

## Section 8

## Operating Mechanisms and Disconnect Switches



UL508 Motor Disconnect Switch



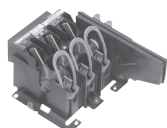
UL98 Fusible Switch



UL508 VLS Switch



UL98 VLS Switch



UL98 Style Flange Handle Disconnect Switch



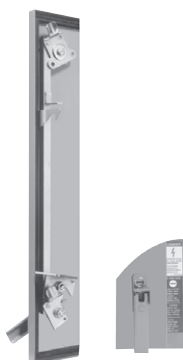
9421 Type L Circuit Breaker Mechanism



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## Selection Guide



| Class                     | MD                                              | Vario                                                            | Enclosed Vario                        | LK4                                                            | VLS                                                          |                                              |
|---------------------------|-------------------------------------------------|------------------------------------------------------------------|---------------------------------------|----------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------|
| Type                      | Motor disconnect switches                       | Manual motor control switches                                    | Motor disconnect switch               | Nonfusible IEC style disconnect switches                       | Disconnect switches                                          | Disconnect switches                          |
| UL Rating                 | UL 508                                          | UL 508                                                           | UL508                                 | UL 98                                                          | UL 508                                                       | UL 98                                        |
| Handle Type               | Rotary                                          | Rotary                                                           | Rotary                                | Rotary                                                         | Rotary                                                       | Rotary                                       |
| Mounting                  | —                                               | Door or panel                                                    | —                                     | —                                                              | DIN Rail (Rear Mounting)<br>Door Mounting                    | DIN Rail (Rear Mounting)<br>Door Mounting    |
| Voltage (max.)            | 600 Vac                                         | 600 Vac                                                          | 600 Vac                               | 600 Vac                                                        | 690 Vac                                                      | 690 Vac                                      |
| Current Ratings           | 30–60                                           | 10–115                                                           | UL-20-115A,<br>IEC 32 - 175           | 30–1200                                                        | 16–63 A                                                      | 63–125 A                                     |
| Horsepower Ratings (max.) | 7.5–40                                          | 2–60                                                             | 2–60                                  | 7.5–500                                                        | 1–30                                                         | 3–60                                         |
| Enclosure Type            | Non-Metallic<br>NEMA 1, 3, 3R, 4, 4X,<br>and 12 | Metallic:<br>NEMA 1, 12, 4, 4X<br>Plastic:<br>IP55, NEMA Type 4X | NEMA 1, 12, 3R 4, 4X                  | Handle ratings:<br>NEMA 1, 3R, 4, 4X, 12                       | NEMA 1, 12, 3R, 4, and<br>4X; IEC IP65, IP66                 | NEMA 1, 12, 3R, 4, and<br>4X; IEC IP65, IP66 |
| Accessories               | Power poles and<br>auxiliary contacts           | Power poles and<br>auxiliary contacts                            | Power poles and<br>auxiliary contacts | Auxiliary contacts and<br>power lugs                           | Power poles and<br>auxiliary contacts                        | Power poles and<br>auxiliary contacts        |
| Approvals                 | UL File E164864<br>IEC standard 60947-3         | UL File E164864 NLRV<br>CSA File LR 81630<br>Class 3211 05       | UL                                    | UL File E191098<br>WP2X / WP2X7<br>CSA 703149<br>Class 4652 04 | UL File E487906<br>UL60947-4-1 / CSA 22.2<br>n° 60947-4-1-14 | UL File E487907<br>UL98/CSA 22.2 n° 4        |
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| Class                     | GS2                                                            | 9422                                                 | 9421                                                 | 9422                                                 | 9423                                                           |
|---------------------------|----------------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|------------------------------------------------------|----------------------------------------------------------------|
| Type                      | Fusible IEC style disconnect switches                          | NEMA style fused or non-fusible disconnect switches  | Circuit breaker operating mechanisms                 | Circuit breaker operating mechanisms                 | Door closing mechanisms                                        |
| UL Rating                 | UL 98                                                          | UL98                                                 | —                                                    | —                                                    | —                                                              |
| Handle Type               | Rotary                                                         | Flange<br>Adjustable rod or cable<br>mechanism       | Rotary                                               | Flange<br>Adjustable rod or cable<br>mechanism       | Rotary, works in conjunction<br>with 9422 handle<br>mechanisms |
| Mounting                  | Flange with cable mechanism<br>panel                           | Panel or bracket mount                               | Panel                                                | Panel                                                | —                                                              |
| Load Voltage (max.)       | 600 Vac                                                        | 600 Vac                                              | 600 Vac                                              | 600 Vac                                              | —                                                              |
| Current Ratings           | 30–800                                                         | 30–400                                               | Circuit breaker frame sizes<br>100–1200              | Circuit breaker frame sizes<br>100–1200              | —                                                              |
| Horsepower Ratings (max.) | 7.5–500                                                        | 7.5–350                                              | —                                                    | —                                                    | —                                                              |
| Enclosure Type            | Handle ratings:<br>NEMA 1, 3R, 4, 4X, 12                       | Handle ratings:<br>NEMA 1, 3R, 4, 4X, 12             | Handle ratings:<br>NEMA 1, 3R, 4, 4X, 12             | Handle ratings:<br>NEMA 1, 3R, 4, 4X, 12             | Handle ratings:<br>NEMA 4 and 12<br>sheet steel or stainless   |
| Accessories               | Auxiliary contacts and power<br>lugs                           | Auxiliary contacts                                   | Auxiliary contacts                                   | Auxiliary contacts                                   | Right or left-hand operation                                   |
| Approvals                 | UL File E191098<br>WP2X / WP2X7<br>CSA 703149<br>Class 4652 04 | UL File E52639 WHTY2<br>CSA LR44199<br>Class 4652-04 | UL File E62922 DIHS2<br>CSA LR44199<br>Class 3211 07 | UL File E62922 DIHS2<br>CSA LR44199<br>Class 3211 07 | —                                                              |
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VCFN12GE

## Identification System

Mini-Vario and Vario rotary manual motor-control switches from 12–175 A are suitable for on-load making and breaking of resistive or mixed resistive inductive circuits where frequent operation is required. They can also be used for direct switching of motors in utilization categories AC-3 and DC-3 specific to motors. Vario manual motor-control switches are suitable for isolator applications with fully visible indication (since the handle cannot be in the open position unless all the contacts are actually open and separated by the appropriate isolating distance), and the handles are padlockable.

The Mini-Vario and Vario catalog numbers are described in [Table 8.1](#).

**Table 8.1: Identification System**

|                                                                    |                                                                   | V                                   | CF              | N12 | GE |
|--------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------|-----------------|-----|----|
| <b>Model (V-Vario, K-Operator)</b>                                 |                                                                   |                                     |                 |     |    |
| <b>Operator Type/ Accessory Designation</b>                        |                                                                   |                                     |                 |     |    |
| <b>CD</b>                                                          | Single hole Red & Yellow                                          |                                     |                 |     |    |
| <b>CF</b>                                                          | Four hole Red & Yellow                                            |                                     |                 |     |    |
| <b>CCD</b>                                                         | Single hole Red & Yellow w/ extension shaft                       |                                     |                 |     |    |
| <b>CCF</b>                                                         | Four hole Red & Yellow w/ extension shaft                         |                                     |                 |     |    |
| <b>Blank</b>                                                       | No operator or accessory                                          |                                     |                 |     |    |
| <b>BD</b>                                                          | Single hole Black and Gray                                        |                                     |                 |     |    |
| <b>BF</b>                                                          | Four hole Black and Gray                                          |                                     |                 |     |    |
| <b>VE</b>                                                          | Switch with Red handle installed on unit (one padlock only)       |                                     |                 |     |    |
| <b>VD</b>                                                          | Switch with Black handle installed on unit (no padlock provision) |                                     |                 |     |    |
| <b>Z</b>                                                           | Accessory, power pole, neutral or ground                          |                                     |                 |     |    |
| <b>Switch Type (Switches and contacts are dual rated, UL/IEC).</b> |                                                                   |                                     |                 |     |    |
| <b>Blank</b>                                                       |                                                                   | <b>1</b>                            | Vario 20/32 A   |     |    |
| <b>N12</b>                                                         | Mini-Vario 10/12 A                                                | <b>2</b>                            | Vario 25/40 A   |     |    |
| <b>N20</b>                                                         | Mini-Vario 16/20 A                                                | <b>3</b>                            | Vario 45/63 A   |     |    |
| <b>02</b>                                                          | Vario 10/12 A                                                     | <b>4</b>                            | Vario 63/80 A   |     |    |
| <b>01</b>                                                          | Vario 16/20 A                                                     | <b>5</b>                            | Vario 100/125 A |     |    |
| <b>0</b>                                                           | Vario 20/25 A                                                     | <b>6</b>                            | Vario 115/175 A |     |    |
| <b>Enclosure Type (if applicable)</b>                              |                                                                   |                                     |                 |     |    |
| <b>Blank</b>                                                       | No Enclosure                                                      | <b>G30, A30, W30</b> Type 1/12/4/4X |                 |     |    |
| <b>GE</b>                                                          | Mini-Vario IP55 Non-Metallic                                      | Metallic (Class 9421)               |                 |     |    |
|                                                                    |                                                                   | <b>GU</b> Vario IP55 Non-Metallic   |                 |     |    |

## Mini-Vario

**Table 8.2: Assembled Switches—Degree of Protection IP65, Type 1 and 12**

| Rating (A) |     | Complete Switches for Door Mounting (3-Padlock) |                          | Complete Switches for Rear Mounting, Includes Extension Shaft (3-Padlock) |
|------------|-----|-------------------------------------------------|--------------------------|---------------------------------------------------------------------------|
|            |     | Red/Yellow (Single Hole)                        | Black/Gray (Single Hole) | Red/Yellow (Single Hole)                                                  |
| UL         | IEC | Catalog No.                                     | Catalog No.              | Catalog No.                                                               |
| 10         | 12  | VCDN12                                          | VBDN12                   | VCCDN12                                                                   |
| 16         | 20  | VCDN20                                          | VBDN20                   | VCCDN20                                                                   |

**Table 8.3: Mini-Vario Enclosed Switches**

| Catalog No. | Complete Switches Mounted in IP55 Non-Metallic Enclosure                |
|-------------|-------------------------------------------------------------------------|
|             | Description                                                             |
| VCFN12GE    | Red/Yellow Mounted In Sealable Enclosure, Non-UL Listed, Non-NEMA Rated |
| VCFN20GE    |                                                                         |

**Table 8.4: Component Parts**

| Catalog No. | Description                                                      |
|-------------|------------------------------------------------------------------|
| VN12 [1]    | 10/12 A switch only                                              |
| VN20 [1]    | 16/20 A switch only                                              |
| VZN12 [1]   | Add on power pole for 10/12 A switch                             |
| VZN20 [1]   | Add on power pole for 16/20 A switch                             |
| VZN11       | Neutral Pole with early make, late break for VN12 or VN20 switch |
| VZN14       | Grounding module for VN12 or VN20                                |
| VZN05       | N.O. late make auxiliary contact [2]                             |
| VZN06       | N.C. early break auxiliary contact [2]                           |
| VZN26       | Single-pole shroud for auxiliary contacts                        |
| VZN08       | Three-pole shroud for VN12 or VN20                               |

**Table 8.5: Operators and Accessories**

| Catalog No. | Description                                      |
|-------------|--------------------------------------------------|
| KCC1YZ      | 45 x 45 mm Red & Yellow operator                 |
| KCD1PZ      | 60 x 60 mm Red & Yellow operator                 |
| KAD1PZ      | 60 x 60 mm Black & Gray operator                 |
| VZN17       | 300–340 mm shaft extension                       |
| VZN30       | 400–430 mm shaft extension                       |
| KZ32        | Door interlocking plate for 45 or 60 mm operator |
| KZ83        | Door mounting plate for 45 or 60 mm operator     |

[1] Switches/contacts are dual rated (UL/IEC).

[2] Auxiliary contacts are dual rated (UL/IEC 10/12 A).



## Vario

Table 8.6: NEMA Type 1 and 12 Assembled Switches for Door Mounting

| Rating (A) |     | Complete Switches (Switch and Handle) for Door Mounting (3-padlock) |                           |                             |                             |
|------------|-----|---------------------------------------------------------------------|---------------------------|-----------------------------|-----------------------------|
|            |     | Red/Yellow<br>(Four Hole)                                           | Black/Gray<br>(Four Hole) | Red/Yellow<br>(Single Hole) | Black/Gray<br>(Single Hole) |
| UL         | IEC | Catalog No.                                                         | Catalog No.               | Catalog No.                 | Catalog No.                 |
| 10         | 12  | VCF02                                                               | VBF02                     | VCD02                       | VBD02                       |
| 16         | 20  | VCF01                                                               | VBF01                     | VCD01                       | VBD01                       |
| 20         | 25  | VCF0                                                                | VBF0                      | VCD0                        | VBD0                        |
| 20         | 32  | VCF1                                                                | VBF1                      | VCD1                        | VBD1                        |
| 25         | 40  | VCF2                                                                | VBF2                      | VCD2                        | VBD2                        |
| 45         | 63  | VCF3                                                                | VBF3                      | —                           | —                           |
| 63         | 80  | VCF4                                                                | VBF4                      | —                           | —                           |
| 100        | 125 | VCF5                                                                | VBF5                      | —                           | —                           |
| 115        | 175 | VCF6                                                                | VBF6                      | —                           | —                           |

Table 8.7: NEMA Type 1 and 12 Assembled Switches for Rear Mounting

| Rating (A) |     | Complete Switches for Rear Mounting<br>with Extension Shaft (3-Padlock)/[3] |                             | Switches with Handles Installed<br>on Unit, DIN Rail Mount Only |                            |
|------------|-----|-----------------------------------------------------------------------------|-----------------------------|-----------------------------------------------------------------|----------------------------|
|            |     | Red/Yellow<br>(Four Hole)                                                   | Red/Yellow<br>(Single Hole) | Red/Yellow<br>(1-Padlock)                                       | Black/Gray<br>(No-Padlock) |
| UL         | IEC | Catalog No.                                                                 | Catalog No.                 | Catalog No.                                                     | Catalog No.                |
| 10         | 12  | VCCF02                                                                      | VCCD02                      | —                                                               | —                          |
| 16         | 20  | VCCF01                                                                      | VCCD01                      | —                                                               | —                          |
| 20         | 25  | VCCF0                                                                       | VCCD0                       | VVE0                                                            | VVD0                       |
| 20         | 32  | VCCF1                                                                       | VCCD1                       | VVE1                                                            | VVD1                       |
| 25         | 40  | VCCF2                                                                       | VCCD2                       | VVE2                                                            | VVD2                       |
| 45         | 63  | VCCF3                                                                       | —                           | VVE3                                                            | VVD3                       |
| 63         | 80  | VCCF4                                                                       | —                           | VVE4                                                            | VVD4                       |
| 100        | 125 | VCCF5                                                                       | —                           | —                                                               | —                          |
| 115        | 175 | VCCF6                                                                       | —                           | —                                                               | —                          |

## Vario Non-Metallic Enclosed Switches

The Vario Motor Disconnect Switch is also offered as an enclosed switch. The three-pole version makes the Vario switch ideal for manual motor control applications. They are compact, easy to wire and connect, and come undrilled to allow cable entry positions.

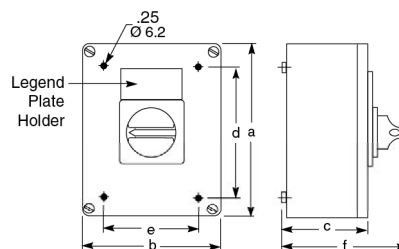
**NOTE:** VC•GUN enclosures are UL approved.

Table 8.8: Non-Metallic Enclosed Switch [4] [5]

| Ampere Size<br>UL/IEC | IP55-PVC 3-Pole,<br>NEMA Type 1 & 12 | NEMA 4X<br>Indoor | Hp Ratings |       |       | Catalog No. |
|-----------------------|--------------------------------------|-------------------|------------|-------|-------|-------------|
|                       |                                      |                   | 240 V      | 480 V | 600 V |             |
| 20/32                 | X                                    | —                 | 5          | 10    | 10–15 | VC1GUN      |
| 25/40                 | X                                    | —                 | 5–10       | 10–20 | 15–30 | VC2GUN      |
| 45/63                 | X                                    | —                 | 10–15      | 20–30 | 30–40 | VC3GUN      |
| 63/80                 | X                                    | —                 | 15         | 30    | 40    | VC4GUN      |
| 100/125               | X                                    | X                 | 25         | 50    | 50    | VC5GUN      |
| 115/175               | X                                    | X                 | 30         | 50    | 60    | VC6GUN      |

Table 8.9: Dimensions

| Type   | No. of<br>Poles | a          | b         | c         | d          | e         | f         |
|--------|-----------------|------------|-----------|-----------|------------|-----------|-----------|
| VC1GUN | 3               | 6.5 (164)  | 4.8 (121) | 3.4 (87)  | 5.6 (141)  | 3.9 (98)  | 5.2 (132) |
| VC2GUN |                 |            |           |           |            |           |           |
| VC3GUN |                 |            |           |           |            |           |           |
| VC4GUN | 3               | 7.6 (193)  | 6.5 (164) | 3.4 (87)  | 6.7 (170)  | 5.6 (141) | 5.2 (132) |
| VC5GUN |                 |            |           |           |            |           |           |
| VC6GUN | 3               | 11.5 (291) | 9.5 (241) | 5.0 (128) | 10.6 (269) | 8.6 (219) | 7.5 (191) |



VC-GUN

[3] Complete switch includes handle operator, shaft, door interlock plate, and line terminal shroud.

[4] Assembled, includes switches mounted in enclosure with handle.

[5] Refer to and Table 8.12 for horsepower ratings.

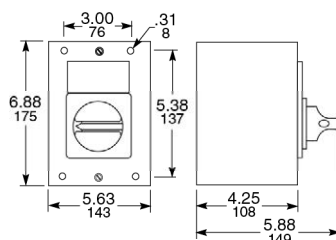


### Vario Metallic Enclosed Switches

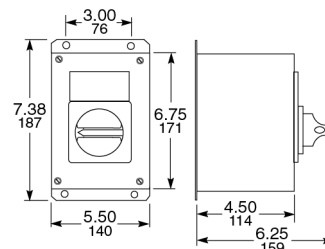
Vario switches meet UL508 requirements as both enclosed and open manual motor controllers. They are also marked "Suitable as Motor Disconnect" allowing installation on the load side of the motor branch circuit short-circuit and ground-fault protection. If motor branch circuit short-circuit and ground-fault protection is needed, use a GS1 or 9422 fusible switch or circuit breaker meeting NEC 430.52 requirements.

**Table 8.10: Metallic Enclosed Switches** [6] [7]

| Rating (A) |     | Horsepower Ratings |       |       | NEMA Type 1 | NEMA Type 12 | NEMA Type 4/4X |
|------------|-----|--------------------|-------|-------|-------------|--------------|----------------|
| UL         | IEC | 240 V              | 480 V | 600 V | Catalog No. | Catalog No.  | Catalog No.    |
| 20         | 32  | 5                  | 10    | 10    | 9421V1G30   | 9421V1A30    | 9421V1W30      |
| 25         | 40  | 5                  | 10    | 15    | 9421V2G30   | 9421V2A30    | 9421V2W30      |



Class 9421 NEMA Type 1 V1G30, V2G30



Class 9421 NEMA Type 4, 4X, 12  
V1W30, V2W30, V1A30, V2A30

### Vario Manual Motor Control Switches

The V1 and V2 come in metallic enclosures (NEMA Type 1, 4, 4X, and 12). The NEMA 1 enclosure comes with conduit knockouts top and bottom. To factory install a VZ7 auxiliary contact in these metallic enclosures, add Form X11 to the end of the catalog number (for example, 9421V1G30X11). To factory install a VZ20 auxiliary contact in these enclosures, add Form X20 to the end of the catalog number (for example, 9421V1W30X20).



Manual Motor  
Control Switch

**Table 8.11: Vario Manual Motor Control Switches, IEC**

| Rating (A)<br>IEC | kW Rating—3-Pole Switch Body |       |       |       |       |       |
|-------------------|------------------------------|-------|-------|-------|-------|-------|
|                   | 230 V                        | 240 V | 400 V | 415 V | 500 V | 690 V |
| 12                | 3                            | 3     | 4     | 4     | 5.5   | 7.5   |
| 20                | 4                            | 4     | 5.5   | 5.5   | 7.5   | 11    |
| 25                | 5.5                          | 5.5   | 7.5   | 7.5   | 11    | 15    |
| 32                | 5.5                          | 5.5   | 11    | 11    | 11    | 15    |
| 40                | 7.5                          | 7.5   | 15    | 15    | 18.5  | 15    |
| 63                | 15                           | 15    | 22    | 22    | 30    | 22    |
| 80                | 18.5                         | 18.5  | 30    | 30    | 37    | 30    |
| 125               | 22                           | 22    | 37    | 37    | 45    | 37    |
| 175               | 30                           | 30    | 45    | 45    | 55    | 45    |

**Table 8.12: Vario Manual Motor Control Switches**

| Rating (A) | Horsepower Rating |       |       | Shaft Size<br>mm | 3-Pole Switch Body<br>Type |
|------------|-------------------|-------|-------|------------------|----------------------------|
|            | 240 V             | 480 V | 600 V |                  |                            |
| 10         | 2                 | 5     | 5     | 6                | V02                        |
| 16         | 3                 | 7.5   | 7.5   | 6                | V01                        |
| 20         | 5                 | 10    | 10    | 6                | V0                         |
| 20         | 5                 | 10    | 10    | 6                | V1                         |
| 25         | 5                 | 10    | 15    | 6                | V2                         |
| 45         | 10                | 20    | 30    | 8                | V3                         |
| 63         | 15                | 30    | 40    | 8                | V4                         |
| 100        | 25                | 50    | 50    | 8                | V5                         |
| 115        | 30                | 50    | 60    | 8                | V6                         |

**Table 8.13: Switch Body**

| Rating (A) |     | Shaft Size<br>mm | 3-Pole Switch Body<br>Type |
|------------|-----|------------------|----------------------------|
| UL         | IEC |                  |                            |
| 10         | 12  | 6                | V02                        |
| 16         | 20  | 6                | V01                        |
| 20         | 25  | 6                | V0                         |
| 20         | 32  | 6                | V1                         |
| 25         | 40  | 6                | V2                         |
| 45         | 63  | 8                | V3                         |
| 63         | 80  | 8                | V4                         |
| 100        | 125 | 8                | V5                         |
| 115        | 175 | 8                | V6                         |

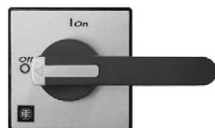
**NOTE:** Refer to Table 8.10 and Table 8.12 for horsepower ratings.

[6] Assembled, includes switches mounted in enclosure with handle.

[7] For indoor use only. The NEMA Type 4/4X enclosure is made of #304 stainless steel with 3/4 in. T&B stainless steel hubs on the top and bottom.



Single-Hole Operator

Four-Hole Operator  
(All except KDF3PZ  
and KBF3PZ)Four-Hole Operator  
KDF3PZ and KBF3PZ

Low-Profile Handle KCD1YZ



KZ67

Table 8.14: NEMA Type 1 and 12 Handle Operators: V02–V2 (6 mm Shaft), V3–V6 (8 mm Shaft) [8]

| Operator Type |                 | Red/Yellow Single Hole 45 x 45 mm | Red/Yellow Four Hole 45 x 45 mm | Black/Gray Single Hole 45 x 45 mm | Black/Gray Four Hole 45 x 45 mm |
|---------------|-----------------|-----------------------------------|---------------------------------|-----------------------------------|---------------------------------|
| Switches      | No. of Padlocks | Catalog No.                       | Catalog No.                     | Catalog No.                       | Catalog No.                     |
| V02–V2        | 0               | KCC1LZ                            | KCE1LZ                          | KAC1BZ                            | KAE1BZ                          |
| V02–V2        | 1               | KCC1YZ                            | KCE1YZ                          | —                                 | —                               |
| Operator Type |                 | Red/Yellow Single Hole 60 x 60 mm | Red/Yellow Four Hole 60 x 60 mm | Black/Gray Single Hole 60 x 60 mm | Black/Gray Four Hole 60 x 60 mm |
| V02–V2        | 0               | KDD1PZ                            | KDF1PZ                          | KBD1PZ                            | KBF1PZ                          |
| V3–V4         | 0               | —                                 | KDF2PZ                          | —                                 | KBF2PZ                          |
| V02–V2        | 3               | KCD1PZ                            | KCF1PZ                          | KAD1PZ                            | KAF1PZ                          |
| V3–V4         | 3               | —                                 | KCF2PZ                          | —                                 | KAF2PZ                          |
| Operator Type |                 | Red/Yellow Four Hole 90 x 90 mm   | Black/Gray Four Hole 90 x 90 mm |                                   |                                 |
| V5–V6         | 0               | KDF3PZ                            | KBF3PZ                          |                                   |                                 |
| V5–V6         | 3               | KCF3PZ                            | KAF3PZ                          |                                   |                                 |

Table 8.15: Low Profile Handle Operators [8]

| Operator Type |                 | Red/Yellow Single Hole 60 x 60 mm | Red/Yellow Four Hole 60 x 60 mm | Black/Gray Single Hole 60 x 60 | Black/Gray Four Hole 60 x 60 mm |
|---------------|-----------------|-----------------------------------|---------------------------------|--------------------------------|---------------------------------|
| Switches      | No. of Padlocks | Catalog No.                       | Catalog No.                     | Catalog No.                    | Catalog No.                     |
| V02–V2        | 3               | KCD1YZ                            | KCF1YZ                          | KAD1XZ                         | KAF1XZ                          |
| V3–V4         | 3               | —                                 | KCF2YZ                          | —                              | KAF2XZ                          |
| Operator Type |                 | Red/Yellow Four Hole 90 x 90 mm   | Black/Gray Four Hole 90 x 90 mm |                                |                                 |
| V5–V6         | 3               | KCG2YZ                            | KAG2XZ                          |                                |                                 |

Table 8.16: Gasket Kits

| Catalog No. | Description                                                                          |
|-------------|--------------------------------------------------------------------------------------|
| KZ65        | 45 x 45 mm gasket for V02-V2 for 4-hole type handles (order in quantities of 5)—IP65 |
| KZ66        | 60 x 60 mm gasket for V02-V2 for 4-hole type handles (order in quantities of 5)—IP65 |
| KZ62        | 60 x 60 mm gasket for V3-V4 for 4-hole type handles (order in quantities of 5)—IP65  |
| KZ67        | 90 x 90 mm gasket for V5-V6 for 4-hole type handles (order in quantities of 5)—IP65  |

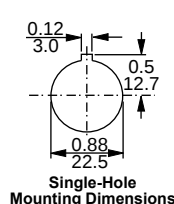
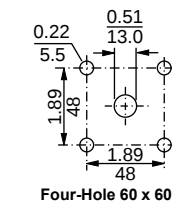
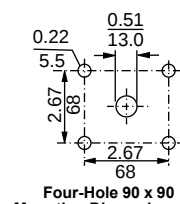
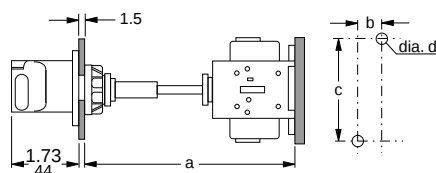
Single-Hole  
Mounting DimensionsFour-Hole 60 x 60  
Mounting Dimensions [9]Four-Hole 90 x 90  
Mounting Dimensions [9]

Table 8.17: Rear/Panel Mounting Switch Body Dimensions

| Type      | Shaft Extension | Dimensions           |                    |      |    |     |     |      |     |
|-----------|-----------------|----------------------|--------------------|------|----|-----|-----|------|-----|
|           |                 | a                    |                    | b    |    | c   |     | d    |     |
|           |                 | in.                  | mm                 | in.  | mm | in. | mm  | in.  | mm  |
| V02 to V2 | VZ17<br>VZ30    | 5.5–13.0<br>5.5–16.9 | 140–330<br>140–430 | 0.60 | 15 | 2.4 | 60  | 0.17 | 4.2 |
| V3 to V4  | VZ18<br>VZ31    | 5.5–12.6<br>5.5–16.5 | 140–320<br>140–420 | 0.79 | 20 | 2.4 | 60  | 0.20 | 5.2 |
| V5 to V6  | VZ18<br>VZ31    | 6.5–13.8<br>6.5–17.7 | 165–350<br>165–450 | 1.20 | 30 | 3.9 | 100 | 0.28 | 7.0 |



[8] When using these handles for replacements on the non-metallic enclosed switches, the handle shaft that comes with the enclosure must be reused. See Section 15 of the Supplemental Digest.

