

Transformer Disconnects

Catalog
April

05

Class 9070



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INTRODUCTION

Schneider Electric's Square D® Transformer Disconnects mount inside or outside a control system enclosure and provide power to auxiliary, single-phase loads when the main three-phase disconnect is either ON or OFF. The transformer disconnect is normally wired to the line side of the control panel's main disconnect.

This convenient source of 120 V power can be used for auxiliary or isolated loads, such as panel lighting, portable power tools, and programmable controller equipment.

Units consist of copper-wound transformers, a disconnect switch, and primary and secondary fuse blocks. All blocks are installed in NEMA 1 or NEMA 12 enclosures.

STANDARD FEATURES

- Meets UL standards—UL Listed
Meets CSA standards—cUL Listed
- Use Square D, type TF industrial control transformers
 - Rated for 50/60 Hz
 - Trilingual nameplate (English, Spanish, and French)
 - Molded terminal boards 25–5000 VA
 - Welded core and base plate
 - Type T transformers are designed for various temperature classes:
 - 50–150 VA with a 55° C temperature rise
 - 200–350 VA with an 80° C temperature rise
 - 500–5000 VA with a 115° C temperature rise
 - Separate Fingersafe® cover accessory kits may be purchased and installed
 - Rejection-style fuse block connected to primary
 - Secondary fuse block
- Use Square D disconnect switch:
 - 600 Volts
 - 45 Amperes
 - 100,000 A, short-circuit withstand, integrated rating when protected by Class CC fuses
 - Disconnect can be locked in the OFF position
- Multiple enclosure options to choose from:
 - Standard NEMA 1
 - G1: 250–1000 VA
 - G2: 1500–3000 VA
 - G4: 5000 VA
 - Mini NEMA 1
 - G0: 100–500 VA
 - Compact NEMA 1
 - G3: 750–3000 VA; designed to be installed in 12-inch deep, standard boxes
 - NEMA 12
 - A2: 250–3000 VA; standard NEMA 12 option; can be factory modified for NEMA 3R applications
 - A3: 250–2000 VA; NEMA 12 option with special disconnect switch
- Knockouts—Conveniently located on NEMA 1 enclosures
- Ground terminal
- External mounting flanges with slotted holes for “hook and hang” mounting on NEMA 1 enclosures
- 90° access cover stop

Transformer Disconnects Factory-Installed Options

FACTORY-INSTALLED OPTIONS

- Multiple voltage combinations
 - 240 x 480 to 120 (Voltage Code D1)
 - 208 to 120 (Voltage Code D3)
 - 277 to 120 (Voltage Code D4)
 - 600 to 120 (Voltage Code D5)
 - 380 to 110 (Voltage Code D6)
 - 480 to 120 (Voltage Code D9); Available on 5000 VA only
 - 415 to 110 (Voltage Code D17)
 - 120 to 120 (Voltage Code D24)
 - 480/575 to 115 (Voltage Code D101); Requires special wiring
- 55° C rise transformers (Form C)
 - 9070 type EO transformers
 - Standard on 250 VA and below
- Electrostatically-shielded transformers (Form E23)
- Additional 1-1/2-inch x 13/32-inch secondary fuse block for multiple secondary circuits (Form F11)
- Change standard primary fuse holder from:
 - 1-1/2-inch x 13/32-inch to 5-inch x 13/16-inch (Form F30)
 - 5-inch x 13/16-inch to 1-1/2-inch x 13/32-inch (Form F32)
- Enclosure door grounded with wire lead (Form GRD)
- Duplex receptacle; door-mounted
 - One receptacle (Form G13)
 - One Class A, ground fault-protected (GFI) receptacle (Form G14)
 - Two receptacles (Form G16)
- Convert enclosure from NEMA 12 to NEMA 3R (Form N3)
- Pilot light—"ON" red warning light to tell operator that 120 VAC power is ON (Form P1); Option with strain relief (Form P2)

Transformer Disconnects Specifying Product Catalog Numbers

SPECIFYING PRODUCT CATALOG NUMBERS

When ordering, specify the following information: Class, Type, VA rating, Enclosure, Voltage code, and Form(s).

