



Compact, compartmentalized  
and durable.

HVL/cc™ Medium Voltage  
Metal-Enclosed Switchgear



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**SQUARE D**™

by Schneider Electric



# Compact and Durable

Cost-saving flexibility. Compartmentalized design.  
Increased reliability. Low maintenance.

If you've been searching the metal-enclosed switchgear market for these performance advantages, you know that they are difficult to find. Fortunately, that has changed, thanks to the advanced design of the HVL/cc medium voltage metal-enclosed switchgear.

HVL/cc switchgear from Schneider Electric gives you clear and impressive performance advantages in the 2.4 kV - 38 kV range, with ANSI and CSA ratings that provide a wide range of applications.

## HVL/cc switchgear applications

2.4 kV - 38 kV switching, control and overload protection are ideal for the following applications:

- Petrochemical plants
- Oil platforms
- Hospitals
- Industrial facilities



## Compact footprint

One of the smallest footprints in the industry

### 2.4 kV - 17.5 kV

Standard dimensions:

14.75 in. W, 37.25 in. D, 90 in. H

Optional widths: 20 in.

(1200 A switch – 29.5 in.)

### 25.8 kV - 38 kV

Standard dimensions:

29.5 in. W, 59.12 in. D, 108 in. H

Optional widths: 39.37 in.



## Sealed for life



### Sealed interruption is another exclusive feature of the HVL/cc switchgear.

Encased in an epoxy enclosure, this double-break interrupter switch answers several essential application needs:

- Sealed switch enclosure contains contact arcing from switch contacts (all interruption takes place within the sealed enclosure), a critical concern in gaseous environments – Class 1 Div 2 certified
- Helps prevent switch contamination, especially important in dusty environments
- Eliminates maintenance on main and ground switch contacts

The enclosure maintains a low volume of SF6 gas at a pressure of 5.8 (0.4 bar) PSI at 5/15kV level and 14.5 PSI (1.0 bar) at 25/38kV level. Because the switch is sealed for life, it never requires refilling. The sealed interruption feature also eliminates the need for maintenance on main switch contacts. Both the main and ground switch contacts can be viewed through the two viewing windows on the mechanism compartment.



## Standards

- ANSI
  - » ANSI/IEEE C37.20.3 – metal-enclosed interrupter switchgear
  - » ANSI/IEEE C37.20.4 – indoor AC medium-voltage switches used in metal-enclosed switchgear
  - » ANSI/IEEE 24 – standard performance characteristics and dimensions for outdoor apparatus bushings
  - » ANSI/IEEE 48 – standard test procedures and requirements for high-voltage alternating-current cable termination
  - » ANSI Z55.1 – gray finishes for industrial apparatus and equipment
- UL listing of equipment, including service entrance per NEC®
- Indoor and outdoor enclosures
- Canadian Standards
  - » CAN/CSA C22.2 No. 31 switchgear assemblies
  - » CAN/CSA C22.2 No. 193 high-voltage full-load interrupter switches
  - » CSA approval through UL listing process (cUL)
- IEC 420 high-voltage alternating current switch-fuse combinations test Duties 4 and 5 (Fuselagic™ system)



# Reduced Maintenance, Improved Reliability

The sealed interrupter switch on HVL/cc switchgear provides significant maintenance savings while helping ensure long-term reliability.

Many other features of the HVL/cc switchgear have been designed to dramatically reduce maintenance costs as well. These include:

- Rugged 11-gauge steel construction
- Square D™ TGIC polyester powder paint system, toughest in the industry
- Maintenance-free main switch contacts
- Direct drive mechanism
- Shunt trip/overload relay
- Long-life switch: 100 full load operations; 1,000 mechanical operations (ANSI requires 30 full load and 500 mechanical)
- Continuous Thermal Monitoring allows local and remote continuous thermal and environmental monitoring of fuse/cable or main bus compartments
- Infrared viewing port (optional) allows heat-scanning of fuse/cable or main bus compartments

Reliability guided the design of HVL/cc switchgear. As a result, you benefit from lower maintenance requirements and innovative features that make necessary maintenance or service modifications much easier and faster. More uptime means reduced expense, which further contributes to the value of HVL/cc switchgear.



