ELECTRICAL EQUIPMENT SUBMITTAL

FOR

JEFFERSON, GA

WITH

(2) CLARIFIER CONTROL PANELS

CIVIL ENGINEERING CONSULTANTS, INC.
MARIETTA, GEORGIA 30068

No Exceptions Taken	No Exceptions Taken With Comment	Make Corrections Noted	Rejected
	✓		

DATE *Sep 21, 2022*

BY

APPROVED FOR DESIGN ONLY.
CONTRACTOR SHALL VERIFY ALL
DIMENSIONS AND QUANTITIES.

Project 2033/001841.P.01 (444761-01)
Revision A
August 30, 2022

N19W23993 Ridgeview Pkwy.
Suite 200
Waukesha, WI 53188

Tel: +1 (262) 547-0141
Fax: +1 (262) 547-4120

www.evoqua.com

ESAD, LLC
Electrical Engineering

885 Woodstock Road
Suite 430-231
Roswell, GA 30075
Ph: 678-469-5196

Shop Drawing Review

REVIEW OF SUBMITTAL

REVIEWED ACCEPTED	X REVIEWED WITH COMMENT
REJECTED	RESUBMIT AS INDICATED

Review is for conformance with only the general concepts of design and information given, or noted and acknowledged as exceptions on the submittal. The contractor is responsible for compliance with all requirements of the specifications and drawings, including but not limited to, dimensions, ratings, features, methods of construction and fabrication and coordination and fit with the building and work of others as installed.

BY: David M. Zimmer, P.E.

Date: August 31, 2022

Project: Jefferson WRF

Submittal #

Submittal: Clarifiers

Comments:

1. Control Panel – Reviewed with Comment
    a. Label control panels “FINAL CLARIFIER 1” and “FINAL CLARIFIER 2”

Table of Contents

Section 1 Equipment Data Sheets

ITEM	CATALOG	DESC	MFG
13	3044102	UNIVERSAL TERMINAL BLOCK - UT 4 (GREY)	PHOENIX CONTACT
61	801733	DIN MOUNTING RAIL 2 M LENGTH	PHOENIX CONTACT
90	1201099	ANGLED BRACKET	PHOENIX CONTACT
95	800886	TERMINAL END ANCHOR	PHOENIX CONTACT
122	3047028	TERMINAL END BARRIER	PHOENIX CONTACT
146	3030365	TERMINAL JUMPER 20P 600V - UT 4	PHOENIX CONTACT
432	A24H2408SSLP	NEMA 4X SS 24"x24"x8" WALL-MOUNT ENCLOSURE	HOFFMAN
674	A24P24	SUBPANEL	HOFFMAN
1857	3RA29211AA00	MSP TO CONTACTOR LINK S0	SIEMENS
1873	3RH2911-1HA30	CONTACTOR AUXILIARY CONTACT BLOCK (3 NO)	SIEMENS
1879	3RT2027-1AK60-0UA0	CONTACTOR, NEMA SIZE 1	SIEMENS
1905	3RV2021-0KA10	MOTOR STARTER PROTECTOR - 0.9-1.25 FLA	SIEMENS
1917	3RV29011J	MSP AUXILIARY CONTACT BLOCK - 2 NO, 2 NC	SIEMENS
1918	3RV2928-1H	MSP S0 UL508 APPROVED TERMINAL SPACER	SIEMENS
2000	52BT6G2AB	RED PILOT LIGHT - PUSH-TO-TEST, NEMA 4X, TRANSFORMER, 6V LED	SIEMENS
2002	52BT6G3AB	GREEN PILOT LIGHT - PUSH-TO-TEST, NEMA 4X, TRANSFORMER, 6V LED	SIEMENS
2004	52BT6G9AB	AMBER PILOT LIGHT - PUSH-TO-TEST, NEMA 4X, TRANSFORMER, 6V LED	SIEMENS
2061	52BM8A1K	PUSHBUTTON, MOMENTARY, FLUSH, NO, BLK, NEMA 4X, HEAVY DUTY	SIEMENS
2093	52SX2CABA2	SELECTOR SW - 3 POS MAINTAINED - 2NO, 2NC, NEMA 4X	SIEMENS
2200	MT0250A	INDUSTRIAL CONTROL TRANSFORMER - 250VA	SIEMENS
2250	3VA5195-4ED31-0AA0	CIRCUIT BREAKER TYPE 3VA5 - 125A FRAME 15A - 25kAIC	SIEMENS
2276	3VA9133-0JA11	LUG, DISTRIBUTION, TYPE 3VA5 BREAKER, LESS THAN 45A	SIEMENS
2278	3VA9137-0FK31	CB TYPE 3VA5 - DOOR MOUNT OPERATOR KIT NEMA 4X	SIEMENS
2318	3TX7115-5NF13	PLUG-IN RELAY TYPE PREMIUM LINE, SQUARE BASE	SIEMENS

ITEM	CATALOG	DESC	MFG
2325	3TX7144-1E4	PLUG-IN RELAY SOCKET	SIEMENS
2475	KLDR01.5	FUSE, TIME DELAY, 600VAC, 1.5 AMP	LITTELFUSE
2478	KLDR003	FUSE, TIME DELAY, 600VAC, 3 AMP	LITTELFUSE
2505	LPSC001ID	1-POLE FINGER SAFE CC FUSE BLOCK - INDICATING	LITTELFUSE
2506	LPSC002ID	2-POLE FINGER SAFE CC FUSE BLOCK - INDICATING	LITTELFUSE
2790	KA4C	GROUND LUG	BURNDY
3220	870P-N5	ALARM HORN, NEMA 4X, 120 VAC	EDWARDS
3224	125STRNA120A	ALARM BEACON, AMBER, NEMA 4X, 120 VAC	EDWARDS
3641	SR3P-05	RR SERIES PLUG-IN RELAY SOCKET	IDEC
3646	RR2KP-UAC120V	PLUG-IN RELAY, LATCHING, 120VAC	IDEC
4410	PK12GTA	GROUND BUS BAR	SQUARE D
4610	375-M-00002-VC2-1	RUST/CORROSION INHIBITOR, 2FT RADIUS	ZERUST

Section 2 Electrical Drawings

DRAWING #	**DESCRIPTION**
453130-892-01	ELECTRICAL SCHEMATIC
453130-892-02	PANEL LAYOUT & BOM

Section 1
Equipment Data Sheets

https://www.phoenixcontact.com/us/products/3044102

Feed-through terminal block - UT 4 - 3044102

Please be informed that the data shown in this PDF Document is generated from our Online Catalog. Please find the complete data in the user's documentation. Our General Terms of Use for Downloads are valid (http://phoenixcontact.com/download)

Feed-through terminal block, nom. voltage: 1000 V, nominal current: 32 A, connection method: Screw connection, number of connections: 2, cross section:0.14 mm² - 6 mm², AWG: 26 - 10, width: 6.2 mm, height: 46.9 mm, color: gray, mounting type: NS 35/7,5, NS 35/15

Why buy this product

- The large wiring space enables the connection of solid and stranded conductors without ferrules, even above the nominal cross section
- As well as saving space, the compact design enables user-friendly wiring in a small amount of space
- Optimum screwdriver guidance through closed screw shafts
- Tested for railway applications
- The cable entry funnel enables the use of conductors with ferrules and plastic collars within the nominal cross section

Key Commercial Data

Packing unit	1 STK
Minimum order quantity	50 STK
GTIN	4 017918 960391
GTIN	4017918960391
Weight per Piece (excluding packing)	9.600 g
Custom tariff number	85369010
Country of origin	Germany

Technical data

General

Number of levels	1
Number of connections	2
Potentials	1

Feed-through terminal block - UT 4 - 3044102

Technical data

General

Nominal cross section	4 mm²
Color	gray
Insulating material	PA
Flammability rating according to UL 94	V0
Area of application	Railway industry
	Machine building
	Plant engineering
	Process industry
Rated surge voltage	8 kV
Degree of pollution	3
Overvoltage category	III
Insulating material group	I
Maximum power dissipation for nominal condition	1.02 W
Maximum load current	41 A (with 6 mm² conductor cross section)
Nominal current I_N	32 A (with 4 mm² conductor cross section)
Nominal voltage U_N	1000 V
Open side panel	Yes
Shock protection test specification	DIN EN 50274 (VDE 0660-514):2002-11
Back of the hand protection	guaranteed
Finger protection	guaranteed
Result of surge voltage test	Test passed
Surge voltage test setpoint	9.8 kV
Result of power-frequency withstand voltage test	Test passed
Power frequency withstand voltage setpoint	2.2 kV
Result of the test for mechanical stability of terminal points (5 x conductor connection)	Test passed
Result of bending test	Test passed
Bending test rotation speed	10 rpm
Bending test turns	135
Bending test conductor cross section/weight	0.14 mm² / 0.2 kg
	4 mm² / 0.9 kg
	6 mm^2 / 1.4 kg
Tensile test result	Test passed
Conductor cross section tensile test	0.14 mm²
Tractive force setpoint	10 N
Conductor cross section tensile test	4 mm²
Tractive force setpoint	60 N

Feed-through terminal block - UT 4 - 3044102

Technical data

General

Conductor cross section tensile test	6 mm²
Tractive force setpoint	80 N
Result of tight fit on support	Test passed
Tight fit on carrier	NS 35
Setpoint	1 N
Result of voltage-drop test	Test passed
Requirements, voltage drop	≤ 3.2 mV
Result of temperature-rise test	Test passed
Short circuit stability result	Test passed
Conductor cross section short circuit testing	4 mm²
Short-time current	0.48 kA
Conductor cross section short circuit testing	6 mm²
Short-time current	0.72 kA
Result of thermal test	Test passed
Proof of thermal characteristics (needle flame) effective duration	30 s
Oscillation, broadband noise test result	Test passed
Test specification, oscillation, broadband noise	DIN EN 50155 (VDE 0115-200):2008-03
Test spectrum	Service life test category 1, class B, body mounted
Test frequency	f_1 = 5 Hz to f_2 = 150 Hz
ASD level	1.857 $(m/s^2)^2/Hz$
Acceleration	0,8 g
Test duration per axis	5 h
Test directions	X-, Y- and Z-axis
Shock test result	Test passed
Test specification, shock test	DIN EN 50155 (VDE 0115-200):2008-03
Shock form	Half-sine
Acceleration	5 g
Shock duration	30 ms
Number of shocks per direction	3
Test directions	X-, Y- and Z-axis (pos. and neg.)
Relative insulation material temperature index (Elec., UL 746 B)	130 °C
Temperature index of insulation material (DIN EN 60216-1 (VDE 0304-21))	125 °C
Static insulating material application in cold	-60 °C
Behavior in fire for rail vehicles (DIN 5510-2)	Test passed
Flame test method (DIN EN 60695-11-10)	V0
Oxygen index (DIN EN ISO 4589-2)	>32 %
NF F16-101, NF F10-102 Class I	2

Feed-through terminal block - UT 4 - 3044102

Technical data

General

NF F16-101, NF F10-102 Class F	2
Surface flammability NFPA 130 (ASTM E 162)	passed
Specific optical density of smoke NFPA 130 (ASTM E 662)	passed
Smoke gas toxicity NFPA 130 (SMP 800C)	passed
Calorimetric heat release NFPA 130 (ASTM E 1354)	27,5 MJ/kg
Fire protection for rail vehicles (DIN EN 45545-2) R22	HL 1 - HL 3
Fire protection for rail vehicles (DIN EN 45545-2) R23	HL 1 - HL 3
Fire protection for rail vehicles (DIN EN 45545-2) R24	HL 1 - HL 3
Fire protection for rail vehicles (DIN EN 45545-2) R26	HL 1 - HL 3

Dimensions

Width	6.2 mm
End cover width	2.2 mm
Length	47.7 mm
Height	46.9 mm
Height NS 35/7,5	47.5 mm
Height NS 35/15	55 mm

Connection data

Connection method	Screw connection
Connection in acc. with standard	IEC 60947-7-1
Note	Note: Product releases, connection cross sections and notes on connecting aluminum cables can be found in the download area.
Conductor cross section solid min.	0.14 mm²
Conductor cross section solid max.	6 mm²
Conductor cross section AWG min.	26
Conductor cross section AWG max.	10
Conductor cross section flexible min.	0.14 mm²
Conductor cross section flexible max.	6 mm²
Min. AWG conductor cross section, flexible	26
Max. AWG conductor cross section, flexible	10
Conductor cross section flexible, with ferrule without plastic sleeve min.	0.14 mm²
Conductor cross section flexible, with ferrule without plastic sleeve max.	4 mm²
Conductor cross section flexible, with ferrule with plastic sleeve min.	0.14 mm²
Conductor cross section flexible, with ferrule with plastic sleeve max.	4 mm²
2 conductors with same cross section, solid min.	0.14 mm²
2 conductors with same cross section, solid max.	1.5 mm²
2 conductors with same cross section, stranded min.	0.14 mm²
2 conductors with same cross section, stranded max.	1.5 mm²

Feed-through terminal block - UT 4 - 3044102

Technical data

Connection data

2 conductors with same cross section, stranded, TWIN ferrules with plastic sleeve, min.	0.5 mm²
2 conductors with same cross section, stranded, TWIN ferrules with plastic sleeve, max.	2.5 mm²
2 conductors with same cross section, stranded, ferrules without plastic sleeve, min.	0.14 mm²
2 conductors with same cross section, stranded, ferrules without plastic sleeve, max.	1.5 mm²
Connection in acc. with standard	IEC/EN 60079-7
Conductor cross section solid min.	0.14 mm²
Conductor cross section solid max.	6 mm²
Conductor cross section AWG min.	26
Conductor cross section AWG max.	10
Conductor cross section flexible min.	0.14 mm²
Conductor cross section flexible max.	4 mm²
Stripping length	9 mm
Internal cylindrical gage	A4
Screw thread	M3
Tightening torque, min	0.6 Nm
Tightening torque max	0.8 Nm

Standards and Regulations

Connection in acc. with standard	CSA
	IEC 60947-7-1
Flammability rating according to UL 94	V0
Fire protection for rail vehicles (DIN EN 45545-2) R22	HL 1 - HL 3 HL 1 - HL 3 HL 1 - HL 3 HL 1 - HL 3
Fire protection for rail vehicles (DIN EN 45545-2) R23	HL 1 - HL 3 HL 1 - HL 3 HL 1 - HL 3 HL 1 - HL 3
Fire protection for rail vehicles (DIN EN 45545-2) R24	HL 1 - HL 3 HL 1 - HL 3 HL 1 - HL 3 HL 1 - HL 3
Fire protection for rail vehicles (DIN EN 45545-2) R26	HL 1 - HL 3 HL 1 - HL 3 HL 1 - HL 3 HL 1 - HL 3

Environmental Product Compliance

China RoHS	Environmentally Friendly Use Period = 50
	For details about hazardous substances go to tab “Downloads”, Category “Manufacturer's declaration”

Drawings

Circuit diagram

Feed-through terminal block - UT 4 - 3044102

Classifications

eCl@ss

eCl@ss 4.0	27141120
eCl@ss 4.1	27141120
eCl@ss 5.0	27141120
eCl@ss 5.1	27141120
eCl@ss 6.0	27141120
eCl@ss 7.0	27141120
eCl@ss 8.0	27141120
eCl@ss 9.0	27141120

ETIM

ETIM 2.0	EC000897
ETIM 3.0	EC000897
ETIM 4.0	EC000897
ETIM 5.0	EC000897
ETIM 6.0	EC000897

UNSPSC

UNSPSC 6.01	30211811
UNSPSC 7.0901	39121410
UNSPSC 11	39121410
UNSPSC 12.01	39121410
UNSPSC 13.2	39121410

Approvals

Approvals

Approvals

CSA / UL Recognized / VDE Gutachten mit Fertigungsüberwachung / cUL Recognized / LR / RS / IECEE CB Scheme / EAC / EAC / DNV GL / PRS / EAC / cULus Recognized

Ex Approvals

IECEx / ATEX / UL Recognized / cUL Recognized / EAC Ex

Approval details

Feed-through terminal block - UT 4 - 3044102

Approvals

CSA		http://www.csagroup.org/services-industries/product-listing/	13631

	B	C
mm²/AWG/kcmil	26-10	26-10
Nominal current IN	30 A	30 A
Nominal voltage UN	600 V	600 V

UL Recognized		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 60425

	B	C
mm²/AWG/kcmil	26-10	26-10
Nominal current IN	30 A	30 A
Nominal voltage UN	600 V	600 V

VDE Gutachten mit Fertigungsüberwachung		http://www.vde.com/en/Institute/OnlineService/VDE-approved-products/Pages/Online-Search.aspx	40013658

mm²/AWG/kcmil	0.2-4
Nominal voltage UN	800 V

cUL Recognized		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 60425

	B	C
mm²/AWG/kcmil	26-10	26-10
Nominal current IN	30 A	30 A
Nominal voltage UN	600 V	600 V

LR		http://www.lr.org/en	05/20042

RS		http://www.rs-head.spb.ru/en/index.php	11.04057.250

Feed-through terminal block - UT 4 - 3044102

Approvals

IECEE CB Scheme	CB scheme	http://www.iecee.org/	DE1-50905

mm²/AWG/kcmil	0.2-4
Nominal voltage UN	800 V

EAC	EAC	EAC-Zulassung

EAC	EAC	7500651.22.01.00246

DNV GL	http://exchange.dnv.com/tari/	TAE00001S9

PRS		http://www.prs.pl/	TE/2156/880590/17

EAC	EAC	RU C-DE.A*30.B.01742

cULus Recognized	c UL us	http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm

Extract from the online catalog

NS 35/ 7,5 PERF 2000MM

Order No.: 0801733

http://eshop.phoenixcontact.de/phoenix/treeViewClick.do?UID=0801733

DIN rail, material: Steel, galvanized and passivated with a thick layer, perforated, height 7.5 mm, width 35 mm, length: 2 m

Commercial data	
EAN	4017918006686
Pack	5 pcs.
Customs tariff	72166190
Weight/Piece	0.60 KG
Catalog page information	Page 693 (CL-2009)

Product notes

WEEE/RoHS-compliant since: 02/01/2006

http://www.download.phoenixcontact.com
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Technical data

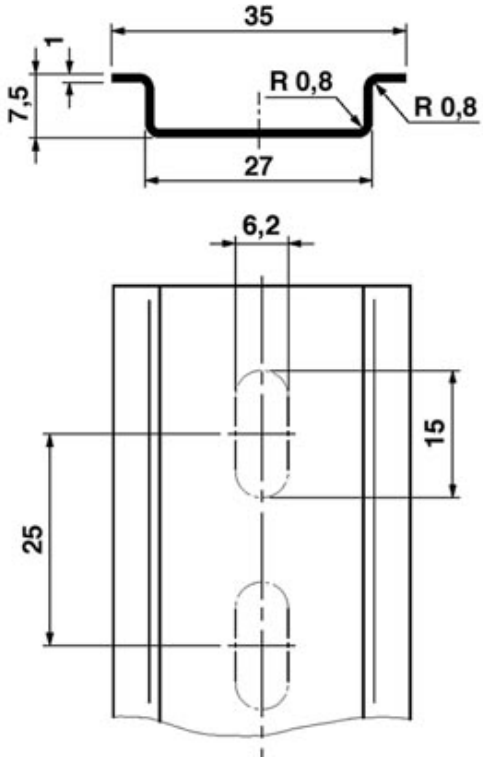
General data

Height	7.5 mm
Length	2000 mm
Width	35 mm
Material	Steel
Color	silver

Test standard	In acc. with EN 60715: 2001

Drawings

Dimensioned drawing



Extract from the online catalog

BG/SH

Order No.: 1201099

http://eshop.phoenixcontact.de/phoenix/treeViewClick.do?UID=1201099

Angled brackets with M 6 screw, for fixing DIN rails at an angle of 30°, height: 46 mm

Commercial data	
EAN	4017918017217
Pack	10 Pcs.
Customs tariff	85369010
Weight/Piece	0.04937 KG
Catalog page information	Page 512 (CL-2007)

Product notes

WEEE/RoHS-compliant since: 01/15/2005

http://www.download.phoenixcontact.com
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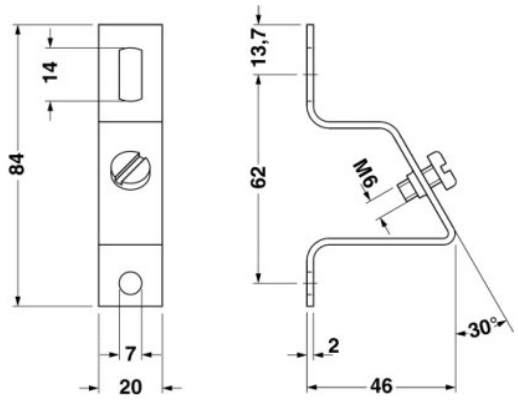
Technical data

General data

Height	46 mm
Length	84 mm
Width	20 mm
Material	Steel
Color	silver

Drawings

Dimensioned drawing



PHOENIX CONTACT

Extract from the online catalog

E/NS 35 N

Order No.: 0800886

http://eshop.phoenixcontact.de/phoenix/treeViewClick.do?UID=0800886

End bracket, width: 9.5 mm, color: gray

Commercial data	
EAN	4017918129309
Pack	50 Pcs.
Customs tariff	39269097
Weight/Piece	0.014811 KG
Catalog page information	Page 509 (CL-2007)

Product notes

WEEE/RoHS-compliant since: 02/01/2005

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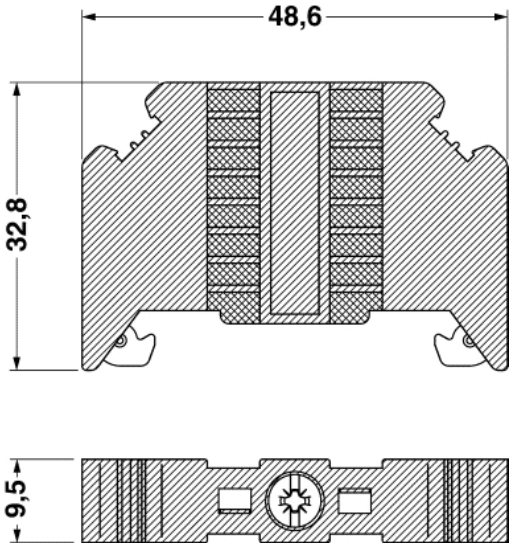
Technical data

General data

Height	32.8 mm
Length	48.6 mm
Width	9.5 mm
Material	PA
Color	gray
Inflammability class acc. to UL 94	V2

Drawings

Dimensioned drawing



Extract from the online catalog

D-UK 4/10

Order No.: 3003020

http://eshop.phoenixcontact.de/phoenix/treeViewClick.do?UID=3003020

Cover, width: 1.8 mm, color: gray

Commercial data	
EAN	4017918090425
Pack	50 Pcs.
Customs tariff	85472000
Weight/Piece	0.002536 KG
Catalog page information	Page 277 (CL-2007)

Product notes

WEEE/RoHS-compliant since: 01/01/2003

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Address

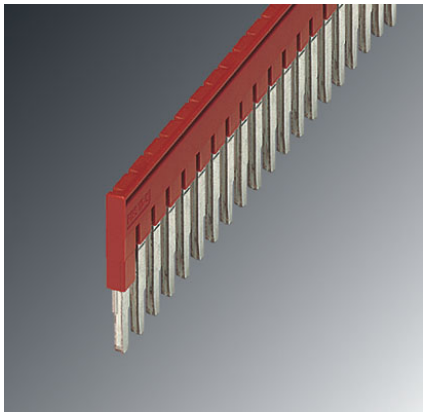
PHOENIX CONTACT Inc., USA
586 Fulling Mill Road
Middletown, PA 17057,USA
Phone (800) 888-7388
Fax (717) 944-1625
http://www.phoenixcon.com

146 - TERMINAL JUMPER 20P - UT 4

Extract from the online catalog

FBS 20-6

Order No.: 3030365



http://eshop.phoenixcontact.de/phoenix/treeViewClick.do?UID=3030365

Cross connector/bridge, Number of positions: 20, Color: red

Commercial data	
EAN	4017918188597
Pack	10 pcs.
Customs tariff	85389099
Weight/Piece	0.02015 KG
Catalog page information	Page 330 (CL-2009)

Product notes

WEEE/RoHS-compliant since: 01/01/2003

http://www.download.phoenixcontact.com
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Address

PHOENIX CONTACT Inc., USA
586 Fulling Mill Road
Middletown, PA 17057,USA
Phone (800) 888-7388
Fax (717) 944-1625
http://www.phoenixcon.com

CONTINUOUS HINGE WITH CLAMPS, TYPE 4X

APPLICATION

For use in indoor and outdoor corrosive environments that require a water-tight seal, this enclosure's seamless foam-in-place gasket and screw-down clamps provide a secure seal against contaminants.

SPECIFICATIONS

- 14 gauge Type 304 or Type 316L stainless steel bodies and doors
- Seams continuously welded and ground smooth
- Seamless foam-in-place gasket
- Rolled lip around three sides of door
- Stainless steel door clamp assembly
- Hasp and staple for padlocking
- Door removed by pulling stainless steel continuous hinge pin
- Data pocket is high-impact thermoplastic
- Collar studs provided for mounting optional panels
- Exterior hardware on Type 316L stainless steel enclosures matches enclosure material
- Bonding provision on door; grounding stud on body

FINISH

Door, sides, top and bottom have smooth #4 brushed finish.

ACCESSORIES

Fast-Operating Clamp Assembly
Panels for Type 3R, 4, 4X, 12 and 13 Enclosures
Junction Box and Wall-Mount Enclosure Swing Out Panel Kit
Steel and Stainless Steel Window Kits
H2OMIT Vent Drains, Type 4X
H2OMIT Thermoelectric Dehumidifier

INDUSTRY STANDARDS

UL 508A Listed; Type 3R, 4, 4X, 12; File No. E61997
cUL Listed per CSA C22.2 No 94; Type 3R, 4, 4X, 12; File No. E61997

NEMA/EEMAC Type 3, 3R, 4, 4X, 12, 13
CSA File No. 42186: Type 4, 4X, 12
IEC 60529, IP66
Meets NEMA Type 3RX requirements

MODIFICATION AND CUSTOMIZATION

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

BULLETIN: A4S

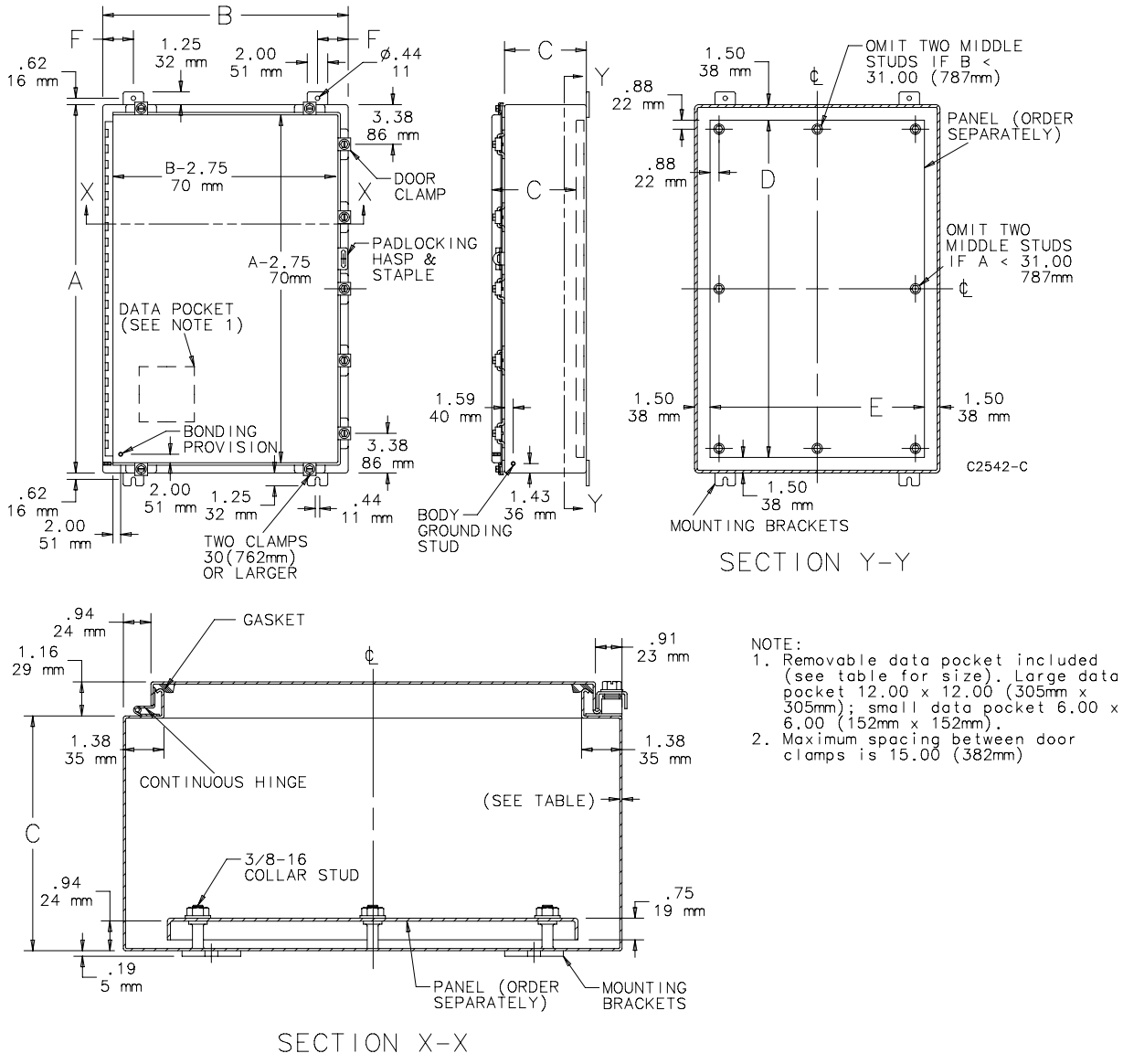
Standard Product

Catalog Number	AxBxC in./mm	Stainless Steel Type	Steel Panel	Conductive Steel Panel	Stainless Steel Panel	Panel Size D x E in./mm	F in./mm	Clamps Qty.	Data Pocket
A16H1206SSLP	16.00 x 12.00 x 6.00 406 x 305 x 152	304	A16P12	A16P12G	A16P12SS6	13.00 x 9.00 330 x 229	1.25 32	4	Small
A16H1206SS6LP	16.00 x 12.00 x 6.00 406 x 305 x 152	316L	A16P12	A16P12G	A16P12SS6	13.00 x 9.00 330 x 229	1.25 32	4	Small
A16H1606SSLP	16.00 x 16.00 x 6.00 406 x 406 x 152	304	A16P16	A16P16G	A16P16SS6	13.00 x 13.00 330 x 330	3.00 76	4	Small
A16H1606SS6LP	16.00 x 16.00 x 6.00 406 x 406 x 152	316L	A16P16	A16P16G	A16P16SS6	13.00 x 13.00 330 x 330	3.00 76	4	Small
A16H2006SSLP	16.00 x 20.00 x 6.00 406 x 508 x 152	304	A20P16	A20P16G	A20P16SS6	17.00 x 13.00 432 x 330	3.00 76	4	Small
A16H2006SS6LP	16.00 x 20.00 x 6.00 406 x 508 x 152	316L	A20P16	A20P16G	A20P16SS6	17.00 x 13.00 432 x 330	3.00 76	4	Small
A20H1606SSLP	20.00 x 16.00 x 6.00 508 x 406 x 152	304	A20P16	A20P16G	A20P16SS6	17.00 x 13.00 432 x 330	3.00 76	4	Small
A20H1606SS6LP	20.00 x 16.00 x 6.00 508 x 406 x 152	316L	A20P16	A20P16G	A20P16SS6	17.00 x 13.00 432 x 330	3.00 76	4	Small
A20H2006SSLP	20.00 x 20.00 x 6.00 508 x 508 x 152	304	A20P20	A20P20G	A20P20SS6	17.00 x 17.00 432 x 432	3.00 76	4	Small
A20H2006SS6LP	20.00 x 20.00 x 6.00 508 x 508 x 152	316L	A20P20	A20P20G	A20P20SS6	17.00 x 17.00 432 x 432	3.00 76	4	Small
A24H2006SSLP	24.00 x 20.00 x 6.00 610 x 508 x 152	304	A24P20	A24P20G	A24P20SS6	21.00 x 17.00 533 x 432	3.00 76	5	Small
A24H2006SS6LP	24.00 x 20.00 x 6.00 610 x 508 x 152	316L	A24P20	A24P20G	A24P20SS6	21.00 x 17.00 533 x 432	3.00 76	5	Small
A24H2406SSLP	24.00 x 24.00 x 6.00 610 x 610 x 152	304	A24P24	A24P24G	A24P24SS6	21.00 x 21.00 533 x 533	3.00 76	5	Small
A24H2406SS6LP	24.00 x 24.00 x 6.00 610 x 610 x 152	316L	A24P24	A24P24G	A24P24SS6	21.00 x 21.00 533 x 533	3.00 76	5	Small

Catalog Number	AxBxC in./mm	Stainless Steel Type	Steel Panel	Conductive Steel Panel	Stainless Steel Panel	Panel Size D x E in./mm	F in./mm	Clamps Qty.	Data Pocket
A16H1208SSLP	16.00 x 12.00 x 8.00 406 x 305 x 203	304	A16P12	A16P12G	A16P12SS6	13.00 x 9.00 330 x 229	1.25 32	4	Small
A16H1208SS6LP	16.00 x 12.00 x 8.00 406 x 305 x 203	316L	A16P12	A16P12G	A16P12SS6	13.00 x 9.00 330 x 229	1.25 32	4	Small
A20H1608SSLP	20.00 x 16.00 x 8.00 508 x 406 x 203	304	A20P16	A20P16G	A20P16SS6	17.00 x 13.00 432 x 330	3.00 76	4	Small
A20H1608SS6LP	20.00 x 16.00 x 8.00 508 x 406 x 203	316L	A20P16	A20P16G	A20P16SS6	17.00 x 13.00 432 x 330	3.00 76	4	Small
A20H2008SSLP	20.00 x 20.00 x 8.00 508 x 508 x 203	304	A20P20	A20P20G	A20P20SS6	17.00 x 17.00 432 x 432	3.00 76	4	Small
A20H2008SS6LP	20.00 x 20.00 x 8.00 508 x 508 x 203	316L	A20P20	A20P20G	A20P20SS6	17.00 x 17.00 432 x 432	3.00 76	4	Small
A20H2408SSLP	20.00 x 24.00 x 8.00 508 x 610 x 203	304	A24P20	A24P20G	A24P20SS6	21.00 x 17.00 533 x 432	3.00 76	4	Small
A20H2408SS6LP	20.00 x 24.00 x 8.00 508 x 610 x 203	316L	A24P20	A24P20G	A24P20SS6	21.00 x 17.00 533 x 432	3.00 76	4	Small
A24H1608SSLP	24.00 x 16.00 x 8.00 610 x 406 x 203	304	A24P16	A24P16G	A24P16SS6	21.00 x 13.00 533 x 330	3.00 76	5	Small
A24H1608SS6LP	24.00 x 16.00 x 8.00 610 x 406 x 203	316L	A24P16	A24P16G	A24P16SS6	21.00 x 13.00 533 x 330	3.00 76	5	Small
A24H2008SSLP	24.00 x 20.00 x 8.00 610 x 508 x 203	304	A24P20	A24P20G	A24P20SS6	21.00 x 17.00 533 x 432	3.00 76	5	Small
A24H2008SS6LP	24.00 x 20.00 x 8.00 610 x 508 x 203	316L	A24P20	A24P20G	A24P20SS6	21.00 x 17.00 533 x 432	3.00 76	5	Small
A24H2408SSLP	24.00 x 24.00 x 8.00 610 x 610 x 203	304	A24P24	A24P24G	A24P24SS6	21.00 x 21.00 533 x 533	3.00 76	5	Small
A24H2408SS6LP	24.00 x 24.00 x 8.00 610 x 610 x 203	316L	A24P24	A24P24G	A24P24SS6	21.00 x 21.00 533 x 533	3.00 76	5	Small
A24H3008SSLP	24.00 x 30.00 x 8.00 610 x 762 x 203	304	A30P24	A30P24G	A30P24SS6	27.00 x 21.00 686 x 533	3.00 76	7	Small
A24H3008SS6LP	24.00 x 30.00 x 8.00 610 x 762 x 203	316L	A30P24	A30P24G	A30P24SS6	27.00 x 21.00 686 x 533	3.00 76	7	Small
A30H2008SSLP	30.00 x 20.00 x 8.00 762 x 508 x 203	304	A30P20	A30P20G	A30P20SS6	27.00 x 17.00 686 x 432	3.00 76	5	Small
A30H2008SS6LP	30.00 x 20.00 x 8.00 762 x 508 x 203	316L	A30P20	A30P20G	A30P20SS6	27.00 x 17.00 686 x 432	3.00 76	5	Small
A30H2408SSLP	30.00 x 24.00 x 8.00 762 x 610 x 203	304	A30P24	A30P24G	A30P24SS6	27.00 x 21.00 686 x 533	3.00 76	5	Large
A30H2408SS6LP	30.00 x 24.00 x 8.00 762 x 610 x 203	316L	A30P24	A30P24G	A30P24SS6	27.00 x 21.00 686 x 533	3.00 76	5	Large
A30H3008SSLP	30.00 x 30.00 x 8.00 762 x 762 x 203	304	A30P30	A30P30G	A30P30SS6	27.00 x 27.00 686 x 686	3.00 76	7	Large
A30H3008SS6LP	30.00 x 30.00 x 8.00 762 x 762 x 203	316L	A30P30	A30P30G	A30P30SS6	27.00 x 27.00 686 x 686	3.00 76	7	Large
A36H2408SSLP	36.00 x 24.00 x 8.00 914 x 610 x 203	304	A36P24	A36P24G	A36P24SS6	33.00 x 21.00 838 x 533	3.00 76	5	Large
A36H2408SS6LP	36.00 x 24.00 x 8.00 914 x 610 x 203	316L	A36P24	A36P24G	A36P24SS6	33.00 x 21.00 838 x 533	3.00 76	5	Large
A36H3008SSLP	36.00 x 30.00 x 8.00 914 x 762 x 203	304	A36P30	A36P30G	A36P30SS6	33.00 x 27.00 838 x 686	3.00 76	7	Large
A36H3008SS6LP	36.00 x 30.00 x 8.00 914 x 762 x 203	316L	A36P30	A36P30G	A36P30SS6	33.00 x 27.00 838 x 686	3.00 76	7	Large
A42H3608SSLP	42.00 x 36.00 x 8.00 1067 x 914 x 203	304	A42P36	A42P36G	A42P36SS6	39.00 x 33.00 991 x 838	3.00 76	8	Large
A42H3608SS6LP	42.00 x 36.00 x 8.00 1067 x 914 x 203	316L	A42P36	A42P36G	A42P36SS6	39.00 x 33.00 991 x 838	3.00 76	8	Large
A48H3608SSLP	48.00 x 36.00 x 8.00 1219 x 914 x 203	304	A48P36	A48P36G	A48P36SS6	45.00 x 33.00 1143 x 838	3.00 76	8	Large
A48H3608SS6LP	48.00 x 36.00 x 8.00 1219 x 914 x 203	316L	A48P36	A48P36G	A48P36SS6	45.00 x 33.00 1143 x 838	3.00 76	8	Large
A20H1610SSLP	20.00 x 16.00 x 10.00 508 x 406 x 254	304	A20P16	A20P16G	A20P16SS6	17.00 x 13.00 432 x 330	3.00 76	4	Small
A20H1610SS6LP	20.00 x 16.00 x 10.00 508 x 406 x 254	316L	A20P16	A20P16G	A20P16SS6	17.00 x 13.00 432 x 330	3.00 76	4	Small
A24H2010SSLP	24.00 x 20.00 x 10.00 610 x 508 x 254	304	A24P20	A24P20G	A24P20SS6	21.00 x 17.00 533 x 432	3.00 76	5	Small
A24H2010SS6LP	24.00 x 20.00 x 10.00 610 x 508 x 254	316L	A24P20	A24P20G	A24P20SS6	21.00 x 17.00 533 x 432	3.00 76	5	Small
A30H2410SSLP	30.00 x 24.00 x 10.00 762 x 610 x 254	304	A30P24	A30P24G	A30P24SS6	27.00 x 21.00 686 x 533	3.00 76	5	Large
A30H2410SS6LP	30.00 x 24.00 x 10.00 762 x 610 x 254	316L	A30P24	A30P24G	A30P24SS6	27.00 x 21.00 686 x 533	3.00 76	5	Large
A36H2410SSLP	36.00 x 24.00 x 10.00 914 x 610 x 254	304	A36P24	A36P24G	A36P24SS6	33.00 x 21.00 838 x 533	3.00 76	5	Large
A36H2410SS6LP	36.00 x 24.00 x 10.00 914 x 610 x 254	316L	A36P24	A36P24G	A36P24SS6	33.00 x 21.00 838 x 533	3.00 76	5	Large
A36H3010SSLP	36.00 x 30.00 x 10.00 914 x 762 x 254	304	A36P30	A36P30G	A36P30SS6	33.00 x 27.00 838 x 686	3.00 76	7	Large

