MANUAL PME PAD-MOUNTED GEAR

AIR-INSULATED, DEAD-FRONT, OUTDOOR DISTRIBUTION AT 14.4 KV AND 25 KV

S&C's PME Pad-Mounted Gear is a dead-front, air-insulated underground distribution switchgear that provides safety and reliability upgrades at a lesser cost than any other type of switchgear.

Contents

Why Choose PME Gear?

With changing environments, outage tolerances, and the increased need for safety, utilities seek a more dynamic, robust, air-insulated pad-mounted gear solution. S&C's PME Pad-Mounted Gear offers the cost benefits of air-insulated gear while providing superior performance, long service life, and ease of operation.

Because the PME gear has no exposed energized parts, line crews are shielded from potentially harmful voltage. With completely encased medium-voltage components, the PME gear is not susceptible to wildlife, foliage, and environmental contaminants that can cause outages and cost money.

S&C Manual PME Pad-Mounted Gear brings in-air insulation; in-air switching; and quick, convenient, fuse handling to elbow-connected, dead-front gear. Switch and fuse components are protected and

isolated within an inner air-insulated, grounded, steel-enclosed component compartment that provides excellent resistance to entry of foliage, wildlife, and contaminants and reduces exposure of the public and operating personnel to energized live parts.

Switch terminals are equipped with 600-ampere bushings, and fuse terminals are equipped with 200-ampere bushing wells that have interfaces designed in accordance with IEEE Standard 386 to accept all standard elbows and accessories. Bushings and bushing wells are mounted a minimum of 25 inches (635 mm) above the base of the gear, and all elbows may be readily operated at a convenient angle from a standing position.

The termination compartments are accessible through doors equipped with a Penta-Latch® Mechanism, S&C's automatic door-latching system.

Three-phase in-air switching of source circuits is accomplished with externally operable Mini-Rupter® Switches. Large viewing windows in switch-termination compartments allow visual verification of the switch-blade position. There's no need to move the 600-ampere elbows to establish working clearances.

Fuse access is provided by a TransFuser™ Mounting. This mounting incorporates a unique fuse-handling mechanism that allows easy movement of fuses to the open, de-energized position for ready access. These mountings accommodate a choice of Type SME-20 and SME-4Z Power Fuses, Fault Fiter® Electronic Power Fuses, or a variety of current-limiting fuses.