[9] The door interlock plate included with VCC Kits has the same drilling as the handle operators.

## Mini-Vario and Vario™ Accessories

Table 8.18: Door Mounting Switch Body Dimensions

| Switch Type                    | Dimensions |    |      |    |      |     | Weight<br>Approx. lbs. |
|--------------------------------|------------|----|------|----|------|-----|------------------------|
|                                | a          |    | b    |    | c    |     |                        |
|                                | in.        | mm | in.  | mm | in.  | mm  |                        |
| V02 to V2 <a href="#">[10]</a> | 2.83       | 72 | 2.17 | 55 | 2.91 | 74  | 0.44                   |
| V02 to V2                      | 2.36       | 60 | 2.17 | 55 | 2.91 | 74  | 0.44                   |
| V3 to V4                       | 2.56       | 65 | 2.36 | 60 | 3.27 | 83  | 1.10                   |
| V5 to V6                       | 3.54       | 90 | 3.54 | 90 | 4.92 | 125 | 2.00                   |

Table 8.19: Shaft Extension and Door Interlock

| Switch Type | Maximum<br>Panel Depth |     | Shaft<br>Extension<br>Kit | Door<br>Interlock<br>Plate | Door<br>Mounting<br>Plate |
|-------------|------------------------|-----|---------------------------|----------------------------|---------------------------|
|             | in.                    | mm  |                           |                            |                           |
| V02 to V2   | 13.0                   | 330 | VZ17                      | KZ32                       | KZ83                      |
| V3, V4      | 12.6                   | 320 | VZ18                      | KZ74                       | KZ81                      |
| V5, V6      | 13.8                   | 351 | VZ18                      | KZ74                       | KZ81                      |
| V02 to V2   | 16.9                   | 429 | VZ30                      | KZ32                       | KZ83                      |
| V3, V4      | 16.5                   | 419 | VZ31                      | KZ74                       | KZ81                      |
| V5, V6      | 17.7                   | 450 | VZ31                      | KZ74                       | KZ81                      |

Table 8.20: Accessories

| Switch Type | Line Side<br>Terminal Shroud<br>For Main Switch | Terminal Shroud<br>for Add-on<br>Power Pole | Terminal Shroud<br>for Auxiliary<br>Contact |
|-------------|-------------------------------------------------|---------------------------------------------|---------------------------------------------|
| V02 to V2   | VZ8                                             | VZ26                                        | VZ29                                        |
| V3, V4      | VZ9                                             | VZ27                                        | VZ29                                        |
| V5, V6      | VZ10                                            | VZ28                                        | VZ29                                        |

Table 8.21: Add-On Contact Modules

| Switch Type | Main Pole<br>Module | Main Pole | Ampere<br>Rating<br>UL/IEC | Auxiliary Contacts<br>Rated UL/IEC 10/12 A |        |
|-------------|---------------------|-----------|----------------------------|--------------------------------------------|--------|
|             |                     |           |                            | 1 N.O., 1 N.C.                             | 2 N.O. |
| V02         | VZ02                | VZ02      | 10/12                      | VZ7<br>Early Break,<br>Late Make           | VZ20   |
| V01         | VZ01                | VZ01      | 16/20                      |                                            |        |
| V0          | VZ0                 | VZ0       | 20/25                      |                                            |        |
| V1          | VZ1                 | VZ1       | 20/32                      |                                            |        |
| V2          | VZ2                 | VZ2       | 25/40                      |                                            |        |
| V3          | VZ3                 | VZ3       | 45/63                      |                                            |        |
| V4          | VZ4                 | VZ4       | 63/80                      |                                            |        |
| V5          | —                   | —         | —                          |                                            |        |
| V6          | —                   | —         | —                          |                                            |        |

Table 8.22: Add-On Contact Modules

| Switch Type | Neutral Modules<br>Early Make/Late<br>Break | Grounding<br>Module | Auxiliary Contacts |                                         |
|-------------|---------------------------------------------|---------------------|--------------------|-----------------------------------------|
|             | Catalog No.                                 | Catalog No.         | Catalog No.        | Description                             |
| V02-V2      | VZ11                                        | VZ14                | VZ7                | 1 Late Make, N.O. & 1 Early Break, N.C. |
| V3-V4       | VZ12                                        | VZ15                | VZ20               | 2 N.O. Contacts                         |
| V5-V6       | VZ13                                        | VZ16                | —                  | —                                       |

Table 8.23: Labeling Accessories

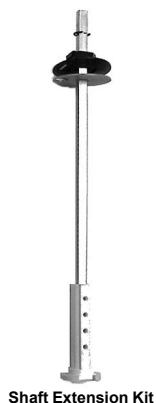
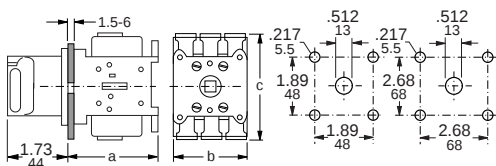
| Nameplate Holder with Nameplate |             | Nameplate Holder<br>Only | Nameplate Only |             |
|---------------------------------|-------------|--------------------------|----------------|-------------|
| Size                            | Catalog No. | Catalog No.              | Use With       | Catalog No. |
| 45 x 45 mm                      | KZ13        | KZ14                     | KZ14           | KZ76        |
| 60 x 60 mm                      | KZ15        | KZ16                     | KZ16           | KZ77        |
| 90 x 90 mm                      | KZ103       | KZ101                    | KZ1010         | KZ100       |

Table 8.24: Shrouds

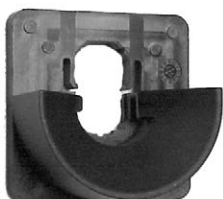
| Switch Type | 3-Pole Shroud | Single-Pole Shroud      |             |
|-------------|---------------|-------------------------|-------------|
|             | Catalog No.   | For Add-On Power Pole   | Catalog No. |
| V02-V2      | VZ8           | VZ02-VZ2, VZ11, & VZ14  | VZ26        |
| V3-V4       | VZ9           | VZ23, VZ4, VZ12, & VZ15 | VZ27        |
| V5-V6       | VZ10          | VZ13 & VZ16             | VZ28        |
| —           | —             | For 2-Pole Aux. Contact | VZ29        |

Table 8.25: Main Pole Module Dimensions

| Switch Type  | Dimensions |    |     |    |      |    | Weight<br>Approx. lbs. |
|--------------|------------|----|-----|----|------|----|------------------------|
|              | a          |    | b   |    | c    |    |                        |
|              | in.        | mm | in. | mm | in.  | mm |                        |
| V 02 to V 22 | 0.63       | 16 | 2.9 | 74 | 1.38 | 35 | 0.10                   |
| V 23 to V 44 | 0.79       | 20 | 3.3 | 83 | 1.80 | 46 | 0.22                   |



Shaft Extension Kit



Door Interlock Plate  
KZ32



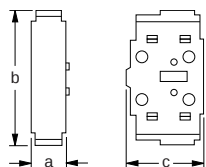
Add-On Contact Module



Terminal Shroud for  
Main Switch VZ8

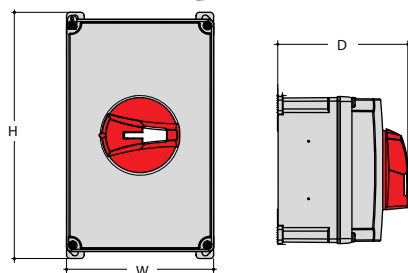


Terminal Shroud for  
Auxiliary Contact VZ29



Main Pole Module

[10] Dimensions for single-hole mounting.



MD Motor Disconnect Switch

## MD Motor Disconnect Switches

The MD motor disconnect switch is listed UL 508 Suitable for Motor Control (UL File E164864) and conforms to IEC standard 60947-3. It is in a compact NEMA 4X enclosure suitable for use in NEMA 1, 3, 3R, 4, 4X, and 12 applications. The MD's key benefits are an extremely small footprint, a more economically efficient NEMA 4X solution, and a handle interlock preventing cover removal when the switch is in the ON position.

Switch features:

- Suitable for NEMA 1, 3R, 4, 4X, and 12 enclosure applications.
- Complies with OSHA lockout/tagout requirements—accepts up to three 8 mm padlocks.
- For accessories, see [Table 8.20](#).

**Table 8.26: MD Motor Disconnect Switch—Non-Metallic NEMA 1, 3, 3R, 4, 4X, and 12 Enclosure**

| Amperes | Cat. No.                | Maximum Horsepower Ratings |         |     | Height<br>(in.) | Width<br>(in.) | Depth<br>(in.) |
|---------|-------------------------|----------------------------|---------|-----|-----------------|----------------|----------------|
|         |                         | Three-Phase Vac            |         |     |                 |                |                |
|         |                         | 220–240                    | 440–480 | 600 |                 |                |                |
| 30      | <a href="#">MD3304X</a> | 7.5                        | 20      | 25  | 6.38            | 3.9            | 4.37           |
| 60      | <a href="#">MD3604X</a> | 20                         | 40      | 40  | 8.27            | 4.94           | 4.37           |

**Table 8.27: MD Motor Disconnect Accessories**

| Cat. No.                | Description                                |
|-------------------------|--------------------------------------------|
| <a href="#">MDSAN20</a> | 2 N.O. auxiliary contact module            |
| <a href="#">MDSAN11</a> | 1 N.O. and 1 N.C. auxiliary contact module |
| <a href="#">MDS30P</a>  | 30 A add on power pole                     |

*New!*

## Disconnect Switches, 16–125 A

- Versions: DIN rail mounting, door mounting, and rear mounting
- Wide range of accessories
- Changeover switches
- Conforming to UL 60947-4-1 (16–63 A) or UL 98 (63–125 A) specifications



| Style                                   | DIN Rail, Rear Mounting |    |    |    |    |                  |    |     |     | Door Mounting    |    |    |    |                  |    |     |     |
|-----------------------------------------|-------------------------|----|----|----|----|------------------|----|-----|-----|------------------|----|----|----|------------------|----|-----|-----|
| Width                                   | 36 mm (1.42 in.)        |    |    |    |    | 70 mm (2.75 in.) |    |     |     | 36 mm (1.42 in.) |    |    |    | 70 mm (2.75 in.) |    |     |     |
| Ampere rating                           | 16                      | 25 | 32 | 40 | 63 | 63               | 80 | 100 | 125 | 16               | 25 | 32 | 40 | 63               | 80 | 100 | 125 |
| Three pole                              | •                       | •  | •  | •  | •  | •                | •  | •   | •   | •                | •  | •  | •  | •                | •  | •   | •   |
| 4th pole—simultaneous closing           | •                       | •  | •  | •  | •  | •                | •  | •   | •   | •                | •  | •  | •  | •                | •  | •   | •   |
| 4th pole—early-make closing             | •                       | •  | •  | •  | •  | •                | •  | •   | •   | •                | •  | •  | •  | •                | •  | •   | •   |
| Fuse holder                             | •                       | •  | •  |    |    |                  |    |     |     |                  |    |    |    |                  |    |     |     |
| Mechanical 6-8 pole coupling system     | •                       | •  | •  | •  | •  | •                | •  | •   | •   |                  |    |    |    |                  |    |     |     |
| Mechanical interlock for line switching | •                       | •  |    |    |    |                  | •  | •   | •   |                  |    |    |    |                  |    |     |     |

### Interpreting the Catalog Number

Some combinations are not available. Use this table only for interpreting the catalog number.

**Table 8.28: Interpreting the Catalog Number**

| Example     | VLS                          | 3P                                                                                                                  | 016                                                  | R                                                     | 1                                                                                                |                                                                |
|-------------|------------------------------|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| Description | Disconnect switch            | 1P = 1 pole<br>3P = 3 poles                                                                                         | 016 = 16 A<br>025 = 25 A<br>032 = 32 A<br>040 = 40 A | D = Door mounting<br>R = DIN rail mounting            | 1 = Small size (16–63 A), UL 508<br>2 = Large size (63–125 A), UL 98                             |                                                                |
| Example     | VLSH                         | 2                                                                                                                   | S                                                    | 5                                                     | R                                                                                                |                                                                |
| Description | Rotary handle                | 1 = Recessed, 65 x 65 mm<br>2 = Protruding, 65 x 65 mm<br>3 = Pistol grip, 75 mm dia.<br>4 = Protruding, 48 x 48 mm | H = Hole fixing<br>S = Screw mounting                | 5 = 5 mm shaft opening<br>7 = 7 mm shaft opening      | B = Black<br>BC = Black, changeover<br>BD = Black, defeatable<br>R = Red<br>RD = Red, defeatable |                                                                |
| Example     | VLSS                         | 150                                                                                                                 | 5                                                    |                                                       |                                                                                                  |                                                                |
| Description | Shafts                       | Length:<br>150–500 mm                                                                                               | Cross-section:<br>5 = 5 mm<br>7 = 7 mm               |                                                       |                                                                                                  |                                                                |
| Example     | VLS                          | 1P                                                                                                                  | 040                                                  | R                                                     | 1                                                                                                | S                                                              |
| Description | Additional Poles             | Number of Poles:<br>1P = 1 Pole                                                                                     | Current:<br>016 = 16 A<br>to<br>125 = 125 A          | Mounting:<br>R = DIN rail mounted<br>D = Door mounted | Body Size:<br>1 = Small size (16–63 A)<br>2 = Large size (63–125 A)                              | Closing:<br>S = Simultaneous closing<br>E = Early Make closing |
| Example     | VLS                          | 1N                                                                                                                  | R                                                    | 1                                                     | S                                                                                                |                                                                |
| Description | Ground and Neutral Terminals | 1G = 1 Pole Ground terminal<br>1N = 1 Pole Neutral terminal                                                         | R = DIN rail mounted<br>D = Door mounted             |                                                       | 1 = Small size (16–63 A), UL 508<br>2 = Large size (63–125 A), UL 98                             |                                                                |
| Example     | VLS                          | A                                                                                                                   | 11                                                   | R                                                     | 1                                                                                                | S                                                              |
| Description | Auxiliary contacts           | A = Auxiliary contact                                                                                               | 10 = 1 N.O.<br>11 = 1 N.O. + 1 N.C.                  | R = DIN rail mounted<br>D = Door mounted              | Blank = Size 1 and 2<br>1 = Size 1<br>2 = Size 2                                                 | S = Simultaneous closing<br>E = Early make closing             |

VLS3P016R1–  
VLS3P063R1VLS3P063R2–  
VLS3P125R2VLS3P016D1–  
VLS3P040D1VLS3P063D2–  
VLS3P125D2

Strokes of VLS switch poles

|                       | Travel 0 → 1 | 0° | 30° | 60° | 90° |
|-----------------------|--------------|----|-----|-----|-----|
| VLS3P016R1–VLS3P063R1 |              |    |     | 60° |     |
| VLS3P016D1–VLS3P040D1 |              |    |     | 60° |     |
| VLS3P063R2–VLS3P125R2 |              |    |     | 55° |     |
| VLS3P063D2–VLS3P125D2 |              |    |     | 55° |     |
|                       | Off          |    |     |     | On  |

## Product Overview

### Compact Size

The three-pole 16–63 A disconnect switches are made up of a single unit body, a mere 36 mm (1.4 in.) wide, while those rated 63–125 A are only 70 mm (2.8 in.) wide.

### Accessory Flexibility

Mounting and removal of the fourth pole and add-on blocks are simple and quick operations with no need for tools.

### Certifications

All VLS disconnect switches are certified by cCSAus and are UL Listed for Canada and USA:

- 16–63 A types: certified according to UL 60947-4-1 / CSA 22.2 n° 60947-4-1-14 standards
- 63–125 A types: certified according to UL 98 / CSA 22.2 n° 4 standards

## Three-Pole Disconnect Switches

Table 8.29: Certifications and Compliance (• = certification obtained)

| Catalog number            | cULus per UL 60947-4-1 / CSA C22.2 n° 60947-4-1-14 UL Listed (File E487906) | cULus per UL 98 / CSA C22.2 n° 4 UL Listed (File E487907) | IEC/EN 60947-1, IEC/EN 60947-3 |
|---------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------|--------------------------------|
| VLS3P016R1–<br>VLS3P040R1 | •                                                                           | —                                                         | Compliant                      |
| VLS3P063R1                | •                                                                           | —                                                         |                                |
| VLS3P016D1–<br>VLS3P040D1 | •                                                                           | —                                                         |                                |
| VLS3P063R2–<br>VLS3P125R2 | —                                                                           | •                                                         |                                |
| VLS3P063D2–<br>VLS3P125D2 | —                                                                           | •                                                         |                                |

Table 8.30: Selection—Three-Pole Disconnect Switches

| Catalog number                                                                                                                                                          | IEC conventional free air thermal current (I <sub>th</sub> ), AC21A (≤690 V) (A) | IEC rated operational current (I <sub>e</sub> ) AC22A (≤690 V), AC23A (≤415 V) (A) | UL general use at 600 Vac (A) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------|
| DIN rail mounting version, complete with black handle. For rear-mounting version, separately purchase the handle and shaft extension. Refer to page 8-16 and page 8-18. |                                                                                  |                                                                                    |                               |
| VLS3P016R1                                                                                                                                                              | 16                                                                               | 16                                                                                 | 16                            |
| VLS3P025R1                                                                                                                                                              | 25                                                                               | 25                                                                                 | 25                            |
| VLS3P032R1                                                                                                                                                              | 32                                                                               | 32                                                                                 | 32                            |
| VLS3P040R1                                                                                                                                                              | 40                                                                               | 40                                                                                 | 40                            |
| VLS3P063R1                                                                                                                                                              | 63                                                                               | 45                                                                                 | 60                            |
| VLS3P063R2                                                                                                                                                              | 63                                                                               | 63                                                                                 | 60                            |
| VLS3P080R2                                                                                                                                                              | 80                                                                               | 80                                                                                 | 100                           |
| VLS3P100R2                                                                                                                                                              | 100                                                                              | 100                                                                                | 100                           |
| VLS3P125R2                                                                                                                                                              | 125                                                                              | 125                                                                                | 100                           |
| Door-mounting version (no shaft required). Separately purchase the handle. Refer to page 8-16.                                                                          |                                                                                  |                                                                                    |                               |
| VLS3P016D1                                                                                                                                                              | 16                                                                               | 16                                                                                 | 16                            |
| VLS3P025D1                                                                                                                                                              | 25                                                                               | 25                                                                                 | 25                            |
| VLS3P032D1                                                                                                                                                              | 32                                                                               | 32                                                                                 | 32                            |
| VLS3P040D1                                                                                                                                                              | 40                                                                               | 40                                                                                 | 40                            |
| VLS3P063D2                                                                                                                                                              | 63                                                                               | 63                                                                                 | 60                            |
| VLS3P080D2                                                                                                                                                              | 80                                                                               | 80                                                                                 | 100                           |
| VLS3P100D2                                                                                                                                                              | 100                                                                              | 100                                                                                | 100                           |
| VLS3P125D2                                                                                                                                                              | 125                                                                              | 125                                                                                | 100                           |

Table 8.31: UL / CSA Ratings

| Catalog number                                | Horsepower |       |           |       |       |       | General use<br>at 600 Vac<br>(A) | Short-circuit rating<br>at 600 Vac<br>(kA) | Max. fuse rating<br>at 600 V<br>(A) |
|-----------------------------------------------|------------|-------|-----------|-------|-------|-------|----------------------------------|--------------------------------------------|-------------------------------------|
|                                               | 1 phase    |       | 3 phase   |       |       |       |                                  |                                            |                                     |
|                                               | 120 V      | 240 V | 200–208 V | 240 V | 480 V | 600 V |                                  |                                            |                                     |
| UL 60947-4-1 and CSA 22.2 n° 60947-4-1-14 [1] |            |       |           |       |       |       |                                  |                                            |                                     |
| VLS3P016**                                    | 1          | 2     | 5         | 5     | 10    | 10    | 16                               | 5                                          | 30 (Type RK5)                       |
| VLS3P025**                                    | 1.5        | 3     | 7.5       | 7.5   | 15    | 20    | 25                               | 5                                          | 30 (Type RK5)                       |
| VLS3P032**                                    | 2          | 5     | 10        | 10    | 20    | 20    | 32                               | 5                                          | 45 (Type RK5)                       |
| VLS3P040**                                    | 2          | 5     | 10        | 15    | 20    | 25    | 40                               | 5                                          | 45 (Type RK5)                       |
| VLS3P063R1                                    | 2          | 7.5   | 10        | 15    | 30    | 30    | 60                               | 5                                          | 45 (Type RK5)                       |
| UL 98 and CSA C22.2 n° 4 [2]                  |            |       |           |       |       |       |                                  |                                            |                                     |
| VLS3P063**                                    | 3          | 7.5   | 20 [3]    | 20    | 40    | 40    | 60                               | 50                                         | 60                                  |
| VLS3P080**                                    | 3          | 10    | 25 [3]    | 25    | 40    | 40    | 100                              | 50                                         | 100                                 |
| VLS3P100**                                    | 5          | 10    | 30 [3]    | 30    | 50    | 50    | 100                              | 50                                         | 100                                 |
| VLS3P125**                                    | 7.5        | 10    | 30 [3]    | 30    | 60    | 60    | 100                              | 50                                         | 100                                 |

[1] Ratings are valid for VLS3P\*\*\*R\* and VLS3P\*\*\*D\* types, according to UL 60947-4-1 and CSA 22.2 n° 60947-4-1-14. UL Listed for USA and Canada (cULus - File E487907) as Manual Motor Controllers, while the UL designation is "General Purpose Switch. Interrupteur Usage General" and "Suitable As Motor Disconnect."

[2] Ratings are valid for VLS3P\*\*\*R\* and VLS3P\*\*\*D\* types, according to UL 98 and CSA C22.2 n° 4. UL Listed for USA and Canada (cULus - File E487907) as Open Type Switches – Open type unfused switch, while UL designation is "General Purpose Switch. Interrupteur Usage General."

[3] Voltage value is not considered in UL98 / CSA 22.2 n° 4 standards, and so is not indicated in the UL product marking.



VLS1P\*\*\*R•S  
VLS1P\*\*\*R•E



VLS1P040D1S  
VLS1P040D1E

Strokes of VLS poles (switch and add-on pole)

|                                         | Travel 0→1 | 0° | 30° | 60° | 90° |
|-----------------------------------------|------------|----|-----|-----|-----|
| VLS3P016R1/D1–VLS3P040R1/D1, VLS3P063R1 |            |    |     | 60° |     |
| Main poles                              |            |    |     |     |     |
| VLS1P040R1S–VLS1P063R1S                 |            |    |     | 60° |     |
| Simultaneous fourth-pole add on         |            |    |     |     |     |
| VLS1P040R1E/D1E, VLS1P063R1E            |            |    |     | 55° |     |
| Early-make fourth-pole add on           |            |    |     |     |     |
| VLS3P063R2/D2–VLS3P125R2/D2             |            |    |     | 55° |     |
| Main poles                              |            |    |     |     |     |
| VLS1P063R2S/D2S–VLS1P125R2S/D2S         |            |    |     | 55° |     |
| Simultaneous fourth-pole add on         |            |    |     |     |     |
| VLS1P125R2E/D2E                         |            |    |     | 48° |     |
| Early-make fourth-pole add on           |            |    |     |     |     |
|                                         | Off        |    |     |     | On  |

## Fourth Pole Add-on

Table 8.32: General Specifications—Fourth Pole Add-on

|                    |                                                                                                                                 |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------|
| IEC ampere ratings | 16–125 A                                                                                                                        |
| Available versions | DIN rail mounting<br>Door mounting<br>Simultaneous closing with switch poles<br>Early-make closing with respect to switch poles |
| Size               | Compact and modular                                                                                                             |

Table 8.33: Selection—Fourth Pole Add-on

| Catalog number                                              | IEC conventional free air thermal current I <sub>th</sub><br>AC21A (≤690V)<br>(A) | IEC rated operational current I <sub>o</sub><br>AC22A (≤690V), AC23A (≤415V)<br>(A) |
|-------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Simultaneous closing operation with respect to switch poles |                                                                                   |                                                                                     |
| DIN Rail Mounting (VLS3P***R•)                              |                                                                                   |                                                                                     |
| VLS1P040R1S [4]                                             | 40                                                                                | 40                                                                                  |
| VLS1P063R1S [5]                                             | 63                                                                                | 45                                                                                  |
| VLS1P063R2S                                                 | 63                                                                                | 63                                                                                  |
| VLS1P080R2S                                                 | 80                                                                                | 80                                                                                  |
| VLS1P100R2S                                                 | 100                                                                               | 100                                                                                 |
| VLS1P125R2S                                                 | 125                                                                               | 125                                                                                 |
| Door Mounting (VLS3P***D•)                                  |                                                                                   |                                                                                     |
| VLS1P040D1S [6]                                             | 40                                                                                | 40                                                                                  |
| VLS1P063D2S                                                 | 63                                                                                | 63                                                                                  |
| VLS1P080D2S                                                 | 80                                                                                | 80                                                                                  |
| VLS1P100D2S                                                 | 100                                                                               | 100                                                                                 |
| VLS1P125D2S                                                 | 125                                                                               | 125                                                                                 |
| Early-make closing operation with respect to switch poles   |                                                                                   |                                                                                     |
| DIN Rail Mounting (VLS3P***R•)                              |                                                                                   |                                                                                     |
| VLS1P040R1E [4]                                             | 40                                                                                | 40                                                                                  |
| VLS1P063R1E [6]                                             | 63                                                                                | 45                                                                                  |
| VLS1P125R2E [7]                                             | 125                                                                               | 125                                                                                 |
| Door Mounting (VLS3P***D•)                                  |                                                                                   |                                                                                     |
| VLS1P040D1E [6]                                             | 40                                                                                | 40                                                                                  |
| VLS1P125D2E [8]                                             | 125                                                                               | 125                                                                                 |

**NOTE:** For Fourth Pole UL / CSA ratings, see page 8-10—they are the same as the ratings for the corresponding single-phase contact switch.

Table 8.34: Certifications and Compliance for Fourth Pole Add-on Blocks (• = certification obtained)

| Catalog number           | Certification Standard<br>cULus per UL 60947-4-1 / CSA C22.2 n° 60947-4-1-14 /<br>UL Listed (File E487906) | cULus per UL 98 / CSA C22.2 n° 4 /<br>UL Listed (File E487907) | IEC/EN 60947-1, IEC/EN 60947-3 |
|--------------------------|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|--------------------------------|
| VLS1P040R1E, VLS1P040R1S | •                                                                                                          | —                                                              | Compliant                      |
| VLS1P063R1E, VLS1P063R1S | •                                                                                                          | —                                                              |                                |
| VLS1P040D1E, VLS1P040D1S | •                                                                                                          | —                                                              |                                |
| VLS1P125R2E, VLS1P125D2E | —                                                                                                          | •                                                              |                                |
| VLS1P063R2S–VLS1P125R2S  | —                                                                                                          | •                                                              |                                |
| VLS1P063D2S–VLS1P125D2S  | —                                                                                                          | •                                                              |                                |

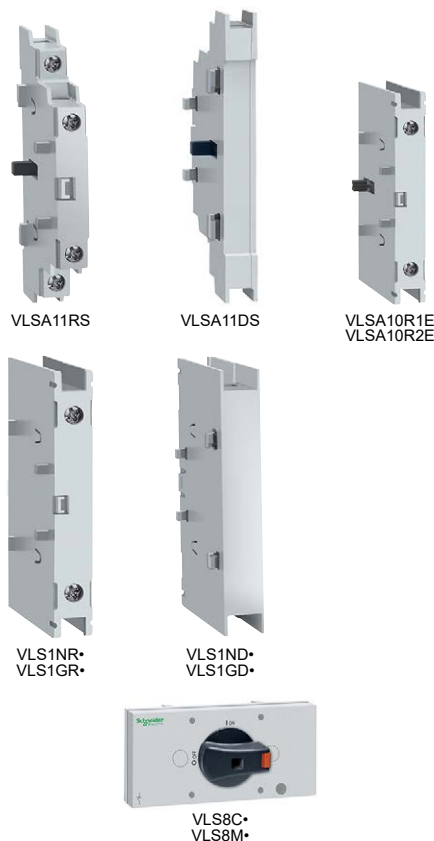
[4] For VLS3P016R1–040R1 only.

[5] For VLS3P063R1 only.

[6] For VLS3P016D1–040D1 only.

[7] For VLS3P063R2–125R2 only.

[8] For VLS3P063D2–125D2 only.