Sample Catalog Number					
Class	Type	VA Rating	Enclosure	Voltage Code	Form(s)
9070	SK	1000	A2	D1	E23 G13 N3

Forms are added after the voltage code in alphabetical order:

For example, to order a 1000 VA, A2 enclosure with the following options:	Use this catalog number:
Electrostatically-shielded, duplex receptacle, NEMA 3R	9070SK1000A2D1E23G13N3

Transformer Disconnects

NEMA 1 Transformer Disconnects



G1



G2

NEMA 1 TRANSFORMER DISCONNECTS

Standard NEMA 1 Offering (G1 and G2)

- Voltage 240 x 480 to 120 (D1)
- 250–3000 VA
 - Square D[®] disconnect switch (V3) 45 A, 600 V, 100,000 AIC rating when protected with Class CC fuses
- Fuse block requires:
 - 1-1/2-inch x 13/32-inch rejection-style primary fuses
 - 1-1/2-inch x 13/32-inch secondary fuses
- Ground terminal
- Conveniently located 1/2-inch to 3/4-inch knockouts
- External mounting flanges with slotted holes for “hook and hang” mounting
- 90° access cover stop

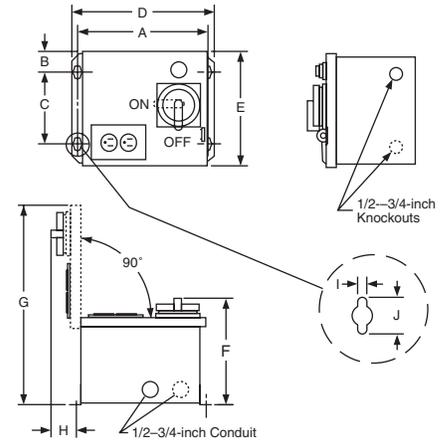
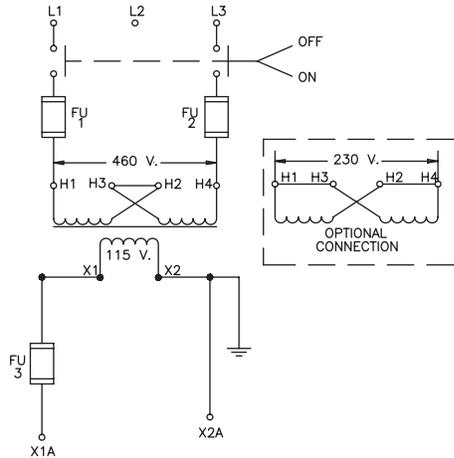


Table 1: Enclosure Dimensions

VA	Enclosure	A	B	C	D	E	F	G	H	I	J
250–1000	G1	10.80	1.70	6.00	11.80	9.40	8.96	16.81	2.09	.32	.32
1500–3000	G2	13.80	1.70	10.00	14.80	13.40	12.21	23.06	2.09	1.00	1.00

Table 2: Factory Available Options for Standard 9070 SK Units (Enclosures G1 and G2)

Option—Description	Factory Modification Form
Special voltages	Change voltage code from D1 to appropriate D code
55° C rise transformer	C **
Electrostatically-shielded transformer	E23
Additional 1-1/2-inch x 13/32-inch secondary fuse block	F11
Primary fuse block—5-inch x 13/16-inch *	F30
Duplex receptacle, door-mounted	G13
Class A, GFI, duplex receptacle, door-mounted	G14
Two duplex receptacles, door-mounted *	G16
“ON” red warning pilot light	P1
“ON” red warning pilot light, with strain relief	P2

* Available on G2 enclosures only. If required on 250–1000 VA, change G1 to G2 in catalog number
 ** Not available on 3000 VA

Transformer Disconnects NEMA 1 Transformer Disconnects



G4

Standard NEMA 1 Offering (G4)

- Voltage 480 to 120 (D9)
- 5000 VA
 - Square D® disconnect switch (V3) 45 A, 600 V, 100,000 AIC rating when protected with Class CC fuses
- Fuse block requires:
 - 1-1/2-inch x 13/32 rejection-style primary fuses
 - 3-inch x 3/4-inch secondary fuses
- Ground terminal
- Conveniently located 1/2-inch to 3/4-inch knockouts
- External mounting flanges with slotted holes for “hook and hang” mounting
- 90° access cover stop
- 60 Hz only

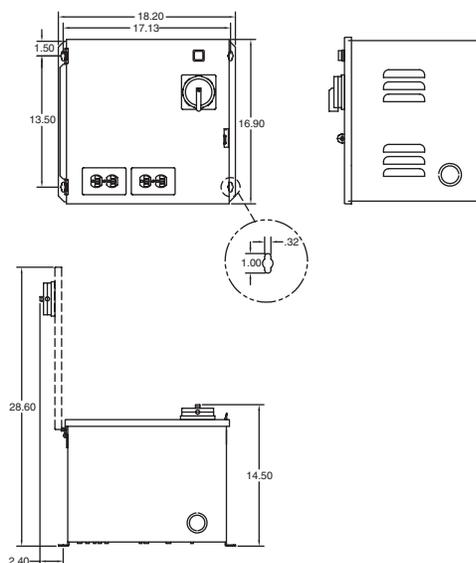
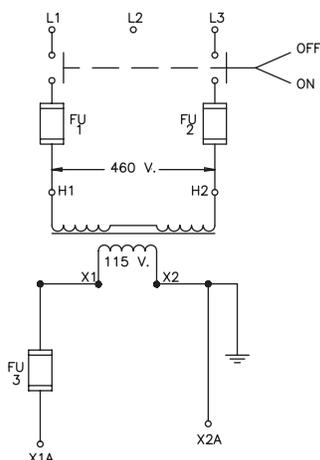


