 Vac	30	QOU230H QOU230HB	1 20
			120/240 Vac	35	QOU235 QOU235B	1 20
				40	QOU240 QOU240B	1 20
				45	QOU245 QOU245B	1 20
				50	QOU250 QOU250B	1 20
	Non-Auto Switch	N/A	240Vac	60	QOU200 QOU200B	1 20
	Thermal-Magnetic Circuit Breaker	10,000 AIR	120/240 Vac	60	QOU260 QOU260B	1 20
				70	QOU270 QOU270B	1 20
Three	Thermal-Magnetic Circuit Breaker	10,000 AIR	240 Vac	10	QOU310 QOU310B	1 40
				15	QOU315 QOU315B	1 40
				20	QOU320 QOU320B	1 40
				25	QOU325 QOU325B	1 40
				30	QOU330 QOU330B	1 40
				35	QOU335 QOU335B	1 40
				40	QOU340 QOU340B	1 40
				45	QOU345 QOU345B	1 40
				50	QOU350 QOU350B	1 40
				60	QOU360 QOU360B	1 40
	Non-Auto Switch	N/A	240Vac	60	QOU300 QOU300B	1 40

□ UL Recognized Component, Supplementary Protector.

Note: See ordering instructions (page 5-37), all catalog numbers ending in B must be ordered in bulk package quantities.

Low Amp QOU Accessories (10 – 60 Amp)

Description	Catalog Number	Order Qty.
4-pole Jumper Bar Assy. W/Front Wiring With Base, Cover and Screw	QOU14100JBAF	1
Single Phase, 4-pole, 100A Jumper Bar Base with Front Wiring	QOU14100BAFB	40
Single Phase, 4-pole, 100A Jumper Bar Base with Left Side Wiring	QOU14100BALB	40
Single Phase 4-pole, 100A Jumper Bar Base with Right Side Wiring	QOU14100BARB	40
4-pole Jumper Bar Assy. w/Left Sside Wiring with Base, Cover and Screw	QOU14100JBAL	1
4-pole Jumper Bar Cover.	QOU14100CAB	80
Mounting Screw for Jumper Bar Cover	QOU1CMSB	80
6-pole Jumper Bar Assy. W/Front Wiring With Base, Cover and Screw	QOU16150JBAF	1
Single Phase, 6-pole, 150A Jumper Bar Base with Front Wiring	QOU16150BAFB	40
Single Phase, 6-pole, 150A Jumper Bar Base with Left Side Wiring	QOU16150BALB	40
Single Phase, 6-pole, 150A Jumper Bar Base with Right Side Wiring	QOU16150BARB	40
4-Pole jumper bar assy. w/Right Side Wiring with Base, Cover and Screw.	QOU1600JBAR	1
6-pole Jumper Bar Cover	QOU16150CAB	80
Vertical Rainproof Cover 2- & 3-pole QO, QOU, Q2, EH FA and KA	BCV▲ BCVB▲	1 10

Description	Catalog Number	Std. Qty.
Horizontal Rainproof Cover 2-pole QO, QOU, Q2, EH and 3-pole Q2, EH	BCH▲ BCHB▲	1 10
1-pole Finger Safe Cover For High Amp QOU	QOUHFSC1 QOUHFSC1B	1 80
1-pole Finger Safe Cover For Low Amp QOU	QOULFSC1 QOULFSC1B	1 80
Cover Plate for One 2-pole QOU Circuit Breaker	QOUCP2 QOUCP2B	1 80
Cover Plate for One 3-pole QOU Circuit Breaker	QOUCP3 QOUCP3B	1 80
Cover Plate for Two 2-pole QOU Circuit Breakers	QOUCP4 QOUCP4B	1 80
Cover Plate for Three 2-pole QOU Circuit Breakers	QOUCP6 QOUCP6B	1 80
Quick Connector End Connection Wiring	QOUEC QOUECB	1 80
Quick Connector Forward or Reverse Wiring	QOUFR QOUFRB	1 80
1-pole QOU Mounting Foot	QOUMF1▲ QOUMF1B▲	1 80
2-pole QOU Mounting Foot	QOUMF2▲ QOUMF2B▲	1 80
3-pole QOU Mounting Foot	QOUMF3▲ QOUMF3B▲	1 80

▲ For use on low and high amp QOU.

Voltage Code D1

UL/CSA VA	CE VA	Type	D1 240 X 480 120	Dimension Accessory KEY
25	25	T25		I
50	50	T50		I
75	75	T75		I
100	100	T100		I
150	150	T150		I
200	200	T200		I
250	160	T250		I
300	200	T300		I
350	250	T350		I
500	300	T500		I
750	500	T750		I
1000	750	T1000		I
1500	1000	T1500		I
2000	1500	T2000		I
3000	2000	T3000		I
5000	3000	T5000		I

Voltage Code D19

UL/CSA VA	CE VA	Type	D19 208/240/277/380/480 24	Dimension Accessory KEY
50	50	T50		III
75	75	T75		III
100	100	T100		III
150	150	T150		III
200	200	T200		III
250	160	T250		III
300	200	T300		III
350	250	T350		III
500	300	T500		III
750	500	T750		III
1000	750	T1000		III

Voltage Code D2, D13 and D23

UL/CSA VA	CE VA	Type	D2 240 x 480 24	D13 120 12/24	D23 120/240 24	Dimension Accessory KEY
50	50	T50				I
75	75	T75				I
100	100	T100				I
150	150	T150				I
200	200	T200				I
250	160	T250				I
300	200	T300				I
350	250	T350				I
500	300	T500				I
750	500	T750				I
1000	750	T1000				I

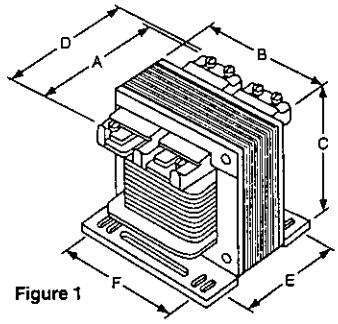


Figure 1

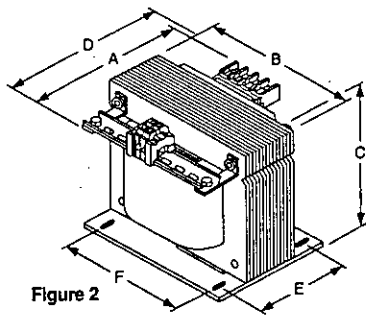


Figure 2

Voltage Code D14, D15, D31 and D33

UL/CSA VA	CE VA	Type	D14 208 24	D15 240 X 480 24/120■	D31 240 X 480 120/240	D33 380/400/415 115/230	Dimension Accessory KEY
50	50	T50					I
100	100	T100					I
150	150	T150					I
250	160	T250					I
350	250	T350					I
500	300	T500					I
750	500	T750					I
1000	750	T1000					I

■ 24 volt secondary at 20% rated VA

Voltage Code D3, D5, D4 and D12

UL/CSA VA	CE VA	Type	D3 208 120	D5 600 120	D4 277 120	D12 480 240	Dimension Accessory KEY
50	50	T50					I
100	100	T100					I
150	150	T150					I
200	200	T200					I
250	160	T250					I
300	200	T300					I
350	250	T350					I
500	300	T500					I
750	500	T750					I
1000	750	T1000					I
1500	1000	T1500					I
2000	1500	T2000					I
3000	2000	T3000					I
5000	3000	T5000					I

Voltage Code D18, D20 and D32

UL/CSA VA	CE VA	Type	D18 208/277/380 95/115	D20 208/230/460 115	D32 230/460/575 95/115	Dimension Accessory KEY
50	50	T50				II
75	75	T75				II
100	100	T100				II
150	150	T150				II
200	200	T200				II
250	160	T250				II
300	200	T300				II
350	250	T350				II
500	300	T500				II
750	500	T750				II
1000	750	T1000				II

Dimensions

VA Key I	VA Key II	VA Key III	Figure	A	B	C	D▲	E	F	SLOT
25 VA	...	...	1	3.09	3.00	2.58	3.84	2.00	2.50	.20 x .38
...	...	25 VA	1	4.00	3.43	2.64	4.80	2.00	2.50	.20 X .48
50 VA	25 VA	...	1	3.09	3.00	2.58	3.84	2.00	2.50	.20 x .38
...	...	50 VA	1	4.19	3.43	2.89	4.99	2.38	2.81	.20 X .48
75 VA	50 VA	...	1	3.34	3.38	2.89	4.09	2.38	2.81	.20 X .48
...	75 VA	...	1	3.59	3.75	3.20	4.34	2.88	3.13	.20 x .38
...	...	75 VA	1	4.88	3.75	3.20	5.68	2.88	3.13	.20 x .38
100 VA	...	...	1	3.34	3.38	2.89	4.09	2.38	2.81	.20 X .48
...	...	100 VA	1	4.88	3.75	3.20	5.68	2.88	3.13	.20 x .38
150 VA	100 VA	...	1	3.59	3.75	3.20	4.34	2.88	3.13	.20 x .38
200 VA	150 VA	...	1	3.59	3.75	3.20	4.34	2.88	3.13	.20 x .38
250 VA	...	150 VA	1	5.25	3.75	3.25	6.05	2.88	3.13	.20 x .38
300 VA	200 VA	200 VA	1	4.70	4.50	3.80	5.50	2.56	3.75	.20 x .38
350 VA	250 VA	250 VA	1	5.09	4.50	3.80	5.89	3.00	3.75	.20 x .38
...	300 VA	...	1	5.09	4.50	3.80	5.89	3.00	3.75	.20 x .38
...	...	300 VA	1	5.46	4.50	3.80	6.26	3.56	3.75	.20 x .38
500 VA	350 VA	...	1	5.46	4.50	3.80	6.26	3.56	3.75	.20 x .38
...	...	350 VA	1	5.46	4.50	3.80	6.26	3.56	3.75	.20 x .38
750 VA	500 VA	500 VA	1	5.66	5.25	4.43	6.46	3.43	4.38	.28 X .56
1000 VA	750 VA	750 VA	1	6.04	5.25	4.43	6.84	4.31	4.38	.28 X .56
1500 VA	1000 VA	1000 VA	1	5.81	7.06	6.16	6.61	4.13	5.81	.28 X .56
2000 VA	1500 VA	1500 VA	1	7.04	7.06	6.16	7.84	4.56	5.81	.28 X .56
3000 VA	2000 VA	2000 VA	2	6.86	9.00	8.46	7.26	4.63	7.63	.44 X .69
5000 VA	3000 VA	3000 VA	2	8.73	9.00	8.46	9.13	6.56	7.63	.44 X .69

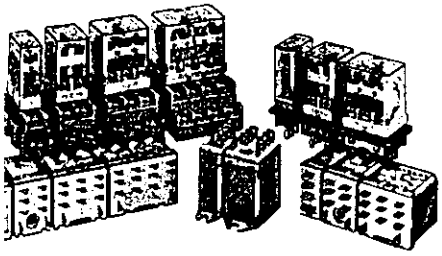
▲ Dimension with FINGERSAFE® Covers

How to Order:

To Order Specify:	Catalog Number		
	Class	Type	Voltage Code
• Class Number • Type Number • Voltage Code	9070	T500	D1

FINGERSAFE is a Registered Trademark of Square D Company.