Catalog Number	AxBxC in./mm	Stainless Steel Type	Steel Panel	Conductive Steel Panel	Stainless Steel Panel	Panel Size D x E in./mm	F in./mm	Clamps Qty.	Data Pocket
A36H3010SS6LP	36.00 x 30.00 x 10.00 914 x 762 x 254	316L	A36P30	A36P30G	A36P30SS6	33.00 x 27.00 838 x 686	3.00 76	7	Large
A42H3010SSLP	42.00 x 30.00 x 10.00 1067 x 762 x 254	304	A42P30	A42P30G	A42P30SS6	39.00 x 27.00 991 x 686	3.00 76	8	Large
A42H3010SS6LP	42.00 x 30.00 x 10.00 1067 x 762 x 254	316L	A42P30	A42P30G	A42P30SS6	39.00 x 27.00 991 x 686	3.00 76	8	Large
A48H3610SSLP	48.00 x 36.00 x 10.00 1219 x 914 x 254	304	A48P36	A48P36G	A48P36SS6	45.00 x 33.00 1143 x 838	3.00 76	8	Large
A48H3610SS6LP	48.00 x 36.00 x 10.00 1219 x 914 x 254	316L	A48P36	A48P36G	A48P36SS6	45.00 x 33.00 1143 x 838	3.00 76	8	Large
A24H2412SSLP	24.00 x 24.00 x 12.00 610 x 610 x 305	304	A24P24	A24P24G	A24P24SS6	21.00 x 21.00 533 x 533	3.00 76	5	Small
A24H2412SS6LP	24.00 x 24.00 x 12.00 610 x 610 x 305	316L	A24P24	A24P24G	A24P24SS6	21.00 x 21.00 533 x 533	3.00 76	5	Small
A30H2412SSLP	30.00 x 24.00 x 12.00 762 x 610 x 305	304	A30P24	A30P24G	A30P24SS6	27.00 x 21.00 686 x 533	3.00 76	5	Large
A30H2412SS6LP	30.00 x 24.00 x 12.00 762 x 610 x 305	316L	A30P24	A30P24G	A30P24SS6	27.00 x 21.00 686 x 533	3.00 76	5	Large
A36H3012SSLP	36.00 x 30.00 x 12.00 914 x 762 x 305	304	A36P30	A36P30G	A36P30SS6	33.00 x 27.00 838 x 686	3.00 76	7	Large
A36H3012SS6LP	36.00 x 30.00 x 12.00 914 x 762 x 305	316L	A36P30	A36P30G	A36P30SS6	33.00 x 27.00 838 x 686	3.00 76	7	Large
A36H3612SSLP	36.00 x 36.00 x 12.00 914 x 914 x 305	304	A36P36	A36P36G	A36P36SS6	33.00 x 33.00 838 x 838	3.00 76	7	Large
A36H3612SS6LP	36.00 x 36.00 x 12.00 914 x 914 x 305	316L	A36P36	A36P36G	A36P36SS6	33.00 x 33.00 838 x 838	3.00 76	7	Large
A48H3612SSLP	48.00 x 36.00 x 12.00 1219 x 914 x 305	304	A48P36	A48P36G	A48P36SS6	45.00 x 33.00 1143 x 838	3.00 76	8	Large
A48H3612SS6LP	48.00 x 36.00 x 12.00 1219 x 914 x 305	316L	A48P36	A48P36G	A48P36SS6	45.00 x 33.00 1143 x 838	3.00 76	8	Large
A60H3612SSLP	60.00 x 36.00 x 12.00 1524 x 914 x 305	304	A60P36	A60P36G	A60P36SS6	57.00 x 33.00 1448 x 838	3.00 76	9	Large
A60H3612SS6LP	60.00 x 36.00 x 12.00 1524 x 914 x 305	316L	A60P36	A60P36G	A60P36SS6	57.00 x 33.00 1448 x 838	3.00 76	9	Large
A30H2416SSLP	30.00 x 24.00 x 16.00 762 x 610 x 406	304	A30P24	A30P24G	A30P24SS6	27.00 x 21.00 686 x 533	3.00 76	5	Large
A30H2416SS6LP	30.00 x 24.00 x 16.00 762 x 610 x 406	316L	A30P24	A30P24G	A30P24SS6	27.00 x 21.00 686 x 533	3.00 76	5	Large
A36H3016SSLP	36.00 x 30.00 x 16.00 914 x 762 x 406	304	A36P30	A36P30G	A36P30SS6	33.00 x 27.00 838 x 686	3.00 76	7	Large
A36H3016SS6LP	36.00 x 30.00 x 16.00 914 x 762 x 406	316L	A36P30	A36P30G	A36P30SS6	33.00 x 27.00 838 x 686	3.00 76	7	Large
A48H3616SSLP	48.00 x 36.00 x 16.00 1219 x 914 x 406	304	A48P36	A48P36G	A48P36SS6	45.00 x 33.00 1143 x 838	3.00 76	8	Large
A48H3616SS6LP	48.00 x 36.00 x 16.00 1219 x 914 x 406	316L	A48P36	A48P36G	A48P36SS6	45.00 x 33.00 1143 x 838	3.00 76	8	Large
A60H3616SSLP	60.00 x 36.00 x 16.00 1524 x 914 x 406	304	A60P36	A60P36G	A60P36SS6	57.00 x 33.00 1448 x 838	3.00 76	9	Large
A60H3616SS6LP	60.00 x 36.00 x 16.00 1524 x 914 x 406	316L	A60P36	A60P36G	A60P36SS6	57.00 x 33.00 1448 x 838	3.00 76	9	Large

Purchase panels separately. Optional composite and aluminum panels are available for most sizes.



NOTE:
1. Removable data pocket included (see table for size). Large data pocket 12.00 x 12.00 (305mm x 305mm); small data pocket 6.00 x 6.00 (152mm x 152mm).
2. Maximum spacing between door clamps is 15.00 (382mm)

Popular Cooling Products

Enclosure Depth (C Dimension)	Thermoelectric Controller
6 in. (152 mm)	TE090624011
8 in. (203 mm)	TE162024011
10 in. (254 mm)	TE162024011
12 in. (305 mm)	TE162024011
16 in. (406 mm)	TE162024011

***Important:** Visit tools.hoffmanonline.com/attachments to access our **Cooling Selection Tool** to determne the appropriate cooling solution for your application.

Popular Accessories

Enclosure Width (B Dimension)	Lights	Hole Seals	Window Kits
12 in. (305 mm)	LEDPUCK	AS050SS	APWK53NFSS
16 in. (406 mm)	LEDA2M35	AS050SS	APWK53NFSS
20 in. (508 mm)	LED24V15	AS050SS	APWK53NFSS
24 in. (610 mm)	LED24V15	AS050SS	APWK53NFSS
30 in. (762 mm)	LED24V15	AS050SS	APWK53NFSS
36 in. (914 mm)	LED24V15	AS050SS	APWK53NFSS

PANELS FOR TYPE 3R, 4, 4X, 12 AND 13 ENCLOSURES

Steel panels are 11 or 12 gauge, finished with white polyester powder paint or a conductive, corrosion-resistant coating. Larger panels have flanges on two or four sides. Some larger steel panels are 11 gauge and include extra holes for panel lifting. Aluminum panels are 5052-H32 aluminum alloy. Larger panels have flanges on four sides. Aluminum panels are protected on one side with a plastic film. Stainless steel panels are Type 316 stainless steel. Panel mounting hardware is furnished with all enclosures which accept these panels.

BULLETIN: PNLFS, PNLJ, PNLWM

Catalog Number	Material	Panel Size D x E (in.)	Panel Size D x E (mm)	Panel Gauge or Thickness	Edge Flanges	T (in.)	T (mm)	Number of Holes
A12P24	Painted steel	9.00 x 21.00	229 x 533	12 ga.	0	—	—	4
A12P24G	Conductive steel	9.00 x 21.00	229 x 533	12 ga.	0	—	—	4
A16P12	Painted steel	13.00 x 9.00	330 x 229	12 ga.	0	—	—	4
A16P12G	Conductive steel	13.00 x 9.00	330 x 229	12 ga.	0	—	—	4
A16P12SS6	Stainless Steel	13.00 x 9.00	330 x 229	12 ga.	0	—	—	4
A16P12AL	Aluminum	13.00 x 9.00	330 x 229	0.10 in./3 mm	0	—	—	4
A16P16	Painted steel	13.00 x 13.00	330 x 330	12 ga.	0	—	—	4
A16P16G	Conductive steel	13.00 x 13.00	330 x 330	12 ga.	0	—	—	4
A16P16SS6	Stainless Steel	13.00 x 13.00	330 x 330	12 ga.	0	—	—	4
A16P16AL	Aluminum	13.00 x 13.00	330 x 330	0.10 in./3 mm	0	—	—	4
A18P18	Painted steel	15.00 x 15.00	381 x 381	12 ga.	0	—	—	4
A18P18G	Conductive steel	15.00 x 15.00	381 x 381	12 ga.	0	—	—	4
A20P12	Painted steel	17.00 x 9.00	432 x 229	12 ga.	0	—	—	4
A20P12G	Conductive steel	17.00 x 9.00	432 x 229	12 ga.	0	—	—	4
A20P16	Painted steel	17.00 x 13.00	432 x 330	12 ga.	0	—	—	4
A20P16G	Conductive steel	17.00 x 13.00	432 x 330	12 ga.	0	—	—	4
A20P16SS6	Stainless Steel	17.00 x 13.00	432 x 330	12 ga.	0	—	—	4
A20P16AL	Aluminum	17.00 x 13.00	432 x 330	0.10 in./3 mm	0	—	—	4
A20P20	Painted steel	17.00 x 17.00	432 x 432	12 ga.	0	—	—	4
A20P20G	Conductive steel	17.00 x 17.00	432 x 432	12 ga.	0	—	—	4
A20P20SS6	Stainless steel	17.00 x 17.00	432 x 432	12 ga.	0	—	—	4
A20P20AL	Aluminum	17.00 x 17.00	432 x 432	0.10 in./3 mm	0	—	—	4
A24P16	Painted steel	21.00 x 13.00	533 x 330	12 ga.	0	—	—	4
A24P16G	Conductive steel	21.00 x 13.00	533 x 330	12 ga.	0	—	—	4
A24P16SS6	Stainless Steel	21.00 x 13.00	533 x 330	12 ga.	0	—	—	4
A24P20	Painted steel	21.00 x 17.00	533 x 432	12 ga.	2	0.75	19	4
A24P20G	Conductive steel	21.00 x 17.00	533 x 432	12 ga.	2	0.75	19	4
A24P20SS6	Stainless Steel	21.00 x 17.00	533 x 432	12 ga.	2	0.75	19	4
A24P20AL	Aluminum	21.00 x 17.00	533 x 432	0.10 in./3 mm	4	0.75	19	4
A24P24	Painted steel	21.00 x 21.00	533 x 533	12 ga.	2	0.75	19	4
A24P24G	Conductive steel	21.00 x 21.00	533 x 533	12 ga.	2	0.75	19	4
A24P24SS6	Stainless Steel	21.00 x 21.00	533 x 533	12 ga.	2	0.75	19	4
A24P24AL	Aluminum	21.00 x 21.00	533 x 533	0.10 in./3 mm	2	0.75	19	4
A30P16	Painted steel	27.00 x 13.00	686 x 330	12 ga.	2	0.75	19	4
A30P16G	Conductive steel	33.00 x 27.00	838 x 686	12 ga.	2	0.75	19	4
A30P20	Painted steel	27.00 x 17.00	686 x 432	12 ga.	2	0.75	19	4
A30P20G	Conductive steel	27.00 x 17.00	686 x 432	12 ga.	2	0.75	19	4
A30P20SS6	Stainless Steel	27.00 x 17.00	686 x 432	12 ga.	2	0.75	19	4
A30P24	Painted steel	27.00 x 21.00	686 x 533	12 ga.	2	0.75	19	4
A30P24G	Conductive steel	27.00 x 21.00	686 x 533	12 ga.	2	0.75	19	4
A30P24SS6	Stainless Steel	27.00 x 21.00	686 x 533	12 ga.	2	0.75	19	4
A30P24AL	Aluminum	27.00 x 21.00	686 x 533	0.10 in./3 mm	2	0.75	19	4
A30P30	Painted steel	27.00 x 27.00	686 x 686	12 ga.	4	0.75	19	4
A30P30G	Conductive steel	27.00 x 27.00	686 x 686	12 ga.	4	0.75	19	4
A30P30SS6	Stainless Steel	27.00 x 27.00	686 x 686	12 ga.	4	0.75	19	4
A36P16	Painted steel	33.00 X 13.00	838 X 330	12 ga.	2	0.75	19	4
A36P16G	Conductive steel	33.00 x 13.00	838 x 330	12 ga.	2	0.75	19	4
A36P24	Painted steel	33.00 x 21.00	838 x 533	12 ga.	2	0.75	19	6
A36P24G	Conductive steel	33.00 x 21.00	838 x 533	12 ga.	2	0.75	19	6
A36P24SS6	Stainless Steel	33.00 x 21.00	838 x 533	12 ga.	2	0.75	19	6
A36P24AL	Aluminum	33.00 x 21.00	838 x 533	0.10 in./3 mm	2	0.75	19	6
A36P30	Painted steel	33.00 x 27.00	838 x 686	12 ga.	4	0.75	19	6
A36P30G	Conductive steel	33.00 x 27.00	838 x 686	12 ga.	4	0.75	19	6
A36P30SS6	Stainless Steel	33.00 x 27.00	838 x 686	12 ga.	4	0.75	19	6
A36P30AL	Aluminum	33.00 x 27.00	838 x 686	0.10 in./3 mm	4	0.75	19	6
A36P36	Painted steel	33.00 x 33.00	838 x 838	12 ga.	4	0.75	19	8
A36P36G	Conductive steel	33.00 x 33.00	838 x 838	12 ga.	4	0.75	19	8
A36P36SS6	Stainless Steel	33.00 x 33.00	838 x 838	12 ga.	4	0.75	19	8
A40P24	Painted steel	37.00 x 21.00	940 x 533	12 ga.	4	0.75	19	6
A40P24G	Conductive steel	37.00 x 21.00	940 x 533	12 ga.	4	0.75	19	6
A40P30	Painted steel	37.00 x 29.00	940 x 737	12 ga.	4	0.75	19	4
A40P30G	Conductive steel	37.00 x 29.00	940 x 737	12 ga.	4	0.75	19	4
A42P24	Painted steel	39.00 x 21.00	991 x 533	12 ga.	2	0.75	19	6
A42P24G	Conductive steel	39.00 x 21.00	991 x 533	12 ga.	2	0.75	19	6
A42P30	Painted steel	39.00 x 27.00	991 x 686	12 ga.	4	0.75	19	6
A42P30G	Conductive steel	39.00 x 27.00	991 x 686	12 ga.	4	0.75	19	6
A42P30SS6	Stainless Steel	39.00 x 27.00	991 x 686	12 ga.	4	0.75	19	6
A42P36	Painted steel	39.00 x 33.00	991 x 838	12 ga.	4	0.75	19	8
A42P36G	Conductive steel	39.00 x 33.00	991 x 838	12 ga.	4	0.75	19	8
A42P36SS6	Stainless Steel	39.00 x 33.00	991 x 838	12 ga.	4	0.75	19	8
A42P42	Painted steel	39.00 x 39.00	991 x 991	12 ga.	4	0.75	19	8

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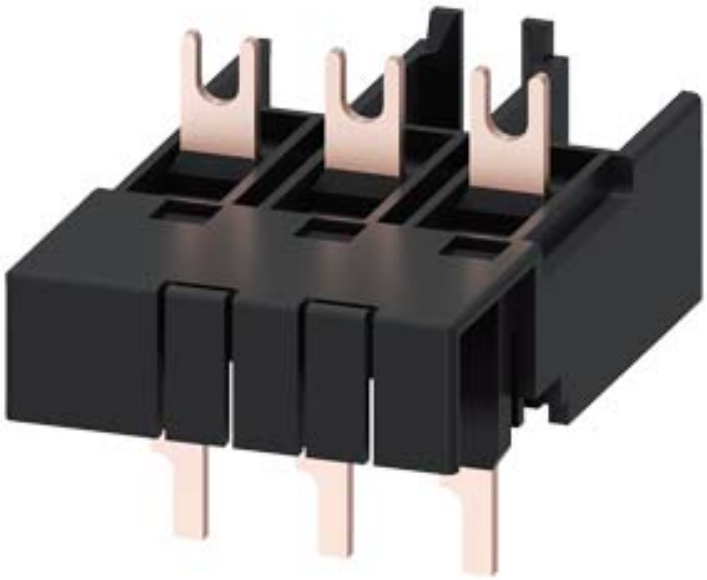
Data sheet 3RA2921-1AA00

LINK MODULE, SCREW ELECTRICAL AND MECHANICAL, FOR 3RV2.1/3RV2.21 AND 3RT2.2 AC OPERATION



General technical data:		
product brand name		SIRIUS
Product designation		link module
Design of the product		actuating voltage contactor: AC
Size of the circuit-breaker		S00, S0
Size of contactor		S0

Installation/ mounting/ dimensions:		
Mounting type		screw fixing

Certificates/ approvals:

General Product Approval	Declaration of Conformity	Test Certificates		Shipping Approval	
EAC	CE EG-Konf.	spezielle Prüfbescheinigungen	Typprüfbescheinigung/Werkszeugnis	ABS	BUREAU VERITAS

Shipping Approval			other	
GL	PRS	RINA	Umweltbestätigung	Bestätigungen

Further information

Information- and Downloadcenter (Catalogs, Brochures,…)
http://www.siemens.com/industrial-controls/catalogs

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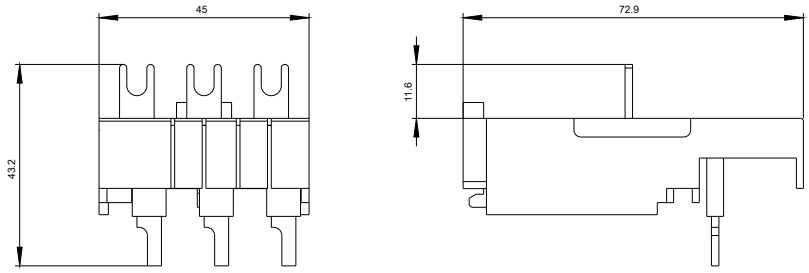
http://www.siemens.com/industrymall

Cax online generator
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RA29211AA00

Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3RA29211AA00

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RA29211AA00&lang=en



last modified:	10.03.2016

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1873 - CONTACTOR AUXILIARY CONTACT BLOCK - 3 N.O. - FRONT MOUNT

Data sheet 3RH2911-1HA30

AUX.SWITCH BLOCK,FRONT,3NO, CURR.PATH: 1NO, 1NO, 1NO, F. CONT. RELAYS A. MOTOR CONT., 3RT2 SCREW TERMINAL .3 / .4, .3 / .4, .3 / .4

General technical data:		
product brand name		SIRIUS
Suitability for use		Contactor relay and power contactor
Protection class IP on the front		IP20
Ambient temperature		
• during storage	°C	-55 ... +80
• during operation	°C	-25 ... +60
Mechanical service life (switching cycles) typical		10 000 000
Electrical endurance (switching cycles) at AC-15 at 230 V typical		200 000
Contact reliability		one incorrect switching operation of 100 million switching operations (17 V, 1 mA)
Contact reliability of auxiliary contacts		1 faulty switching per 100 million (17 V, 1 mA)
Insulation voltage with degree of pollution 3 rated value	V	690
Surge voltage resistance rated value	kV	6

Auxiliary circuit:		
Number of NC contacts for auxiliary contacts		
• instantaneous contact		0

• lagging switching		0
Number of NO contacts for auxiliary contacts		
• instantaneous contact		3
• leading contact		0
Operating current of auxiliary contacts at AC-12		
• at 24 V	A	10
• at 230 V	A	10
• maximum	A	10
Operating current		
• of auxiliary contacts		
— at AC-14		
— at 125 V	A	6
— at 250 V	A	6
— at AC-15		
— at 24 V	A	6
— at 230 V	A	6
— at 400 V	A	3
• at AC-15 at 690 V rated value	A	1
Operating current		
• with 2 current paths in series at DC-12		
— at 24 V rated value	A	10
— at 60 V rated value	A	10
— at 110 V rated value	A	4
— at 220 V rated value	A	2
— at 440 V rated value	A	1.3
— at 600 V rated value	A	0.65
• with 3 current paths in series at DC-12		
— at 24 V rated value	A	10
— at 60 V rated value	A	10
— at 110 V rated value	A	10
— at 220 V rated value	A	3.6
— at 440 V rated value	A	2.5
— at 600 V rated value	A	1.8
Operating current		
• of auxiliary contacts at DC-13		
— at 24 V	A	6
— at 60 V	A	2
— at 110 V	A	1
— at 220 V	A	0.3
• with 2 current paths in series at DC-13		
— at 24 V rated value	A	10

— at 60 V rated value	A	3.5
— at 110 V rated value	A	1.3
— at 220 V rated value	A	0.9
— at 440 V rated value	A	0.2
— at 600 V rated value	A	0.1
• with 3 current paths in series at DC-13		
— at 24 V rated value	A	10
— at 60 V rated value	A	4.7
— at 110 V rated value	A	3
— at 220 V rated value	A	1.2
— at 440 V rated value	A	0.5
— at 600 V rated value	A	0.26

Installation/ mounting/ dimensions:

Mounting type		snap-on mounting
Width	mm	36
Height	mm	37.5
Depth	mm	43.7

Connections/ Terminals:

Type of electrical connection for auxiliary and control current circuit		screw-type terminals
Type of connectable conductor cross-sections		
• for auxiliary contacts		
— finely stranded		
— with core end processing		2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²)
• at AWG conductors for auxiliary contacts		2x (20 ... 16), 2x (18 ... 14)

Safety related data:

Product function Mirror contact acc. to IEC 60947-4-1		Yes
• **Note**		with 3RT2
Product function positively driven operation acc. to IEC 60947-5-1		Yes
• **Note**		with 3RH2

Certificates/ approvals:

General Product Approval				Declaration of Conformity	Test Certificates
CCC	CSA		UL	EG-Konf.	Typprüfbescheinigung/Werkszeugnis

Test Certificates	Shipping Approval				
spezielle Prüfbescheinigungen	ABS	BUREAU VERITAS	DNV	GL	LRS

Shipping Approval			other		
PRS	RINA	RMRS	Umweltbestätigung	Bestätigungen	VDE

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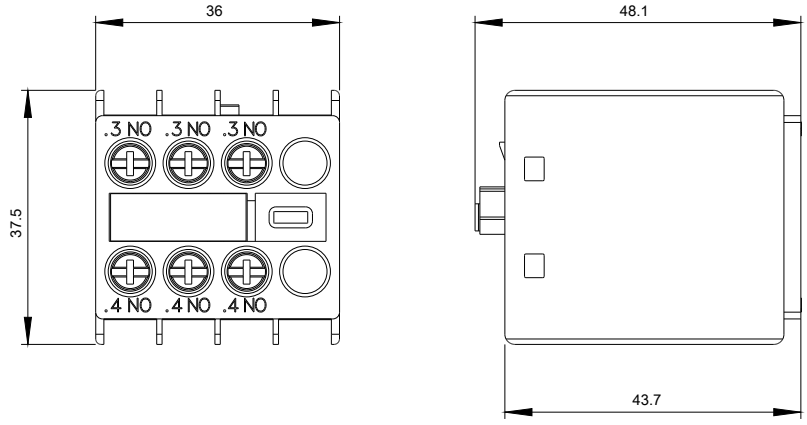

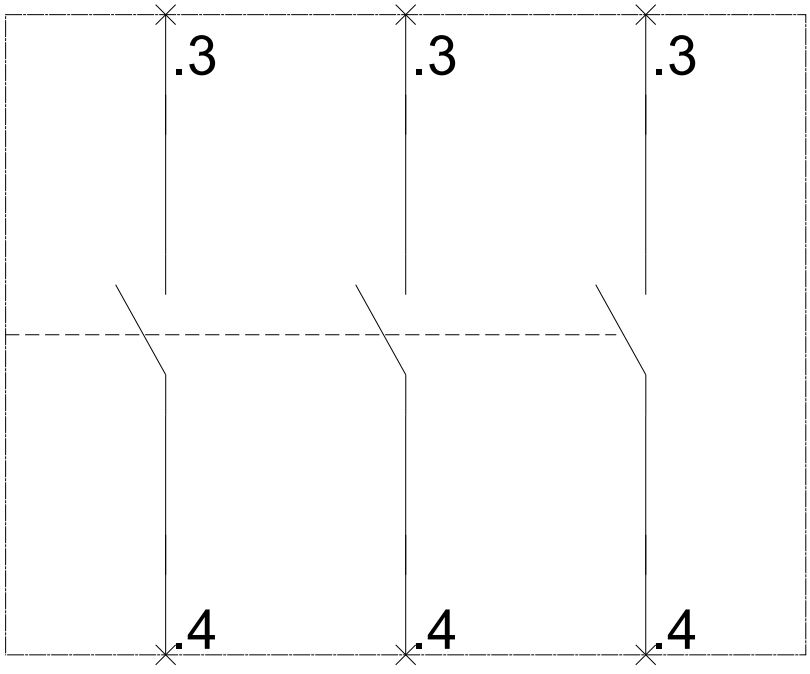

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Data sheet 3RT2027-1AK60-0UA0

Contactor, 10 hp, 460 / 575 V, 1 NO + 1 NC, 110 V AC, 50 Hz, 120 V, 60 Hz, 3-pole, Size S0, screw terminal

product brand name	SIRIUS
product designation	Power contactor
product type designation	3RT2
General technical data	
size of contactor	S0
product extension	
● function module for communication	No
● auxiliary switch	Yes
power loss [W] for rated value of the current	
● at AC in hot operating state	8.1 W
● at AC in hot operating state per pole	2.7 W
● without load current share typical	10.5 W
insulation voltage	
● of main circuit with degree of pollution 3 rated value	690 V
● of auxiliary circuit with degree of pollution 3 rated value	690 V
surge voltage resistance	
● of main circuit rated value	6 kV
● of auxiliary circuit rated value	6 kV
maximum permissible voltage for safe isolation between coil and main contacts according to EN 60947-1	400 V
shock resistance at rectangular impulse	
● at AC	8,3g / 5 ms, 5,3g / 10 ms
shock resistance with sine pulse	
● at AC	13,5g / 5 ms, 8,3g / 10 ms
mechanical service life (switching cycles)	
● of contactor typical	10 000 000
● of the contactor with added electronically optimized auxiliary switch block typical	5 000 000
● of the contactor with added auxiliary switch block typical	10 000 000
reference code according to IEC 81346-2	Q
Substance Prohibitance (Date)	10/01/2009
Ambient conditions	
installation altitude at height above sea level maximum	2 000 m
ambient temperature	
● during operation	-25 ... +60 °C
● during storage	-55 ... +80 °C
relative humidity minimum	10 %
relative humidity at 55 °C according to IEC 60068-2-30 maximum	95 %

Main circuit	
number of poles for main current circuit	3
number of NO contacts for main contacts	3
operating voltage	
● at AC-3 rated value maximum	690 V
● at AC-3e rated value maximum	690 V
operational current	
● at AC-1 at 400 V at ambient temperature 40 °C rated value	50 A
● at AC-1	
— up to 690 V at ambient temperature 40 °C rated value	50 A
— up to 690 V at ambient temperature 60 °C rated value	42 A
● at AC-3	
— at 400 V rated value	27 A
— at 500 V rated value	32 A
— at 690 V rated value	21 A
● at AC-3e	
— at 400 V rated value	32 A
— at 500 V rated value	32 A
— at 690 V rated value	21 A
● at AC-4 at 400 V rated value	22 A
● at AC-5a up to 690 V rated value	44 A
● at AC-5b up to 400 V rated value	26.5 A
● at AC-6a	
— up to 230 V for current peak value n=20 rated value	30.8 A
— up to 400 V for current peak value n=20 rated value	30.8 A
— up to 500 V for current peak value n=20 rated value	27 A
— up to 690 V for current peak value n=20 rated value	21 A
● at AC-6a	
— up to 230 V for current peak value n=30 rated value	20.5 A
— up to 400 V for current peak value n=30 rated value	20.5 A
— up to 500 V for current peak value n=30 rated value	18 A
— up to 690 V for current peak value n=30 rated value	18 A
minimum cross-section in main circuit at maximum AC-1 rated value	10 mm²
operational current for approx. 200000 operating cycles at AC-4	
● at 400 V rated value	12 A
● at 690 V rated value	12 A
operational current	
● **at 1 current path at DC-1**	
— at 24 V rated value	35 A
— at 110 V rated value	4.5 A
— at 220 V rated value	1 A
— at 440 V rated value	0.4 A
— at 600 V rated value	0.25 A
● **with 2 current paths in series at DC-1**	
— at 24 V rated value	35 A
— at 110 V rated value	35 A
— at 220 V rated value	5 A
— at 440 V rated value	1 A
— at 600 V rated value	0.8 A
● **with 3 current paths in series at DC-1**	

— at 24 V rated value	35 A
— at 110 V rated value	35 A
— at 220 V rated value	35 A
— at 440 V rated value	2.9 A
— at 600 V rated value	1.4 A
● at 1 current path at DC-3 at DC-5	
— at 24 V rated value	20 A
— at 110 V rated value	2.5 A
— at 220 V rated value	1 A
— at 440 V rated value	0.09 A
— at 600 V rated value	0.06 A
● with 2 current paths in series at DC-3 at DC-5	
— at 24 V rated value	35 A
— at 110 V rated value	15 A
— at 220 V rated value	3 A
— at 440 V rated value	0.27 A
— at 600 V rated value	0.16 A
● with 3 current paths in series at DC-3 at DC-5	
— at 24 V rated value	35 A
— at 110 V rated value	35 A
— at 220 V rated value	10 A
— at 440 V rated value	0.6 A
— at 600 V rated value	0.6 A
operating power	
● at AC-2 at 400 V rated value	15 kW
● at AC-3	
— at 230 V rated value	7.5 kW
— at 400 V rated value	15 kW
— at 500 V rated value	15 kW
— at 690 V rated value	18.5 kW
● at AC-3e	
— at 230 V rated value	7.5 kW
— at 400 V rated value	15 kW
— at 500 V rated value	15 kW
— at 690 V rated value	18.5 kW
operating power for approx. 200000 operating cycles at AC-4	
● at 400 V rated value	6 kW
● at 690 V rated value	10.3 kW
operating apparent power at AC-6a	
● up to 230 V for current peak value n=20 rated value	12.2 kVA
● up to 400 V for current peak value n=20 rated value	21.3 kVA
● up to 500 V for current peak value n=20 rated value	23.3 kVA
● up to 690 V for current peak value n=20 rated value	25 kVA
operating apparent power at AC-6a	
● up to 230 V for current peak value n=30 rated value	8.1 kVA
● up to 400 V for current peak value n=30 rated value	14.2 kVA
● up to 500 V for current peak value n=30 rated value	15.5 kVA
● up to 690 V for current peak value n=30 rated value	21.5 kVA
short-time withstand current in cold operating state up to 40 °C	
● limited to 1 s switching at zero current maximum	499 A; Use minimum cross-section acc. to AC-1 rated value
● limited to 5 s switching at zero current maximum	395 A; Use minimum cross-section acc. to AC-1 rated value
● limited to 10 s switching at zero current maximum	260 A; Use minimum cross-section acc. to AC-1 rated value
● limited to 30 s switching at zero current maximum	186 A; Use minimum cross-section acc. to AC-1 rated value
● limited to 60 s switching at zero current maximum	152 A; Use minimum cross-section acc. to AC-1 rated value
no-load switching frequency	
● at AC	5 000 1/h
operating frequency	
● at AC-1 maximum	1 000 1/h
● at AC-2 maximum	750 1/h

● at AC-3 maximum	750 1/h
● at AC-3e maximum	750 1/h
● at AC-4 maximum	250 1/h
Control circuit/ Control	
type of voltage of the control supply voltage	AC
control supply voltage at AC	
● at 50 Hz rated value	110 V
● at 60 Hz rated value	120 V
operating range factor control supply voltage rated value of magnet coil at AC	
● at 50 Hz	0.8 ... 1.1
● at 60 Hz	0.8 ... 1.1
apparent pick-up power of magnet coil at AC	
● at 50 Hz	81 VA
● at 60 Hz	79 VA
inductive power factor with closing power of the coil	
● at 50 Hz	0.72
● at 60 Hz	0.74
apparent holding power of magnet coil at AC	
● at 50 Hz	10.5 VA
● at 60 Hz	8.5 VA
inductive power factor with the holding power of the coil	
● at 50 Hz	0.25
● at 60 Hz	0.28
closing delay	
● at AC	8 ... 40 ms
opening delay	
● at AC	4 ... 16 ms
arcing time	10 ... 10 ms
control version of the switch operating mechanism	Standard A1 - A2
Auxiliary circuit	
number of NC contacts for auxiliary contacts instantaneous contact	1
number of NO contacts for auxiliary contacts instantaneous contact	1
operational current at AC-12 maximum	10 A
operational current at AC-15	
● at 230 V rated value	10 A
● at 400 V rated value	3 A
● at 500 V rated value	2 A
● at 690 V rated value	1 A
operational current at DC-12	
● at 24 V rated value	10 A
● at 48 V rated value	6 A
● at 60 V rated value	6 A
● at 110 V rated value	3 A
● at 125 V rated value	2 A
● at 220 V rated value	1 A
● at 600 V rated value	0.15 A
operational current at DC-13	
● at 24 V rated value	10 A
● at 48 V rated value	2 A
● at 60 V rated value	2 A
● at 110 V rated value	1 A
● at 125 V rated value	0.9 A
● at 220 V rated value	0.3 A
● at 600 V rated value	0.1 A
contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)
UL/CSA ratings	
full-load current (FLA) for 3-phase AC motor	

● at 480 V rated value	27 A
● at 600 V rated value	27 A
yielded mechanical performance [hp]	
● for single-phase AC motor	
— at 110/120 V rated value	2 hp
— at 230 V rated value	5 hp
● for 3-phase AC motor	
— at 200/208 V rated value	7.5 hp
— at 220/230 V rated value	7.5 hp
— at 460/480 V rated value	10 hp
— at 575/600 V rated value	10 hp
contact rating of auxiliary contacts according to UL	A600 / P600
Short-circuit protection	
design of the fuse link	
● for short-circuit protection of the main circuit	
— with type of coordination 1 required	gG: 125A (690V,100kA), aM: 50A (690V,100kA), BS88: 125A (415V,80kA)
— with type of assignment 2 required	gG: 50A (690V,100kA), aM: 25A (690V, 100kA), BS88: 50A (415V, 80kA)
● for short-circuit protection of the auxiliary switch required	gG: 10 A (500 V, 1 kA)
Installation/ mounting/ dimensions	
mounting position	+/-180° rotation possible on vertical mounting surface; can be tilted forward and backward by +/- 22.5° on vertical mounting surface
fastening method	screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715
● side-by-side mounting	Yes
height	85 mm
width	45 mm
depth	97 mm
required spacing	
● with side-by-side mounting	
— forwards	10 mm
— upwards	10 mm
— downwards	10 mm
— at the side	0 mm
● for grounded parts	
— forwards	10 mm
— upwards	10 mm
— at the side	6 mm
— downwards	10 mm
● for live parts	
— forwards	10 mm
— upwards	10 mm
— downwards	10 mm
— at the side	6 mm
Connections/ Terminals	
type of electrical connection	
● for main current circuit	screw-type terminals
● for auxiliary and control circuit	screw-type terminals
● at contactor for auxiliary contacts	Screw-type terminals
● of magnet coil	Screw-type terminals
type of connectable conductor cross-sections	
● for main contacts	
— solid	2x (1 ... 2.5 mm²), 2x (2.5 ... 10 mm²)
— solid or stranded	2x (1 ... 2.5 mm²), 2x (2.5 ... 10 mm²)
— finely stranded with core end processing	2x (1 ... 2.5 mm²), 2x (2.5 ... 6 mm²), 1x 10 mm²
● at AWG cables for main contacts	2x (16 ... 12), 2x (14 ... 8)
connectable conductor cross-section for main contacts	
● solid	1 ... 10 mm²