Table 3: Factory Available Options for Standard 9070 SK Units (Enclosure G4)

Option—Description	Factory Modification Form
Special voltages	Change voltage code from D1 to appropriate D code
Electrostatically-shielded transformer	E23
Additional 1-1/2-inch x 13/32-inch secondary fuse block	F11
Primary fuse block—5-inch x 13/16-inch	F30
Duplex receptacle, door-mounted	G13
Class A, GFI, duplex receptacle, door-mounted	G14
Two duplex receptacles, door-mounted	G16
“ON” red warning pilot light	P1
“ON” red warning pilot light, with strain relief	P2

Transformer Disconnects

NEMA 1 Transformer Disconnects



G0

Mini NEMA 1 Offering (G0)

- Voltage 240 x 480 to 120 (D1)
- 100–500 VA
 - Square D® disconnect switch (V3) 45 A, 600 V, 100,000 AIC rating when protected with Class CC fuses
- Fuse block requires:
 - 1-1/2-inch x 13/32-inch rejection-style primary fuses
 - 1-1/2-inch x 13/32-inch secondary fuses
- Ground terminal
- Conveniently located 1/2-inch to 3/4-inch knockouts
- External mounting flanges with slotted holes for “hook and hang” mounting
- 90° access cover stop

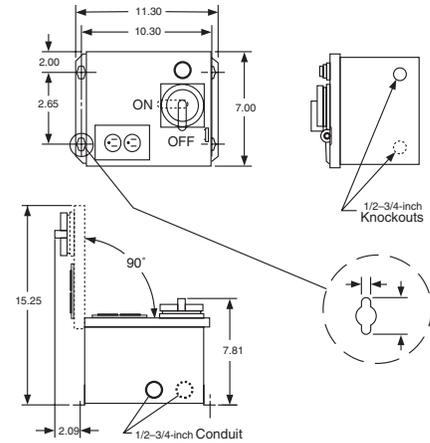
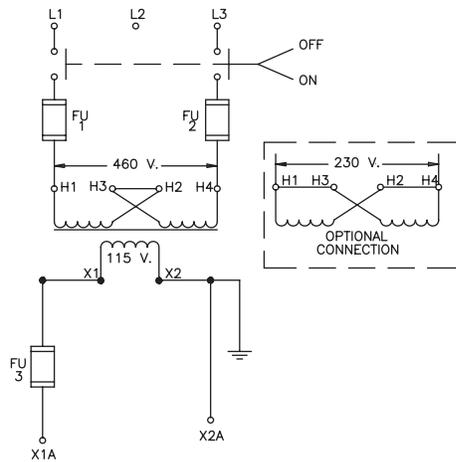


Table 4: Factory Available Options for Mini 9070 SK Units (Enclosure G0)

Option—Description	Factory Modification Form
Special voltages	Change voltage code from D1 to appropriate D code
Electrostatically-shielded transformer	E23
Additional 1-1/2-inch x 13/32-inch secondary fuse block	F11
Duplex receptacle, door-mounted	G13
Class A, GFI, duplex receptacle, door-mounted	G14

Transformer Disconnects NEMA 1 Transformer Disconnects



G3

New Compact NEMA 1 Offering (G3)

- Voltage 240 x 480 to 120 (D1)
- 750–3000 VA
 - Square D® disconnect switch (V3) 45 A, 600 V, 100,000 AIC rating when protected with Class CC fuses
- Fuse block requires:
 - 1-1/2-inch x 13/32-inch rejection-style primary fuses (750–1000 VA)
 - 5-inch x 13/16-inch rejection-style primary fuses (1500–3000 VA)
 - 1-1/2-inch x 13/32-inch secondary fuses
- Ground terminal
- Conveniently located 1/2-inch to 3/4-inch knockouts
- External mounting flanges with slotted holes for “hook and hang” mounting
- 90° access cover stop designed to be installed in standard 12-inch control panel

