

**Enclosed Safety Switches
General Duty Safety Switches**

Table 9: Fusible Safety Switch Short Circuit Current Rating

Fuse Class	UL Listed Short Circuit Rating
Plug	10 kA
H K	10 kA
J 1, R	100 kA
T 2	100 kA

1 Only applicable to 200-600 A except D326NT, D326NTR, D326NT, D326NTR, D326NT, D326NTR, T327N and T327NR.
2 Only applicable to D326NT, D326NTR, D326NT, D326NTR, T327N and T327NR.

Table 10: Non-Fusible Safety Switch Short Circuit Current Rating

Fuse Class or Circuit Breaker Type 1	UL Listed Short Circuit Rating
Any Brand Circuit Breaker	10 kA
H or J PowerPact Circuit Breaker	Up to 65 kA 2
H K	10 kA
J R	100 kA 3
T	100 kA 4

1 Ampere rating of fuse or circuit breaker not to exceed switch ampere ratings.
2 Only applicable to D3234 and D3234NR. HD = 25 kA maximum.
3 SCRR = 50 kA, applicable to D3222RE, D3222 and D3222RB.
4 Only applicable to DUS23, DUS23RB, DUS25 and DUS26.

Standards

General duty safety switches are manufactured in accordance with these standards:

- UL 98, Standard for Enclosed and Dead Front Switches, UL Listed File E2875
- NEMA Standards Publication KS1, Enclosed Switches
- Federal Specifications WS-865c for Type NDS (Type 1) and Type LD (Type 3R)

Table 11: Terminal Lug Data 1

Ampere Rating	Conductors Per Phase	Wire Range Wire Bending Space Per NEC Table 312.6 AWG/kcmil	Lug Wire Range AWG/kcmil
30 2	1	12-8 (Al) or 14-8 (Cu)	12-8 (Al) or 14-8 (Cu)
30	1	12-8 (Al) or 14-8 (Cu)	12-8 (Al) or 14-8 (Cu)
60	1	12-3 (Al) or 14-3 (Cu)	12-2 (Al) or 14-2 (Cu)
100	1	12-1 (Al) or 14-1 (Cu)	12-1 (Al) or 14-1 (Cu)
200	1	6-25B (Al/Cu)	6-30B (Al/Cu)
400 Type 1	1 or 2	10-600 (Al/Cu) or 10-300 (Al/Cu)	(1) 10-750 (Al/Cu) or (2) 10-300 (Al/Cu)
400 Type 3R	2	10-250 (Al/Cu) or (2) 10-250 (Al/Cu)	(1) 10-600 (Al/Cu) or (2) 10-250 (Al/Cu)
600	2	4-600 (Al/Cu)	4-600 (Al/Cu)
800	3	3/0-600 (Al/Cu)	3/0-800 (Al/Cu)

1 30-100 A switches suitable for 60°C (140 °F) or 75°C (167 °F) conductors. 200-800 A switches suitable for 75°C (167 °F) conductors.
2 Light duty switches only.

Heavy Duty Enclosed Safety Switches General Information

Table 44: Terminal Lug Data 1

Rating (A)	Wires Per Phase and Neutral	Wire Range Wire Bending Space Per NEC Table 312.6 AWG/kcmil	Lug Wire Range AWG/kcmil	Optional 2 Versa-Crimp Compression Lug Field-Installed	Optional Versa-Crimp Compression Lug Field-Installed
30	1	12-2 (Al) or 14-2 (Cu)	12-2 (Al) or 14-2 (Cu)	—	—
60 1	1	12-3 (Al) or 14-3 (Cu)	12-2 (Al) or 14-2 (Cu)	—	—
100 1	1	12-1 (Al) or 14-1 (Cu)	12-1 (Al) or 14-1 (Cu)	—	—
200 1	1	6-25B (Al/Cu)	6-30B (Al/Cu)	—	—
400 1	1 or 2	10-750 (Al/Cu) or 10-300 (Al/Cu)	10-750 (Al/Cu) and 10-300 (Al/Cu)	—	—
600	2	4-600 (Al/Cu)	4-600 (Al/Cu)	—	—
800	3	3/0-600 (Al/Cu)	3/0-750 (Al/Cu)	—	—
1200	3	3/0-750 (Al/Cu)	3/0-750 (Al/Cu)	—	—