General Purpose "Midget" Relays
10A Contact Rating
1, 2, 3, & 4 Form C Contact



UL Recognized
Files No. E67770
E59804
E64245

CSA Certified
File No.LR35144

File No. BL951113332319

Features

- Compact "Midget" size package saves space
- Large switching capacity, (10A)
- Choice of blade or PCB style terminals
- Relay options include indicator light, check button, and top mounting bracket
- DIN rail, surface, panel and PCB type sockets available for a wide range of mounting applications

RH Series Part List

Termination	Contact Configuration	Basic Part No.	Basic Part No. w/ Indicator Light	Check Button	Indicator Light & Check Button	Top Bracket
B (Blade)	SPDT	RH1B-U	RH1B-L—	—	—	RH1B-UT
	DPDT	RH2B-U	RH2B-UL	RH2B-UC	RH2B-ULC	RH2B-UT
	3PDT	RH3B-U	RH3B-UL	RH3B-UC	RH3B-ULC	RH3B-UT
	4PDT	RH4B-U	RH4B-UL	RH4B-UC	RH4B-ULC	RH4B-UT
V2 (PCB 0.078" (2mm) wide)	SPDT	RH1V2-U	—	—	—	—
	DPDT	RH2V2-U	RH2V2-UL	RH2V2-UC	RH2V2-ULC	—
	3PDT	RH3V2-U	RH3V2-UL	RH3V2-UC	RH3V2-ULC	—
	4PDT	RH4V2-U	RH4V2-UL	RH4V2-UC	RH4V2-ULC	—

Coil Ratings

D2

Rated Voltage		Rated Current ±15% @20°C; 60Hz				Rated Current ±15% @20°C; 50Hz				Coil Resistance ±15% @ 20°C			
		SPDT	DPDT	3PDT	4PDT	SPDT	DPDT	3PDT	4PDT	SPDT	DPDT	3PDT	4PDT
AC	6V	150mA	200mA	280mA	330mA	170mA	238mA	330mA	387mA	18.8Ω	9.4Ω	6.0Ω	5.4Ω
	12V	75mA	100mA	140mA	165mA	86mA	118mA	165mA	196mA	76.8Ω	39.3Ω	25.3Ω	21.2Ω
	24V	37mA	50mA	70mA	83mA	42mA	59.7mA	81mA	98mA	300Ω	153Ω	103Ω	84.5Ω
	120V*	7.5mA	11mA	14.2mA	16.5mA	8.6mA	12.9mA	16.4mA	19.5mA	7680Ω	4170Ω	2770Ω	2220Ω
	240V**	3.2mA	5.5mA	7.1mA	8.3mA	3.7mA	6.5mA	8.2mA	9.8mA	31200Ω	15210Ω	12100Ω	9120Ω
	—	SPDT		DPDT		3PDT		4PDT		SPDT	DPDT	3PDT	4PDT
DC	6V	128mA		150mA		240mA		250mA		47Ω	40Ω	25Ω	24Ω
	12V	64mA		75mA		120mA		125mA		188Ω	160Ω	100Ω	96Ω
	24V	32mA		36.9mA		60mA		62mA		750Ω	650Ω	400Ω	388Ω
	48V	18mA		18.5mA		30mA		31mA		2660Ω	2600Ω	1600Ω	1550Ω
	110V***	8mA		9.1mA		12.8mA		15mA		13800Ω	12100Ω	8600Ω	7340Ω

*** For RH2 relays = AC110/120V AC**
**** For RH2 relays = 220/240V AC**
*****For RH2 relays = 100/110V DC**

Ordering Information

Ordering standard voltages results in quickest delivery. Allow extra delivery time for non-standard voltages.

Basic Part No. Coil Voltage:
RH2B-U —AC110/120V

Operational Characteristics

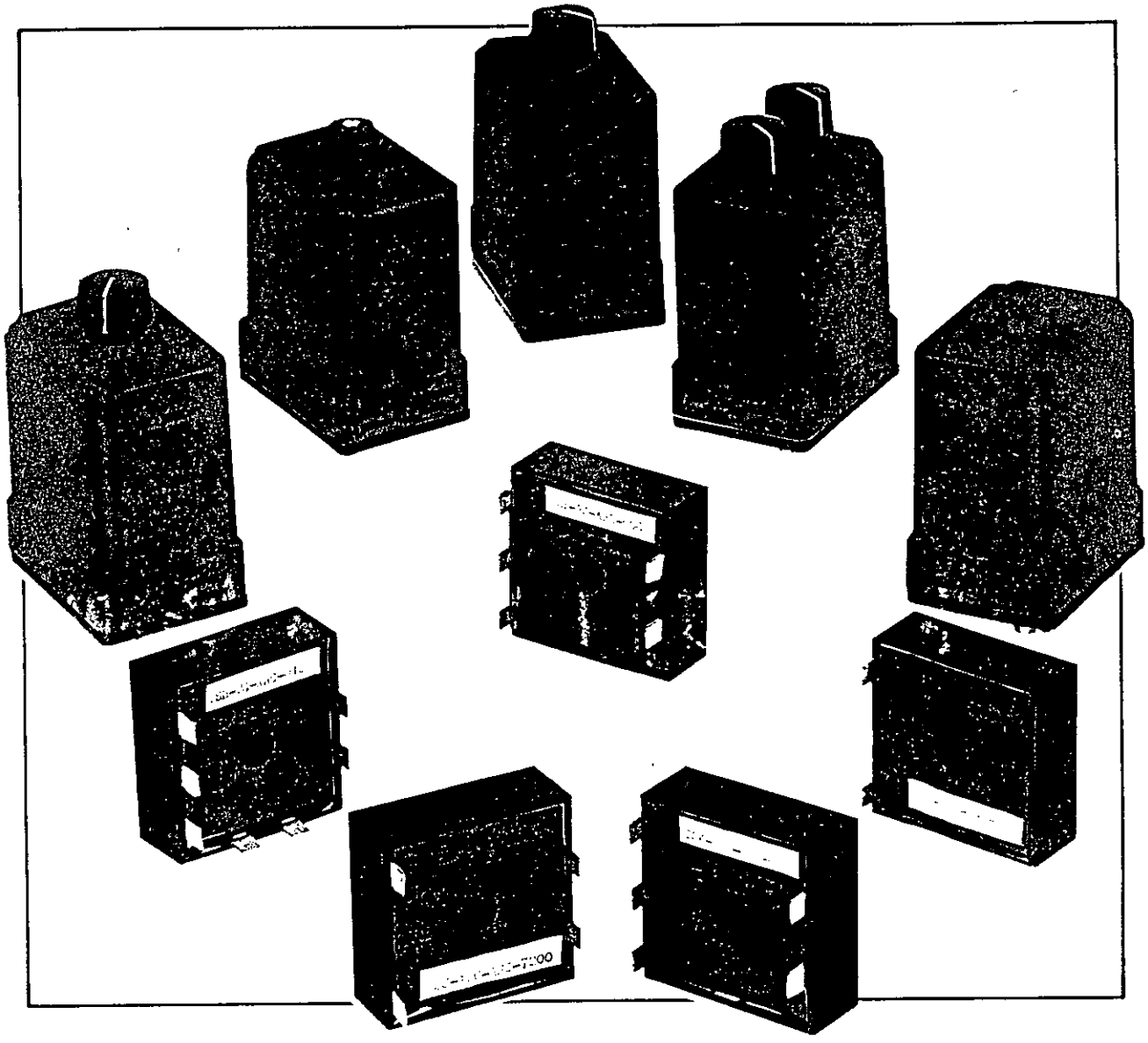
Maximum continuous applied voltage (AC/DC) @ 20°C	110% of rated voltage
Minimum operating voltage (AC/DC) @ 20°C	80% of rated voltage
Drop-out voltage (AC)	30% or more of the rated voltage
Drop-out voltage (DC)	10% or more of the rated voltage

Contact Ratings

UL Ratings		
Motor Load	SPDT, DPDT	3PDT
120V AC	1/6HP	1/6 HP
240V AC	1/3 HP	1/3 HP

Note: Contact ratings continued on following page.

TIME DELAY RELAYS
and
SOLID STATE TIMERS



. . . Quality and Reliability
Time after Time

DIVERSIFIED ELECTRONICS INC.

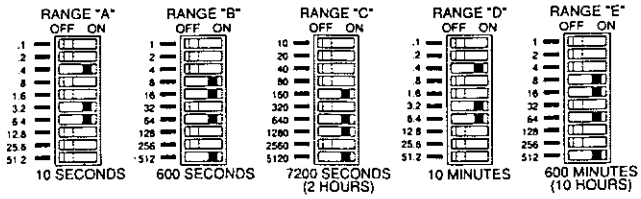
Industrial Controls Division

TD-583I

Made in USA

DIP SWITCH TIME DELAY RELAYS

Dip Switch Operation

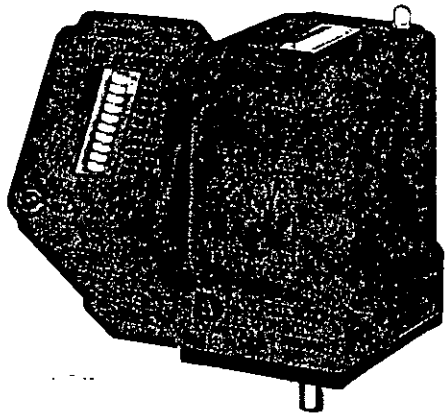


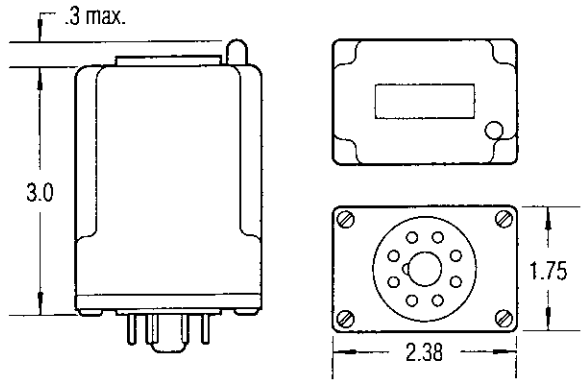
Digital selection of the time delay is accomplished by the use of ten (10) binary switches, each marked with a time increment. The time periods, of which there are five (5) ranges, represented by each switch in the ON position is added together to obtain the desired time delay. No more trial-by-error adjustments.

- INTERVAL ON OPERATE
- DELAY ON OPERATE
- DELAY ON RELEASE
- SINGLE SHOT
- REPEAT CYCLE
- FLASHER
- UNITIMER

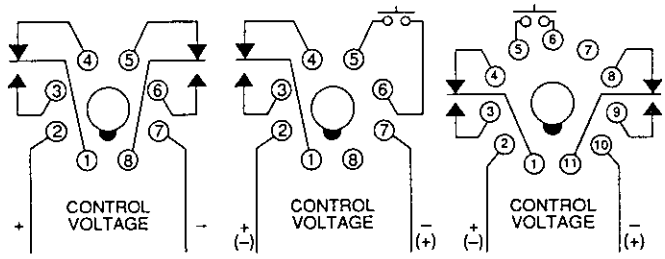
Specifications

CONTROL VOLTAGE:	12, 24, 48, 120, or 240 volts AC, 50/60 Hz, or DC ± 10%
TIME DELAY RANGE:	See Order Information
ACCURACIES	
Setting:	±2% or ±50 Milliseconds Whichever is Greater
Repeat:	±0.1% or ± 8.3 Milliseconds Whichever is Greater
RESET TIME	
Before Time Out:	100 M. Seconds
After Time Out:	50 M. Seconds
OUTPUT:	10 Amps @ 120 VAC or 24 VDC, Resistive
TEMPERATURES	
Operate:	0°C to +55°C
Storage:	-45°C to +85°C
FALSE TRANSFER:	No
REVERSE POLARITY PROTECTED:	Yes
POWER REQUIRED:	3 VA, Approximately
DUTY CYCLE:	Continuous
LIFE EXPECTANCY	
Mechanical:	10 Million Operations, Minimum
Electrical:	100,000 Operations @ Rated Load
INDICATORS:	LED Glows when Relay is Energized
ISOLATION:	1,500 Volts, Input/Output
AGENCY APPROVALS:	UL Recognized; File #E55826 CSA Certified; File #LR40123





