

**Switchgear, 29 kV, Three-phase, SF6, Multi-Purpose,
Manually Controlled, 900 A**



1. Scope

This standard covers the requirements for 900 A, manually controlled, multi-purpose, three-phase, 29 kV switchgear.

This standard applies to the following Seattle City Light (SCL) stock numbers:

Stock No.	Description
014983	4-way Vista switchgear
012676	6-way Vista switchgear

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2. Application

This switchgear is intended for use on 26.4 kV, 4-wire, three-phase, 60 Hz, solidly grounded, wye-connected systems where the available fault current is less than 25 kA rms symmetrical.

All switches are provided with viewing windows to observe open gaps, ground positions, ground bus, and fault trip indicators (if so equipped).

Refer to SCL 9202.17 for detailed application information.

3. Industry Standards

Except as modified by this standard, switchgear shall meet the applicable requirements of the latest revisions of:

IEEE C37.112; Standard Inverse-Time Characteristic Equations for Overcurrent Relays

IEEE 386; Standard for Separable Insulated Connector Systems for Power Distribution Systems above 600 V

IEEE C57.12.28; Switchgear & Transformers – Pad Mounted Equipment Enclosure Integrity

IEEE C37.74 – Standard Requirements for Subsurface, Vault, and Padmounted Load-Interrupter Switchgear and Fused Load-Interrupter Switchgear for Alternating Current Systems up to 38 kV

IEC 298; Appendix AA – 1 - 52 kV A.C. Metal Enclosed Switchgear and Controlgear

4. Construction

4.1 General

The switchgear assembly shall be integrally designed and produced by the manufacturer of the individual switch components. Manufacturer shall be solely responsible for the performance of the individual switch components as well as the assembly.

Padmount-style switch cabinets shall be sized to accommodate the use of S&C Electric portable (remote) motor operators.

All switchgear components shall be factory assembled and tested.

4.2 Design Changes

The manufacturer shall inform SCL in writing of all design changes that could affect the understood or published capabilities of the switchgear.

4.3 Quality

Switchgear design and construction shall be high quality and provide safe and reliable operation with minimal maintenance over the life of the product.

4.4 Switch Ratings

Switchgear shall have the following basic electrical ratings:

Maximum voltage	29 kV, rms
Number of phases	3
Power frequency	60 Hz
Lightning-impulse withstand voltage (BIL)	125 kV, crest
Short-time (1 s) withstand current	25 kA, rms symmetrical
Momentary (10 cycles) withstand current	40 kA, rms asymmetrical

5. Nameplate

Each switch shall be provided with a nameplate that meets the requirements of IEEE C37.74.

Each switch shall be provided with a label that states the amount of SF6 gas (in pounds) contained within the unit's tank.

6. Documentation

One instruction book shall be securely attached to each switch in an ultraviolet light-resistant envelope.

Provision shall be made for SCL to obtain PDF files of all relevant, switch-specific documentation, such as the following:

- Installation instructions
 - Operation and maintenance instructions
 - Outline drawings
 - Wiring and schematic drawings
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7. Packaging

Each switch shall be packaged in its own crate and delivered on its own pallet.

The pallet shall be compatible with either a pallet jack or forklift.

The two openings for the pallet jack or forklift shall have a minimum height of 4 in and width of 21 in.

Crate and pallet, including slats, blocking, and wedges, shall be unpainted wood.

The outside of each crate shall be permanently and clearly marked with:

- Manufacturer name or symbol
 - Seattle City Light purchase order number
 - Seattle City Light stock number
 - Manufacturer equipment serial number
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8. Shipping

Switches may be delivered on enclosed, covered, or flatbed trucks. If switches are delivered on flatbed truck, switches shall be side-loaded. Because Washington State law requires a 10-in minimum side board when driving a forklift or pallet jack onto the bed of a truck or trailer, most flatbed trucks or trailers must be side-loaded to ease off-loading.