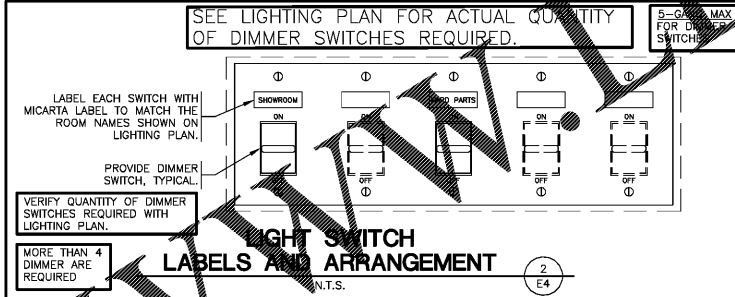
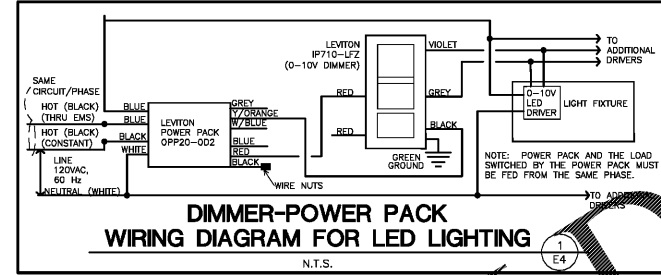
1 30-100 A switches suitable for 60°C (140 °F) or 75°C (167 °F) conductors. 200-1200 A switches suitable for 75°C (167 °F) conductors.
2 Hubbell Versa-Crimp™ unless otherwise noted.
3 For Type 1, 120V, 120V and 240V stainless steel switches only.
4 Order C10-14, 25-14 and E5-14 from Thomas and Betts.
5 H605FA and H605FA1212 — use 75°C (167 °F) copper wire only. #10 AWG copper wire required for 60 A rating.
6 H1001FA and H1001FA1212 — use 75°C (167 °F) copper wire only. #8 AWG copper wire required for 100 A rating.
7 H2025JC and H2025JCSA — use 75°C (167 °F) copper wire only. Lug wire range is #3 AWG - 350 kcmil. Not UL listed due to inadequate wire bending space (2 in. [51.8 mm] on the 100 and 6 in. [152.4 mm] on the 200 amp).
8 Maximum wire bending space: 1.5 in. [38.1 mm] for 1200 kcmil or 2.0 in. [50.8 mm] for 2000 kcmil.
9 For Type 1 and 3R only. For Type 4 and 5 stainless steel and Type 120V, 120V use VCELE0302B1H (Al/Cu) or VCELE0303B1H (Cu only). Order two PWS190 mounting kits when installing VCELE0302B1H lugs. Only one kit is required on two-pole switches. PWS190R consists of four 6150-18 (7 mm) #12-16 screws.
10 For Type 4 and 5 stainless steel and Type 120V, 120V use VCELE0302B1H (Al/Cu) or VCELE0303B1H (Cu only). Order two PWS190R mounting kits when installing VCELE0302B1H or VCELE0303B1H lugs. Only one kit is required on two-pole switches. PWS190R consists of four 6150-18 (7 mm) #12-16 screws.
11 For 600 and 1200 A compression lug kits, see Table 37 on page 34 for additional information.