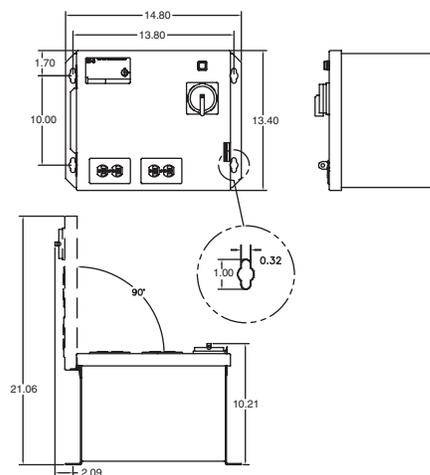
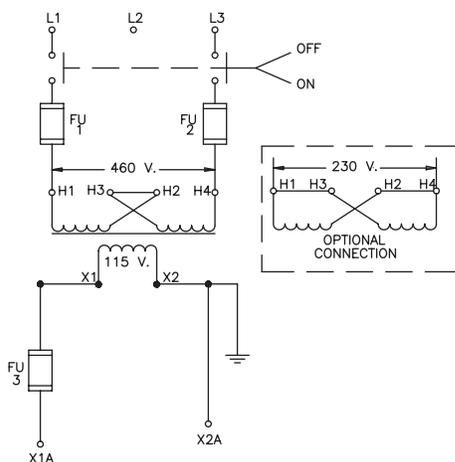


Table 5: Factory Available Options for Compact 9070 SK Units (Enclosure G3)

Option—Description	Factory Modification Form
Special voltages	Change voltage code from D1 to appropriate D code
Electrostatically-shielded transformer	E23
Additional 1-1/2-inch x 13/32-inch secondary fuse block	F11
Duplex receptacle, door-mounted	G13
Class A, GFI, duplex receptacle, door-mounted	G14
Two duplex receptacles, door-mounted	G16
“ON” red warning pilot light	P1
“ON” red warning pilot light, with strain relief	P2

Transformer Disconnects

NEMA 12 Transformer Disconnects



A2

NEMA 12 TRANSFORMER DISCONNECTS

Standard NEMA 12 Offering (A2)

- Voltage 240 x 480 to 120 (D1)
- 250–3000 VA
 - Square D® disconnect switch (V3) 45 A, 600 V, 100,000 AIC rating when protected with Class CC fuses
 - Fuse block requires:
 - 1-1/2-inch x 13/32-inch rejection-style primary fuses
 - 1-1/2-inch x 13/32-inch secondary fuses
- Ground terminal
- 90° access cover stop

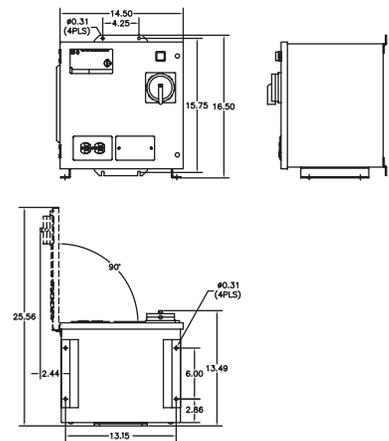
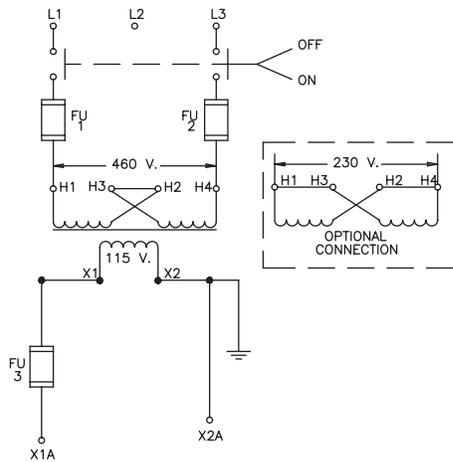


Table 6: Factory Available Options NEMA 12 (Enclosure A2)

Option—Description	Factory Modification Form
Special voltages	Change voltage code from D1 to appropriate D code
55° C rise transformer	C **
Electrostatically-shielded transformer	E23
Additional 1-1/2-inch x 13/32-inch secondary fuse block	F11
Primary fuse block—5-inch x 13/16-inch	F30
Duplex receptacle, door-mounted	G13
Class A, GFI, duplex receptacle, door-mounted	G14
Two duplex receptacles, door-mounted	G16
Convert to NEMA 3R enclosure	N3
"ON" red warning pilot light	P1
"ON" red warning pilot light, with strain relief	P2

** Not available on 3000 VA

Transformer Disconnects NEMA 12 Transformer Disconnects



A3

New NEMA 12 Offering (A3)

- Voltage 240 x 480 to 120 (D1)
- Door and handle can be locked with one lock
- 250–2000 VA
 - Square D® disconnect switch (TCN30) 30 A, 600 V, 100,000 AIC rating when protected with Class CC fuses
- Fuse block requires:
 - 250–1000 VA: 1-1/2-inch x 13/32-inch rejection style primary fuses
 - 1500–2000 VA: 5-inch x 13/16-inch rejection style fuses
 - 1-1/2-inch x 13/32-inch secondary fuses
- Ground terminal
- 90° access cover stop