## Add-on Blocks

Table 8.35: Operational Specifications

| Auxiliary contacts                              |                                                                                                                                                                                                                        |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IEC conventional free air thermal current (Ith) | 10 A                                                                                                                                                                                                                   |
| UL/CSA and IEC/EN 60947-5-1 designation         | A600-Q600                                                                                                                                                                                                              |
| Tightening torque                               | 0.8 N•m (7.1 lb-in.)                                                                                                                                                                                                   |
| Other devices                                   |                                                                                                                                                                                                                        |
| Tightening torque                               | VLS1NR1/D1, VLS1GR1/D1 terminals 1.8–2 N•m (16–18 lb-in)<br>VLS1NR2/D2, VLS1GR2/D2 terminals 5–6 N•m (45–54 lb-in)<br>VLS8C1/C2, VLS8M1/M2 mounting: 0.5 N•m (4.4 lb-in)<br>extension with handle: 0.8 N•m (7.1 lb-in) |

Table 8.36: Selection—Add-on Blocks

| Catalog number                                                          | Specifications                                                             |
|-------------------------------------------------------------------------|----------------------------------------------------------------------------|
| Auxiliary contacts, simultaneous operation with respect to switch poles |                                                                            |
| VLSA11RS                                                                | 1NO+1NC for VLS3P***R• and VLS3P063R1                                      |
| VLSA11DS                                                                | 1NO+1NC for VLS3P***D•                                                     |
| Auxiliary contacts, early-break operation with respect to switch poles  |                                                                            |
| VLSA10R1E                                                               | 1EB (NO) for VLS3P016R1–VLS3P040R1, VLS3P063R1                             |
| VLSA10R2E                                                               | 1EB (NO) for VLS3P063R2–VLS3P125R2                                         |
| Neutral terminal                                                        |                                                                            |
| VLS1NR1                                                                 | For VLS3P016R1–VLS3P040R1, VLS3P063R1                                      |
| VLS1NR2                                                                 | For VLS3P063R2–VLS3P125R2                                                  |
| VLS1ND1                                                                 | For VLS3P016D1–VLS3P040D1                                                  |
| VLS1ND2                                                                 | For VLS3P063D2–VLS3P125D2                                                  |
| Earth/Ground terminal                                                   |                                                                            |
| VLS1GR1                                                                 | For VLS3P016R1–VLS3P040R1, VLS3P063R1                                      |
| VLS1GR2                                                                 | For VLS3P063R2–VLS3P125R2                                                  |
| VLS1GD1                                                                 | For VLS3P016D1–VLS3P040D1                                                  |
| VLS1GD2                                                                 | For VLS3P063D2–VLS3P125D2                                                  |
| Mechanical interlock for line changeover (I–II)                         |                                                                            |
| VLS8C1                                                                  | For VLS3P016R1–VLS3P040R1, VLS3P063R1, and VLSH2S5BC: □ 5 mm (0.2 in.) [9] |
| VLS8C2                                                                  | For VLS3P063R2–VLS3P125R2 and VLSH2S5BC: □ 5 mm (0.2 in.) [9]              |
| Mechanical coupling system for 6–8 pole disconnect switches             |                                                                            |
| VLS8M1                                                                  | For VLS3P016R1–VLS3P040R1 and VLS3P063R1: □ 5 mm (0.2 in.) [9]             |
| VLS8M2                                                                  | For VLS3P063R2–VLS3P125R2: □ 7 mm (0.3 in.) [10]                           |

Strokes of VLS poles (switch with auxiliary contact blocks)

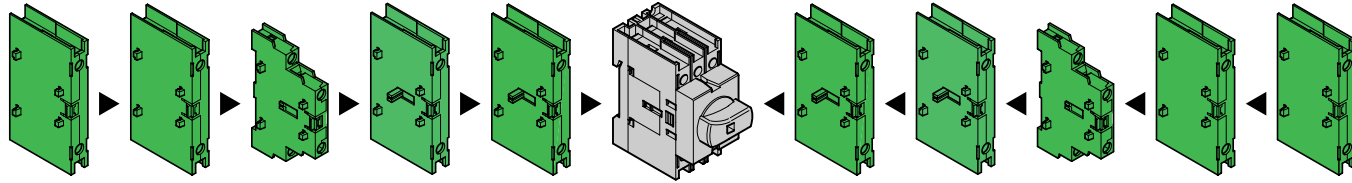
| Travel 0 → 1                                |    | 0°           | 30° | 60° | 90° |
|---------------------------------------------|----|--------------|-----|-----|-----|
| VLS3P016R1/D1, VLS3P040R1/D1, VLS3P063R1    |    |              |     | 60° |     |
| Main poles                                  |    |              |     | 60° |     |
| VLSA11RS/DS                                 |    |              |     | 60° |     |
| Auxiliary contacts (1 NO + 1 NC)            | NO |              |     |     |     |
|                                             | NC |              |     |     |     |
| VLSA10R1E                                   |    |              |     | 40° |     |
| Auxiliary contact<br>(1EB – NO early break) |    | Travel 0 → 1 | 60° |     |     |
|                                             |    | Travel 1 → 0 | 70° |     |     |
| VLS3P063R2/D2...VLS3P125R2/D2               |    |              |     | 55° |     |
| Main poles                                  |    |              |     | 45° |     |
| VLSA11RS/DS                                 |    |              |     | 45° |     |
| Auxiliary contacts (1 NO + 1 NC)            | NO |              |     |     |     |
|                                             | NC |              |     |     |     |
| VLSA10R2E                                   |    |              |     | 25° |     |
| Auxiliary contact<br>(1EB – NO early break) |    | Travel 0 → 1 | 55° |     |     |
|                                             |    | Travel 1 → 0 | 65° |     |     |
|                                             |    | Off          |     |     | On  |

[9] Use VLSS shaft extensions.

[10] Use VLSH3S7RD handles and VLSS\*\*\*7 extensions for a rear-mounting version.

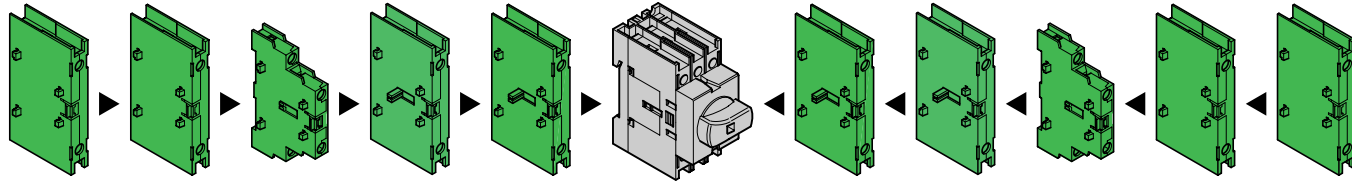
**Sequence and Maximum Combination of Add-on Blocks  
DIN Rail Mounting Disconnect Switches**

**Table 8.37: VLS3P016R1–VLS3P040R1 (DIN Rail Mounting)**



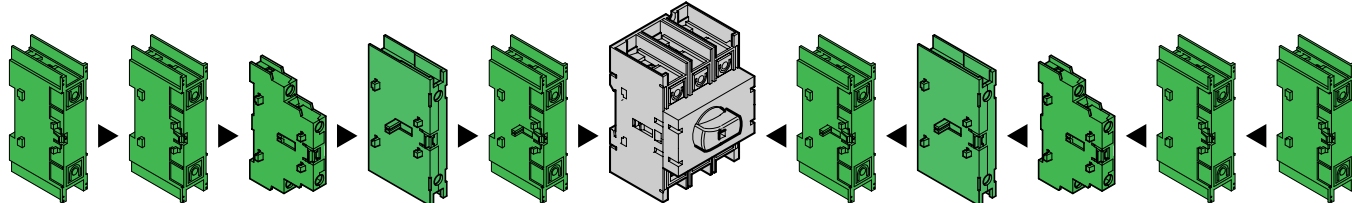
| VLS1NR1 | VLS1GR1 | VLSA11RS | VLSA10R1E | VLS1P040R1E<br>VLS1P040R1S | VLS3P016R1<br>VLS3P025R1<br>VLS3P032R1<br>VLS3P040R1 | VLS1P040R1E<br>VLS1P040R1S | VLSA10R1E | VLSA11RS | VLS1GR1 | VLS1NR1 |
|---------|---------|----------|-----------|----------------------------|------------------------------------------------------|----------------------------|-----------|----------|---------|---------|
| 1       | 1       | 1        | —         | 1                          |                                                      | —                          | —         | 2        | 1       | 1       |
| 1       | 1       | 2        | —         | —                          |                                                      | 1                          | —         | 1        | 1       | 1       |
| 1       | 1       | 1        | —         | 1                          |                                                      | —                          | 1         | 1        | 1       | 1       |
| 1       | 1       | 1        | 1         | —                          |                                                      | 1                          | —         | 1        | 1       | 1       |
| 1       | 1       | 1        | 1         | —                          |                                                      | —                          | —         | 2        | 1       | 1       |
| 1       | 1       | 2        | —         | —                          |                                                      | —                          | 1         | 1        | 1       | 1       |
| 1       | 1       | 2        | —         | —                          |                                                      | —                          | —         | 2        | 1       | 1       |
| 1       | 1       | —        | —         | —                          |                                                      | 1                          | —         | —        | 1       | 1       |
| 1       | 1       | —        | —         | 1                          |                                                      | —                          | —         | —        | 1       | 1       |
| 1       | 1       | —        | —         | —                          |                                                      | —                          | —         | —        | 1       | 1       |

**Table 8.38: VLS3P063R1 (DIN Rail Mounting)**



| VLS1NR1 | VLS1GR1 | VLSA11RS | VLSA10R1E | VLS1P063R1E<br>VLS1P063R1S | VLS3P063R1 | VLS1P063R1E<br>VLS1P063R1S | VLSA10R1E | VLSA11RS | VLS1GR1 | VLS1NR1 |
|---------|---------|----------|-----------|----------------------------|------------|----------------------------|-----------|----------|---------|---------|
| 1       | 1       | 1        | —         | 1                          |            | —                          | —         | 2        | 1       | 1       |
| 1       | 1       | 2        | —         | —                          |            | 1                          | —         | 1        | 1       | 1       |
| 1       | 1       | 1        | —         | 1                          |            | —                          | 1         | 1        | 1       | 1       |
| 1       | 1       | 1        | 1         | —                          |            | 1                          | —         | 1        | 1       | 1       |
| 1       | 1       | 1        | 1         | —                          |            | —                          | —         | 2        | 1       | 1       |
| 1       | 1       | 2        | —         | —                          |            | —                          | 1         | 1        | 1       | 1       |
| 1       | 1       | 2        | —         | —                          |            | —                          | —         | 2        | 1       | 1       |
| 1       | 1       | —        | —         | —                          |            | 1                          | —         | —        | 1       | 1       |
| 1       | 1       | —        | —         | 1                          |            | —                          | —         | —        | 1       | 1       |
| 1       | 1       | —        | —         | —                          |            | —                          | —         | —        | 1       | 1       |

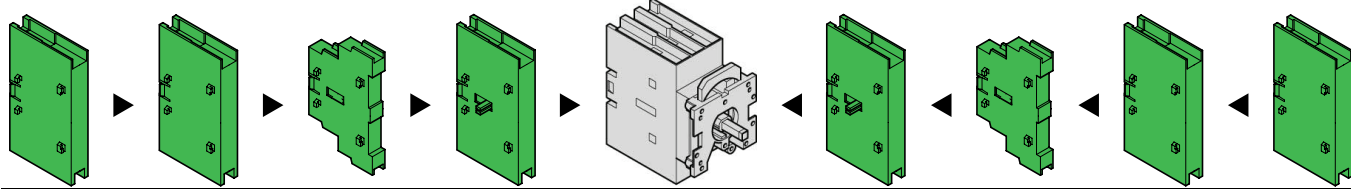
**Table 8.39: VLS3P063R2–VLS3P125R2 (DIN Rail Mounting)**



| VLS1NR2 | VLS1GR2 | VLSA11RS | VLSA10R2E | VLS1P125R2E<br>VLS1P...R•S | VLS3P063R2<br>VLS3P080R2<br>VLS3P100R2<br>VLS3P125R2 | VLS1P125R2E<br>VLS1P...R•S | VLSA10R2E | VLSA11RS | VLS1GR2 | VLS1NR2 |
|---------|---------|----------|-----------|----------------------------|------------------------------------------------------|----------------------------|-----------|----------|---------|---------|
| —       | —       | 1        | —         | 1                          |                                                      | —                          | —         | 2        | —       | —       |
| —       | —       | 2        | —         | —                          |                                                      | 1                          | —         | 1        | —       | —       |
| —       | —       | 1        | —         | 1                          |                                                      | —                          | 1         | 1        | —       | —       |
| —       | —       | 1        | 1         | —                          |                                                      | 1                          | —         | 1        | —       | —       |
| —       | —       | 1        | 1         | —                          |                                                      | —                          | —         | 2        | —       | —       |
| —       | —       | 2        | —         | —                          |                                                      | —                          | 1         | 1        | —       | —       |
| —       | —       | 2        | —         | —                          |                                                      | —                          | —         | 2        | —       | —       |
| 1       | 1       | —        | —         | —                          |                                                      | 1                          | —         | —        | 1       | 1       |
| 1       | 1       | —        | —         | 1                          |                                                      | —                          | —         | —        | 1       | 1       |
| 1       | 1       | —        | —         | —                          |                                                      | —                          | —         | —        | 1       | 1       |

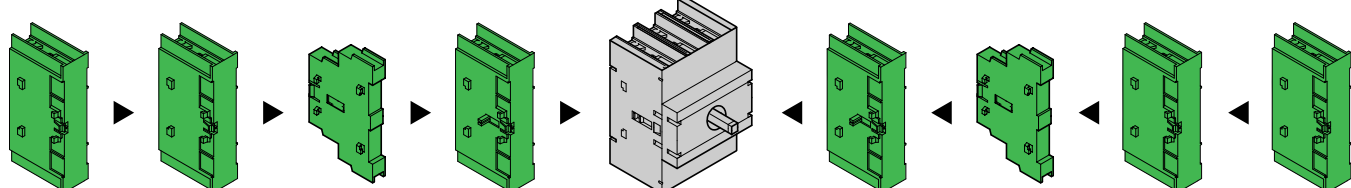
### Door Mounting Disconnect Switches

Table 8.40: VLS3P016D1–VLS3P040D1 (Door Mounting)



| VLS1ND1 | VLS1GD1 | VLSA11DS | VLS1P040D1E<br>VLS1P040D1S | VLS3P016D1<br>VLS3P025D1<br>VLS3P032D1<br>VLS3P040D1 | VLS1P040D1E<br>VLS1P040D1S | VLSA11DS | VLS1GD1 | VLS1ND1 |
|---------|---------|----------|----------------------------|------------------------------------------------------|----------------------------|----------|---------|---------|
| 1       | 1       | 1        | 1                          |                                                      | —                          | 1        | 1       | 1       |
| 1       | 1       | 1        | —                          |                                                      | 1                          | 1        | 1       | 1       |
| 1       | 1       | —        | 1                          |                                                      | 1                          | 1        | 1       | 1       |
| 1       | 1       | 1        | —                          |                                                      | 1                          | 1        | 1       | 1       |
| 1       | 1       | 1        | —                          |                                                      | 1                          | 1        | 1       | 1       |
| 1       | 1       | —        | —                          |                                                      | 1                          | 1        | 1       | 1       |
| 1       | 1       | —        | —                          |                                                      | —                          | 1        | 1       | 1       |

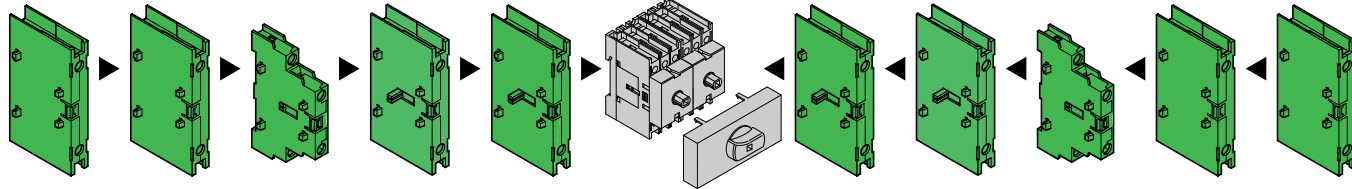
Table 8.41: VLS3P063D2–VLS3P125D2 (Door Mounting)



| VLS1ND2 | VLS1GD2 | VLSA11DS | VLS1P125D2E<br>VLS1P125D2S | VLS3P063D2<br>VLS3P080D2<br>VLS3P100D2<br>VLS3P125D2 | VLS1P125D2E<br>VLS1P125D2S | VLSA11DS | VLS1GD2 | VLS1ND2 |
|---------|---------|----------|----------------------------|------------------------------------------------------|----------------------------|----------|---------|---------|
| —       | —       | 1        | 1                          |                                                      | —                          | 1        | —       | —       |
| —       | —       | 1        | —                          |                                                      | 1                          | —        | —       | —       |
| 1       | 1       | —        | 1                          |                                                      | 1                          | —        | —       | —       |
| —       | —       | 1        | —                          |                                                      | 1                          | 1        | 1       | 1       |
| —       | —       | 1        | —                          |                                                      | 1                          | —        | —       | —       |
| 1       | 1       | —        | —                          |                                                      | —                          | 1        | 1       | 1       |

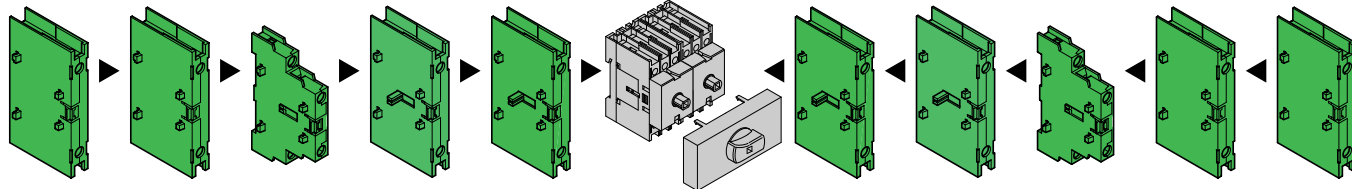
**Mechanical Coupling and Mechanical Interlock for Line Changeover**

**Table 8.42: VLS3P016R1–VLS3P040R1, VLS8C1–VLS8M1 (Rear Mounting)**



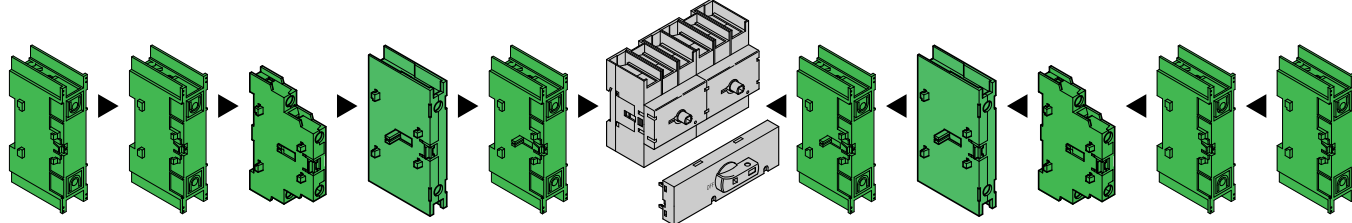
| VLS1NR1 | VLS1GR1 | VLSA11RS | VLSA10R1E | VLS1P040R1E<br>VLS1P040R1S | VLS8C1–VLS8M1              | VLS1P040R1E<br>VLS1P040R1S | VLSA10R1E | VLSA11RS | VLS1GR1 | VLS1NR1 |
|---------|---------|----------|-----------|----------------------------|----------------------------|----------------------------|-----------|----------|---------|---------|
| 1       | 1       | 1        | —         | 1                          | VLS3P016R1 +<br>VLS3P016R1 | 1                          | —         | 1        | 1       | 1       |
| 1       | 1       | 1        | —         | 1                          | VLS3P025R1 +<br>VLS3P025R1 | —                          | —         | 2        | 1       | 1       |
| 1       | 1       | 2        | —         | —                          | VLS3P032R1 +<br>VLS3P032R1 | 1                          | —         | 1        | 1       | 1       |
| 1       | 1       | 1        | —         | 1                          | VLS3P040R1 +<br>VLS3P040R1 | —                          | 1         | 1        | 1       | 1       |
| 1       | 1       | 1        | 1         | —                          | —                          | 1                          | —         | 1        | 1       | 1       |
| 1       | 1       | 1        | 1         | —                          | —                          | —                          | —         | 2        | 1       | 1       |
| 1       | 1       | 2        | —         | —                          | —                          | —                          | 1         | 1        | 1       | 1       |
| 1       | 1       | 2        | —         | —                          | —                          | —                          | —         | 2        | 1       | 1       |
| 1       | 1       | —        | —         | 1                          | —                          | 1                          | —         | —        | 1       | 1       |
| 1       | 1       | —        | —         | —                          | —                          | —                          | —         | —        | 1       | 1       |

**Table 8.43: VLS3P063R1 + VLS8C1–VLS8M1 (Rear Mounting)**



| VLS1NR1 | VLS1GR1 | VLSA11RS | VLSA10R1E | VLS1P063R1E<br>VLS1P063R1S | VLS8C1–<br>VLS8M1          | VLS1P063R1E<br>VLS1P063R1S | VLSA10R1E | VLSA11RS | VLS1GR1 | VLS1NR1 |
|---------|---------|----------|-----------|----------------------------|----------------------------|----------------------------|-----------|----------|---------|---------|
| 1       | 1       | 1        | —         | 1                          | VLS3P063R1 +<br>VLS3P063R1 | 1                          | —         | 1        | 1       | 1       |
| 1       | 1       | 1        | —         | 1                          | —                          | —                          | —         | 2        | 1       | 1       |
| 1       | 1       | 2        | —         | —                          | —                          | 1                          | —         | 1        | 1       | 1       |
| 1       | 1       | 1        | —         | 1                          | —                          | —                          | 1         | 1        | 1       | 1       |
| 1       | 1       | 1        | 1         | —                          | —                          | 1                          | —         | 1        | 1       | 1       |
| 1       | 1       | 1        | 1         | —                          | —                          | —                          | —         | 2        | 1       | 1       |
| 1       | 1       | 2        | —         | —                          | —                          | —                          | 1         | 1        | 1       | 1       |
| 1       | 1       | 2        | —         | —                          | —                          | —                          | —         | 2        | 1       | 1       |
| 1       | 1       | —        | —         | 1                          | —                          | 1                          | —         | —        | 1       | 1       |
| 1       | 1       | —        | —         | —                          | —                          | —                          | —         | —        | 1       | 1       |

**Table 8.44: VLS3P063R2–VLS3P125R2 + VLS8C2–VLS8M2 (Rear Mounting)**



| VLS1NR2 | VLS1GR2 | VLSA11RS | VLSA10R2E | VLS1P125R2E<br>VLS1P125R2S | VLS8C2 - VLS8M2            | VLS1P125R2E<br>VLS1P125R2S | VLSA10R2E | VLSA11RS | VLS1GR2 | VLS1NR2 |
|---------|---------|----------|-----------|----------------------------|----------------------------|----------------------------|-----------|----------|---------|---------|
| —       | —       | 1        | —         | 1                          | VLS3P063R2 +<br>VLS3P063R2 | 1                          | —         | 1        | —       | —       |
| —       | —       | 1        | —         | 1                          | VLS3P080R2 +<br>VLS3P080R2 | —                          | —         | 2        | —       | —       |
| —       | —       | 2        | —         | —                          | VLS3P100R2 +<br>VLS3P100R2 | 1                          | —         | 1        | —       | —       |
| —       | —       | 1        | —         | 1                          | VLS3P125R2 +<br>VLS3P125R2 | —                          | 1         | 1        | —       | —       |
| —       | —       | 1        | 1         | —                          | —                          | 1                          | —         | 1        | —       | —       |
| —       | —       | 1        | 1         | —                          | —                          | —                          | —         | 2        | —       | —       |
| —       | —       | 2        | —         | —                          | —                          | —                          | 1         | 1        | —       | —       |
| —       | —       | 2        | —         | —                          | —                          | —                          | —         | 2        | —       | —       |
| 1       | 1       | —        | —         | 1                          | —                          | 1                          | —         | —        | 1       | 1       |
| 1       | 1       | —        | —         | —                          | —                          | —                          | —         | —        | 1       | 1       |

## UL 60947-4-1 and UL 98 Disconnect Switches

## TeSys™ VLS Accessories

Refer to Catalog 9400CT1601

### Rotary Handles

**Table 8.45: Selection—Rotary Handles (NEMA 1, 12, 3R, 4, and 4X. IEC IP65 unless otherwise specified)**

| Catalog number                                                                    | Specifications                                                                                                                                         |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Door Mounting and Rear Mounting Handles, Padlock-ready <sup>[11]</sup>            |                                                                                                                                                        |
| <b>Red/yellow, rotating</b>                                                       |                                                                                                                                                        |
| VLSH1S5R                                                                          | For VLS3P***R• and VLS3P***D•. Screw mounting. Recessed selector. □ 5 mm (0.2 in.). <sup>[12]</sup>                                                    |
| VLSH2S5R                                                                          | For VLS3P***R• and VLS3P***D•. Screw mounting. Protruding selector. □ 5 mm (0.2 in.). <sup>[12]</sup>                                                  |
| VLSH2H5R                                                                          | For VLS3P***R• and VLS3P016D1–VLS3P040D1. Ring mounting. Protruding selector. □ 5 mm (0.2 in.). <sup>[12] [13]</sup>                                   |
| VLSH2H5RD                                                                         | For VLS3P***R•. Ring mounting. Protruding selector with release, defeatable per UL 60947-4-1; □ 5 mm (0.2 in.). <sup>[12]</sup>                        |
| VLSH2H5RL                                                                         | For VLS3P***R•, VLS3P063R1, VLS3P016D1–VLS3P040D1. Ring mounting. Low-profile protruding selector. □ 5 mm (0.2 in.).                                   |
| VLSH3S7RD                                                                         | For VLS3P063R2–VLS3P125R2, and VLS8M2. Screw mounting. Pistol grip with release, defeatable per 60947-4-1; □ 7 mm (0.3 in.). IEC IP66. <sup>[14]</sup> |
| VLSH4S5R                                                                          | For VLS3P***R• and VLS3P***D•. Screw mounting. Protruding selector. 48 mm square. □ 5 mm (0.2 in.). <sup>[12]</sup>                                    |
| <b>Black, rotating</b>                                                            |                                                                                                                                                        |
| VLSH1S5B                                                                          | For VLS3P***R• and VLS3P***D•. Screw mounting. Recessed selector. □ 5 mm (0.2 in.). <sup>[12]</sup>                                                    |
| VLSH2S5B                                                                          | For VLS3P***R• and VLS3P***D•. Screw mounting. Protruding selector. □ 5 mm (0.2 in.). <sup>[12]</sup>                                                  |
| VLSH2H5B                                                                          | For VLS3P***R•, VLS3P063R1, VLS3P016D1–VLS3P040D1. Ring mounting. Protruding selector. □ 5 mm (0.2 in.). <sup>[12] [13]</sup>                          |
| VLSH2H5BD                                                                         | For VLS3P***R•. Ring mounting. Protruding selector with release, defeatable per 60947-4-1. □ 5 mm (0.2 in.). <sup>[12]</sup>                           |
| VLSH2H5BL                                                                         | For VLS3P***R•, VLS3P063R1, VLS3P016D1–VLS3P040D1. Ring mounting. Low profile protruding selector. □ 5 mm (0.2 in.).                                   |
| VLSH2H5BP0                                                                        | For VLS3P***R•, VLS3P063R1, VLS3P016D1–VLS3P040D1. Ring mounting. Lock On protruding selector. □ 5 mm (0.2 in.).                                       |
| VLSH3S7BD                                                                         | For VLS3P063R2–VLS3P125R2, and VLS8M2. Screw mounting. Pistol grip with release, defeatable per UL 60947-4-1; □ 7 mm (0.3 in.). <sup>[14]</sup>        |
| VLSH2S5BC                                                                         | For VLS8C• mechanical interlock mechanism (I-O-II). □ 5 mm (0.2 in.). <sup>[12]</sup>                                                                  |
| VLSH4S5B                                                                          | For VLS3P***R• and VLS3P***D•. Screw mounting. Protruding selector. □ 5 mm (0.2 in.). <sup>[12]</sup>                                                  |
| <b>Accessories for Rear Mounting Control For VLSH3S7RD and VLSH3S7BD handles.</b> |                                                                                                                                                        |
| VLSHA7                                                                            | Adapter, □ 7 mm (0.3 in.) for VLS3P063R2–VLS3P125R2.                                                                                                   |



VLSH2H5B (65 x 65 mm)



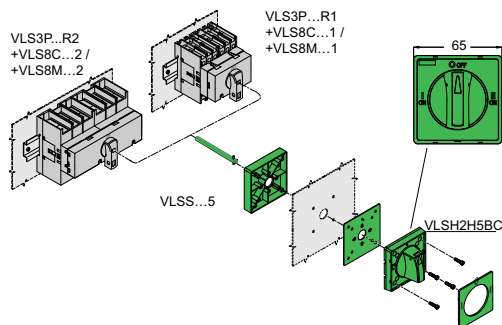
VLSH2S5BC (65 x 65 mm)



VLSH4S5B (48 x 48 mm)



VLSHA7



**Figure 8.1: Transformation of the DIN rail mounting version into the rear mounting version**

**Table 8.46: Certifications and Compliance (• = certification obtained)**

| Catalog number | cULus per UL 60947-4-1 / CSA C22.2 n° 60947-4-1-14 UL Listed (File E487906) | cULus per UL 98 / CSA C22.2 n° 4 UL Listed (File E487907) |
|----------------|-----------------------------------------------------------------------------|-----------------------------------------------------------|
| VLSA11RS/DS    | UL Listed, cULus File E478582                                               | —                                                         |
| VLSA10R1E      | CSA C22.2 n° 14-10                                                          | —                                                         |
| VLSA10R2E      | —                                                                           | —                                                         |
| VLS1NR1/D1     | •                                                                           | •                                                         |
| VLS1NR2/D2     | —                                                                           | •                                                         |
| VLS1GR1/D1     | •                                                                           | —                                                         |
| VLS1GR2/D2     | —                                                                           | •                                                         |
| VLS8C1/M1      | •                                                                           | —                                                         |
| VLS8C2/M2      | —                                                                           | •                                                         |
| VLSH1S5R/B     | •                                                                           | •                                                         |
| VLSH2S5R/B     | •                                                                           | •                                                         |
| VLSH2H5R/B     | •                                                                           | •                                                         |
| VLSH2H5RL      | •                                                                           | •                                                         |
| VLSH2H5BL      | •                                                                           | •                                                         |
| VLSH2H5BP0     | •                                                                           | —                                                         |
| VLSH4S5R/B     | •                                                                           | •                                                         |
| VLSH2H5RD/BD   | •                                                                           | •                                                         |
| VLSH3S7RD/BD   | —                                                                           | •                                                         |
| VLSH2H5BC      | •                                                                           | •                                                         |
| VLSHA7         | —                                                                           | •                                                         |

Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-3, IEC/EN 60947-5-1, UL 60947-4-1, UL 98, CSA C22.2.