## Improve reliability and performance

Reliability and performance are the primary goals of switchgear in any switching, control or protective application. We've taken these goals further with HVL/cc medium voltage metal-enclosed switchgear.

Exclusive operational features offer a higher level of system protection while incorporating innovative design features to reduce costly maintenance. The major differentiating features of HVL/cc switchgear include:

- Compact size (approximately one-quarter the size of traditional medium voltage metal-enclosed switchgear) – ideal for retrofit applications requiring increased load
- Compartmentalized construction – the fuse/cable compartment is isolated from the main bus, while the main switch contacts are housed in a sealed interrupter
- Fault-making ground switch (optional) – includes mechanical interlock that blocks access to fuse/cable compartment when switch is not grounded
- Sealed interrupter
  - » Class 1 Div 2 compliant for hazardous locations
  - » Block airborne contamination
  - » Extended switch life
  - » Contact arcing contained and interrupted within sealed SF6 compartment
- Low maintenance – save time and expense with maintenance-free main contacts and ground switch contacts

No other medium voltage metal-enclosed switchgear on the market offers these advantages. When you make the comparison based on installation simplicity, performance and total cost of ownership, HVL/cc switchgear is the clear choice for system protection and reliability.



## Design flexibility

HVL/cc switchgear is designed to set new standards of excellence with its compartmentalization, reduced requirements and application versatility.

HVL/cc switchgear's compact size reduces space requirements in most applications. Benefits include:

- Front Access Only Options – avoid the need for rear service space (available only on switches with 17.5kV maximum voltage rating)
- Compact footprint – fits easily through standard doorways for retrofit applications
- Modular construction – flexibility for customized configurations
- Top or bottom cable entry – enhances installation flexibility
- Transition capability – provides transitions to transformers, Masterclad® metal-clad switchgear, and Motorpact™ motor control centers, with minimal impact to footprint

Schneider Electric understands that the cost for switchgear includes more than the equipment. It also includes the cost of installation, modifications and future expansion. That's why the design of HVL/cc switchgear addresses the total cost of ownership, giving you more flexibility and more performance.



## Helping to encourage reduced risk

Design features of HVL/cc medium voltage metal-enclosed switchgear help to prevent operator error and reduce risks in several ways:

- Compartmentalization – upto five isolated compartments for the switch, bus, fuse/cable, mechanism and optional low voltage and control components; blocks inadvertent access to main bus compartment when accessing fuse/cable compartment
- Grounded metal barriers enclose all live parts
- Mechanical interlock blocks access to fuse/cable compartment unless switch is open
- Padlockable covers to block operation of main switch and ground switch when required. Available on both manual and motor operated mech variants.
- Two viewing ports provide visual switch position – open, closed, or grounded
- Live-line indication (open switch, circuit energized, back-fed circuit, blown fuse)
- Animated mimic bus on operating shaft provides direct and positive indication of switch contact position
- Load discharge switch-to-ground load side of the fuse – available to dissipate static discharge if used with main grounding switch



## Block Energized access

HVL/cc switchgear features an industry exclusive, fault-making grounding switch.

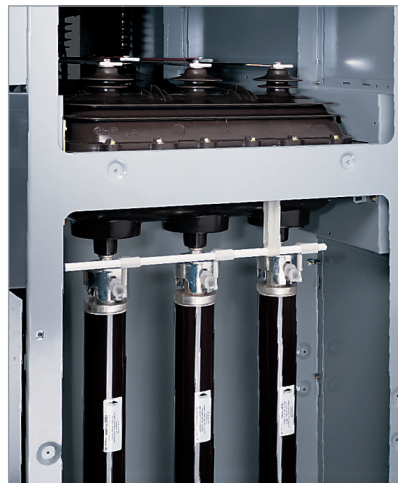
The mechanical interlock system blocks access until the switch is open and grounded. The fault-making grounding switch reduces maintenance downtime and expense by avoiding the reliance on grounding provisions for load grounding. This fault-making grounding device is rated 40 kA.