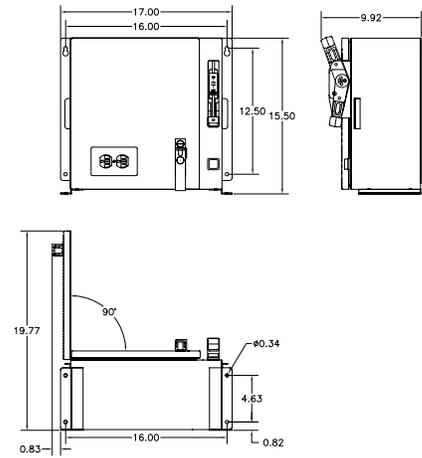
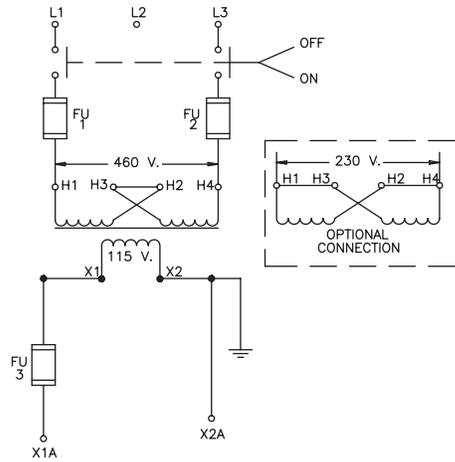


Table 7: Factory Available Options NEMA 12 (Enclosure A3)

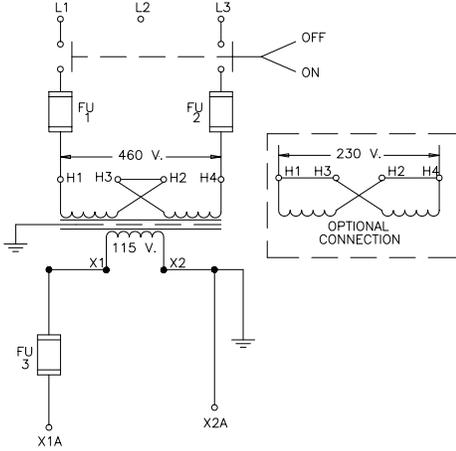
Option—Description	Factory Modification Form
Special voltages	Change voltage code from D1 to appropriate D code
Electrostatically-shielded transformer	E23
Additional 1-1/2-inch x 13/32-inch secondary fuse block	F11
Primary fuse block—1-1/2-inch x 13/32-inch	F32
Duplex receptacle, door-mounted	G13
Class A, GFI, duplex receptacle, door-mounted	G14
Convert to NEMA 3R enclosure	N3
“ON” red warning pilot light	P1

Transformer Disconnects Wiring Diagrams

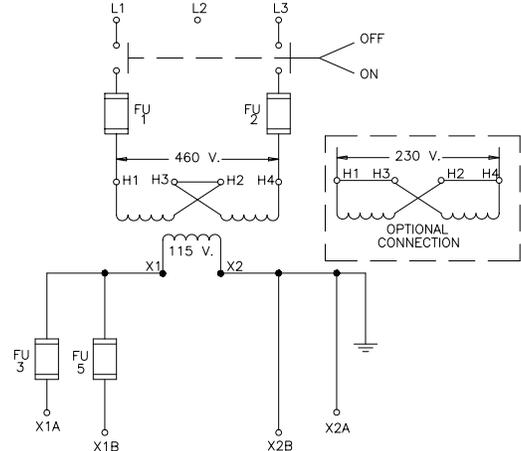
WIRING DIAGRAMS

Diagrams for Factory Modifications

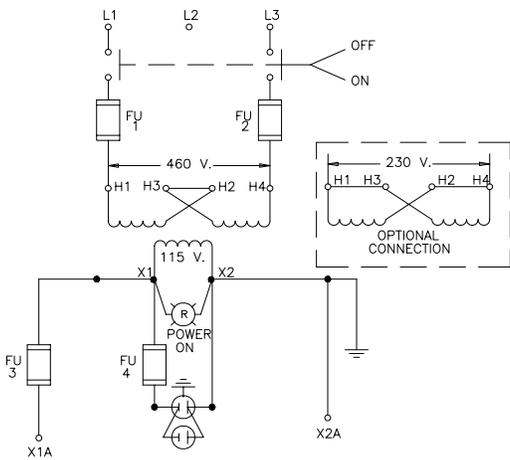
Electrostatically-shielded (E23)



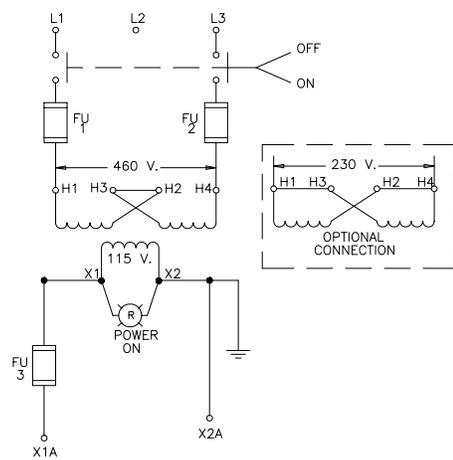
Additional secondary fuse block (F11)