<sup>[11]</sup> Catalog numbers ending in BD or RD are for rear mounting units only.

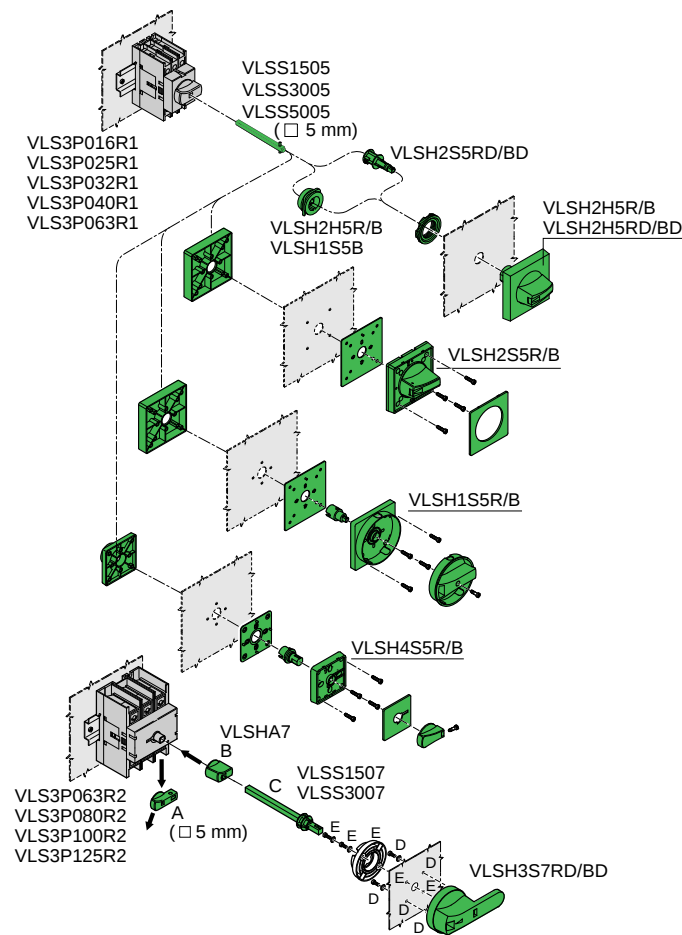
<sup>[12]</sup> For VLS3P\*\*\*R• disconnect switches, separately purchase VLSS shaft extensions.

<sup>[13]</sup> Snap-on mounting of VLS3P016–VLS3P040D1 disconnect switches with the handle.

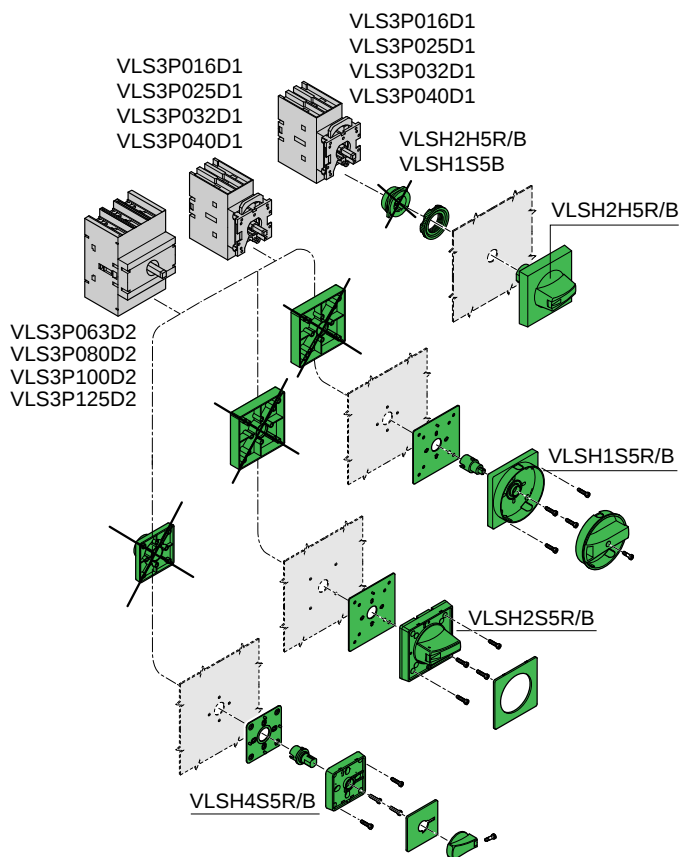
<sup>[14]</sup> Separately purchase the VLSS\*\*\*7 shaft extension and a VLSHA7 handle having a 7 mm (0.3 in.) square section—not required for VLS8M2.

**Table 8.47: Operating Specifications**

|                                                                                                                              |                                       |                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Handle mounting</b>                                                                                                       |                                       | ring or screw                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Mounting handle interaxis</b><br>(compatible with the pre-existing drillings of the most common types in the marketplace) | VLSH1S5R/B<br>VLSH2S5R/B<br>VLSH2S5BC | 36 x 36 mm (1.4 x 1.4 in.) or 48 x 48 mm (1.9 x 1.9 in.)                                                                                                                                                                                                                                                                                                                         |
|                                                                                                                              | VLSH3S7RD/BD                          | 36 x 36 mm (1.4 x 1.4 in.)                                                                                                                                                                                                                                                                                                                                                       |
|                                                                                                                              |                                       | 1–3 for all handles Ø4–8 mm (Ø0.2–0.3 in.)                                                                                                                                                                                                                                                                                                                                       |
| <b>Padlocks</b>                                                                                                              |                                       |                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                                                                                              | Mounting ring types                   | 2.3 N•m (20.4 lb-in)                                                                                                                                                                                                                                                                                                                                                             |
| <b>Tightening torque</b>                                                                                                     | VLS8M1                                | 0.8 N•m (7 lb-in)                                                                                                                                                                                                                                                                                                                                                                |
|                                                                                                                              | VLSH3S7RD/BD                          | 1.5 N•m (13.3 lb-in)                                                                                                                                                                                                                                                                                                                                                             |
|                                                                                                                              | All others                            | 1 N•m (9 lb-in)                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Degree of protection</b>                                                                                                  |                                       | <p><b>IEC / EN:</b> IP65 for all except VLSH3S7RD/BD, which are IP66.</p> <p><b>UL / CSA:</b> VLSH1S5R/B and VLSH3S7RD/BD are Type 1, 12, 3R, 4, and 4X outdoor use with all VLS switch models. VLSH2S5R/B, VLSH2H5R/B, VLSH2H5RD/BD and VLSH2S5BC are Types 1, 12, 3R, 4, and 4X outdoor use with VLS3P016R1/D1–VLS3P040R1/D1 and VLS3P063R1 models, otherwise Type 1 only.</p> |



**Figure 8.2: Changing the DIN rail mounting version for rear mounting**



**Figure 8.3: Door mounting version**  
**Certifications and Compliance:**  
See Table 8.46 for details.

## Shaft Extensions, Terminal Covers, Fuse Holders, and Fuse Blocks

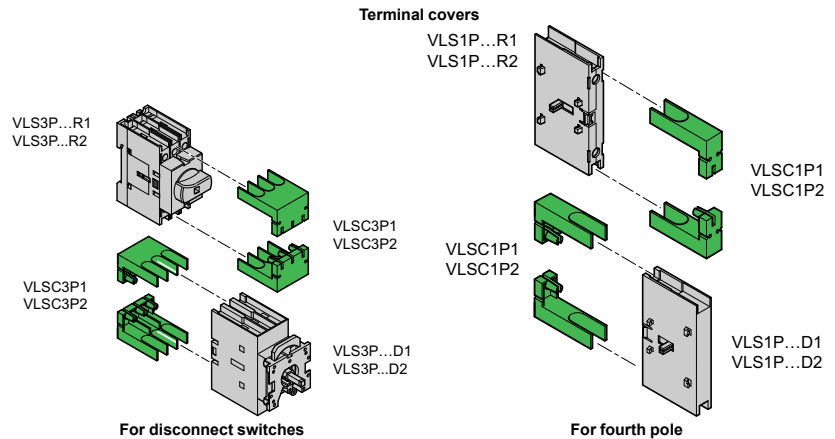
**Table 8.48: Selection—Shaft Extensions, Terminal Covers, Fuse Holders, and Fuse Blocks**

| Catalog number                                                                                                                                                                           | Specifications                                                                   | Qty per package | Weight, kg (lb) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-----------------|-----------------|
| Shaft extension for rear-mounting handles VLSH1S5R–VLSH2H5RD, VLSH1S5B–VLSH2H5BD, VLSH2S5BC; interlocking changeover type VLS8C1, VLS8C2; and mechanical disconnect switch system VLS8M1 |                                                                                  |                 |                 |
| VLSS1505                                                                                                                                                                                 | 150 mm long; □ 5 mm (0.2 in.)                                                    | 1               | 0.032 (0.07)    |
| VLSS3005                                                                                                                                                                                 | 300 mm long; □ 5 mm (0.2 in.)                                                    | 1               | 0.068 (0.15)    |
| VLSS5005                                                                                                                                                                                 | 500 mm long; □ 5 mm (0.2 in.)                                                    | 1               | 0.090 (0.20)    |
| Shaft extension for rear-mounting handles VLSH3S7RD/BD, and mechanical coupling system VLS8M2                                                                                            |                                                                                  |                 |                 |
| VLSS1507                                                                                                                                                                                 | 150 mm long; □ 7 mm (0.3 in.)                                                    | 1               | 0.090 (0.20)    |
| VLSS3007                                                                                                                                                                                 | 300 mm long; □ 7 mm (0.3 in.)                                                    | 1               | 0.160 (0.35)    |
| VLSS5007                                                                                                                                                                                 | 500 mm long; □ 7 mm (0.3 in.)                                                    | 1               | 0.250 (0.55)    |
| VLSS57                                                                                                                                                                                   | Support for □ 7 mm shaft                                                         | 1               | 0.160 (0.35)    |
| Set of 2 one-pole terminal covers for fourth pole                                                                                                                                        |                                                                                  |                 |                 |
| VLSC1P1                                                                                                                                                                                  | For VLS1P040R1S, VLS1P040D1S, VLS1P040R1E, VLS1P040D1E, VLS1P063R1E, VLS1P063R1S | 1               | 0.009 (0.02)    |
| VLSC1P2                                                                                                                                                                                  | For VLS1P063R2S–VLS1P125R2S, VLS1P063D2S–VLS1P125D2S, VLS1P125R2E, VLS1P125D2E   | 1               | 0.012 (0.03)    |
| Set of 2 three-pole terminal covers                                                                                                                                                      |                                                                                  |                 |                 |
| VLSC3P1                                                                                                                                                                                  | For VLS3P016R1–VLS3P040R1, VLS3P063R1, VLS3P016D1–VLS3P040D1                     | 1               | 0.018 (0.04)    |
| VLSC3P2                                                                                                                                                                                  | For VLS3P063R2–VLS3P125R2, VLS3P063D2–VLS3P125D2                                 | 1               | 0.030 (0.07)    |
| Fuse holder/block for disconnect switches                                                                                                                                                |                                                                                  |                 |                 |
| VLSFH1UL                                                                                                                                                                                 | For VLS3P016R1–VLS3P032R1 (suitable for Class CC fuses)                          | 1               | 0.135 (0.30)    |

**Table 8.49: Operational Specifications of Fuse Holder**

|                                                |        |
|------------------------------------------------|--------|
| IEC rated insulation voltage, $U_i$            | 1000 V |
| IEC rated impulse withstand voltage, $U_{imp}$ | 8 kV   |

- The fuse holder/block connects directly to the disconnect switches.
- Access to fuses only when the disconnect switches are in Off position.

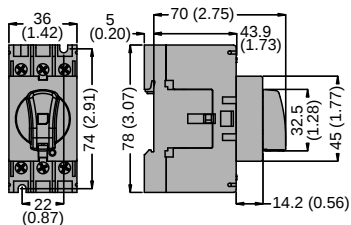


**Table 8.50: Certifications and Compliance (• = certification obtained)**

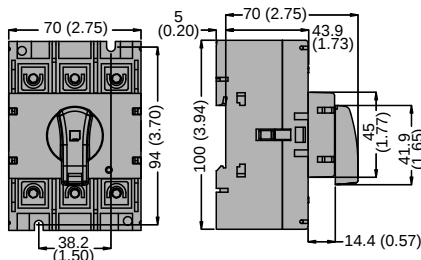
| Catalog number                                                                          | cULus per UL60947-4-1 / CSA C22.2 n° 60947-4-1-14<br>UL Listed (File E487906) | cULus per UL98 / CSA C22.2 n° 4<br>UL Listed (File E487907) |
|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------|
| VLSS1505, VLSS3005, VLSS5005                                                            | •                                                                             | —                                                           |
| VLSS1507, VLSS3007                                                                      | •                                                                             | —                                                           |
| VLSC1P1, VLSC3P1                                                                        | —                                                                             | —                                                           |
| VLSC1P2, VLSC3P2                                                                        | —                                                                             | —                                                           |
| VLSFH1UL                                                                                | •                                                                             | —                                                           |
| Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-3, UL60947-4-1, UL98, CSA C22.2. |                                                                               |                                                             |

**Table 8.51: DIN Rail Mounting Disconnect Switches**

VLS3P016R1–VLS3P040R1, VLS3P063R1



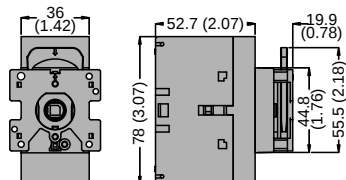
VLS3P063R2–VLS3P125R2



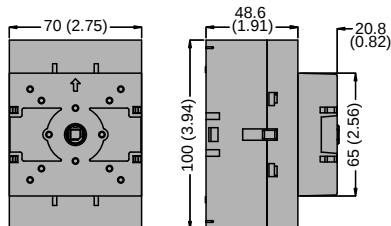
Dim. = mm (in.)

**Table 8.52: Door Mounting Disconnect Switches**

VLS3P016D1–VLS3P040D1



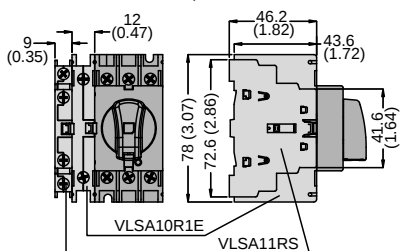
VLS3P063D2–VLS3P125D2



Dim. = mm (in.)

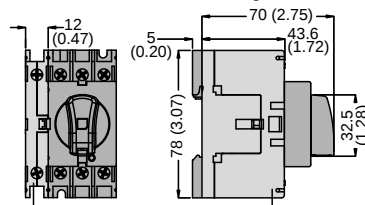
**Table 8.53: Add-on Blocks and Accessories**  
For VLS3P016R1–VLS3P040R1, VLS3P063R1

**Auxiliary contacts**  
VLSA11RS, VLSA10R1E



**Fourth pole**

VLS1P040R1E/R1S, VLS1P063R1E/R1S  
VLS1NR1 neutral, VLS1GR1 ground terminals

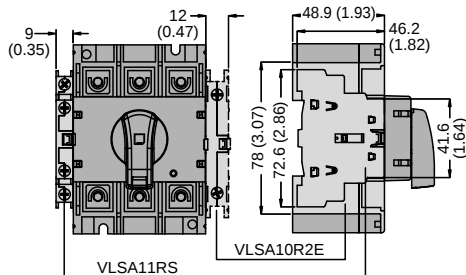


Dim. = mm (in.)

VLS3P016R1, VLS3P025R1, VLS3P032R1,  
VLS3P040R1, VLS3P063R1, VLSA11RS

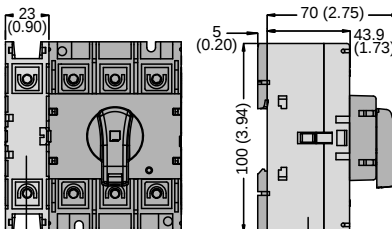
**For VLS3P063R2–VLS3P125R2**

**Auxiliary contacts**  
VLSA11RS  
VLSA10R2E



**Fourth pole**

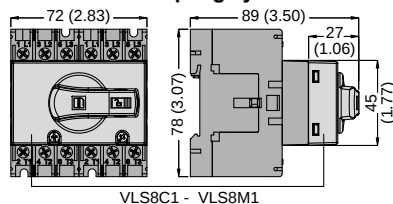
VLS1P125R2E, VLS1P063R2S–VLS1P125R2S  
VLS1NR2 neutral, VLS1GR2 ground terminals



Dim. = mm (in.)

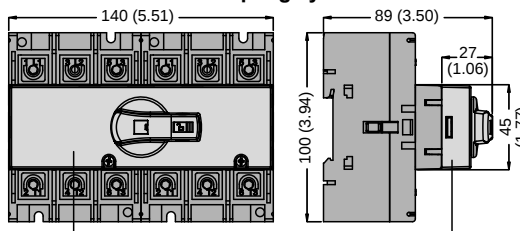
VLS3P063R2, VLS3P080R2, VLS3P100R2, VLS3P125R2,  
VLSA10R1E, VLSA10R2E, VLS1P063R2S, VLS1P080R2S,  
VLS1P100R2S, VLS1P125R2S, VLS1P125R2

**Mechanical interlock VLS8C1 and**  
**mechanical coupling system VLS8M1**



VLS8C1 - VLS8M1

**Mechanical interlock VLS8C2 and**  
**mechanical coupling system VLS8M2**



VLS8C2 - VLS8M2

Dim. = mm (in.)

# UL 60947-4-1 and UL 98 Disconnect Switches

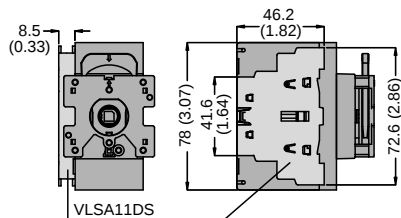
## Dimensions: 16–125 A Disconnect Switches

Refer to Catalog 9400CT1601

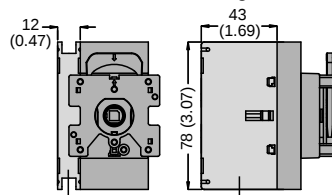
**Schneider**  
Electric  
schneider-electric.us

For VLS3P016D1–VLS3P040D1

**Auxiliary contacts**  
VLSA11DS

**Fourth pole**

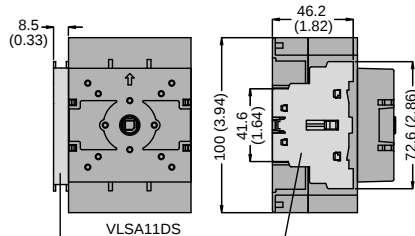
VLS1P040D1E–VLS1P040D1S  
VLS1ND1 neutral, VLS1GD1 ground terminals

Dim. =  
mm (in.)

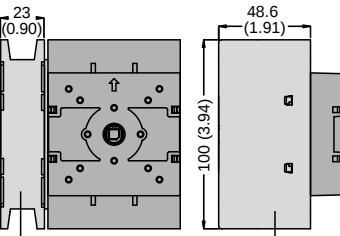
VLS3P016D1, VLS3P025D1, VLS3P032D1,  
VLS3P040D1, VLS1P040D1S, VLS1P040D1E

For VLS3P063D2–VLS3P125D2

**Auxiliary contacts**  
VLSA11DS

**Fourth pole**

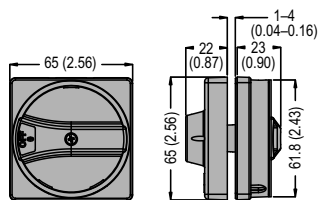
VLS1P125D2E, VLS1P063D2S–125D2S  
VLS1ND2 neutral, VLS1GD2 ground terminals

Dim. =  
mm (in.)

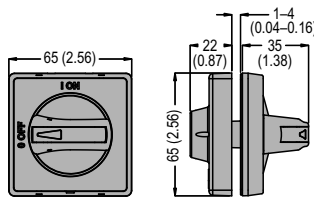
VLS1P063D2S, VLS1P080D2S, VLS1P100D2S,  
VLS1P125D2S, VLS1P125D2E, VLS1ND1,  
VLS1ND2, VLS1GD1, VLS1GD2

Table 8.54: Rotary handles

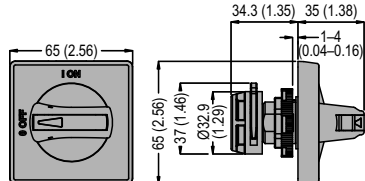
VLSH1S5R/B



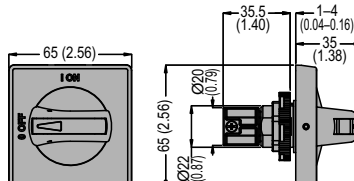
VLSH2S5R/B

Dim. =  
mm (in.)

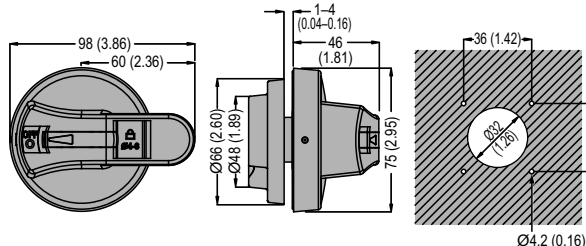
VLSH2H5R/B



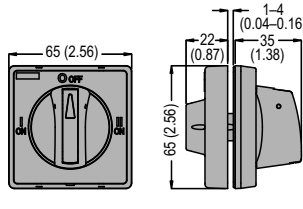
VLSH2H5RD/BD

Dim. =  
mm (in.)

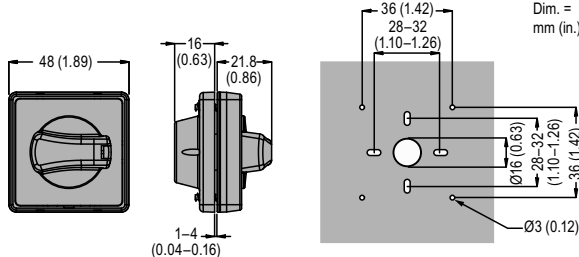
VLSH3S7RD/BD



VLSH2S5BC

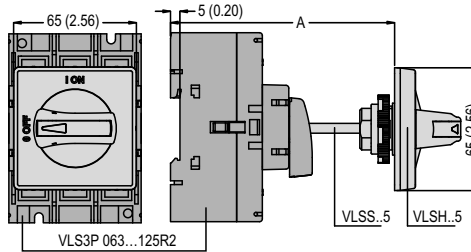
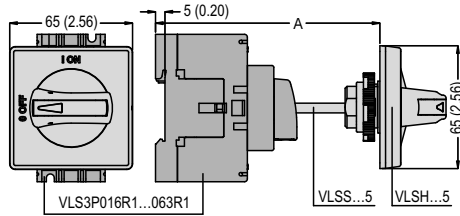
Dim. =  
mm (in.)

VLSH4S5R/B

Dim. =  
mm (in.)

**Shaft extensions for rear-mounting handles (for Dimension A, see Table 8.55)**

VLSS

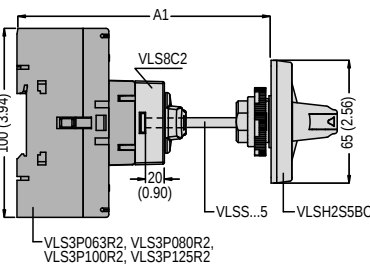
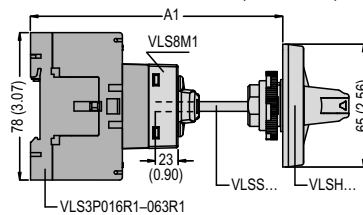


Dim. =  
mm (in.)

**Table 8.55: Dimension A for VLSS Shaft Extensions**

| Dimension A for VLSS Shaft Extensions (see below) |                    |                               |             |             |             |             |
|---------------------------------------------------|--------------------|-------------------------------|-------------|-------------|-------------|-------------|
| Extension                                         | Length<br>mm (in.) | Maximum Dimension A, mm (in.) |             |             |             |             |
|                                                   |                    | Type of handle                |             |             |             |             |
|                                                   |                    | VLSH1S5•                      | VLSH2S5•    | VLSH2H5R    | VLSH2H5RD   | VLSH2S5BC   |
| VLSS1505                                          | 150 (5.90)         | 194 (7.64)                    | 192 (7.56)  | 197 (7.75)  | 211 (8.31)  | 192 (7.56)  |
| VLSS3005                                          | 300 (11.81)        | 344 (13.54)                   | 342 (13.46) | 347 (13.66) | 361 (14.21) | 342 (13.46) |
| VLSS5005                                          | 500 (19.68)        | 544 (21.42)                   | 542 (21.34) | 547 (21.53) | 561 (22.09) | 542 (21.34) |

VLSS used with VLS8C1, VLS8C2, and VLS8M1

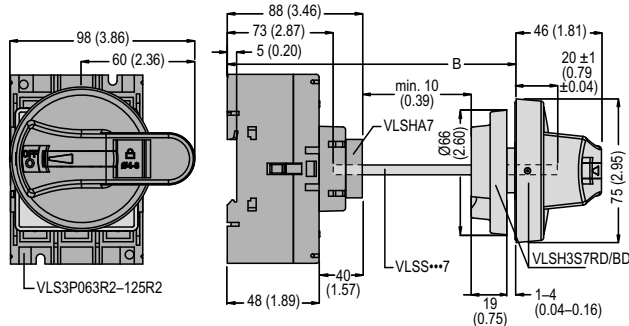


Dim. =  
mm (in.)