## Available options

- Fuselogic system for blown/missing fuse indication (local or remote) and mechanical lockout feature to block reclosing the switch until three replacement fuses have been installed
  - » Single phasing protection due to blown fuse tripping with Fuselogic system
  - » Blown fuse indicating contact for remote indication (one common contact)
- Class 1 Div 2 compliant (manually operated switches with non-striker pin fuses)
- Dual spring stored energy mechanism (SEM) for remote electrical capability
  - » Duplex configuration with mechanical interlock blocks simultaneous closure of both switches
- Motor operator
- Fast/auto transfer configuration (main-main and main-tie-main)
  - » Electrically interlocked
  - » Mechanically interlocked
  - » Operated from live line indicators
  - » Protective relaying – ANSI 51, 46, 27, 59, 47
- Ground switch (fault close rated)
- Switch enclosure widths at all voltages



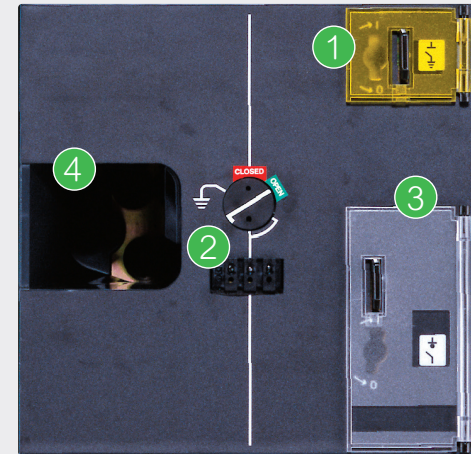
Optional Fuselogic system provides direct acting blown fuse single-phase protection.



Simplified bus design and reduced connections in compact duplex configurations dramatically reduce maintenance requirements.

## Optional Grounding Switch

- Medium-voltage access panel blocked until switch is returned to grounded position
- Interlock blocks switch from closing when panel is removed
- Dual spring stored energy mechanism type SEM provides remote electrical capability



- 1 • Fault-making ground switch rated to 40kA Asym
  - Fuse/cable compartment mechanically interlocked with open and grounded switches
  - Grounding switch can be opened with access panel removed to facilitate cable testing
- 2 • Mimic bus diagram provides a clear visual indication of switch position – open, closed, or grounded
- 3 • Easily accessible switch operating port
- 4 • Switch position easily identified through viewing ports



Voltage	Fuse rating	Number of fuses per phase	Bay width (in.)
5.5 kV	10E to 450E	1	14.75
	540A	2	20.00
	600A	2	20.00
	850A	3	29.50
	950A	3	29.50
	1100A	3	29.50
15.5 kV	10E to 200E	1	14.75
	225A	2	20.00
	270A	2	20.00
	315A	2	20.00
	360A	2	20.00
	425A	3	29.50
	475A	3	29.50
17.5 kV	10E to 150E	1	14.75
	180A	2	20.00
	225A	2	20.00
	270A	2	20.00
25.8 kV	10E to 100E	1	29.50
	115A	2	39.37
	140A	2	39.37
	175A	2	39.37
38.0 kV	10E to 65E	1	29.50
	75A	2	39.37
	90A	2	39.37
	115A	2	39.37

Equipment ratings without fusing					
Switch (kV) – maximum design <sup>(1)</sup>	4.76	17.5	17.5	25.8	38.0
B.I.L. (kV)	60	95	110	125	150
Frequency (Hz)	50/60	50/60	50/60	50/60	50/60
Withstand (kV)	19	36	36	50	80
Continuous current (A)	600 1200	600 1200	600 1200	600 –	600 –
Interrupting current (A)	600 1200	600 1200	600 1200	600 –	600 –
Fault close (kA ASYM)	40	40	40	32	32
Momentary current (kA ASYM)	40	40	40	32	32
Short time current (kA SYM)	25	25	25	25	25
Electrical endurance (number of operations)	100 <sup>(2)</sup>	100 <sup>(2)</sup>	100 <sup>(2)</sup>	100	100
Mechanical endurance (number of operations)	1000	1000	1000	1000	1000

<sup>(1)</sup> All switches have a four-time fault close duty cycle

<sup>(2)</sup> 26 operations available for 1200 A



## Utility Approval

Schneider Electric maintains contact with most major utilities and understands what it takes to obtain utility approval in any geographic region. With our resources and expertise, we can build switchgear equipment that satisfies local or regional requirements.

