BM6 Plus

Low–voltage switch cabinet



Fixed switchgear



Drawer

BM6 Plus High–reliability Low–voltage System

The system continues Schneider’s advanced technical experiences in the low–voltage electrical and low–voltage system set field.
The system was built by following the needs in the Chinese market and customer’s habits.
The system is suitable for such scenarios as power distribution protection, motor startup and protection and reactive compensation.

Fixed Switchgear

Cellular type cabinet body
The fixed cellular structure is simple and reliable.
With fixed wiring, electrical connection quality is higher.

Detachable Circuit Breaker
The circuit breaker is provided with obvious visible breaking points which can protect maintenance personnel.
Operation is simple and interchangeability is high.

Modular Structure
Easy selection and configuration
Such production processes as processing, assembly, etc. can be simplified.

Drawer

Classical dual–chuck design
Wear of power distribution bus bars is avoided and maintenance cost is reduced.
The number of primary connectors is reduced and assembly efficiency is improved.
The system is easy to upgrade without turning off the power.

Customer needs are sufficiently considered.
Multiple drawer dimensions can be selected according to needs.
Optimized drawer interior space can accommodate more secondary elements.
Clear and obvious three–position indications prevent misoperation.

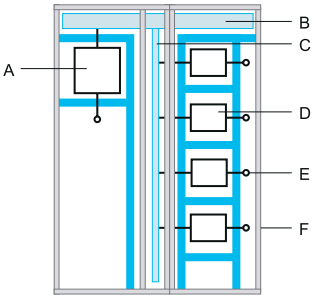
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BM6 Plus

Low–voltage switch cabinet



Capacitor box



Form 3b

No separation in cabinet case
A incoming line unit
B main bus
C power distribution bus
D outgoing line unit
E terminals for external conductor
F cabinet case (at least IP2X)

Capacitor Box

Standard Reactive Compensation Scheme
The capacitor box is built by complying with Chinese customers' habits.
It is verified by rigorous tests.
Requirements by capacitors and reactors for ventilation and heat radiation are sufficiently considered.

Schneider's new generation Easy CAN Capacitor Series
The average life reaches 100,000h.
With compact and small appearance, it is easy to install.
Patented terminal design sufficiently ensures safety in the use of electricity.

Bm6 Provides all essential assurances

Design Standards
The equipment complies with such national standards as GB7251–2013, etc.
Schneider's electrical switching elements are used to ensure optimal operating status of the system.

Excellent isolation form sufficiently ensures the safety of persons and equipment.
Bus is isolated from functional units.
Functional units are isolated from each other.
Outgoing line terminals are isolated from functional units.

BM6 Plus

Low–voltage switch cabinet



Cabinet elements

Strict experimental verification

1、Temperature rise extreme

Prevent false tripping from affecting normal operation.

Prevent maintenance personnel from being burnt

2、Short–time withstand strength

Generated arc is controlled inside the switch cabinet.

No risk of electric sh– ock during contact with casing

3、Electrical clearance and creep distance

No risk of elec– tric shock during contact with metallic parts.
No leaked current is caused from the insulated part.

4、Degree of Protection

Prevent personnel from contacting hazardous parts.

Prevent against impact of equipment from external solid or liquid objects

5、Dielectric Properties

Earlier aging of insulators is prevented against, arcing is prevented against and risk of electric shock during contact with casing is prevented against

6、Effectiveness of protective circuit

Safety when personnel contact metallic parts of the switchgear

7、Mechanical Operation

Life of mechanical operation mechanism is verified.

8、Other verification tests

Strength of materials and components. Combination of switching devices and elementsElectric shock pr– otection and integrity of protective circuit Internal circuit and connection

Perfect combination with Schneider electrical elements

EasyPact EVS frame circuit breaker series

EasyPact EZS moulded case circuit breaker series

EasyPact TVS contactor series

EasyCAN capacitor series

Assurance provided by professional manufacturer

The quality and reliability of BM6 Plus relies on critical techniques and experiences of Schneider in low–voltage electrical field and also on professional manufacturer. Close cooperation between Schneider and professional manufacturer in production, assembly, inspection, etc. ensures the reliability and quality of BM6 Plus.