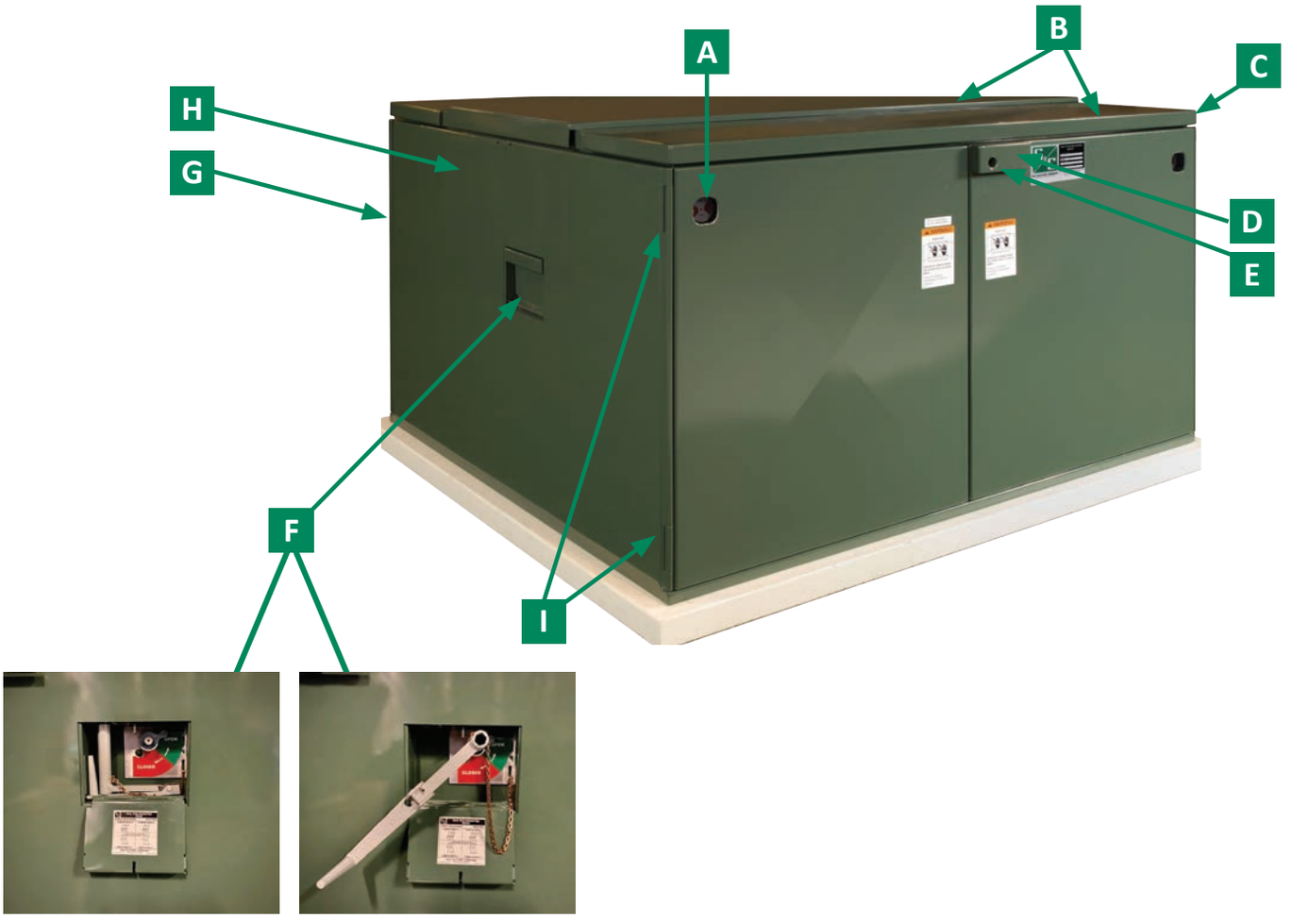


FIGURE 1. Exterior enclosure features.

A **A fault indicator viewing window** and mounting provisions are provided as options.

B **Hinged roof sections** over the cable compartments are part of a three-piece roof design to pull cables up through the roof opening for streamlined installation.

C **The wrap-around edge** design protects against corrosion and provides additional enclosure security from poke and pry intrusion.

D **A protective hood** shields the padlock shackle from vandals.

E **A precision-recessed** pentahead actuator discourages tampering.

F **An ergonomically** located switch-operating mechanism with a two-piece, spring-loaded operating handle positively locks the handle in an unfolded operating position.

G **The Ultradur® II Outdoor Finish** paint system provides superior protection from environmental elements without using volatile organic compounds. The paint finish withstands a minimum of 4,000 hours of salt-spray testing compared to an industry standard of 1,500 hours.

H **An encased** medium-voltage compartment (inside enclosure) provides isolation of live components, limiting exposure to operating personnel.

I **Non-ferrous door hinges** and hinge pins are corrosion-resistant.

Hinged Roof

The three-piece roof design features hinged sections over the cable compartments. The hinged roof allows cables to be pulled up through the roof opening instead of the door openings, making installation easier and quicker.

A mechanical interlock prevents full engagement of the Penta-Latch Mechanism unless the hinged roof section is closed and latched.

FIGURE 2. View of PME with open hinged roof.