9. Issuance

Stock Unit: EA

10. Detailed Requirements

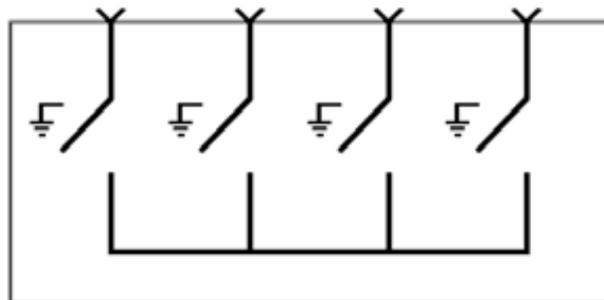
10.1 4-Way, Padmount Style, Load Interrupting Switch

Stock No.	S&C Electric Co. Vista Switch Catalog No.
014983	854403-K1K2K3K4L2M1OP14Z5-S107

where:

85 =	25 kA rms symmetrical short-circuit rating
440 =	four-way, five load interrupting ways, zero fault interrupting ways
3 =	29 kV voltage rating, maximum
K1 =	900 A load interrupter switch on way 1
K2 =	900 A load interrupter switch on way 2
K3 =	900 A load interrupter switch on way 3
K4 =	900 A load interrupter switch on way 4
L2 =	potential indication with test feature with provision for low-voltage phasing
M1 =	900 A bushings (without studs) at all terminals
O =	two-hole ground pad, one per way, located below bushings or bushing wells (in lieu of standard one ground pad per tank)
P14 =	pad-mounted style, stainless steel outer enclosure, olive-green finish
Z5 =	copper main bus
S107 =	special features, including: <ul style="list-style-type: none"> ▪ Special enclosure size, 71-in deep ▪ 6-in stainless steel, non-tank-supporting base spacer ▪ 900 A load interrupter on ways 1, 2, 3, & 4

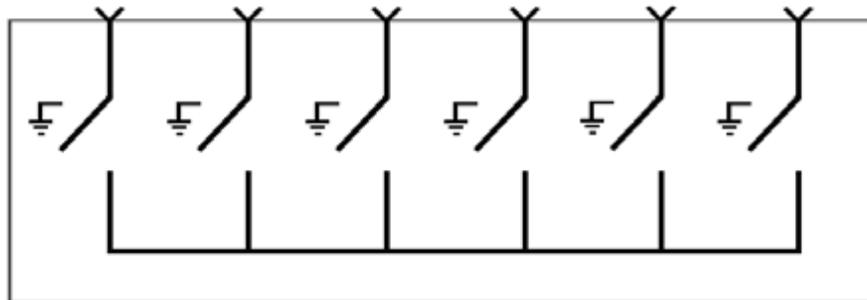
Figure 10.1. 4-Way, Padmount Style, Load Interrupting Switch



10.2 6-Way, Padmount Style, Load Interrupting Switch

Stock No.	S&C Electric Co. Vista Switch Catalog No.
012676	856603-K1K2K3K4K5K6L2M1OP16Z5-S102
<i>where:</i>	
	85 = 25 kA rms symmetrical short-circuit rating
	660 = six-way, six load interrupting ways, zero fault-interrupting ways
	3 = 29 kV voltage rating, maximum
	K1 = 900 A load interrupter switch on way 1
	K2 = 900 A load interrupter switch on way 2
	K3 = 900 A load interrupter switch on way 3
	K4 = 900 A load interrupter switch on way 4
	K5 = 900 A load interrupter switch on way 5
	K6 = 900 A load interrupter switch on way 6
	L2 = potential indication with test feature with provision for low-voltage phasing
	M1 = 900 A bushings (without studs) at all terminals
	O = two-hole ground pad, one per way, located below bushings or bushing wells (in lieu of standard one ground pad per tank)
	P16 = pad-mounted style, stainless steel outer enclosure, olive green finish
	Z5 = copper main bus
	S102 = special features, including: <ul style="list-style-type: none"> ▪ Special enclosure size, 71-in deep ▪ 6-in stainless steel, non-tank-supporting base spacer ▪ 900 A load interrupter on ways 1, 2, 3, 4, 5, & 6

Figure 10.8. 6-Way, Padmount Style, Load Interrupting Switch



11. References

SCL Design Standard 9202.17; “Vista Switch Application Guide”

12. Sources

S&C 681-31; Vista Underground Distribution Switchgear, Specification Bulletin, March 28, 2022; S&C Electric Company

SCL Material Standard 4501.65; “29 kV, Three-Phase, SF6, Multi-Purpose Switchgear, Manually Controlled”

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