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BM6 Plus

Low–voltage switch cabinet



General data

Application scenario	Power distribution
	Motor control
Standard reference	GB7251–2013
Installation location	Indoors
Ambient temperature (℃)	–5 to 40
Ambient humidity (40℃)	≤50%
Elevation (m)	≤2000

Electrical parameter

Rated operating voltage (V AC)		400
Rated insulating voltage (V AC)		1000
Rated impulse withstand voltage (kV)		12
Over–voltage category		IV
Degree of pollution		3
Rated frequency (Hz)		50/60
Horizontal bus	Rated current (A)	4000
	Rated short–time withstand current (kA/1s)	50/65/85
	Rated peak withstand current (kA)	105/143/187
Vertical bus	Rated current (A)	2350
	Rated short–time withstand current (kA/1s)	50/65
	Rated peak withstand current (kA)	105/143
Earthing system		TT–IT–TNS–TNC
Maximum incoming and outgoing line switching current (A)		4000
Maximum motor capacity (kW)		160
Reactive compensation (kvar)	Natural ventilation	200
	Forced ventilation	400

Mechanical Data

Total height (mm)	2200
Useful height (mm)	2000
Width (mm)	600/800/1000
Depth (mm)	1000
Separation type	Form2b/3b
IP rating	IP3X/IP4X
Surface protection of cabinet	Electrostatic coating of epoxy resin powder
Standard color of cabinet	RAL7035

BM6 Plus

Low–voltage switch cabinet

Technical Data of Cabinet

	fixed switchgear –Incoming cabinet	fixed switchgear – Contact cabinet	fixed switchgear -feeding	withdrawer type cabinet	capacitor cabinet
					
Mechanical properties	Incoming Cabinet	Contact Cabinet	Feeder Cabinet	Drawers	Capacitor box
Total height (mm)	2200	2200	2200	2200	2200
(1module = 50mm)	40 module	40 module	40 module	40 module	40 module
Width(mm)	600/800	800/1000	600	600	600/1000
Depth (mm)	1000	1000	1000	1000	1000
Separation type	From2b/3b	From2b/3b	From2b/3b	From2b/3b	Form2b
IP rating	IP3X/IP4X	IP3X/IP4X	IP3X/IP4X	IP3X/IP4X	IP3X/IP4X
Distribution bus					
Rated current			2350A and below	2100A and below	
Rated peak withstand current (kA/1s)			105/143	105/143	
Rated short–time withstand current (kA/1s)			50/65	50/65	
Electrical parameter					
Motor				160kW and below	
Power distribution			2500A and below	400A and below	

Overview of Functional Units

In a switchgear, switching elements are fixed on a mounting plate and the combination of mounting pla–te and switching elements are called a functional unit.

A set of rigorous methods are followed to select and arrange electrical switching elements.

These methods can ensure that errors are avoided in designing a switchgear.Each functional unit is in–stalled in a separate cubicle with a mechanical lock and all live conductor parts are isolated by metallic/ insulating materials.

BM6 Plus

Low–voltage switch cabinet

Fixed Type Functional Unit

EasyPact EVS EasyPact EVS Frame Circuit Breaker Series

The EasyPact EVS series are provided with 10 current levels and 2 breaking capacities and simple s–afety meets the requirement for low–voltage power distribution protection:
Type N: suitable for power distribution systems in residential building, commercial building and small and medium sized industries
Type H: suitable for high–capacity transformers or low–voltage power distribution systems operating in parallel.

Ics=100%Icu		04	06	08	10	12	16	20	25	32	40
N	50 kA	b	b	b	b	b	b				
H	65 kA		b	b	b	b	b	b	b	b	b

EasyPact EZS EasyPact EZS Moulded Case Circuit Breaker Series

EasyPact EZS：
The full EasyPact EZS moulded case circuit breaker series are provided with a thermomagnetic release:
Diversified housings:
7 types of housing currents 63/100/160/225/250/400/630A

Complete breaking capacities: 3 breaking levels:
Type E (25kA)
Type F (35kA)
Type N (50kA)

Simplified dimensions: 2 housing dimensions
EZS 63A(N)/100A(N)/160A/225A/250A
EZS 400A/630A

Comprehensive protections: 3 protection types
Power distribution protection, leakage protection (tripping and only alarm instead of tripping) and mo–tor protection

Solution for Reactive Power Compensation

The new generation Schneider Easy CAN capacitor series are used.