Switch Compartments

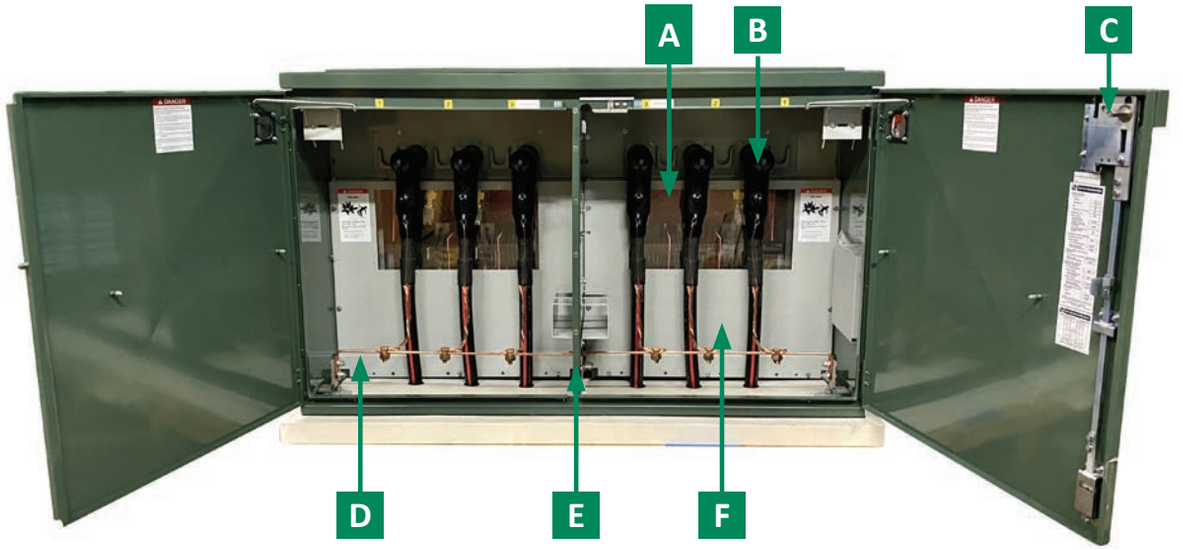


FIGURE 3. Switch compartment features.

A **Wide-view, unbreakable, mar-resistant windows** let you verify the switch position and check for a visible break.

B **600-ampere Cypoxy™ Insulator bushings** have interfaces in accordance with IEEE Standard 386.

C **The Penta-Latch Mechanism** provides vandal-resistant, automatic, three-point door latching. Uncommonly rugged and fully coordinated with padlocking provisions.

D **A ground rod** extends the full width of each switch compartment, and the doors may be closed with grounding clamps in place.

E **With segregated compartments**, steel barriers isolate side-by-side cable compartments.

F **Deep, spacious termination compartments** accommodate a wide range of elbows and accessories with the doors closed.

Mini-Rupter Switches

The Mini-Rupter Switch is a three-phase, gang-operated switch rated at 600 amperes continuous at 14.4 kV and 25 kV. It provides controlled loop-splitting/load-dropping circuit interruption by deionizing action within its unique arc compressors; there is no external arc or flame.

The 14.4-kV Mini-Rupter Switch features a 25,000-ampere short-circuit rating in addition to having a 25,000-ampere three-time duty-cycle fault-closing rating. The 25-kV Mini-Rupter Switch is rated at 12,500 amperes and carries a 12,500-ampere three-time duty-cycle fault-closing rating.

FIGURE 4. Mini-Rupter Switch.