• stranded	1 ... 10 mm²
• finely stranded with core end processing	1 ... 10 mm²
connectable conductor cross-section for auxiliary contacts	
• solid or stranded	0.5 ... 2.5 mm²
• finely stranded with core end processing	0.5 ... 2.5 mm²
type of connectable conductor cross-sections	
• for auxiliary contacts	
— solid or stranded	2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²)
— finely stranded with core end processing	2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²)
• at AWG cables for auxiliary contacts	2x (20 ... 16), 2x (18 ... 14)
AWG number as coded connectable conductor cross section	
• for main contacts	16 ... 8
• for auxiliary contacts	20 ... 14
Safety related data	
product function	
• mirror contact according to IEC 60947-4-1	Yes
B10 value with high demand rate according to SN 31920	450 000
proportion of dangerous failures	
• with low demand rate according to SN 31920	40 %
• with high demand rate according to SN 31920	73 %
failure rate [FIT] with low demand rate according to SN 31920	100 FIT
protection class IP on the front according to IEC 60529	IP20
touch protection on the front according to IEC 60529	finger-safe, for vertical contact from the front
suitability for use	
• safety-related switching on	Yes
• safety-related switching OFF	Yes

Certificates/ approvals

General Product Approval

Confirmation | KC

EMC	Functional Safety/Safety of Machinery	Declaration of Conformity		Test Certificates	
RCM	Type Examination Certificate	EG-Konf.	UK Declaration of Conformity	Type Test Certific-ates/Test Report	Special Test Certific-ate

Marine / Shipping

ABS | BUREAU VERITAS | DNV | LRS | RINA | RMRS

other

Confirmation

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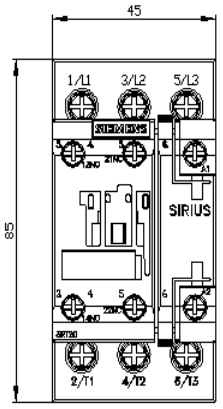
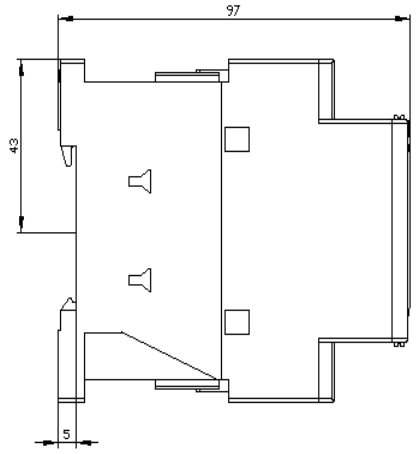
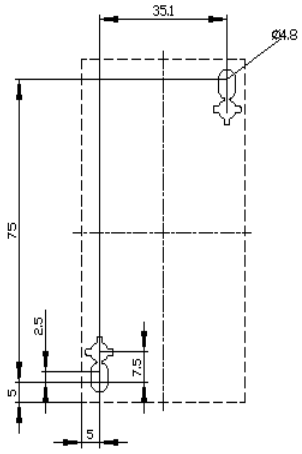
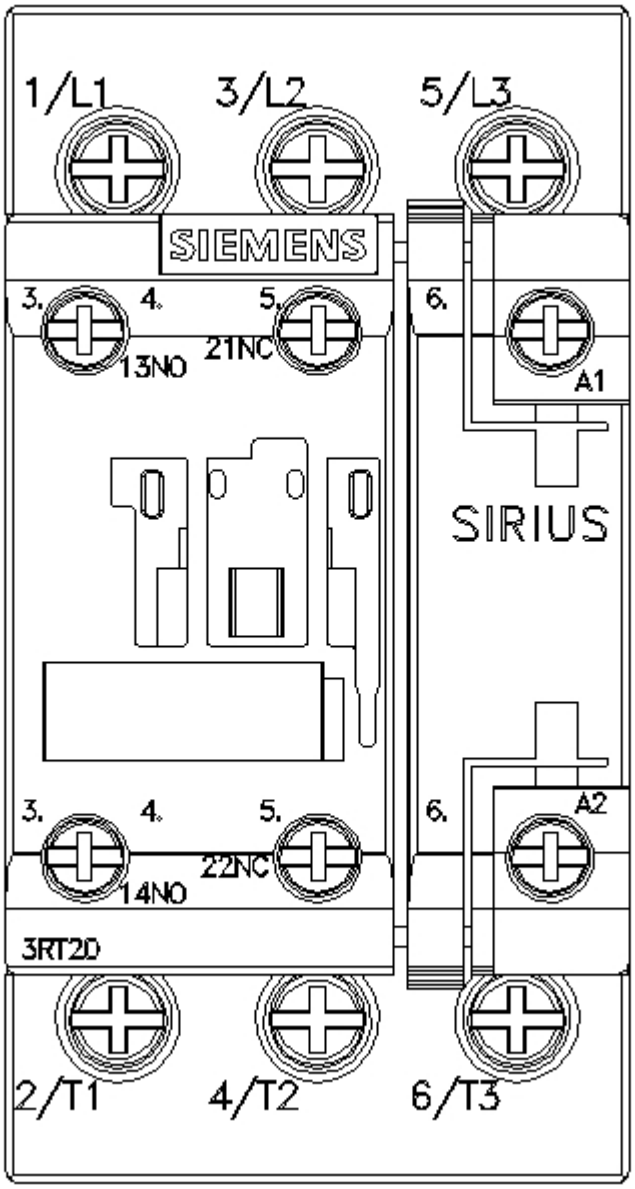
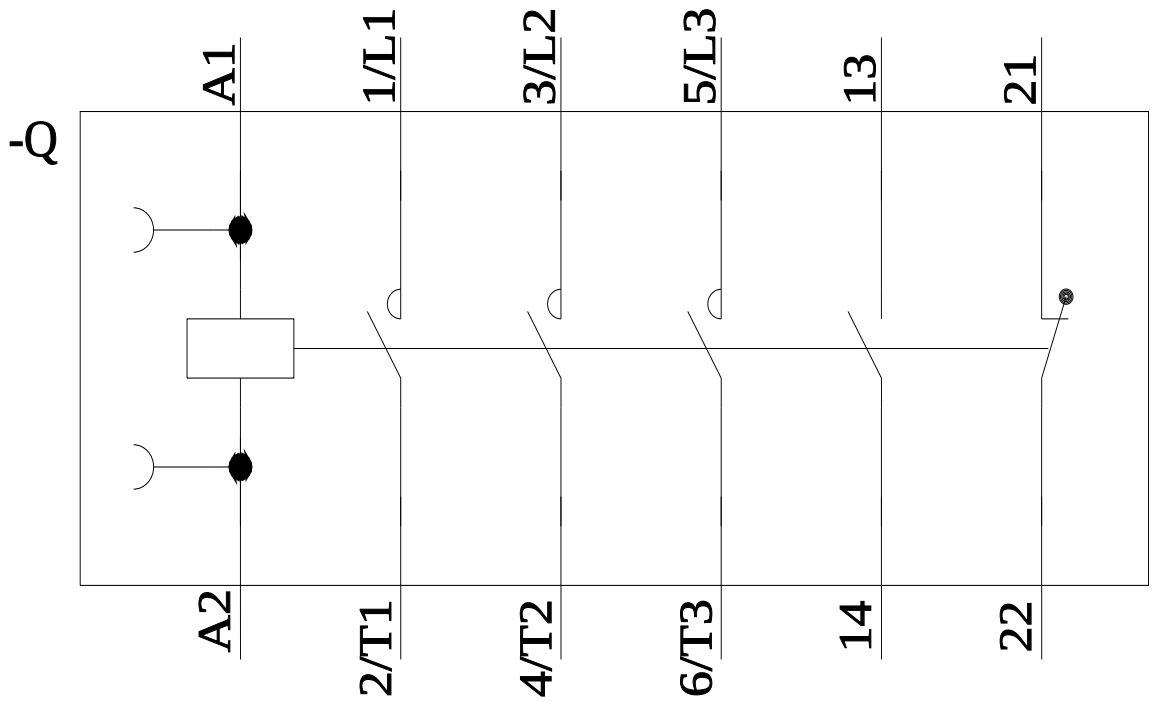
https://support.industry.siemens.com/cs/ww/en/ps/3RT2027-1AK60-0UA0
Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RT2027-1AK60-0UA0&lang=en
Characteristic: Tripping characteristics, I²t, Let-through current
https://support.industry.siemens.com/cs/ww/en/ps/3RT2027-1AK60-0UA0/char
Further characteristics (e.g. electrical endurance, switching frequency)
http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RT2027-1AK60-0UA0&objecttype=14&gridview=view1











last modified: 2/15/2022

1905 - MOTOR STARTER PROTECTOR - 0.9-1.25 FLA

SIEMENS

Data sheet 3RV2021-0KA10

Circuit breaker size S0 for motor protection, CLASS 10 A-release 0.9...1.25 A N-release 16 A screw terminal Standard switching capacity

Figure similar

Product brand name	SIRIUS
Product designation	Circuit breaker
Design of the product	For motor protection
Product type designation	3RV2

General technical data	
Size of the circuit-breaker	S0
Size of contactor can be combined company-specific	S00, S0
Product extension	
• Auxiliary switch	Yes
Power loss [W] total typical	6 W
Insulation voltage with degree of pollution 3 rated value	690 V
Surge voltage resistance rated value	6 kV
maximum permissible voltage for safe isolation	
• in networks with grounded star point between main and auxiliary circuit	400 V
• in networks with grounded star point between main and auxiliary circuit	400 V

Protection class IP	
• on the front	IP20
• of the terminal	IP20
Shock resistance	
• acc. to IEC 60068-2-27	25g / 11 ms
Mechanical service life (switching cycles)	
• of the main contacts typical	100 000
• of auxiliary contacts typical	100 000
Electrical endurance (switching cycles)	
• typical	100 000
Type of protection	Increased safety
Certificate of suitability relating to ATEX	on request
Protection against electrical shock	finger-safe

Ambient conditions

Installation altitude at height above sea level	
• maximum	2 000 m
Ambient temperature	
• during operation	-20 ... +60 °C
• during storage	-50 ... +80 °C
• during transport	-50 ... +80 °C
Temperature compensation	-20 ... +60 °C
Relative humidity during operation	10 ... 95 %

Main circuit

Number of poles for main current circuit	3
Adjustable pick-up value current of the current-dependent overload release	0.9 ... 1.25 A
Operating voltage	
• rated value	690 V
• at AC-3 rated value maximum	690 V
Operating frequency rated value	50 ... 60 Hz
Operating current rated value	1.25 A
Operating current	
• at AC-3	
— at 400 V rated value	1.25 A
Operating power	
• at AC-3	
— at 230 V rated value	180 W
— at 400 V rated value	370 W
— at 500 V rated value	370 W
— at 690 V rated value	750 W
Operating frequency	
• at AC-3 maximum	15 1/h

Auxiliary circuit	
Number of NC contacts	
• **for auxiliary contacts**	0
Number of NO contacts	
• **for auxiliary contacts**	0
Number of CO contacts	
• **for auxiliary contacts**	0

Protective and monitoring functions	
Product function	
• Ground fault detection	No
• Phase failure detection	Yes
Trip class	CLASS 10
Design of the overload release	thermal
Operational short-circuit current breaking capacity (Ics) at AC	
• at 240 V rated value	100 kA
• at 400 V rated value	100 kA
• at 500 V rated value	100 kA
• at 690 V rated value	100 kA
Maximum short-circuit current breaking capacity (Icu)	
• at AC at 240 V rated value	100 kA
• at AC at 400 V rated value	100 kA
• at AC at 500 V rated value	100 kA
• at AC at 690 V rated value	100 kA
Breaking capacity short-circuit current (Icn)	
• at 1 current path at DC at 150 V rated value	10 kA
• with 2 current paths in series at DC at 300 V rated value	10 kA
• with 3 current paths in series at DC at 450 V rated value	10 kA
Response value current	
• of instantaneous short-circuit trip unit	16 A

UL/CSA ratings	
Full-load current (FLA) for three-phase AC motor	
• at 480 V rated value	1.25 A
• at 600 V rated value	1.25 A
Yielded mechanical performance [hp]	
• for three-phase AC motor	
— at 460/480 V rated value	0.5 hp
— at 575/600 V rated value	0.5 hp

Short-circuit protection

Product function Short circuit protection	Yes
Design of the short-circuit trip	magnetic

Installation/ mounting/ dimensions

Mounting position	any
Mounting type	screw and snap-on mounting onto 35 mm standard mounting rail according to DIN EN 60715
Height	97 mm
Width	45 mm
Depth	96 mm
Required spacing	
• with side-by-side mounting	
— forwards	0 mm
— Backwards	0 mm
— upwards	50 mm
— downwards	50 mm
— at the side	0 mm
• for grounded parts	
— forwards	0 mm
— Backwards	0 mm
— upwards	50 mm
— at the side	30 mm
— downwards	50 mm
• for live parts	
— forwards	0 mm
— Backwards	0 mm
— upwards	50 mm
— downwards	50 mm
— at the side	30 mm

Connections/Terminals

Product function	
• removable terminal for auxiliary and control circuit	No
Type of electrical connection	
• for main current circuit	screw-type terminals
Arrangement of electrical connectors for main current circuit	Top and bottom
Type of connectable conductor cross-sections	
• for main contacts	
— single or multi-stranded	2x (1 ... 2,5 mm²), 2x (2,5 ... 10 mm²)
— finely stranded with core end processing	2x (1 ... 2.5 mm²), 2x (2.5 ... 6 mm²), 1x 10 mm²
• at AWG conductors for main contacts	2x (16 ... 12), 2x (14 ... 8)
Tightening torque	

• for main contacts with screw-type terminals	2 ... 2.5 N·m
Design of screwdriver shaft	Diameter 5 to 6 mm
Size of the screwdriver tip	Pozidriv 2
Design of the thread of the connection screw	
• for main contacts	M4

Safety related data

B10 value	
• with high demand rate acc. to SN 31920	5 000
Proportion of dangerous failures	
• with low demand rate acc. to SN 31920	50 %
• with high demand rate acc. to SN 31920	50 %
Failure rate [FIT]	
• with low demand rate acc. to SN 31920	50 FIT
T1 value for proof test interval or service life acc. to IEC 61508	10 y
Display version	
• for switching status	Handle

Certificates/approvals

General Product Approval					For use in hazardous locations
CCC	CSA	UL	KC	EAC	ATEX

For use in hazardous locations	Declaration of Conformity	Test Certificates		Marine / Shipping	
IECEx	EG-Konf.	Special Test Certificate	Type Test Certificates/Test Report	ABS	BUREAU VERITAS

Marine / Shipping					other
LRS	PRS	RINA	RMRS	DNVGL.COM/AF	Confirmation

other		Railway
VDE	Miscellaneous	Vibration and Shock

Further information

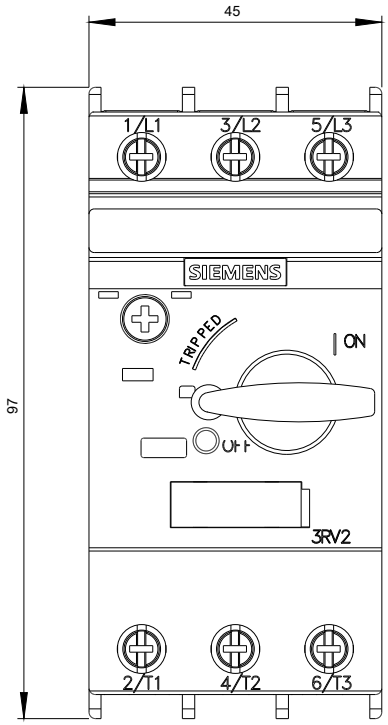
Information- and Downloadcenter (Catalogs, Brochures,…)
http://www.siemens.com/industrial-controls/catalogs

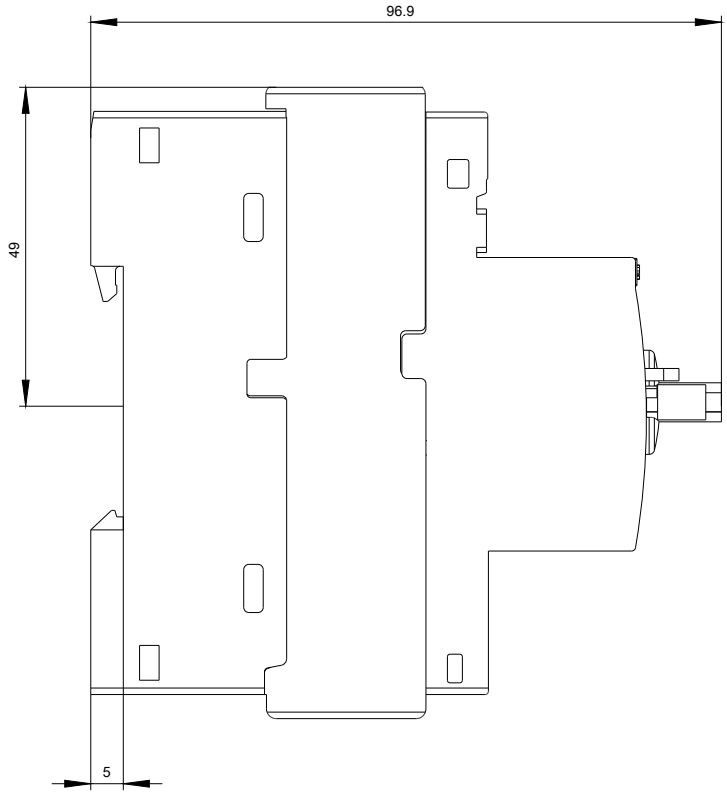
Industry Mall (Online ordering system)
https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RV2021-0KA10

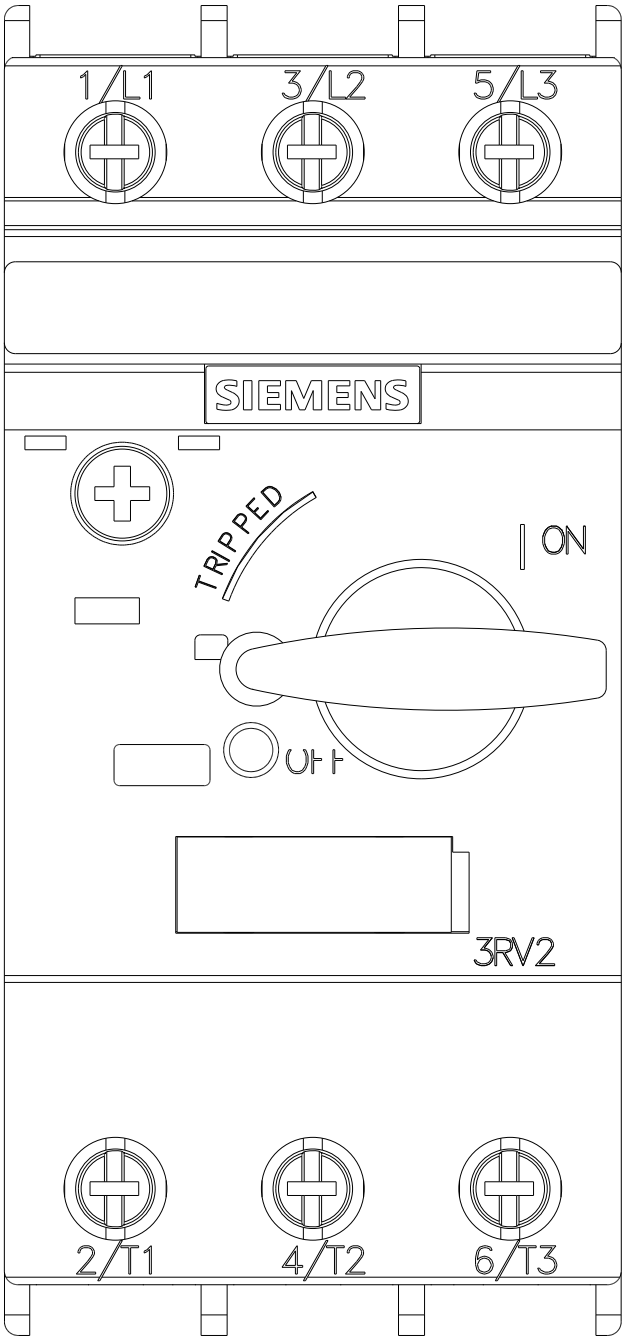
Cax online generator
http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RV2021-0KA10

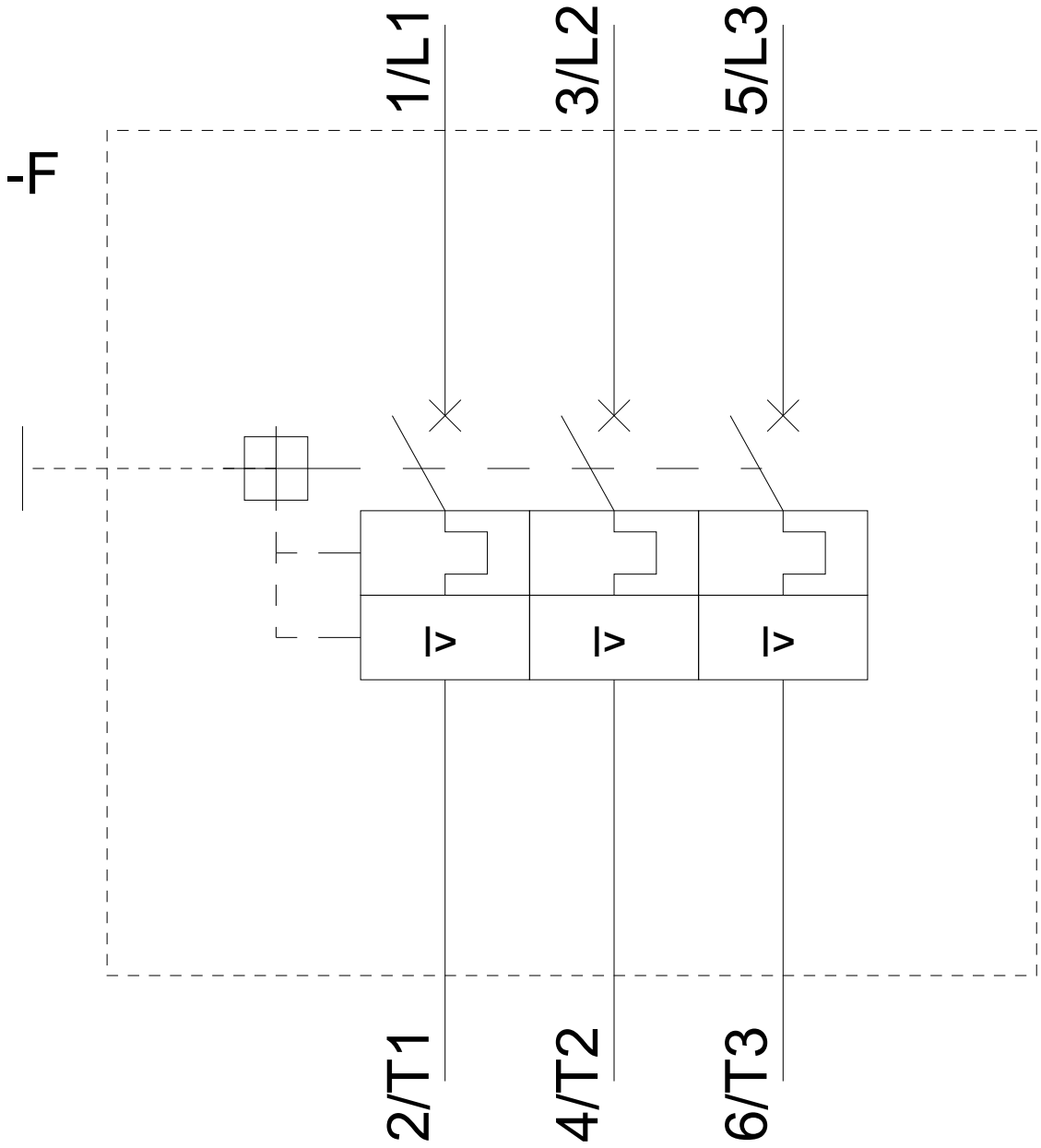
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3RV2021-0KA10

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RV2021-0KA10&lang=en









last modified: 01/23/2018

1917 - MSP AUXILIARY CONTACT BLOCK - 2 NO, 2 NC

SIEMENS

Product data sheet 3RV2901-1J

LATERAL AUXILIARY SWITCH 2NO+2NC,
SCREW CONNECTION,
FOR CIRCUIT-BREAKERS SZ S00/S0

General technical data:		
product brand name		SIRIUS
product designation		auxiliary switch, lateral
Design of the product		lateral auxiliary switches
Size of the circuit-breaker		S00, S0
Protection class IP / on the front		IP20
Ambient temperature		
• during storage	°C	-50 … +80
• during operating	°C	-20 … +60

Auxiliary circuit:		
Number of NC contacts / for auxiliary contacts		
• instantaneous switching		2
Number of NO contacts / for auxiliary contacts		
• instantaneous switching		2
Number of changeover contacts / of the auxiliary contacts		
• instantaneous switching		0
Operating current / of the auxiliary contacts		
• at AC-12		
• at 24 V	A	10
• at 230 V	A	10

• at 400 V	A	10
• at 690 V	A	10
• maximum	A	10
• at AC-15		
• at 24 V	A	6
• at 230 V	A	4
• at 690 V	A	1
• at 400 V	A	3
• at DC-13		
• at 24 V	A	2
• at 110 V	A	0.5
• at 125 V	A	0.5
• at 220 V	A	0.25
• at 250 V	A	0.25

Installation/mounting/dimensions:

Type of mounting		plug-in fixing
Width	mm	18
Height	mm	90
Depth	mm	68

Connections:

Design of the electrical connection		
• for auxiliary and control current circuit		screw-type terminals
Type of the connectable conductor cross-section		
• for auxiliary contacts		
• solid		2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²)
• finely stranded		
• with conductor end processing		2x (0.5 ... 1.5 mm²), 2x (0.75 ... 2.5 mm²)
• for AWG conductors / for auxiliary contacts		2x (20 ... 14)

Certificates/approvals:

Verification of suitability		CE / UL / CSA / CCC

General Product Approval			Declaration of Conformity	Test Certificates	
CCC	CSA	UL	EG-Konf.	Special Test Certificate	Type Test Certificates/Test Report
Shipping Approval					
ABS	BUREAU VERITAS	GL	LRS	PRS	RINA
Shipping Approval	**other**				
RMRS	VDE	other			

Further information:

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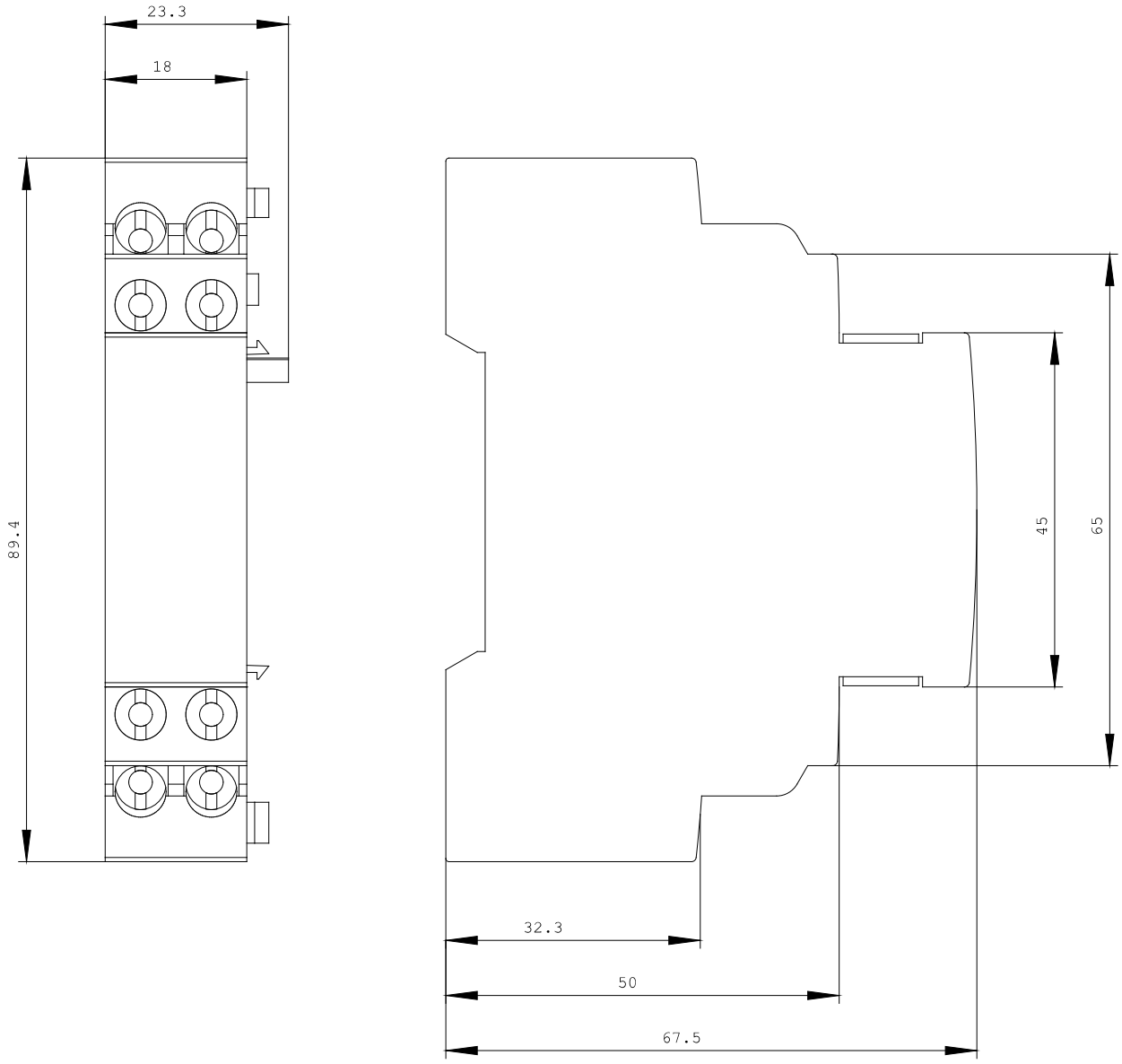
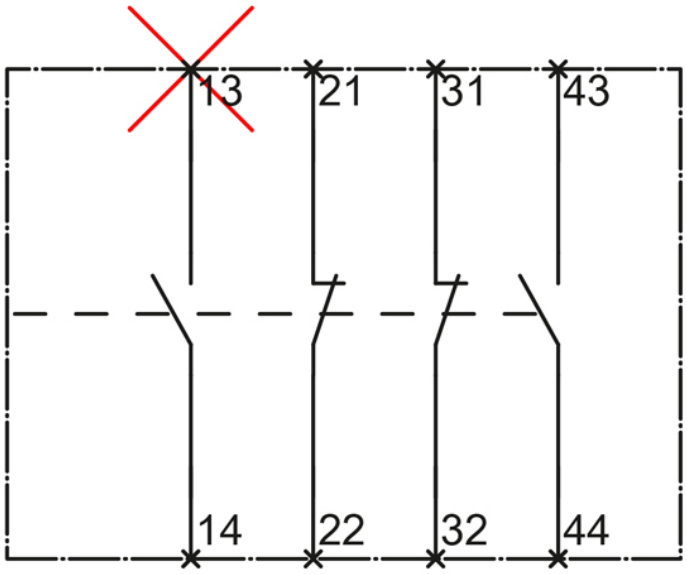




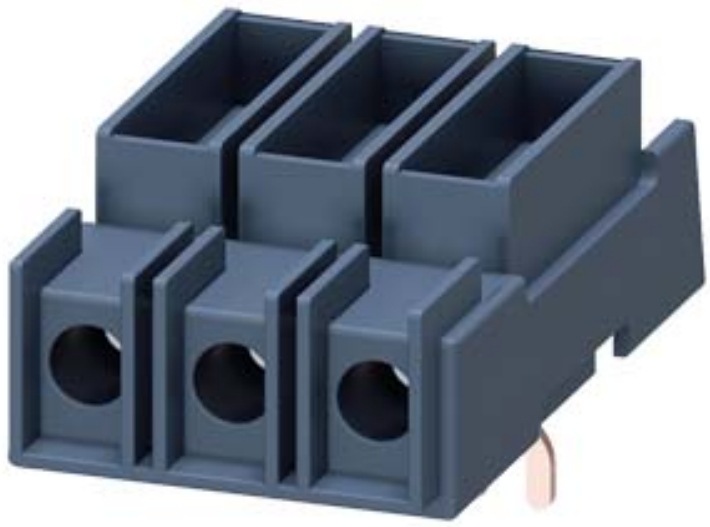
last change: Sep 10, 2012

1918 - MSP S0 UL508 APPROVED TERMINAL SPACER

SIEMENS

Data sheet 3RV2928-1H

TERMINAL BLOCK TYPE E ACC. TO UL508 CIRCUIT-BREAKER SZ S00/S0



General technical data:		
product brandname		SIRIUS
Product designation		Terminal block
Design of the product		Type E
Size of the circuit-breaker		S00, S0
Protection class IP on the front		IP20
Insulation voltage with degree of pollution 3 rated value	V	690
Ambient temperature		
• during storage	°C	-50 ... +80
• during operation	°C	-20 ... +60
Ampacity maximum	A	40

Installation/ mounting/ dimensions:		
Width	mm	44.8
Height	mm	38.9
Depth	mm	73.6
Suitability for use enables assembly of self-protected combination motor controllers (type E) acc. to UL 508 Note		a construction with 3RV1915 bus bars is not possible

Connections/ Terminals:

Type of electrical connection for main current circuit	screw-type terminals
Type of connectable conductor cross-sections	
• for main contacts	
— solid	2x (1 ... 10 mm²)
— stranded	2x (2.5 ... 16 mm²), 1x (1.5 ... 25)
— finely stranded	
— with core end processing	1x (1 ... 16 mm²), 2x (1 ... 10 mm²)
• at AWG conductors for main contacts	1x (14 ... 3), 1x (16 ... 3), (14 ... 6), (16 ... 3)

Certificates/ approvals:

Certificate of suitability	CE / UL / CSA / CCC

General Product Approval	Declaration of Conformity	Test Certificates		Shipping Approval	
CSA	EG-Konf.	Special Test Certificate	Type Test Certificates/Test Report	ABS	BUREAU VERITAS

Shipping Approval				other	
LRS	PRS	RINA	RMRS	Confirmation	VDE

Railway
Vibration and Shock

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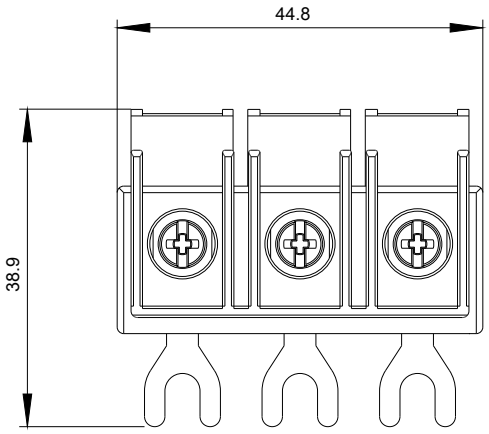
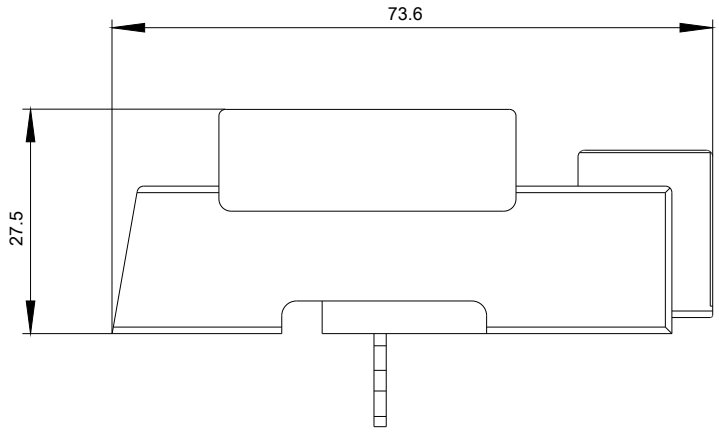




last modified: 07/19/2017

2000 - RED PILOT LIGHT - NEMA 4X, PUSH-TO-TEST, 6V LED

Push Button Units and Indicator Lights

30mm Water, Oil Tight & Corrosion Resistant – Class 52 *Illuminated Push Buttons & Push-to-Test*

Selection Tables

Push Button & Push-to-Test - Illuminated

					Extended Lens	
Type	**Lamp Type**	**Voltage**	**Color**	**Contacts**	**Chrome**	**Black Max**
Full Voltage (AC/DC)	LED	24V	Red	1 NO - 1 NC	**52PT6D2AB**	**52BT6D2AB**
			Green	1 NO - 1 NC	**52PT6D3AB**	**52BT6D3AB**
			Blue	1 NO - 1 NC	**52PT6D5AB**	**52BT6D5AB**
			Amber	1 NO - 1 NC	**52PT6D9AB**	**52BT6D9AB**
			White	1 NO - 1 NC	**52PT6DBAB**	**52BT6DBAB**
		120V	Red	1 NO - 1 NC	**52PT6E2AB**	**52BT6E2AB**
			Green	1 NO - 1 NC	**52PT6E3AB**	**52BT6E3AB**
	Incandescent	24V	Red	1 NO - 1 NC	**52PT6D2A**	**52BT6D2A**
			Green	1 NO - 1 NC	**52PT6D3A**	**52BT6D3A**
			Blue	1 NO - 1 NC	**52PT6D5A**	**52BT6D5A**
			Amber	1 NO - 1 NC	**52PT6D9A**	**52BT6D9A**
			White	1 NO - 1 NC	**52PT6DBA**	**52BT6DBA**
		120V	Red	1 NO - 1 NC	**52PT6E2A**	**52BT6E2A**
			Green	1 NO - 1 NC	**52PT6E3A**	**52BT6E3A**
Transformer (AC)	LED	120V	Red	1 NO - 1 NC	**52PT6G2AB**	**52BT6G2AB**
			Green	1 NO - 1 NC	**52PT6G3AB**	**52BT6G3AB**
			Amber	1 NO - 1 NC	**52PT6G9AB**	**52BT6G9AB**
			White	1 NO - 1 NC	**52PT6GBAB**	**52BT6GBAB**
		240V	Red	1 NO - 1 NC	**52PT6H2AB**	**52BT6H2AB**
			Green	1 NO - 1 NC	**52PT6H3AB**	**52BT6H3AB**
	Incandescent	120V	Red	1 NO - 1 NC	**52PT6G2A**	**52BT6G2A**
			Green	1 NO - 1 NC	**52PT6G3A**	**52BT6G3A**
			Amber	1 NO - 1 NC	**52PT6G9A**	**52BT6G9A**
			White	1 NO - 1 NC	**52PT6GBA**	**52BT6GBA**
			No Lens	1 NO - 1 NC	**52PT6GNA**	**52BT6GNA**
		240V	Green	1 NO - 1 NC	**52PT6H3A**	**52BT6H3A**
		480V	Clear	1 NO - 1 NC	**52PT6JAA**	**52BT6JAA**

Readily available items are in **bold**.
This is a small representation of stocked items.