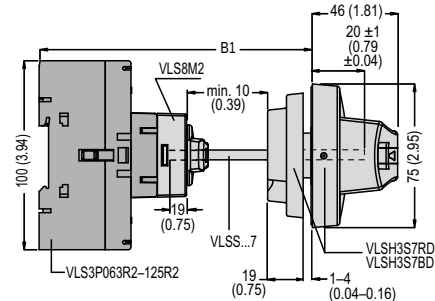
**Table 8.56: Dimension A1 for VLSS used with VLS8C1, VLS8C2, and VLS8M1**

| Extension (5 mm) | Length<br>mm (in.) | A1 maximum, mm (in.) |             |             |                         |             |
|------------------|--------------------|----------------------|-------------|-------------|-------------------------|-------------|
|                  |                    | Used with VLS8M1     |             |             | Used with VLS8C1/VLS8C2 |             |
|                  |                    | Type of handle       |             |             |                         |             |
|                  |                    | VLSH1S5•             | VLSH2S5•    | VLSH2H5R    | VLSH2H5RD               | VLSH2S5BC   |
| VLSS1505         | 150 (5.90)         | 211 (8.31)           | 209 (8.23)  | 214 (8.42)  | 228 (8.98)              | 209 (8.23)  |
| VLSS3005         | 300 (11.81)        | 361 (14.21)          | 359 (14.13) | 364 (14.33) | 378 (14.88)             | 359 (14.13) |
| VLSS5005         | 500 (19.68)        | 561 (22.09)          | 559 (22.01) | 564 (22.20) | 578 (22.75)             | 559 (22.01) |

VLSS...7 used with VLSHA7 and VLSH3S7RD/BD



VLSS...7 used with VLS8M2 and VLSH3S7RD/BD handle



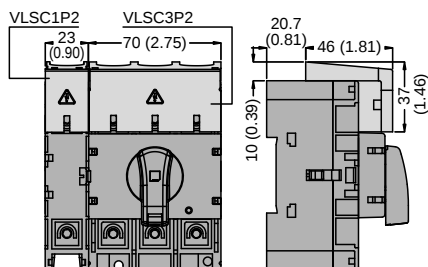
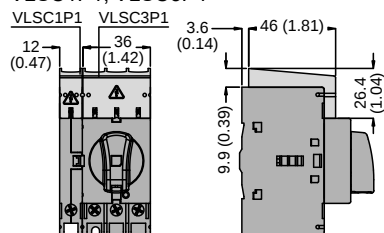
Dim. =  
mm (in.)

| Extension (7 mm) | Length      |  | B1                   |                      |
|------------------|-------------|--|----------------------|----------------------|
|                  | mm (in.)    |  | mm (in.)             |                      |
| VLSS1507         | 176 (6.93)  |  | 118–229 (4.64–9.01)  | 119–205 (4.68–8.07)  |
| VLSS2007         | 226 (8.90)  |  | 118–279 (4.64–10.99) | 119–255 (4.68–10.03) |
| VLSS3007         | 326 (12.83) |  | 118–379 (4.64–14.92) | 119–355 (4.68–13.98) |

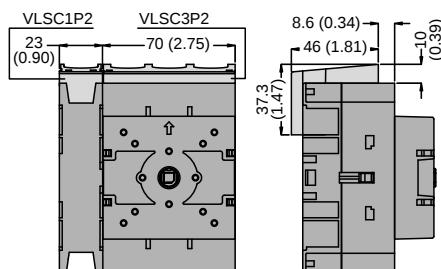
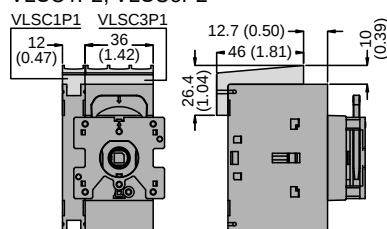
**Table 8.57: Terminal Cover and Fuse Holder Dimensions**

**Terminal Cover Dimensions**

VLSC1P1, VLSC3P1

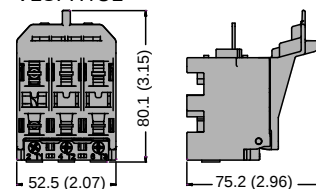


VLSC1P2, VLSC3P2



**Fuse Holder Dimensions**

VLSFH1UL

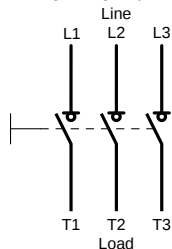


Dim. =  
mm (in.)

**Table 8.58: Wiring Diagrams—VLS Disconnect Switches (16–125 A)**

**Three-pole disconnectors**

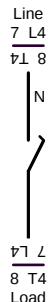
VLS3P016... –  
VLS3P125R2/D2



**Fourth pole add-on**  
VLS1P.....S



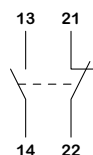
VLS1P.....E



**Add-on Blocks and Accessories**

**Auxiliary contacts**

VLSA11-S



VLSA10R1E–VLSA10R2E



**Neutral terminal**

VLS1NR1/D1–VLS1NR2/  
D2



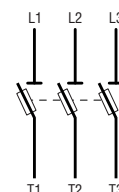
**Earth/Ground terminal**

VLS1GR1/D1–VLS1GR2/  
D2



**Fuse holder**

VLSFH1



| Model                                                                               | 3-pole: VLS3P...   |    | 016...                                                    | 025...   | 032...     | 040... | 063R1  | 063R2   | 080... | 100...             | 125... |       |
|-------------------------------------------------------------------------------------|--------------------|----|-----------------------------------------------------------|----------|------------|--------|--------|---------|--------|--------------------|--------|-------|
|                                                                                     | 4th pole: VLS1P... |    | 040...                                                    | 040...   | 040...     | 040... | 063R1S | 063R2S  | 080... | 100...             | 125... |       |
| Contact Specifications                                                              |                    |    |                                                           |          |            |        |        |         |        |                    |        |       |
| IEC conventional free air thermal current, I <sub>th</sub> (≤40 °C)                 |                    |    | A                                                         | 16       | 25         | 32     | 40     | 63      | 63     | 80                 | 100    | 125   |
| IEC rated insulation voltage, U <sub>i</sub>                                        |                    |    | V                                                         | 1000     |            |        |        |         |        |                    |        |       |
| IEC rated impulse withstand voltage, U <sub>imp</sub>                               |                    |    | kV                                                        | 8        |            |        |        |         |        |                    |        |       |
| IEC rated operational current, I <sub>e</sub>                                       |                    |    |                                                           |          |            |        |        |         |        |                    |        |       |
| AC21A                                                                               | 400 V              | A  | 16                                                        | 25       | 32         | 40     | 63     | 63      | 80     | 100                | 125    |       |
|                                                                                     | 500 V              | A  | 16                                                        | 25       | 32         | 40     | 63     | 63      | 80     | 100                | 125    |       |
|                                                                                     | 690 V              | A  | 16                                                        | 25       | 32         | 40     | 63     | 63      | 80     | 100                | 125    |       |
| AC22A                                                                               | 400 V              | A  | 16                                                        | 25       | 32         | 40     | 45     | 63      | 80     | 100                | 125    |       |
|                                                                                     | 500 V              | A  | 16                                                        | 25       | 32         | 40     | 45     | 63      | 80     | 100                | 125    |       |
|                                                                                     | 690 V              | A  | 16                                                        | 25       | 32         | 40     | 45     | 63      | 80     | 100                | 125    |       |
| AC23A                                                                               | 400 V              | A  | 16                                                        | 25       | 32         | 40     | 45     | 63      | 80     | 100                | 125    |       |
|                                                                                     | 500 V              | A  | 16                                                        | 25       | 25         | 25     | 25     | 63      | 63     | 80                 | 100    |       |
|                                                                                     | 690 V              | A  | 16                                                        | 25       | 25         | 25     | 25     | 47      | 47     | 47                 | 47     |       |
| IEC rated operational power                                                         |                    |    |                                                           |          |            |        |        |         |        |                    |        |       |
| AC23A                                                                               | 400 V              | kW | 7.5                                                       | 11       | 15         | 18.5   | 22     | 30      | 45     | 55                 | 55     |       |
|                                                                                     | 690 V              | kW | 11                                                        | 22       | 22         | 22     | 22     | 45      | 45     | 45                 | 45     |       |
| IEC reactive power for capacitor control 400 V                                      |                    |    | kvar                                                      | 7.5      | 10         | 12.5   | 15     | 15      | 25     | 30                 | 40     | 50    |
| IEC protection against short-circuit                                                |                    |    |                                                           |          |            |        |        |         |        |                    |        |       |
| Rated short-time withstand current (1 s), I <sub>cs</sub>                           |                    |    | A rms                                                     | 800      |            |        |        |         |        |                    | 2500   |       |
| Rated conditional short-circuit current                                             |                    |    | kA rms                                                    | 50       |            |        |        |         |        |                    |        |       |
| With fuse class gG                                                                  |                    |    | A                                                         | 16       | 25         | 32     | 40     | 63      | 63     | 80                 | 100    | 125   |
| IEC making capacity (AC23A 400 V)                                                   |                    |    | A                                                         | 400      |            |        |        | 450     | 1250   |                    |        |       |
| IEC breaking capacity (AC23A 400 V)                                                 |                    |    | A                                                         | 320      |            |        |        | 360     | 1000   |                    |        |       |
| Mechanical life (depending on the application)                                      |                    |    | cycles                                                    | 100,000  |            |        |        | 100,000 | 30,000 |                    |        |       |
| Electrical life (IEC AC21A)                                                         |                    |    | cycles                                                    | 100,000  |            |        |        | 15,000  | 30,000 |                    |        |       |
| UL/CSA general use at 600 V                                                         |                    |    | A                                                         | 16       | 25         | 32     | 40     | 50      | 60     | 100                | 100    | 100   |
| UL/CSA short-circuit rating at 600 V                                                |                    |    | kA                                                        | 5        | 5          | 5      | 5      | 5       | 50     | 50                 | 50     | 50    |
| UL/CSA fuse class/max rating at 600 V                                               |                    |    | Type/A                                                    | RK5/20   | RK5/30     | RK5/35 | RK5/45 | RK5/45  | –/100  | –/100              | –/100  | –/100 |
| UL/CSA Hp ratings                                                                   |                    |    |                                                           |          |            |        |        |         |        |                    |        |       |
| Single phase                                                                        | 120 V              | hp | 1                                                         | 1.5      | 2          | 2      | 2      | 3       | 3      | 5                  | 7.5    |       |
|                                                                                     | 240 V              | hp | 2                                                         | 3        | 5          | 5      | 7.5    | 7.5     | 10     | 10                 | 10     |       |
|                                                                                     | 200–208 V          | hp | 5                                                         | 7.5      | 10         | 10     | 10     | 20      | 25     | 30                 | 25     |       |
| Three phase                                                                         | 240 V              | hp | 5                                                         | 7.5      | 10         | 15     | 15     | 20      | 30     | 30                 | 30     |       |
|                                                                                     | 480 V              | hp | 10                                                        | 15       | 20         | 20     | 30     | 40      | 40     | 50                 | 50     |       |
|                                                                                     | 600 V              | hp | 10                                                        | 20       | 20         | 25     | 30     | 40      | 40     | 60                 | 40     |       |
| Terminals                                                                           |                    |    |                                                           |          |            |        |        |         |        |                    |        |       |
|  | Type               |    | Lug clamp<br>IEC/EN 60947-1 designation: Pillar terminal. |          |            |        |        |         |        |                    |        |       |
|                                                                                     | A                  |    | 5.6 mm (0.22 in.)                                         |          |            |        |        |         |        | 12.4 mm (0.49 in.) |        |       |
|                                                                                     | B                  |    | 6.5 mm (0.26 in.)                                         |          |            |        |        |         |        | 10.4 mm (0.41 in.) |        |       |
|                                                                                     | Screw              |    | M4                                                        |          |            |        |        |         |        | M8                 |        |       |
|                                                                                     | Tool               |    | Phillips 2                                                |          |            |        |        |         |        | Metric Allen key 4 |        |       |
| Tightening torque                                                                   |                    |    | N•m                                                       | 1.8–2    |            |        |        |         |        |                    | 5–6    |       |
|                                                                                     |                    |    | lb-in                                                     | 16–18    |            |        |        |         |        |                    | 45–54  |       |
| Conductor section (solid/stranded)                                                  |                    |    | mm²                                                       | 0.75–16  |            |        |        |         |        |                    | 4–50   |       |
|                                                                                     |                    |    | AWG                                                       | 18–6     |            |        |        |         |        |                    | 12–1   |       |
| Ambient Conditions                                                                  |                    |    |                                                           |          |            |        |        |         |        |                    |        |       |
| Temperature                                                                         |                    |    | Operating                                                 | °C       | –25 to +55 |        |        |         |        |                    |        |       |
|                                                                                     |                    |    | Storage                                                   | °C       | –40 to +70 |        |        |         |        |                    |        |       |
| Maximum altitude                                                                    |                    |    | m                                                         | 3000     |            |        |        |         |        |                    |        |       |
| Mounting position                                                                   |                    |    | Normal                                                    | Vertical |            |        |        |         |        |                    |        |       |
|                                                                                     |                    |    | Admissible                                                | Any      |            |        |        |         |        |                    |        |       |
| Mounting                                                                            |                    |    | Screw or 35 mm DIN rail (IEC/EN 60715)                    |          |            |        |        |         |        |                    |        |       |

## LK4 and GS2 Disconnect Switches

Table 8.59: Building a Complete GS or LK Switch

To build a complete GS or LK switch, order the following parts:

| Choose a Switch                                                                   | + | Shaft                                                                             | + | Handle Assembly                                                                   | + | Lugs if needed                                                                      |
|-----------------------------------------------------------------------------------|---|-----------------------------------------------------------------------------------|---|-----------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------|
|  |   |  |   |  |   |  |
| 600 A, LK4SU3N                                                                    |   | Shaft 320 mm, GS2AE6                                                              |   | Black Handle, GS2AH150                                                            |   | Lugs Kit, GS1AW503                                                                  |

Example:

LK4SU3N (600 A non-fusible switch) + GS2AE6 (320 mm Style D shaft) + GS2AH150 (black/black, locking)

To add auxiliary contacts:

For front-mounted contacts order LK4AD30N (front-mounted auxiliary contact holder) + GS2AM110.

## LK4 Nonfusible Disconnect Switches

NOTE: Switches in the shaded area are now available as kits. See Table 8.61.

Table 8.60: LK Nonfusible IEC Style Disconnect Switches

| Pole | Rating (A) | Catalog No.  | Maximum Horsepower Rating |       |       |         | Short Circuit Current Rating, 600 Vac |         | Shaft Style |
|------|------------|--------------|---------------------------|-------|-------|---------|---------------------------------------|---------|-------------|
|      |            |              | 240 V                     | 480 V | 600 V | 250 Vdc | Fuse                                  | SCCR kA |             |
| 3    | 30         | LK4DU3CN [1] | 10                        | 20    | 30    | —       | J                                     | 100     | AL          |
| 3    | 60         | LK4GU3CN [1] | 20                        | 40    | 50    | —       | J                                     | 100     | AL          |
| 3    | 100        | LK4JU3CN [1] | 20                        | 50    | 50    | N/A     | J                                     | 100     | AL          |
| 3    | 100        | LK4JU3N      | 30                        | 75    | 100   | 15      | J                                     | 200     | B           |
| 3    | 200        | LK4MU3N      | 75                        | 150   | 200   | 15      | J                                     | 200     | B           |
| 3    | 400        | LK4QU3N      | 125                       | 250   | 350   | 50      | J                                     | 200     | B           |
| 3    | 600        | LK4SU3N      | 200                       | 400   | 350   | 50      | J                                     | 200     | D           |
| 3    | 800        | LK4TU3N      | 200                       | 500   | 500   | —       | L                                     | 100     | D           |
| 3    | 1000       | LK4UU3N      | 200                       | 500   | 500   | —       | L                                     | 100     | D           |
| 3    | 1200       | LK4WU3N      | 200                       | 500   | 500   | —       | L                                     | 100     | D           |

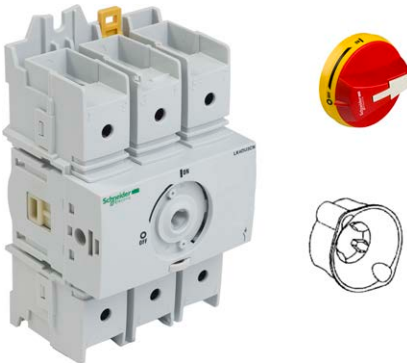
NOTE: Switches in the shaded area are now available as kits.

Table 8.61: <sup>New!</sup> Kits for Compact Switches LK4: 30, 60 and 100 A

| Rating (A) | Kit Catalog Number | Pieces Included [2] |              |                            |             |            |
|------------|--------------------|---------------------|--------------|----------------------------|-------------|------------|
|            |                    | Compact Switch      | 400 mm Shaft | Handle Color / NEMA Rating | Handle      | Guide Cone |
| 30 A       | LK4DUKB1           | LK4DU3CN            | LK4AE41CN    | Black / NEMA 1, 12, 3R     | LK4AH0110CN | GS2AEH12   |
|            | LK4DUKB4           | LK4DU3CN            | LK4AE41CN    | Black / NEMA 4, 4X         | LK4AH0410CN | GS2AEH12   |
|            | LK4DUKR1           | LK4DU3CN            | LK4AE41CN    | Red / NEMA 1, 12, 3R       | LK4AH0120CN | GS2AEH12   |
|            | LK4DUKR4           | LK4DU3CN            | LK4AE41CN    | Red / NEMA 4, 4X           | LK4AH0420CN | GS2AEH12   |
| 60 A       | LK4GUKB1           | LK4GU3CN            | LK4AE41CN    | Black / NEMA 1, 12, 3R     | LK4AH0110CN | GS2AEH12   |
|            | LK4GUKB4           | LK4GU3CN            | LK4AE41CN    | Black / NEMA 4, 4X         | LK4AH0410CN | GS2AEH12   |
|            | LK4GUKR1           | LK4GU3CN            | LK4AE41CN    | Red / NEMA 1, 12, 3R       | LK4AH0120CN | GS2AEH12   |
|            | LK4GUKR4           | LK4GU3CN            | LK4AE41CN    | Red / NEMA 4, 4X           | LK4AH0420CN | GS2AEH12   |
| 100 A      | LK4JUKB1           | LK4JU3CN            | LK4AE41CN    | Black / NEMA 1, 12, 3R     | LK4AH0110CN | GS2AEH12   |
|            | LK4JUKB4           | LK4JU3CN            | LK4AE41CN    | Black / NEMA 4, 4X         | LK4AH0410CN | GS2AEH12   |
|            | LK4JUKR1           | LK4JU3CN            | LK4AE41CN    | Red / NEMA 1, 12, 3R       | LK4AH0120CN | GS2AEH12   |
|            | LK4JUKR4           | LK4JU3CN            | LK4AE41CN    | Red / NEMA 4, 4X           | LK4AH0420CN | GS2AEH12   |



100–400 A



30–100 A Compact

NOTE: The kit also includes rod LK4AE41CN.

[1] No longer sold as components. Purchase Kits containing Switch, Handle, Shaft, and Guide Cone as listed in Table 8.61.

[2] Components are NOT sold separately. Only 400 mm shaft can be purchase separately.



GS2AH130



GS2AH150



GS2AH170

**NOTE:** Switches in the shaded area are now available as kits. See Table 8.61.

**Table 8.62: Handles and Shafts for LK Switches**

| Rating (A)                                                          | Handle         |                  |            | Shaft             |                   | Shaft             | Guide Cone[3] | Shaft Style | Support Bracket |
|---------------------------------------------------------------------|----------------|------------------|------------|-------------------|-------------------|-------------------|---------------|-------------|-----------------|
|                                                                     | Catalog No.    | Type             | Color      | 12.6 in. / 320 mm | 15.7 in. / 400 mm | 19.6 in. / 500 mm |               |             |                 |
|                                                                     |                |                  |            | Catalog No.       | Catalog No.       | Catalog No.       | Catalog No.   |             | Catalog No.     |
| <b>NOTE:</b> Switches in the shaded area are now available as kits. |                |                  |            |                   |                   |                   |               |             |                 |
| 30–100                                                              | LK4AH110CN[4]  | 1, 3R, 12        | Black      | LK4AE12CN         | —                 | —                 | GS2AEH12      | AL          | —               |
| 30–100                                                              | LK4AH1120CN[4] | 1, 3R, 12        | Red/Yellow |                   |                   |                   |               |             |                 |
| 30–100                                                              | LK4AH410CN[4]  | 4, 4X            | Black      |                   |                   |                   |               |             |                 |
| 30–100                                                              | LK4AH420CN [4] | 4, 4X            | Red/Yellow |                   |                   |                   |               |             |                 |
| 100–400                                                             | GS2AH130       | 1, 3R, 12        | Black      | GS2AE2            | GS2AE21           | GS2AE23           | GS2AEH12      | B           | GS2AESB         |
| 100–400                                                             | GS2AH140       | 1, 3R, 12        | Red        |                   |                   |                   |               |             |                 |
| 100–400                                                             | GS2AH430       | 4, 4X            | Black      |                   |                   |                   |               |             |                 |
| 100–400                                                             | GS2AH440       | 4, 4X            | Red/Yellow |                   |                   |                   |               |             |                 |
| 600                                                                 | GS2AH150       | 1, 3R, 4, 4X, 12 | Black      | GS2AE6            | GS2AE61           | —                 | GS2AEH12      | D           | —               |
| 600                                                                 | GS2AH160       | 1, 3R, 4, 4X, 12 | Red/Yellow |                   |                   |                   |               |             |                 |
| 800–1200                                                            | GS2AH170       | 1, 3R, 4, 4X, 12 | Black      |                   |                   |                   |               |             |                 |
| 800–1200                                                            | GS2AH180       | 1, 3R, 4, 4X, 12 | Red/Yellow |                   |                   |                   |               |             |                 |

**Table 8.63: Auxiliary Contacts for LK Switches**

| Switch Amperes | Catalog No. | Description                         |
|----------------|-------------|-------------------------------------|
| 30–60          | MDSAN11     | Auxiliary Contact 1 N.O. and 1 N.C. |
| 30–60          | MDSAN20     | Auxiliary Contact 2 N.O.            |
| 100–400        | LK4AD10N    | Auxiliary Contact 1 N.O. and 1 N.C. |
| 100–400        | LK4AD20N    | Auxiliary Contact 2 N.O.            |
| 600–1200       | LK4AD30N    | Auxiliary Contact Holder            |
| 600–1200       | GS2AM110    | Auxiliary Contact 1 N.O.            |
| 600–1200       | GS2AM101    | Auxiliary Contact 1 N.C.            |

**Table 8.64: Terminal Shrouds for LK Switches**

| Switch Amperes | Catalog No. | Description                           |
|----------------|-------------|---------------------------------------|
| 30–60          | LK4AP3CN    | Shroud Top and Bottom, 3-Pole         |
| 100–200        | LK4AP33TN   | Shroud Top LK4, 3-Pole, 100/200 A     |
| 100–200        | LK4AP33BN   | Shroud Bottom LK4, 3-Pole, 100/200 A  |
| 400            | LK4AP53TN   | Shroud Top LK4, 3-Pole, 400 A         |
| 400            | LK4AP53BN   | Shroud Bottom LK4, 3-Pole, 400 A      |
| 600 [5]        | LK4AP63N    | Shroud Bottom LK4, 3-Pole, 600 A      |
| 800–1200 [5]   | LK4AP83N    | Shroud Bottom LK4, 3-Pole, 800–1200 A |

[3] Optional on shafts for LK4DU3CN, LK4GU3CN and LK4JU3CN.

[4] No longer sold as components. Purchase Kits containing Switch, Handle, Shaft, and Guide Cone as listed in Table 8.61.

[5] 600–1200 A standard with top shroud.



GS2GU3N



GS2AH110



GS2AH130



GS2AH150

Auxiliary Contacts  
GS1AD10 + GS2AM110

Shorting Links

## GS2 Fusible Disconnect Switches

Table 8.65: GS Fusible IEC Style Disconnect Switches

| Pole | Rating (A) | Catalog No. | Maximum Horsepower Rating |       |       |         | Short Circuit Current Rating, 600 Vac |         | Shaft Style |
|------|------------|-------------|---------------------------|-------|-------|---------|---------------------------------------|---------|-------------|
|      |            |             | 240 V                     | 480 V | 600 V | 250 Vdc | Fuse                                  | SCCR kA |             |
| 3    | 30         | GS1DDU3     | 7.5                       | 15    | 20    | 5       | CC                                    | 100     | AG          |
| 3    | 30         | GS1DU3      | 7.5                       | 15    | 20    | 5       | J                                     | 100     | AG          |
| 3    | 30         | GS2EEU3     | 7.5                       | 15    | 20    | 5       | CC                                    | 100     | B           |
| 3    | 30         | GS2EU3N     | 7.5                       | 15    | 20    | 5       | J                                     | 100     | B           |
| 3    | 60         | GS2GU3N     | 15                        | 30    | 50    | 10      | J                                     | 100     | B           |
| 3    | 100        | GS2JU3N     | 30                        | 60    | 75    | 20      | J                                     | 200     | B           |
| 3    | 200        | GS2MU3N     | 60                        | 125   | 150   | 40      | J                                     | 200     | B           |
| 3    | 400        | GS2QU3N     | 125                       | 250   | 350   | 50      | J                                     | 200     | B           |
| 3    | 600        | GS2SU3      | 200                       | 500   | 500   | —       | J                                     | 200     | C           |
| 3    | 800        | GS2TU3      | 200                       | 500   | 500   | —       | J                                     | 200     | C           |

Table 8.66: Handles and Shafts for GS Switches [6]

| Rating (A) | Handle      |                  |            | Shaft: 12.6 in. (320 mm) | Shaft: 15.7 in. (400 mm) | Shaft: 19.7 in. (500 mm) | Shaft Guide | Shaft Style | Support Bracket [7] |
|------------|-------------|------------------|------------|--------------------------|--------------------------|--------------------------|-------------|-------------|---------------------|
|            | Catalog No. | Type             | Color      | Catalog No.              | Catalog No.              | Catalog No.              | Catalog No. |             |                     |
| 30–60      | GS2AH110    | 1, 3R, 12        | Black      | GS2AE8                   | GS2AE81                  | —                        | GS2AEH12    | AG          | —                   |
| 30–60      | GS2AH120    | 1, 3R, 12        | Red/Yellow |                          |                          |                          |             |             |                     |
| 30–60      | GS2AH410    | 4, 4X            | Black      |                          |                          |                          |             |             |                     |
| 30–60      | GS2AH420    | 4, 4X            | Red/Yellow |                          |                          |                          |             |             |                     |
| 30–400     | GS2AH130    | 1, 3R, 12        | Black      | GS2AE2                   | GS2AE21                  | GS2AE23                  | GS2AEH12    | B           | GS2AESB             |
| 30–400     | GS2AH140    | 1, 3R, 12        | Red/Yellow |                          |                          |                          |             |             |                     |
| 30–400     | GS2AH430    | 4, 4X            | Black      |                          |                          |                          |             |             |                     |
| 30–400     | GS2AH440    | 4, 4X            | Red/Yellow |                          |                          |                          |             |             |                     |
| 600–800    | GS2AH150    | 1, 3R, 4, 4X, 12 | Black      | GS2AE5                   | GS2AE51                  | GS2AE53                  | GS2AEH12    | C           | —                   |
| 600–800    | GS2AH160    | 1, 3R, 4, 4X, 12 | Red/Yellow |                          |                          |                          |             |             |                     |

NOTE: Hole adapter kit for GS1 to GS2 Handles: GS2AH100TO200.

Table 8.67: Auxiliary Contacts for GS Switches [8]

| Switch Amperes | Catalog No. | Description               |
|----------------|-------------|---------------------------|
| 30–800         | GS1AM110    | Auxiliary Contact, 1 N.O. |
| 30–800         | GS1AM101    | Auxiliary Contact, 1 N.C. |
| 30             | GS1AD10     | Auxiliary Contact Holder  |

Table 8.68: Shorting Links

| For use on:    | Shorting Links per Kit | Catalog No. |
|----------------|------------------------|-------------|
| GS2, 60 A      | 3                      | GS1AU203    |
| GS2, 100 A     | 3                      | GS1AU303    |
| GS2, 200 A     | 3                      | GS1AU403    |
| GS2, 400 A     | 3                      | GS1AU503    |
| GS2, 600–800 A | 3                      | GS1AU803    |

Table 8.69: NFPA79 Kit

| For Use With:                        | Description                                       | Kit Part Number |
|--------------------------------------|---------------------------------------------------|-----------------|
| GS2Q3N                               | NFPA 79 Internal Handle Kit 400 A Switch Shaft    | GS2AD040N       |
| GS2GU3N, GS2GLU3N, GS2JU3N, GS2JLU3N | NFPA 79 Internal Handle Kit 60–200 A Switch Shaft | GS2AD030N       |
| GS1DDU3, GS1DU3                      | NFPA 79 Internal Handle Kit for 5 mm Shafts       | GS1AD010        |

Table 8.70: Terminal Shrouds for GS Switches, Line or Load [9]

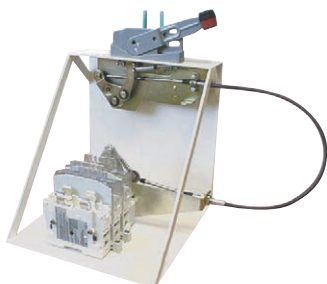
| Switch Amperes | Catalog No. | Description            |
|----------------|-------------|------------------------|
| 30–100         | —           | Standard on product    |
| 200            | GS2AP43     | GS2, 3-Pole, 200 A     |
| 400            | GS2AP53     | GS2, 3-Pole, 400 A     |
| 600–800        | GS2AP73     | GS2, 3-Pole, 600–800 A |

[6] GS2AH100TO200—GS1 to GS2 Handle Adapter if using GS1 holes.