GENERAL ELECTRICAL NOTES

- DRAWINGS ARE DIAGRAMMATIC & ARE NOT TO BE SCALED. SEE THE ARCHITECTURAL PLANS & FIELD VERIFY CONDITIONS FOR DIMENSIONS.
- ALL ELECTRICAL WORK SHALL COMPLY WITH THE EDITION OF NFPA 70-NATIONAL ELECTRIC CODE (NEC) AS NOTED ON THE CODE SUMMARY SHEET.
- ALL WIRING SHALL BE IN CONDUIT, EXCEPT THAT MC-CABLE MAY BE SUBSTITUTED ONLY AS FOLLOWS:
 - MC-CABLE (MAXIMUM CABLE LENGTH OF 10'-0") MAY BE INSTALLED ONLY FOR BRANCH CIRCUIT WIRING TO LIGHT FIXTURES.
 - MC-CABLE (MAXIMUM CABLE LENGTHS SHOWN ON DETAIL 2/E2) MAY BE INSTALLED ONLY ABOVE SLAB AND ONLY AT LOCATIONS INDICATED ON SHEET E2.
- FEEDER CONDUIT SHALL BE IMC OR RGS ABOVE GRADE WITH IMC OR RGS ELLS & RISERS. INTERIOR BRANCH CIRCUIT CONDUIT SHALL BE ELECTRICAL METALLIC TUBING. EXTERIOR BRANCH CIRCUIT CONDUIT SHALL BE PVC BELOW GRADE WITH IMC OR RIGID GALVANIZED STEEL CONDUIT CONTINUING ABOVE GRADE. (SPEC 26 05 33)
- COORDINATE ALL WORK WITH OTHER TRADES TO AVOID CONFLICTS. COORDINATION DOES NOT MEAN "I WAS HERE FIRST."
- ALL WIRING IN FINISHED SPACES SHALL BE CONCEALED, UNLESS NOTED OTHERWISE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING A COMPLETE & FUNCTIONAL SYSTEM IN ACCORDANCE WITH THE INTENT OF THE PLANS, WHETHER OR NOT EVERY ELEMENT THEREOF IS SPECIFICALLY CALLED OUT.
- COORDINATE ALL EQUIPMENT ROUGH-IN CONNECTION REQUIREMENTS.
- ALL OUTLET BOXES SHALL BE METALLIC. (SPEC 26 05 34)
- ALL CAULKING ON BUILDING PENETRATIONS SHALL BE ELASTOMERIC POLYURETHANE (NO EXCEPTIONS), EQUAL TO "VULKEM" 116. ANY CONTRACTOR WHO USES SILICONE OR ANY OTHER CAULKING WILL BE REQUIRED TO REMOVE & REPLACE WITH ELASTOMERIC POLYURETHANE.
- RECEPTACLES INSTALLED IN RESTROOMS SHALL BE GFCI TYPE OR SHALL BE PROTECTED BY A GFI DEVICE.

- ALL DEVICES SHALL BE VORY & SHALL BE EQUAL TO THE FOLLOWING:
 - SINGLE POLE SWITCHES ---
 - THREE-WAY SWITCHES ---
 - DUPLEX RECEPTACLE --- (SPEC 26 27 26)
 - ISO. GRD. RECEPTACLES ---
- USE DEVICE PLATES MANUFACTURED BY THE DEVICE MANUFACTURER. (SPEC 26 27 26)
- FEEDER & BRANCH CIRCUIT CONDUCTORS SHALL BE COPPER, STRANDED, 600V THHN/THWN INSULATION. EXCEPTION: WIRE SIZES #10 AWG & SMALLER SHALL BE SOLID. (SPEC 26 05 19)
- CONTRACTOR SHALL PROVIDE A TYPED CIRCUIT DIRECTORY FOR ALL PANELS. (SPEC 26 05 53)
- CONTRACTOR SHALL PROVIDE A ONE(1) YEAR WARRANTY ON ALL WORK PERFORMED.
- CONTRACTOR SHALL PROVIDE NEW WORKING LAMPS IN ALL LIGHT FIXTURES AT JOB COMPLETION.
- CONTRACTOR SHALL COORDINATE WITH & SHALL INCLUDE ALL FEES FOR THE SERVING "ELECTRIC UTILITY CO." TO PROVIDE ELECTRIC SERVICE AS SHOWN. CONTRACTOR SHALL ALSO INCLUDE ALL FEES FOR THE "SERVING PHONE COMPANY" TO INSTALL NO LESS THAN 10 PAIR CABLE TO BUILDING.
- CONTRACTOR SHALL ARRANGE FOR & INCLUDE ALL PERMITS & FEES FOR HIS SCOPE OF WORK.
- CONTROL WIRING BY HVAC CONTRACTOR. FINAL CONNECTIONS BY HVAC CONTRACTOR. SEE SHEET M1.
- APPROVED MANUFACTURERS:

A. PANELBOARDS & SAFETY SWITCHES (DISCONNECTS):	B. DEVICES:	C. FLOOR BOXES:
--- SQUARE D	--- 'HUBBELL'	--- 'STEEL CITY'
--- 'G.E.'	--- 'LEVITON'	--- 'APPLETON'
--- 'SEIMENS'	--- 'PASS & SEYMOUR'	--- 'HUBBELL'
--- 'CUTLER-HAMMER'		
- (SPEC 26 24 00) (SPEC 26 27 26) (SPEC 26 05 34)
- MULTIWIRE BRANCH CIRCUITS WITH A "SHARED NEUTRAL" ARE NOT ALLOWED FOR SINGLE PHASE CIRCUITS.



SQUARE D Modifications for Factory Assembled Panelboards

- Class 1440, 1470, 2110, 4220, 6680 / Refer to 2110C7873 / 2110C7874 / 2110C7875 / 2110C7876 / 2110C7877 / 2110C7878 / 2110C7879 / 2110C7880 / 2110C7881 / 4420C79681
- Main Circuit Breaker Without Ground Trip**
(Automatic Release Only)
• (Not UL Listed)
- Shunt Trip Circuit Breakers**
• N1015: For installations with shunt trip, shunt trip switch short circuit current ratings, see Short Circuit Current Rating Table, page 44.
- Special Features**
• PowerLogic™ monitoring
• Type 3B/4/5/6/7/8/9/10/11/12 stainless steel enclosure
• Type 4X fiberglass enclosures
• Stainless steel trim front
• Lockable lugs
• Special uses (Casting, Bids, Bids)
• Equal height buses
• Dimpson slots for cover lens and height brackets
• Panelboard steel—robust controls housing a panelboard
• Panelboard enclosure—for ventilating controls in inherently outdoor
• Rugged mechanical construction of two or more circuit breakers (6-line and QMS)
• Motor operators (120V only)
• Panelboard enclosure and special lugs to 15 AWG wires
• A slotted panelboard has one (1) outlet and one (1) with knockouts. Blank knockouts or knockouts in both outlets are also available.

NQ and NF Terminal Data

Table 9.143: NO Standard Aluminum Mechanical Lugs—Main Lugs

Rating (A)	Wires Per Phase and Neutral	Wire Range Wire Bending Space Per NEC Table 312.6 AWG/kcmil	Lug Wire Range AWG/kcmil
100	1	12-3 (Al) or 14-3 (Cu)	12-2 (Al) or 14-2 (Cu)
200	1	12-1 (Al) or 14-1 (Cu)	12-1 (Al) or 14-1 (Cu)

Table 9.142: NF Standard Mechanical Lugs—Main Circuit Breaker

Rating (A)	Wires Per Phase and Neutral	Wire Range Wire Bending Space Per NEC Table 312.6 AWG/kcmil	Lug Wire Range AWG/kcmil
100	1	12-3 (Al) or 14-3 (Cu)	12-2 (Al) or 14-2 (Cu)
200	1	12-1 (Al) or 14-1 (Cu)	12-1 (Al) or 14-1 (Cu)

Table 9.141: NF Standard Mechanical Lugs—Main Lugs

Rating (A)	Wires Per Phase and Neutral	Wire Range Wire Bending Space Per NEC Table 312.6 AWG/kcmil	Lug Wire Range AWG/kcmil
100	1	12-3 (Al) or 14-3 (Cu)	12-2 (Al) or 14-2 (Cu)
200	1	12-1 (Al) or 14-1 (Cu)	12-1 (Al) or 14-1 (Cu)

Table 9.140: NO Standard Aluminum Mechanical Lugs—Main Lugs

Rating (A)	Wires Per Phase and Neutral	Wire Range Wire Bending Space Per NEC Table 312.6 AWG/kcmil	Lug Wire Range AWG/kcmil
100	1	12-3 (Al) or 14-3 (Cu)	12-2 (Al) or 14-2 (Cu)
200	1	12-1 (Al) or 14-1 (Cu)	12-1 (Al) or 14-1 (Cu)

10 Supported by the PowerLogic™ Product Selection.
11 The lug range shown is for the largest percentage of the circuit breaker frame shown in the table.
12 Only for use with the PowerLogic™ monitoring.
13 For 600 and 1200 A compression lug kits, see Table 37 on page 34 for additional information.

