

Specifications

Conditions of Sale

STANDARD: The seller's standard conditions of sale set forth in Price Sheet 150 apply.

SPECIAL TO THIS PRODUCT:

INCLUSIONS: Switches do not include connectors. Various connectors are available as listed in Table 1 on page 2. Specify quantity and catalog number of connectors desired.

SPECIFICATION NOTES: Regulator Bypass Switches are station-type devices used to bypass and isolate voltage regulators (or other devices, such as current transformers of primary metering equipment) for maintenance shut-downs. These switches feature an interrupter for breaking the magnetizing current of the regulator.

Type XL Regulator Bypass Switches provide built-in mechanical interlocking, sequencing, and synchronization as follows:

During the opening stroke, the bypass blade closes first, bypassing the voltage regulator to prevent interruption of service. Next, the disconnect blade opens the regulator series winding. Finally, the interrupter blade opens, interruption of shunt-winding magnetizing current takes place within the interrupter, and the regulator is isolated from the line.

Conversely, during the closing stroke (to restore the regulator to service), the switching sequence described in this document is reversed automatically, connecting the voltage regulator without service interruption.

Type NL Regulator Bypass Switches perform the same functions as the Type XL Regulator Bypass Switches except the operator manually executes the sequencing operation. Type NL Regulator Bypass Switches are used in applications where a 1200-ampere continuous rating is required or where the voltage regulator must be bypassed with the shunt winding energized (bypass blade closed, disconnect blade open) so mechanical and electrical testing can be carried out.

SPECIFICATION DEVIATIONS: Regulator Bypass Switches are offered with a choice of Cypoxy Insulator™ or a porcelain station post insulator. The standard insulator color is gray. When switches are to be provided with special insulators or special connectors, consult the nearest S&C Sales Office for availability.

Refer to Table 4 on page 3.

★ Regulator Bypass Switches are manufactured in accordance with a quality system certified to ISO 9001. Type XL Regulator Bypass Switches are Rural Utilities Service approved.



Regulator Bypass Switches

How to Order

Complete these steps to identify the base catalog number, optional features, and connectors needed for a complete order:

STEP 1. Obtain the catalog number of the desired switch from Tables 2 and 3 on page 3.

Catalog Number:

STEP 2. Add suffix designations to the catalog number indicating the optional features desired, selected from Table 4 on page 3.

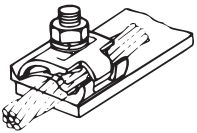
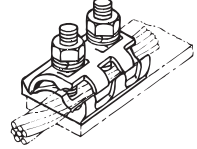
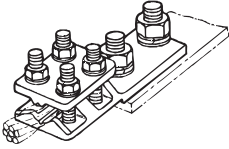
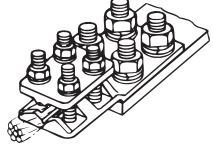
Suffix:

Example: The catalog number for a 25-kV Type XL Regulator Bypass Switch with Cypoxy Insulators of the next-higher voltage rating and provisions for pole-mounting is:

Catalog Number:

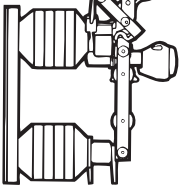
Note: Replacement parts can be ordered using the same method outlined above.

Table 1. Connectors

| Illustration | Description | Accommodating Conductor | For Type XL Regulator Bypass Switches ^① | For Type NL Regulator Bypass Switches ^① |
|---|--|---|--|--|
| | | | Catalog Number | Catalog Number |
|  | Bronze body, tin plated. Includes one 1/2-inch-13 × 2 1/2-inch galvanized steel bolt | No. 2 solid (33.6 mm ²) through 500 kc mil (335 mm ²) stranded copper or aluminum | 4740R1 | — |
|  | Aluminum-alloy body, tin plated. Includes two 1/2-inch-13 × 2 3/4-inch galvanized steel bolts | No. 2 solid (33.6 mm ²) through 500 kc mil (335 mm ²) stranded copper or aluminum | 4741R2 | — |
| For Type XL Regulator Bypass Switches or  | Standard bronze pad-terminal, four-bolt, tin plated. Includes two 1/2-inch-13 × 1 1/2-inch galvanized steel bolts for attachment to terminal pads of regulator bypass switches | No. 6 solid (13.3 mm ²) through 250 kc mil (168 mm ²) copper or aluminum | 4564R1-B | — |
| | | 1/0 solid (53.5 mm ²) through 500 kc mil (335 mm ²) copper or aluminum | 4565R1-B | — |
| For Type NL Regulator Bypass Switches  | | 2/0 stranded (89 mm ²) through 800 kc mil (539 mm ²) copper or aluminum | 4567R1-B | 4568R1-C |
| | 4/0 stranded (141 mm ²) through 1000 kc mil (673 mm ²) copper or aluminum | — | 4569R1-C | |

^① Four connectors are required per single-pole regulator bypass switch.