# IOT & Connectivity Capable

Enhanced for modern MV distribution & protection.

The HVLcc is compatible with EcoStruxure™, Schneider's IoT-enabled, open, and interoperable system architecture. The connectivity possible with the HVLcc means you can offer your customers greater visibility of their facilities and more control over operational health. It can also offer edge control capabilities, so you can make the right decisions at the right time to maximize uptime and operational efficiency. And Schneider can help you turn the operational data into forward-looking, actionable plans.

The end result? Smarter operations and a competitive edge, for you and your customers.

# IoT & Connectivity Capable

## ION 9000 range

HVL/cc switchgear is compatible with the PowerLogic ION9000 range of power meters. An EcoStruxure connected product, the PowerLogic ION 9000 range is Schneider Electric's most innovative, most advanced and most accurate power quality meter. Third party certified 0.1S accuracy, modular design, flexible ION programmability and advanced power quality analysis make it the right power meter for industrial and healthcare facilities, data centers and utilities networks.

- Access smart power event analysis
- Minimize costly downtime and power vulnerabilities
- Improve reliability and efficiency
- Unlock new energy efficiency opportunities



## Continuous Thermal Monitoring

Critical connections can be equipped with self-powered wireless, continually transmitting temperature sensors. Environmental sensors (included as standard) can monitor and compute:

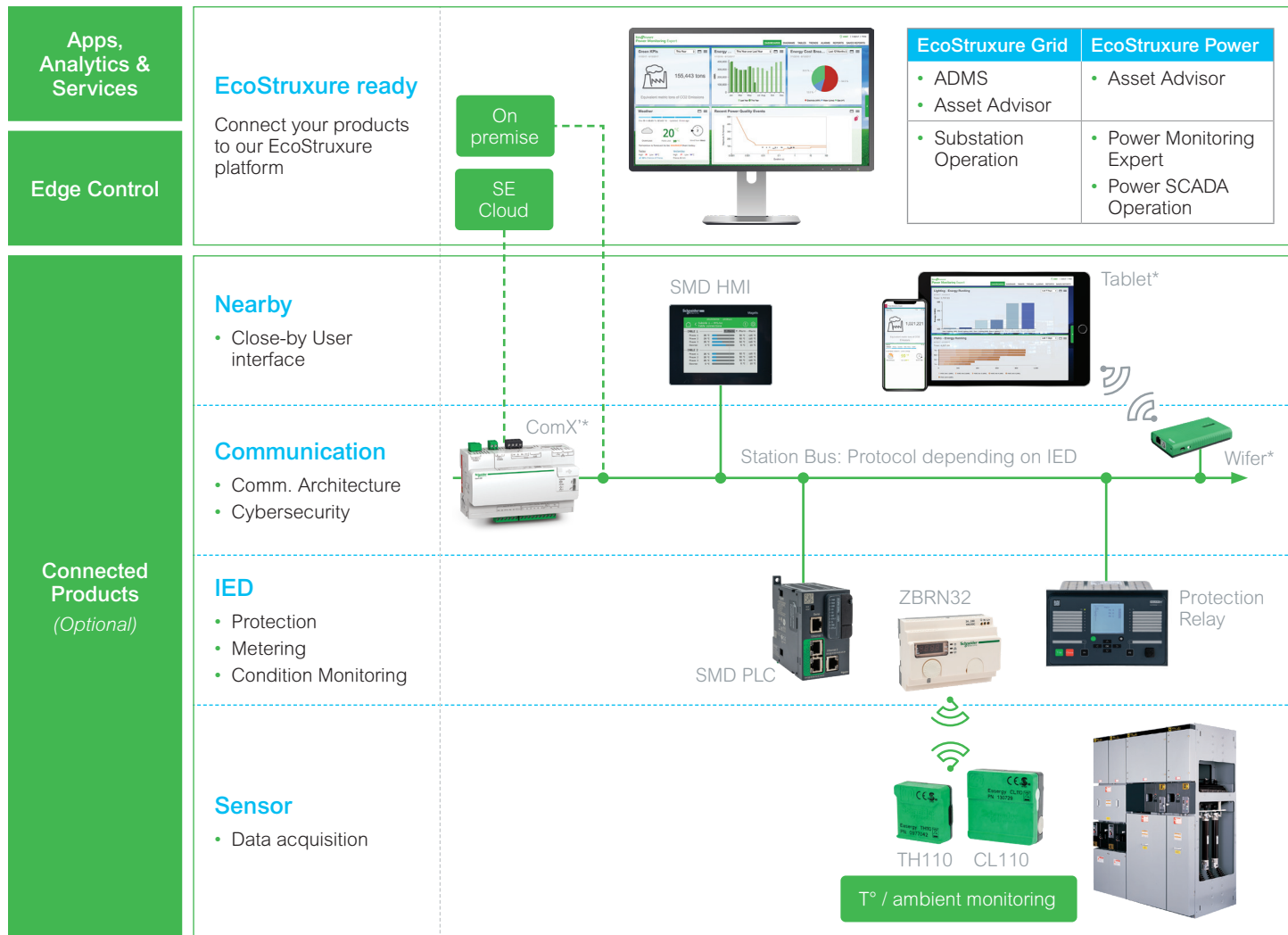
- Temperature differences between phases exceeding a threshold
- Absolute temperatures exceeding a threshold with status indicators ● ● ●