ELECTRICAL SYMBOL LEGEND & ABBREVIATIONS

- § SINGLE POLE SWITCH
- §2 TWO POLE SWITCH
- §3 THREE-WAY SWITCH
- §MP MOTOR STARTING SWITCH WITH PILOT LIGHT
- §X CLASS 1, DIVISION 1 HAZARDOUS LOCATION RATED SWITCH ASSEMBLY
- §PW WALL MOUNTED OCCUPANCY SENSOR EQUAL TO "SENSORSWITCH WSX D M"
- §Pw2 WALL MOUNTED OCCUPANCY SENSOR EQUAL TO "SENSORSWITCH WSX 2FAN-M"
"CONTRACTOR SHALL DISABLE MANUAL SWITCHES PER MANUFACTURERS INSTRUCTIONS. SWITCH SHALL BE FULLY AUTOMATIC."
- §FAN FAN SPEED SWITCH (SUPPLIED BY HVAC CONTRACTOR / INSTALLED BY ELECTRICAL CONTRACTOR)
- §0 0-10V LED DIMMER SWITCH, EQUAL TO "LEVITON, IP710-LFZ". SEE DETAILS THIS SHEET (5-GANG MAX)
- §PP LEVITON POWER PACK OPP20-002
- ⊕ SINGLE RECEPTACLE
- ⊕ DUPLEX RECEPTACLE
- ⊕ ISOLATED GROUND DUPLEX RECEPTACLE. DEVICES AND COVERPLATE SHALL BE ORANGE. SEE DETAIL 1/E3
- ⊕2 DUPLEX RECEPTACLE. DEVICES AND COVERPLATE SHALL BE RED
- ⊕3 ISOLATED GROUND DUPLEX RECEPTACLE. DEVICES AND COVERPLATE SHALL BE RED
- ⊕4 QUADPLEX RECEPTACLE (TWO DUPLEX RECEPTACLES IN ONE 2-GANG BOX UNDER A SINGLE COVERPLATE)
- ⊕5 EXISTING UNPOWERED DUPLEX RECEPTACLE
- ⊕6 ISOLATED GROUND DUPLEX RECEPTACLE (TWO ISO. GRD. DUPLEX RECEPTACLES IN ONE 2-GANG BOX UNDER A SINGLE COVERPLATE. DEVICES AND COVERPLATE SHALL BE RED
- ⊕7 DUPLEX RECEPTACLE (CIRCUIT TO BE WIRED THRU OCCUPANCY SENSOR) INSTALL A PERMANENT LABEL ON EACH OUTLET STATING "SENSOR CONTROLLED OUTLET". SEE DETAIL ON SHEET E4
- ⊕8 ABOVE COUNTER GFCI (GROUND FAULT CIRCUIT INTERRUPTING) DUPLEX RECEPTACLE
- ⊕9 WEATHER PROOF GFCI (GROUND FAULT CIRCUIT INTERRUPTING) DUPLEX RECEPTACLE. COVER TO PROVIDE WEATHER PROOF PROTECTION WITH CORD AND PLUG IN USE
- ⊕ TELE-POWER POLE
- ⊕ JUNCTION BOX
- ⊕ REMOTE PHOTO CONTROL
- ⊕ COMPUTER DATA OUTLET BOX.
- ⊕ TELEPHONE OUTLET BOX.
- ⊕ TELEPHONE OUTLET FLOOR BOX. SEE DETAIL 4/E2.
- ⊕ 4" SQUARE STEEL BOX MOUNTED FLUSH ON FLOOR W/QUADPLEX RECEPTACLE (SEE ABOVE RECEPTACLE DESCRIPTION). SEE DETAIL 4/E2 FOR INSTALLATION OF BOX.
- ⊕ 4" SQUARE STEEL BOX MOUNTED FLUSH ON FLOOR W/QUADPLEX ISOLATED GROUND RECEPTACLE (SEE ABOVE ISOLATED GROUND RECEPTACLE DESCRIPTION). SEE DETAIL 4/E2 FOR INSTALLATION OF BOX.
- ⊕ 4" SQUARE STEEL BOX MOUNTED FLUSH ON FLOOR W/QUADPLEX ISOLATED GROUND RECEPTACLE (SEE ABOVE ISOLATED GROUND RECEPTACLE DESCRIPTION). SEE DETAIL 4/E2 FOR INSTALLATION OF BOX. DEVICES AND COVERPLATE SHALL BE RED.
