

DESCRIPTIVE BULLETIN

# BreakMaster™ LIS

## Load interrupter switchgear





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# BreakMaster™ LIS

## Rugged, efficient, versatile load switching and protection

BreakMaster™ LIS load interrupter switchgear, featuring the advanced interrupting technology of the VersaRupter switch, provides dependable, economical load switching and protection for medium voltage applications from 2.4 kV through 15 kV in 600 A to 1200 A load ratings.

BreakMaster LIS switchgear consists of a two-position (open, closed), three-pole, gang-operated, air interrupter switch utilizing two different style mechanisms for both closing and opening functions. The K-mechanism is a single spring snap action device. The switch opens or closes by charging the spring past dead center using a manual operating handle. The A-mechanism is a dual spring stored energy device that is well-suited for remote tripping applications. When shunt tripping or mechanical fuse tripping is specified, the type A-mechanism must be used. In closed status, the opening spring is charged and latched by an operating handle or by a motor operator.

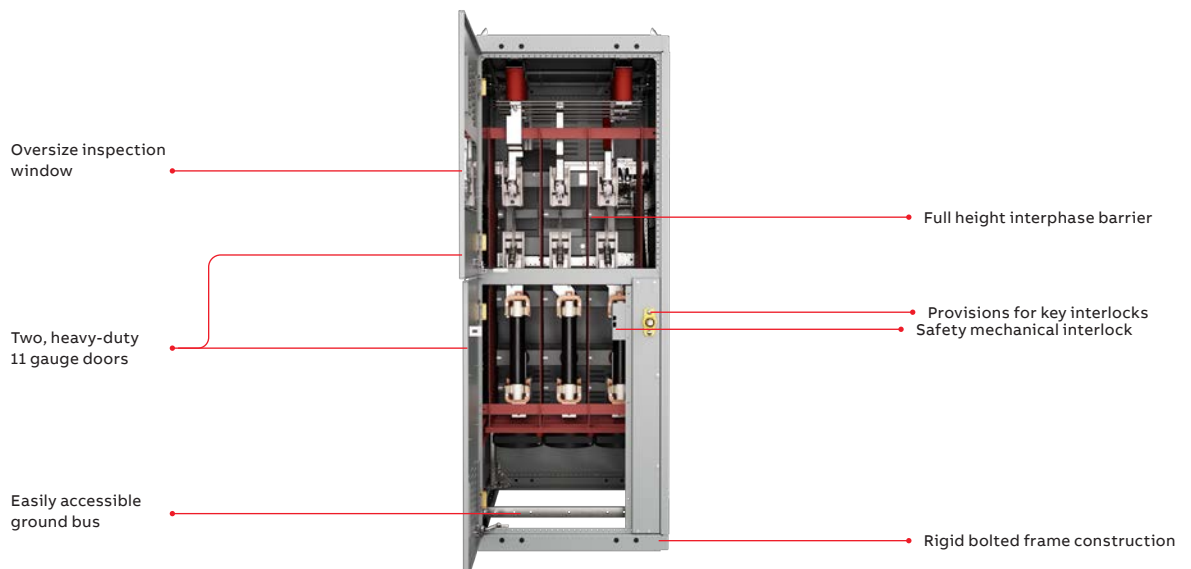
The puffer arc extinguishing system allows for a high number of operations without excessive wear.

Ablative arc chutes react to quench the arc using a balanced combination of air and gas to reliably extinguish the arc.

Used mainly as a primary or secondary disconnect switch for transformers, the variety of BreakMaster configurations also make it useful for specific distribution needs.

It can, for example, be inserted as a main or feeder switch in switchgear or motor controller lineups. Fault current protection is available using a complete line of current limiting or expulsion fuses.

BreakMaster LIS components are manufactured under strict quality guidelines, and meet or exceed all applicable ANSI, NEMA, and IEEE standards (see Table 5, plus IEC 60265 for limited purpose switches). UL/cUL Listed switches are available for most standard configurations and options. All steel surfaces are chemically cleaned prior, to painting, with an ANSI 61 finish rated for 1000-hour salt spray.





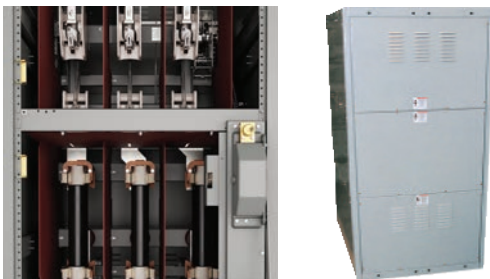
An array of optional multi-function meters measure volts, amps, frequency, power factor, watts and VARs, and can communicate via IEC-61850 RS-232, RS-485, Commnet and Modbus. For safety, an enclosed, low voltage panel completely isolates metering components.

While accessing fuses, split door prevents access to the live side of the switch when the lower door is open. Oversized viewing window and switch position markers allow visual verification of switch position.



Full height interphase barriers are standard on all switches. Both current limiting and expulsion fuses are available.

Standard 50-inch section depth provides substantial space for incoming or outgoing cables. 60-inch depth is also available when customer preference and/or specific options require additional space.



Horizontal barriers between the switch mechanism and fuse compartment are a standard safety feature.

Convenient split rear covers provide easy access to cable terminations or devices located in the rear of the section.