Duplex receptacle (G13)

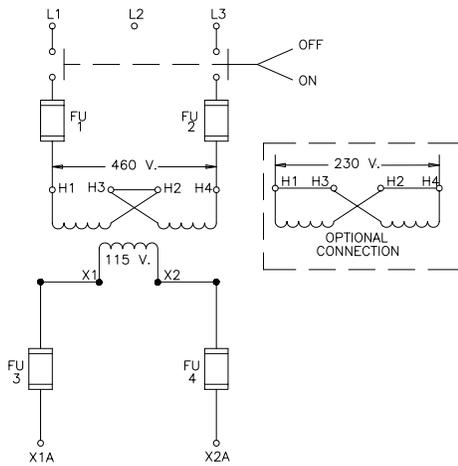


"ON" red warning light (P1 or P2)



Ungrounded Secondaries

Fused secondary legs

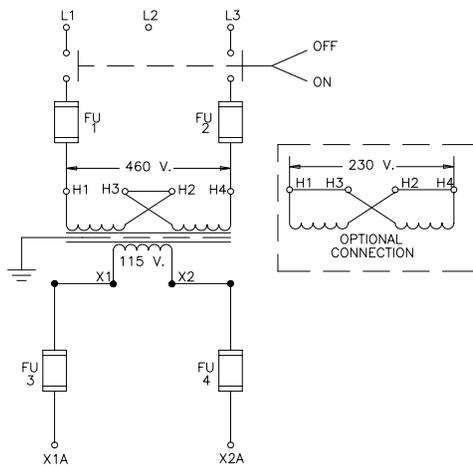


Schneider Electric/Square D offers all transformer disconnects with ungrounded 120 V secondaries. Contact your local Square D field office for part numbers and pricing.

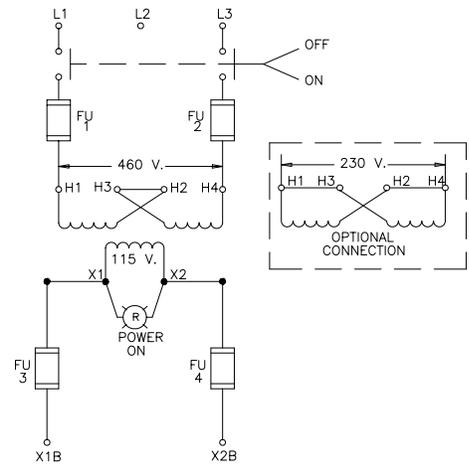
Both secondary legs are required to be fused. Schneider Electric/Square D supplies fuse blocks for all output connections.

Options available with the ungrounded secondary

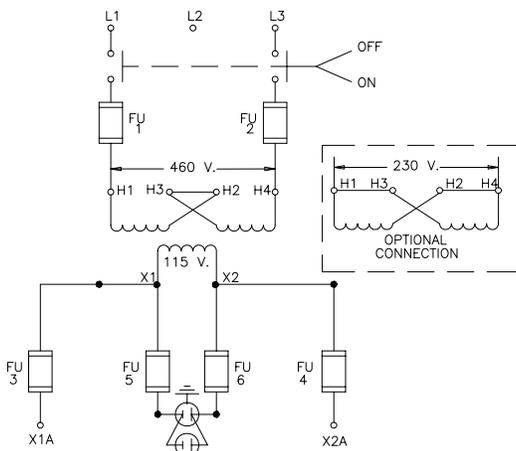
Electrostatically-shielded transformer



“ON” red warning light



Duplex receptacle

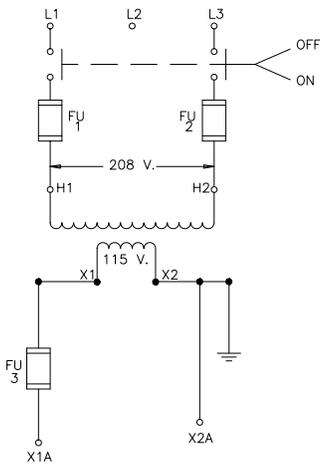


NOTE: The duplex receptacle is an ungrounded neutral circuit to be used for portable PC power only. It should not be used as a power source for any other equipment.