- ⊕ 2" x 4" RECTANGULAR STEEL BOX MOUNTED FLUSH ON FLOOR W/DUPLEX RECEPTACLE (SEE ABOVE RECEPTACLE DESCRIPTION). SEE DETAIL 4/E2 FOR INSTALLATION OF BOX.
- ⊕ NEMA L5-30R - SPECIAL RECEPTACLE
- ⊕ MOTOR
- ⊕ FUSED DISCONNECT (SAFETY) SWITCH W/ SWITCH AMPACITY / FUSE AMPACITY AS INDICATED
- ⊕ NON-FUSED DISCONNECT (SAFETY) SWITCH
- ⊕ POWER OR LIGHTING PANEL W/PANEL DESIGNATION SHOWN ON PLAN (SIZES & MOUNTING INDICATED ON PLANS)
- ⊕ 24 HOUR EGRESS & SECURITY LIGHT, WIRE DIRECT TO ELECTRIC PANEL AHEAD OF ANY LOCAL SWITCHES AND LIGHTING CONTROL PANEL
- ⊕ WALL/CEILING MOUNTED COMBINATION "EXIT/EMERGENCY" SIGN W/SHADING INDICATING FACES
- ⊕ EMERGENCY LIGHTING FIXTURE WITH BATTERY
- ⊕ FEEDING PANEL AND CIRCUIT NUMBER(S)
NOTE: EQUIPMENT GROUND CONDUCTOR NOT SHOWN
CIRCUIT CONDUCTORS
GROUNDED CIRCUIT CONDUCTOR (OR NEUTRAL)
- ⊕ MOTION DETECTOR - SEE EM SHEETS FOR MORE INFORMATION
- ⊕ OCCUPANCY SENSOR EQUAL TO "LEVITON, OSC20-MAW" WITH POWER PACK
- AC LOCATED ABOVE COUNTER
- AFF ABOVE FINISHED FLOOR
- BCU BLOWER COIL UNIT
- CDU CONDENSING UNIT
- EDU EXHAUST FAN
- EFU ELECTRIC FURNACE
- FURN GAS FURNACE
- AHU AIR HANDLER
- HP HEAT PUMP UNIT
- PP POWER PACK
- RTU PACKAGED ROOFTOP UNIT
- IMC INTERMEDIATE METALLIC TUBING
- LC LIGHTING CONTRACTOR
- M MOTOR STARTING
- R RED IN COLOR DEVICES & COVERPLATE
- FURN GAS FURNACE
- MP MOTOR STARTING W/PILOT LIGHT
- NL NIGHT LIGHT
- PEC PHOTOELECTRIC CONTROL
- RGS RIGID GALVANIZED STEEL
- UPO UN-POWERED OUTLET
- TS TIME SWITCH
- W WALL OUTLET (46" AFF SEE MOUNTING HEIGHTS)
- WP WEATHERPROOF (ENCLOSURE)
- X EXPLOSION PROOF ASSEMBLY
- GFCI GROUND FAULT CIRCUIT INTERRUPTER
- EMT ELECTRICAL METALLIC TUBING
- CM CEILING MOUNTED



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O'Reilly AUTO PARTS
CORPORATE OFFICES
233 SOUTH PATTERSON
SPRINGFIELD, MISSOURI 65802
(417) 862-2674 TELEPHONE

PROJECT: NEW O'REILLY AUTO PARTS STORE
U.S. HWY 84 & N. BROADWAY
ASHFORD, AL

ELECTRICAL NOTES

3855 S. JEFFERSON AVE.
SPRINGFIELD, MD 68807
P: 417-882-9200
F: 417-882-1188
WWW.BMTHDOTH.COM



DRAWN BY: CEV CHECKED BY: NEG
DATE: 04/02/19
REVISION:

PROJECT NUMBER: AHF
SHEET NUMBER



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