ENCLOSURE DIMENSIONS
(inches)



TBB/TBC/TBF/TBL TBD/(TBE) TBD/(TBE) DPDT OPTION

WIRING DIAGRAMS

Order Information

TBX-XXX-X XA-D

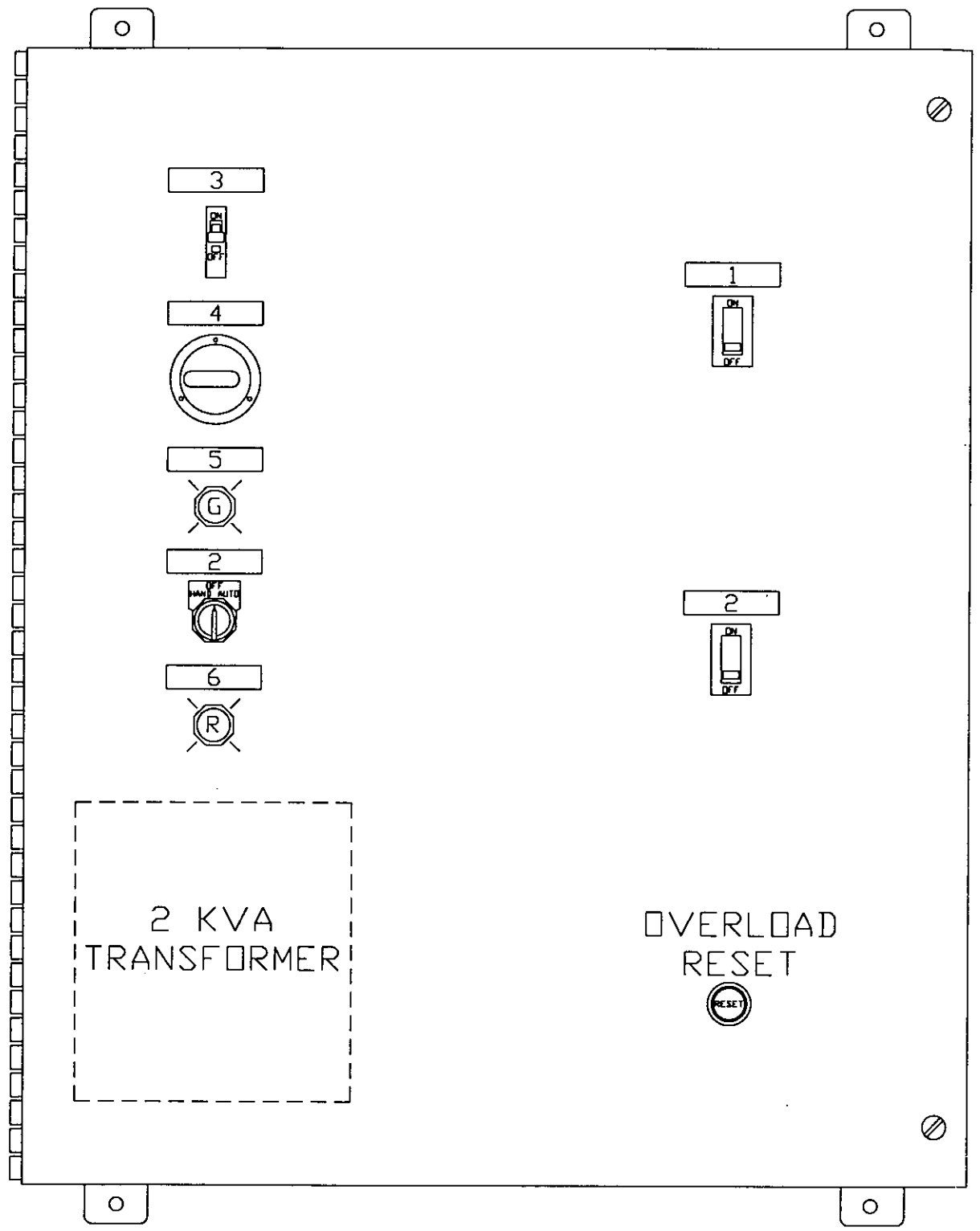
Mode of Operation
B=Interval-on-Operate
C=Delay-on-Operate
D=Delay-on-Release
E=Single Shot
F=Repeat Cycle
L=Flasher
U=Unitimer

Control Voltage
12-D = 12 Volts DC
24-A = 24 Volts AC/DC
48-D = 48 Volts DC
120-A = 120 Volts AC/DC
240-A = 240 Volts AC

Time Delay Range
A = 0.1 to 102.3 Seconds in 0.1 Sec. Increments
B = 1.0 to 1,023 Seconds in 1.0 Sec. Increments
C = 10 to 10,230 Seconds in 10 Sec. Increments
D = 0.1 to 102.23 Minutes in 0.1 Min. Increments
E = 1.0 top 1,023 Minutes in 1.0 Min. Increments
P = Four (4) Programmable Ranges (TBU only)
See back page

Option
DPDT, 5 Amps @ 240 VAC (TBD,TBE only)

MADE IN U.S.A.



NEMA 1 ENCLOSURE
36"H X 30"W X 9"DP

NAMEPLATE LEGEND

1. MAIN
2. PUMP
3. CONTROL
4. PUMP RTM
5. PUMP RUN
6. LOW LEVEL

REV. NO.	REVISION	BY CHK'D	DATE

DESIGNED BY: NB	DATE 12/29
DRAWN BY: SP	DATE 98
CHECKED BY:	DATE
SCALE	

USEMCO

USEMCO INCORPORATED

P.O. BOX 550 (608) 372-5911 TOMAH WI. 54660

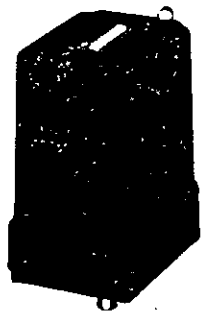
DESCRIPTION

WICHITA STORM WATER 503

DWG. NO. PNL 15609

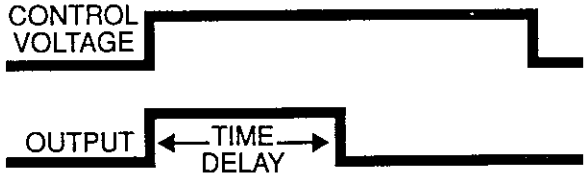
JOB NO.

Interval On Operate
TBB SERIES

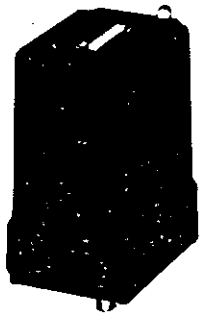


Operation

When control voltage is applied to the input terminals, the relay energizes and the time delay begins. Upon completion of the delay period, the relay de-energizes. Reset during or after the delay period is accomplished by removal of the control voltage.

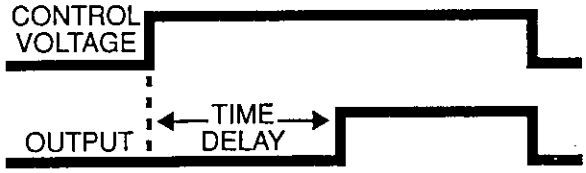


Delay On Operate
TBC SERIES

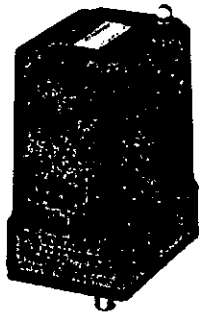


Operation

The time delay begins when control voltage is applied to the input. Upon completion of the delay period, the relay energizes. Reset during or after the delay period is accomplished by removal of the control voltage. The TBC Series will not false transfer if control voltage is removed prior to completion of the delay period. A fast recycle time permits accurate, high speed, continuous operation.



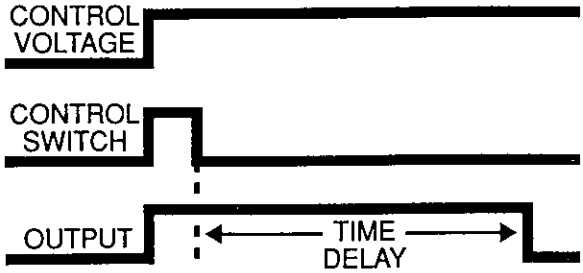
Delay On Release
TBD SERIES



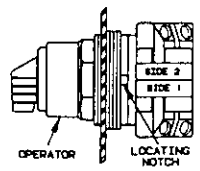
Operation

Control voltage is continuously applied to the input. An external isolated switch between pins 5 and 6 controls the timer. When closed, the relay energizes. Opening the switch initiates the delay period. Upon completion of the delay period, the relay de-energizes. If the control switch recloses during the delay period, the relay remains energized and the timer resets to zero.

NOTE: *The TBD Series is optionally available in a DPDT, 11 pin configuration (See WIRING DIAGRAMS on front page).. Please contact the factory for price and delivery.*



Non-Illuminated 3 Position Selector Switch Operators — U.L. Types 4, 13/NEMA Types 4, 13
For use in hazardous locations — See page 14-79.
Legend Plate and Contact Block Not Included Unless Noted

CONTACT BLOCK REQUIRED			1 – Contact Closed 0 – Contact Open								
Contact Block Position	Quantity and Type	Mount on Side	Center Left Right	Center Left Right	Center Left Right	Center Left Right	Center Left Right	Center Left Right	Center Left Right	Center Left Right	Center Left Right
 Top View	KA1 KA3 OR KA2	KA1 #2 OR KA3 #2 / KA2 #2	1 0 0 0 1 1	1 0 0 0 0 1	0 0 1 0 1 0	1 0 0 0 1 0	1 0 0 0 0 1	1 0 0 0 1 1	1 0 0 0 1 1	0 1 0 1 0 0	1 1 0 0 0 1
	KA1 KA3 OR KA2	KA1 #1 OR KA3 #1 / KA2 #1	0 0 1 1 1 0	1 0 0 0 0 1	0 0 1 0 1 0	1 0 0 0 1 0	0 1 0 0 0 1	0 0 1 1 0 0	1 0 1 0 1 0	0 0 1 0 1 0	0 1 1 1 0 0
	CAM		B	C	D	E	F	G	J	L	M
Non-Illuminated Operators			Type	Type	Type	Type	Type	Type	Type	Type	Type
Manual Return Operator Only(1) Without Knob With Standard Black Knob With Other Color Knob (See Table)(2) Key Operated with E10 Key (Code 4 through 10)(3)(4) With Contact Block(s) With Standard Black Knob (See Table for Other Colors, Replace B in Type Number with Other Color Code) With 1 KA1 on side #2 (H13) With 1 KA1 on side #1 (H1) With 1 KA1 on side #1 and 1 KA1 on side #2 (H2)			KS42 KS42B KS42(2) KS42K(3) KS42BH13 KS42BH1 KS42BH2	KS43 KS43B KS43(2) KS43K(3) KS43BH13 KS43BH1 KS43BH2	KS44 KS44B KS44(2) KS44K(3) KS44BH13 KS44BH1 KS44BH2	KS45 KS45B KS45(2) KS45K(3) KS45BH13 KS45BH1 KS45BH2	KS46 KS46B KS46(2) KS46K(3) KS46BH13 KS46BH1 KS46BH2	KS47 KS47B KS47(2) KS47K(3) KS47BH13 KS47BH1 KS47BH2	KS49 KS49B KS49(2) KS49K(3) KS49BH13 KS49BH1 KS49BH2	KS401 KS401B KS401(2) KS401K(3) KS401BH13 KS401BH1 KS401BH2	KS402 KS402B KS402(2) KS402K(3) KS402BH13 KS402BH1 KS402BH2
Spring Return from Left to Center Operator Only(1) Without Knob With Standard Black Knob With Other Color Knob (See Table)(2) Key Operated with E10 Key (Code 5, 6 or 9 only)(3)(4)			KS62 KS62B KS62(2) KS62K(3)	KS63 KS63B KS63(2) KS63K(3)	KS64 KS64B KS64(2) KS64K(3)	KS65 KS65B KS65(2) KS65K(3)	KS66 KS66B KS66(2) KS66K(3)	KS67 KS67B KS67(2) KS67K(3)	KS69 KS69B KS69(2) KS69K(3)	KS601 KS601B KS601(2) KS601K(3)	KS602 KS602B KS602(2) KS602K(3)
Spring Return From Right to Center Operator Only(1) Without Knob With Standard Black Knob With Other Color Knob (See Table)(2) Key Operated with E10 Key (Code 4, 5 or 7 Only)(3)(4)			KS72 KS72B KS72(2) KS72K(3)	KS73 KS73B KS73(2) KS73K(3)	KS74 KS74B KS74(2) KS74K(3)	KS75 KS75B KS75(2) KS75K(3)	KS76 KS76B KS76(2) KS76K(3)	KS77 KS77B KS77(2) KS77K(3)	KS79 KS79B KS79(2) KS79K(3)	KS701 KS701B KS701(2) KS701K(3)	KS702 KS702B KS702(2) KS702K(3)
Spring Return Both Sides to Center Operator Only(1) Without Knob With Standard Black Knob With Other Color Knob (See Table)(2) Key Operated with E10 Key (Code 5 Only)(3)(4)			KS52 KS52B KS52(2) KS52K5	KS53 KS53B KS53(2) KS53K5	KS54 KS54B KS54(2) KS54K5	KS55 KS55B KS55(2) KS55K5	KS56 KS56B KS56(2) KS56K5	KS57 KS57B KS57(2) KS57K5	KS59 KS59B KS59(2) KS59K5	KS501 KS501B KS501(2) KS501K5	KS502 KS502B KS502(2 KS502K5