### Standard features

- Silver-plated copper bus
- Full-length ground bus
- Polyester coat paint
- ANSI 61 paint color (gray)
- Oversized viewing window
- Full height interphase barriers
- 11-gauge doors, barriers and covers
- Generous cable termination area
- Permanent non-corrosive nameplate
- Individual doors over switch and fuses
- Concealed door hinges
- Switch padlock provisions
- Key interlock provisions
- Split rear and side covers
- Tungsten-tipped arc interrupting blade
- Mechanical switch and door interlocking
- Louvered ventilation at top and bottom
- Safety horizontal barrier

### Standard outdoor features

- Removable filters for louvers
- Long life space heaters
- 4-inch channel base
- Sloped roof
- Bottom closure plates
- Rodent barriers

### Optional accessories and features

- UL/cUL listing
- Tin-plated copper bus
- Insulated bus and bus boots over joints
- 80 kA momentary bus rating
- Weather and dust resistant
- NEMA 2 drip-proof enclosure
- Rear doors (full height or double)
- Vertical barriers
- Rodent barriers
- Bottom closure plates
- Tamper resistant hardware
- Auxiliary switches (3NO-3NC)
- Thermostat
- Space heater (standard on outdoor, optional on indoor)
- Porcelain insulators
- Customer metering
- Surge arresters
- Mimic bus
- Space heater switch
- Ground studs
- Convenience light
- Duplex receptacle
- Top hat
- Run back bus

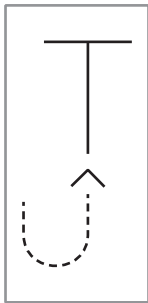


# Typical user configurations

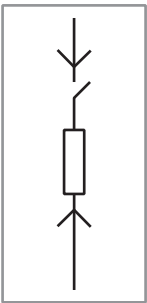
The complete line of BreakMaster LIS load interrupter switches can fill most distribution system requirements. They are available in a variety of configurations to meet specific distribution needs, including single switches, duplex switches, and line-ups. Motor operators, customer metering and outdoor construction are also available.

Table 1: Standard configurations

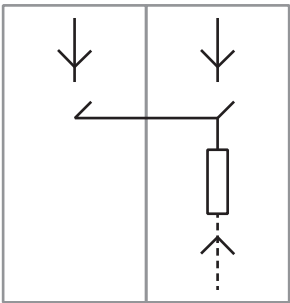
Standard configuration features	Single	Duplex	Line-up
35" width	•		
70" width		•	
90" indoor height, 99" outdoor height	•	•	•
50" depth standard (includes arrester if required), 60" depth available	•	•	•
Available section widths: 55" mains/tie; 35" branches; 20" / 35" incoming terminal compartments; 20" / 35" / 40" auxiliary sections			•
Extension required for oil-filled transformers only (18" wide)	•	•	•
Dry type and cast coil transformers require 3" in throat for outdoor enclosure	•	•	•
Key interlocking standard between switches and fuse compartment		•	



Incoming

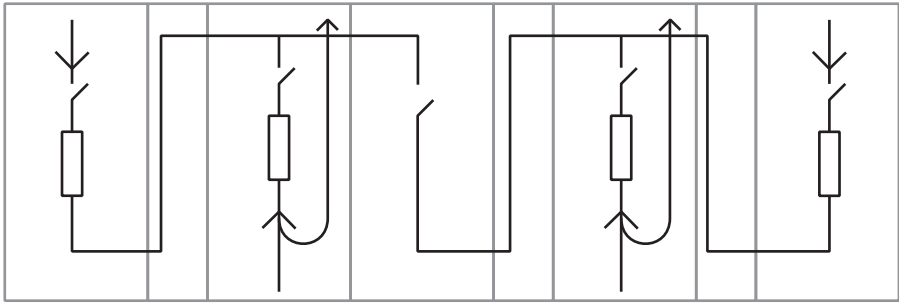


Single



Duplex





Line-up (main-tie-main)

Table 2: Switch ratings (In accordance with Standards in Table 5)

Max kV	Impulse Withstand kV (BIL)	Amperes	Momentary	Fault Close Asym
		Continuous and Interrupting	Switch Closed Asym	
4.76	60	600	40,000	40,000
4.76	60	1200	61,000	61,000
15	95	600	40,000	40,000
15	95	1200	61,000	61,000

Table 3: Typical weights

Configuration	Weight (lbs.)	
	NEMA 1	NEMA 3R
Single	1200	1550
Duplex	2500	3200
Mains/Ties	1800	2400
Branch	1200	1550
20" wide incoming cable	600	850
35" wide incoming cable	1050	1400

Table 4: Fuse ratings (Contact the factory for fuse options)

Fuse	Fuse type	Voltage class	Ampere range
Current Limiting Fuses		5 kV	25A - 900A
	EJO 1	15 kV	20A - 300A
Expulsion Fuses	RBA200	5 kV - 15 kV	40E - 200E
	RBA400	5 kV - 15 kV	20E - 300E
	RBA800	5 kV - 15 kV	450E - 720E

Table 5: Standards

ANSI/IEEE	C37.20.3
	C37.20.4
	C37.22
	60265
UL	As per ANSI/IEEE standards
CSA	C22.2, No. 31
	C22.2, No. 193



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