Fuse Compartments

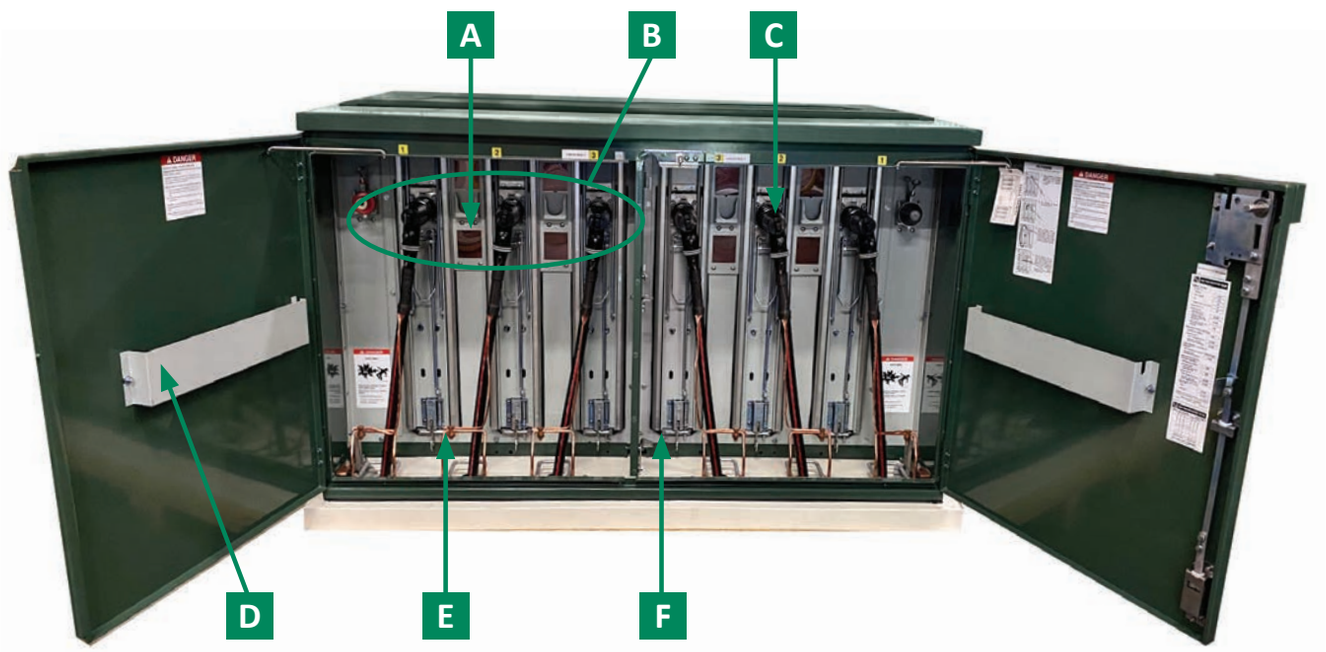


FIGURE 5. Fuse compartment features.

A **Viewing windows** allow easy checking of blown-fuse indicators.

B **Generous spacing of bushing wells and parking stands** accommodates a full spectrum of elbows, portable feedthrus, and accessories.

C **200-ampere Cypoxy Insulator bushing wells** have interfaces in accordance with IEEE Standard 386.

D **The fuse-storage feature** accommodates spare fuse assemblies.

E **Ground rings** are readily accessible in an up-front location. Enclosure doors may be closed with grounding clamps in place.

F **Fuse handling is safer and easier** with the TransFuser Mounting. With an almost effortless pull, the TransFuser Mounting unlatches and pivots to its Open position, making the de-energized and isolated fuse accessible for easy replacement.

Fuses

Type SME-20 Power Fuses, featuring the SMU-20® Fuse Unit, and Type SME-4Z Power Fuses, featuring the SM-4® Refill Unit, are widely applied on utility systems. They offer a broad selection of ampere ratings and time-current characteristic (TCC) curves, permitting close fusing of loads for full-fault-spectrum protection and optimum coordination.

Fault Fiter Electronic Power Fuses, with their unprecedented variety of unique TCC curves, provide superior protection and precise coordination in a wide range of applications. Fault Fiter Electronic Power Fuse mountings also accommodate a variety of non-S&C-manufactured single-barrel current-limiting fuses.

Fuse Handling

The unique TransFuser Mounting is an ergonomically designed fuse-handling system that takes the work out of fuse replacement. During re-fusing, operators can disconnect/connect the cable, rotate the TransFuser Mounting panel, and remove/replace the fuse without being directly exposed to energized live parts.

1 **Moving the loadbreak elbow to a feedthru or standoff insulator on the parking stand interrupts any fuse load.**

2 **This allows the mechanical interlock to be raised, unlocking the TransFuser Mounting.**

3 **An almost effortless pull unlatches the TransFuser Mounting.**

4 **The superbly balanced mounting virtually self-pivots to its Open position and latches in place. It is a swift, controlled action that guards against exposure to energized live parts.**

5 **In the Open position, the de-energized and isolated fuse is accessible to the operator for replacement. The panel seals out contaminants from entering the medium-voltage compartment while the fuses are being changed.**

FIGURE 6. Fuse handling process.