[7] Not for use with flange disconnects.

[8] GS1DU3 and GS1DDU3 switches allow up to 4 auxiliary contacts without adding contact holder GS1AD10. For more than 4 contacts, GS1AD10 is required.

[9] Order one terminal shroud per side. For example, order one terminal shroud for either the line side or load side; order two terminal shrouds for both the line side and load side.



Flange Handle  
Cable Operator Kit

## Cable Operator Kits for GS2 Switches

Table 8.71: Cable Operator Kits for GS2 Switches [10] [11]

| Catalog No.            | Description                                                   |
|------------------------|---------------------------------------------------------------|
| <b>200 A and Below</b> |                                                               |
| GS2AH36F               | 36 in. Cable Operator Kits for GS2 Switches, 200 A and Below  |
| GS2AH60F               | 60 in. Cable Operator Kits for GS2 Switches, 200 A and Below  |
| GS2AH120F              | 120 in. Cable Operator Kits for GS2 Switches, 200 A and Below |
| GS2AH144F              | 144 in. Cable Operator Kits for GS2 Switches, 200 A and Below |
| GS2AH180F              | 180 in. Cable Operator Kits for GS2 Switches, 200 A and Below |
| <b>400 A</b>           |                                                               |
| GS2AH460F              | 60 in. Cable Operator Kits for GS2 Switches, 400 A            |
| GS2AH4120F             | 120 in. Cable Operator Kits for GS2 Switches, 400 A           |
| GS2AH4144F             | 144 in. Cable Operator Kits for GS2 Switches, 400 A           |
| GS2AH4180F             | 180 in. Cable Operator Kits for GS2 Switches, 400 A           |

Table 8.72: Handles for use with Cable Operator Kits

| Catalog No. | NEMA Type Enclosure        | Type of Handle |
|-------------|----------------------------|----------------|
| 9422A1      | 1, 3, 3R, 4, (Sheet Steel) | 6 in.          |
| 9422A2      | 4, 4X (Stainless)          | 6 in.          |
| 9422A3      | 1, 3, 3R, 4, (Sheet Steel) | 4 in.          |
| 9422A4      | 4, 4X (Stainless)          | 4 in.          |

## Accessories

Table 8.73: Terminal Lugs



Terminal Lugs

| For Use On: | Rating | No. of Wires per Lug | No. of Lugs per Terminal | Lug Size (AWG)  | Wire Type | Lugs per Kit | Lug Kit Catalog Number |
|-------------|--------|----------------------|--------------------------|-----------------|-----------|--------------|------------------------|
| LK4DU3CN    | 30     | 1                    | 1                        | #12-2/0         | Cu        | —            | Standard               |
| LK4GU3CN    | 60     | 1                    | 1                        | #12-2/0         | Cu        | —            | Standard               |
| LK4JU3N     | 100    | 1                    | 1                        | 6-300 kcmil     | Cu/Al     | 6            | GS1AW403               |
| LK4MU3N     | 200    | 1                    | 1                        | 6-300 kcmil     | Cu/Al     | 6            | GS1AW403               |
| LK4QU3N     | 400    | 2                    | 1                        | 350 MCM-6       | Cu/Al     | 6            | GS1AW603               |
|             |        | 1                    | 1                        | 600 MCM-4       | Cu/Al     | 6            | GS1AW606               |
|             |        | 2                    | 1                        | 250 MCM-1/0     | Cu/Al     | 6            | GS1AW503               |
| LK4SU3N     | 600    | 2                    | 1                        | 2 x 2-600 kcmil | Cu/Al     | 6            | GS1AW503               |
| LK4TU3N     | 800    | 2                    | 2                        | 2 x 2-600 kcmil | Cu/Al     | 12           | GS1AW903               |
| LK4UU3N     | 1000   | 2                    | 2                        | 2 x 2-600 kcmil | Cu/Al     | 12           | GS1AW903               |
| LK4WU3N     | 1200   | 2                    | 2                        | 2 x 2-600 kcmil | Cu/Al     | 12           | GS1AW903               |
| GS1DDU3     | 30     | 1                    | 1                        | #14-#10         | Cu        | —            | Standard               |
| GS1DU3      | 30     | 1                    | 1                        | #14-#10         | Cu        | —            | Standard               |
| GS2EEU3     | 30     | 1                    | 1                        | #14-#10         | Cu        | —            | Standard               |
| GS2EU3N     | 30     | 1                    | 1                        | #14-#6          | Cu        | —            | Standard               |
| GS2GU3N     | 60     | 1                    | 1                        | #10-#6          | Cu        | —            | Standard               |
| GS2JU3N     | 100    | 1                    | 1                        | #12-#1          | Cu        | —            | Standard               |
| GS2MU3N     | 200    | 1                    | 1                        | 6-300 kcmil     | Cu/Al     | 6            | GS1AW403               |
| GS2QU3N     | 400    | 2                    | 1                        | 350 MCM-6       | Cu/Al     | 6            | GS1AW603               |
|             |        | 1                    | 1                        | 600 MCM-4       | Cu/Al     | 6            | GS1AW606               |
|             |        | 2                    | 1                        | 250 MCM-1/0     | Cu/Al     | 6            | GS1AW503               |
| GS2SU3      | 600    | 2                    | 1                        | 2 x 2-600 kcmil | Cu/Al     | 6            | GS1AW503               |
| GS2TU3      | 800    | 2                    | 1                        | 2 x 2-600 kcmil | Cu/Al     | 6            | GS1AW503               |

Table 8.74: Power Distribution Lugs GS1 or GS2 Only

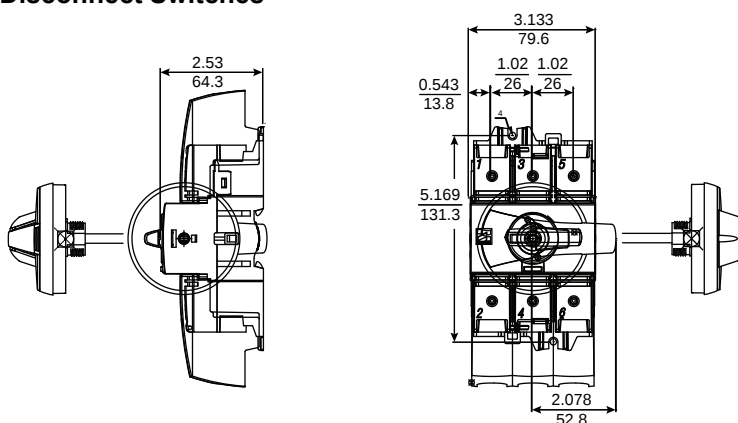
| For Use On: | Rating | No. of Wires per Lug | Lug Size (AWG) | Wire Type | Lugs per Kit | Lug Kit Catalog No. |
|-------------|--------|----------------------|----------------|-----------|--------------|---------------------|
| GS1JU3      | 100    | 6                    | #14-#6         | Cu        | 3            | GS1AW306 [12]       |
| GS2MU3N     | 200    | 12                   | #14-#4         | Cu        | 3            | GS1AW406            |
| GS2QU3N     | 400    | 12                   | #14-#4         | Cu        | 3            | GS1AW406            |
| GS2MU3N     | 200    | 6                    | #12-2/0        | Cu        | 3            | GS1AW506            |
| GS2QU3N     | 400    | 6                    | #12-2/0        | Cu        | 3            | GS1AW506            |

[10] Does not include handle. For handle, see Table 8.72.

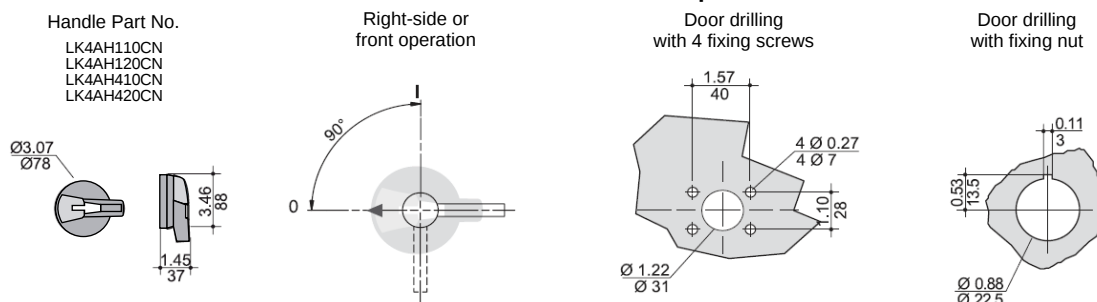
[11] Not compatible with GS2EEU3.

[12] Cannot be used on GS2JU3N.

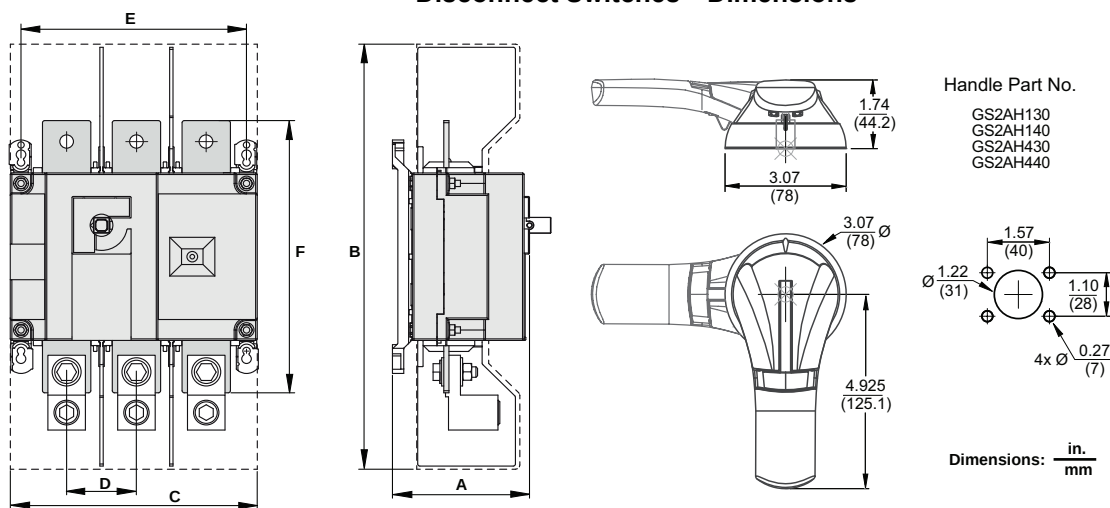
### LK4DU3CN and LK4GU3CN, 30–100 A Compact Nonfusible Disconnect Switches



### Handle for 30–100 A Compact Nonfusible Disconnect Switches

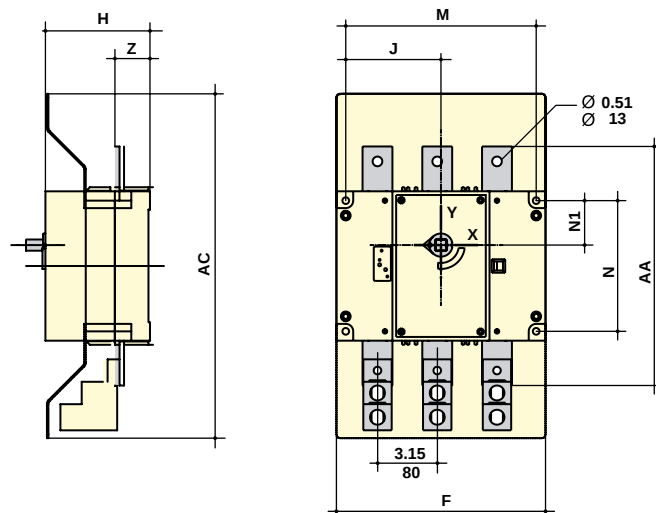


### LK4JU3N / LK4MU3N / LK4QU3N, 100–400 A Nonfusible Disconnect Switches—Dimensions



| Rating (A) | Dimensions = in. (mm) |            |             |           |            |            |
|------------|-----------------------|------------|-------------|-----------|------------|------------|
|            | A                     | B          | C           | D         | E          | F          |
| 100–200    | 3.72 (94.6)           | 10.1 (256) | 7.09 (1.80) | 1.97 (50) | 6.3 (160)  | 6.3 (160)  |
| 400        | 4.92 (128)            | 16 (406)   | 9.05 (230)  | 2.56 (65) | 8.26 (210) | 10.2 (260) |

**LK4SU3N, 600 A Nonfusible Disconnect Switches—Dimensions**



| Rating<br>(A) | Dimensions = in. (mm) |          |           |                |                |               |                |               |           |
|---------------|-----------------------|----------|-----------|----------------|----------------|---------------|----------------|---------------|-----------|
|               | AC                    | F        | H         | J              | M              | N             | N1             | AA            | Z         |
| 600           | 18.12<br>(460)        | 11 (280) | 5.5 (140) | 5.0<br>(127.5) | 10.03<br>(255) | 6.88<br>(175) | 2.34<br>(59.5) | 12.6<br>(320) | 1.85 (47) |

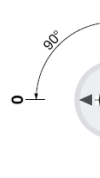
**Handle for 600 A and 800 A Fusible Disconnect Switches**

Handle Part No.  
GS2AH150  
GS2AH160

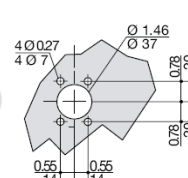


Front operation

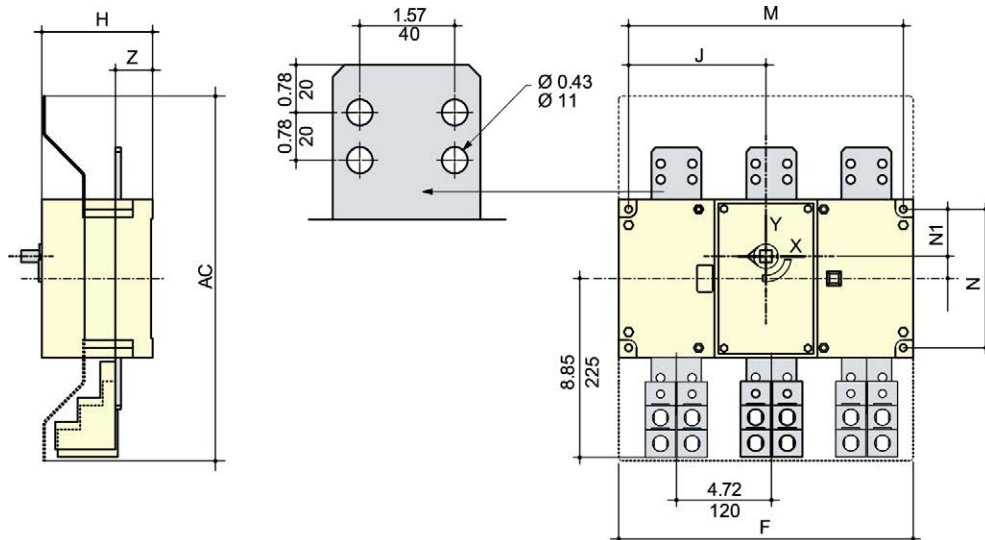
Direction of operation



Door drilling template



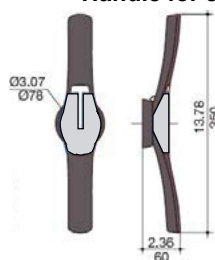
**LK4TU3N / LK4UU3N / LK4WU3N, 800–1200 A Nonfusible Disconnect Switches—Dimensions**



| Rating (A) | Dimensions = in. (mm) |             |           |              |             |            |             |           |
|------------|-----------------------|-------------|-----------|--------------|-------------|------------|-------------|-----------|
|            | AC                    | F           | H         | J            | M           | N          | N1          | Z         |
| 800–1200   | 18.12 (460)           | 14.64 (372) | 5.5 (140) | 6.83 (173.5) | 13.66 (347) | 6.88 (175) | 2.34 (59.5) | 1.85 (47) |

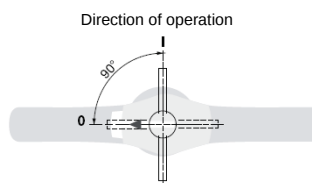
Handle Part No.  
GS2AH170  
GS2AH180

Dimensions:  $\frac{\text{in.}}{\text{mm}}$

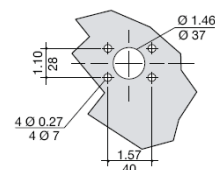


### Handle for 800–1200 A Fusible Disconnect Switches

Front operation

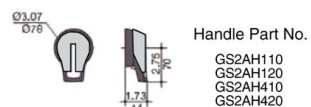


Door drilling template

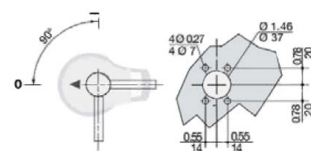


### GS1DDU3, 30 A Fusible Disconnect Switches, Class CC Fuses and GS1DU3, 30 A Fusible Disconnect Switches, Class J Fuses—Dimensions

#### Handle for 30 A and 60 A Fusible Disconnect Switches



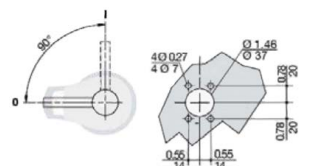
Handle Part No.  
GS2AH110  
GS2AH120  
GS2AH410  
GS2AH420



Front operation

Direction of operation

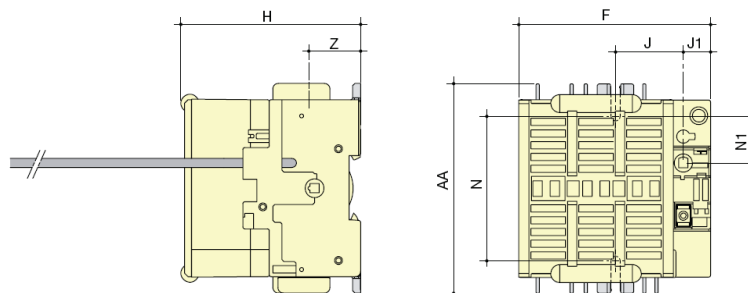
Door drilling template



Side operation

Direction of operation

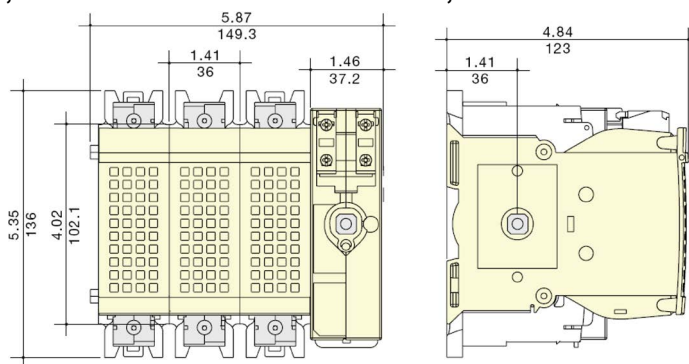
Door drilling template



Example:  
GS1DU3

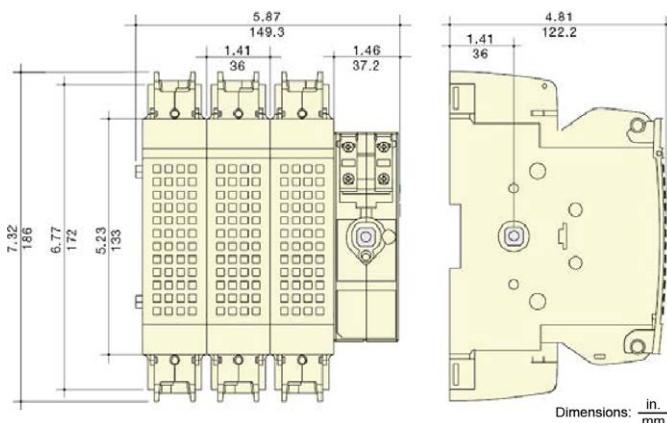
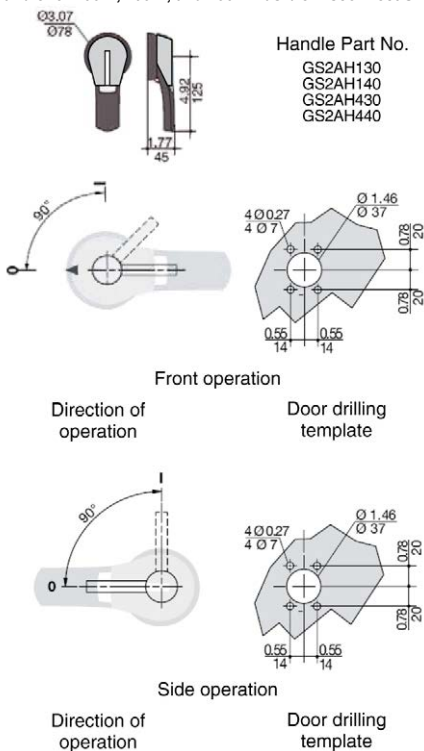
| Rating (A) | Dimensions = in. (mm) |             |             |           |             |          |            |             |
|------------|-----------------------|-------------|-------------|-----------|-------------|----------|------------|-------------|
|            | F                     | H           | J           | J1        | N           | N1       | AA         | Z           |
| 30 / CC    | 3.78 (96)             | 3.28 (83.5) | 1.47 (37.5) | 0.59 (15) | 3.13 (79.5) | 1 (25.5) | 4.56 (116) | 1.12 (28.5) |
| 30 / J     | 4.13 (105)            | 3.89 (99)   | 1.47 (37.5) | 0.59 (15) | 3.13 (79.5) | 1 (25.5) | 4.56 (116) | 1.12 (28.5) |

### GS2GU3N, 60 A Fusible Disconnect Switches, Class J Fuses

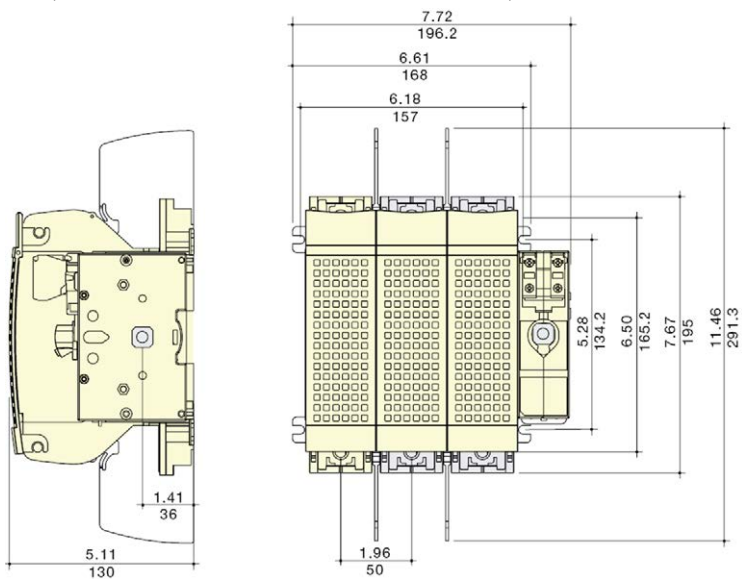


**GS2JU3N, 100 A Fusible Disconnect Switches, Class J Fuses**

Handle for 100 A, 200 A, and 400 A Fusible Disconnect Switches



**GS2MU3N, 200 A Fusible Disconnect Switches, Class J Fuses**

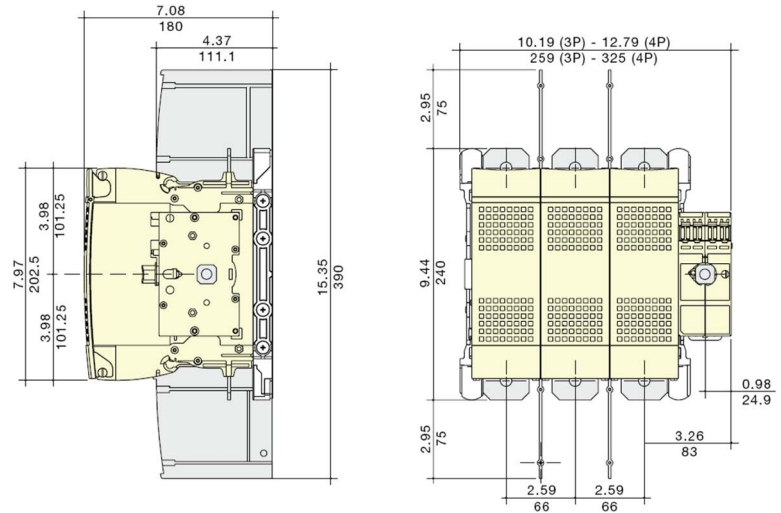


# Dimensions, LK4 Nonfusible and GS2 Fusible

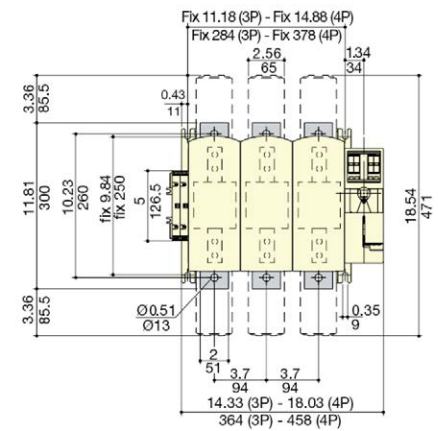
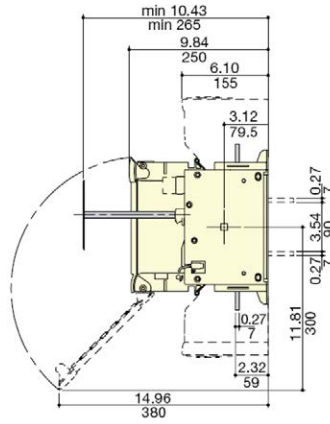
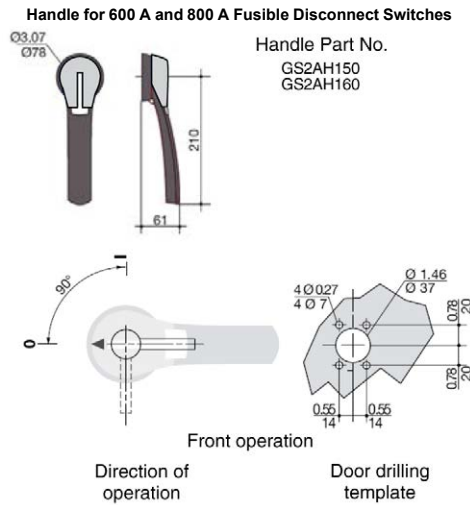
Refer to Catalog **9421CT0301**

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## GS2QU3N, 400 A Fusible Disconnect Switches, Class J Fuses



## GS2SU3, 600 A Fusible Disconnect Switches, Class J Fuses GS2TU3, 800 A Fusible Disconnect Switches, Class J Fuses



## Disconnect Switches

The 9422 disconnect switches are the ideal selections for the PV String Combiner Box internal disconnect switch and control panel applications. These switches are designed for variable depth, flange mounting, traditional side mounting and bracket mounting applications providing complete flexibility in the PV string combiner box designs. The switches are compatible with 9422A handle operators and 9423 door mechanisms and are UL 98 recognized (E52369 Vol. 1, Sec. 18) and CSA certified. See [page 8-34](#), [page 8-37](#), and [page 8-38](#) for dimensional information.

