

KYN28

Metal-Clad Withdrawable Type Switchgear

12 / 24 kV · up to 5000 A / 50 kA · IEC 62271-200



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KYN28 metal-clad withdrawable switchgear serves three-phase AC 50 / 60 Hz, 12 kV and 24 kV single-busbar and sectionalised systems for power distribution, control and protection. Fully type-tested to GB/T 3906, DL/T 404 and IEC 62271-200, with interchangeable withdrawable trucks and a complete five-prevention interlocking system. Typical applications: utility substations, industrial plants, renewable-energy stations and commercial buildings.

Standards and Specifications

Chinese national standards	GB/T 3906 · GB/T 1984 · GB/T 11022 · DL/T 404
IEC standards	IEC 62271-200 / -100 / -102 / -1

Service Conditions

Ambient temperature	-10 °C to +40 °C
Relative humidity — daily / monthly average	≤95% / ≤90%
Altitude	≤1000 m
Maximum seismic intensity	8 degrees

The switchgear shall be installed where there is no fire or explosion hazard, no serious pollution, no chemically corrosive gas and no severe vibration. For conditions beyond the above, please consult us when ordering.

Type Designation

K Y N 28 - □□ / □□	K	Metal-clad (armoured)	Y	Withdrawable (movable) type
	N	Indoor service	28	Design series number
	□□	Rated voltage: 12 or 24 kV	/□□	Primary scheme number

Special Precautions

In areas with high humidity and large temperature fluctuation, put the anti-condensation heater into operation immediately after commissioning and keep it running in both standby and service.

International system voltages

The 12 kV class serves 6.6 / 10 / 11 kV networks; the 24 kV class serves 20 / 22 kV networks. A 17.5 kV variant (38 / 95 kV insulation per IEC 62271-1) is available for 13.8 / 15 kV systems on request.