(1) These operators can be ordered complete with contact blocks –for maximum block usage – see page 14-84. Add the "H" number chosen from page 14-80 to the end of the operator type number and add the cost of the "H" number to the operator cost.
EXAMPLE: KS43K6(58.20)+H13(KA1-SIDE 2)(18.00)=KS43K6H13(76.20).

(2) Add the color code as chosen from knob color table at right.
EXAMPLE: KS43(2) with a green gloved hand knob = KS43FG

(3) Add the key withdrawal code from key withdrawal code table below.
EXAMPLE: KS43K(3) that the key can be withdrawn in the right position only = KS43K6

(4) All key operated devices are furnished as standard with Square D number E10 (key only part no. is 29411-01100, **$4.20 price each**) key change. The following 20 additional key changes are available at no extra cost:
E11-E13, E16, E21-E26, E28-E33, CH501, CH674, SR251, T107.
Occasionally it is desirable to have several devices with dissimilar key changes, but all operable by a single master key. The following key changes with master keying provisions are available at **$6.90** additional per device.

Key No.	Total Key Changes Available	Master Key	
		Part No.	Price
E36 thru E60	25	29411-51990	**$4.20**

EXAMPLE: For individual key, not master keyed an E29 is chosen. The type number is KS43K6E29.
All key operators come standard with 2 keys. Replacement keys can be purchased by specifying the key required i.e., E10, E24, E36 key only, etc. at **$4.20** per key.

3-Position Switches

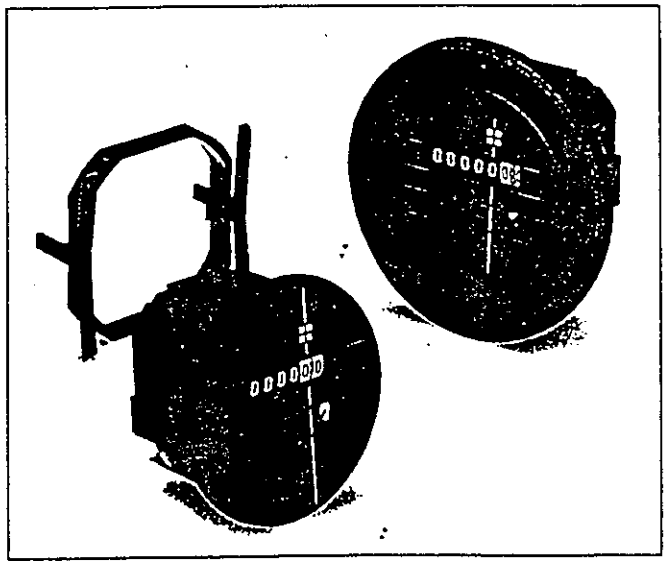
(3) Code				(3) Code			
4	Yes	No	No	8	Yes	No	Yes
5	No	Yes	No	9	No	Yes	Yes
6	No	No	Yes	10	Yes	Yes	Yes
7	Yes	Yes	No				

Selector Switch Knobs

Color	Standard Knob		Gloved Hand Knob		Coin Operated	
	(2) Knob Code	Type	(2) Knob Code	Type	(2) Knob Code	Type
Black	B	B11	FB	B25	TB	B18
Red	R	R8	FR	R24	TR	R16
Green	G	G8	FG	G24	TG	G16
Yellow	Y	Y8	FY	Y24	TY	Y16
Orange	S	S11	FS	S25	—	—
Blue	L	L8	FL	L24	TL	L16
White	W	W8	FW	W24	—	—
Amber	A	A8	FA	A24	—	—
Clear	C	C8	FC	C24	TC	C16

For Basic Operators . . . . . Page 14-84
For Boots . . . . . Page 14-83
For Contact Blocks. . . . . . Pages 14-78 – 14-79
For "H" Numbers . . . . . Page 14-80
For Legend Plates . . . . . Pages 14-81 – 14-82
For Lockouts . . . . . Page 14-83
For Outline Dimensions . . . . . Pages 14-92 – 14-93
For Ratings . . . . . Page 14-78
For Replacement Parts. . . . . . Page 14-87
For Ring Nuts . . . . . Page 14-87
For Cams. . . . . . Page 14-86

AC HOUR METER



Lightweight, low power, rugged electromechanical AC Hour Meter. Available in flush mount with retainer clip or 3-hole round versions, with sealed front cover and tell-tale operation indicator. Enhanced readability obtained with large, distinct numerals. Vertical red bar defines decimal readings.

FEATURES:

- 24, 120, 220 VAC versions, 50 and 60Hz
- 2.28" (57.9mm) Diameter for flush mount
  2.93" (74.4mm) Diameter for 3-hole round
- 1/4" spade terminals, with removable screws, or leadwire terminated models available
- Operating temperature range of -22°F (-30°C) to +158°F (+70°C)
- Power consumption approximately 10mA
- Non Reset
- .138" (3.5mm) numerals
- UL Recognized, CSA Certified
- 7-digit meter reads to 99999.99 hours, then returns to zero
- Weight: 1.5 oz. (45.6 grams)

SPECIFICATIONS:

Model	Voltage/Hz	Voltage Tolerance	Terminal	Style	Power	Retainer Clip	Fig.
711-0150	120v/60Hz	+10%/-15%	Screw Clamp	Flush Mount	10mA Nom.	Yes	1
711-0153	220v/50Hz	+10%/-15%	Screw Clamp	Flush Mount	10mA Nom.	Yes	1
711-0154	24v/60Hz	+10%/-15%	Screw Clamp	Flush Mount	10mA Nom.	Yes	1
711-0160	120v/60Hz	+10%/-15%	Screw Clamp	3 Hole	10mA Nom.	No	2
711-0163	220v/50Hz	+10%/-15%	Screw Clamp	3 Hole	10mA Nom.	No	2
711-0164	24v/60Hz	+10%/-15%	Screw Clamp	3 Hole	10mA Nom.	No	2
711-0171	120v/60Hz	+10%/-15%	w. 8" wire leads	3 Hole	10mA Nom.	No	2
711-0165	120v/60Hz	+10%/-15%	Spade	3 Hole	10mA Nom.	No	

Options available include DC versions and 1/4" spade terminals.

DIMENSIONS: Inches (mm)

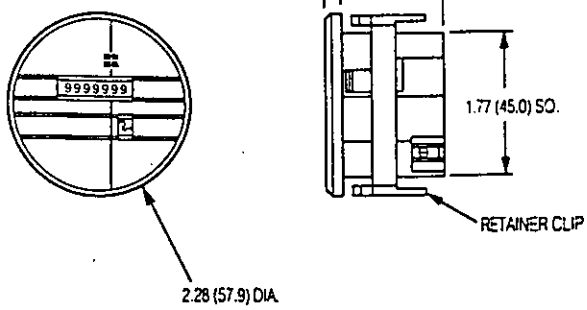


FIG. 1

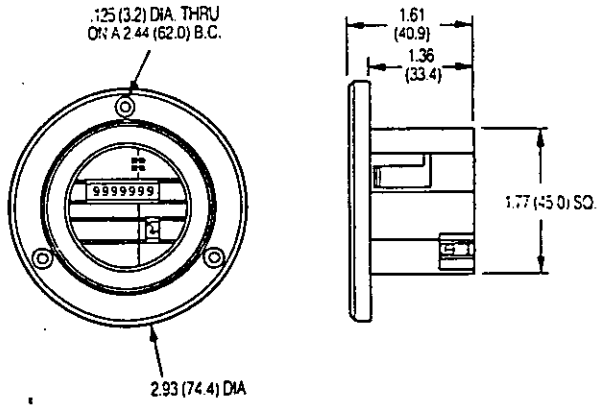


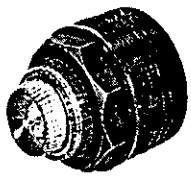
FIG. 2

PANEL OPENINGS: 1.99 (50.5) DIA., or 1.79 (45.5) SQ.

REDINGTON COUNTERS INC.
130 Addison Road, P.O. Box 608, Windsor, CT 06095 U.S.A.
Phone: 203-688-6205 □ 800-395-7337 □ FAX: 203-688-1591 □ 800-333-6882

Push Buttons
Type K – 30.5mm
Heavy Duty Pilot Lights

Class 9001
Pilot Lights – UL Types 4, 13/NEMA Type 4 & 13
For use in hazardous locations — See page 14-79.
Legend Plates Not Included

Description	Voltage	Style	With Red Fresnel Color Cap	With Green Fresnel Color Cap	With Other Color Cap	Price	Without Color Cap	Price
 Standard Pilot Light (Plastic fresnel Color Cap Shown)	110-120V, 50-60 Hz 220-240V, 50-60 Hz 24-28VAC-DC For Other Voltages See Table (1)	Transformer Transformer Full Voltage Transformer, Flashing or LED (3) Full Voltage, Neon or Resistor (4)	KP1R31 KP7R31 KP35R31 KP(1)R31 KP(1)R31	KP1G31 KP7G31 KP35G31 KP(1)G31 KP(1)G31	KP1(2) KP7(2) KP35(2) KP(1)(2) KP(1)(2)		KP1 KP7 KP35 KP(1) KP(1)	
 Push To Test Pilot Light (Glass Color Cap Shown)	110-120V, 50-60 Hz 220-240V, 50-60 Hz 24-28VAC-DC For Other Voltages See Table (1)	Transformer Transformer Full Voltage Transformer, Flashing or LED (3) Full Voltage, Neon or Resistor (4)	KT1R31 KT7R31 KT35R31 KT(1)R31 KT(1)R31	KT1G31 KT7G31 KT35G31 KT(1)G31 KT(1)G31	KT1(2) KT7(2) KT35(2) KT(1)(2) KT(1)(2)		KT1 KT7 KT35 KT(1) KT(1)	
 Remote Test Pilot Light (Glass Color Cap Shown)	120VAC Only 24-28VAC Only For Other Voltages See Table (1) (5)	Resistor (5) Full Voltage (5) Full Voltage or Resistor (5)	KTR38R31 KTR35R31 KTR(1)R31	KTR38G31 KTR35G31 KTR(1)G31	KTR38(2) KTR35(2) KTR(1)(2)		KTR38 KTR35 KTR(1)	
 Pilot Light For Intrinsically Safe Circuits (NEMA 4X)	Intrinsically safe equipment must not release electrical or thermal energy capable of igniting certain explosive or combustible hazardous atmospheres, for which the equipment has been tested. These pilot lights are intrinsically safe when used with a suitable approved barrier or barrier relay (Class 8501 Type TO from pages 19-22 and 19-23). These pilot lights are Factory Mutual (FM approved). Consult your local Square D Sales Office for further details. These pilot lights are fully encapsulated – there are no replaceable parts – except for the SK40 ring nut. Use KN100 series plastic legend plates as shown on pages 14-81 and 14-82.		KP44R	KP44G	KP44Y (Yellow Color Cap)		—	—

Operating Voltage Range	Nominal Current	
20-30V AC/DC	25ma.	V max. = 32V I max. = 165 ma.