The average life reaches 100,000h.
With compact, small size, it is easy to install.
Unique terminal design ensures safety in use of electricity.

BM6 Plus

Low–voltage switch cabinet



Solution for Standard capacitor

Follow the Chinese market demand and custom habits
Passed strict experimental verification
Fully consider the demand of capacitance, reactance ventilation for cabinet

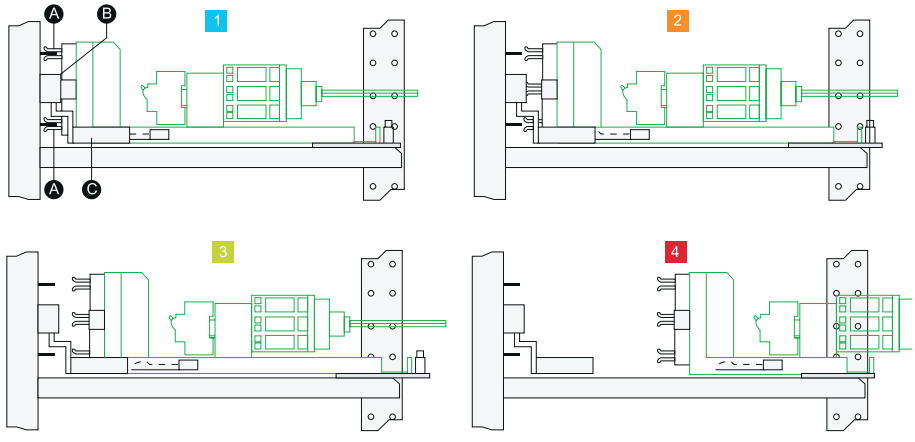
Drawout Functional Unit

Rapid and reliable maintenance and repair can be ensured by installing required switching elements in the drawer of a switchgear.
The effective mounting height is 40 modules and horizontal buses need to occupy certain modules. The basic modules of the drawer are 3M, 4M, 6M, 9M and 12M. The capacity of the motor in a single drawer does not exceed 160kW and distribution current does not exceed 400A.

One withdrawable functional unit consists of the following components:
One movable part supporting the equipment, one fixing mechanism supporting the movable part and playing the role of locating, main circuit connection contact connected withbus and auxiliary circuit connection contact;

Safety

The interlock mechanism for drawer allows the drawer to be in any of the 4 positions as shown in the figure below.



BM6 Plus

Low–voltage switch cabinet

(1)On Position

The main circuit and auxiliary circuit are switched on and the position can be locked by a maximum of 3 padlocks.As long as the circuit breaker closes (in the ON position), the safety system prevents the opening operation. The interlock mechanism interlinks the operations on the door handle and circuit breaker.

(2)Testing Position

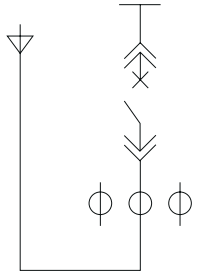
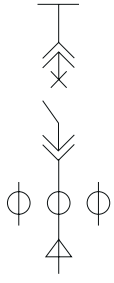
The main circuit breaks (incoming and outgoing) and the auxiliary circuit is kept switched on. The position can be used to check the auxiliary circuit and be locked by a maximum of 3 padlocks.

(3)Open Position All circuits are open and the position can be locked by a maximum of 3 padlocks.

(4)Withdrawal position

A: main outgoing contact B: main incoming contact C: auxiliary electrical contact