2002 - GREEN PILOT LIGHT - NEMA 4X, PUSH/TEST, XFMR, 6V LED, 30.5mm

Selection Tables

Push Button & Push-to-Test - Illuminated

Type	Lamp Type	Voltage	Color	Contacts	Extended Lens	
					Chrome	Black Max
Full Voltage (AC/DC)	LED	24V	Red	1 NO - 1 NC	**52PT6D2AB**	**52BT6D2AB**
			Green	1 NO - 1 NC	**52PT6D3AB**	**52BT6D3AB**
			Blue	1 NO - 1 NC	**52PT6D5AB**	**52BT6D5AB**
			Amber	1 NO - 1 NC	**52PT6D9AB**	**52BT6D9AB**
			White	1 NO - 1 NC	**52PT6DBAB**	**52BT6DBAB**
		120V	Red	1 NO - 1 NC	**52PT6E2AB**	**52BT6E2AB**
			Green	1 NO - 1 NC	**52PT6E3AB**	**52BT6E3AB**
	Incandescent	24V	Red	1 NO - 1 NC	**52PT6D2A**	**52BT6D2A**
			Green	1 NO - 1 NC	**52PT6D3A**	**52BT6D3A**
			Blue	1 NO - 1 NC	**52PT6D5A**	**52BT6D5A**
			Amber	1 NO - 1 NC	**52PT6D9A**	**52BT6D9A**
			White	1 NO - 1 NC	**52PT6DBA**	**52BT6DBA**
		120V	Red	1 NO - 1 NC	**52PT6E2A**	**52BT6E2A**
			Green	1 NO - 1 NC	**52PT6E3A**	**52BT6E3A**
Transformer (AC)	LED	120V	Red	1 NO - 1 NC	**52PT6G2AB**	**52BT6G2AB**
			Green	1 NO - 1 NC	**52PT6G3AB**	**52BT6G3AB**
			Amber	1 NO - 1 NC	**52PT6G9AB**	**52BT6G9AB**
			White	1 NO - 1 NC	**52PT6GBAB**	**52BT6GBAB**
		240V	Red	1 NO - 1 NC	**52PT6H2AB**	**52BT6H2AB**
			Green	1 NO - 1 NC	**52PT6H3AB**	**52BT6H3AB**
	Incandescent	120V	Red	1 NO - 1 NC	**52PT6G2A**	**52BT6G2A**
			Green	1 NO - 1 NC	**52PT6G3A**	**52BT6G3A**
			Amber	1 NO - 1 NC	**52PT6G9A**	**52BT6G9A**
			White	1 NO - 1 NC	**52PT6GBA**	**52BT6GBA**
			No Lens	1 NO - 1 NC	**52PT6GNA**	**52BT6GNA**
		240V	Green	1 NO - 1 NC	**52PT6H3A**	**52BT6H3A**
		480V	Clear	1 NO - 1 NC	**52PT6JAA**	**52BT6JAA**

Readily available items are in **bold**.
This is a small representation of stocked items.

2004 - AMBER PILOT LIGHT - NEMA 4X, PUSH-TO-TEST, 6V LED

Push Button Units and Indicator Lights

30mm Water, Oil Tight & Corrosion Resistant – Class 52 *Illuminate*

Selection Tables

Push Button & Push-to-Test - Illuminated

Type	Lamp Type	Voltage	Color	Contacts	Extended Lens	
					Chrome	Black Max
Full Voltage (AC/DC)	LED	24V	Red	1 NO - 1 NC	**52PT6D2AB**	**52BT6D2AB**
			Green	1 NO - 1 NC	**52PT6D3AB**	**52BT6D3AB**
			Blue	1 NO - 1 NC	**52PT6D5AB**	**52BT6D5AB**
			Amber	1 NO - 1 NC	**52PT6D9AB**	**52BT6D9AB**
			White	1 NO - 1 NC	**52PT6DBAB**	**52BT6DBAB**
		120V	Red	1 NO - 1 NC	**52PT6E2AB**	**52BT6E2AB**
			Green	1 NO - 1 NC	**52PT6E3AB**	**52BT6E3AB**
	Incandescent	24V	Red	1 NO - 1 NC	**52PT6D2A**	**52BT6D2A**
			Green	1 NO - 1 NC	**52PT6D3A**	**52BT6D3A**
			Blue	1 NO - 1 NC	**52PT6D5A**	**52BT6D5A**
			Amber	1 NO - 1 NC	**52PT6D9A**	**52BT6D9A**
			White	1 NO - 1 NC	**52PT6DBA**	**52BT6DBA**
		120V	Red	1 NO - 1 NC	**52PT6E2A**	**52BT6E2A**
			Green	1 NO - 1 NC	**52PT6E3A**	**52BT6E3A**
Transformer (AC)	LED	120V	Red	1 NO - 1 NC	**52PT6G2AB**	**52BT6G2AB**
			Green	1 NO - 1 NC	**52PT6G3AB**	**52BT6G3AB**
			Amber	1 NO - 1 NC	**52PT6G9AB**	**52BT6G9AB**
			White	1 NO - 1 NC	**52PT6GBAB**	**52BT6GBAB**
		240V	Red	1 NO - 1 NC	**52PT6H2AB**	**52BT6H2AB**
			Green	1 NO - 1 NC	**52PT6H3AB**	**52BT6H3AB**
	Incandescent	120V	Red	1 NO - 1 NC	**52PT6G2A**	**52BT6G2A**
			Green	1 NO - 1 NC	**52PT6G3A**	**52BT6G3A**
			Amber	1 NO - 1 NC	**52PT6G9A**	**52BT6G9A**
			White	1 NO - 1 NC	**52PT6GBA**	**52BT6GBA**
			No Lens	1 NO - 1 NC	**52PT6GNA**	**52BT6GNA**
		240V	Green	1 NO - 1 NC	**52PT6H3A**	**52BT6H3A**
		480V	Clear	1 NO - 1 NC	**52PT6JAA**	**52BT6JAA**

Readily available items are in **bold**.
This is a small representation of stocked items.

30 mm Heavy Duty, Watertight/Oiltight, Class 52

Pushbutton complete units

Features

- Octagonal Mounting Nuts
- Meets Type 1, 3, 3R, 4, 4X, 12, 13 and Automotive Standards
- Heavy Duty Rated NEMA A600/P600 Contacts
- ⊖ Positively Driven Contacts
- Positive Indexing Selectors
- Bifurcated Movable Contacts
- Attractive Chrome Plating
- Boots Not Required for Type 4
- UL Listed File # E22655
- CSA Certified File # LR6535
- Touchsafe Terminals

Application

Oil tight pilot controls and accessories are designed to provide long, trouble free service in the most demanding industrial applications. These controls are oil and dust tight and meet Type 3, 4, 4X, 12 and 13 specifications.

Rugged

Industrial control operators are durable one piece castings. Heavy duty plastic buttons resist oils and corrosion. Silver contacts carry heavy duty ratings.

Flexible

Accessories modify standard push buttons, selector switches and pilot lights. Building block construction of contact blocks makes possible many circuitry combinations.

Industrial Appearance

Pilot controls add luster to panels. Chrome plating covers exposed metal parts.

Push Button Operators

The Operator Base consists of a durable, one piece casting equipped with a heavy duty actuator with a stainless steel spring, a neoprene actuator sealing ring to prevent oil and dust from penetrating to the contact blocks, a neoprene gasket to seal operator mounting hole and a chrome plated lock nut.

Mushroom Head Push Button Operators

The Mushroom Head base construction is identical to the push button base. The actuator is molded of high impact material for either a 1 5⁄8 inch or 2 1⁄2 inch diameter molded head.

E-STOP Mushroom Head Operators according to EN 60947-5-5 Cat. No. 52BP, 52BR, 52PP, and 52PR, 2 Position, Twist-To-Release & 2 Position, Push Pull Maintained operators provided with red operating heads and 52BJK contact blocks meet the requirements of EN 60947-5-5 for Electrical Emergency Stop Device With Mechanical Latching Function (e-stop).

Contact Blocks

Contact Blocks have double break bifurcated silver contacts, with gold flashing as standard, which improves contact reliability. Contact blocks are heavy duty rated NEMA A600 and suitable for applications down to 5V/1MA solid state outputs. 52BJK offers ⊖ Positive Opening Contacts according to IEC 60947-5-1, Appendix K. Molded bodies and pushers resist arcing and tracking. All units have stainless steel springs that resist corrosion and provide strong contact pressure. Captive mounting screws speed panel assembly.

Push Pull Operators

Push Pull Operators combine two or three functions in one unit. The maintained operator has two positions, typically pull to start, push to stop. The momentary operator with three positions provides spring return from both pull and push positions. In addition, a three position push maintained, pull momentary operator is available. The actuator come is 1 3/4 inch or 2 1/2 inch diameter and is available in an illuminated version.

2 Button Maintained Operator

Maintained Push Buttons consist of two push buttons and a latching assembly. When actuated the button remains depressed and is freed only by the release operator to which it is linked. The button assembly adjusts for mounting from a 1 13⁄16 inch to a 2 5⁄8 inch center.

Transformer Type Pilot Lights

Transformer Type Pilot Lights are available with a 120, 240, 480 or 600 Volt primary (50/60 Hertz) and a separate secondary winding which supplies reduced voltage to a miniature bayonet base 6 Volt lamp. These units are suitable for applications where vibration is present and long bulb life is desirable.

Full Voltage Type Pilot Lights

Full Voltage Pilot Lights are available for 6,12, 24 and 120 Volt AC and DC applications.

Electrical Ratings

NEMA AC Ratings 50/60Hz

NEMA A600 10 Continuous Amps

Volts	Make	Break
120	60	6
240	30	3
480	15	1.5
600	12	1.2
VA	7200	720

Ordering Information

- Accessories: pages 10/218 – 10/221
- Selector Position and Contact Operation: page 10/216 – 10/217.
- Legend Plates: page 10/229.
- Enclosures: page 10/230.
- Technical Specifications: page 10/231.

Resistor Type Pilot Lights

Resistor Type Pilot Lights are available for 240 Volt AC and DC applications. The 240 Volt pilot light is supplied with a 120 Volt lamp and a voltage dropping resistor.

LED Type Pilot Lights

LED's (light emitting diodes) can be used in pilot lights instead of incandescent bulbs because of their long life (up to 10 years), resistance to vibration and ambient sensitivity. Clusted LED options are available for standard pilot lights only. Cluster LED options are not available on Push to test Pilot Lights, Illuminated Pushbuttons, Push-pull, or Twist-to-Release Operators.

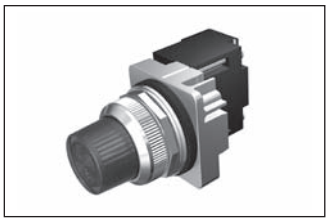
Integrated LED Module Type Pilot Lights

The integrated LED module is available for 24, 120, and 240 V. LED modules are vibration resistant and have a long life (up to 10 years). The integrated LED module is available for 24, 120, and 240 V. LED modules are vibration resistant and have a long life (up to 10 yrs.).

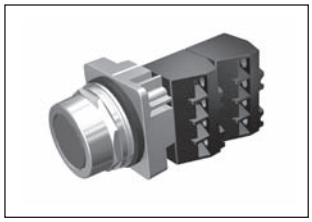
Selector Operators

Selector Operators have positive action indexing. Operators are available with either a short or long lever. The molded black lever is designed to accept a color insert. A white insert is provided as standard. Each operator is equipped with a cam to actuate plungers of contact blocks assembled behind the operator. Two, three and four position operators are available with seven different cams.

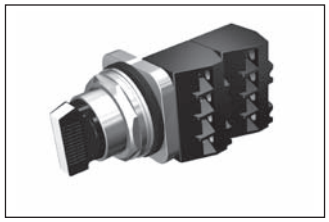
Lever color inserts are available in 8 colors.



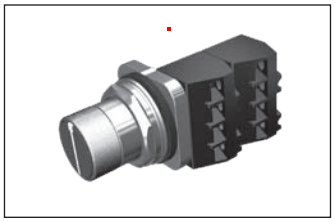
Indicator Light



Push Button



Selector Switch



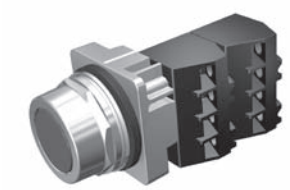
Selector Push Button

30mm Water, Oil Tight & Corrosion Resistant – Class 52

Push Button

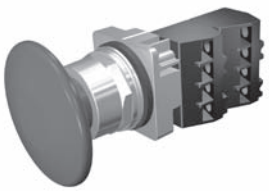
Selection Guid

Momentary Push Button - Non-Illuminated



Flush Head

Extended Head



Large Mushroom Head 2 1/2″

Small Mushroom Head 1 3/4″

Part Number	52	_____ a	M b	_____ c	_____ d	_____ e[1]

a

Code	Finish
P	Chrome - Command 52
B	Epoxy Coated - Black Max

b

Code	Type
M	Momentary Push Button

c

Code	Style / Head Type
	Flush / Extended Cap[2]
8A	Flush
8B	Extended
	Mushroom Head Metal
9A	Small Mushroom Head 1 3/4" (44.5mm)
	Mushroom Head Plastic
9W	Small Mushroom Head 1 3/4" (44.5mm)
9V	Large Mushroom Head 2 1/2" (63.5mm)

d

Code	Plastic	Metal
1	Black	—
2	Red	Red
3	Green	Green
4	Yellow	—
5	Blue	—
6	Gray	—
7	All Color Caps	—
8	Orange	—
C	—	Chrome

e[1]

Code	Contact Blocks
A	1 NO + 1 NC
B	2 NO + 2 NC
C	3 NO + 3 NC
D	4 NO + 4 NC
E	1 NC (LB)
F	2 NO
G	2 NC
H	1NO (EM)
J	1 NC
K	1 NO

1 For operator without contact blocks leave position e blank.

2 Products available fall 2014. For current product offer please refer to the 2010 Industrial Control Catalog.

30mm Water, Oil Tight & Corrosion Resistant – Class 52

Push Buttons

Selection Tables

Momentary Push Button - Non-Illumniated

Head Style	Contacts	Color	Finish	
			Chrome	Black Max
Flush	—	Less cap	**52PM8**	**52BM8**
		Black	**52PM8A1**	**52BM8A1**
		Red	**52PM8A2**	**52BM8A2**
		Green	**52PM8A3**	**52BM8A3**
		Yellow	**52PM8A4**	**52BM8A4**
	1 NO - 1 NC	Black	**52PM8A1A**	**52BM8A1A**
		Red	**52PM8A2A**	**52BM8A2A**
		Green	**52PM8A3A**	**52BM8A3A**
	1 NO	Black	**52PM8A1K**	**52BM8A1K**
		Red	**52PM8A2K**	**52BM8A2K**
		Green	**52PM8A3K**	**52BM8A3K**
	1 NC	Red	**52PM8A2J**	**52BM8A2J**
Extended	—	Black	**52PM8B1**	**52BM8B1**
		Red	**52PM8B2**	**52BM8B2**
		Green	**52PM8B3**	**52BM8B3**
	1 NO	Black	**52PM8B1K**	**52BM8B1K**
		Red	**52PM8B2K**	**52BM8B2K**
	1 NC	Red	**52PM8B2J**	**52BM8B2J**
Mushroom Head Plastic Ø 1 3/4”	—	Less cap	**52PM9**	**52BM9**
		Red	**52PM9W2**	**52BM9W2**
	1 NO	Green	**52PM9W3K**	**52BM9W3K**
	1 NO - 1 NC	Black	**52PM9W1A**	**52BM9W1A**
		Red	**52PM9W2A**	**52BM9W2A**
	1 NO - 1 NC	Green	**52PM9W3A**	**52BM9W3A**
Mushroom Head Plastic Ø 2 1/2”	—	Red	**52PM9V2**	**52BM9V2**
	1 NO - 1 NC	Black	**52PM9V1A**	**52BM9V1A**
		Red	**52PM9V2A**	**52BM9V2A**
		Green	**52PM9V3A**	**52BM9V3A**

Readily available items are in **bold**.
This is a small representation of stocked items.

2093 - SELECTOR SW - 3 POS MAINTAINED - 2NO, 2NC, NEMA 4X

Selector switch complete units

Selection and ordering data

Short lever assembled selector switch

Long lever assembled selector switch

Version	Lever type	Contact blocks	Cam[1])	Order no.	List Price $	Pack unit
Selector Switches with 2 switching positions						
Maintained operation	Short lever, non-Illuminated	1 NO	**A**	**52SX2AABK1**		1
	Short lever, non-Illuminated	1 NC	**A**	**52SX2AABJ1**		
	Short lever, non-Illuminated	1 NO + 1 NC	**A**	**52SX2AABA1**		
	Long lever, non-Illuminated	1 NO	**A**	**52SW2AABK1**		1
	Long lever, non-Illuminated	1 NC	**A**	**52SW2AABJ1**		
	Long lever, non-Illuminated	1 NO + 1NC	**A**	**52SW2AABA1**		
Spring return from right operation	Short lever, non-Illuminated	1 NO		**52SX2ACBK1**		1
	Short lever, non-Illuminated	1 NC	**A**	**52SX2ACBJ1**		
	Short lever, non-Illuminated	1 NO + 1 NC	**A**	**52SX2ACBA1**		
	Long lever, non-Illuminated	1 NO	**A**	**52SW2ACBK1**		1
	Long lever, non-Illuminated	1 NC	**A**	**52SW2ACBJ1**		
	Long lever, non-Illuminated	1 NO + 1NC	**A**	**52SW2ACBA1**		
Selector Switches with 3 switching positions						
Maintained operation	Short lever, non-Illuminated	1 NO + 1 NC	**C**	**52SX2CABA1**		1
	Short lever, non-Illuminated	2 NC + 1 NO	**G**	**52SX2GABJ2K1**		
	Short lever, non-Illuminated	2 NO + 2 NC	**C**	**52SX2CABA2**		
	Long lever, non-Illuminated	1 NO + 1 NC	**C**	**52SW2CABA1**		1
	Long lever, non-Illuminated	2 NC + 1 NO	**G**	**52SW2GABJ2K1**		
	Long lever, non-Illuminated	2 NO + 2 NC	**C**	**52SW2CABA2**		
Spring return from right	Short lever, non-Illuminated	1 NO + 1 NC	**C**	**52SX2CCBA1**		1
	Short lever, non-Illuminated	2 NC + 1 NO	**G**	**52SX2GCBJ2K1**		
	Short lever, non-Illuminated	2 NO + 2 NC	**C**	**52SX2CCBA2**		
	Long lever, non-Illuminated	1 NO + 1 NC	**C**	**52SW2CCBA1**		1
	Long lever, non-Illuminated	2 NC + 1 NO	**G**	**52SW2GCBJ2K1**		
	Long lever, non-Illuminated	2 NO + 2 NC	**C**	**52SW2CCBA2**		
Spring return from right & left operation	Short lever, non-Illuminated	1 NO + 1 NC	**C**	**52SX2CDBA1**		1
	Short lever, non-Illuminated	2 NC + 1 NO	**G**	**52SX2GDBJ2K1**		
	Short lever, non-Illuminated	2 NO + 2 NC	**C**	**52SX2CDBA2**		
	Long lever, non-Illuminated	1 NO + 1 NC	**C**	**52SW2CDBA1**		1
	Long lever, non-Illuminated	2 NC + 1 NO	**G**	**52SW2GDBJ2K1**		
	Long lever, non-Illuminated	2 NO + 2 NC	**C**	**52SW2CDBA2**		

1) For contact operation, see cam selection table on page 10/151.

Ordering Information

- Use the Voltage Table to determine the primary and secondary voltage required.
- Technical data see www.sea.siemens.com
- Field Modifications see page 8/79.
- Dimensions see page 8/114.
- Wiring Diagrams see page 8/144.

Voltage Table

Primary Volts 50/60 Hz	Secondary Volts	Letter
240 X 480, 230 X 460, 220 X 440	120/115/110	A
240 X 480	24	B
120 X 240	24	C
115 X 230	24	D
550/575/600	110/115/120	E
208/277	120	F
208/230/460	115	G
230/460/575	95/115	H
380/400/415	110 X 220	I
208/230/460, 200/220/440,240/480	24 X 115, 23 X 110, 25 X 120	J
240/416/480/600, 230/400/460/575, 220/380/440/550, 208/500	99/120/130, 95/115/125, 91/110/120, 85/100/110	L
240 X 480	120 X 240	M

VA Rating	Voltage Letter A①②		Voltage Letter B②③		Voltage Letter C②③		Voltage Letter D②③		Voltage Letter E①②		Voltage Letter F①②	
	Catalog No	List Price $	Catalog No	List Price $	Catalog No	List Price $	Catalog No	List Price $	Catalog No	List Price $	Catalog No	List Price $
50	MT0050A	41.50	MT0050B	48.00	MT0050C	48.00	MT0050D	48.00	MT0050E	48.00	MT0050F	48.00
75	MT0075A	49.00	MT0075B	58.00	MT0075C	58.00	MT0075D	58.00	MT0075E	56.00	MT0075F	51.00
100	MT0100A	55.00	MT0100B	64.00	MT0100C	64.00	MT0100D	64.00	MT0100E	59.00	MT0100F	59.00
150	MT0150A	59.00	MT0150B	82.00	MT0150C	82.00	MT0150D	82.00	MT0150E	70.00	MT0150F	70.00
200	MT0200A	73.00	MT0200B	103.00	MT0200C	103.00	MT0200D	103.00	MT0200E	87.00	MT0200F	87.00
250	MT0250A	85.00	MT0250B	122.00	MT0250C	122.00	MT0250D	122.00	MT0250E	108.00	MT0250F	108.00
300	MT0300A	94.00	MT0300B	128.00	MT0300C	128.00	MT0300D	128.00	MT0300E	128.00	MT0300F	128.00
350	MT0350A	101.00	MT0350B	134.00	MT0350C	134.00	MT0350D	134.00	MT0350E	137.00	MT0350F	135.00
500	MT0500A	124.00	MT0500B	168.00	MT0500C	168.00	MT0500D	168.00	MT0500E	146.00	MT0500F	146.00
750	MT0750A	172.00	MT0750B	150.00	—	—	—	—	MT0750E	166.00	MT0750F	154.00
1000	MT1000A	209.00	—	—	—	—	—	—	MT1000E	257.00	—	—
1500	MT1500A	298.00	—	—	—	—	—	—	—	—	—	—
2000	MT2000A	362.00	—	—	—	—	—	—	—	—	—	—
3000	MT3000A	503.00	—	—	—	—	—	—	—	—	—	—
5000	MT5000A	845.00	—	—	—	—	—	—	—	—	—	—

VA Rating	Voltage Letter G①②		Voltage Letter H②④		Voltage Letter I②④		Voltage Letter J②③		Voltage Letter L①②		Voltage Letter M②④	
	Catalog No	List Price $	Catalog No	List Price $	Catalog No	List Price $	Catalog No	List Price $	Catalog No	List Price $	Catalog No	List Price $
50	MT0050G	67.00	MT0050H	67.00	MT0050I	48.00	MT0050J	67.00	MT0050L	69.00	MT0050M	69.00
75	MT0075G	71.00	MT0075H	71.00	MT0075I	58.00	MT0075J	71.00	—	—	MT0075M	73.00
100	MT0100G	75.00	MT0100H	75.00	MT0100I	64.00	MT0100J	75.00	MT0100L	77.00	MT0100M	77.00
150	MT0150G	97.00	MT0150H	97.00	MT0150I	82.00	MT0150J	97.00	MT0150L	101.00	MT0150M	101.00
200	MT0200G	125.00	MT0200H	125.00	MT0200I	103.00	MT0200J	125.00	—	—	MT0200M	130.00
250	MT0250G	132.00	MT0250H	132.00	MT0250I	122.00	MT0250J	132.00	MT0250L	137.00	MT0250M	137.00
300	MT0300G	155.00	MT0300H	155.00	MT0300I	128.00	MT0300J	155.00	—	—	MT0300M	161.00
350	MT0350G	162.00	MT0350H	—	MT0350I	134.00	MT0350J	162.00	MT0350L	168.00	MT0350M	168.00
500	MT0500G	181.00	MT0500H	181.00	MT0500I	168.00	MT0500J	181.00	MT0500L	189.00	MT0500M	189.00
750	MT0750G	252.00	MT0750H	252.00	MT0750I	211.00	—	—	MT0750L	262.00	MT0750M	262.00
1000	MT1000G	297.00	MT1000H	297.00	MT1000I	297.00	—	—	—	—	—	—
1500	MT1500G	385.00	MT1500H	385.00	MT1500I	334.00	—	—	—	—	—	—
2000	MT2000G	514.00	MT2000H	514.00	MT2000I	514.00	—	—	—	—	—	—
3000	MT3000G	642.00	MT3000H	642.00	MT3000I	642.00	—	—	—	—	—	—
5000	MT5000G	1027.00	MT5000H	1027.00	—	—	—	—	—	—	—	—

① Includes secondary fuse clip on sizes 50–750VA
② A 2-pole Primary Class CC Fuse Kit is available for Field installation. See page 8/79 for details. Catalog Number: KCCFPX2R.
③ Includes secondary fuse clip on sizes 50–500VA
④ Does not include secondary fuse clip on any size.

3VA UL Molded Case Circuit Breakers

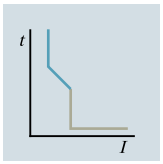
3VA5 Molded Case Circuit Breakers up to 250 A, TM, 600 V, up to 100 kA

PU (UNIT, SET, M) = 1 PS*/P. unit = 1 unit PG = 1CB

Type	Rated current I_n	Current setting of the inverse-time delayed overload protection "L" I_r	Operating current of the instantaneous short-circuit protection "I" I_i	DT	**Standard breaking capacity S, up to 25 kA at 480 V** (S) See "Overview", p. 1/6 and 1/7 Article No.	Basic price per PU
	A	A	A			

3-pole, fixed-mounted, attachment to DIN rail, 3VA51/3VA52, up to 125 A
Thermal-magnetic trip unit

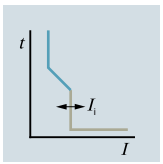
I201_19027



TM210 FTFM
With fixed overload protection I_r and fixed short-circuit protection I_i

3VA51	15	15	300	3VA5195-4ED31-0AA0
	20	20	300	3VA5120-4ED31-0AA0
	25	25	300	3VA5125-4ED31-0AA0
	30	30	300	3VA5130-4ED31-0AA0
	35	35	350	3VA5135-4ED31-0AA0
	40	40	400	3VA5140-4ED31-0AA0
	45	45	450	3VA5145-4ED31-0AA0
	50	50	500	3VA5150-4ED31-0AA0
	60	60	600	3VA5160-4ED31-0AA0
	70	70	700	3VA5170-4ED31-0AA0
	80	80	800	3VA5180-4ED31-0AA0
	90	90	900	3VA5190-4ED31-0AA0
	100[1)]	100	1000	3VA5110-4ED31-0AA0
	110[1)]	110	1100	3VA5111-4ED31-0AA0
	125[1)]	125	1250	3VA5112-4ED31-0AA0
3VA52	100	100	1000	--
	110	110	1100	--
	125	125	1250	--
	150	150	1500	--
	175	175	1750	--
	200	200	2000	--
	225	225	2250	--
	250	250	2500	--

I201_19496



TM230 FTAM
With fixed overload protection I_r and adjustable short-circuit protection I_i

3VA51	15	15	150 ... 300	3VA5195-4EC31-0AA0
	20	20	150 ... 300	3VA5120-4EC31-0AA0
	25	25	150 ... 300	3VA5125-4EC31-0AA0
	30	30	150 ... 300	3VA5130-4EC31-0AA0
	35	35	175 ... 350	3VA5135-4EC31-0AA0
	40	40	200 ... 400	3VA5140-4EC31-0AA0
	45	45	225 ... 450	3VA5145-4EC31-0AA0
	50	50	250 ... 500	3VA5150-4EC31-0AA0
	60	60	300 ... 600	3VA5160-4EC31-0AA0
	70	70	350 ... 700	3VA5170-4EC31-0AA0
	80	80	400 ... 800	3VA5180-4EC31-0AA0
	90	90	450 ... 900	3VA5190-4EC31-0AA0
	100[1)]	100	500 ... 1000	3VA5110-4EC31-0AA0
	110[1)]	110	550 ... 1100	3VA5111-4EC31-0AA0
	125[1)]	125	625 ... 1250	3VA5112-4EC31-0AA0
3VA52	100	100	500 ... 1000	--
	110	110	550 ... 1100	--
	125	125	625 ... 1250	--
	150	150	750 ... 1500	--
	175	175	875 ... 1750	--
	200	200	1000 ... 2000	--
	225	225	1125 ... 2250	--
	250	250	1250 ... 2500	--

[1)] 480 Y/277 V

* You can order this quantity or a multiple thereof.

2276 - CIRCUIT BREAKER TYPE 3VA5 - LUG KIT - 125A, LESS THAN 45A

Box Terminals

	Type	Minimum cable cross-section (standard) Class B	Maximum cable cross-section (standard) Class B	For molded case circuit breakers/rated current					Part Number
				3VA5 125A	3VA5 250A	3VA6 150A 250A	3VA5 3VA6 400A 600A	3VA5 3VA6 800A 1000A	
	Steel wrap-around lug (Cu cable only) kit of 3 single lugs	AWG 14	3/0	√	—	—	—	—	3VA9133-0JA11
		AWG 10	3/0	—	√	—	—	—	3VA9233-0JA11
		AWG 4	350 kcmil	—	√	—	—	—	3VA9233-0JA12
		AWG 10	3/0	—	—	√	—	—	3VA9143-0JA12
		AWG 4	350 kcmil	—	—	√	—	—	3VA9243-0JA12
		1/0	500 kcmil	—	—	—	√	—	3VA9473-0JA13
	Steel wrap-around lug (Cu cable only) kit of 4 single lugs	AWG 14	3/0	√	—	—	—	—	3VA9134-0JA11
		AWG 10	3/0	—	√	—	—	—	3VA9234-0JA11
		AWG 4	350 kcmil	—	√	—	—	—	3VA9234-0JA12
		AWG 10	3/0	—	—	√	—	—	3VA9144-0JA12
		AWG 4	350 kcmil	—	—	√	—	—	3VA9244-0JA12
		1/0	500 kcmil	—	—	—	√	—	3VA9474-0JA13
	Steel wrap-around lug with control wire tap (Cu cable only) kit of 3 single lugs	AWG 10	3/0	—	√	—	—	—	3VA9233-0JH11
		AWG 4	350 kcmil	—	√	—	—	—	3VA9233-0JH12
		AWG 10	3/0	—	—	√	—	—	3VA9143-0JH12
		AWG 4	350 kcmil	—	—	√	—	—	3VA9243-0JH12
		1/0	500 kcmil	—	—	—	√	—	3VA9473-0JH13
	Steel wrap-around lug with control wire tap (Cu cable only) kit of 4 single lugs	AWG 10	3/0	—	√	—	—	—	3VA9234-0JH11
		AWG 4	350 kcmil	—	√	—	—	—	3VA9234-0JH12
		AWG 10	3/0	—	—	√	—	—	3VA9144-0JH12
		AWG 4	350 kcmil	—	—	√	—	—	3VA9244-0JH12
		1/0	500 kcmil	—	—	—	√	—	3VA9474-0JH13

Aluminum Wire Connectors

	Aluminum body lug small (Cu/Al cable) kit of 3 single lugs	AWG 14	AWG 10	√	—	—	—	—	3VA9133-0JB10③
	Aluminum body lug small (Cu/Al cable) kit of 4 single lugs	AWG 14	AWG 10	√	—	—	—	—	3VA9134-0JB10③
	Aluminum body lug small with control wire tap (Cu/Al cable)	AWG 14	AWG 10	√	—	—	—	—	3VA9133-0JG10③
	Aluminum body lug small with control wire tap (Cu/Al cable)	AWG 14	AWG 10	√	—	—	—	—	3VA9134-0JG10③
	Aluminum body lug (Cu/Al cable) kit of 3 single lugs	AWG 8	3/0	√	—	—	—	—	3VA9133-0JB11④
		AWG 14	1/0	—	√	—	—	—	3VA9233-0JB11
		AWG 6	350 kcmil	—	√	—	—	—	3VA9233-0JB12②
		AWG 14	1/0	—	—	√	—	—	3VA9143-0JB11②
		AWG 6	350 kcmil	—	—	√	—	—	3VA9243-0JB12
		2/0	600 kcmil	—	—	—	√	—	3VA9373-0JB13①
	Aluminum body lug (Cu/Al cable) kit of 4 single lugs	AWG 8	3/0	√	—	—	—	—	3VA9134-0JB11④
		AWG 14	1/0	—	√	—	—	—	3VA9234-0JB11
		AWG 6	350 kcmil	—	√	—	—	—	3VA9234-0JB12
		AWG 14	1/0	—	—	√	—	—	3VA9144-0JB11②
		AWG 6	350 kcmil	—	—	√	—	—	3VA9244-0JB12②
		2/0	600 kcmil	—	—	—	√	—	3VA9374-0JB13①
	Aluminum body lug with control wire tap (Cu/Al cable) kit of 3 single lugs	AWG 8	3/0	√	—	—	—	—	3VA9133-0JG11④
		AWG 14	1/0	—	√	—	—	—	3VA9233-0JG11
		AWG 6	350 kcmil	—	√	—	—	—	3VA9233-0JG12
		AWG 14	1/0	—	—	√	—	—	3VA9143-0JG11②
		AWG 6	350 kcmill	—	—	√	—	—	3VA9243-0JG12②
		2/0	600 kcmil	—	—	—	√	—	3VA9373-0JG13①
	Aluminum body lug with control wire tap (Cu/Al cable) kit of 4 single lugs	AWG 8	3/0	√	—	—	—	—	3VA9134-0JG11④
		AWG 14	1/0	—	√	—	—	—	3VA9234-0JG11
		AWG 6	350 kcmil	—	√	—	—	—	3VA9234-0JG12
		AWG 14	1/0	—	—	√	—	—	3VA9144-0JG11②
		AWG 6	350 kcmil	—	—	√	—	—	3VA9244-0JG12②
		2/0	600 kcmil	—	—	—	√	—	3VA9374-0JG13①
	Aluminum body lug two cables (Cu/Al cable) kit of 3 single lugs	4/0	600 kcmil	—	—	—	—	√	3VA9573-0JB23

① This conductor is ampere-rated at 380A with copper wire and 310A with aluminum wire.
② Meets requirements of 100% rated breakers up to 150A.
③ Use these lugs on 15A to 40A breakers.
④ Use these lugs on 45A to 125A breakers.

2278 - DOOR MOUNT OPERATOR KIT NEMA 4X - 3VA5-125A

SIEMENS

Data sheet 3VA9137-0FK31

door mounted rotary operator standard NEMA type 1, 3R, 12, 4/4X
with door interlock and door open position accessory for: 3VA4/5 125

Model	
Product brand name	SENTRON
Product designation	Accessories
Product version	Door-coupling rotary operating mechanism
Accessories	Door-coupling rotary operating mechanisms

General technical data	
Protection class IP	IP65

Mechanical Design	
Height	70 mm
Width	77 mm
Net weight	553 g

Certificates

General Product Approval				EMC	Declaration of Conformity
CSA	UL	Miscellaneous	EAC	RCM	EG-Konf.