Table 2. Type XL Switches (Sequenced)—Less Connectors^①

| Style | Rating | | | | | Cypoxy Station Post Insulators | Porcelain Station Post Insulators | Page Reference for Dimensional Information |
|--|------------|------------|------------|--------------|---------------------------|--------------------------------|-----------------------------------|--|
| | kV | | | Amperes, RMS | | Catalog Number | Catalog Number | |
| | Nom. | Max | BIL | Cont. | Mom. (Asym.) ^② | | | |
| Outdoor single-pole  | 14.4 25 | 17.0 27 | 110 150 | 600 600 | 30 000 30 000 | 333412R7-E 333413R1-E | 333412R7 333413R1 | 4 |

^① For available connectors, refer to Table 1 on page 2.

^② Three-second rating: 18,500 amperes, RMS, symmetrical.

Table 3. Type NL Switches (Nonsequenced)—Less Connectors^①

| Style | Mounting Position | Rating | | | | | Cypoxy Station Post Insulators | Porcelain Station Post Insulators | Page Reference for Dimensional Information |
|---------------------|-------------------|--------|------|-----|--------------|---------------------------|--------------------------------|-----------------------------------|--|
| | | kV | | | Amperes, RMS | | Catalog Number | Catalog Number | |
| | | Nom. | Max | BIL | Cont. | Mom. (Asym.) ^② | | | |
| Outdoor single-pole | Vertical | 14.4 | 17.0 | 110 | 1200 | 61 000 | 333602-E | 333602 | 5 |
| | | 25 | 27 | 150 | 1200 | 61 000 | 333603-E | 333603 | |

^① For available connectors, refer to Table 1 on page 2.

^② Three-second rating: 40,000 amperes, RMS, symmetrical.

Table 4. Optional Features

| Item | Suffix to be Added to Switch Catalog Number |
|---|---|
| Regulator Bypass Switch furnished with insulators of the next-higher voltage rating | 14.4 kV → 25 kV |
| | 25 kV → 34.5 kV |
| Tin-plated terminal pads | -Z5 |
| Provisions for pole-mounting Type XL Regulator Bypass Switch | -H |

Table 5. Parts^①

| Item | For Use on Switches Rated, kV, Nom. | Catalog Number |
|--|-------------------------------------|----------------|
| Spare or replacement interrupter for Type XL Regulator Bypass Switches | 4.16 7.2 | 4551R2● |
| | 13.8 14.4 25 | 4552R4● |
| | 14.4 25 | SA-35480R2■ |