This substitutes the need for periodic thermography, reduces monitoring costs, and improves network performance. Other benefits include:

- Detection of thermal runaway occurring between annual surveys
- Increased Mean Time Between Failure (MTBF) of switchgear vs thermography via infrared windows
- Automatic alarming and notification
- Long-term trending to detect slow deterioration
- Optional environmental data for more accurate analysis
- Functional as both a standalone system or as an integrated part of Schneider Electric's Ecostruxure platform.
- For more details, please refer to our SMD Brochure 3070BR1901



# Optional Future Readiness For Ecostruxure

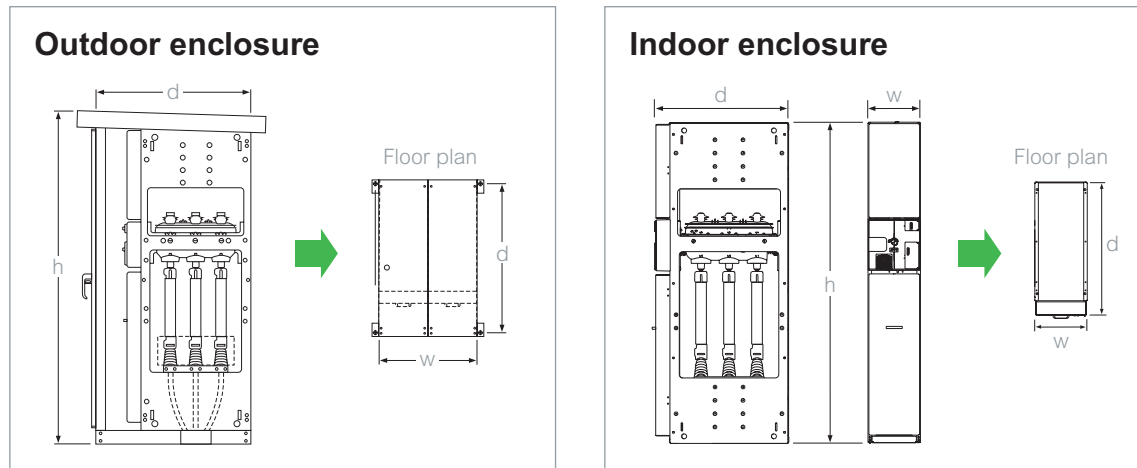


Note: (\*) means optional, ZigBee, Wifi, GSM

Products and Services shown in the above graphic are optional and do not come standard with the HVLcc.