Shipping Approval	other	
LRS	Manufacturer Declaration	Miscellaneous

Further information

Information- and Downloadcenter (Catalogs, Brochures,…)
http://www.siemens.com/lowvoltage/catalogs

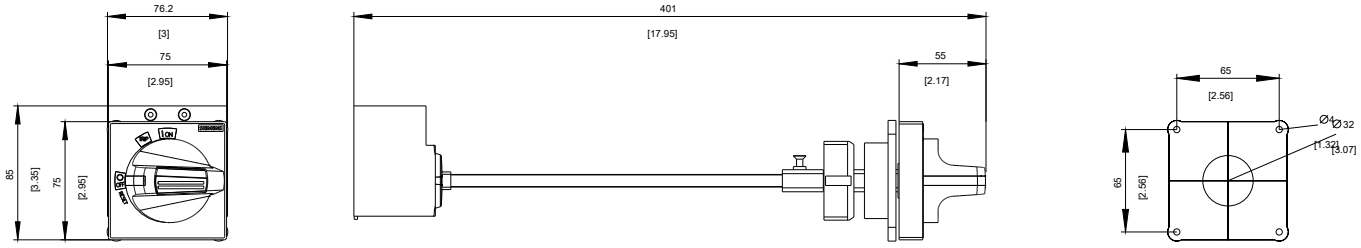
Industry Mall (Online ordering system)
https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3VA9137-0FK31

Service&Support (Manuals, Certificates, Characteristics, FAQs,...)
https://support.industry.siemens.com/cs/ww/en/ps/3VA9137-0FK31

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, ...)
http://www.automation.siemens.com/bilddb/cax_en.aspx?mlfb=3VA9137-0FK31

CAx-Online-Generator
http://www.siemens.com/cax

Tender specifications
http://www.siemens.com/specifications



last modified: 11/19/2019

2318 - PLUG-IN RELAY TYPE PREMIUM LINE, SQUARE BASE, 3PDT, 120VAC COIL, LED

Selection and ordering data

AC and DC operation

Version	Rated control supply voltage	Contact configuration	Contact rating	Order no.	Price	Weight approx. kg	Pack units
Premium line, square base relays							
3TX7115-5LF13  **Single modules** for self-assembly without LED	24 V AC	DPDT	12 A	**3TX7115-5LC13**			
	120 V AC	DPDT	12 A	**3TX7115-5LF13**			
	240 V AC	DPDT	12 A	**3TX7115-5LH13**			
	12 V DC	DPDT	12 A	**3TX7115-5LB03**			
	24 V DC	DPDT	12 A	**3TX7115-5LC03**			
	110 V DC	DPDT	12 A	**3TX7115-5LF03**			
	24 V AC	3PDT	12 A	**3TX7115-5NC13**			
	120 V AC	3PDT	12 A	**3TX7115-5NF13**			
	220/230 V AC	3PDT	12 A	**3TX7115-5NH13**			
	12 V DC	3PDT	12 A	**3TX7115-5NB03**			
	24 V DC	3PDT	12 A	**3TX7115-5NC03**			
	110 V DC	3PDT	12 A	**3TX7115-5NF03**			
Basic line, square base relays							
3TX7121-5LC13  **Single modules** for self-assembly without LED	12 V AC	DPDT	15 A	**3TX7121-5DB13**			
	24 V AC	DPDT	15 A	**3TX7121-5DC13**			
	120 V AC	DPDT	15 A	**3TX7121-5DF13**			
	240 V AC	DPDT	15 A	**3TX7121-5DH13**			
	12 V DC	DPDT	15 A	**3TX7121-5DB03**			
	24 V DC	DPDT	15 A	**3TX7121-5DC03**			
	110 V DC	DPDT	15 A	**3TX7121-5DF03**			
	12 V AC	3PDT	15 A	**3TX7121-5FB13**			
	24 V AC	3PDT	15 A	**3TX7121-5FC13**			
	120 V AC	3PDT	15 A	**3TX7121-5FF13**			
	240 V AC	3PDT	15 A	**3TX7121-5FG13**			
	12 V DC	3PDT	15 A	**3TX7121-5FB03**			
	24 V DC	3PDT	15 A	**3TX7121-5FC03**			
	110 V DC	3PDT	15 A	**3TX7121-5FF03**			
	24 V AC	DPDT	20 A	**3TX7122-5DC13**			
	120 V AC	DPDT	20 A	**3TX7122-5DF13**			
	240 V AC	DPDT	20 A	**3TX7122-5DH13**			
	12 V DC	DPDT	20 A	**3TX7122-5DB03**			
	24 V DC	DPDT	20 A	**3TX7122-5DC03**			
	110 V DC	DPDT	20 A	**3TX7122-5DF03**			
3TX7144-1E4  **Flange mount modules** (require 0.187 quick connect)	24 V AC	DPDT	15 A	**3TX7121-6DC13**			
	120 V AC	DPDT	15 A	**3TX7121-6DF13**			
	240 V AC	DPDT	15 A	**3TX7121-6DH13**			
	12 V DC	DPDT	15 A	**3TX7121-6DB03**			
	24 V DC	DPDT	15 A	**3TX7121-6DC03**			
	110 V DC	DPDT	15 A	**3TX7121-6DF03**			
Flange mount modules (require 0.187 quick connect)	24 V AC	3PDT	15 A	**3TX7121-6DC13**			
	120 V AC	3PDT	15 A	**3TX7121-6DF13**			
	240 V AC	3PDT	15 A	**3TX7121-6DH13**			
	12 V DC	3PDT	15 A	**3TX7121-6DB03**			
	24 V DC	3PDT	15 A	**3TX7121-6DC03**			
	110 V DC	3PDT	15 A	**3TX7121-6DF03**			
Socket for 3TX7115, 3TX7121 and 3TX7122	–			**3TX7144-1E4**			

Accessories

Version		Order no.	Price	.
For premium line, miniature relays				
Hold/eject clip for 3TX7115		**3TX7144-1L2**		
11 Pin chassis mount socket	–	**3TX7144-3D0**		
Hold/eject clip for 3TX7121 and 3TX7122		**3TX7144-1L5**		

Selection and ordering data

AC and DC operation

Version	Rated control supply voltage	Contact configuration	Contact rating	Order no.	Price	Weight approx. kg	Pack units
Premium line, square base relays							
3TX7115-5LF13  **Single modules** for self-assembly without LED	24 V AC	DPDT	12 A	**3TX7115-5LC13**			
	120 V AC	DPDT	12 A	**3TX7115-5LF13**			
	240 V AC	DPDT	12 A	**3TX7115-5LH13**			
	12 V DC	DPDT	12 A	**3TX7115-5LB03**			
	24 V DC	DPDT	12 A	**3TX7115-5LC03**			
	110 V DC	DPDT	12 A	**3TX7115-5LF03**			
	24 V AC	3PDT	12 A	**3TX7115-5NC13**			
	120 V AC	3PDT	12 A	**3TX7115-5NF13**			
	220/230 V AC	3PDT	12 A	**3TX7115-5NH13**			
	12 V DC	3PDT	12 A	**3TX7115-5NB03**			
	24 V DC	3PDT	12 A	**3TX7115-5NC03**			
	110 V DC	3PDT	12 A	**3TX7115-5NF03**			
Basic line, square base relays							
3TX7121-5LC13  **Single modules** for self-assembly without LED	12 V AC	DPDT	15 A	**3TX7121-5DB13**			
	24 V AC	DPDT	15 A	**3TX7121-5DC13**			
	120 V AC	DPDT	15 A	**3TX7121-5DF13**			
	240 V AC	DPDT	15 A	**3TX7121-5DH13**			
	12 V DC	DPDT	15 A	**3TX7121-5DB03**			
	24 V DC	DPDT	15 A	**3TX7121-5DC03**			
	110 V DC	DPDT	15 A	**3TX7121-5DF03**			
	12 V AC	3PDT	15 A	**3TX7121-5FB13**			
	24 V AC	3PDT	15 A	**3TX7121-5FC13**			
	120 V AC	3PDT	15 A	**3TX7121-5FF13**			
	240 V AC	3PDT	15 A	**3TX7121-5FG13**			
	12 V DC	3PDT	15 A	**3TX7121-5FB03**			
	24 V DC	3PDT	15 A	**3TX7121-5FC03**			
	110 V DC	3PDT	15 A	**3TX7121-5FF03**			
	24 V AC	DPDT	20 A	**3TX7122-5DC13**			
	120 V AC	DPDT	20 A	**3TX7122-5DF13**			
	240 V AC	DPDT	20 A	**3TX7122-5DH13**			
3TX7144-1E4 	12 V DC	DPDT	20 A	**3TX7122-5DB03**			
	24 V DC	DPDT	20 A	**3TX7122-5DC03**			
	110 V DC	DPDT	20 A	**3TX7122-5DF03**			
Flange mount modules (require 0.187 quick connect)	24 V AC	DPDT	15 A	**3TX7121-6DC13**			
	120 V AC	DPDT	15 A	**3TX7121-6DF13**			
	240 V AC	DPDT	15 A	**3TX7121-6DH13**			
	12 V DC	DPDT	15 A	**3TX7121-6DB03**			
	24 V DC	DPDT	15 A	**3TX7121-6DC03**			
	110 V DC	DPDT	15 A	**3TX7121-6DF03**			
Flange mount modules (require 0.187 quick connect)	24 V AC	3PDT	15 A	**3TX7121-6DC13**			
	120 V AC	3PDT	15 A	**3TX7121-6DF13**			
	240 V AC	3PDT	15 A	**3TX7121-6DH13**			
	12 V DC	3PDT	15 A	**3TX7121-6DB03**			
	24 V DC	3PDT	15 A	**3TX7121-6DC03**			
	110 V DC	3PDT	15 A	**3TX7121-6DF03**			
Socket for 3TX7115, 3TX7121 and 3TX7122	–			**3TX7144-1E4**			

Accessories

Version		Order no.	Price	.
For premium line, miniature relays				
Hold/eject clip for 3TX7115		**3TX7144-1L2**		
11 Pin chassis mount socket	–	**3TX7144-3D0**		
Hold/eject clip for 3TX7121 and 3TX7122		**3TX7144-1L5**		

2475 - FUSE, TIME DELAY, 600VAC, 1.5 AMP

CLASS CC KLDR SERIES FUSES

600 Vac • 300 Vdc • Time-Delay • 1/10-30 A

Description

KLDR fuses are time-delay fuses designed to protect control transformers, solenoids and similar inductive components with high magnetizing currents during the first half-cycle. They provide excellent protection of motor branch circuits containing IEC or NEMA rated motor controllers or contactors.

Features/Benefits

- Meets UL and CSA standards
- Class CC fuses are the smallest 600 V, 200,000 A.I.R. fuses approved for branch circuit protection
- Rejection feature prevents use of fuses with lower interrupting ratings or voltage ratings when used with corresponding fuse holders
- Extremely current limiting reduces damage caused by heating and magnetic effects of short-circuit currents

Applications

- Transformer Protection

Web Resources

For additional informations, visit:
littelfuse.com/kldr

Recommended Fuse Holders

L60030C Series
LPSC Touch-Safe Series

Specifications

Voltage Rating	AC: 600 V DC: 300 V
Amperage Rating	1/10 – 30 A
Interrupting Rating	AC: 200 kA rms symmetrical DC: 20 kA
Material	Body: Melamine Caps: Nickel-plated Bronze
Fuse Weight	.019 lb (8.62g)
Approvals	AC: Standard 248-4, Class CC UL Listed 1/10-30 A (File: E81895) CSA Certified 1/10-30 A (File: LR29862) DC: Littelfuse self-certified
Environmental	RoHS Compliant
Country of Origin	Mexico

Ordering Information

AMPERAGE RATINGS				
1/10	6/10	1 8/10	4 1/2	10
1/8	3/4	2	5	12
15/100	8/10	2 1/4	5 6/10	15
3/16	1	2 1/2	6	17 1/2
2/10	1 1/8	2 8/10	6 1/4	20
1/4	1 1/4	3	7	25
3/10	1 4/10	3 2/10	7 1/2	30
4/10	1 1/2	3 1/2	8	—
1/2	1 6/10	4	9	—

Part Numbering System

KLDR xxx T XP

Series

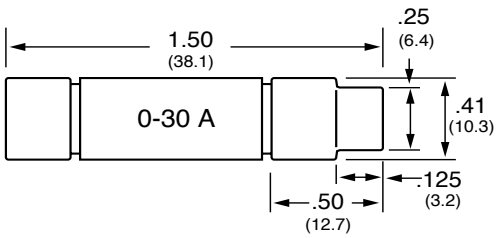
Amp Code
Refer to Amp Code Column in Electrical Specifications Table

Options
XP = RoHS Compliant

Package Quantity
T = 10
H = 100

SERIES	AMPERAGE	PACKAGE QUANTITY	CATALOG NUMBER	ORDERING NUMBER
KLDR	10	10	KLDR 10	KLDR010.TXP

Dimensions Inches (mm)



CLASS CC KLDR SERIES FUSES

Electrical Specifications

ORDERING NUMBER	AMPERAGE RATING	VOLTAGE RATING		INTERRUPTING RATING		UPC	MELT (PRE-ARC) I^2T (A^2SEC)	TOTAL CLEARING I^2T (A^2 SEC)	AGENCY APPROVALS		
		AC	DC	AC	DC				UL	CSA	RoHS
KLDR.100TXP	1/10	600	300	200 kA	20 kA	079458 96877	0.0004	0.0059	•	•	•
KLDR.125TXP	1/8	600	300	200 kA	20 kA	079458 96878	0.0007	0.0055	•	•	•
KLDR.150TXP	15/100	600	300	200 kA	20 kA	079458 96879	0.0016	0.0059	•	•	•
KLDR.187TXP	3/16	600	300	200 kA	20 kA	079458 96880	0.0040	0.0267	•	•	•
KLDR.200TXP	2/10	600	300	200 kA	20 kA	079458 79239	0.0018	0.0230	•	•	•
KLDR.250TXP	¼	600	300	200 kA	20 kA	079458 79240	0.0138	0.0967	•	•	•
KLDR.300TXP	3/10	600	300	200 kA	20 kA	079458 79241	0.0111	0.1005	•	•	•
KLDR.400TXP	4/10	600	300	200 kA	20 kA	079458 79242	0.0579	0.1420	•	•	•
KLDR.500TXP	½	600	300	200 kA	20 kA	079458 79243	0.0877	0.3121	•	•	•
KLDR.600TXP	6/10	600	300	200 kA	20 kA	079458 79244	0.1404	0.3742	•	•	•
KLDR.750TXP	¾	600	300	200 kA	20 kA	079458 79245	0.2911	1.972	•	•	•
KLDR.800TXP	8/10	600	300	200 kA	20 kA	079458 79246	0.2416	2.064	•	•	•
KLDR001.TXP	1	600	300	200 kA	20 kA	079458 79247	0.4494	5.883	•	•	•
KLDR1.12TXP	1-1/8	600	300	200 kA	20 kA	079458 79248	0.5049	5.149	•	•	•
KLDR1.25TXP	1-¼	600	300	200 kA	20 kA	079458 79249	0.4367	7.354	•	•	•
KLDR01.4TXP	1-4/10	600	300	200 kA	20 kA	079458 79250	0.8135	7.639	•	•	•
KLDR01.5TXP	1-½	600	300	200 kA	20 kA	079458 79251	0.9302	5.885	•	•	•
KLDR01.6TXP	1-6/10	600	300	200 kA	20 kA	079458 79252	0.7495	6.682	•	•	•
KLDR01.8TXP	1-8/10	600	300	200 kA	20 kA	079458 79253	0.9964	6.594	•	•	•
KLDR002.TXP	2	600	300	200 kA	20 kA	079458 79254	0.8615	14.01	•	•	•
KLDR2.25TXP	2-¼	600	300	200 kA	20 kA	079458 79255	1.126	26.41	•	•	•
KLDR02.5TXP	2-½	600	300	200 kA	20 kA	079458 79256	2.087	35.35	•	•	•
KLDR02.8TXP	2-8/10	600	300	200 kA	20 kA	079458 79257	21.28	45.47	•	•	•
KLDR003.TXP	3	600	300	200 kA	20 kA	079458 79258	23.21	55.99	•	•	•
KLDR03.2TXP	3-2/10	600	300	200 kA	20 kA	079458 79259	37.92	57.27	•	•	•
KLDR03.5TXP	3-½	600	300	200 kA	20 kA	079458 79260	21.42	109.4	•	•	•
KLDR004.TXP	4	600	300	200 kA	20 kA	079458 79261	83.81	258.6	•	•	•
KLDR04.5TXP	4-½	600	300	200 kA	20 kA	079458 79262	83.89	110.6	•	•	•
KLDR005.TXP	5	600	300	200 kA	20 kA	079458 79263	63.33	84.04	•	•	•
KLDR05.6TXP	5-6/10	600	300	200 kA	20 kA	079458 79264	87.66	114.0	•	•	•
KLDR006.TXP	6	600	300	200 kA	20 kA	079458 79265	129.5	161.9	•	•	•
KLDR6.25TXP	6-¼	600	300	200 kA	20 kA	079458 79266	147.6	261.7	•	•	•
KLDR007.TXP	7	600	300	200 kA	20 kA	079458 79267	202.4	513.4	•	•	•
KLDR07.5TXP	7-½	600	300	200 kA	20 kA	079458 79268	321.8	813.0	•	•	•
KLDR008.TXP	8	600	300	200 kA	20 kA	079458 79269	111.2	1,145	•	•	•
KLDR009.TXP	9	600	300	200 kA	20 kA	079458 79270	73.40	1,334	•	•	•
KLDR010.TXP	10	600	300	200 kA	20 kA	079458 79271	132.0	934.8	•	•	•
KLDR012.TXP	12	600	300	200 kA	20 kA	079458 79272	154.7	1,723	•	•	•
KLDR015.TXP	15	600	300	200 kA	20 kA	079458 79273	200.5	2,248	•	•	•
KLDR17.5TXP	17-½	600	300	200 kA	20 kA	079458 79274	87.50	722.8	•	•	•
KLDR020.TXP	20	600	300	200 kA	20 kA	079458 79275	123.8	1,363	•	•	•
KLDR025.TXP	25	600	300	200 kA	20 kA	079458 79276	226.0	1,710	•	•	•
KLDR030.TXP	30	600	300	200 kA	20 kA	079458 79277	299.6	1,990	•	•	•

Electrical Specifications

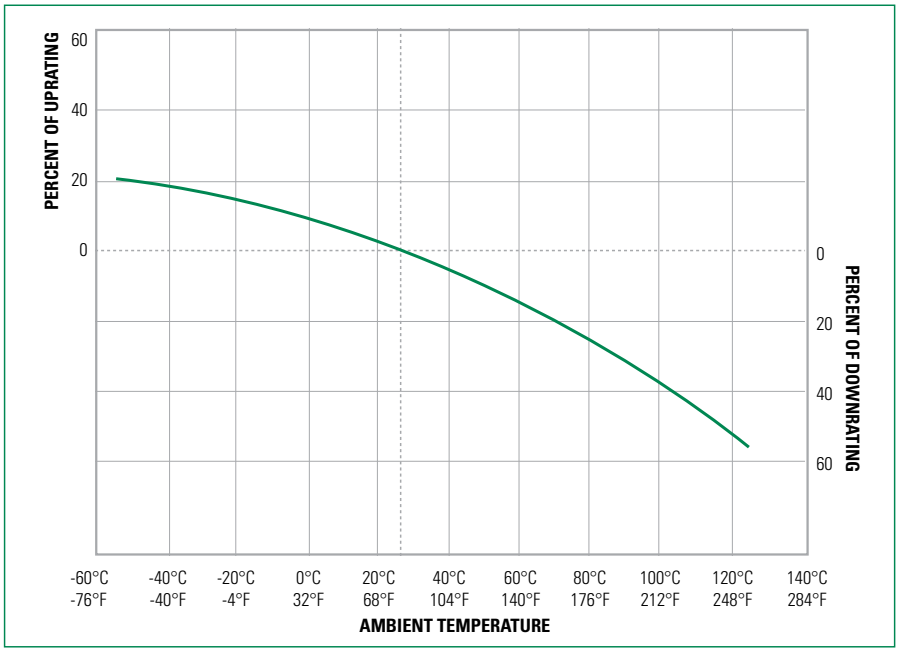
ORDERING NUMBER	AMPERAGE RATING	WATTS LOSS AT 100% RATED CURRENT(W)	WATTS LOSS AT 80% RATED CURRENT(W)
KLDR001.TXP	1	1.67	1.34
KLDR005.TXP	5	1.31	0.75
KLDR010.TXP	10	1.41	.86
KLDR015.TXP	15	1.72	1.03
KLDR020TXP	20	2.3	1.39
KLDR030.TXP	30	2.75	1.62

Current-Limiting Effects

SHORT CIRCUIT CURRENT*	APPARENT RMS SYMMETRICAL CURRENT FOR VARIOUS FUSE RATINGS								
	4 A	6 A	7.5 A	8 A	10 A	12 A	15 A	20 A	30 A
5,000	349	420	521	437	359	369	435	456	621
10,000	440	529	656	551	452	465	548	575	783
15,000	504	605	751	631	517	532	627	658	896
20,000	554	666	827	694	569	585	690	724	986
25,000	597	718	890	748	613	630	743	780	1063
30,000	634	763	946	795	651	670	790	829	1129
35,000	668	803	996	837	686	705	832	872	1189
40,000	698	840	1041	875	717	737	870	912	1243
50,000	752	904	1122	942	772	794	937	983	1339
60,000	799	961	1192	1001	821	844	995	1044	1423
80,000	880	1058	1312	1102	903	929	1096	1149	1566
100,000	948	1139	1413	1187	973	1001	1180	1238	1687
150,000	1085	1304	1618	1359	1114	1146	1351	1417	1931
200,000	1194	1436	1781	1496	1226	1261	1487	1560	2125

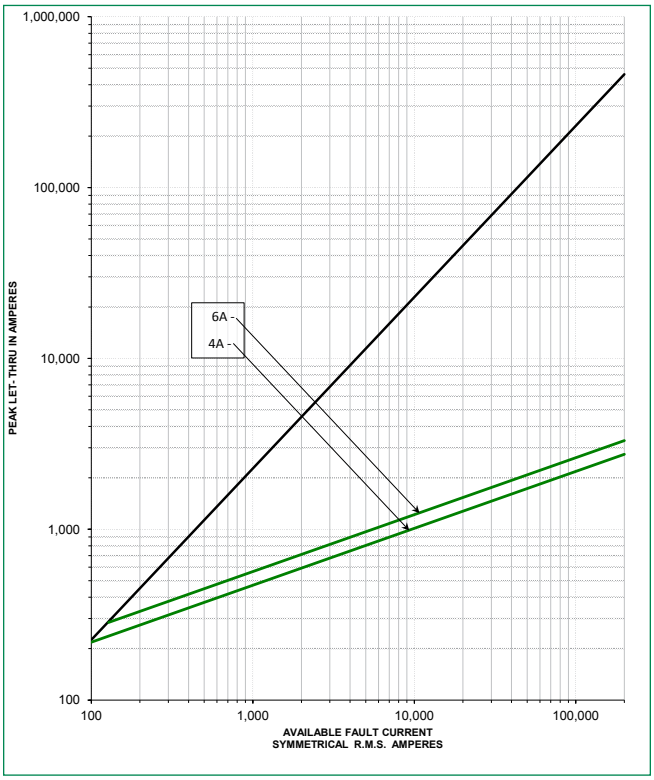
*Prospective RMS Symmetrical Amperes Short-Circuit Current
Note: Data Derived from Peak Let-Thru Curves

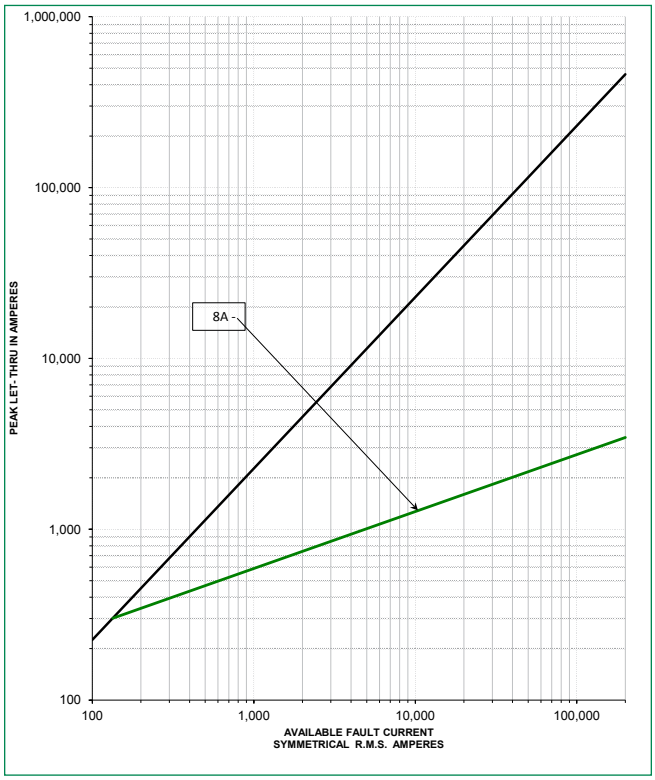
Temperature Derating Curve (Temperature of Air Immediately Surrounding Fuse)