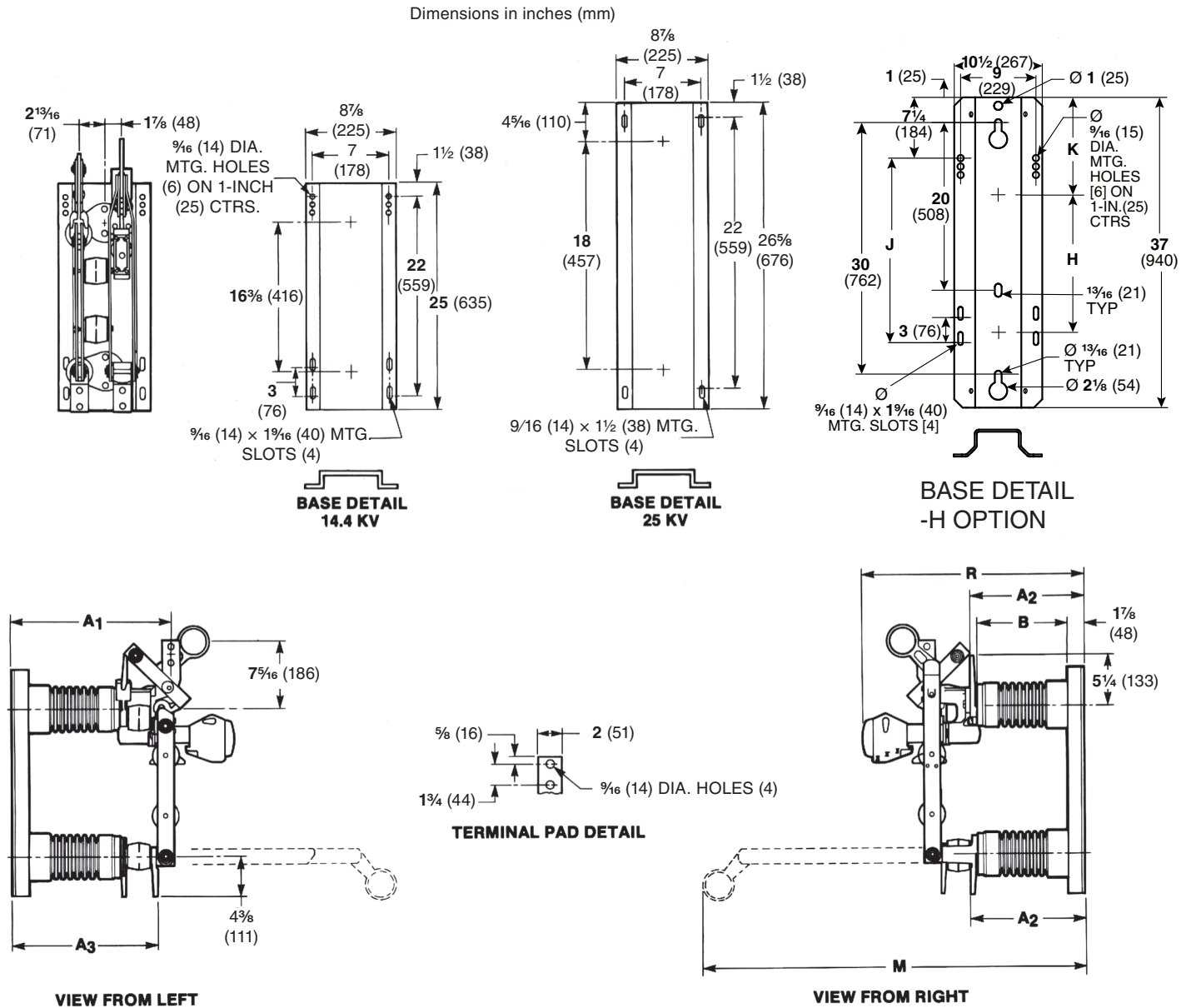
^① For available connectors, refer to Table 1 on page 2.

● These are four-bolt units. Mounting bolts are included.

■ Previous designs of these regulator bypass switches (all those shipped before August 1972) require catalog number 4552R4 interrupters.

Regulator Bypass Switches

Type XL (Sequenced), Single-Pole Style

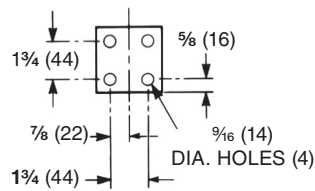
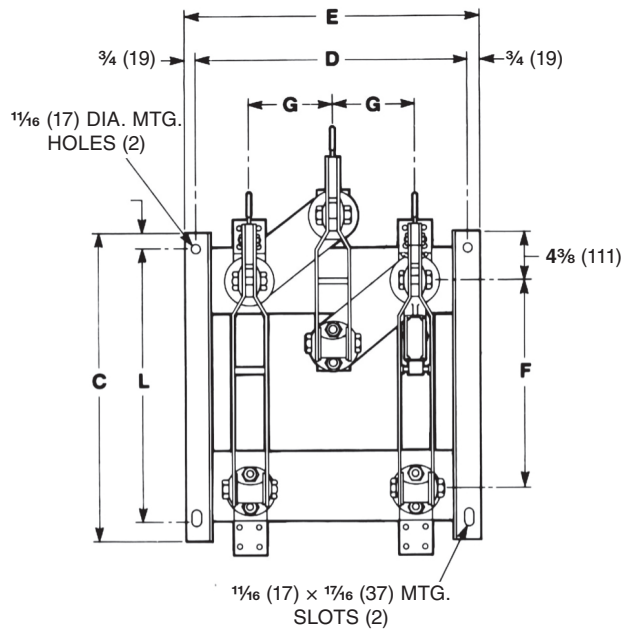