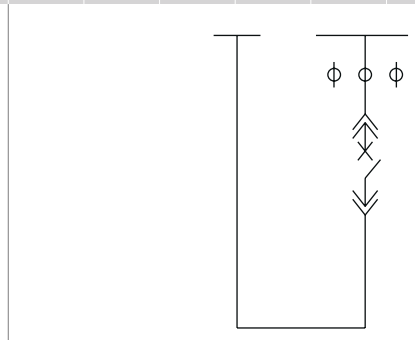
Incoming Line Scheme

Scheme No.		1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8
Primary scheme		 Incoming line on top				 Incoming line on bottom			
Purpose		Incoming line on top/Incoming line on bottom							
Transformer capacity (kVA)		500–1000	1250–1600	2000	2500	500–1000	1250–1600	2000	2500
Current carrying capacity (A)		630–1600	2000–2500	3200	4000	630–1600	2000–2500	3200	4000
Breaking capacity (kA)		65	65	65	65	65	65	65	65
Switching Elements	EVS08-16 H 3P	1							
	EVS20-25 H/L 3P		1						
	EVS32 H/L 3P			1					
	EVS40 H/L 3P				1				
	EVS08-16 H/L 4P					1			
	EVS20-25 H/L 4P						1		
	EVS32 H/L 4P							1	
	EVS40 H/L 4P								1
Height (1M=50mm)		12	12	12	12	12	12	12	12
Width (mm)		600	600	600	800	800	800	800	800
Depth (mm)		1000	1000	1000	1000	1000	1000	1000	1000

BM6 Plus

Low–voltage switch cabinet

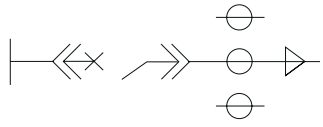
Incoming Line Scheme

Scheme No.		2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8
Primary scheme									
Purpose		Buscouple cabinet scheme							
Circuit breaker (A)		630–1600	2000–2500	3200	4000	630–1600	2000–2500	3200	4000
Breaking capacity (kA)		65	65	65	65	65	65	65	65
Switching Elements	EVS08-16 H 3P	1							
	EVS20-25 H/L 3P		1						
	EVS32 H/L 3P			1					
	EVS40 H/L 3P				1				
	EVS08-16 H/L 4P					1			
	EVS20-25 H/L 4P						1		
	EVS32 H/L 4P							1	
	EVS40 H/L 4P								1
Height (1M=50mm)		12	12	12	12	12	12	12	12
Width (mm)		600	600	600	800	800	800	800	800
Depth (mm)		1000	1000	1000	1000	1000	1000	1000	1000

BM6 Plus

Low–voltage switch cabinet

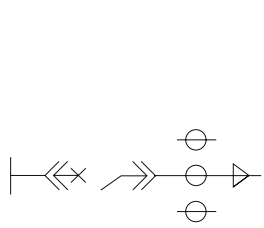
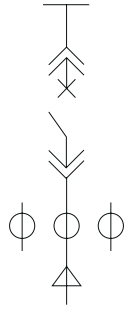
Incoming Line Scheme

Scheme No.		3.1	3.2	3.3	3.4	3.5	3.6	3.7
Primary scheme								
Purpose		Feeder (a single EZS moulded case switch should be horizontally installed)						
Housing current (A)		63	100	160	225	250	400	630
Breaking capacity (kA)		25/35/50						
Switching Elements	EZS63 3P	1						
	EZS100 3P		1					
	EZS160 3P			1				
	EZS225 3P				1			
	EZS250 3P					1		
	EZS400 3P						1	
	EZS630 3P							1
Height (1M=50mm)		3	3	3	3	3	4	4
Width (mm)		600	600	600	600	600	600	600
Depth (mm)		1000	1000	1000	1000	1000	1000	1000

BM6 Plus

Low–voltage switch cabinet

Incoming Line Scheme

Scheme No.		4.1	4.2	4.3	4.4	4.5	4.6	5.1	5.2	5.3	5.4	5.5	5.6	5.7
Primary scheme														
Purpose		Feeder (EVS N frame switch)						Feeder (EVS H/L frame switch)						
Frame current (A)		400	630	800	1000	1250	1600	630	800	1000	1250	1600	2000	2500
Breaking capacity (kA)		50	50	50	50	50	50	65	65	65	65	65	65	65
Switching Elements	EVS04 N 3P	1												
	EVS06 N 3P		1											
	EVS08 N 3P			1										
	EVS10 N 3P				1									
	EVS12 N 3P					1								
	EVS16 N 3P						1							
	EVS06 H 3P							1						
	EVS08 H 3P								1					
	EVS10 H 3P									1				
	EVS12 H 3P										1			
	EVS16 H 3P											1		
	EVS20 H 3P												1	
	EVS25 H/L 3P													1
Height (1M=50mm)		9	9	9	9	9	9	12	12	12	12	12	12	12
Width (mm)		600	600	600	800	800	800	800	800	800	800	800	800	800
Depth (mm)		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