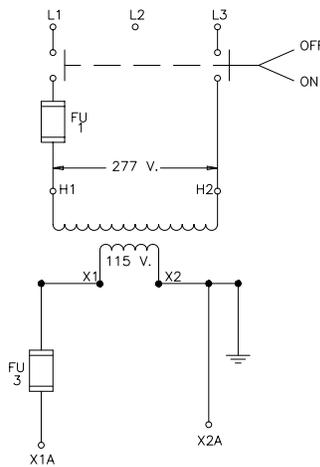
Transformer Disconnects Wiring Diagrams

Special Voltage Options

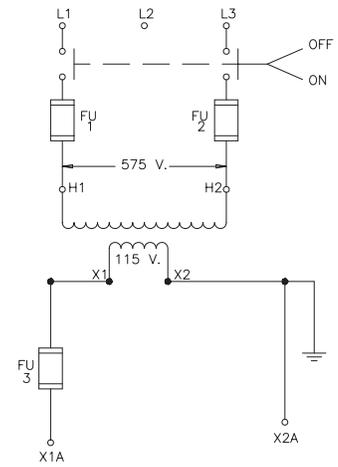
208 to 120, Voltage code D3



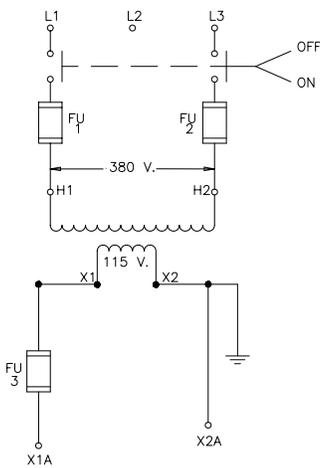
277 to 120, Voltage code D4



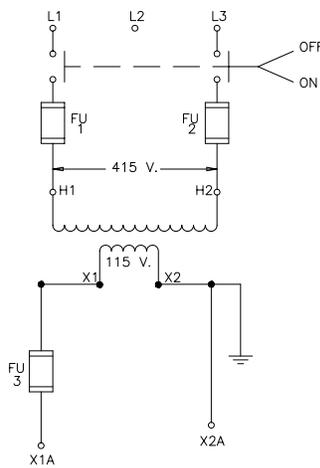
575 to 120, Voltage code D5



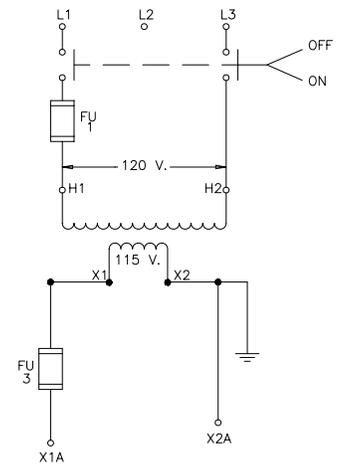
380 to 110, Voltage code D6



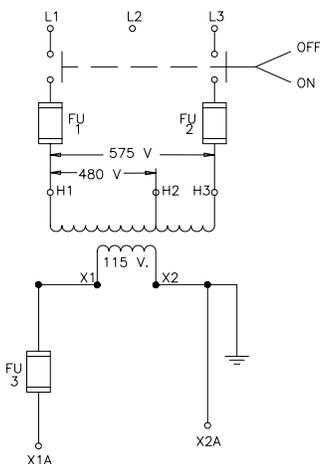
415 to 115, Voltage code D17



120 to 120, Voltage code D24



480/575 to 120, Voltage code D101



Voltage Code D101 also includes the following features:

- Ring lugs for all terminations
- Wire color combinations:
 - Black 480
 - Red Hot 120
 - White Neutral 120
- Wires labeled per GM specification

FREQUENTLY ASKED QUESTIONS

What is the main application for the device?

To supply auxiliary 120 Volts when de-energizing a control panel. Basically the equipment's features eliminate the need for extension cords. They provide internal lighting for the panel, a receptacle for portable PC power, a receptacle for maintenance equipment, and power to the PLC for re-programming.

Who are the major users of transformer disconnects?

The automotive industry is the major user of these devices.

Can the devices be field-modified?

No. Due to UL and CSA filing, the 9070 SK units must be factory-modified with special features.

What special features are usually required?

Each automotive customer requires different features to be supplied on their unit. Schneider Electric/Square D is aware of each customer's requirements, and Product Support can help with determining the proper part number for your application.

When would a customer require an ungrounded 120 Volts?

The ungrounded circuits are used in conjunction with electrostatically shielded transformers for powering sensitive equipment.

Can receptacles be included on the ungrounded units?

Yes. Duplex receptacles use an ungrounded neutral circuit. They are used for portable PC power only; they cannot be used as a power source for any other equipment.

Can we obtain replacement handles for the devices?