Enclosure Security

The Penta-Latch Mechanism provides vandal-resistant, automatic, three-point door latching. The enclosure is uncommonly rugged and fully coordinated with padlocking provisions.

1 **Unlock the padlock and remove it from the door-locking tab.**

2 **A single motion of a pentahead wrench unlatches the Penta-Latch Mechanism for opening and simultaneously recharges it in preparation for closing.**

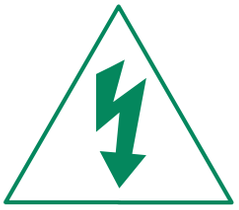
FIGURE 7. Two-step controlled opening of doors.

1 **Closing the door releases the charged Penta-Latch Mechanism, automatically latching the door at three points and securing the pentahead actuator.**

2 **The pentahead actuator is secured after the door is latched at all three points.Only after the actuator is secured can the padlock be installed—completing the full two-step security system.**

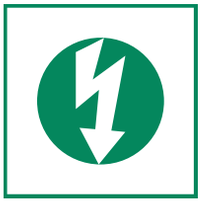
FIGURE 8. Double security for extra vandal resistance.

Medium-Voltage Compartment



Dead-front switchgear.
There are no exposed energized components in either the switch or fuse compartments.

Foliage and wildlife control.
Galvanized steel floor prevents entry from the bottom of the medium-voltage compartment.



Completely encased medium-voltage compartment.
Because there are no direct air paths into the medium-voltage compartment, it keeps moisture and surrounding environmental particles and contaminants out.