Drawer Scheme

The BM6 Plus drawer currently includes 3 optional protection schemes:

Power distribution protection

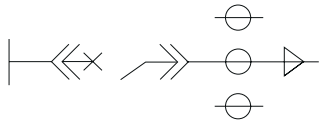
Direct motor startup

Motor startup in positive and inverse directions

BM6 Plus

Low–voltage switch cabinet

Power distribution circuit scheme

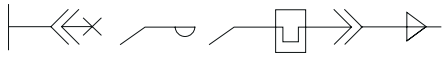


Breaker Specification	Voltage(V)	Current(A)	Current Transformer	Drawer Module (1M=50mm)
EZS63 3P	380/400	63	3 × BH–0.66CT	3M
EZS63 4P	380/400	63	3 × BH–0.66CT	4M
EZS100 3P	380/400	95	3 × BH–0.66CT	3M
EZS100 4P	380/400	95	3 × BH–0.66CT	4M
EZS160 3P	380/400	155	3 × BH–0.66CT	3M
EZS160 4P	380/400	155	3 × BH–0.66CT	4M
EZS225 3P	380/400	225	3 × BH–0.66CT	3M
EZS225 4P	380/400	225	3 × BH–0.66CT	4M
EZS250 3P	380/400	240	3 × BH–0.66CT	3M
EZS250 4P	380/400	240	3 × BH–0.66CT	4M
EZS400 3P	380/400	360	3 × BH–0.66CT	6M
EZS400 4P	380/400	360	3 × BH–0.66CT	9M

For more details about configuration scheme and technical information, refer to the BM6 Plus drawer coordination schedule.

Drawer Scheme

Scheme for protection by direct motor startup



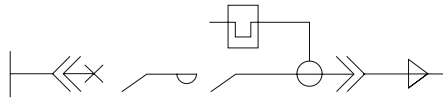
Power (W)	Calculated Current(A)–380	Circuit Breaker	Contact	Thermal Relay	Drawer Module (1M=50mm)
1.1	2.8	EZS100–MA	LC1E06	LRE08	3M
1.5	3.7	EZS100–MA	LC1E06	LRE08	3M
2.2	5.3	EZS100–MA	LC1E06	LRE10	3M
3.0	7.0	EZS100–MA	LC1E09	LRE12	3M
4.0	9.0	EZS100–MA	LC1E09	LRE14	3M
5.5	12	EZS100–MA	LC1E12	LRE16	3M
7.5	16	EZS100–MA	LC1E18	LRE21	3M
10	21	EZS100–MA	LC1E25	LRE22	3M

BM6 Plus

Low–voltage switch cabinet

Drawer Scheme

Power (W)	Calculated Current(A)–380	Circuit Breaker	Contact	Thermal Relay	Drawer Module (1M=50mm)
11	23	EZS100–MA	LC1E25	LRE22	3M
15	30	EZS100–MA	LC1E32	LRE32	3M
18.5	37	EZS100–MA	LC1E40	LRE355	3M
22	43	EZS100–MA	LC1E50	LRE357	3M
30	59	EZS100–MA	LC1E65	LRE359	3M
37	72	EZS100–MA	LC1E80	LRE363	3M



Power (W)	Calculated Current(A)–380	Circuit Breaker	Contact	Thermal Relay	Drawer Module (1M=50mm)
45	85	EZS100–MA	LC1E95	LRE10	6M
55	105	EZS160–MA	LC1E120	LRE10	6M
75	140	EZS160–MA	LC1E200	LRE10	6M
90	170	EZS250–MA	LC1E200	LRE10	9M
110	210	EZS400–MA	LC1E250	LRE10	9M
132	250	EZS400–MA	LC1E300	LRE10	9M
160	300	EZS400–MA	LC1E300	LRE10	9M

For more configuration schemes and technical details, please refer to BM6 Plus drawer coordination table

Design Specification for BM6 Plus Capacitor Box

The BM6 Plus capacitor box employs the integrated cabinet design to sufficiently ensure the safety and reliability of the scheme.