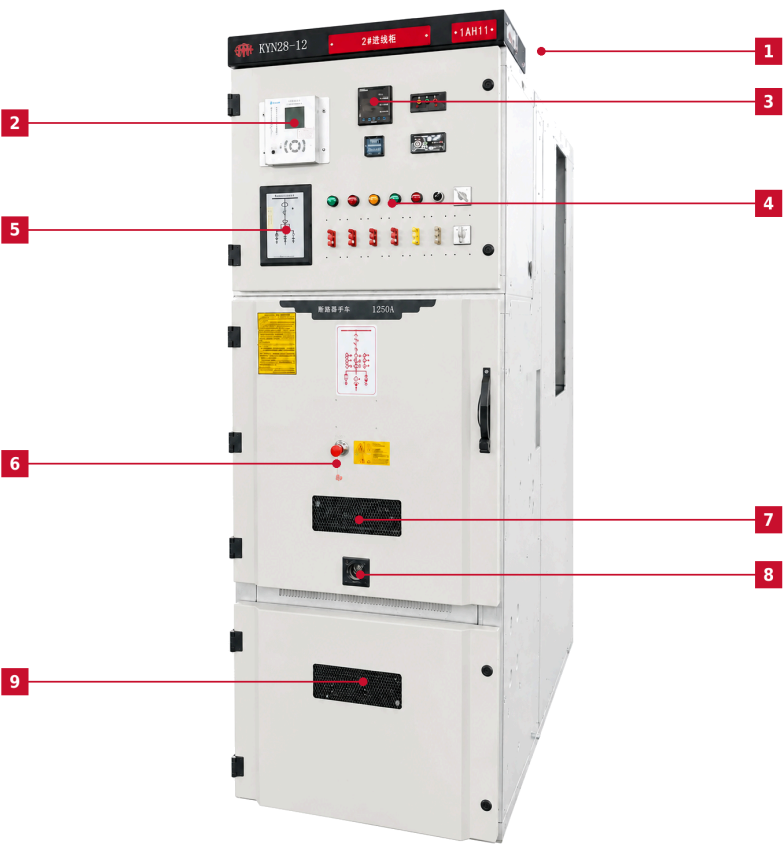


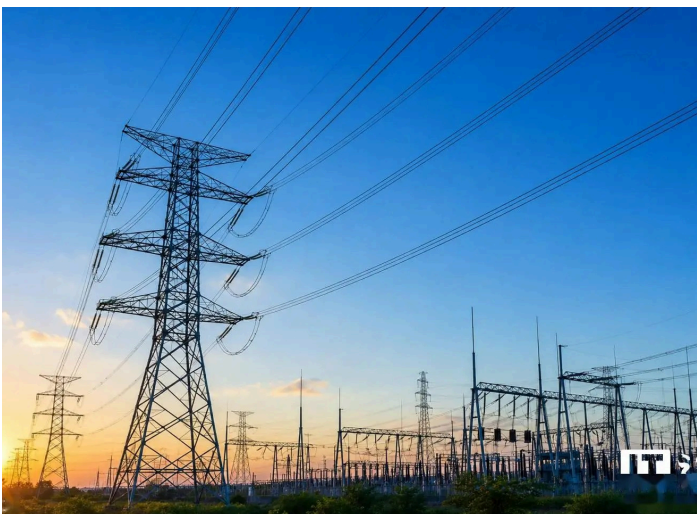
Fig. KYN28-12 panel — operator front view

- 1. Pressure-relief flaps on cabinet roof
- 2. Numerical protection relay (IED)
- 3. Multifunction power meter
- 4. Indicator lamps and control switches
- 5. Mimic diagram with breaker-status indication
- 6. Emergency trip pushbutton
- 7. Ventilation louvre — breaker compartment
- 8. Truck racking aperture (door closed)
- 9. Cable compartment front cover with louvre

Safety for Use

- All switching operations take place with the high-voltage compartment doors closed
- Metal-clad and completely partitioned; standard degree of protection IP4X ensures personal safety
- Primary-circuit insulation provides a platform for a compact air-insulated panel and saves floor area
- The trucks are interchangeable, force-saving and move smoothly inside the panel
- Generous space is provided for multiple cable connections; installation and maintenance are convenient

Applications



UTILITY GRIDS



INDUSTRY



SOLAR & WIND



BUILDINGS

Interlocks

A complete series of mechanical interlocks protects both personnel and the switchgear. Each operation below is possible only when its interlock conditions are fulfilled — otherwise it is mechanically blocked.

- Move the withdrawable part from the test position to the service position: circuit breaker OPEN, earthing switch OPEN
- Move the withdrawable part from the service position back to the test position: circuit breaker OPEN
- Operate the circuit breaker: withdrawable part locked in the test position or the service position
- Operate the earthing switch: withdrawable part locked in the test position, cable-compartment door closed