**Table 8.75: 9422 Disconnect Switches, Flange Mounted and Variable Depth**

| Disconnect Switch Size              | Variable Depth (in.)                      | Maximum Horsepower Ratings     |           |           |           |     |     | Fuse Type  | Fuse Clip Rating (A), Non-Interchangeable Type, For Class H, J, K or R Fuses |       | Switch and Operating Mechanism ONLY (No Handle Mechanism) | Switch Used with Cable Operators ONLY (No Handle Mechanism or Cable Operator) <sup>[1]</sup> | Switch and Operating Mechanism with Handle Mechanism, Overpacked <sup>[2]</sup> |                          |           |          |
|-------------------------------------|-------------------------------------------|--------------------------------|-----------|-----------|-----------|-----|-----|------------|------------------------------------------------------------------------------|-------|-----------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------|-----------|----------|
|                                     |                                           | AC Systems Volts (Motor Volts) |           |           |           | Vdc |     |            | 250 V                                                                        | 600 V |                                                           |                                                                                              | Cat. No.                                                                        | Cat. No.                 | Cat. No.  | Cat. No. |
|                                     |                                           | 208 (200)                      | 240 (230) | 480 (460) | 600 (575) | 250 | 600 |            |                                                                              |       |                                                           |                                                                                              |                                                                                 |                          |           |          |
| 30 A                                | 6.625–18                                  | 7.5                            | 7.5       | 15        | 20        | 5   | 15  | None       | —                                                                            | —     | 9422TCN30                                                 | 9422TCN30C                                                                                   | 9422ATCN301                                                                     | 9422ATCN302              |           |          |
|                                     |                                           |                                |           |           |           |     |     | H, J, K, R | 30                                                                           | —     | 9422TCF30                                                 | 9422TCF30C                                                                                   | 9422ATCF301                                                                     | 9422ATCF302              |           |          |
|                                     |                                           |                                |           |           |           |     |     |            | 60                                                                           | 30    | 9422TCF33                                                 | 9422TCF33C                                                                                   | 9422ATCF331                                                                     | 9422ATCF332              |           |          |
| 60 A                                | 6.625–18                                  | —                              | 15        | 30        | 50        | 10  | 30  | None       | —                                                                            | —     | 9422TDN60                                                 | 9422TDN60C                                                                                   | 9422ATDN601                                                                     | 9422ATDN602              |           |          |
|                                     |                                           |                                |           |           |           |     |     | H, J, K, R | 60                                                                           | 30    | 9422TDF60                                                 | 9422TDF60C                                                                                   | 9422ATDF601                                                                     | 9422ATDF602              |           |          |
|                                     |                                           |                                |           |           |           |     |     |            | —                                                                            | 60    | 9422TDF63                                                 | 9422TDF63C                                                                                   | 9422ATDF631                                                                     | 9422ATDF632              |           |          |
| 100 A                               | 6.625–18                                  | 25                             | 30        | 60        | 75        | 20  | 50  | None       | —                                                                            | —     | 9422TEN10                                                 | 9422TEN10C                                                                                   | 9422ATEN101                                                                     | 9422ATEN102              |           |          |
|                                     |                                           |                                |           |           |           |     |     | H, J, K, R | 100                                                                          | 100   | 9422TEF10                                                 | 9422TEF10C                                                                                   | 9422ATEF101                                                                     | 9422ATEF102              |           |          |
|                                     |                                           |                                |           |           |           |     |     |            | —                                                                            | —     | —                                                         | 9422TF1                                                                                      | —                                                                               | 9422ATF11                | 9422ATF21 |          |
| 200 A                               | 9.12–19.25 <sup>[3]</sup>                 | 40                             | 60        | 125       | 150       | 40  | 50  | None       | —                                                                            | —     | 9422TF2                                                   | —                                                                                            | 9422ATF12                                                                       | 9422ATF22                |           |          |
|                                     |                                           |                                |           |           |           |     |     | H, J, K, R | 200                                                                          | 200   | 9422TF3 <sup>[4]</sup>                                    | —                                                                                            | 9422ATF13 <sup>[4]</sup>                                                        | 9422ATF23 <sup>[4]</sup> |           |          |
|                                     |                                           |                                |           |           |           |     |     |            | —                                                                            | 400   | 9422TF3 <sup>[4]</sup>                                    | —                                                                                            | 9422ATF13 <sup>[4]</sup>                                                        | 9422ATF23 <sup>[4]</sup> |           |          |
| 400 A Fixed Depth <sup>[5]</sup>    | 11.38 (A5 or A6 Handle)                   | 75                             | 125       | 250       | 350       | 50  | 50  | None       | —                                                                            | —     | 9422TG1 <sup>[6]</sup> <sup>[7]</sup>                     | —                                                                                            | For handle selection, see page 8-34.                                            |                          |           |          |
| 400 A Variable Depth <sup>[5]</sup> | 15.87–19 (A7 or A8 Handle) <sup>[8]</sup> |                                |           |           |           |     |     | H, J, K, R | 400                                                                          | 400   | 9422TG2 <sup>[6]</sup> <sup>[7]</sup>                     | —                                                                                            |                                                                                 |                          |           |          |



9422TCN30



Bracket Mounted Disconnect Switch

The 9422 Bracket Mount Disconnect Switch is designed for combiner boxes and control panel applications. The Bracket Mount Disconnect Switch is shipped with the switch and external handle assembled to a bracket, ready for quick installation. A protective trim plate is provided to prevent any mounting screws from being accessible from the front. The trim plate also provides an attractive installation feature. The switches are fully compatible with the 9423 closing mechanisms.

**Table 8.76: 9422 Bracket Mounted Disconnect Switches**

| Disconnect Switch Size | Maximum Horsepower Rating |           |           |           |     |     | Fuse Type  | Fuse Clip Rating (A), Non-Interchangeable Type for Class H, J, K, or R Fuses |       | Switch and Operating Mechanism Only |
|------------------------|---------------------------|-----------|-----------|-----------|-----|-----|------------|------------------------------------------------------------------------------|-------|-------------------------------------|
|                        | AC Systems (Motor Volts)  |           |           |           | Vdc |     |            | 250 V                                                                        | 600 V |                                     |
|                        | 208 (200)                 | 240 (230) | 480 (460) | 600 (575) | 250 | 600 |            |                                                                              |       |                                     |
| 30 A                   | 7.5                       | 7.5       | 15        | 20        | 5   | 15  | None       | —                                                                            | —     | 9422BTCN30                          |
|                        |                           |           |           |           |     |     | H, J, K, R | 30                                                                           | —     | 9422BTCF30                          |
|                        |                           |           |           |           |     |     |            | 60                                                                           | 30    | 9422BTCF33                          |
|                        |                           |           |           |           |     |     | J [9]      | 60                                                                           | 30    | 9422BTCF32                          |
| 60 A                   | 15                        | 15        | 30        | 50        | 10  | 30  | None       | —                                                                            | —     | 9422BTDN60                          |
|                        |                           |           |           |           |     |     | H, J, K, R | 60                                                                           | 30    | 9422BTDF60                          |
|                        |                           |           |           |           |     |     |            | —                                                                            | 60    | 9422BTDF63                          |
|                        |                           |           |           |           |     |     | J [9]      | —                                                                            | 60    | 9422BTDF62                          |
| 100 A                  | 25                        | 30        | 60        | 75        | 20  | 50  | None       | —                                                                            | —     | 9422BTEN10                          |
|                        |                           |           |           |           |     |     | H, J, K, R | 100                                                                          | 100   | 9422BTEF10                          |
|                        |                           |           |           |           |     |     |            | 100                                                                          | 100   | 9422BTEF11                          |
|                        |                           |           |           |           |     |     | J [9]      | 100                                                                          | 100   | 9422BTEF11                          |
| 200 A                  | 40                        | 60        | 125       | 150       | 40  | 50  | None       | —                                                                            | —     | 9422TFB1                            |
|                        |                           |           |           |           |     |     | H, J, K, R | 200                                                                          | 200   | 9422TFB2                            |
|                        |                           |           |           |           |     |     |            | —                                                                            | 400   | 9422TFB3                            |
|                        |                           |           |           |           |     |     | J [9]      | —                                                                            | 400   | 9422TFB3                            |

[1] See for ordering information for the cable operator.

[2] Variable depth only — no cable operator.

[3] 9422 R2 will extend maximum mounting depth 7 inches, see [Table 8.86](#) for information.

[4] Accommodates Class J fuses only.

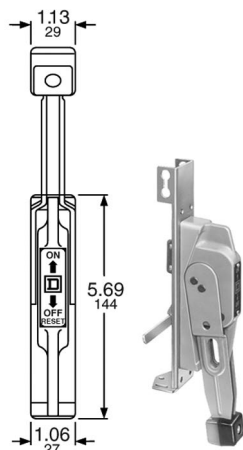
[5] Switches are fixed-depth or adjustable depending on handle selection.

[6] Commercially available enclosures may not accept 9422TG1 and 2 operating mechanisms. Contact enclosure manufacturer for availability of enclosures for use with these switches.

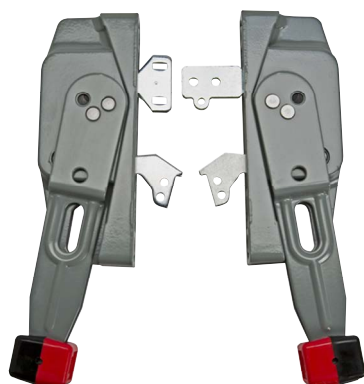
[7] Right hand flange mounting only and requires a special enclosure.

[8] Variable in increments of 0.63 inches.

[9] Space saving design—Type J fuses mounted on the non-fused bracket.



Type A1



Handle Mechanisms

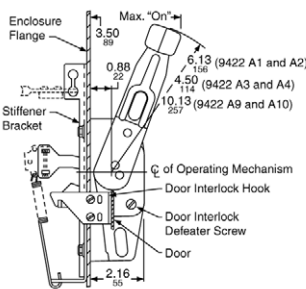
NOTE: Type 9422A1Y is a 6-in. yellow base with gray handle and red knob.



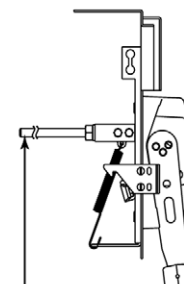
Handle Mechanisms

## Handle Information for 9422 Disconnect Switches

The Handle Mechanism Kit contains all parts needed to mount the handle to the flange of the enclosure. Two flange mounting methods are offered. For right or left hand flange mounting use Types A1–A4 and Types A9–A10 kits. For right-hand mounting only, use Type A5–A8 handles. The type AP1 and AP2 handles are used exclusively on the PowerPact™ M and P operating mechanisms, 9422 RM1 and 9422 CMP. The dimensions are identical to 9422 A1.



9422 A1, A2, A3, A4, A9, and A10 Handles



Rod used only on the variable-depth mechanism

## Handle Mechanisms

These handle mechanism kits are used with the circuit breaker variable depth and cable operating mechanisms. The kits contain all parts necessary for mounting the handle to the flange of the enclosure. Types A1–A4, A1Y, and AP1 are suitable for right or left-hand flange mounting.

**Table 8.77: 9422 Disconnect Switch and Circuit Breaker Handle Mechanisms**

| Handle Depth (in.) | NEMA Type 1, 3, 3R, 4, 12 Enclosures | NEMA Type 4, 4X Stainless Steel Enclosures |
|--------------------|--------------------------------------|--------------------------------------------|
|                    | Cat. No.                             | Cat. No.                                   |
| 4 [10]             | 9422A3                               | 9422A4                                     |
| 6 [10]             | 9422A1                               | 9422A2                                     |
|                    | 9422A1Y [11]                         |                                            |
| 6 [12]             | 9422AP1                              | 9422AP2                                    |
| 10 [13]            | 9422A9                               | 9422A10                                    |
| 10                 | 9422AP9                              | 9422AP10                                   |
| 12 [14] [15]       | 9422A7                               | 9422A8                                     |

NOTE: See [Handle Information](#), page 8-34 for dimensional information.

## Accessories

### Class R Fuse Kits

When installed, this kit rejects all fuses except Class R. The kits are available for field installation. With rejection kit and Class R fuses installed, the switch is UL component recognized for use on systems with fault current up to 200,000 RMS symmetrical amperes.

**Table 8.78: Class R Fuse Kits**

| Disconnect Switch Type | Switch Type | Fuse Clip Rating |       | Class R Kit Cat No. |
|------------------------|-------------|------------------|-------|---------------------|
|                        |             | 250 V            | 600 V |                     |
| 30 A                   | TCF30       | 30               | —     | RFK03               |
|                        | TCF33       | 60               | 30    | RFK06               |
| 60 A                   | TDF60       | 60               | 30    | RFK06               |
|                        | TDF63       | —                | 60    | RFK06H              |
| 100 A                  | TEF10       | 100              | 100   | RFK10               |
| 200 A                  | TF2         | 200              | 200   | 9999SR4             |
|                        | TF3         | 200              | 200   | 9999SR4             |
| 400 A                  | TG2         | 400              | 400   | 9999SR5             |

[10] Use with 30–200 A, 9422 switches and all circuit breaker mechanisms.

[11] Yellow base with gray handle and red knob.

[12] Use only with 9422RM1, 9422CMP, and PowerPact M and P operating mechanisms.

[13] Use with Type D2 remote or dual adapter kit.

[14] Use only with 400 A, 9422TG1 and 9422TG2 disconnect switch.

[15] Adjustable depth.

## Electrical Interlocks for Disconnect Switches

Table 8.79: Electrical Interlocks

| Disconnect Switch Size | Switch Type                        | Electrical Interlocks |
|------------------------|------------------------------------|-----------------------|
|                        |                                    | Cat. No.              |
| 30 A<br>60 A<br>100 A  | TCF, TCN, TDF, TDN,<br>TEF, TEN    | 9999TC10 [16]         |
|                        |                                    | 9999TC20 [17]         |
|                        | BTCF, BTCN, BTDF, BTDN, BTEF, BTEN | 9999TC11 [16]         |
|                        |                                    | 9999TC21 [17]         |
| 200 A                  | TF, ATF                            | 9999R8 [16]           |
|                        | TF, ATF                            | 9999R9 [17]           |
| 400 A                  | TG                                 | 9999R35 [16]          |
|                        | TG                                 | 9999R36 [17]          |

## Internal Barrier Kits

Provides an additional barrier that helps prevent accidental contact with live parts. Field-installed transparent barriers do not restrict visual inspection of the switch. Barriers provide IEC529 IP2X “finger safe” protection when door of enclosed disconnect switch is open. A convenient door allows use of test probes without accessing fuses and replacement of fuses without removing barrier. Barrier must be used with the skirt kit to enclose a panel mounted 9422 disconnect.

Table 8.80: Internal Barrier Kits

| Disconnect Switch Size | Barrier  | Skirt    |
|------------------------|----------|----------|
|                        | Cat. No. | Cat. No. |
| 30 A                   | SS06     | SS0306SK |
| 60 A                   | SS06     | SS0306SK |
| 100 A                  | SS10     | SS10SK   |



## Cable Operators for 9422 Disconnect Switches

Table 8.81: Cable Operators for 9422 Disconnect Switches

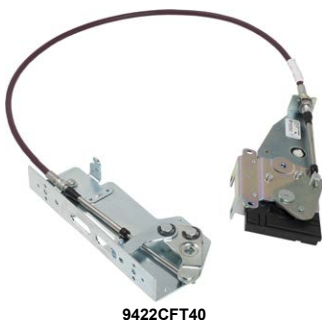
| Switch Type                                                          | Cable Mechanisms [18] |           | Cable Mechanisms with A1 Handle for NEMA Type 1, 3, 3R, 4, and 12 Enclosures |
|----------------------------------------------------------------------|-----------------------|-----------|------------------------------------------------------------------------------|
|                                                                      | Cable Length (in.)    | Cat. No.  | Cat. No.                                                                     |
| TCN30C, TCF30C, TCF33C,<br>TDN60C, TDF60C, TDF63C,<br>TEN10C, TEF10C | 36                    | 9422CFT30 | 9422CFT31                                                                    |
|                                                                      | 48                    | 9422CFT40 | —                                                                            |
|                                                                      | 60                    | 9422CFT50 | 9422CFT51                                                                    |
|                                                                      | 120                   | 9422CFT10 | 9422CFT11                                                                    |

Table 8.82: Class 9422 Replacement / Retrofit Fuse Clip Kits

| Disconnect Switch Size | Switch Type             | Fuse Type  | Fuse Clip Rating (A) |       | Line and Load Fuse Clip Kit (includes load base and fuse pullers) |
|------------------------|-------------------------|------------|----------------------|-------|-------------------------------------------------------------------|
|                        |                         |            | 250 V                | 600 V | Cat. No.                                                          |
| 30 A                   | TCF30<br>TCN30<br>TCF33 | H, K, J, R | 30                   | —     | 9422TC30                                                          |
|                        |                         |            | 60                   | 30    | 9422TC33                                                          |
| 60 A                   | TDN60                   | H, K, J, R | 60                   | 30    | 9422TC33                                                          |
|                        |                         |            | —                    | 60    | 9422TD63                                                          |

Table 8.83: Lug Data

| Disconnect Switch Size | Wire Size (Min.–Max.) |                   | Lug Kits, Cu | Lug Kits, Al |
|------------------------|-----------------------|-------------------|--------------|--------------|
|                        | Cu                    | Al                | Cat. No.     | Cat. No.     |
| 30–60 A                | 14–2 AWG              | 10–2 AWG          | CL0306F      | AL0306F      |
| 100 A                  | 10–0 AWG              | 6–0 AWG           | CL10F        | AL10F        |
| 200 A                  | 6 AWG – 600 kcmil     | 6 AWG – 600 kcmil | —            | —            |
| 400 A                  | 4 AWG – 500 kcmil     | —                 | —            | —            |



9422CFT40

[16] 1 N.C. or N.O. Contact depending on wiring.  
[17] 2 N.C. or N.O. or 1 N.O. or 1 N.C. Contact depending on wiring.  
[18] Purchase handle mechanism separately (9422A1, A2, A3, or A4).

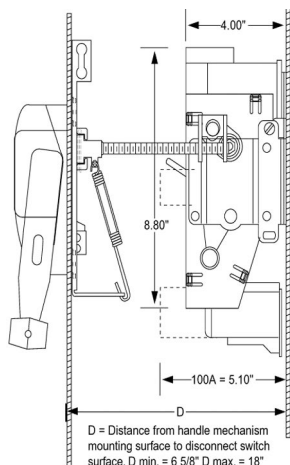
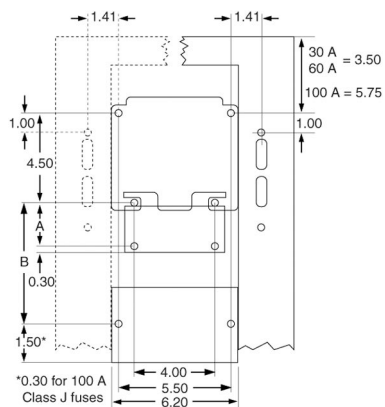


Table 8.84: Dimensions 30, 60, and 100 A Class 9422 Disconnect Switches

| Switch Type | Maximum Voltage | Fuse Type | Dimension A | Dimension B |
|-------------|-----------------|-----------|-------------|-------------|
| 30 A        | 30 A, 250 V     | H, K, R   | 1.625       | —           |
|             | 30 A, 600 V     | H, K, R   | 4.25        |             |
|             | 30 A, 600 V     | J         | 1.625       |             |
| 60 A        | 60 A, 250 V     | H, K, R   | 2.25        | —           |
|             | 60 A, 600 V     | H, K, R   | 4.75        |             |
|             | 60 A, 600 V     | J         | 1.625       |             |
| 100 A       | 100 A, 250 V    | H, K, R   | —           | 3.25        |
|             | 100 A, 600 V    | H, K, R   |             | 5.25        |
|             | 100 A, 600 V    | J         |             | 3.25        |

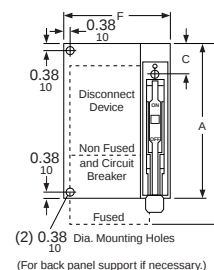
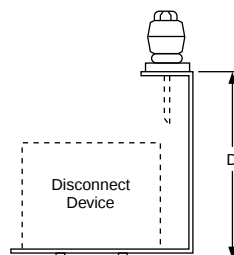


Table 8.85: Dimensions

| Type                | A<br>in. (mm) | C<br>in. (mm) | D<br>in. (mm) | Min. Enclosure<br>Depth [19]<br>in. (mm) | E<br>in. (mm)<br>Fusible<br>Device | F<br>in. (mm) |
|---------------------|---------------|---------------|---------------|------------------------------------------|------------------------------------|---------------|
| BTCN, BTDN,<br>BTEN | —             | —             | 6.56 (167)    | 8.00 (203)                               | —                                  | —             |
| BTCF, BTDF, BTEF    | 9.50 (241)    | 1.88 (48)     | 8.56 (217)    | 10.00 (254)                              | 11.88 (302)                        | 6.38 (162)    |
| TFB1                | 11.50 (292)   | 3.88 (99)     | 9.50 (241)    | 12.00 (305)                              | —                                  | 13.19 (335)   |

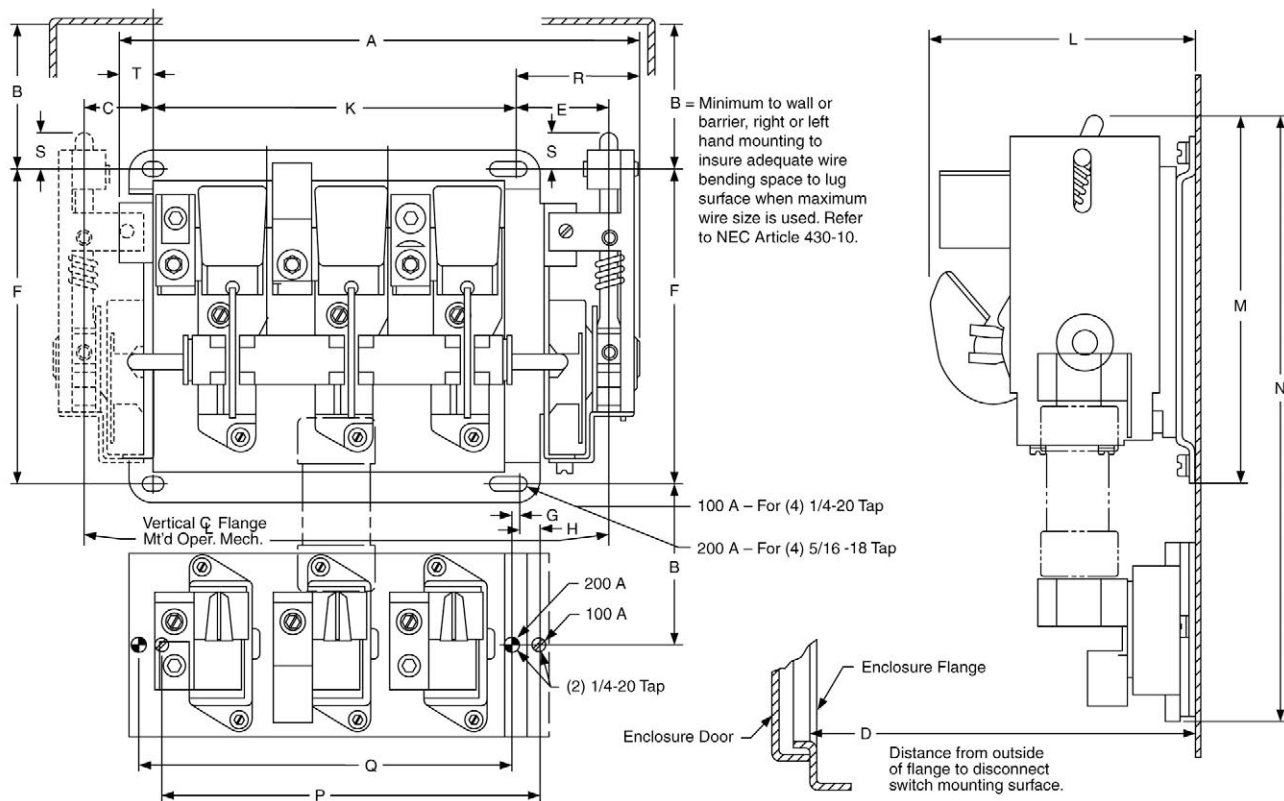
**NOTE:** Back panel support is recommended for Types TFB1, 2, & 3. Other devices may also require support if the flange is not sufficiently rigid.

[19] The minimum enclosure depth is greater than Dimension D since additional space is needed when mounting the mechanism.

## Dimensions

**Table 8.86: Dimensions (in. / mm) for 200 A Type TF Disconnect Switches**

| Type | Switch Size<br>(A) | Fuse Clips                   | A            | B           | C          | D [20]                | E          | F           | G         | H | J           | K           | L           | M           | N            | P | Q           | R          | S          | T          |
|------|--------------------|------------------------------|--------------|-------------|------------|-----------------------|------------|-------------|-----------|---|-------------|-------------|-------------|-------------|--------------|---|-------------|------------|------------|------------|
| TF1  | 200                | None                         | 13.33<br>339 | 9.38<br>238 | 1.64<br>42 | 9.12-19.25<br>232-489 | 2.33<br>59 | 8.00<br>203 | —         | — | —           | 9.44<br>240 | 6.50<br>165 | 9.53<br>242 | —            | — | —           | 3.14<br>80 | 1.03<br>26 | 0.75<br>19 |
| TF2  | 200                | Class J<br>200 A 600 V       | 13.33<br>339 | 9.38<br>238 | 1.64<br>42 | 9.12-19.25<br>232-489 | 2.33<br>59 | 8.00<br>203 | 0.09<br>3 | — | 2.77<br>70  | 9.44<br>240 | 6.50<br>165 | —           | 14.11<br>358 | — | 9.63<br>245 | 3.14<br>80 | 1.03<br>26 | 0.75<br>19 |
| TF2  | 200                | Class H, K, R<br>200 A 250 V | 13.33<br>339 | 9.38<br>238 | 1.64<br>42 | 9.12-19.25<br>232-489 | 2.33<br>59 | 8.00<br>203 | 0.09<br>3 | — | 4.14<br>105 | 9.44<br>240 | 6.50<br>165 | —           | 15.48<br>393 | — | 9.63<br>245 | 3.14<br>80 | 1.03<br>26 | 0.75<br>19 |
| TF2  | 200                | Class H, K, R<br>200 A 600 V | 13.33<br>339 | 9.38<br>238 | 1.64<br>42 | 9.12-19.25<br>232-489 | 2.33<br>59 | 8.00<br>203 | 0.09<br>3 | — | 6.64<br>169 | 9.44<br>240 | 6.50<br>165 | —           | 17.98<br>457 | — | 9.63<br>245 | 3.14<br>80 | 1.03<br>26 | 0.75<br>19 |
| TF3  | 200                | Class J<br>400 A 600 V       | 13.33<br>339 | 9.38<br>238 | 1.64<br>42 | 9.12-19.25<br>232-489 | 2.33<br>59 | 8.00<br>203 | 0.09<br>3 | — | 2.77<br>70  | 9.44<br>240 | 6.50<br>165 | 9.53<br>242 | 18.53<br>471 | — | 9.63<br>245 | 3.14<br>80 | 1.03<br>26 | 0.75<br>19 |



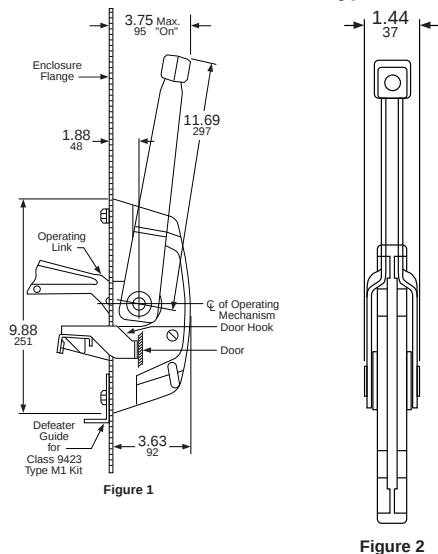
[20] The dimensions shown may be extended 7 in. by using 9422R2 (two required per switch).

## Disconnect Switches—400 A Type TG

Outline Dimensions and General Location

400 A Disconnect Switches Nonfusible and Non-Interchangeable Fuse Clip Type Fusible Switches

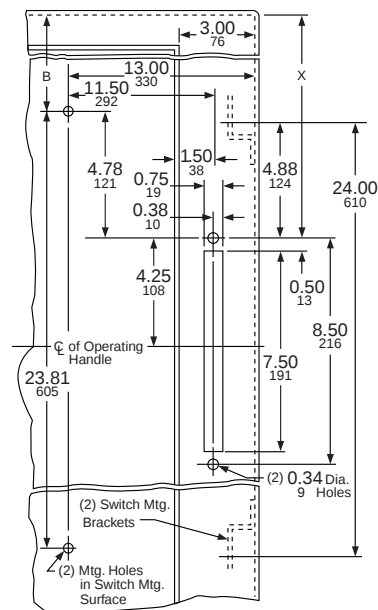
**Table 8.87: Handle Mechanism—Type A7 and A8**



**NOTE:** Commercially available enclosures may not accept type TG operating mechanisms. Contact the enclosure manufacturer for availability of enclosures for use with these switches.

| Switch Type | B            | X            |
|-------------|--------------|--------------|
| TG1, 2      | 11.28<br>286 | 16.06<br>408 |

**NOTE:** B and X = Minimum to wall or barrier to ensure adequate wire bending space to lug surface when maximum wire size is used. Refer to NEC Article 430.10.