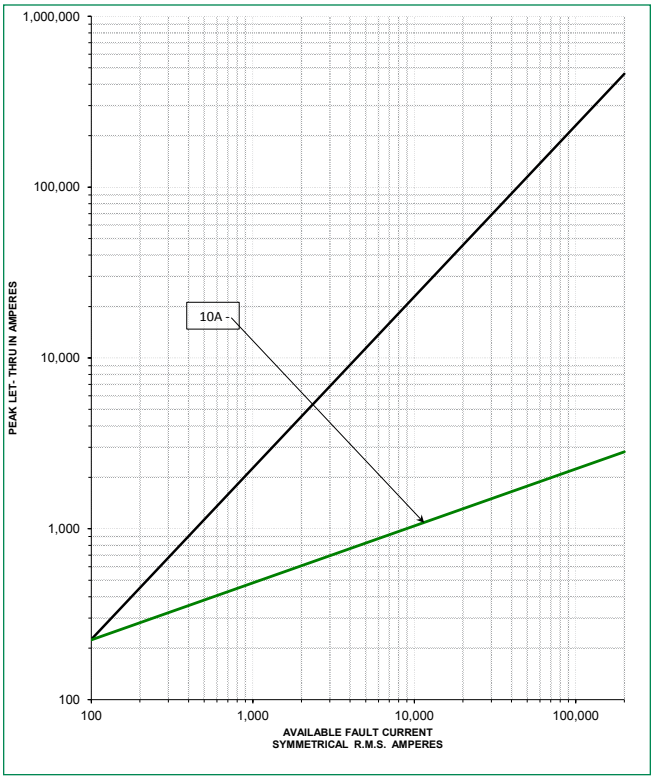


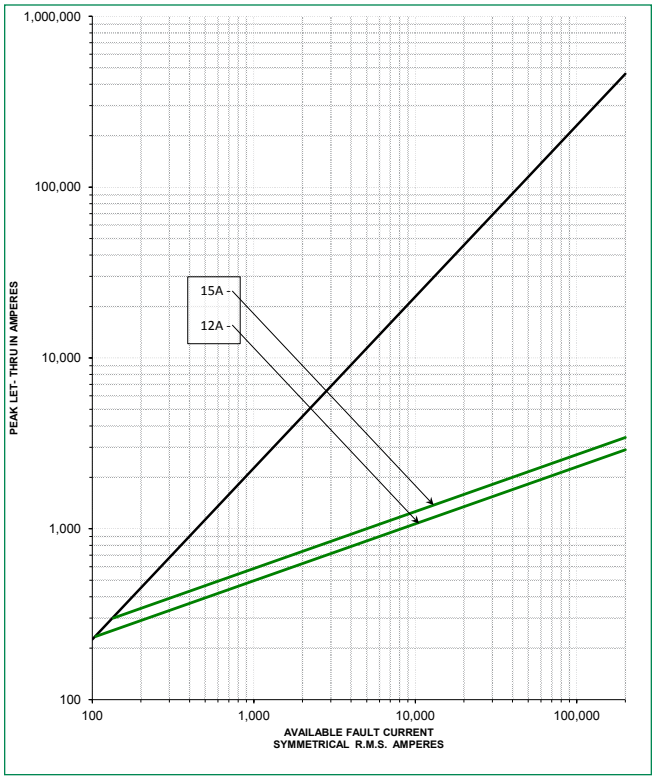
CLASS CC KLDR SERIES FUSES

Peak Let-Thru Curves



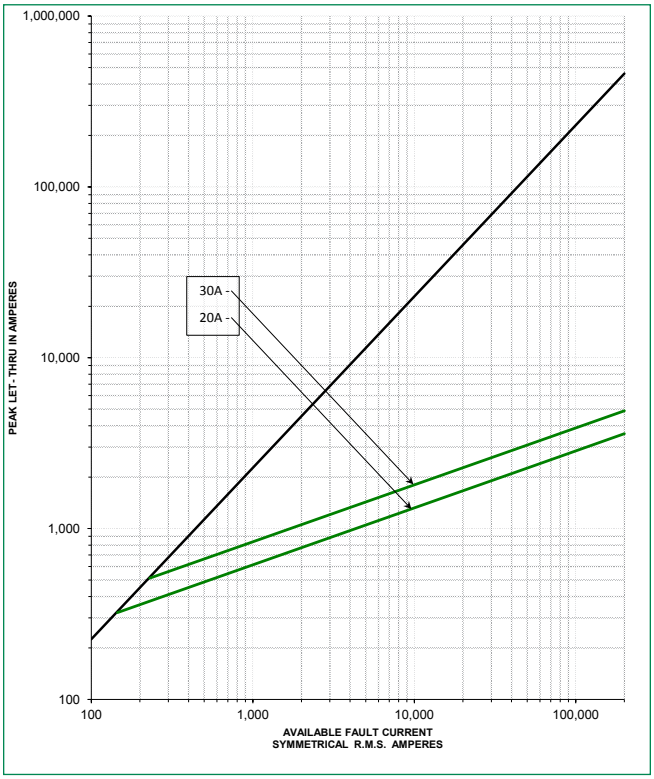




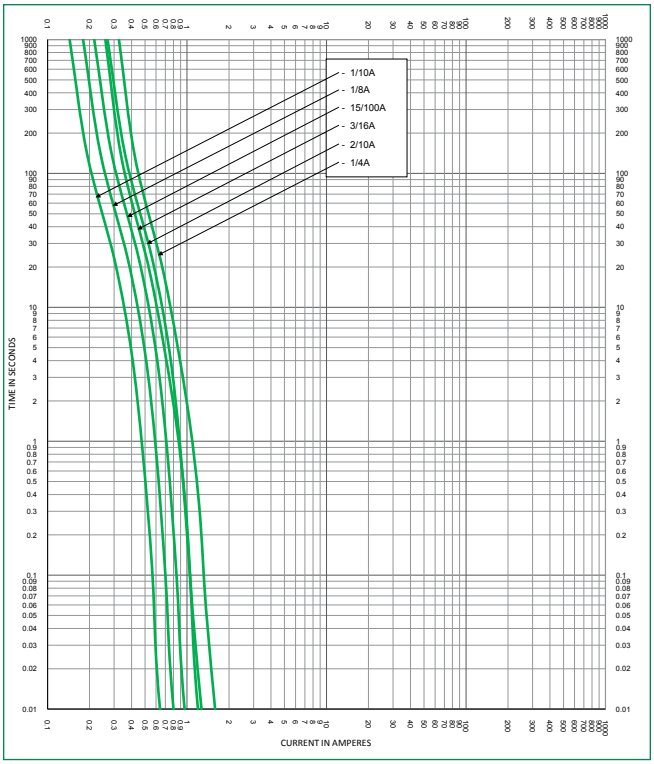


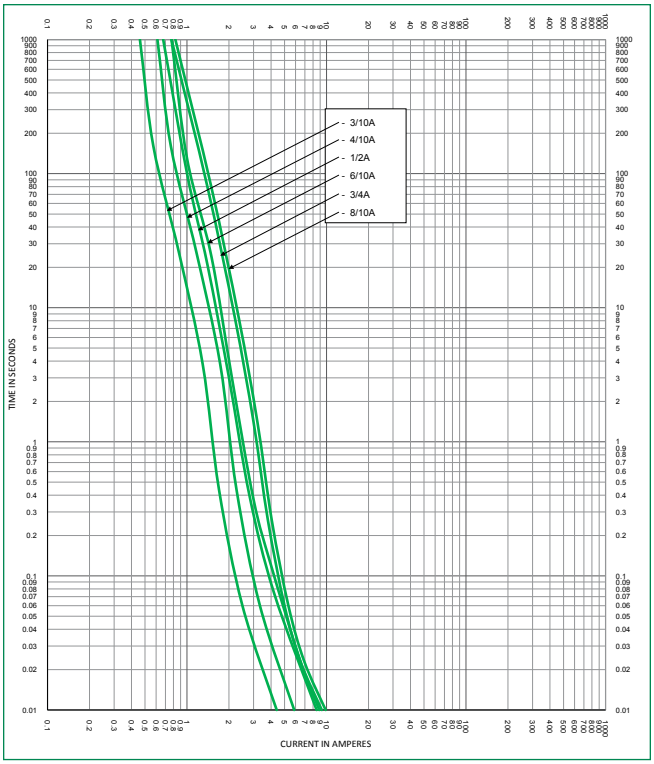
CLASS CC KLDR SERIES FUSES

Peak Let-Thru Curves



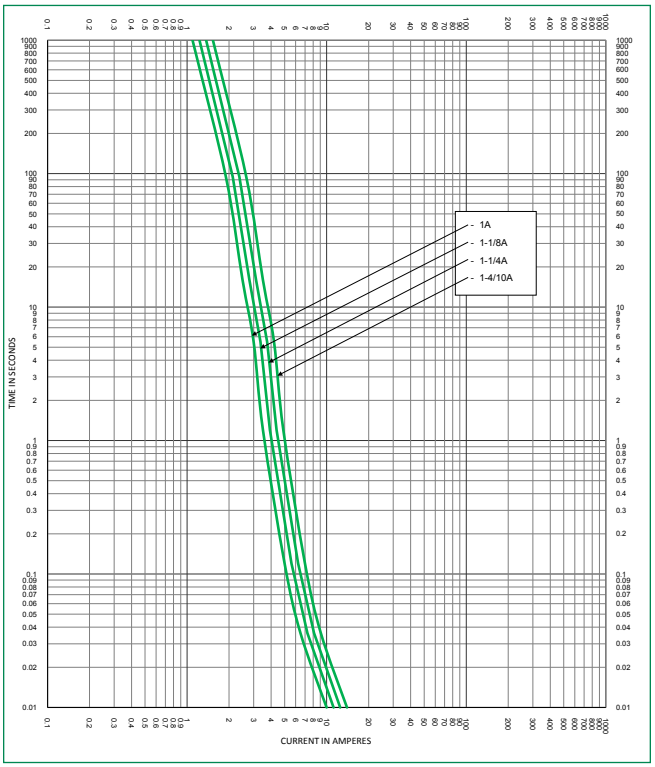
Time Current Curves

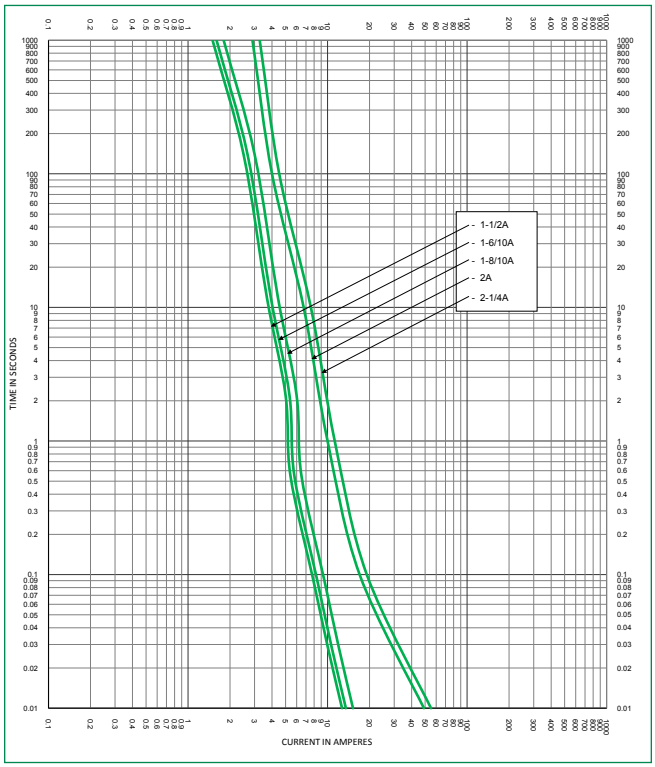


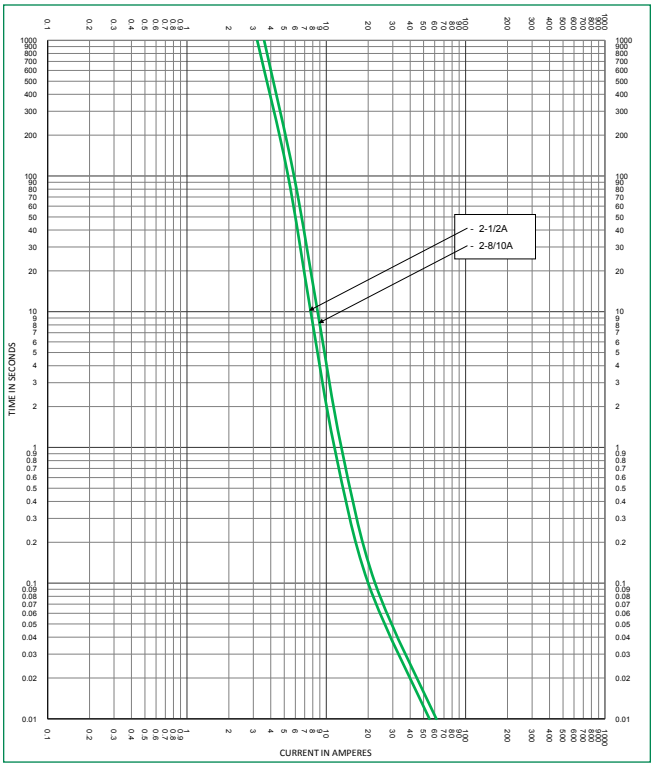


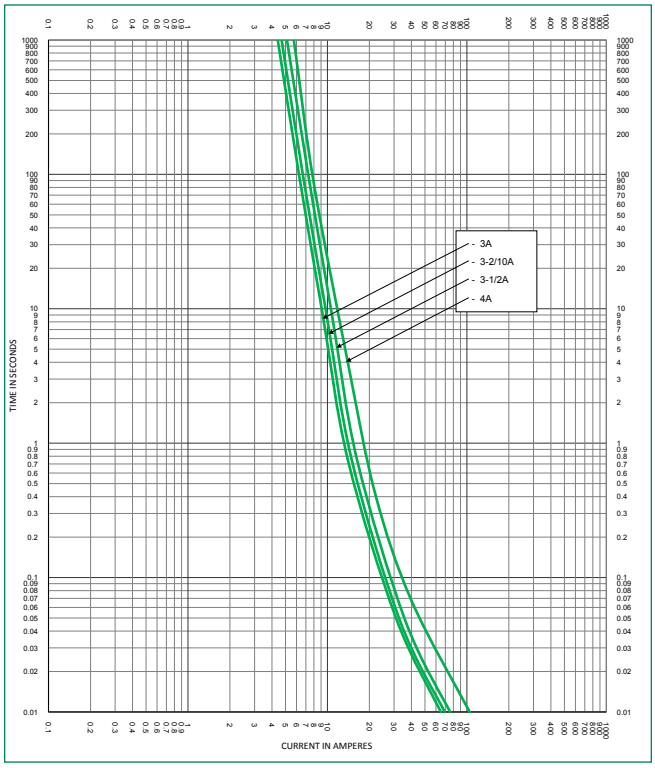
CLASS CC KLDR SERIES FUSES

Time Current Curves



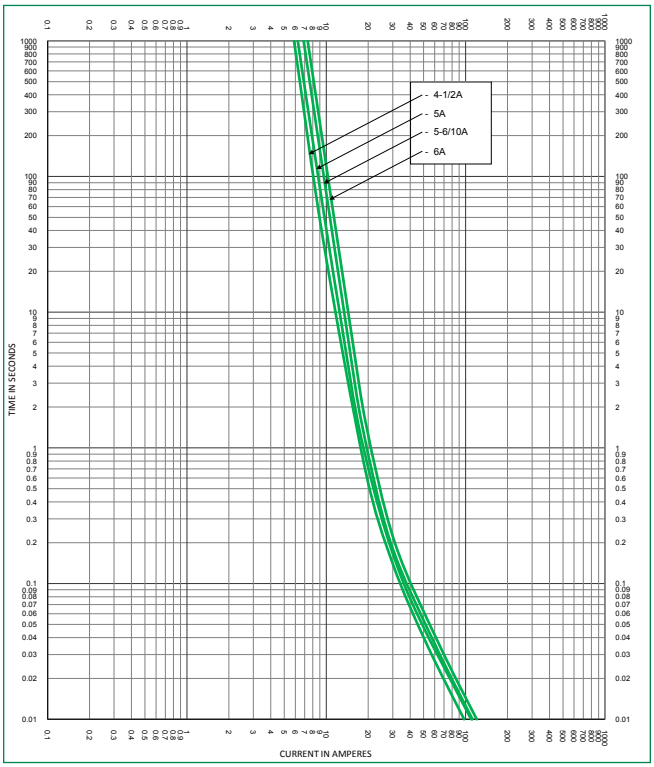


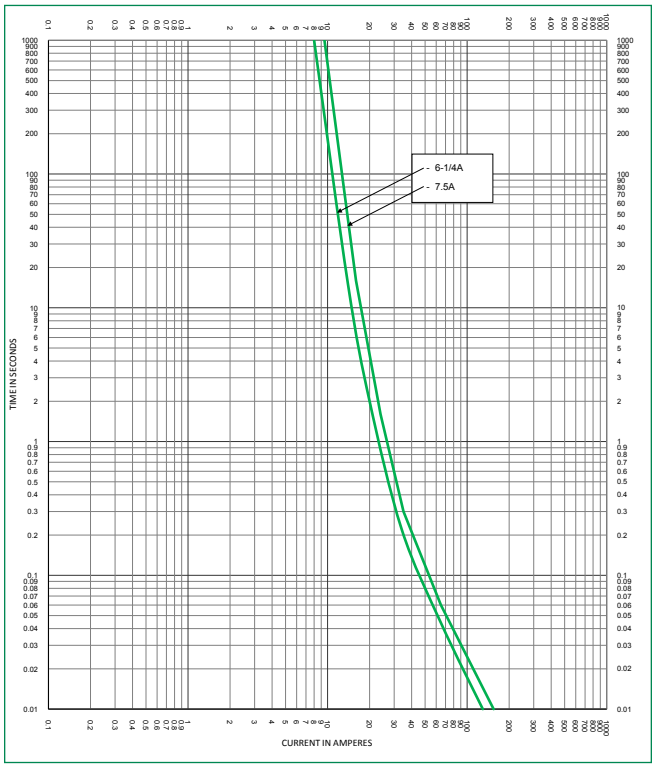


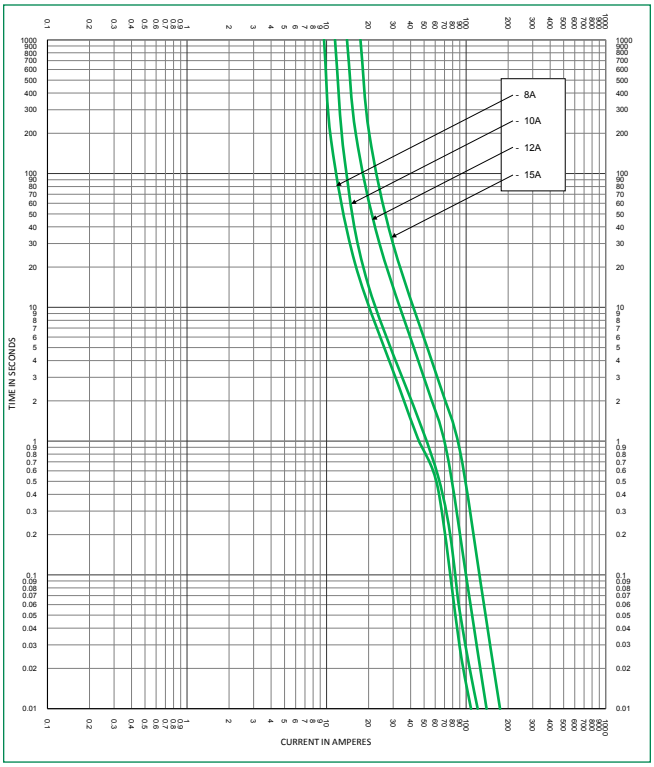


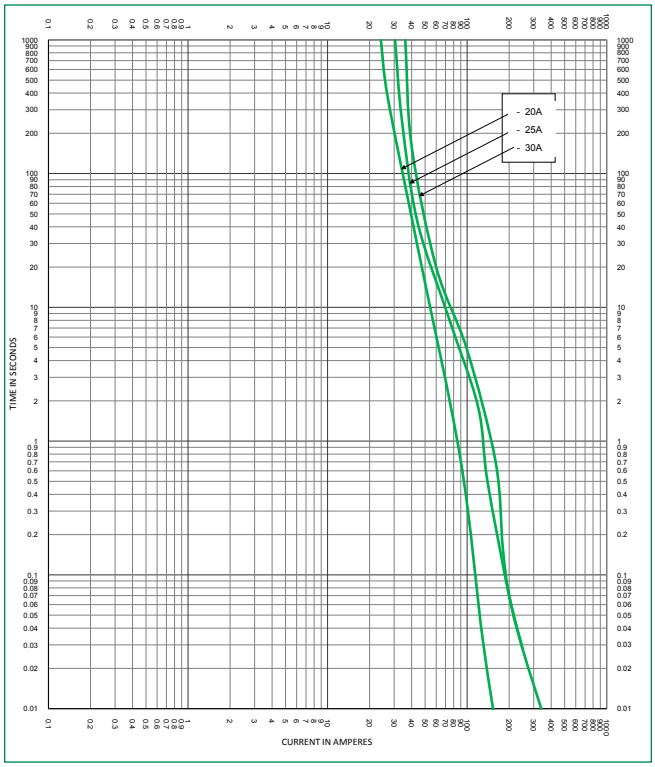
CLASS CC KLDR SERIES FUSES

Time Current Curves









2478 - FUSE, TIME DELAY, 600VAC, 3 AMP

CLASS CC KLDR SERIES FUSES

600 Vac • 300 Vdc • Time-Delay • 1/10-30 A

Description

KLDR fuses are time-delay fuses designed to protect control transformers, solenoids and similar inductive components with high magnetizing currents during the first half-cycle. They provide excellent protection of motor branch circuits containing IEC or NEMA rated motor controllers or contactors.

Features/Benefits

- Meets UL and CSA standards
- Class CC fuses are the smallest 600 V, 200,000 A.I.R. fuses approved for branch circuit protection
- Rejection feature prevents use of fuses with lower interrupting ratings or voltage ratings when used with corresponding fuse holders
- Extremely current limiting reduces damage caused by heating and magnetic effects of short-circuit currents

Applications

- Transformer Protection

Web Resources

For additional informations, visit:
littelfuse.com/kldr

Recommended Fuse Holders

L60030C Series
LPSC Touch-Safe Series

Specifications

Voltage Rating	AC: 600 V DC: 300 V
Amperage Rating	1/10 – 30 A
Interrupting Rating	AC: 200 kA rms symmetrical DC: 20 kA
Material	Body: Melamine Caps: Nickel-plated Bronze
Fuse Weight	.019 lb (8.62g)
Approvals	AC: Standard 248-4, Class CC UL Listed 1/10-30 A (File: E81895) CSA Certified 1/10-30 A (File: LR29862) DC: Littelfuse self-certified
Environmental	RoHS Compliant
Country of Origin	Mexico

Ordering Information

AMPERAGE RATINGS				
1/10	6/10	1 8/10	4 1/2	10
1/8	3/4	2	5	12
15/100	8/10	2 1/4	5 6/10	15
3/16	1	2 1/2	6	17 1/2
2/10	1 1/8	2 8/10	6 1/4	20
1/4	1 1/4	3	7	25
3/10	1 4/10	3 2/10	7 1/2	30
4/10	1 1/2	3 1/2	8	—
1/2	1 6/10	4	9	—

Part Numbering System

KLDR xxx T XP

Series

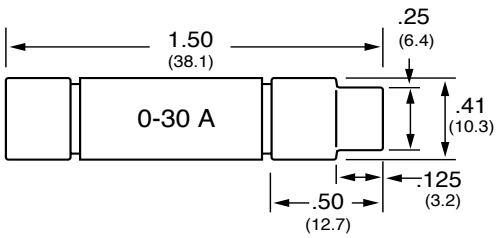
Amp Code
Refer to Amp Code Column in Electrical Specifications Table

Options
XP = RoHS Compliant

Package Quantity
T = 10
H = 100

SERIES	AMPERAGE	PACKAGE QUANTITY	CATALOG NUMBER	ORDERING NUMBER
KLDR	10	10	KLDR 10	KLDR010.TXP

Dimensions Inches (mm)



CLASS CC KLDR SERIES FUSES

Electrical Specifications

ORDERING NUMBER	AMPERAGE RATING	VOLTAGE RATING		INTERRUPTING RATING		UPC	MELT (PRE-ARC) I^2T (A^2SEC)	TOTAL CLEARING I^2T (A^2 SEC)	AGENCY APPROVALS		
		AC	DC	AC	DC				UL	CSA	RoHS
KLDR.100TXP	1/10	600	300	200 kA	20 kA	079458 96877	0.0004	0.0059	•	•	•
KLDR.125TXP	1/8	600	300	200 kA	20 kA	079458 96878	0.0007	0.0055	•	•	•
KLDR.150TXP	15/100	600	300	200 kA	20 kA	079458 96879	0.0016	0.0059	•	•	•
KLDR.187TXP	3/16	600	300	200 kA	20 kA	079458 96880	0.0040	0.0267	•	•	•
KLDR.200TXP	2/10	600	300	200 kA	20 kA	079458 79239	0.0018	0.0230	•	•	•
KLDR.250TXP	¼	600	300	200 kA	20 kA	079458 79240	0.0138	0.0967	•	•	•
KLDR.300TXP	3/10	600	300	200 kA	20 kA	079458 79241	0.0111	0.1005	•	•	•
KLDR.400TXP	4/10	600	300	200 kA	20 kA	079458 79242	0.0579	0.1420	•	•	•
KLDR.500TXP	½	600	300	200 kA	20 kA	079458 79243	0.0877	0.3121	•	•	•
KLDR.600TXP	6/10	600	300	200 kA	20 kA	079458 79244	0.1404	0.3742	•	•	•
KLDR.750TXP	¾	600	300	200 kA	20 kA	079458 79245	0.2911	1.972	•	•	•
KLDR.800TXP	8/10	600	300	200 kA	20 kA	079458 79246	0.2416	2.064	•	•	•
KLDR001.TXP	1	600	300	200 kA	20 kA	079458 79247	0.4494	5.883	•	•	•
KLDR1.12TXP	1-1/8	600	300	200 kA	20 kA	079458 79248	0.5049	5.149	•	•	•
KLDR1.25TXP	1-¼	600	300	200 kA	20 kA	079458 79249	0.4367	7.354	•	•	•
KLDR01.4TXP	1-4/10	600	300	200 kA	20 kA	079458 79250	0.8135	7.639	•	•	•
KLDR01.5TXP	1-½	600	300	200 kA	20 kA	079458 79251	0.9302	5.885	•	•	•
KLDR01.6TXP	1-6/10	600	300	200 kA	20 kA	079458 79252	0.7495	6.682	•	•	•
KLDR01.8TXP	1-8/10	600	300	200 kA	20 kA	079458 79253	0.9964	6.594	•	•	•
KLDR002.TXP	2	600	300	200 kA	20 kA	079458 79254	0.8615	14.01	•	•	•
KLDR2.25TXP	2-¼	600	300	200 kA	20 kA	079458 79255	1.126	26.41	•	•	•
KLDR02.5TXP	2-½	600	300	200 kA	20 kA	079458 79256	2.087	35.35	•	•	•
KLDR02.8TXP	2-8/10	600	300	200 kA	20 kA	079458 79257	21.28	45.47	•	•	•
KLDR003.TXP	3	600	300	200 kA	20 kA	079458 79258	23.21	55.99	•	•	•
KLDR03.2TXP	3-2/10	600	300	200 kA	20 kA	079458 79259	37.92	57.27	•	•	•
KLDR03.5TXP	3-½	600	300	200 kA	20 kA	079458 79260	21.42	109.4	•	•	•
KLDR004.TXP	4	600	300	200 kA	20 kA	079458 79261	83.81	258.6	•	•	•
KLDR04.5TXP	4-½	600	300	200 kA	20 kA	079458 79262	83.89	110.6	•	•	•
KLDR005.TXP	5	600	300	200 kA	20 kA	079458 79263	63.33	84.04	•	•	•
KLDR05.6TXP	5-6/10	600	300	200 kA	20 kA	079458 79264	87.66	114.0	•	•	•
KLDR006.TXP	6	600	300	200 kA	20 kA	079458 79265	129.5	161.9	•	•	•
KLDR6.25TXP	6-¼	600	300	200 kA	20 kA	079458 79266	147.6	261.7	•	•	•
KLDR007.TXP	7	600	300	200 kA	20 kA	079458 79267	202.4	513.4	•	•	•
KLDR07.5TXP	7-½	600	300	200 kA	20 kA	079458 79268	321.8	813.0	•	•	•
KLDR008.TXP	8	600	300	200 kA	20 kA	079458 79269	111.2	1,145	•	•	•
KLDR009.TXP	9	600	300	200 kA	20 kA	079458 79270	73.40	1,334	•	•	•
KLDR010.TXP	10	600	300	200 kA	20 kA	079458 79271	132.0	934.8	•	•	•
KLDR012.TXP	12	600	300	200 kA	20 kA	079458 79272	154.7	1,723	•	•	•
KLDR015.TXP	15	600	300	200 kA	20 kA	079458 79273	200.5	2,248	•	•	•
KLDR17.5TXP	17-½	600	300	200 kA	20 kA	079458 79274	87.50	722.8	•	•	•
KLDR020.TXP	20	600	300	200 kA	20 kA	079458 79275	123.8	1,363	•	•	•
KLDR025.TXP	25	600	300	200 kA	20 kA	079458 79276	226.0	1,710	•	•	•
KLDR030.TXP	30	600	300	200 kA	20 kA	079458 79277	299.6	1,990	•	•	•

Electrical Specifications

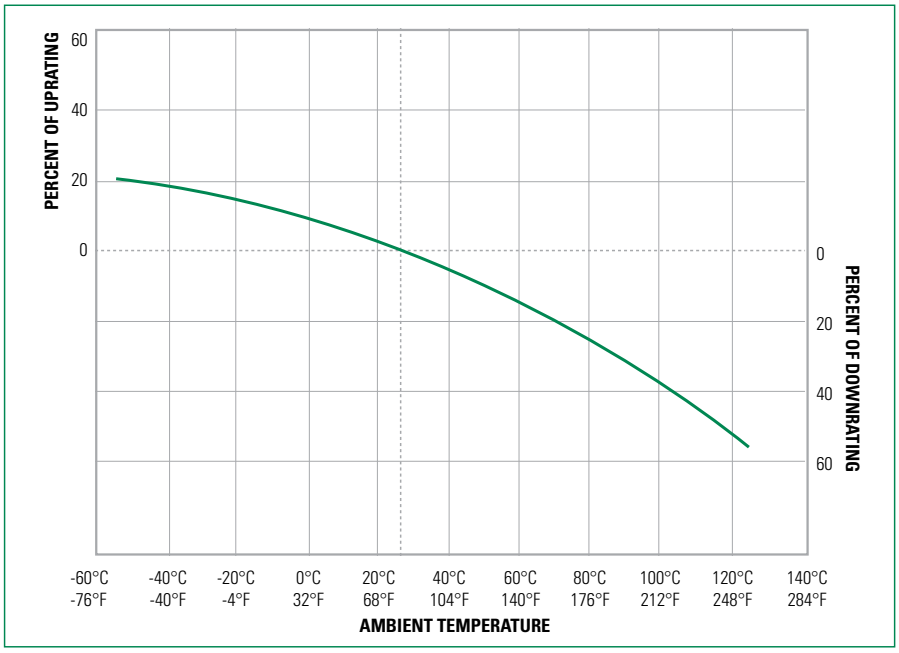
ORDERING NUMBER	AMPERAGE RATING	WATTS LOSS AT 100% RATED CURRENT(W)	WATTS LOSS AT 80% RATED CURRENT(W)
KLDR001.TXP	1	1.67	1.34
KLDR005.TXP	5	1.31	0.75
KLDR010.TXP	10	1.41	.86
KLDR015.TXP	15	1.72	1.03
KLDR020TXP	20	2.3	1.39
KLDR030.TXP	30	2.75	1.62

Current-Limiting Effects

SHORT CIRCUIT CURRENT*	APPARENT RMS SYMMETRICAL CURRENT FOR VARIOUS FUSE RATINGS								
	4 A	6 A	7.5 A	8 A	10 A	12 A	15 A	20 A	30 A
5,000	349	420	521	437	359	369	435	456	621
10,000	440	529	656	551	452	465	548	575	783
15,000	504	605	751	631	517	532	627	658	896
20,000	554	666	827	694	569	585	690	724	986
25,000	597	718	890	748	613	630	743	780	1063
30,000	634	763	946	795	651	670	790	829	1129
35,000	668	803	996	837	686	705	832	872	1189
40,000	698	840	1041	875	717	737	870	912	1243
50,000	752	904	1122	942	772	794	937	983	1339
60,000	799	961	1192	1001	821	844	995	1044	1423
80,000	880	1058	1312	1102	903	929	1096	1149	1566
100,000	948	1139	1413	1187	973	1001	1180	1238	1687
150,000	1085	1304	1618	1359	1114	1146	1351	1417	1931
200,000	1194	1436	1781	1496	1226	1261	1487	1560	2125

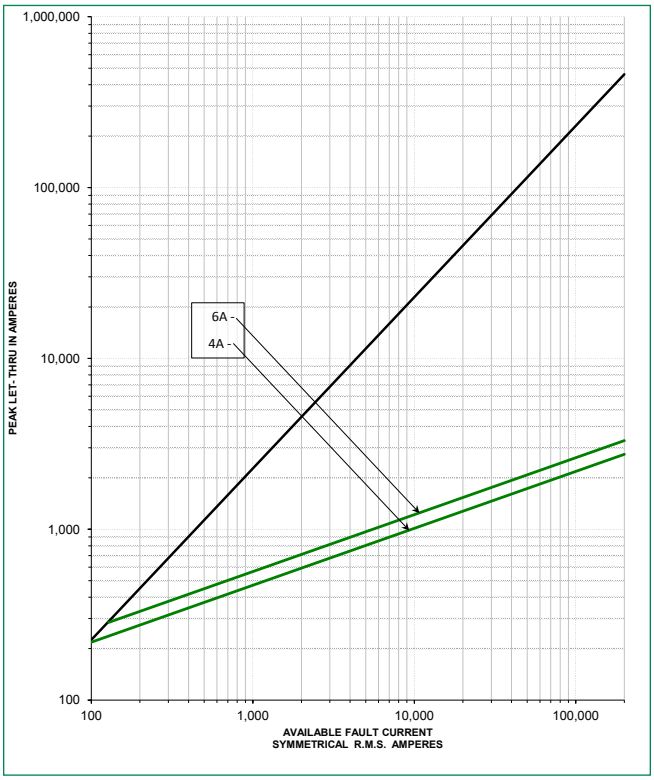
*Prospective RMS Symmetrical Amperes Short-Circuit Current
Note: Data Derived from Peak Let-Thru Curves

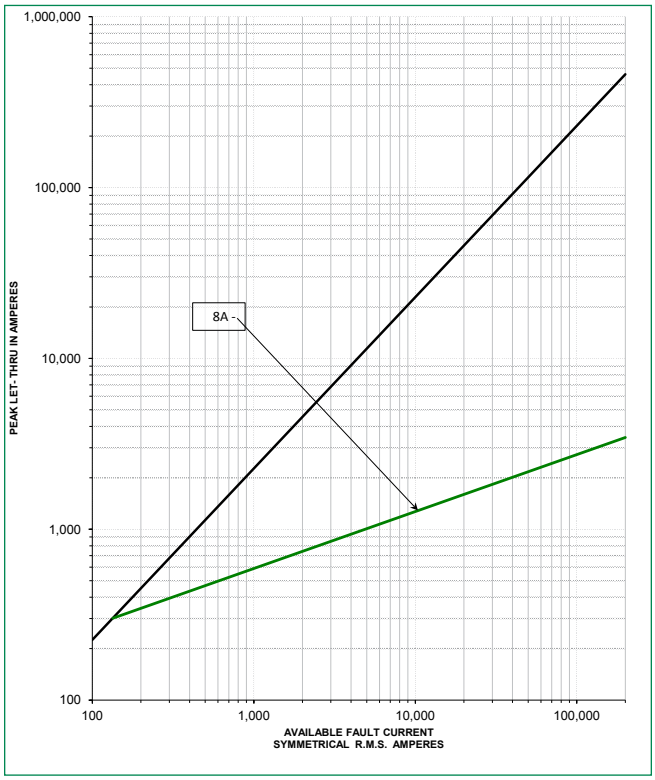
Temperature Derating Curve (Temperature of Air Immediately Surrounding Fuse)

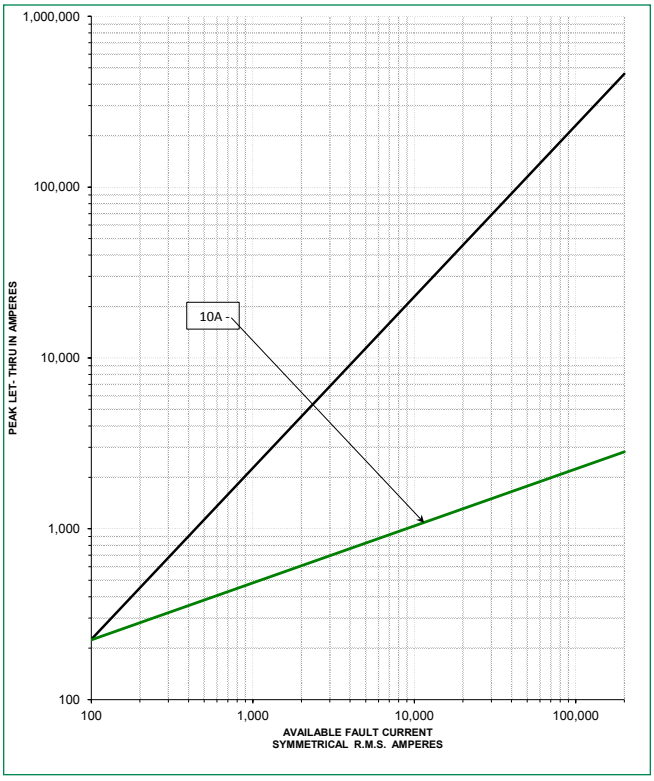


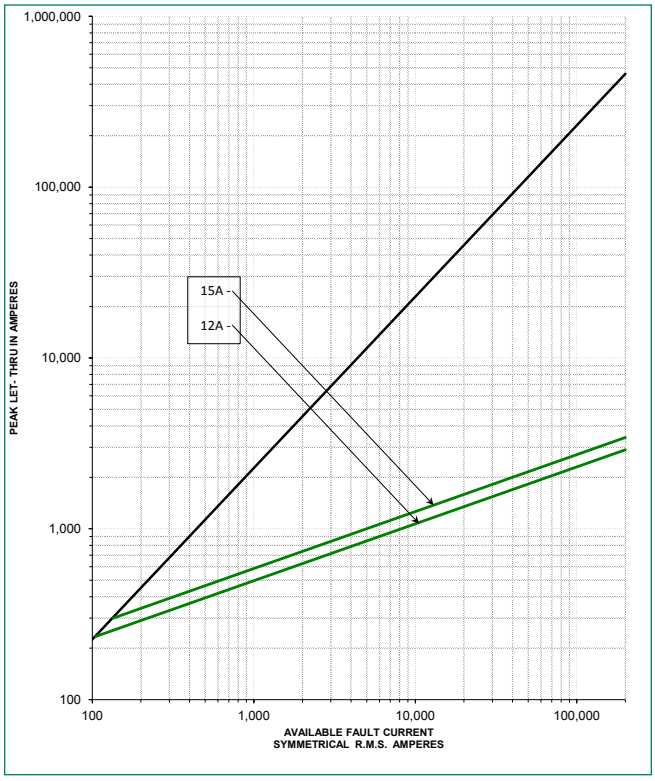
CLASS CC KLDR SERIES FUSES

Peak Let-Thru Curves



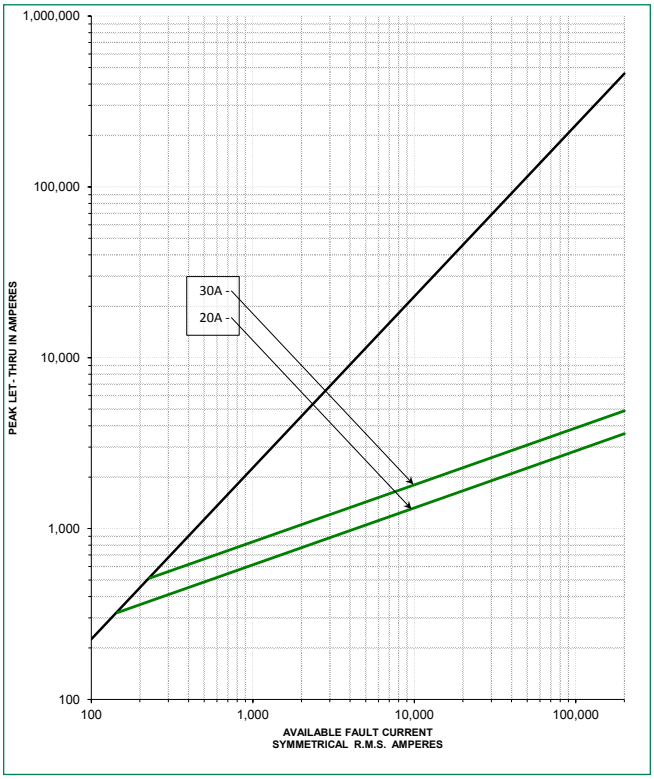




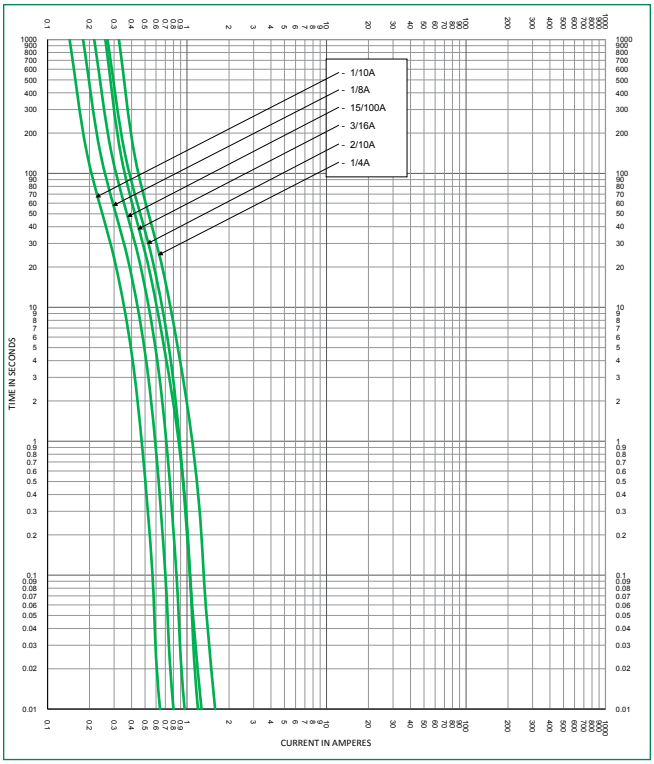


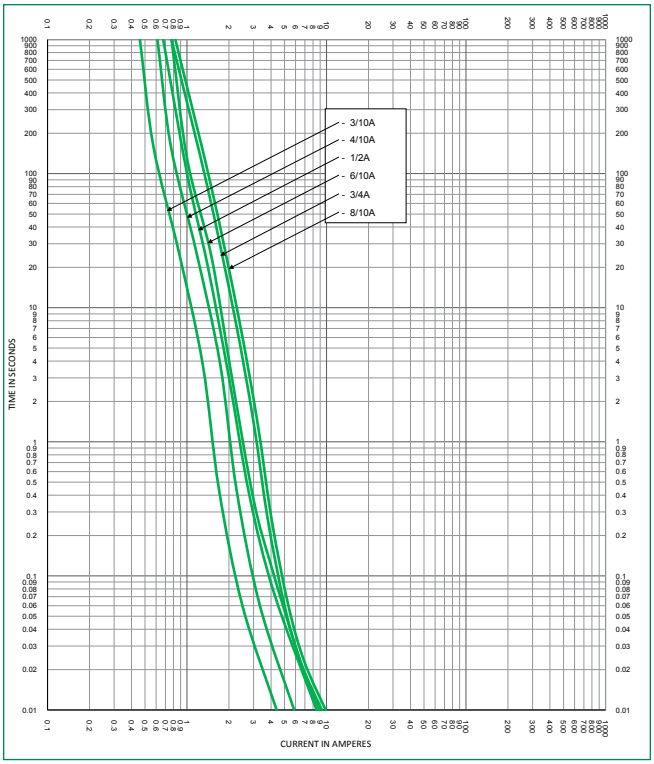
CLASS CC KLDR SERIES FUSES

Peak Let-Thru Curves



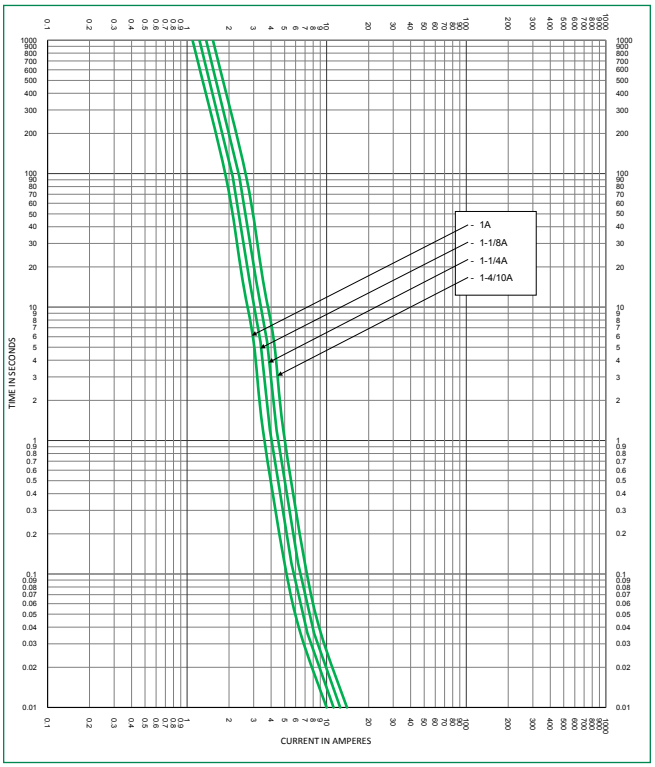
Time Current Curves

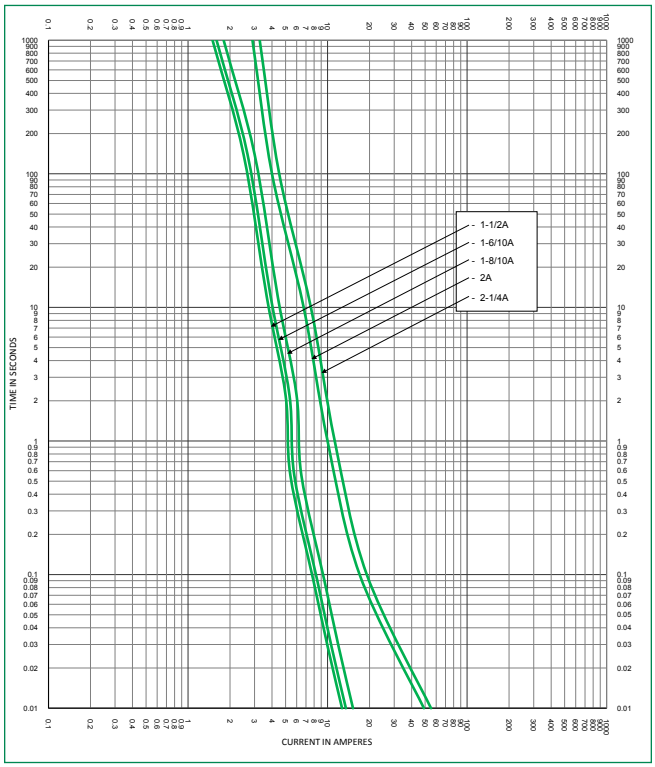


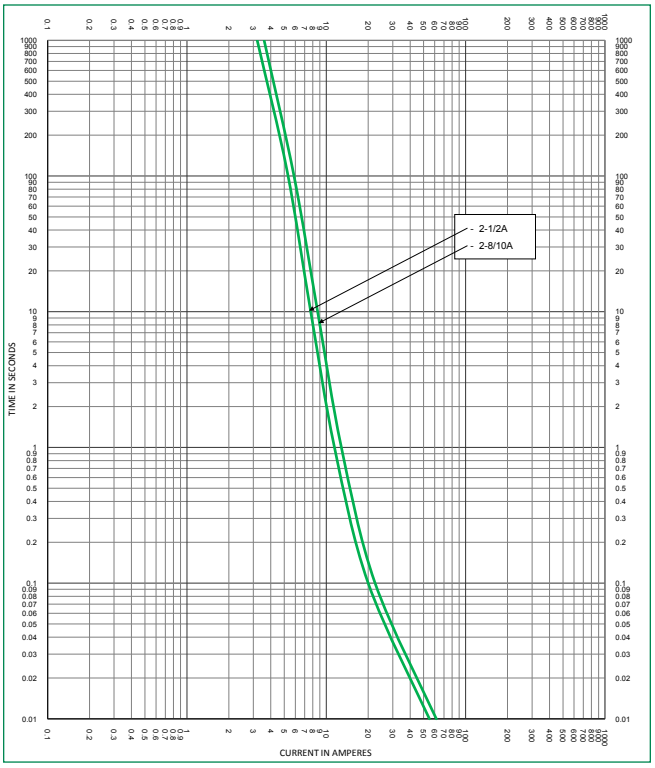


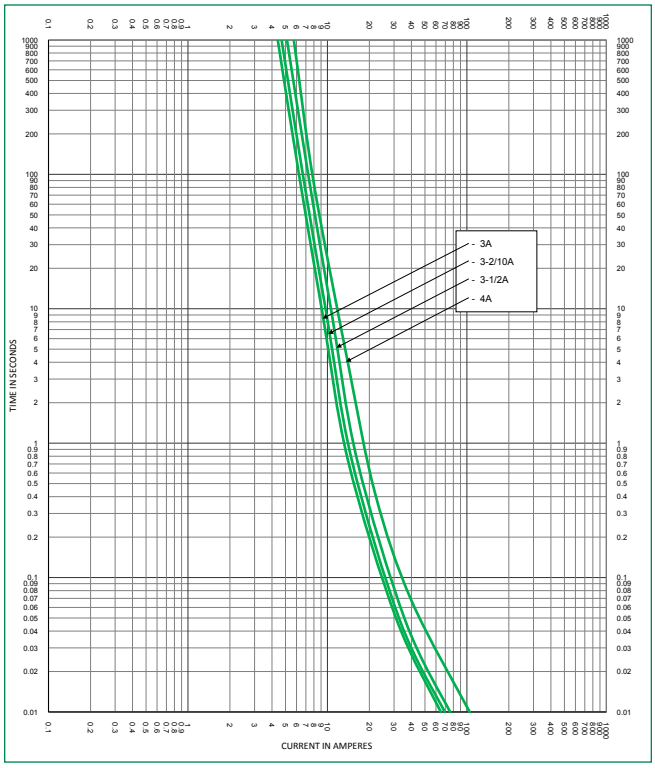
CLASS CC KLDR SERIES FUSES

Time Current Curves



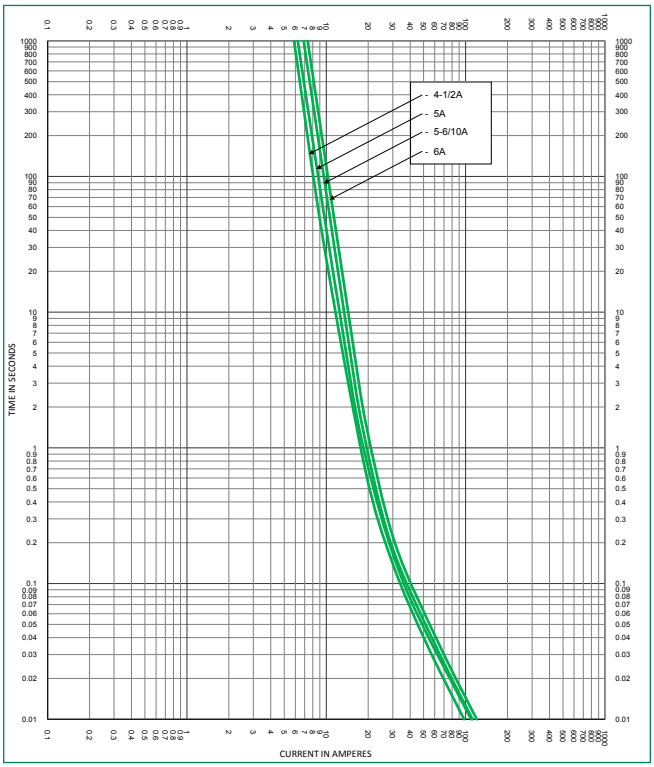


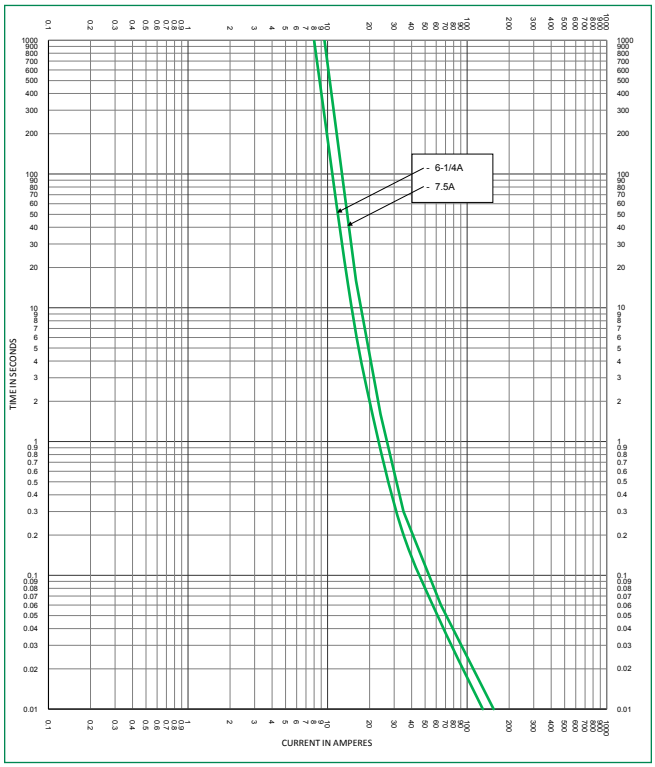


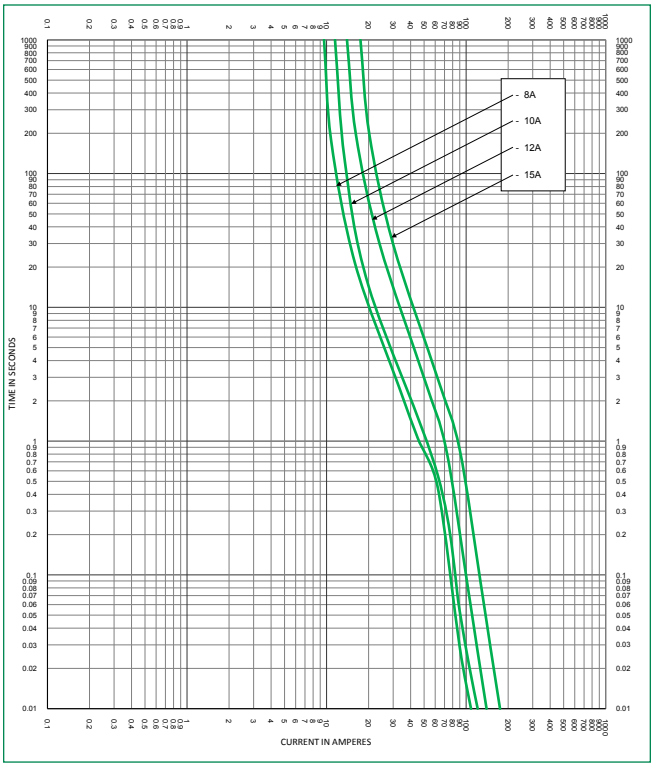


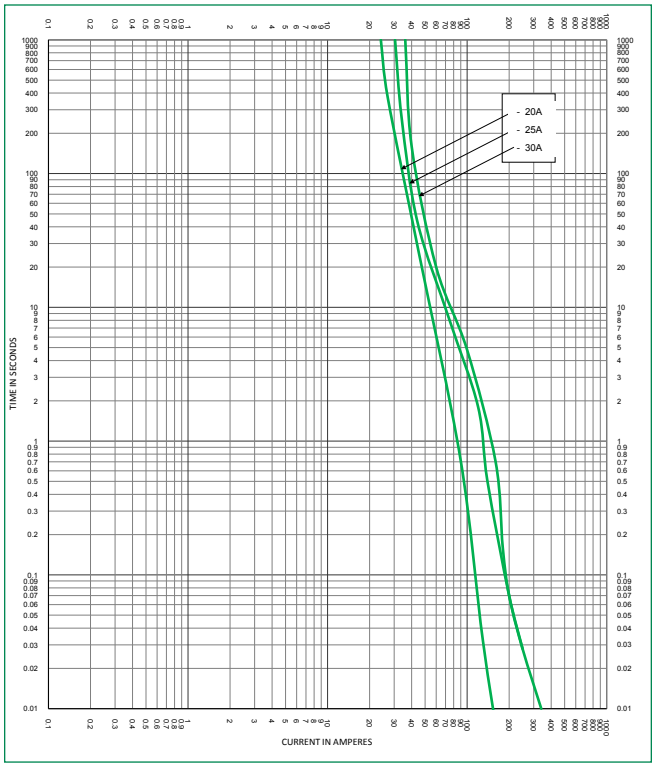
CLASS CC KLDR SERIES FUSES

Time Current Curves









2505 - 1-POLE FINGER SAFE CC FUSE BLOCK - INDICATING

LPSC / LPSM POWR-SAFE FUSE HOLDERS

600 V

Description

Littelfuse POWR-SAFE Dead Front holders provide optimum protection to personnel for Class CC and Midget-Style fuses.