(1) Add the voltage assembly code as chosen from voltage assembly code table on page 14-63.
EXAMPLE: KT(1)R31 with a 60VAC red LED voltage=KT37LRR31.
(2) Add the color code as chosen from the color cap table. EXAMPLE: KP1(2) with a blue fresnel cap = KP1L31
(3) The color cap must be the same color as the LED voltage chosen, i.e., green LED use a green color cap.
(4) On neon voltages use clear color caps only.
(5) On remote test pilot lights use only full voltage or resistor voltage assembly codes. Do not choose LED, neon or transformer codes. For AC use only.

Push-To-Test Ground Detector Pilot Light
(Contact Block Included – But NOT Legend Plate or Color Cap)

Used in pairs to indicate a grounded condition in a control circuit fed from a grounded center-tapped transformer. The Type KT50 is commonly used in press control circuits, and fulfills the requirements of the ground detector called for in ANSI B11.1 (1971), Par. E3.6.5. Consult local Square D Sales Office for proper application.

Voltage and Frequency	Type	Price
110-120 V., 50-60 Hz.	KT50	$108.00

Color	(2) Plastic Fresnel	(2) Plastic Domed	(2) Glass
Amber	A31	A9	A6
Blue	L31	L9	L6
Clear	C31	C9	C6
Green	G31	G9	G6
Red	R31	R9	R6
White	W31	W9	W6
Yellow	Y31	Y9	Y6

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For Lamps ..... Page 14-77
For Legend Plates ..... Pages 14-81 – 14-82
For Light Modules ..... Page 14-77
For Outline Dimensions ..... Pages 14-92 – 14-93
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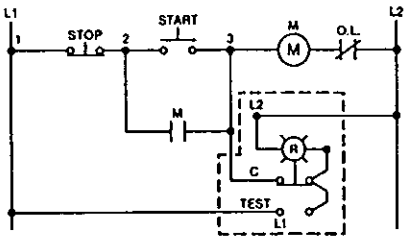
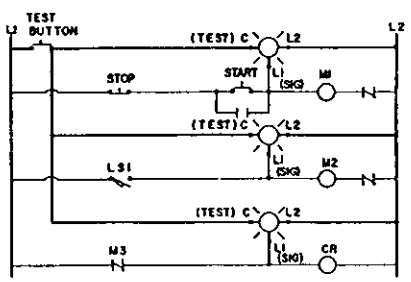
Voltage Assembly Codes
See Page 14-63

Typical Wiring Diagrams



Push-To-Test Pilot Light

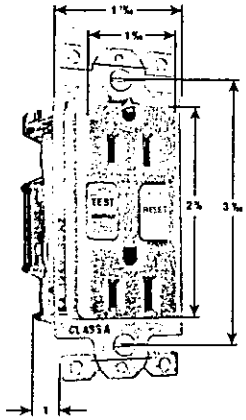


Remote Test Pilot Light

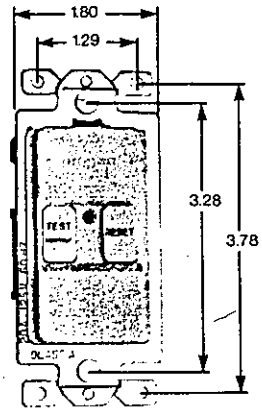
CP1 | | Discount Schedule

Specification Grade GFCI "Feed-Thru" Duplex Receptacles

RATING	DESCRIPTION	CAT. NO. (with wall plate)
15A, 125V (NEMA 5-15R)	Brown Ivory White	GF5242* GF5242I* GF5242W
20A, 125V (NEMA 5-20R)	Brown Ivory White Ivory, Master Unit	GF5342 GF5342I GF5342W GF2091MI**



GF5242I

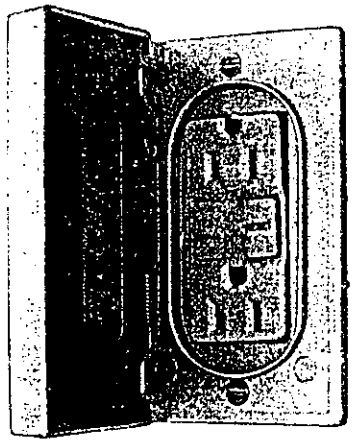


GF2091MI

WEATHER PROTECTIVE COVERS

For use with GFCI "Feed-Thru" Duplex Receptacles.

DESCRIPTION	CAT. NO.
Cast aluminum lift cover only, fits standard outlet box.	4501
Cast aluminum, lift cover, fits standard outlet box, commercial grade	4502
Cast aluminum lift cover only, fits FS boxes.	4501FS

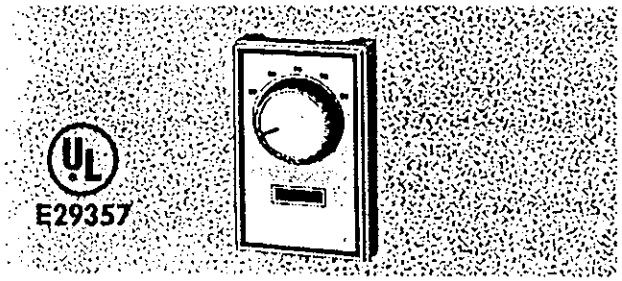


GF5242I, Installed with 4501 Weather Protective Cover

K

NOTES:

* Available in bulk pack (without wall plate, 10 per carton). Specify Catalog No. GF5242-X (Brown) or GF5242-XI(Ivory).
** A Master Unit is a GFCI without receptacle outlets for protection of downstream receptacles or equipment. Contains integral LED that is on when there is power to the downstream circuit.



SPDT AND DPST THERMOSTATS

APPLICATIONS: Blowers, furnace fans, baseboard and ceiling heaters

FEATURES:

- **Bimetal operated snap switch**
- **Temperature range 50-90°F**
- **Columbus Electric brand**

MOUNTING: Standard 4 x 4" vertical box

Resistive	Inductive	
125/277VAC	125VAC	277VAC
22A	3/4 HP	1/2 HP
22A	3/4 HP	1½ HP

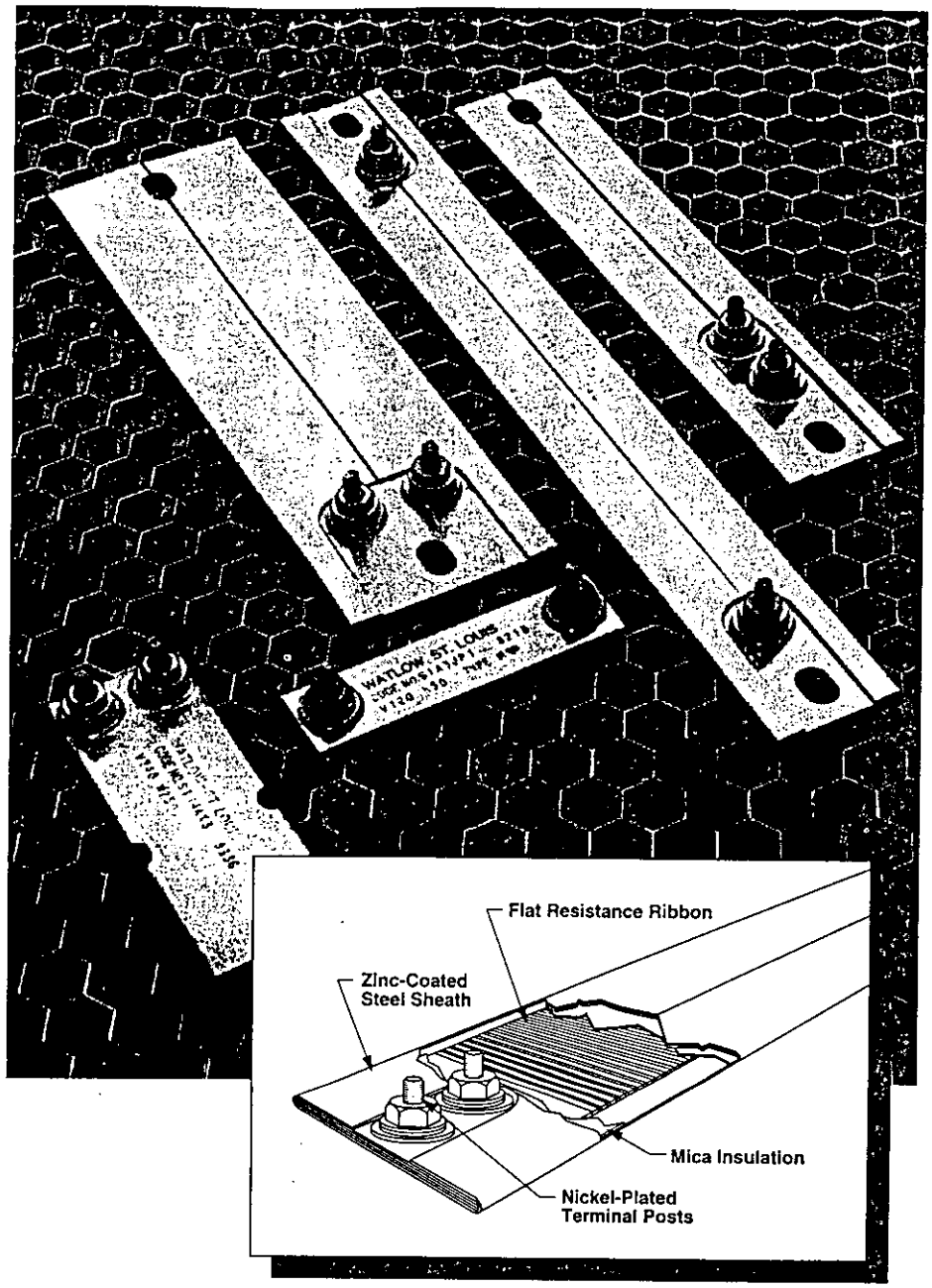
Switch Type	Diff. (fixed)	Case Color	Dimensions, In. H	W	D	Stock No.	List	Each	Shpg. Wt.
SPDT	2°F Heat	Beige	4⅝	2 13/16	2¾	**2E158**			0.8
DPST	2°F Heat	White	4½	3	2	**5E266**			0.6
Heating only									

Quick Ship • *Same day shipment on all stock units*

Strip Heaters

Mica Strip

The Watlow mica strip heater is an economical and reliable source of heat for industrial equipment. A mere 15 mils (0.4 mm) thick mica insulator on both sides of the resistance element provides complete electrical insulation and offers little resistance to efficient heat flow. Plus mica withstands high voltage spikes, resists moisture and is inert to most chemicals.