Maximum Compensation Capacity

Natural ventilation: 200kvar, cabinet width 600mm

Forced ventilation: 400kvar, cab–inet width 600mm (without electric reactor compartment) or 1000mm (without electric reactor compartment)

Reactive Compensation Parameters

The BM6 Plus capacitor box employs the integrated cabinet design to sufficiently ensure the safety and reliability of the scheme.

Maximum Compensation Capacity

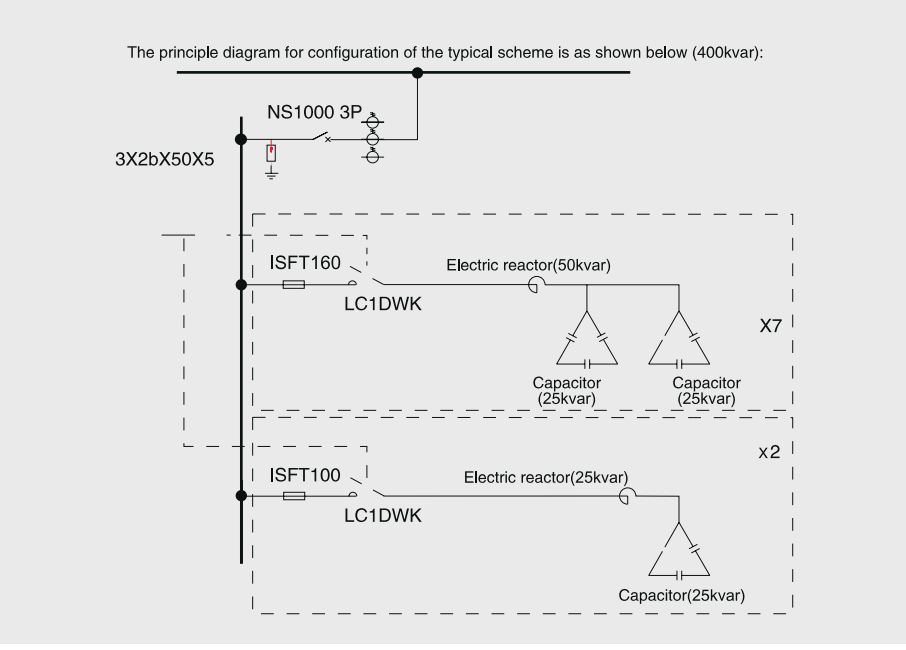
Natural ventilation: 200kvar, cabinet width 600mm

Forced ventilation: 400kvar, cab–inet width 600mm (without electric reactor compartment) or 1000mm (without electric reactor compartment)

BM6 Plus

Low–voltage switch cabinet

Reactive Compensation Parameters



The reactive compensation capacity for BM6
Plus capacitor box at the 50Hz and 400V rated voltage is as follows:

IP rating	Ambient Temperature (℃)	Compensation Power (kvar)	Cabinet Width (mm)	Cabinet Depth (mm)	Cabinet Height (mm)	Electric Reactance	Switching Steps	Ventilation Type
IP3X/4X	35	150	600	1000	2200	无	4	(N)
IP3X/4X	35	200	600	1000	2200	无	5	(N)
IP3X/4X	35/40/45	250	600	1000	2200	无	6	(F)
IP3X/4X	35/40/45	300	600	1000	2200	无	7	(F)
IP3X/4X	35/40/45	350	600	1000	2200	无	8	(F)
IP3X/4X	35/40/45	400	600	1000	2200	无	9	(F)
IP3X/4X	35/40/45	150	1000	1000	2200	5.7%/7%/14%	4	(F)
IP3X/4X	35/40/45	200	1000	1000	2200	5.7%/7%/14%	5	(F)
IP3X/4X	35/40/45	250	1000	1000	2200	5.7%/7%/14%	6	(F)
IP3X/4X	35/40/45	300	1000	1000	2200	5.7%/7%/14%	7	(F)
IP3X/4X	35/40/45	350	1000	1000	2200	5.7%/7%/14%	8	(F)
IP3X/4X	35/40/45	400	1000	1000	2200	5.7%/7%/14%	9	(F)

Remark：N=Natural ventilation　F =Forced ventilation