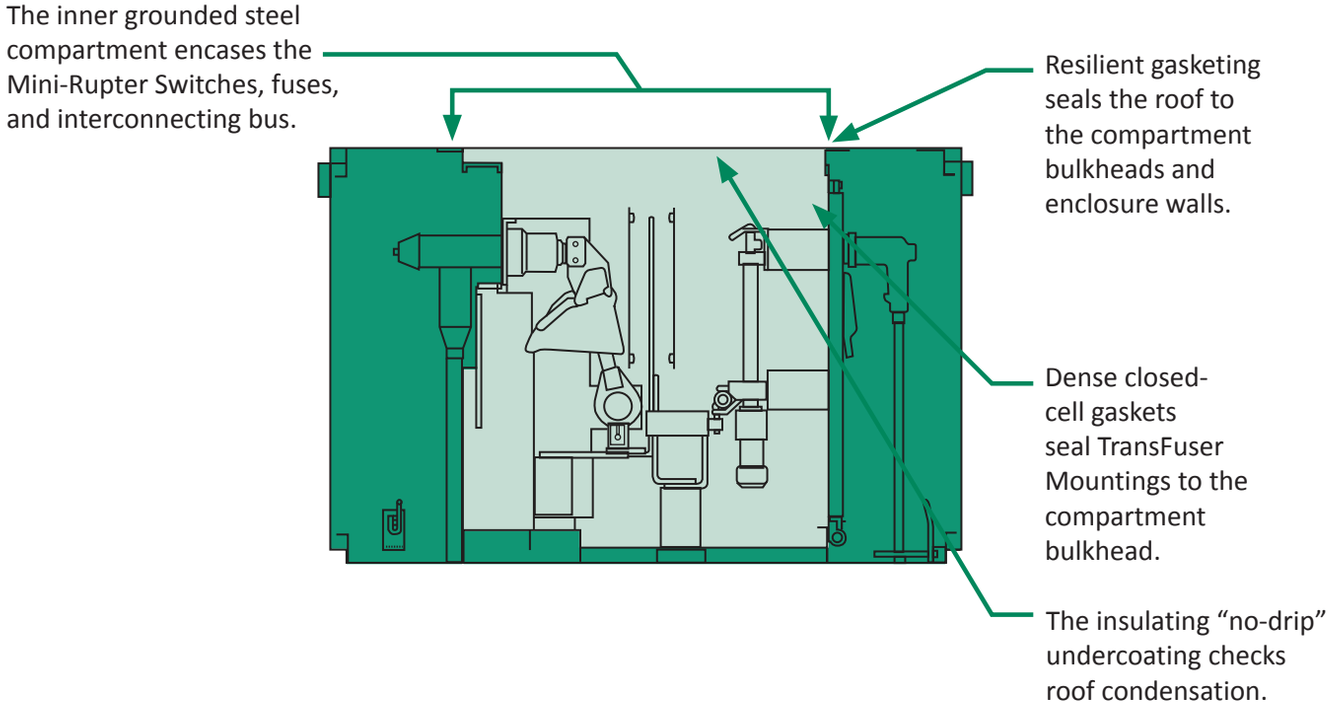


FIGURE 9. Cross-section view of a PME unit with a switch compartment (left), medium-voltage compartment (middle), and fuse compartment (right).

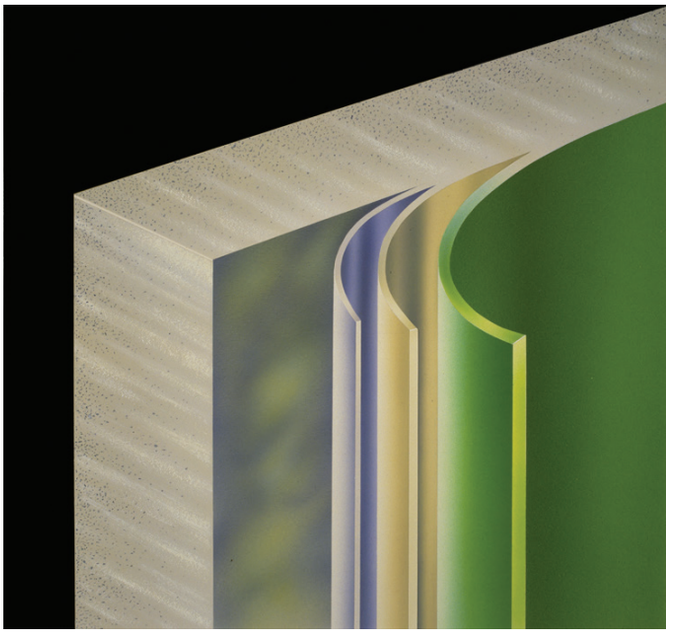
Durability

Steel Construction

The enclosure is fabricated from rugged 11-gauge steel sheets. All structural joints are welded; there are no externally bolted panels to invite removal. Enclosures are available in mild and stainless steel.

S&C's Ultradur II Outdoor Finish

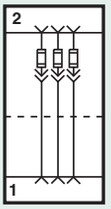
The Ultradur II Outdoor Finish provides the ultimate paint finish for today's environment, where the exposure to atmospheric contaminants, the vulnerability to vandalism, and the achievement of a low-maintenance service life demand outstanding performance. And it does it with no volatile organic compounds, reducing environmental impact.



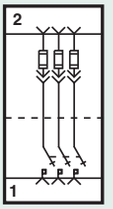
14.4-kV & 25-kV Manual PME Circuit Configurations and Footprint Dimensions

14-kV Manual PME Circuit Configurations

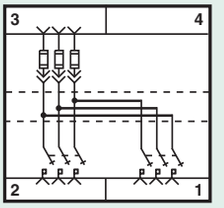
PME-4
W: 41 in. (104 cm)
D: 52¾ in. (134 cm)



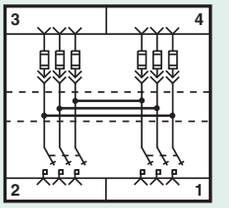
PME-5
W: 41 in. (104 cm)
D: 66¾ in. (170 cm)



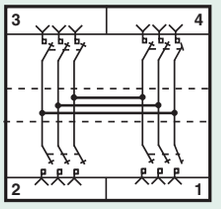
PME-6
W: 75 in. (191 cm)
D: 66¾ in. (170 cm)



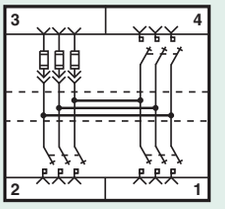
PME-9
W: 75 in. (191 cm)
D: 66¾ in. (170 cm)