Performance Capabilities

- Sheath temperatures to 900°F (480°C) on zinc-coated units
- Sheath temperatures of 1200°F (650°C) on stainless steel units
- Watt densities to 55 W/in² (8.5 W/cm²)
- Maximum voltage 480VAC

Features

- **Low mass construction** heats up faster to provide quick response to control input.
- **Flat resistance ribbon** generates heat over a broad area. This design solution puts the heat source closer to the work.
- **Rust-resistant, zinc-coated steel sheath** is treated to improve emissivity. The strength of this material also gives the heater rigidity.
- **Optional stainless steel sheath** is available for more corrosive atmospheres.
- **Nickel-plated steel terminal posts** are securely riveted to ensure a positive, trouble-free connection to the resistance circuit.
- **Computer aided design engineering** assures the best combination of ribbon gauge, total wattage and winding spacing. This design combination maximizes heat transfer and life of the heater.
- **Excellent dielectric strength** is guaranteed because all incoming mica receives a quality control inspection.
- **UL component recognition** is available for applications to 900°F (480°C) sheath temperature.

  File number E52951

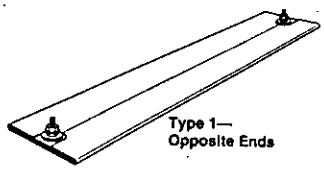
Applications

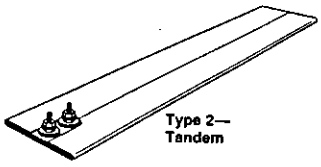
- Vulcanizing presses
- Sealing equipment
- Hot plates
- Hot stamping
- Dies and molds
- Thermoforming
- Tin melting
- Packaging equipment
- Food warming equipment

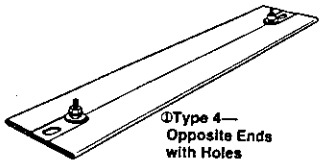
Strip Heaters

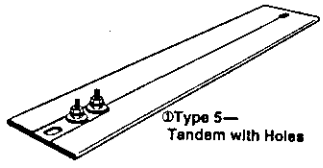
F.O.B.: St. Louis, Missouri

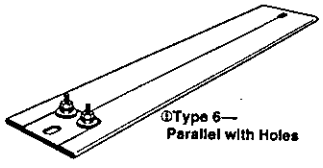
Mica Strip


Type 1—
Opposite Ends


Type 2—
Tandem


①Type 4—
Opposite Ends
with Holes


①Type 5—
Tandem with Holes


①Type 6—
Parallel with Holes

How to Order

To order your stock mica strip heater, specify:

- Quantity
- Watlow code number

Availability

Stock: Same day shipment

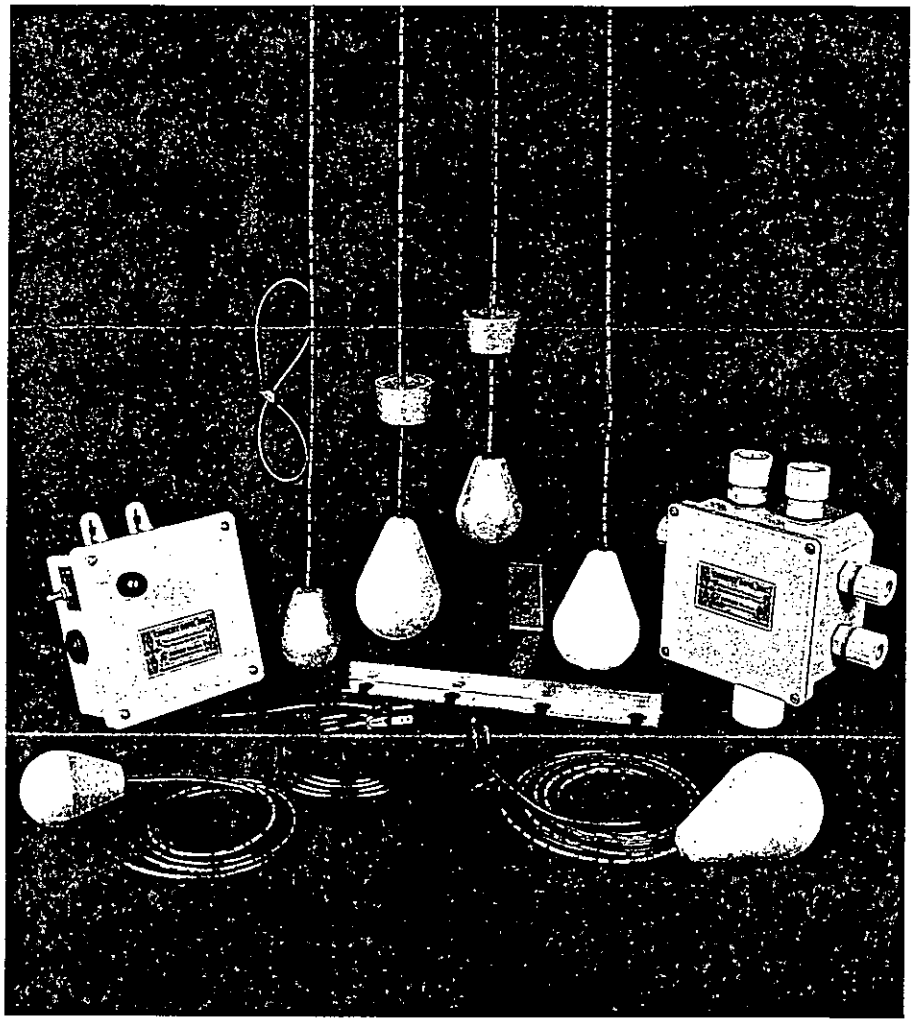
Made-to-Order: If our stock units do not meet your application needs, Watlow can manufacture mica strip heaters to your special requirements. Please consult your Watlow sales engineer or authorized distributor.

Width in (mm)	Overall Length in (mm)	Type	Ctr-to-Ctr Mtg Holes in (mm)	Volts	Power (Watts)	Watt Density W/in² (W/cm²)	Approx. Net Weight lbs (kg)	Avail.	Code No.
1 (25.4)	3½ (88.9)	1	— —	120	50	22 (3.4)	0.09 (0.04)	Stk	**S1A3JP1**
	6 (152.4)	1	— —	120	100	21 (3.3)	0.17 (0.08)	Stk	**S1A6AP1**
	6 (152.4)	1	— —	240	100	21 (3.3)	0.17 (0.08)	Stk	**S1A6AP2**
	12 (304.8)	4	11 (279.4)	120	175	21 (3.3)	0.33 (0.15)	Stk	**S1A12AT1**
	12 (304.8)	4	11 (279.4)	240	175	21 (3.3)	0.33 (0.15)	Stk	**S1A12AT2**
	6 (152.4)	5	5¼ (133.4)	120	100	20 (3.1)	0.17 (0.08)	Stk	**S1A6AU1②**
1½ (38.1)	18 (457.2)	1	— —	120	750	30 (4.6)	0.75 (0.34)	Stk	**S1J18AP1**
	6 (152.4)	2	— —	120	250	33 (5.1)	0.25 (0.11)	Stk	**S1J6AR1**
	8 (203.2)	2	— —	120	400	37 (5.7)	0.33 (0.15)	Stk	**S1J8AR1**
	8 (203.2)	2	— —	240	400	37 (5.7)	0.33 (0.15)	Stk	**S1J8AR2**
	12 (304.8)	2	— —	120	500	30 (4.6)	0.50 (0.23)	Stk	**S1J12AR1**
	12 (304.8)	2	— —	240	500	30 (4.6)	0.50 (0.23)	Stk	**S1J12AR2**
	14 (355.6)	2	— —	120	500	25 (3.9)	0.58 (0.26)	Stk	**S1J14AR1**
	14 (355.6)	2	— —	240	500	25 (3.9)	0.58 (0.26)	Stk	**S1J14AR2**
	18 (457.2)	2	— —	120	800	31 (4.8)	0.75 (0.34)	Stk	**S1J18AR1**
	18 (457.2)	2	— —	240	800	31 (4.8)	0.75 (0.34)	Stk	**S1J18AR2**
	24 (609.6)	2	— —	120	1000	29 (4.5)	1.0 (0.45)	Stk	**S1J24AR1**
	24 (609.6)	2	— —	240	1000	29 (4.5)	1.0 (0.45)	Stk	**S1J24AR2**
	8 (203.2)	4	7 (177.8)	120	150	22 (3.4)	0.33 (0.15)	Stk	**S1J8AT1**
	12 (304.8)	4	11 (279.4)	120	250	20 (3.1)	0.50 (0.23)	Stk	**S1J12AT1**
	12 (304.8)	4	11 (279.4)	240	250	20 (3.1)	0.50 (0.23)	Stk	**S1J12AT2**
	18 (457.2)	4	17 (431.8)	240	500	23 (3.6)	0.75 (0.34)	Stk	**S1J18AT1**
	5½ (139.7)	5	4½ (114.3)	120	125	30 (4.6)	0.23 (0.11)	Stk	**S1J5JU1**
	7½ (190.5)	5	6½ (165.1)	120	150	21 (3.3)	0.32 (0.15)	Stk	**S1J7JU1**
	8 (203.2)	5	7 (177.8)	120	150	19 (2.9)	0.33 (0.15)	Stk	**S1J8AU1**
	8 (203.2)	5	7 (177.8)	240	150	19 (2.9)	0.33 (0.15)	Stk	**S1J8AU2**
	8 (203.2)	5	7 (177.8)	120	175	22 (3.4)	0.33 (0.15)	Stk	**S1J8AU3**
	8 (203.2)	5	7 (177.8)	240	175	22 (3.4)	0.33 (0.15)	Stk	**S1J8AU4**
	8 (203.2)	5	7 (177.8)	120	250	32 (5.0)	0.33 (0.15)	Stk	**S1J8AU5**
	8 (203.2)	5	7 (177.8)	240	250	32 (5.0)	0.33 (0.15)	Stk	**S1J8AU6**
	10 ½ (266.7)	5	9 ½ (241.3)	120	250	22 (3.4)	0.42 (0.19)	Stk	**S1J10JU1**
	10 ½ (266.7)	5	9 ½ (241.3)	240	250	22 (3.4)	0.42 (0.19)	Stk	**S1J10JU2**
	12 (304.8)	5	11 (279.4)	120	250	18 (2.8)	0.50 (0.23)	Stk	**S1J12AU1**
	12 (304.8)	5	11 (279.4)	240	250	18 (2.8)	0.50 (0.23)	Stk	**S1J12AU2**
	12 (304.8)	5	— —	120	150	11 (1.7)	0.50 (0.23)	Stk	**S1J12AU10③**
	12 (304.8)	5	— —	240	150	11 (1.7)	0.50 (0.23)	Stk	**S1J12AU11③**
	15 ¼ (387.4)	5	14 ¼ (362.0)	240	500	27 (4.2)	0.63 (0.29)	Stk	**S1J15EU1**
	17 ⅞ (454.0)	5	16 ⅞ (428.6)	120	375	17 (2.6)	0.75 (0.34)	Stk	**S1J17RU1**
	17 ⅞ (454.0)	5	16 ⅞ (428.6)	120	500	22 (3.4)	0.75 (0.34)	Stk	**S1J17RU2**
	17 ⅞ (454.0)	5	16 ⅞ (428.6)	240	500	22 (3.4)	0.75 (0.34)	Stk	**S1J17RU3**
	21 (533.4)	5	20 (508.0)	240	650	24 (3.7)	0.87 (0.39)	Stk	**S1J21AU1**
	23 ¾ (603.3)	5	22 ¾ (577.9)	120	500	16 (2.5)	0.99 (0.45)	Stk	**S1J23NU1**
	23 ¾ (603.3)	5	22 ¾ (577.9)	240	500	16 (2.5)	0.99 (0.45)	Stk	**S1J23NU2**
	23 ¾ (603.3)	5	22 ¾ (577.9)	120	750	24 (3.7)	0.99 (0.45)	Stk	**S1J23NU3**
	23 ¾ (603.3)	5	22 ¾ (577.9)	240	750	24 (3.7)	0.99 (0.45)	Stk	**S1J23NU4**
	25 ½ (647.7)	5	24 ½ (622.3)	240	650	19 (2.9)	1.10 (0.50)	Stk	**S1J25JU1**
	30 ½ (774.7)	5	29 ½ (749.3)	240	800	19 (2.9)	1.30 (0.59)	Stk	**S1J30JU1**
2½ (63.5)	6 ½ (165.1)	6	5 ½ (139.7)	120	225	24 (3.7)	0.45 (0.20)	Stk	**S2J6JV1**
	6 ½ (165.1)	6	5 ½ (139.7)	240	225	24 (3.7)	0.45 (0.20)	Stk	**S2J6JV2**
	8 ½ (215.9)	6	7 ½ (190.5)	120	350	24 (3.7)	0.59 (0.27)	Stk	**S2J8JV1**
	8 ½ (215.9)	6	7 ½ (190.5)	240	350	24 (3.7)	0.59 (0.27)	Stk	**S2J8JV2**
	25 ½ (647.7)	6	24 ½ (622.3)	120	1000	18 (2.8)	1.78 (0.81)	Stk	**S2J25JV1**
	25 ½ (647.7)	6	24 ½ (622.3)	240	1000	18 (2.8)	1.78 (0.81)	Stk	**S2J25JV2**