Yes. Replacement handles are available as a standard Square D product with two different items:

- If the unit is 60 mm x 60 mm—Square D Part Number: KCF2YZ
- If the unit is 90 mm x 90 mm—Square D Part Number: KCG2YZ

Transformer Disconnects Cross Reference to Old Part Numbers

CROSS REFERENCE TO OLD PART NUMBERS

Old Square D Number	Old Square D Number	New Square D Number
SK5271M	SK250G1	MN100G0D1
SK5271N	SK250G1	MN250G0D1
SK5271Q,R	SK250G1	MN250G1D1
SK5271SJ	SK250G1	MN500G1D1
SK5271T,K	SK250G1	MN750G1D1
SK5271U	SK250G1	MN1000G0D1
SK5271V	SK250G2	MN1500G2D1
SK5271W	SK250G2	MN2000G2D1
SK5271X	SK250G2	MN3000G2D1
SK5271X	SK250G2	MN3000G2D1

TECHNICAL INFORMATION

Table 8: Primary Fusing To Meet NEC Code

VA	120 Volts			240 Volts			480 Volts			600 Volts		
	Primary Current Amperes	Fuse Rating w/ Secondary Protection	Fuse Rating w/o Secondary Protection	Primary Current Amperes	Fuse Rating w/ Secondary Protection	Fuse Rating w/o Secondary Protection	Primary Current Amperes	Fuse Rating w/ Secondary Protection	Fuse Rating w/o Secondary Protection	Primary Current Amperes	Fuse Rating w/ Secondary Protection	Fuse Rating w/o Secondary Protection
25	0.21	1/2	1/2	0.10	1/4	1/4	0.05	1/8	1/3	0.04	1/10	1/10
50	0.41	1	1	0.21	1/2	1/2	0.10	2/10	2/10	0.05	2/10	2/10
75	0.63	1-1/2	1-1/2	0.31	6/10	6/10	0.15	3/10	3/10	0.13	3/10	3/10
100	0.83	2	2	0.42	1	1	1.21	1/2	1/2	0.17	4/10	4/10
150	1.25	3	3	0.63	1-1/2	1-1/2	0.31	6/10	6/10	0.25	6/10	6/10
200	1.67	4	4	0.83	2	2	0.42	1	1	0.33	8/10	8/10
250	2.06	5	3-2/10	1.04	2-1/2	2-1/2	0.52	1-1/2	1-1/4	0.42	1	1
300	2.50	6-1/4	4	1.25	3	3	0.63	2	1-1/2	0.50	1-1/3	1-1/3
350	2.92	7	4-1/2	1.45	3-1/2	3-1/2	0.73	2-1/2	1-8/10	0.56	1-4/10	1-4/10
500	4.17	10	5-1/4	2.03	5	3-2/10	1.04	3	2-1/2	0.83	2	2
750	6.25	15	10	3.13	7-1/2	5	1.55	3-1/2	3-1/2	1.25	3	3
1000	6.33	20	12	4.17	10	6-1/4	2.05	5	3-2/10	1.67	4	4
1500	12.50	N/A	15	6.25	15	10	3.13	7-1/2	5	2.50	6-1/4	4
2000	13.66	N/A	20	8.33	20	12	4.17	10	6-1/4	3.33	8	5
3000	N/A	N/A	N/A	12.50	N/A	15	6.25	15	10	5.00	12	6.25
5000	N/A	N/A	N/A	N/A	N/A	N/A	10.42	25	15	8.33	20	12

Notes:

- 1 Recommended fuse sizes per NEC article 450-3.
- 2 Transformers with primary only, select protection at 125%. If standard size rating is not available, select next higher rating.
- 3 Transformers with primary only and current rating less than 9 A, select protection less than 167%.
- 4 Transformers with primary only and current rating less than 2 A, select protection less than 300%.
- 5 Transformers with primary and secondary, select primary protection at no more than 250% and secondary at 125%. If a standard size rating is not available, go to next higher rating.

Table 9: Fuse Sizing, Description, and Catalog Number (by Manufacturer)

Size	Description	Manufacturer		
		Bussman	Littlefuse	Gould-Shawmut
1-1/2 x 13/52-inch Midget Fuse	Time Delay, Rejection-Type, Class CC	FNQ-R LP-CC	KLMR KLDR	ATDR ATQR ATMR
1-1/2 x 13/52-inch Midget Fuse	Time Delay	FNM, FNQ	FLQ, FLM, FLA	ATQ, TRM, QM
1-1/4 x 1/4-inch	Time Delay	TDC-11, MDL, MDQ, MDA	3AG, 313/315, 3AB, 323/325	GDL
5 x 13/16-inch	Time Delay	FRS-R	FLSR	TRS
3 x 3/4-inch	On Time	NON	NLN	OT

Notes:

- 1 These fuses are not supplied by Schneider Electric/Square D.
- 2 This table is provided for primary fusing recommendation only. Secondary fusing must be specified by the customer.
- 3 All primary fuse options offered by Schneider Electric/Square D require rejection-type fuses.

Transformer Disconnects
Technical Information

Schneider Electric USA

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