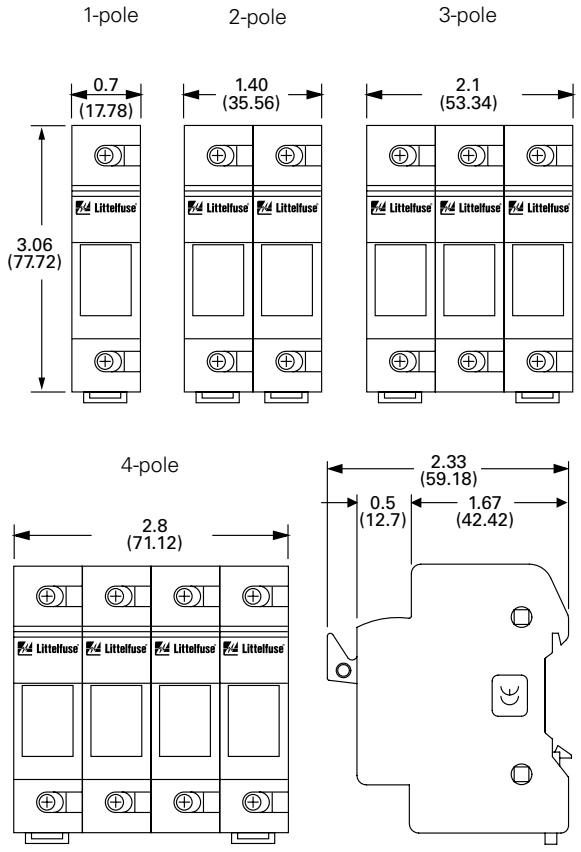
Features/Benefits

- Indicating and non-indicating options available
- 1-, 2-, 3- and 4-pole configurations
- Easy installation and fuse removal with no additional pullers or tools required
- 35 mm DIN Rail Mountable
- Ventilated design for cooler operation

Specifications

Voltage Rating	600 Vac/dc
Ampere Rating	30 A
Interrupting Rating	200 kA (Class CC) 100 kA (Midget)
Terminal Type	Pressure plate
Suggested Torque	17.7 in–lbs
Wire Range	#8–#14 CU
Material	Thermoplastic
Flammability Rating	UL94 V-0
Approvals	UL Listed (LPSC File: E14721) UL Recognized (LPSM File: E14721) CSA Certified (LPSC/LPSM File: LR7316)
Environmental	RoHS compliant, Lead (Pb) Free

Dimensions Inches (mm)



Ordering Information

INDICATING		NON-INDICATING		FUSE TYPE	POLES
CATALOG NUMBER	ORDERING NUMBER	CATALOG NUMBER	ORDERING NUMBER		
LPSC001ID	LPSC0001ZXID	LPSC001	LPSC0001Z	Class CC	1
LPSC002ID	LPSC0002ZXID	LPSC002	LPSC0002Z	Class CC	2
LPSC003ID	LPSC0003ZXID	LPSC003	LPSC0003Z	Class CC	3
LPSC004ID	LPSC0004ZXID	LPSC004	LPSC0004Z	Class CC	4
LPSM001ID	LPSM0001ZXID	LPSM001	LPSM0001Z	Midget	1
LPSM002ID	LPSM0002ZXID	LPSM002	LPSM0002Z	Midget	2
LPSM003ID	LPSM0003ZXID	LPSM003	LPSM0003Z	Midget	3
LPSM004ID	LPSM0004ZXID	LPSM004	LPSM0004Z	Midget	4

2-Pole Assembly Kit Ordering No. CYHP0001Z-KIT
(Kit contains 20 connector pincers & 10 handle pins.)

Web Resources

Downloadnlo CAD drawings and other technical information:
littelfuse.com/lpsc
littelfuse.com/lpsm

Recommended Fuses

Class CC
Midget-Style (10 x 38 mm)

2506 - 2-POLE FINGER SAFE CC FUSE BLOCK - INDICATING

LPSC / LPSM POWR-SAFE FUSE HOLDERS

600 V

Description

Littelfuse POWR-SAFE Dead Front holders provide optimum protection to personnel for Class CC and Midget-Style fuses.

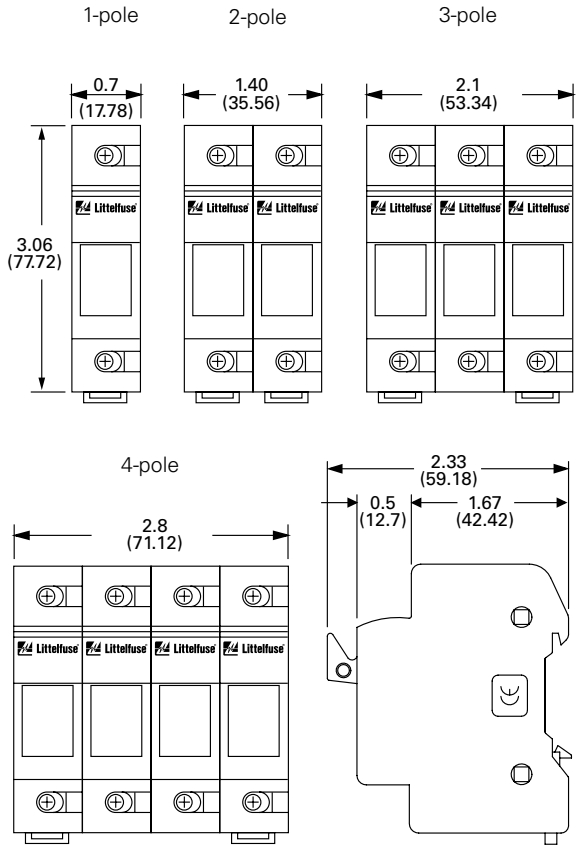
Features/Benefits

- Indicating and non-indicating options available
- 1-, 2-, 3- and 4-pole configurations
- Easy installation and fuse removal with no additional pullers or tools required
- 35 mm DIN Rail Mountable
- Ventilated design for cooler operation

Specifications

Voltage Rating	600 Vac/dc
Ampere Rating	30 A
Interrupting Rating	200 kA (Class CC) 100 kA (Midget)
Terminal Type	Pressure plate
Suggested Torque	17.7 in–lbs
Wire Range	#8–#14 CU
Material	Thermoplastic
Flammability Rating	UL94 V-0
Approvals	UL Listed (LPSC File: E14721) UL Recognized (LPSM File: E14721) CSA Certified (LPSC/LPSM File: LR7316)
Environmental	RoHS compliant, Lead (Pb) Free

Dimensions Inches (mm)



Ordering Information

INDICATING		NON-INDICATING		FUSE TYPE	POLES
CATALOG NUMBER	ORDERING NUMBER	CATALOG NUMBER	ORDERING NUMBER		
LPSC001ID	LPSC0001ZXID	LPSC001	LPSC0001Z	Class CC	1
LPSC002ID	LPSC0002ZXID	LPSC002	LPSC0002Z	Class CC	2
LPSC003ID	LPSC0003ZXID	LPSC003	LPSC0003Z	Class CC	3
LPSC004ID	LPSC0004ZXID	LPSC004	LPSC0004Z	Class CC	4
LPSM001ID	LPSM0001ZXID	LPSM001	LPSM0001Z	Midget	1
LPSM002ID	LPSM0002ZXID	LPSM002	LPSM0002Z	Midget	2
LPSM003ID	LPSM0003ZXID	LPSM003	LPSM0003Z	Midget	3
LPSM004ID	LPSM0004ZXID	LPSM004	LPSM0004Z	Midget	4

2-Pole Assembly Kit Ordering No. CYHP0001Z-KIT
(Kit contains 20 connector pincers & 10 handle pins.)

Web Resources

Downloadnlo CAD drawings and other technical information:
littelfuse.com/lpsc
littelfuse.com/lpsm

Recommended Fuses

Class CC
Midget-Style (10 x 38 mm)

Rev: 1-A-012016

2790 - GROUND LUG

On Line Catalog

BURNDY Catalog Number	KA4C
UPC Number	781810361405
Description	14-4 CU LUG ST SCR 1H
Status	Active
Web Use	
BURNDY Product Line	

Dimensional	
Size (Hex) or Size (Bolt)	5/16
Length (in)	1.11
Thickness (in)	1/10
Height (in)	0.77
B Length (Fraction)	8/17
Hole Size (Fraction)	9/32
Stud Size (in)	1/4
Thickness	0.1
Size (Hex) or Size (Bolt) - in	0.31
B Length (in)	0.47
Pad Width (in)	0.54
N (Fraction)	1/4
N (in)	0.25
Hole Size (in)	0.28
Length (Fraction)	1-1/8
Height (Fraction) (in)	3/4
General	
Product Description	Copper Terminal, 1 Hole, 14 AWG (Sol)-4 AWG (Str), 1/4" Stud, 1 Screw
Conductor(s)	
Copper Solid Size (Range)	14 AWG-4 AWG
Copper Stranded (Range)	14 AWG-4 AWG
Physical	
Screw Type	Slot
Type of Hardware	5 / 16 "
Installation Torque	45
Type of Plating	Unplated
Connector Type	Terminal
Plated (Yes or No)	N
Product Material	Copper
Approvals / Certifications	
UL Listed	Y
CSA Certified	Y
ROHS Compatible	Compliant
UL Recognized	N
CULUS	N
Industry Standards	UL468A-468B
Documentation	

For further technical assistance, please contact us

BURNDY LLC - USA

47, industrial Park Drive
Manchester NH03109

BURNDY Technical Servcies

47, industrial Park Drive
Manchester NH03109

Hours: 8.00 AM - 5.00 PM
Monday - Friday
Phone: 000-346-4175

Edwards® 870P Series AdaptaHorn® Panel Mount AC Vibrating Horn NEMA 4X Rated

*PLC Compatible**

Cat. No. 870P

Features
- PLC compatible
- Corrosion resistant finish
- Volume adjustable
- Completely assembled
- NEMA 4X rated

Description
The Edwards 870P Series is a low-current, high decibel panel mount vibrating horn for heavy-duty use. Supplied complete with gasket and UL listed to NEMA 4X enclosure requirements.

Agency Approvals
- UL Listed 50/60 Hz

Specifications
- Adjustable output: 78 to 103 dB
- 400 hour rating at 50% duty cycle
- Operating range: -20% to +10% of nominal voltage
- Heavy duty die-cast housing
- 18" (457mm) wire with molex connector

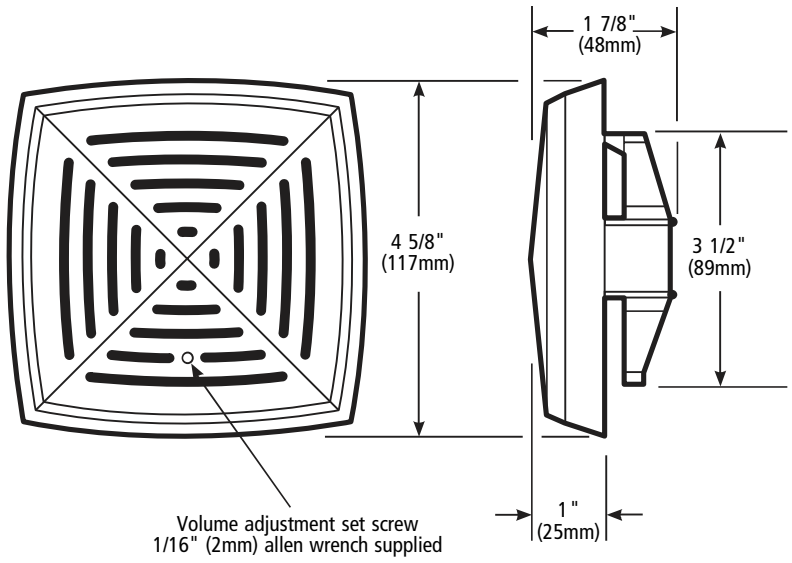
Installation
Designed for semi-flush panel mounting, using supplied mounting template, or installation on a 4" (102mm) square box. For NEMA 4X installation, mount to a NEMA 4X enclosure having a flat, smooth surface using supplied 1/8" (3mm) gasket in accordance with the installation instructions provided with the unit.

Applications
Applications include use in panel boards and switchboards wherever a distinctive, urgent signal is required for timing, general alarm & warning.

*PLC COMPATIBILITY
This device may be operated by PLCs that match the input load requirements of this signal. Be sure to match the input load characteristics of the signal with the output characteristics of the PLC before connecting.

Signal Input Load Characteristics

Cat. No.	Operating voltage Volts/60 Hz	Max. off state leakage current mA	Continuous on current mA	Surge (inrush/duration) Amps/milliseconds
87P-N5	120V AC	25	120	1.02/.000026



Ordering and Technical Data

Cat. No.	Volts	Amps	V A	DC coil Res. (Ohms)	dB at 10 Ft.
870P-E5	12V AC	1.25	15.0	1.5	
870P-G5	24V AC	0.63	15.1	5.2	103
870P-N5	120V AC	0.13	15.6	150	
870P-R5	240V AC	0.07	16.8	580	

CHESHIRE, CT 06410
www.edwards-signals.com

EDWARDS SIGNALING

3224 - ALARM BEACON, AMBER, NEMA 4X

125 Class Strobe Beacons

for NEMA 4X Applications

The Edwards 125 Class Strobe beacons are UL and cUL listed signaling devices, available in two versions, normal light output and high light output. Both versions feature a corrosion resistant Type 4X enclosure and can be panel or conduit mounted. The base is manufactured from a polycarbonate/ABS blend, and the lens is made of shatter resistant polycarbonate. Both the normal light output and high light output beacons are available with either a black or gray base, and amber, blue, clear, green or red lens.

The 125 Class Strobe beacons can be mounted on 1/2" or 3/4" NPT conduit using a 1/2" internal or 3/4" external conduit hub that comes with the unit. It can also be panel-mounted using the mounting gasket provided with the unit. When panel-mounting the 125 Class Strobe, the surface and construction details of the panel must be taken into consideration to ensure the integrity of the outdoor, NEMA 4X rating is fully maintained.

125 Class Strobe Features

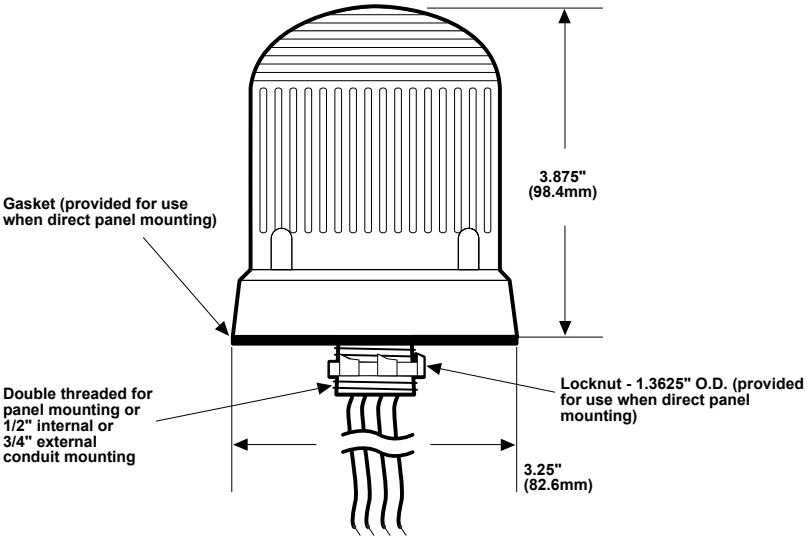
- High Light Output available in 120V AC
- Normal Light Output available in 12-48V DC, 120V AC or 240V AC
- Available with gray or black base
- Option for panel or conduit mounting
- Available in High Light Output or Normal Light Output versions
- Available with amber, blue, clear, green or red lens
- -31°F to 150°F (-35°C to 66°C) operating temperature
- Protective wire guard available, Cat. No. 125GRD

125 Class Strobe Beacons

Description	Strobe Output	Cat. No.	Base Color	LED Colors	Operating Voltage	Current	Replacement Lens	Replacement Strobe Tube
Strobe Beacons in NEMA 4X Enclosure	High Output 300,000 peak candlepower**	**125STRH*120A**	Gray	Amber, Blue, Clear, Green, Red	120V AC 50/60 Hz	0.120 A	125L*	91B-ST
		125STRH*120AB	Black	Amber, Blue, Clear, Green, Red	120V AC 50/60 Hz	0.120 A	125L*	91B-ST
	Normal Output 175,000 peak candlepower	**125STRN*1248D**	Gray	Amber, Blue, Clear, Green, Red	12-48V DC	0.350 A	125L*	114-ST
		125STRN*120A	Gray	Amber, Blue, Clear, Green, Red	120V AC 50/60 Hz	0.100 A	125L*	91B-ST
		125STRN*240A	Gray	Amber, Blue, Clear, Green, Red	240V AC 50/60 Hz	0.050 A	125L*	91B-ST
		125STRN*1248DB	Black	Amber, Blue, Clear, Green, Red	12-48V DC	0.350 A	125L*	114-ST
		125STRN*120AB	Black	Amber, Blue, Clear, Green, Red	120V AC 50/60 Hz	0.100 A	125L*	91B-ST
		125STRN*240AB	Black	Amber, Blue, Clear, Green, Red	240V AC 50/60 Hz	0.050 A	125L*	91B-ST

*Letter in this position designates lens color: A - amber, B - blue, C - clear, G - green, or R - red
**Maximum capacitor operating temperature (Tc) is 185°F (85°C).

Dimensional Drawings



Agency Approvals

1638 Listed

Listed NEMA 4X Enclosure

Listed

Edwards Signaling™
41 Woodford Avenue
Plainville, CT 06062
1.800.336.4206
www.edwardssignaling.com

RR2KP Series Latch Relays

Self-maintained Latch Relays
DPDT — 10A contact capacity

The RR2KP series latch relays have a self-holding function using permanent magnets in the magnetic circuit. Applying a voltage on the set (or reset) coil operates the armature and retains the contacts in that position until the opposite coil is energized, hence the latch relays are ideal for memory and flip-flop circuit applications.

- Enhanced self-holding functions, and vibration and shock resistance.
- The self-holding mechanism is not subject to wear unlike mechanical latch relays.
- Recognized by UL and certified by CSA

Part Number Selection

Contact	Model	Part Number: Pin Terminal	Coil Voltage Code
DPDT 	Basic	RR2KP-U	AC6, AC12, AC24, AC110, AC120, AC220, AC240 DC6, DC12, DC24, DC48, DC110
	With Check Button	RR2KP-UC	

Ordering Information
When ordering, specify the Part No. and coil voltage code:
(example) **RR2KP-U** **AC120**
Part No. — Coil Voltage Code

Sockets

Relay	DIN Rail Mount	Finger-safe DIN Rail Mount	Panel Mount
RR2KP	SR3P-05 SR3P-06	SR3P-05C	SR3P-51
			

Springs & Clips (optional)	
Part Number	**Description**
SR3P-06F3	use with SR3P-05 SR3P-05C SR3P-06
SR3P-511F3	use with SR3P-51

Specifications

Contact Material	Silver	
Contact Resistance	30 mΩ maximum (initial value)	
Operate Time	25 ms maximum (at the rated voltage)	
Power Consumption (approx.)	AC: 2.4 VA (50 Hz), 2.2 VA (60 Hz) DC: 1.5W	
Insulation Resistance	100 MΩ minimum (500V DC megger)	
Dielectric Strength	Between live and dead parts: 1,500V AC, 1 minute Between contact and coil: 1,500V AC, 1 minute Between contacts of different poles: 1,500V AC, 1 minute Between contacts of the same pole: 1,000V AC, 1 minute	
Operating Frequency	Electrical:	1800 operations/h maximum
	Mechanical:	18,000 operations/h maximum
Temperature Rise	Coil: 85°C maximum, Contact: 65°C maximum	
Vibration Resistance	0 to 60 m/s² (maximum frequency: 55 Hz), Frequency: 5 to 55 Hz, Amplitude: 0.5 mm	
Shock Resistance	100 m/s² minimum	
Mechanical Life	5,000,000 operations minimum	
Electrical Life	500,000 operations minimum (110V AC, 10A)	
Operating Temperature	–5 to +40°C (no freezing)	
Operating Humidity	45 to 85% RH (no condensation)	
Weight (approx.)	170g	

Coil Ratings

Rated Voltage (V)		Rated Current (mA) ±15% at 20°C		Coil Resistance (Ω) ±10% at 20°C	Operation Characteristics (values at 20°C)	
		50Hz	60Hz		Maximum Continuous Applied Voltage	Set and Reset Voltage
AC (50/60Hz)	6	467	429	3.5	110%	80% maximum
	12	200	184	23.8		
	24	100	92	95		
	110	23	21	1,900		
	120	24	22	2,200		
	220	10.9	10	7,740		
	240	11.5	10.6	9,190		
DC	6	240		25	110%	80% maximum
	12	120		100		
	24	60		400		
	48	30		1,600		
	110	13.8		7,960		

Contact Ratings

Maximum Contact Capacity						
Switching Voltage	Continuous Current	Allowable Contact Power		Rated Load		
		Resistive Load	Inductive Load	Voltage (V)	Res. Load	Ind. Load
250V AC 125V DC	10A	1650VA AC 300W DC	1100VA AC 225W DC	110 AC	10A	7.5A
				220 AC	7.5A	5A
				30 DC	10A	5A
				100V DC	0.5A	0.3A

Note: Inductive load for the rated load — cos ø = 0.3, L/R = 7 ms

UL Ratings

Voltage	Resistive	General use	Motor Load
240V AC	10A	7A	1/3 HP
120V AC	10A	7.5A	1/4 HP
30V DC	10A	7A	—

CSA Ratings

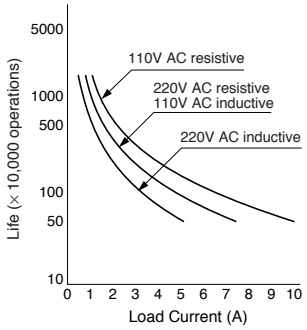
Voltage	Resistive	General use	Motor Load
240V AC	10A	7A	1/3 HP
120V AC	10A	7.5A	1/4 HP
100V DC	—	0.5A	—
30V DC	10A	7.5A	—

Socket Specifications

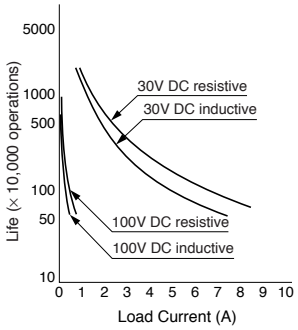
	Relays	Terminal	Electrical Rating	Wire Size	Torque
DIN Rail Mount Sockets	SR3P-05	M3 screw with captive wire clamp	300V, 10A	2–#12AWG	9 - 11.5 in•lbs
	SR3P-05C	M3 screw with captive wire clamp, fingersafe	300V, 10A	2–#12AWG	9 - 11.5 in•lbs
	SR3P-06	M3 screw with captive wire clamp	300V, 10A	2–#12AWG	9 - 11.5 in•lbs
Through Panel Mount Socket	SR3P-51	Solder	300V, 10A	—	—

Electrical Life Curve

AC Load

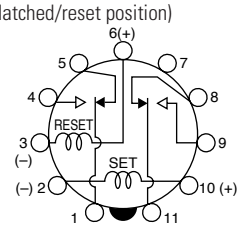


DC Load



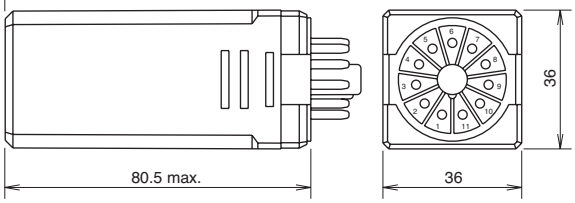
Internal Connection (View from Bottom)

(Shown in unlatched/reset position)



Dimensions (mm)

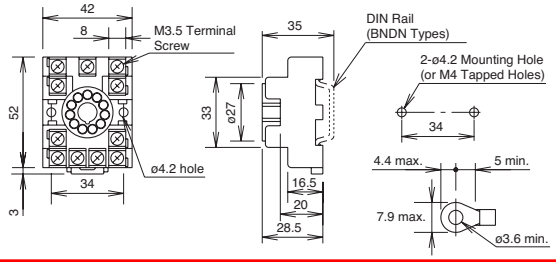
Total length from panel surface including relay socket
SR3P-05: 105 (108.5) max., SR3P-51: 87.5 (92) max.



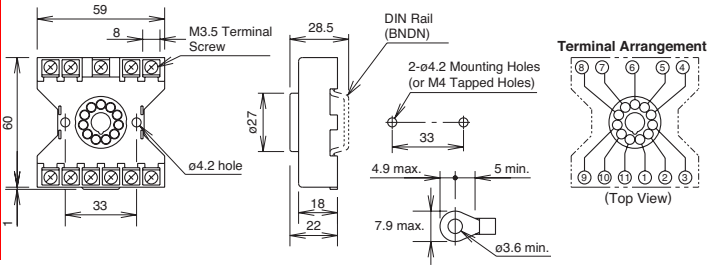
Dimensions in the ( ) include a hold-down spring.

Standard DIN Rail Mount Sockets

SR3P-05

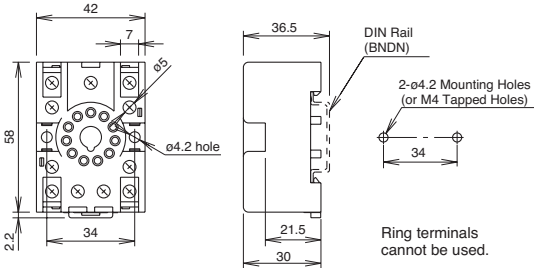


SR3P-06



Finger-safe DIN Rail Mount Sockets

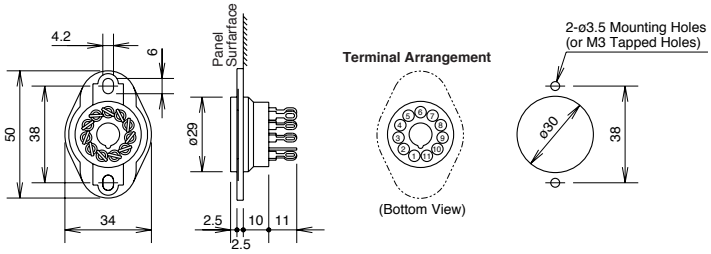
SR3P-05C



Ring terminals cannot be used.

Through Panel Mount Socket

SR3P-51



RR2KP Series Latch Relays

Self-maintained Latch Relays
DPDT — 10A contact capacity

The RR2KP series latch relays have a self-holding function using permanent magnets in the magnetic circuit. Applying a voltage on the set (or reset) coil operates the armature and retains the contacts in that position until the opposite coil is energized, hence the latch relays are ideal for memory and flip-flop circuit applications.

- Enhanced self-holding functions, and vibration and shock resistance.
- The self-holding mechanism is not subject to wear unlike mechanical latch relays.
- Recognized by UL and certified by CSA

Part Number Selection

Contact	Model	Part Number Pin Terminal	Coil Voltage Code
DPDT 	Basic	RR2KP-U	AC6, AC12, AC24, AC110, AC120, AC220, AC240 DC6, DC12, DC24, DC48, DC110
	With Check Button	RR2KP-UC	

Ordering Information
When ordering, specify the Part No. and coil voltage code:
(example) **RR2KP-U** **AC120**
Part No. — Coil Voltage Code

Sockets

Relay	DIN Rail Mount	Finger-safe DIN Rail Mount	Panel Mount
RR2KP	SR3P-05 SR3P-06	SR3P-05C	SR3P-51
			

Springs & Clips (optional)	
Part Number	**Description**
SR3P-06F3	use with SR3P-05 SR3P-05C SR3P-06
SR3P-511F3	use with SR3P-51

Specifications

Contact Material	Silver	
Contact Resistance	30 mΩ maximum (initial value)	
Operate Time	25 ms maximum (at the rated voltage)	
Power Consumption (approx.)	AC: 2.4 VA (50 Hz), 2.2 VA (60 Hz) DC: 1.5W	
Insulation Resistance	100 MΩ minimum (500V DC megger)	
Dielectric Strength	Between live and dead parts: 1,500V AC, 1 minute Between contact and coil: 1,500V AC, 1 minute Between contacts of different poles: 1,500V AC, 1 minute Between contacts of the same pole: 1,000V AC, 1 minute	
Operating Frequency	Electrical:	1800 operations/h maximum
	Mechanical:	18,000 operations/h maximum
Temperature Rise	Coil: 85°C maximum, Contact: 65°C maximum	
Vibration Resistance	0 to 60 m/s² (maximum frequency: 55 Hz), Frequency: 5 to 55 Hz, Amplitude: 0.5 mm	
Shock Resistance	100 m/s² minimum	
Mechanical Life	5,000,000 operations minimum	
Electrical Life	500,000 operations minimum (110V AC, 10A)	
Operating Temperature	–5 to +40°C (no freezing)	
Operating Humidity	45 to 85% RH (no condensation)	
Weight (approx.)	170g	

Coil Ratings

Rated Voltage (V)		Rated Current (mA) ±15% at 20°C		Coil Resistance (Ω) ±10% at 20°C	Operation Characteristics (values at 20°C)	
		50Hz	60Hz		Maximum Continuous Applied Voltage	Set and Reset Voltage
AC (50/60Hz)	6	467	429	3.5	110%	80% maximum
	12	200	184	23.8		
	24	100	92	95		
	110	23	21	1,900		
	120	24	22	2,200		
	220	10.9	10	7,740		
	240	11.5	10.6	9,190		
DC	6	240		25	110%	80% maximum
	12	120		100		
	24	60		400		
	48	30		1,600		
	110	13.8		7,960		

Contact Ratings

Maximum Contact Capacity						
Switching Voltage	Continuous Current	Allowable Contact Power		Rated Load		
		Resistive Load	Inductive Load	Voltage (V)	Res. Load	Ind. Load
250V AC 125V DC	10A	1650VA AC 300W DC	1100VA AC 225W DC	110 AC	10A	7.5A
				220 AC	7.5A	5A
				30 DC	10A	5A
				100V DC	0.5A	0.3A

Note: Inductive load for the rated load — cos ø = 0.3, L/R = 7 ms

UL Ratings

Voltage	Resistive	General use	Motor Load
240V AC	10A	7A	1/3 HP
120V AC	10A	7.5A	1/4 HP
30V DC	10A	7A	—

CSA Ratings

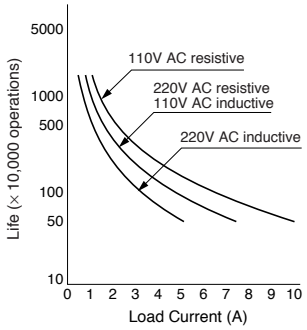
Voltage	Resistive	General use	Motor Load
240V AC	10A	7A	1/3 HP
120V AC	10A	7.5A	1/4 HP
100V DC	—	0.5A	—
30V DC	10A	7.5A	—

Socket Specifications

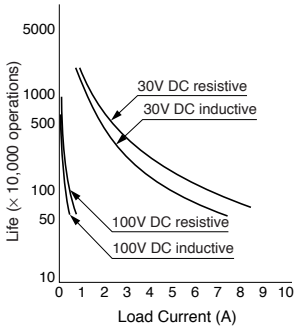
	Relays	Terminal	Electrical Rating	Wire Size	Torque
DIN Rail Mount Sockets	SR3P-05	M3 screw with captive wire clamp	300V, 10A	2–#12AWG	9 - 11.5 in•lbs
	SR3P-05C	M3 screw with captive wire clamp, fingersafe	300V, 10A	2–#12AWG	9 - 11.5 in•lbs
	SR3P-06	M3 screw with captive wire clamp	300V, 10A	2–#12AWG	9 - 11.5 in•lbs
Through Panel Mount Socket	SR3P-51	Solder	300V, 10A	—	—

Electrical Life Curve

AC Load

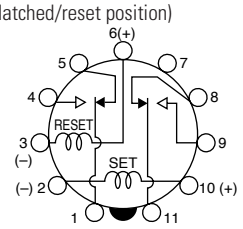


DC Load



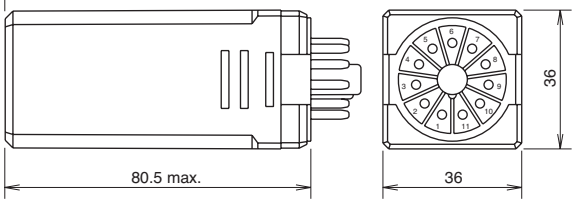
Internal Connection (View from Bottom)

(Shown in unlatched/reset position)



Dimensions (mm)

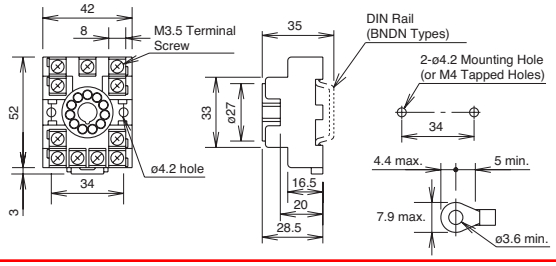
Total length from panel surface including relay socket
SR3P-05: 105 (108.5) max., SR3P-51: 87.5 (92) max.