① Mounting slots on stock heaters are ½ x ⅝ inch (12.7 x 7.9 mm). On Made-to-Order units, mounting slots are ⅜ x ¼ inch (9.5 x 6.3 mm).
② This unit has ⅜ x ¼ inch (9.5 x 6.3 mm) mounting holes.
③ Heaters with code numbers **S1J12AU10** and **S1J12AU11** have zinc-coated steel sheath. All other heaters have stainless steel sheath.

CONERY MFG., INC.

"The Level of Excellence"



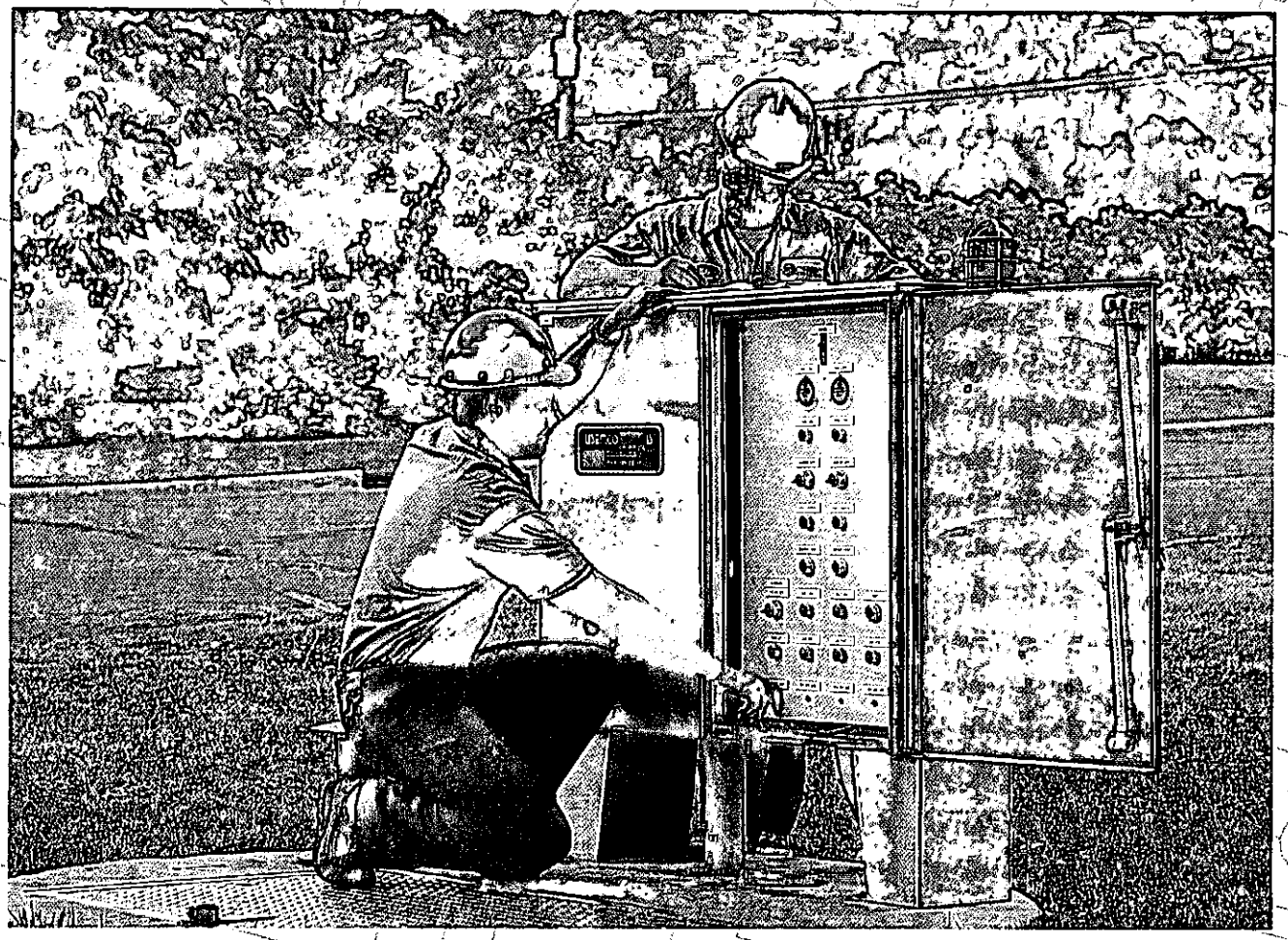
Conery Manufacturing, Inc. has been in business 20 years providing the highest quality hand-crafted polyurethane floats with unheard of 24 hour shipment on all orders.

Please welcome our new products. In response to your many requests for a high quality line of alarms, junction boxes and brackets, we have listened and are now ready to offer the highest quality accessories on the market today. As expected from Conery Manufacturing, Inc. all the accessories will be competitively priced.

Scott Conery

USEMCO CAN MEET ALL YOUR NEEDS

USEMCO'S EXTENSIVE APPLICATION EXPERIENCE ALLOWS THE CREATION OF TRULY USER-FRIENDLY SYSTEMS - NOT JUST BLIND AUTOMATION.