| Rating | | | | | Catalog Number | | Dimensions in Inches (to nearest 1/8-inch) | | | | | | | | Net Wt., Lbs. (kg) | | |
|--------|------|--------------|-------|-------------------|--------------------------------|-----------------------------------|--|---|-------------|-------------|---|-------------|---|--|---|--------------------------------|-----------------------------------|
| kV | | Amperes, RMS | | | Cypoxy Station Post Insulators | Porcelain Station Post Insulators | A1 | A2 | A3 | B | H | J | K | M | R | Cypoxy Station Post Insulators | Porcelain Station Post Insulators |
| Nom. | Max | BIL | Cont. | Mom. ^① | | | | | | | | | | | | | |
| 14.4 | 17.0 | 110 | 600 | 30 000 | 333412R7-E | 333412R7 | 17 ⁵ / ₈ (448) | 12 ⁵ / ₈ (321) | 16 (406) | 10 (254) | 16 ³ / ₈ (416) | 22 (559) | 11 ⁵ / ₈ (295) | 42 ³ / ₈ (1076) | 24 ³ / ₈ (619) | 93 (42) | 107 (49) |
| 25 | 27 | 150 | 600 | 30 000 | 333413R1-E | 333413R1 | 21 ⁵ / ₈ (549) | 16 ⁵ / ₈ (422) | 20 (508) | 14 (356) | 18 (457) | 23 (584) | 10 (254) | 46 ¹ / ₂ (1181) | 28 ³ / ₈ (721) | 98 (44) | 125 (57) |

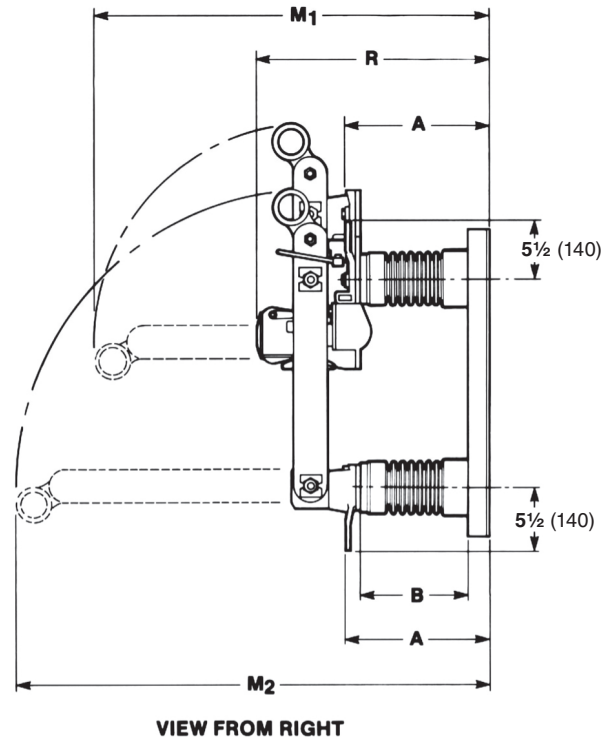
① Three-second rating: 18,500 amperes, RMS, symmetrical.

Type NL (Nonsequenced), Single-Pole Style

Dimensions in inches (mm)



TERMINAL PAD DETAIL



VIEW FROM RIGHT

| Rating | | | | | Catalog Number | Catalog Number | Dimensions in Inches (to nearest $\frac{1}{8}$ -inch) | | | | | | | | | | | Net Wt., Lbs. (kg) | |
|--------|------|--------------|-------|-------------------|--------------------------------|-----------------------------------|---|-------------|---------------------------|---------------------------|-------------|---------------------------|------------|---------------------------|---------------------------|----------------------------|---------------------------|--------------------------------|-----------------------------------|
| kV | | Amperes, RMS | | | Cypoxy Station Post Insulators | Porcelain Station Post Insulators | A | B | C | D | E | F | G | L | M1 | M2 | R | Cypoxy Station Post Insulators | Porcelain Station Post Insulators |
| Nom. | Max | BIL | Cont. | Mom. ^① | | | | | | | | | | | | | | | |
| 14.4 | 17.0 | 110 | 1200 | 61 000 | 333602-E | 333602 | 13 $\frac{1}{2}$ (343) | 10 (254) | 28 (711) | 25 $\frac{1}{2}$ (648) | 27 (686) | 19 $\frac{1}{2}$ (495) | 8 (203) | 25 (635) | 34 $\frac{3}{4}$ (883) | 42 $\frac{1}{8}$ (1070) | 23 $\frac{1}{2}$ (597) | 189 (86) | 217 (98) |
| 25 | 27 | 150 | 1200 | 61 000 | 333603-E | 333603 | 17 $\frac{1}{2}$ (445) | 14 (356) | 30 $\frac{1}{4}$ (768) | 27 $\frac{1}{2}$ (699) | 29 (737) | 21 $\frac{5}{8}$ (549) | 9 (229) | 27 $\frac{1}{4}$ (692) | 38 $\frac{3}{4}$ (984) | 48 $\frac{1}{8}$ (1222) | 28 $\frac{3}{8}$ (721) | 216 (98) | 270 (122) |

① Three-second rating: 40,000 amperes, RMS, symmetrical.