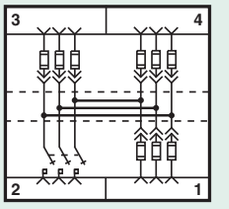
PME-10
W: 75 in. (191 cm)
D: 72¾ in. (185 cm)



PME-11
W: 75 in. (191 cm)
D: 72¾ in. (185 cm)



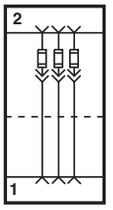
PME-12
W: 75 in. (191 cm)
D: 66¾ in. (170 cm)



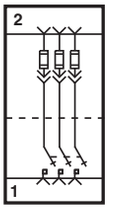
The height of all units is 45½ inches (116 cm) without base spacers.

25-kV Manual PME Circuit Configurations

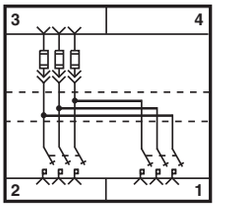
PME-4
W: 46 in. (117 cm)
D: 62¼ in. (158 cm)



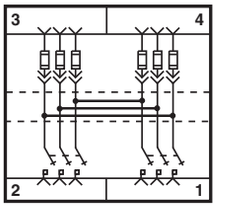
PME-5
W: 46 in. (117 cm)
D: 81¾ in. (208 cm)



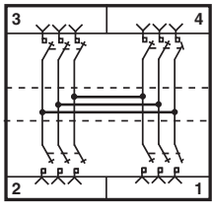
PME-6
W: 84 in. (213 cm)
D: 81¾ in. (208 cm)



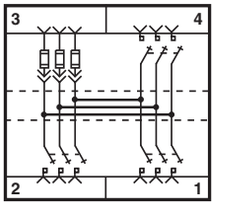
PME-9
W: 84 in. (213 cm)
D: 81¾ in. (208 cm)



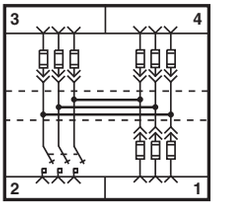
PME-10
W: 84 in (213 cm)
D: 88¼ in. (224 cm)



PME-11
W: 84 in (213 cm)
D: 88¼ in. (224 cm)



PME-12
W: 84 in (213 cm)
D: 88¼ in. (224 cm)



The height of all units is 51½ inches (131 cm) without base spacers.

Ratings

Voltage, kV			Fuse Type	Current, Amperes			Short-Circuit Current, Amperes		MVA
				Fuse	Mini-Rupter Switch				
Nom.	Max	BIL		Max	Cont.	Load Dropping	One-Second Short-Time Withstand, RMS, Sym.	Peak Withstand, Peak	
14.4	17.5	95	None	—	600	600	25 000	65 000	620
	17.0		SME-20	200			14 000	36 400	350
	17.0		SME-4Z	200			12 500	32 500	310
	17.0		Fault Fiter	200			14 000[1]	36 400[1]	350[1]
25	27[2]	125	None	—	600	600	12 500	32 500	540
			SME-20	200			12 500	32 500	540
			SME-4Z	200			12 500[3]	32 500[3]	540[3]
			Fault Fiter	200			12 500	32 500	540

TABLE 1. Ratings

1 When furnished with current-limiting fuses having a rated maximum interrupting current of at least 25,000 amperes, RMS, symmetrical, and limiting the instantaneous peak let-through current to less than 36,000 amperes, this gear has the following short-circuit ratings:
—25,000 amperes, RMS, symmetrical, one-second short-time withstand current
—65,000 amperes, peak, peak withstand current
—620 MVA, three-phase symmetrical, at rated nominal voltage

2 29 kV when furnished with Fault Fiter Electronic Power Fuses.

3 Applicable to solidly grounded-neutral systems only, with fuses connected by single-conductor, concentric-neutral-type cable to a transformer(s). For all other applications this gear has the following short-circuit ratings:
—9,400 amperes, RMS, symmetrical, one-second short-time withstand current
—25,000 amperes, peak, peak withstand current
—405 MVA, three-phase symmetrical, at rated nominal voltage

240528 665-30