**Table 8.88: Nonfusible and Fusible Switches**

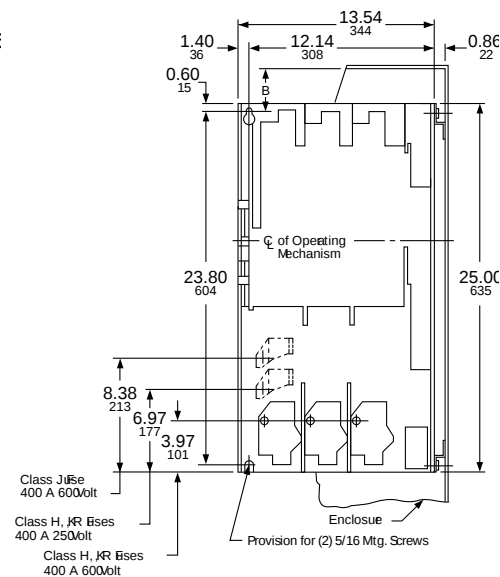
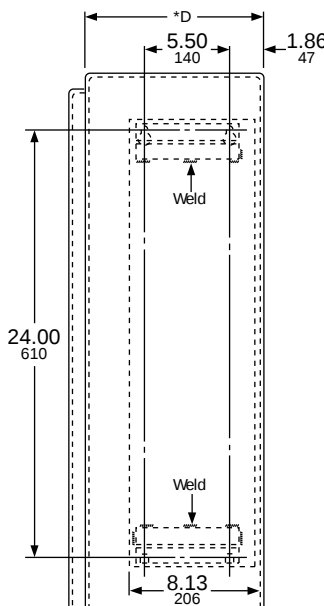
Dimension D = Distance from outside of flange to disconnect switch mounting surface.

For Type TG1 or TG2 with:

| Type A7 or A8 adjustable depth handle mechanism | D = | 15.87<br>403 | to | 19<br>483 |
|-------------------------------------------------|-----|--------------|----|-----------|
| In steps of                                     |     | 0.63<br>16   |    |           |

**NOTE:** Copper lugs are standard on all Type TG disconnect switches.

\* D = Mounting depth measured from the switch mounting surface to the surface of flange.



Dim. =  $\frac{\text{in.}}{\text{mm}}$



**9421 Type L**  
Circuit Breaker Operating Mechanism

## Type L Circuit Breaker Mechanisms

Type L door-mounted, variable depth operating mechanisms feature heavy duty, all metal construction with trip indication. All mechanisms can be padlocked in the Off position when the enclosure door is open. Further, the handle assemblies can be locked Off with up to three padlocks, which also locks the enclosure when the door is closed. (The 3 in. handle accepts one padlock.) Complete kits are rated for NEMA 1, 3R, and 12 enclosures. They include a handle assembly, operating mechanism, and shaft assembly.

**Table 8.89: Complete Kits**

| Complete Kit Does Not Include Circuit Breaker |              |                | Includes Operating Mechanism and Handle |                    |                |                    |                                                                        |                    |
|-----------------------------------------------|--------------|----------------|-----------------------------------------|--------------------|----------------|--------------------|------------------------------------------------------------------------|--------------------|
| Use With                                      |              |                | Standard 6 in. Handle                   |                    |                |                    | Short 3 in. Handle                                                     |                    |
|                                               |              |                | Standard Shaft Kit                      |                    | Long Shaft Kit |                    | Long Shaft Kit                                                         |                    |
| Circuit Breaker or Interrupter Type           | No. of Poles | Frame Size (A) | Cat. No.                                | Mounting Depth [1] | Cat. No.       | Mounting Depth [1] | Cat. No.                                                               | Mounting Depth [1] |
| PowerPact™ B                                  | 2–3          | 125            | 9421LB1                                 | 5.50–10.75         | 9421LB4        | 5.50–21.38         | 9421LB3                                                                | 5.50–21.38         |
| PowerPact H and J                             | 2–3          | 250            | 9421LJ1                                 | 5.50–10.75         | 9421LJ4        | 5.50–21.38         | 9421LJ3                                                                | 5.50–21.38         |
| PowerPact L                                   | 2–3          | 600            | 9421LD1                                 | 7.25–12.06         | 9421LD4        | 7.25–22.63         | 3 in. handles are not recommended for use with these circuit breakers. |                    |
| PowerPact M and P [2]                         | 3            | 1200           | 9421LW1 [3]                             | 9.00–12.50         | 9421LW4 [3]    | 9.00–23.50         |                                                                        |                    |

**Table 8.90: Component Parts**

| Use With                            |              |                 | 3 in. Handle Assemblies<br>NEMA 1, 3R, 12 | Standard Handle Assemblies<br>NEMA 1, 3R, 12 | Operating Mechanism<br>Includes Lockout | Standard Shaft<br>(Support Bracket Not Required) |          | Long Shaft<br>(Support Bracket Required) |          |
|-------------------------------------|--------------|-----------------|-------------------------------------------|----------------------------------------------|-----------------------------------------|--------------------------------------------------|----------|------------------------------------------|----------|
| Circuit Breaker or Interrupter Type | No. of Poles | Frame Size (A)  | Cat. No.                                  | Cat. No.                                     | Cat. No.                                | Mounting Depth [1]                               | Cat. No. | Mounting Depth [1]                       | Cat. No. |
| PowerPact B                         | 2–3          | 125             | 9421LH3 [4]                               | 9421LH6 [4]                                  | 9421LB7                                 | 5.50–10.75                                       | 9421LS8  | 5.50–21.38                               | 9421LS13 |
| PowerPact H & J                     | 2–3          | 250             | 9421LH3 [4]                               | 9421LH6 [4]                                  | 9421LJ7                                 | 5.50–10.25                                       | 9421LS8  | 5.50–21.38                               | 9421LS13 |
| PowerPact D & L                     | 2–3          | 600             | [5]                                       | 9421LH6 [4]                                  | 9421LD7                                 | 7.25–12.06                                       | 9421LS8  | 7.25–22.63                               | 9421LS13 |
|                                     | 4            | 1200<br>(300 V) | —                                         | 9421LH6 [4]                                  | 9421LD14                                | 7.25–12.06                                       | 9421LS8  | —                                        | —        |
|                                     |              |                 |                                           | 9421LH6 [4]                                  | 9421LD44                                | —                                                | —        | 7.25–22.63                               | 9421LS13 |
| PowerPact M & P [2]                 | 3            | 1200            | [5]                                       | 9421LHP8 [4]                                 | 9421LW7                                 | 7.19–11.63                                       | 9421LS8  | 7.19–22.25                               | 9421LS10 |

**Table 8.91: NEMA 4 and 4X Handle Assemblies**

| Use With                            |              |                | Standard Handle Assemblies     |                                          | Special 3 in. Version                                                  |                                          |
|-------------------------------------|--------------|----------------|--------------------------------|------------------------------------------|------------------------------------------------------------------------|------------------------------------------|
| Circuit Breaker or Interrupter Type | No. of Poles | Frame Size (A) | NEMA 1, 3R, 4, 12<br>(Painted) | NEMA 1, 3R, 4, 4X, 12<br>(Chrome Plated) | NEMA 1, 3R, 4, 12<br>(Painted)                                         | NEMA 1, 3R, 4, 4X, 12<br>(Chrome Plated) |
|                                     |              |                | Cat. No.                       | Cat. No.                                 | Cat. No.                                                               | Cat. No.                                 |
| PowerPact B                         | 2–3          | 125            | 9421LH46                       | 9421LC46                                 | 9421LH43                                                               | 9421LC43                                 |
| PowerPact H and J; NSF              | 2–3          | 250            | 9421LH46                       | 9421LC46                                 | 9421LH43                                                               | 9421LC43                                 |
| PowerPact D and L                   | 2–3          | 600            | 9421LH46                       | 9421LC46                                 | 3 in. handles are not recommended for use with these circuit breakers. |                                          |
| PowerPact M and P                   | 3            | 1200           | 9421LHP48                      | 9421LCP48                                |                                                                        |                                          |

**Table 8.92: Auxiliary and Alarm Switches for PowerPact™ Circuit Breakers**

| Description              | B-Frame | H- and J-Frame | D- and L-Frame | D- and L-Frame |
|--------------------------|---------|----------------|----------------|----------------|
| 1 Auxiliary Switch 1a 1b | LV26950 | S29450         | S29450         | S29450         |
| 2 Auxiliary Switch 2a 2b | —       | 2 x S29450     | 2 x S29450     | 2 x S29450     |
| 3 Auxiliary Switch 3a 3b | —       | —              | 3 x S29450     | 3 x S29450     |

**NOTE:** The location of the accessory in the circuit breaker determines its function.



[1] Mounting depth measured in inches from circuit breaker mounting surface (control panel) to outside of enclosure door.

[2] These circuit breaker operating mechanisms must use the 9421LHP\*\* or LCP\*\* handles only.

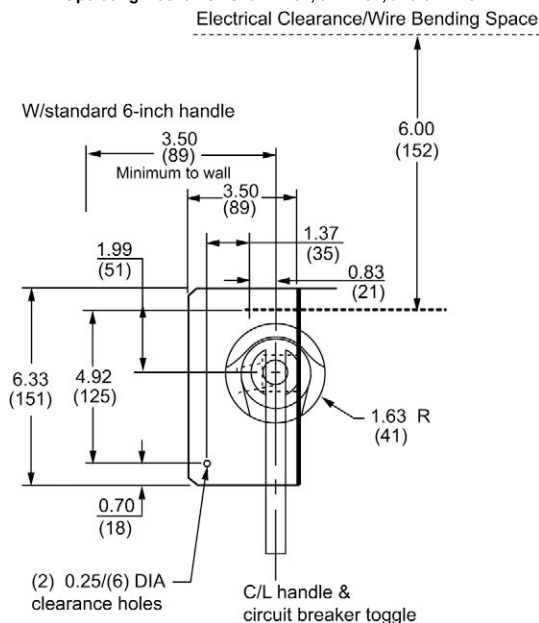
[3] Type LW1 and LW4 include an 8 in. handle (9421LHP8) rather than a 6 in. handle.

[4] For a red handle and yellow bezel, add suffix RY to catalog number, e.g., 9421LH6RY.

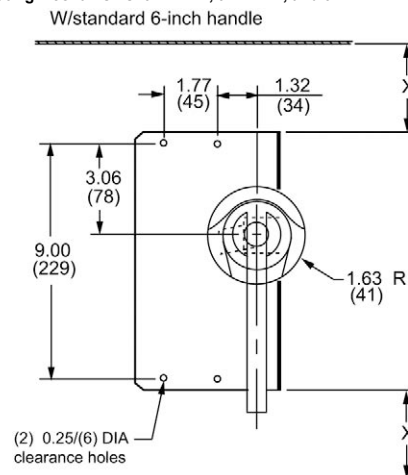
[5] 3 in. handles are not recommended for use with these circuit breakers.

## Dimensions for Type L Operating Mechanisms

Panel Drilling for PowerPact™ H and J Circuit Breaker  
Operating Mechanisms: 9421LJ1, 9421LJ4, and 9421LJ7

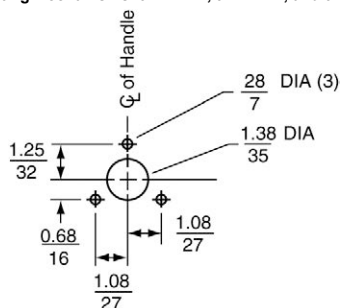


Panel Drilling for PowerPact™ D and L Circuit Breaker  
Operating Mechanisms: 9421LD1, 9421LD4, and 9421LD7



X: Minimum to wall or barrier to insure adequate wire bending space to lug surface when the maximum wire size is used. Refer to NEC 430-10.

Panel Drilling for PowerPact™ M and P Circuit Breaker  
Operating Mechanisms: 9421LW1, 9421LW4, and 9421LW7



Door Drilling Dimensions

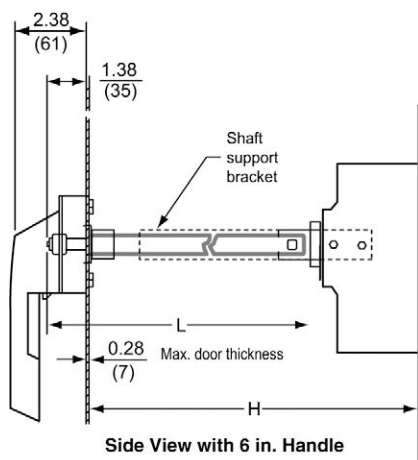
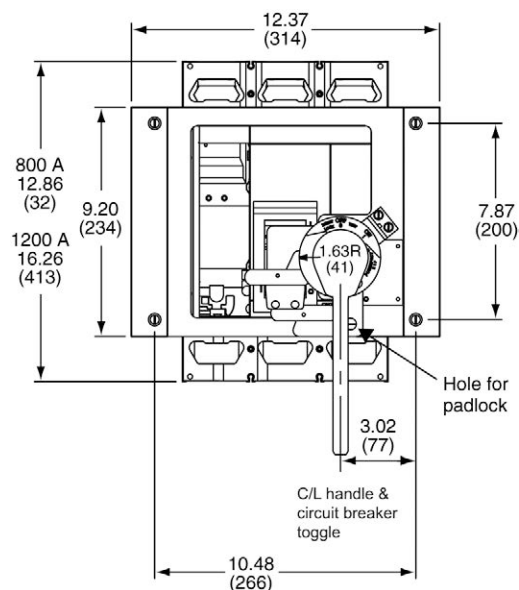
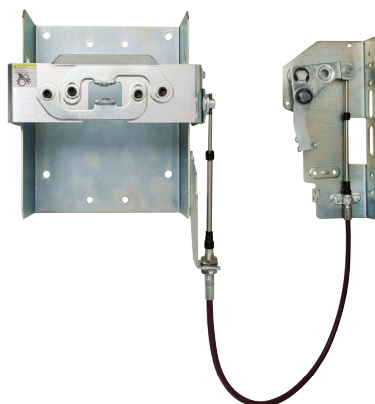


Table 8.93: Shaft Cutting Dimensions

| Class | Type          | Shaft Length Formula | H = Standard Shaft |             | H = Long Shaft |             |
|-------|---------------|----------------------|--------------------|-------------|----------------|-------------|
|       |               |                      | Min.               | Max.        | Min.           | Max.        |
| 9421  | LJ1, LJ4, LJ7 | L = H - 3.00 (76)    | 5.5 (138)          | 10.75 (273) | 5.5 (138)      | 21.63 (543) |
| 9421  | LD1, LD4, LD7 | L = H - 4.25 (108)   | 7.25 (184)         | 12.06 (306) | 7.25 (184)     | 22.63 (575) |
| 9421  | LW1, LW4, LW7 | L = H - 4.89 (124)   | 7.19 (183)         | 11.63 (295) | 7.19 (183)     | 22.25 (565) |



Flexible Cable Mechanism  
9422CSJ30

## Flexible Cable Mechanisms

- For use with Class 9422 handle operators (you must select a 9422A• handle to complete the operating mechanism)
- Specially designed for tall, deep enclosures where placement flexibility is required

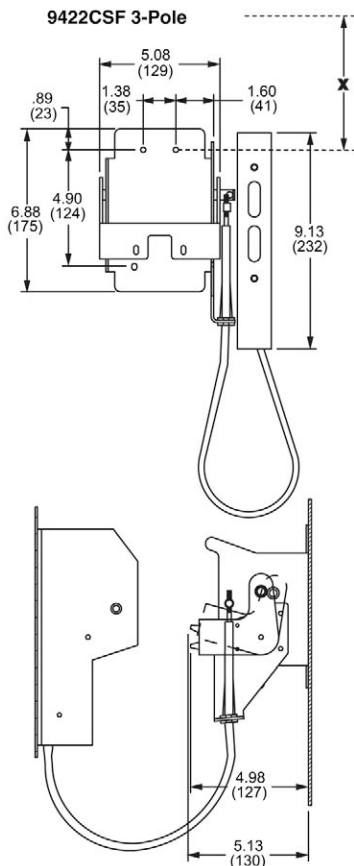
**Table 8.94: Flexible Cable Mechanisms for use with Schneider Electric™ (formerly Merlin Gerin™) Circuit Breakers and PowerPact™ 3-Pole Circuit Breakers**

| Circuit Breaker Type            | No. of Poles | Frame Size (A) | Cable Mechanism |             |
|---------------------------------|--------------|----------------|-----------------|-------------|
|                                 |              |                | Length          | Catalog No. |
| PowerPact B-Frame               | 2–3          | 125            | 36 in.          | 9422CSB30   |
|                                 |              |                | 60 in.          | 9422CSB50   |
|                                 |              |                | 84 in.          | 9422CSB70   |
|                                 |              |                | 120 in.         | 9422CSB10   |
| MG-NSF PowerPact H- and J-Frame | 2–3          | 250            | 36 in.          | 9422CSF30   |
|                                 |              |                | 60 in.          | 9422CSF50   |
|                                 |              |                | 84 in.          | 9422CSF70   |
|                                 |              |                | 120 in.         | 9422CSF10   |
| MG-NSF                          | 4            | 250            | 36 in.          | 9422CSF304  |
|                                 |              |                | 60 in.          | 9422CSF504  |
|                                 |              |                | 120 in.         | 9422CSF104  |
| MG-NSJ PowerPact D- and L-Frame | 3            | 600            | 36 in.          | 9422CSJ30   |
|                                 |              |                | 60 in.          | 9422CSJ50   |
|                                 |              |                | 120 in.         | 9422CSJ10   |
| MG-NSJ PowerPact D- and L-Frame | 4            | 600            | 36 in.          | 9422CSJ304  |
|                                 |              |                | 60 in.          | 9422CSJ504  |
|                                 |              |                | 120 in.         | 9422CSJ104  |
|                                 |              |                | 120 in.         | 9422CSJ104  |
| PowerPact M- and P-Frame [6]    | 3            | 1200           | 48 in.          | 9422CMP40   |
|                                 |              |                | 50 in.          | 9422CMP50   |
|                                 |              |                | 120 in.         | 9422CMP10   |

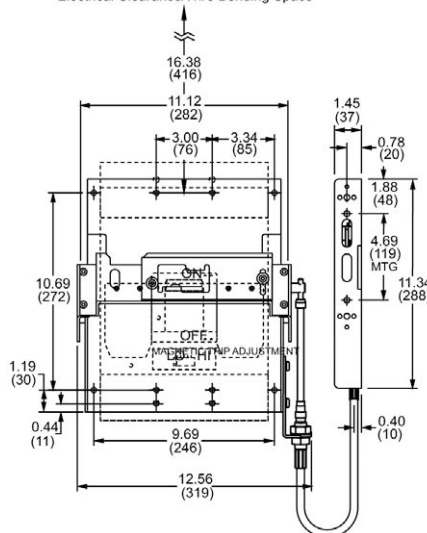
**NOTE:** Refer to NEC Article 430-10 for minimum dimension X from circuit breaker top mounting hole to wall or barrier to ensure adequate wire bending space.

**NOTE:** Bend radius in cable must never be less than 6 inches. Electrical clearances must be maintained between cable and live electrical parts.

### 9422CSF 3-Pole

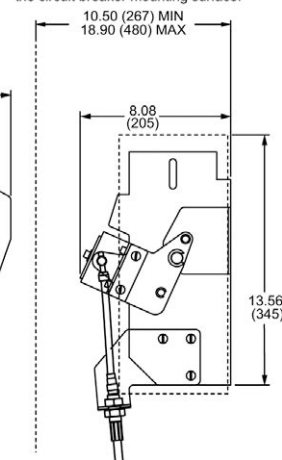


### Electrical Clearance/Wire Bending Space

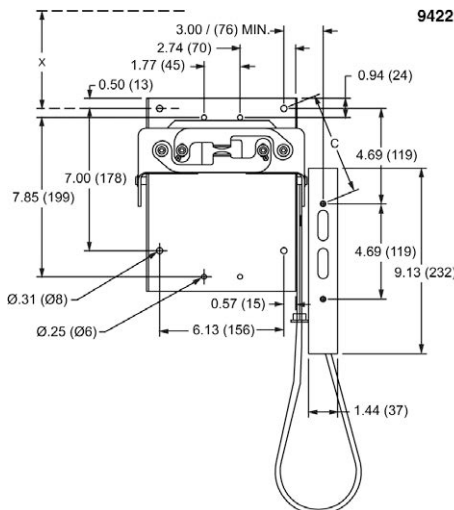


### 9422CMP

Distance from the outside of flange to the circuit breaker mounting surface.



### 9422CSJ 3-Pole



Dimensions: in.  
mm

[6] Must use 9422AP1 or 9422AP2 Handle with this operating mechanism.



9422CSFD33

## Dual Cable Operating Mechanisms for Square D™ Circuit Breakers

Dual Cable Operating Mechanisms are designed for use with Square D brand PowerPact™ B, D, H, J, and L circuit breakers through 600 A frame sizes. The cable mechanisms allow for a single handle operator, Class 9422Ax, to operate both circuit breakers. The cable mechanism is designed especially for tall, deep enclosures where placement flexibility is required. There are numerous cable arrangements to choose from to accommodate many applications.

### Features

- Separate cables for each circuit breaker
- Rugged metal flange handle operator
- Maximized flexibility of circuit breaker placement for existing and new applications
- Control panel can be fed from two separate supply voltages (if required)
- Dual mechanism allows both separate supply voltages to be controlled by a single handle to improve security features

Table 8.95: Dual Cable Operating Mechanisms Selection

| Circuit Breaker Type      | Cable Length<br>in. / mm (quantity)                                | Catalog<br>Number | Frame Size<br>(max.) |
|---------------------------|--------------------------------------------------------------------|-------------------|----------------------|
| PowerPact B               | 120 in. / 3048 mm (2)                                              | 9422CSBD1         | 125 A                |
|                           | 36 in. / 914 mm (1)<br>60 in. / 1524 mm (1)                        | 9422CSBD35        |                      |
|                           | 60 in. / 1524 mm (1-CSF 3 pole)<br>60 in. / 1524 mm (1-CSF 4 pole) | 9422CSBD55        |                      |
|                           | 36 in. / 914 mm (1)<br>120 in. / 3048 mm (1)                       | 9422CSBD31        |                      |
|                           | 36 in. / 914 mm (2)                                                | 9422CSBD33        |                      |
|                           | 60 in. / 1524 mm (1)<br>120 in. / 3048 mm (1)                      | 9422CSBD51        |                      |
| PowerPact H & J<br>MG NSF | 120 in. / 3048 mm (2)                                              | 9422CSFD1         | 250 A                |
|                           | 36 in. / 914 mm (1)<br>60 in. / 1524 mm (1)                        | 9422CSFD35        |                      |
|                           | 60 in. / 1524 mm (1-CSF 3 pole)<br>60 in. / 1524 mm (1-CSF 4 pole) | 9422CSFD345       |                      |
|                           | 36 in. / 914 mm (1)<br>120 in. / 3048 mm (1)                       | 9422CSFD31        |                      |
|                           | 36 in. / 914 mm (2)                                                | 9422CSFD33        |                      |
|                           | 60 in. / 1524 mm (1)<br>120 in. / 3048 mm (1)                      | 9422CSFD51        |                      |
| PowerPact D & L<br>MG NSJ | 60 in. / 1524 mm (2)                                               | 9422CSFD55        | 600 A                |
|                           | 60 in. / 1524 mm (2-CSJ)<br>120 in. / 3048 mm (2-CSJ)              | 9422CSJD50 [7]    |                      |
|                           |                                                                    | 9422CSJD10 [8]    |                      |
|                           | 60 in. / 1524 mm and<br>120 in. / 3048 mm (2-CSJ)                  | 9422CSJD51 [8]    |                      |
|                           | 120 in. / 3048 mm (1-CSF) and<br>120 in. / 3048 mm (1-CSJ)         | 9422CSFJD10       |                      |
|                           | 60 in. / 1524 mm (1-CSF)<br>60 in. / 1524 mm (1-CSJ)               | 9422CSFJD50       |                      |

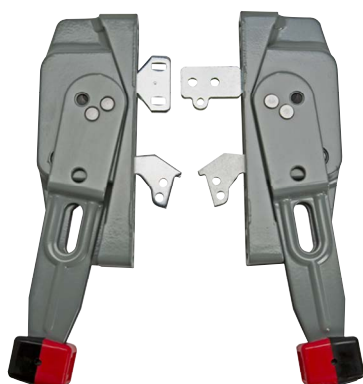
## Handle Mechanisms

These handle mechanism kits are used with the circuit breaker variable depth and cable operating mechanisms. The kits contain all parts necessary for mounting the handle to the flange of the enclosure. Types A1–A4, A1Y, and AP1 are suitable for right or left-hand flange mounting.

Table 8.96: 9422 Disconnect Switch and Circuit Breaker Handle Mechanisms

| Handle Depth (in.) | NEMA Type 1, 3, 3R, 4, 12<br>Enclosures | NEMA Type 4, 4X Stainless<br>Steel Enclosures |
|--------------------|-----------------------------------------|-----------------------------------------------|
|                    | Cat. No.                                | Cat. No.                                      |
| 4 [9]              | 9422A3                                  | 9422A4                                        |
| 6 [9]              | 9422A1                                  | 9422A2                                        |
|                    | 9422A1Y [10]                            |                                               |
| 6 [11]             | 9422AP1                                 | 9422AP2                                       |
| 10 [12]            | 9422A9                                  | 9422A10                                       |
| 10                 | 9422AP9                                 | 9422AP10                                      |
| 12 [13] [14]       | 9422A7                                  | 9422A8                                        |

NOTE: See [Handle Information](#), page 8-34 for dimensional information.



Handle Mechanisms

NOTE: Type 9422A1Y is a 6-in. yellow base with gray handle and red knob.

[7] Must use the 9422AP1 or 9422AP2 operating handle with this operating mechanism.

[8] Must use the 9422AP1 or 9422AP2 operating handle with this operating mechanism.

[9] Use with 30–200 A, 9422 switches and all circuit breaker mechanisms.

[10] Yellow base with gray handle and red knob.

[11] Use only with 9422RM1, 9422CMP, and PowerPact M and P operating mechanisms.

[12] Use with Type D2 remote or dual adapter kit.

[13] Use only with 400 A, 9422TG1 and 9422TG2 disconnect switch.

[14] Adjustable depth.



9422 Type R  
Circuit Breaker Mechanism

### Flange-Mounted, Variable-Depth Operating Mechanisms

Designed for installation in custom built control enclosures where main or branch circuit protective devices are required. All circuit breaker operating mechanisms are suitable for either right- or left-hand flange mounting, convertible on the job.

**NOTE:** The operating mechanisms do not include handle mechanisms. You must select a 9422A• handle to complete the installation.

**Table 8.97: Variable-Depth Operating Mechanisms for Use with Schneider Electric™ Brand Circuit Breakers (Formerly Merlin Gerin™ Brand)**

| Use with                                                                                                 |                 |                    |                                            | Operating Mechanism<br>(Does Not Include Handle<br>Mechanism) |
|----------------------------------------------------------------------------------------------------------|-----------------|--------------------|--------------------------------------------|---------------------------------------------------------------|
| Circuit Breaker Frame Size                                                                               | No. of<br>Poles | Frame<br>Size<br>A | Variable Depth<br>Mtg. Range (in.)<br>[15] | Cat. No.                                                      |
| Schneider Electric (formerly Merlin Gerin) Circuit Breakers and PowerPact™ Frame 3-Pole Circuit Breakers |                 |                    |                                            |                                                               |
| PowerPact B-Frame                                                                                        | 2–3             | 125                | 5.88–17.75                                 | 9422RB1                                                       |
| MG-NSF PowerPact H- and J-Frame                                                                          | 2–3             | 250                | 5.88–17.75                                 | 9422RQ1                                                       |
| MG-NSJ PowerPact D- and L-Frame                                                                          | 3               | 600                | 9.00–17.75                                 | 9422RS1                                                       |
| PowerPact M- and P-Frame [16]                                                                            | 3               | 1200               | 10.50–18.38                                | 9422RM1                                                       |

**Table 8.98: Electrical Interlocks—Class 9999**

| Description               | Cat. No. |
|---------------------------|----------|
| Single Pole, Double Throw | 9999R26  |
| Double Pole, Double Throw | 9999R27  |

[15] Class 9422 Type R2 will extend mounting depth 7 inches—not recommended for use with the 9422RM1 operating mechanism (see Table 8.96).

[16] These circuit breaker operating mechanisms must use the 9422APx handles.

## Dimensions

Minimum to wall or barrier to insure adequate wire bending space to lug surface when the maximum wire size is used with standard lugs. Refer to NEC 430-10.

Dimensions: in.  
mm