# Dimensions



Description	Amps	Height (h)		Width (w)		Depth (d)	
		in.	mm	in.	mm	in.	mm
Section data, indoor (NEMA 1), 2.4 kV - 17.5 kV (not to be used for construction)							
Interrupter section	600 A	90.00 <sup>[1]</sup>	2286	14.75	375	37.25 <sup>[2]</sup>	946
	1200 A	90.00 <sup>[1]</sup>	2286	29.50	750	37.25 <sup>[2]</sup>	946
Section data, indoor (NEMA 1), 25.8 kV - 38 kV							
Interrupter section	600 A	108.00	2743	29.50	750	59.12 <sup>[3]</sup>	1502
Section data, outdoor (NEMA 3R), 2.4 kV - 17.5 kV (not to be used for construction)							
Interrupter section	600 A	99.75	2534	14.75	375	47.25 <sup>[4]</sup>	1200
	1200 A	99.75	2534	29.50	750	47.25 <sup>[4]</sup>	1200
Section data, outdoor (NEMA 3R), 25.8 kV - 38 kV							
Interrupter section	600 A	118.45	3008	29.50	750	69.25 <sup>[5]</sup>	1760

<sup>[1]</sup> 4 in. base height added for bottom cable entry for cable size 350 MCM and above. Add this dimension to the total height shown. Refer to the HVL/cc catalog for complete cabling and dimensional information.

<sup>[2]</sup> With front panels [footprint 33.25 in. (845 mm) with panels removed]

<sup>[3]</sup> With front panels [footprint 55.12 in. (1400 mm) with panels removed]

<sup>[4]</sup> Dimensions listed are floor plan dimensions. Roof overhangs front and rear by 5.00 in. (127 mm), 10.00 in. (254 mm) total

<sup>[5]</sup> Dimensions listed are floor plan dimensions. Roof overhangs front and rear by 5.00 in. (127 mm), 10.00 in. (254 mm)

# Arrangements

up to 17.5 kV shown

(top view)

Section 4 Section 3 Section 2 Section 1

Section 8 Section 7 Section 6 Section 5

20.00 14.75 20.00 29.50  
508 375 508 750

29.50 20.00 14.75 20.00  
749 508 375 508

### Typical back-to-back lineup

- Back-to-back HVL/cc main bus up to 17.5 kV
- Available in 600 A or 1200 A tin-plated copper bus for lineups up to 17.5 kV
- Easily transitions with Masterclad® metal-clad switchgear and Visi-Vac circuit interrupter mains

90.00 High 37.25 Deep  
226 946

14.75 14.75 20.00 14.75  
375 375 508 375

Door M HVLcc 600 A HVLcc 600 A HVLcc 600 A  
CT (3) CT (3) VT (3) BFT Fuse HK CM

### Bottom cable entry and exit

- Dual incoming main with single feeder, blown fuse tripping (Fusellogic system)
- Mechanical interlock main switch blocks paralleling of incoming lines and reduces need for keylocks

14.75 14.75 14.75  
375 375 375

Door M HVLcc 600 A HVLcc 600 A To

Fuse HK

### Bottom cable entry with connection to transformer

- Duplex configuration with bottom cable entry and exit
- Mechanical interlock main switch blocks paralleling of incoming lines and reduces need for keylocks



For additional information on HVL/cc medium voltage metal-enclosed switchgear, contact your local Square D field sales representative, or call 1-888-SQUARED.

Schneider Electric USA

800 Federal Street  
Andover, MA 01810  
Tel: (978) 794-0800

[schneider-electric.us](http://schneider-electric.us)

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