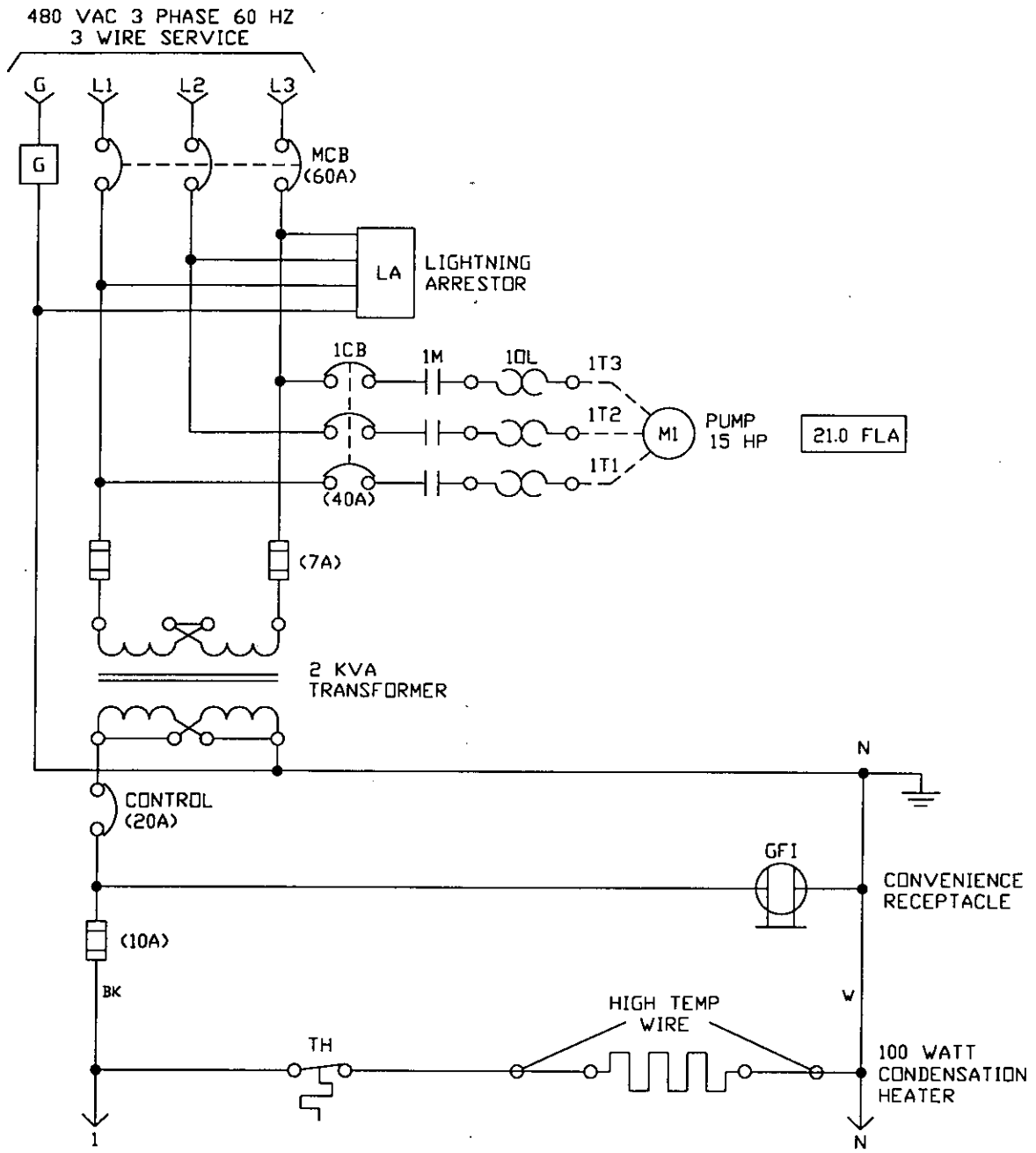


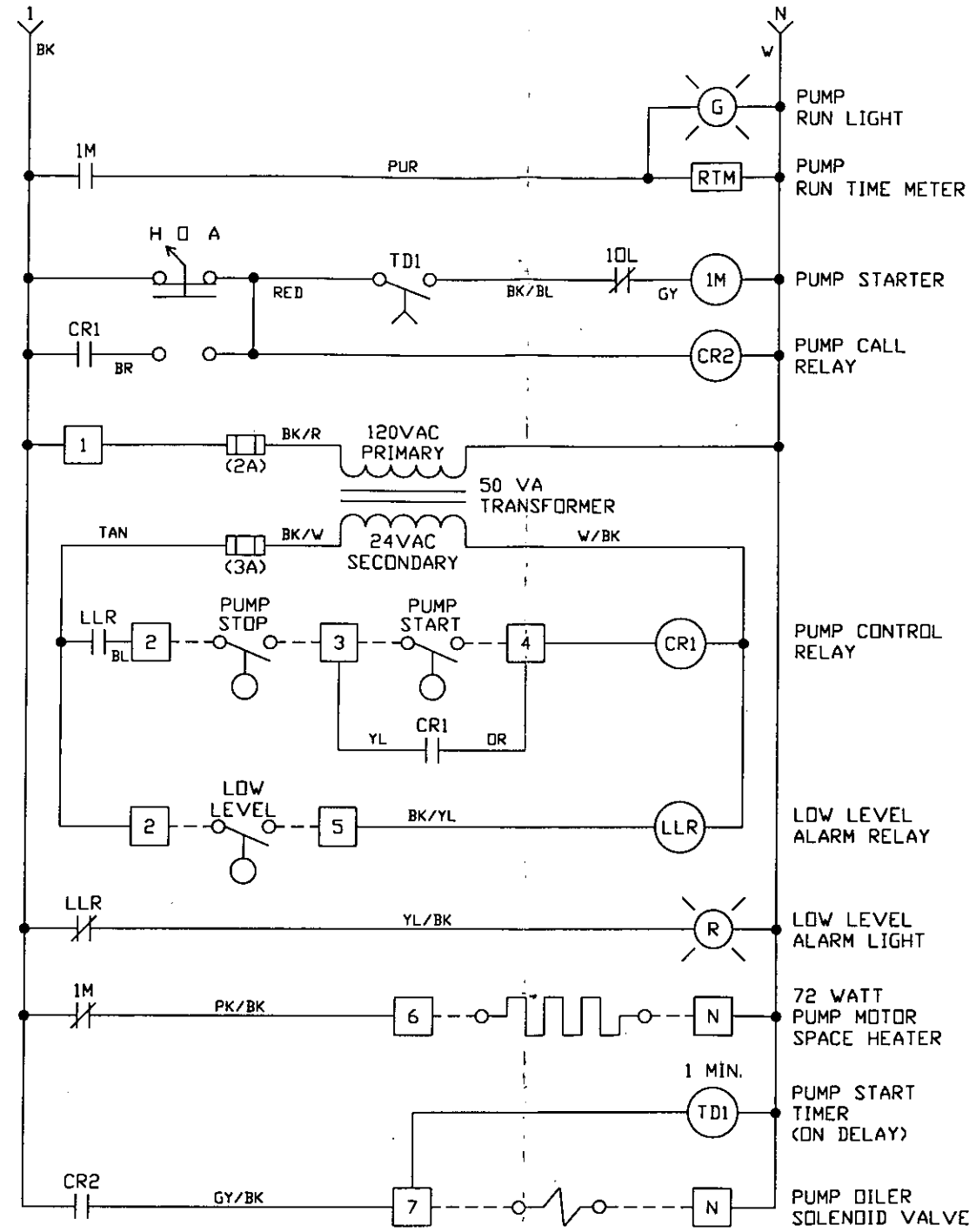
USEMCO CONTROL PANELS ARRIVE READY TO GO

USEMCO control panels arrive factory-tested and ready to install. All necessary power components, selector switches, indicator lights, meters, visual and audible alarms are in place. You'll also receive complete schematic and connection diagrams, plus full instructions for installation and operation.

Best of all, you get all the advantages of a custom-built control panel without the usual long wait. USEMCO ships most control panels four weeks after an order is received. Delivery of larger, more complex systems is negotiated to meet your project requirements.

COVER PHOTO: ONE OF USEMCO'S COMBINED SUPERVISORY AND POWER SYSTEMS FOR CONTROLLING MOTOR-DRIVEN PROCESS CONTROL EQUIPMENT.





NOTE:
CONTROL PANEL SHALL BEAR SERIALIZED U.L. 508 LABEL.

REV. NO.	REVISION	BY CHK'D	DATE

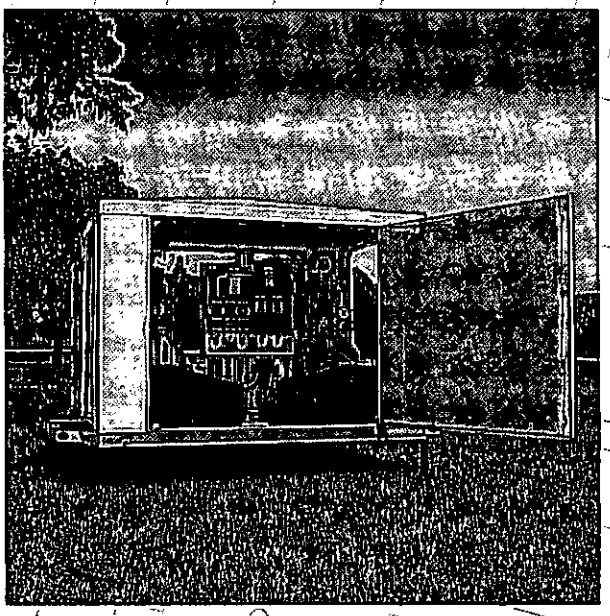
DESIGNED BY: NB	DATE 12/29
DRAWN BY: SP	DATE 98
CHECKED BY:	DATE
SCALE	

USEMCO
USEMCO INCORPORATED
P.O. BOX 550 (608) 372-5911 TOMAH WI. 54660

DESCRIPTION
WICHITA STORM WATER 503

DWG. NO. AAC 15609

JOB NO.



ELECTRICAL CONTROL SYSTEMS

USEMCO HAS THE EXPERIENCE TO ASSIST YOU IN PUTTING A COMPLETE SYSTEM TOGETHER. USEMCO CAN PROVIDE A CUSTOM ENGINEERED PACKAGE OF CONTROL AND PUMPING EQUIPMENT FOR YOUR SPECIFIC APPLICATION.

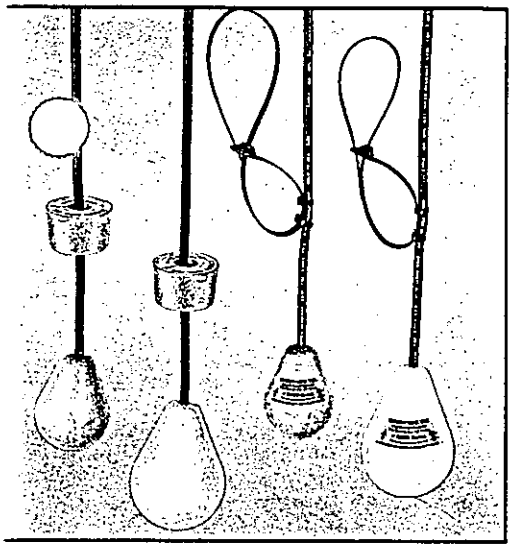
USEMCO control systems are available nationwide through a network of experienced sales representatives. A USEMCO sales representative will be happy to meet with you and discuss your specific job requirements. For the name of the dealer nearest you, call USEMCO today at 608-372-5911. FAX: 608-372-5016.

USEMCO

P.O. Box 550
1602 Rezin Road
Tomah, Wisconsin 54660

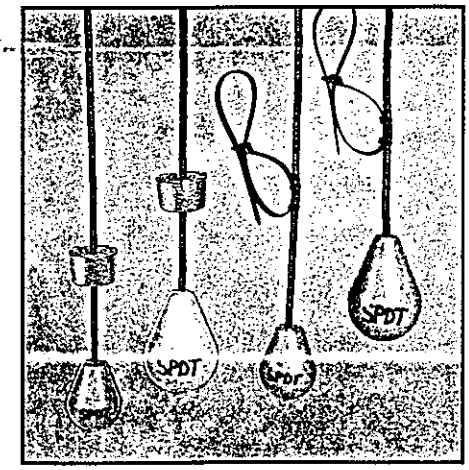
Your local representative is:

#2900 Narrow Angle Float Switches (10-15°)



#2900

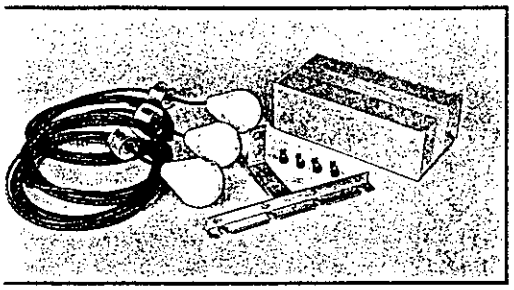
- Stainless Steel tube switch
- Reliable mercury-to-mercury contacts
- Standard size 4 7/8" x 3 1/2" for normal use
- Mini size 3 3/8" x 2 1/2" for confined space
- Zinc plated weights standard
- Pipe mounted available, specify "PM"
- For use with intrinsically safe circuits
- Not sensitive to rotation
- Available with normally open or normally closed contacts
- 10 Amp switch standard, 20 amp switch optional
- Max temperature 170°



#2900-SPDT

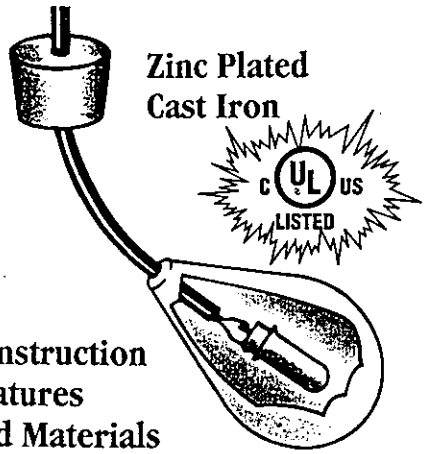
Same as above except:

- 10 amp switch only
- 3-wire, Single Pole Double Throw switch contacts
- Normally open or normally closed depending on wiring
- White wire-common, green-open, black-closed
- For use when contacts are unknown



#2900 Kits

- Prepackaged floats for convenience
- Your choice of floats and bracket
- Comes with Heyco® bushings



Construction Features and Materials

#2900 mercury float switch contains stainless steel tube switch that is completely encapsulated in a polyurethane resin. The polyurethane resin is a strong leak-proof, corrosion and impact resistant housing.

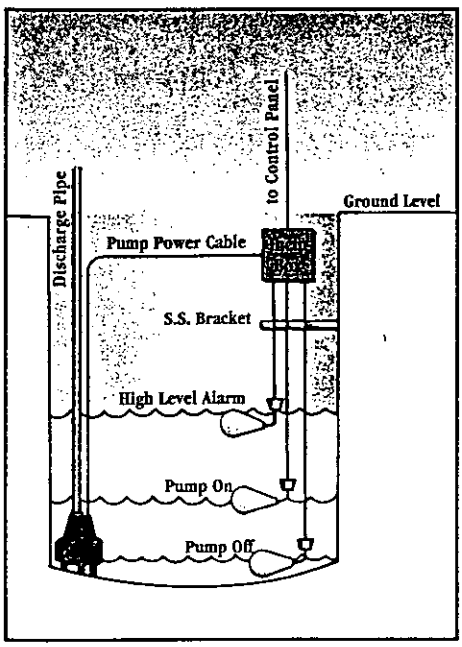
- Smooth surface avocado shape keeps debris off
- Reliable hermetically sealed stainless steel mercury switch
- maximum dependability & economical
- Designed for over 1,000,000 cycles.
- Unique impact resistant, leakproof polyurethane housing

The # 2900 series liquid level controls are quality built for use by demanding commercial, industrial, residential and municipal applications. The #2900 series polyurethane float has been in use as original equipment on sump, grinder, sewage pumps and various other liquid pumps for 40 years.

The level controls can also be used to signal overflow warning, automation of any liquid level controlled appliance or any applications where liquid levels must be controlled or signaled. The #2900 series float is available for:

- industrial liquid level control as part of OEM equipment
- use as original equipment for sump pumps, sewage pumps and other liquid pumps
- after market maintenance, add on use, or replacement for existing sump pump and sewage pump installations.

The #2900 series floats replace and improve outdated air bubbler systems, transducers, diaphragm switches, ultrasonic and electrode systems. There are no clamps, vented cords, mechanical switches, support rods or electrodes to fail. Tilt sensitive mercury switch contained inside the float make liquid level control an easy, trouble-free operation. Normally closed control is marked in red on the outside of the float.



2900 Multiple Float System

A typical simplex pump installation showing a pump on and off float with a high water alarm float. (a duplex station would have four floats). All pump cords and float switch cords are connected in the #2900 Junction Box, with wiring going to control panel at another location. The #2900 float switch will control all types of pumps.