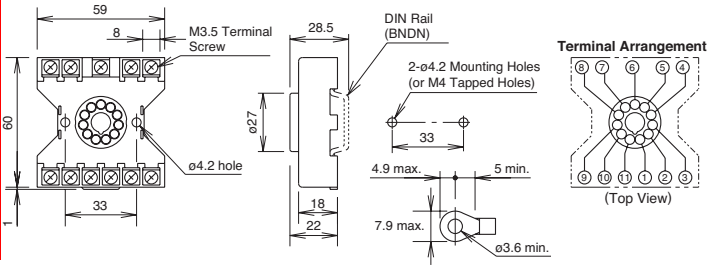
Dimensions in the ( ) include a hold-down spring.

Standard DIN Rail Mount Sockets

SR3P-05

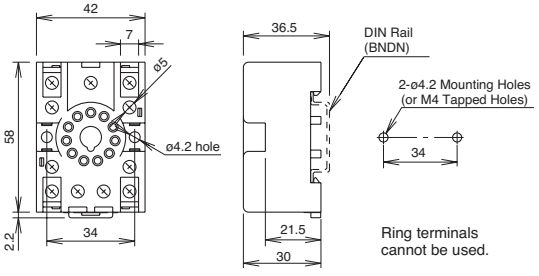


SR3P-06



Finger-safe DIN Rail Mount Sockets

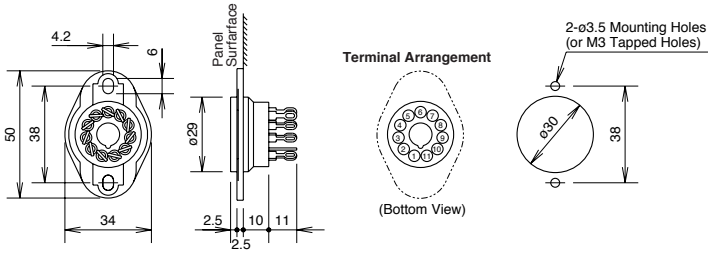
SR3P-05C



Ring terminals cannot be used.

Through Panel Mount Socket

SR3P-51



Product Data Sheet

PK12GTA

LOAD CENTER EQUIPMENT GROUND BAR ASSY

4410 - GROUND BUS BAR

SQUARE D by Schneider Electric

List Price $15.80 USD

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

Technical Characteristics

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

Shipping and Ordering

Category	00102 - Load Centers, Accessories, Type QO
Discount Schedule	DE3A
GTIN	00785901026402
Package Quantity	10
Weight	0.14 lbs.
Availability Code	Stock Item: This item is normally stocked in our distribution facility.
Returnability	Y
Country of Origin	US

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

Generated: 08/08/2012 04:38:56

Schneider Electric

4610 - RUST/ CORROSION INHIBITOR, 2FT RADIUS

Zerust® Corrosion Solutions

For the Electrical and Electronics Industry

ZERUST® EXCOR®

Why Zerust®?

Corrosion is a pervasive, but largely invisible problem in the electrical and electronics industry. The root cause of electrical and electronic equipment failures that lead to downtime are often due to corrosion. The onset of devastating corrosion can occur while the equipment is in shipment, storage, and during normal operation in both indoor and outdoor environments. Corrosion is most commonly initiated in atmospheres with high humidity, condensation, or traces of aggressive pollutants such as sulfides, chlorides and ammonia found in industrial and marine environments. The results are expensive failures ranging from intermittent performance to complete failure of critical components. Zerust® corrosion inhibiting products are a cost-effective way to protect electrical and electronic components and equipment from the destructive effects of corrosion.

Benefits of Zerust® Corrosion Inhibiting Products:

- Longer equipment life and sustained reliability
- Lower operating and maintenance costs
- Reduced down time and fewer repairs
- Maintenance of a clean, high-quality surface appearance
- Protection from corrosion for different metal types
- Optional protection such as electrostatic discharge (ESD) dissipation additives, acid-gas neutralizers and more

Zerust® is Safe For Electronics:

- Does not effect the functionality of circuitry
- Not harmful to printed circuit boards and sensitive ICs
- No galvanic effects, conductive residues or surface changes
- Protects metal surfaces with the clean, dry, odorless and invisible corrosion inhibiting technology
- Protective layer dissipates into the atmosphere after the product is removed, leaving no residues or surface effects
- Analysis of compatibility can be arranged by a local Zerust® representative using recognized test procedures
- Safe for personnel

What Zerust® Protects

Finished Products
During final product shipment, warehousing and use for:

- Factory automation and process controls
- Electrical cabinets and enclosures
- Power supplies and UPS equipment
- Telecommunications and server cabinets
- Computers and office equipment
- Electronics for marine environments
- Lighting systems

Sub-assemblies & Components
During in-process storage or interplant and intraplant shipment:

- Cabinets and frames
- Connectors, contacts and springs
- Relays and switches
- PCB assemblies and bare boards
- Solder and interconnection layers

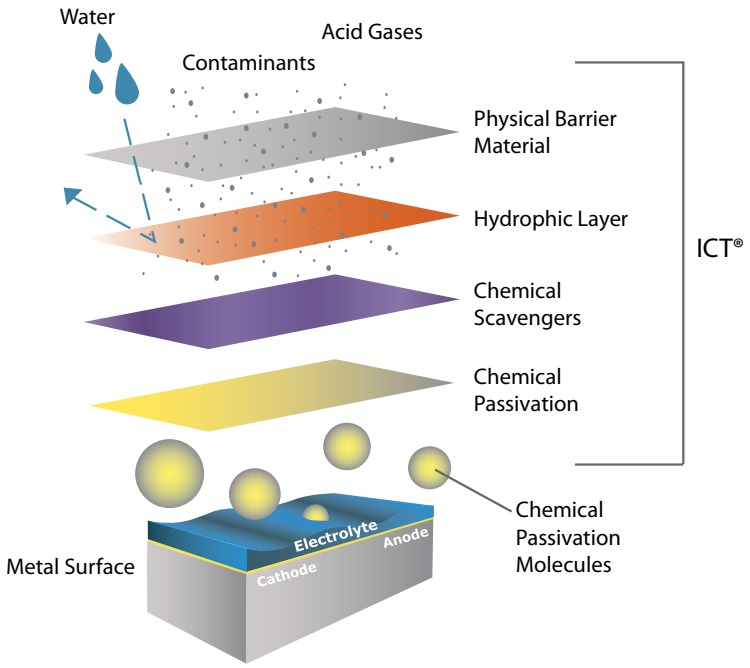
Zerust® Chemical Passivation Technology Explained

All metal surfaces are naturally structured with a myriad of microscopic regions of high (anodic) and low (cathodic) electrochemical energy. When moisture and other atmospheric contaminants adhere to these surfaces, they act as strong electrochemical conductors (electrolytes), resulting in the flow of ion and electronic currents among these regions. This natural electrochemical process causes reactions between the metals and oxygen, sulfur and other trace atmospheric elements, to form rust, tarnish, and other forms of corrosion. Zerust® products contain proprietary chemical formulations that continuously release an invisible, odorless, safe and environmentally friendly corrosion inhibiting vapor into the enclosure. Zerust® vapor saturates the interior of an enclosure or sealed area wrapped in Zerust® film to form a powerful corrosion inhibiting molecular layer on all exposed metal surfaces. This Zerust® corrosion inhibiting layer interrupts, or inhibits, the electro-chemical corrosion process.

Later, when the enclosure or package is opened, the Zerust® corrosion inhibiting layer evaporates, leaving clean, dry and corrosion free parts that are ready for immediate use without further cleaning and related handling.

Zerust® Integrated Corrosion Technologies (ICT®)

Diagram shows combination of various corrosion protection and inhibiting modes that can be selected depending on protection needs.



Zerust® Protection—Exterior Packaging of Electrical and Electronic Items

For exterior surface protection of parts and equipment of any size, we recommend Zerust® packaging materials to wrap, enclose and protect them. Zerust® packaging materials ensure that parts are protected in storage, or arrive at their final destination, without contact deterioration, intermittent connections, or a degraded appearance. Zerust® VCI film sheeting and bags provide a clean, non-oily, and nontoxic corrosion prevention solution. Zerust® packaging materials have a shelf life of two years and a subsequent in-service life of up to five years.

Zerust® application engineers and account specialists are on hand to assess each project's needs. They are able to recommend the correct corrosion inhibiting formulation along with the best packaging design and process for maximum corrosion protection.

Product Highlight - Tarnish Prevention Film

Zerust® ICT®520-CB1 Anti-tarnish Film, made without vapor inhibitors, is specifically designed to protect the most sensitive circuit components made of silver, copper, bronze, brass, tin, iron, or steel. It protects enclosed parts by blocking and neutralizing acid gases that cause oxidation, corrosion, and tarnish.

Features

> Provides superior performance when compared to other anti-tarnish products on the market
> Low cost
> Translucent packaging so you can see the protected items.
> Optional ESD Anti-static protection

* For details read U.S. Patent 7.261.839

Computer Board Protected by ICT®520-CB1 Anti-Tarnish Film

Zerust® Protection—Interior of Electrical and Electronic Enclosures

We recommend Zerust® Vapor Capsules and Plastabs® for the corrosion protection of interior surfaces, such as metals within switch gearboxes, electronic cabinets and other enclosures holding electrical gear. Zerust® diffuser products are self-contained corrosion inhibiting capsules and tabs that prevent corrosion of multiple metal types within enclosures. They work by permeating the interior air of an enclosure with an invisible, odorless, non-toxic corrosion inhibiting vapor that lasts for one or two years depending on the model.. This invisible and dry protective layer revaporizes upon removal of the capsule from the enclosure, leaving all surfaces clean, dry, residue-free and corrosion-free.

Reduce Maintenance Cost

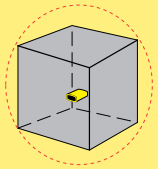
Zerust® Vapor Capsules prevent the corrosion that cause higher levels of electrical contact resistance and related failure modes. This allows for fewer maintenance checks and reduced down time and component failures.

Use Zerust® Vapor Capsules

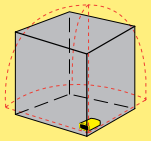
- During shipment and storage. Combine with Zerust® packaging materials to provide both internal and external corrosion protection.
- During normal operation.
- During closure or shutdown.

Installation

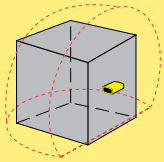
Zerust® Vapor Capsules are easily installed in a few seconds without tools or specialized labor. Simply peel the cover tape from the adhesive backing to attach to most surfaces.



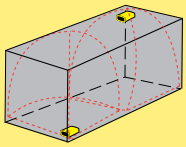
Center—The ideal location to obtain maximum coverage of protection from the capsule. This position may not be possible if the center is occupied.



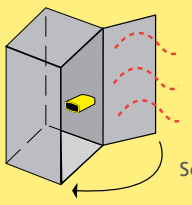
Corner—In deeper enclosures two capsules may be required on diagonally opposed corners to fully protect the entire space.



Sides—Is practical for most applications and provides the optimum side mounted protection.

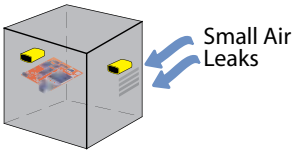


Dual Placement- For longer boxes or divided spaces, place a capsule in opposite corners for complete coverage.



It is essential to restrict airflow to the container. Airflow removes protective vapor barrier from the space faster than it can be released from the diffuser.

Contending with Airflow



Restricting airflow is always necessary but, when it cannot be avoided that Zerust® diffusers are needed within enclosures with some small air leaks, then it is recommended to place the capsule close to the source of airflow.

For added corrosion protection when there are small air leaks or in especially corrosion conditions, place additional Zerust® diffusers near the sensitive metal surface to be protected.

Zerust® Capsules—Multimetal Protection

Product Name and Part Number	NSN National Stock Number	Volume of Protection	Radius of Protection	Duration of Protection	Product
VC1-1 (S)* 375-M-00006	6850-01-426-3539	4.2 ft^3 (0.12 m^3)	1 ft (0.3 m)	1 year	
VC1-1* 375-M-00001	6850-01-338-1393	4.2 ft^3 (0.12 m^3)	1 ft (0.3 m)	1 year	
VC2-1* 375-M-00002	4440-01-475-9949	33.5 ft^3 (0.95 m^3)	2 ft (0.6 m)	1 year	
VC2-2* 375-M-00003	6850-01-133-0373	33.5 ft^3 (0.95 m^3)	2 ft (0.6 m)	2 years	
VC6-1 375-M-00004	-	905 ft^3 (25.63 m^3)	6 ft (1.8 m)	1 year	
VC6-2 375-M-00005	6850-01-348-1090	905 ft^3 (25.63 m^3)	6 ft W(1.8 m)	2 years	

* Includes Adhesive Backing.

Zerust® Product Range

Zerust® products offer an optimal solution via application-specific corrosion inhibiting formulations. These allow for the protection of the entire range of metals and alloys commonly used in the electrical and/or electronics industry.

Ferrous

Protect iron, steel and cast iron metals using Zerust® Ferrous Products. Yellow corrosion inhibiting films are a registered trademark of NTIC Zerust®.

Non-Ferrous

Protect aluminum (and aluminum alloys containing copper and/or manganese), copper, brass, bronze and fully galvanized steel using Zerust® Non-Ferrous Products.

Multimetal

Protect combinations of ferrous and non-ferrous metals using Zerust® Multimetal Products.

Anti-Tarnish

Protect silver, copper, bronze, brass, tin, iron, or steel from acid gases that cause oxidation, corrosion, and tarnish with Zerust® Anti-tarnish products. Available with or without chemical passivating additive.

Product Highlight - Fourth Generation ICT® Films

The new Zerust® ICT®510-G4 Film family has options for protection of ferrous, non-ferrous and multimetal along with acid gas scavengers to block and neutralize acid gases from entering the sealed packaging. The films provide robust double protection for aggressive industrial environments.

* For details read U.S. Patent 7,270,775

Zerust® Packaging Film Products

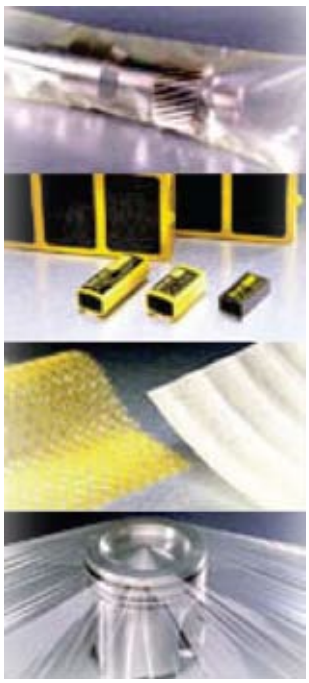
Corrosion inhibiting bags, film, sheeting and tubing. Optional add-ons include: Acid-Gas Scavengers, Anti-Static Protection, Anti-Slip, UV Protection, Hydrophobic Layers, Custom Colors, Printing, Zipper Closure, Stretch, Shrink and Cold Seal.

Zerust® Packaging Paper Products

Corrosion inhibiting paper and poly-paper products. Our packaging papers are acid free, pH neutral and saturated on both sides with our corrosion inhibiting formulations for maximum protection.

Zerust® ICT® Vapor Diffusers

Vapor Capsules and other self-contained corrosion inhibiting diffusers used to protect electrical and/or electronic components inside of enclosures.



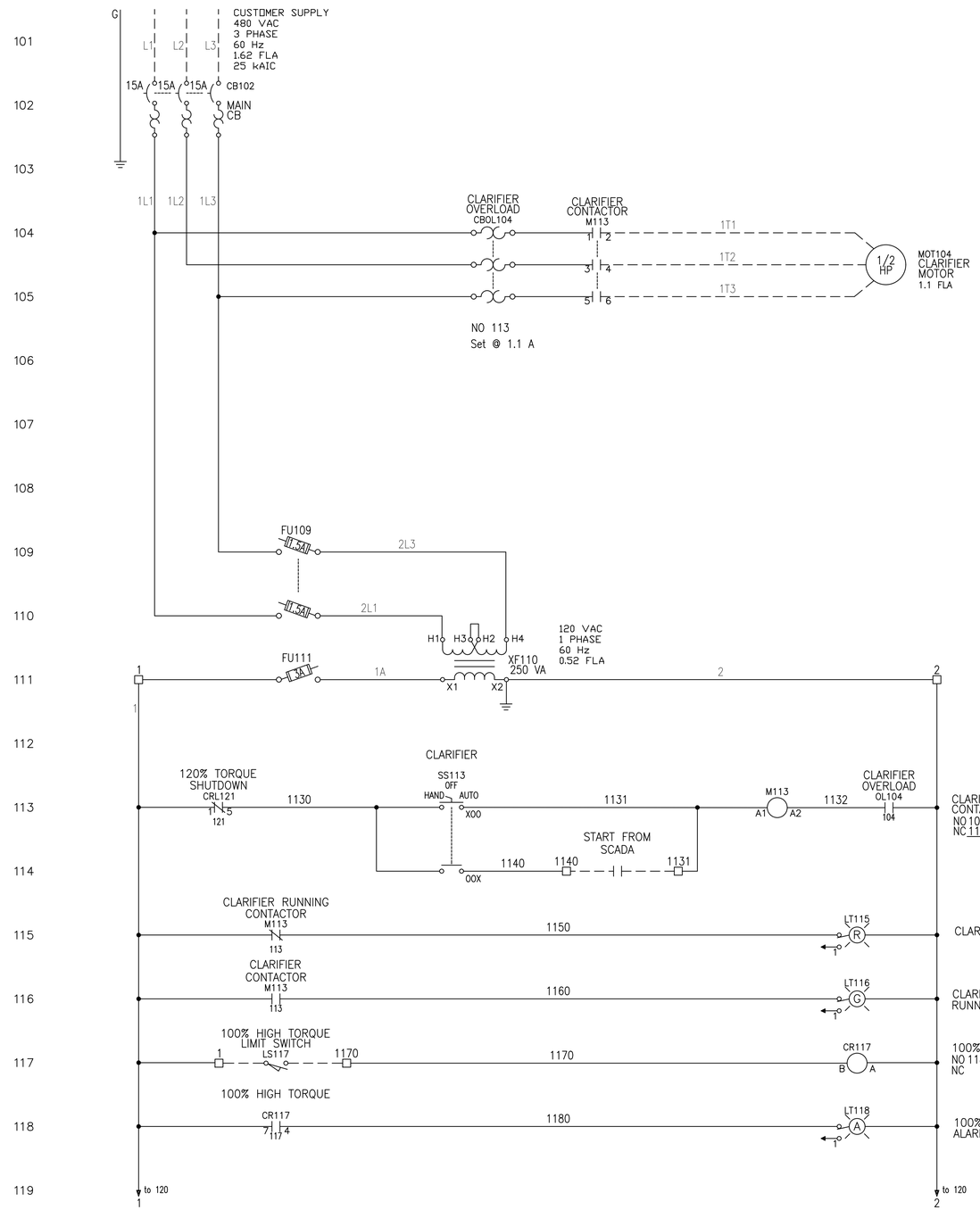
Contact Us

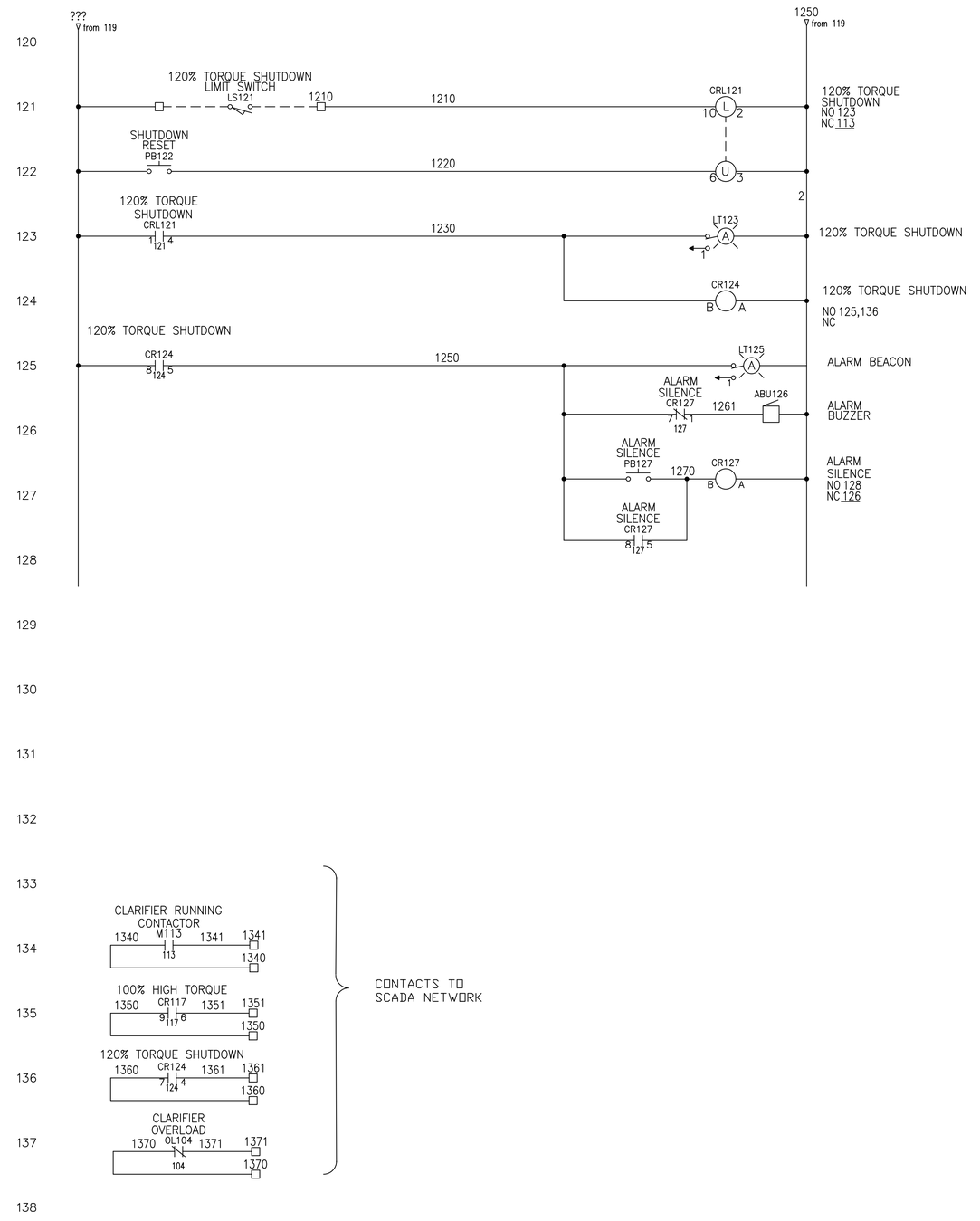
To find out more about how NTIC and Zerust®/Excor® products and services can help your company save money, improve product quality and reliability, and reduce negative environmental impact. Please contact a Zerust® Account Specialist today at 763.404.8701.

Zerust®/Excor® Corrosion Solutions
Northern Technologies International Corp.
4201 Woodland Road Circle Pines, MN 55014
www.zerust.com | sales@ntic.com
P: 763.225.6600 | F: 763.225.6645

REV A

Section 2
Electrical Drawings





NOTES: WIRING SPEC:
- PLC CARD WIRING – #16AWG STRANDED MTW OR EQUAL, 300V @ 90°C, UNLESS OTHERWISE NOTED.
- CONTROL WIRING – #14AWG STRANDED MTW OR EQUAL, 600V @ 90°C, UNLESS OTHERWISE NOTED.
- POWER WIRING – #12AWG STRANDED MTW OR EQUAL, 600V @ 90°C, MINIMUM, SIZED FOR CIRCUIT CURRENT.

WIRE COLOR CODES:
- BLACK – POWER WIRING (MULTI-PHASE) 230VAC OR GREATER, 120VAC UNSWITCHED CONTROL WIRING.
- RED – 120VAC SWITCHED CONTROL WIRING.
- WHITE – 120VAC NEUTRAL WIRING.
- GREEN – GROUNDED CONDUCTORS.
- BLUE – UNGROUNDED DC CONTROL WIRING.
- WHITE W/BLUE STRIPE – GROUNDED DC CONTROL WIRING.
- LIGHT BLUE – INTRINSICALLY SAFE WIRING.
- ORANGE – EXTERNALLY POWERED CIRCUITS (CUSTOMER CONTACTS).

CUSTOMER CIRCUITS:
- DRY CONTACTS ARE RATED FOR 7.5 AMPERES @ 120VAC. SUITABLE PROTECTION AND DISCONNECT MEANS ARE TO BE PROVIDED BY CUSTOMER. USE #14AWG MINIMUM. ALL HOLES TO BE SEALED AND GASKETED TO MAINTAIN ENCLOSURE INTEGRITY.

FOR APPROVAL ONLY
NOT TO BE USED FOR
CONSTRUCTION
PURPOSES

——— WIRED IN SHOP PRIOR TO SHIPMENT

– – – – FIELD WIRING UNLESS OTHERWISE NOTED

REV	DESCRIPTION	DATE	DWN	CHKD	APVD	ECN
A	FOR SUBMITTAL ONLY NOT FOR CONSTRUCTION	2022-08-30	R.HRDI	S.ZICK		

DESIGNER	DATE
R.HRDI	2022-08-30
CHECKER	DATE
S.ZICK	2022-08-30
ENGINEER	DATE
R.VANSEL	2022-08-09
MANAGER	DATE
J.KINNEY	2022-08-30
FILE:	
SCALE:	

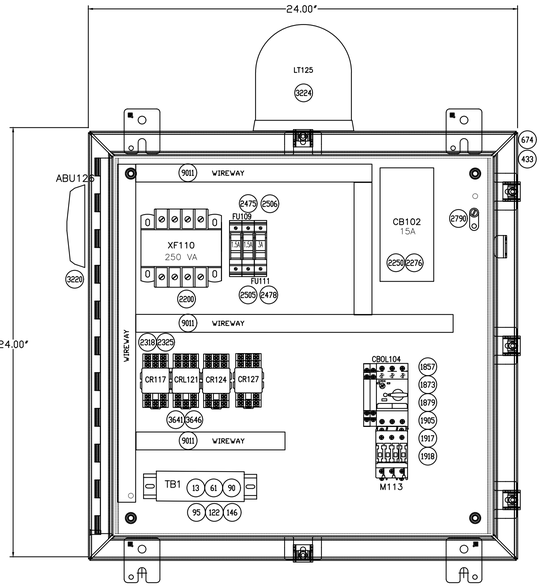
TITLE: CLARIFIER CONTROL PANEL
ELECTRICAL SCHEMATIC

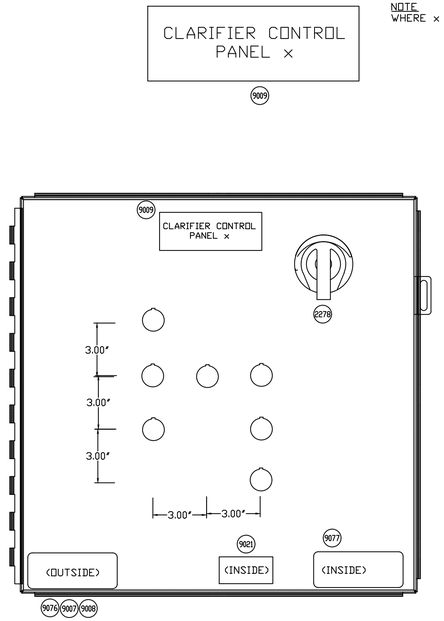
CLIENT: JEFFERSON, GA

EVOQUA WATER TECHNOLOGIES
WAUKESHA, WI
262-547-0141

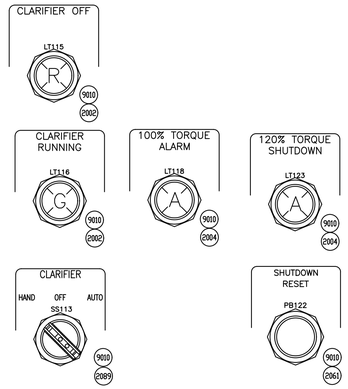
PROJECT	CODE	DRAWING	SHEET	REV
2033/001848	4034	453130-892-01	1 OF 1	1

STD: BORDER-0106-24X36D1 | INTL REF: | BAR = 1" AT PLOT SCALE





NOTE
WHERE x = 1 OR 2



OPERATOR DETAIL

NOTE
ITEM 9076 TO BE LABELED WITH THE FOLLOWING:

EVOQUA
Automated controls
Evoqua Water Technologies
Waukesha, WI 53188
(262)547-0141
(800)524-6324

NOTE
ITEM 9077 TO BE LABELED WITH THE FOLLOWING:
SERIAL NO. 453130-892-01
LINE VOLTS: 480 V, 3 PH., 60 HZ
LINE AMPS: 15 FLA
CONTROL VOLTS: 120 V, 1 PH., 60 HZ
CONTROL AMPS: 2.08 FLA
LARGEST MOTOR FLA: 1.1 FLA
SHORT CIRCUIT CURRENT: 25 kA
RMS SYMMETRICAL, 480 V MAXIMUM

TB1 DETAIL

1	1	1	2	1140	1131	1170	1210	1340	1341	1351	1350	1351	1360	1361	1370	1371	SPARE	SPARE

COMPONENTS FOR ONE (1) W3TXXXXXX CONTROL PANELS				
ITEM	QTY	CATALOG	DESC	MFG
13	19	3044102	UNIVERSAL TERMINAL BLOCK – UT 4 (GREY)	PHOENIX CONTACT
61	1	0801733	DIN MOUNTING RAIL 2 M LENGTH	PHOENIX CONTACT
90	3	1201099	ANGLED BRACKET	PHOENIX CONTACT
95	2	0800886	TERMINAL END ANCHOR	PHOENIX CONTACT
122	1	3047028	TERMINAL END BARRIER	PHOENIX CONTACT
146	1	3030365	TERMINAL JUMPER 20P 600V – UT 4	PHOENIX CONTACT
432	1	A24H2408SSLP	NEMA 4X SS 24"x24"x8" WALL–MOUNT ENCLOSURE	HOFFMAN
674	1	A24P24	SUBPANEL	HOFFMAN
1857	1	3RA29211AA00	MSP TO CONTACTOR LINK SO	SIEMENS
1873	1	3RH2911–1HA30	CONTACTOR AUXILIARY CONTACT BLOCK (3 NO)	SIEMENS
1879	1	3RT2027–1AK60–0UA0	CONTACTOR, NEMA SIZE 1	SIEMENS
1905	1	3RV2021–0KA10	MOTOR STARTER PROTECTOR – 0.9–1.25 FLA	SIEMENS
1917	1	3RV29011J	MSP AUXILIARY CONTACT BLOCK – 2 NO, 2 NC	SIEMENS
1918	1	3RV2928–1H	MSP SO UL508 APPROVED TERMINAL SPACER	SIEMENS
2000	1	52BT6G2AB	RED PILOT LIGHT – PUSH–TO–TEST, NEMA 4X, TRANSFORMER, 6V LED	SIEMENS
2002	1	52BT6G3AB	GREEN PILOT LIGHT – PUSH–TO–TEST, NEMA 4X, TRANSFORMER, 6V LED	SIEMENS
2004	2	52BT6G9AB	AMBER PILOT LIGHT – PUSH–TO–TEST, NEMA 4X, TRANSFORMER, 6V LED	SIEMENS
2061	2	52BM8A1K	PUSHBUTTON, MOMENTARY, FLUSH, NO, BLK, NEMA 4X, HEAVY DUTY	SIEMENS
2093	1	52SX2CABA2	SELECTOR SW – 3 POS MAINTAINED – 2NO, 2NC, NEMA 4X	SIEMENS
2200	1	MT0250A	INDUSTRIAL CONTROL TRANSFORMER – 250VA	SIEMENS
2250	1	3VA5195–4ED31–0AA0	CIRCUIT BREAKER TYPE 3VA5 – 125A FRAME 15A – 25kAIC	SIEMENS
2276	2	3VA9133–0JA11	LUG, DISTRIBUTION, TYPE 3VA5 BREAKER, LESS THAN 45A	SIEMENS
2278	1	3VA9137–0FK31	CB TYPE 3VA5 – DOOR MOUNT OPERATOR KIT NEMA 4X	SIEMENS
2318	3	3TX7115–5NF13	PLUG–IN RELAY TYPE PREMIUM LINE, SQUARE BASE	SIEMENS
2325	3	3TX7144–1E4	PLUG–IN RELAY SOCKET	SIEMENS
2475	2	KLDR01.5	FUSE, TIME DELAY, 600VAC, 1.5 AMP	LITTELFUSE
2478	1	KLDR003	FUSE, TIME DELAY, 600VAC, 3 AMP	LITTELFUSE
2505	1	LPSC001ID	1–POLE FINGER SAFE CC FUSE BLOCK – INDICATING	LITTELFUSE
2506	1	LPSC002ID	2–POLE FINGER SAFE CC FUSE BLOCK – INDICATING	LITTELFUSE
2790	1	KA4C	GROUND LUG	BURNDY
3220	1	870P–N5	ALARM HORN, NEMA 4X, 120 VAC	EDWARDS
3224	1	125STRNA120A	ALARM BEACON, AMBER, NEMA 4X, 120 VAC	EDWARDS
3641	1	SR3P–05	RR SERIES PLUG–IN RELAY SOCKET	IDEC
3646	1	RR2KP–UAC120V	PLUG–IN RELAY, LATCHING, 120VAC	IDEC
4410	1	PK12GTA	GROUND BUS BAR	SQUARE D
4610	1	375–M–00002–VC2–1	RUST/CORROSION INHIBITOR, 2FT RADIUS	ZERUST
9007	1	PPS0305D73	HIGH VOLTAGE LABEL	PANEL SHOP
9008	1	PVS0305W2102Y	ARC FLASH WARNING LABEL	PANEL SHOP
9009	1	LAMICOID	LEGEND 2"x4", BLACK W/WHITE LETTERS	PANEL SHOP
9010	7	LAMICOID	OPERATOR LEGEND, WHITE W/BLACK LETTERS	PANEL SHOP
9011	8FT	WIREWAY	WIREWAY, 1X3, WHITE, W/COVER	PANEL SHOP
9021	1		UL / CUL LABEL	PANEL SHOP
9036	1	LAMICOID	LEGEND 3/4"x3", WHITE W/BLACK LETTERS	PANEL SHOP
9076	1	W2T438450	EVOQUA AUTOMATED CONTROLS LABEL	PANEL SHOP
9077	1	W2T438453	SERIAL # – DATA LABEL	PANEL SHOP
9999	1	W2T808281	PANEL FABRICATION & TEST SPECIFICATION	EVOQUA WT
SPARE PARTS				
2475	2	KLDR01.5	FUSE, TIME DELAY, 600VAC, 1.5 AMP	LITTELFUSE
2478	1	KLDR003	FUSE, TIME DELAY, 600VAC, 3 AMP	LITTELFUSE
4610	1	375–M–00002–VC2–1	RUST/CORROSION INHIBITOR, 2FT RADIUS	ZERUST

* * * PANEL TO BE UL LISTED * * *

NOTE
SEE 453130-892-01 FOR ELECTRICAL SCHEMATIC

NOTES: WIRING SPEC:
PLC CARD WIRING – #16AWG STRANDED MTW OR EQUAL, 300V @ 90°C, UNLESS OTHERWISE NOTED.
CONTROL WIRING – #14AWG STRANDED MTW OR EQUAL, 600V @ 90°C, UNLESS OTHERWISE NOTED.
POWER WIRING – #12AWG STRANDED MTW OR EQUAL, 600V @ 90°C, MINIMUM, SIZED FOR CIRCUIT CURRENT.
WIRE COLOR CODES:
BLACK – POWER WIRING (MULTI–PHASE) 230VAC OR GREATER, 120VAC UNSWITCHED CONTROL WIRING.
RED – 120VAC SWITCHED CONTROL WIRING.
WHITE – 120VAC NEUTRAL WIRING.
GREEN – GROUNDED CONDUCTORS.
BLUE – UNGROUNDED DC CONTROL WIRING.
WHITE W/BLUE STRIPE – GROUNDED DC CONTROL WIRING.
LIGHT BLUE – INTRINSICALLY SAFE WIRING.
ORANGE – EXTERNALLY POWERED CIRCUITS (CUSTOMER CONTACTS).
CUSTOMER CIRCUITS:
DRY CONTACTS ARE RATED FOR 7.5 AMPERES @ 120VAC. SUITABLE PROTECTION AND DISCONNECT MEANS ARE TO BE PROVIDED BY CUSTOMER. USE #14AWG MINIMUM.
ALL HOLES TO BE SEALED AND GASKETED TO MAINTAIN ENCLOSURE INTEGRITY.

FOR APPROVAL ONLY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

WIRED IN SHOP PRIOR TO SHIPMENT
FIELD WIRING UNLESS OTHERWISE NOTED

REV	DESCRIPTION	DATE	DWN	CHKD	APVD	ECN
A	FOR SUBMITTAL ONLY NOT FOR CONSTRUCTION	2022–08–30	R.HRDI	S.ZICK		

DESIGNER	R.HRDI	DATE 2022–08–30
CHECKER	S.ZICK	DATE 2022–08–30
ENGINEER	R.VANSEL	DATE 2022–08–09
MANAGER	J.KINNEY	DATE 2022–08–30
FILE:		
SCALE:		

TITLE: CLARIFIER CONTROL PANEL
PANEL LAYOUT & BOM

CLIENT: JEFFERSON, GA

EVOQUA WATER TECHNOLOGIES
WAUKESHA, WI
262–547–0141

PROJECT	CODE	DRAWING	SHEET	REV
2033/001848	4034	453130–892–02	1 OF 1	1

STD: BORDER–0106–24X36D1 | INTL REF: | BAR = 1" AT PLOT SCALE