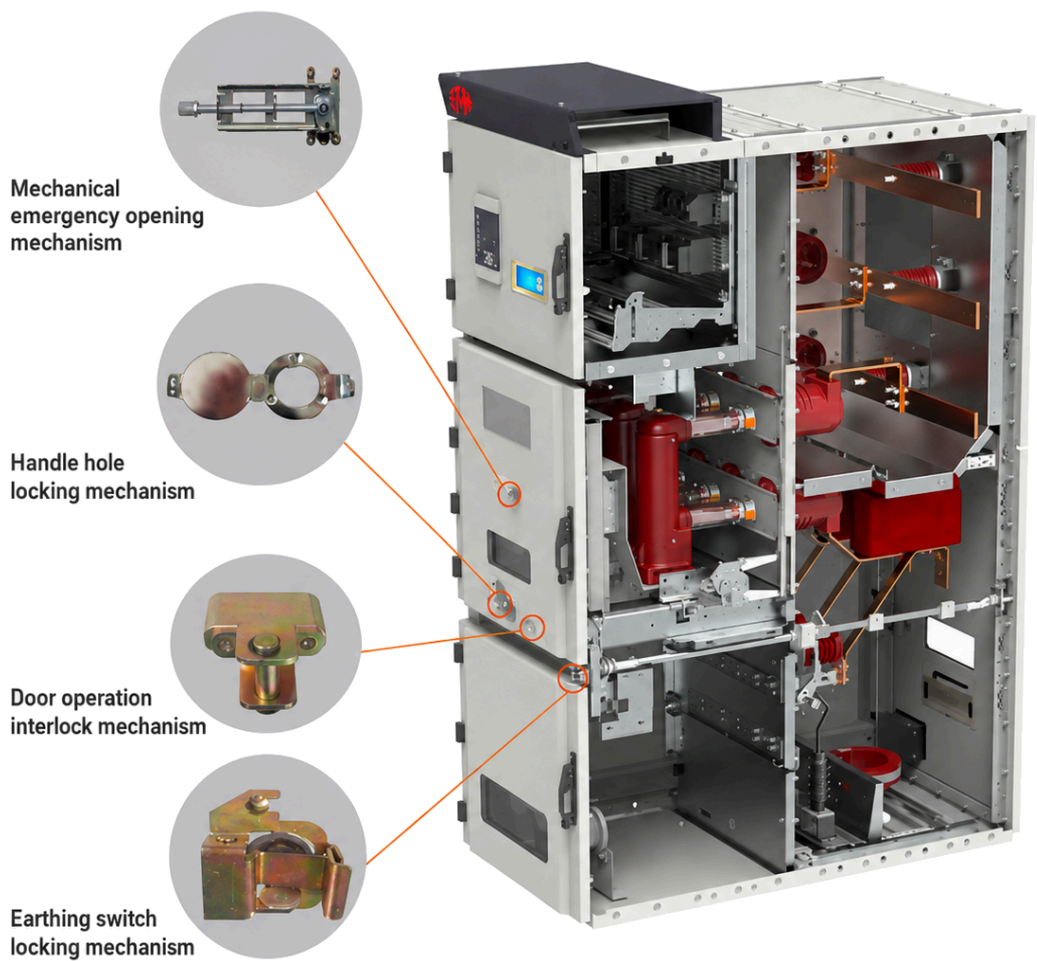


Fig. Interlocking mechanisms — cutaway view

KYN28 Switchgear — Main Parameters

Parameter	Unit	12 kV	24 kV
Rated voltage	kV	12	24
Rated power-frequency withstand voltage	kV / 1 min	42	65
Rated lightning impulse withstand voltage	kV	75	125
Rated frequency	Hz	50 / 60	50 / 60
Rated current	A	630 - 5000 *	630 - 3150 *
Rated short-time withstand current (4 s)	kA	20 / 25 / 31.5 / 40 / 50	25 / 31.5 / 40
Rated peak withstand current	kA	50 / 63 / 80 / 100 / 125	63 / 80 / 100
Auxiliary operating voltage	V	DC 110 / 220	DC 110 / 220
Enclosure protection level		IP4X **	IP4X **
Internal arc classification (IAC)		AFLR	AFLR
Minimum phase / earth air clearance	mm	125	180
Outline dimensions W × D × H	mm	800/1000 × 1500/1800 × 2300	800/1000 × 1800 × 2400

* Forced air cooling is necessary when the switchgear rated current is 2500 A and above.

** With the door panel open, the degree of protection between compartments is IP2X.

Test

The series has passed the complete type test at a national authoritative testing agency. Before delivery every cabinet is subject to routine tests: insulation, mechanical operation, main-circuit resistance measurement, auxiliary electrical device test and wiring correctness check.

VSL Series Vacuum Circuit Breaker

- Modular design — simple, reliable structure with long service life; the interrupter is arranged on top of the driving mechanism
- Compact operating mechanism with stable performance; suitable for frequent operation within the working-current range
- Insulating pole design improves dielectric strength and is maintenance-free even in polluted conditions

Parameter	Unit	VSL-12	VSL-24
Rated voltage	kV	12	24
Rated current	A	630 - 5000	630 - 3150
Rated short-circuit breaking current	kA	20 - 50	25 / 31.5 / 40
Rated short-circuit making current (peak)	kA	50 - 125	63 / 80 / 100
Power-frequency withstand — phase-to-earth / across open gap	kV / 1 min	42 / 48	65 / 79
Lightning impulse withstand — phase-to-earth / across open gap	kV	75 / 85	125 / 145
Mechanical endurance	ops	10000	10000

Basic Structure

The cabinet is divided into four separate compartments by earthed metal partitions: busbar compartment, circuit-breaker (truck) compartment, cable compartment and low-voltage compartment. Each compartment is fitted with its own pressure-relief channel so that an internal fault arc is safely vented upwards.

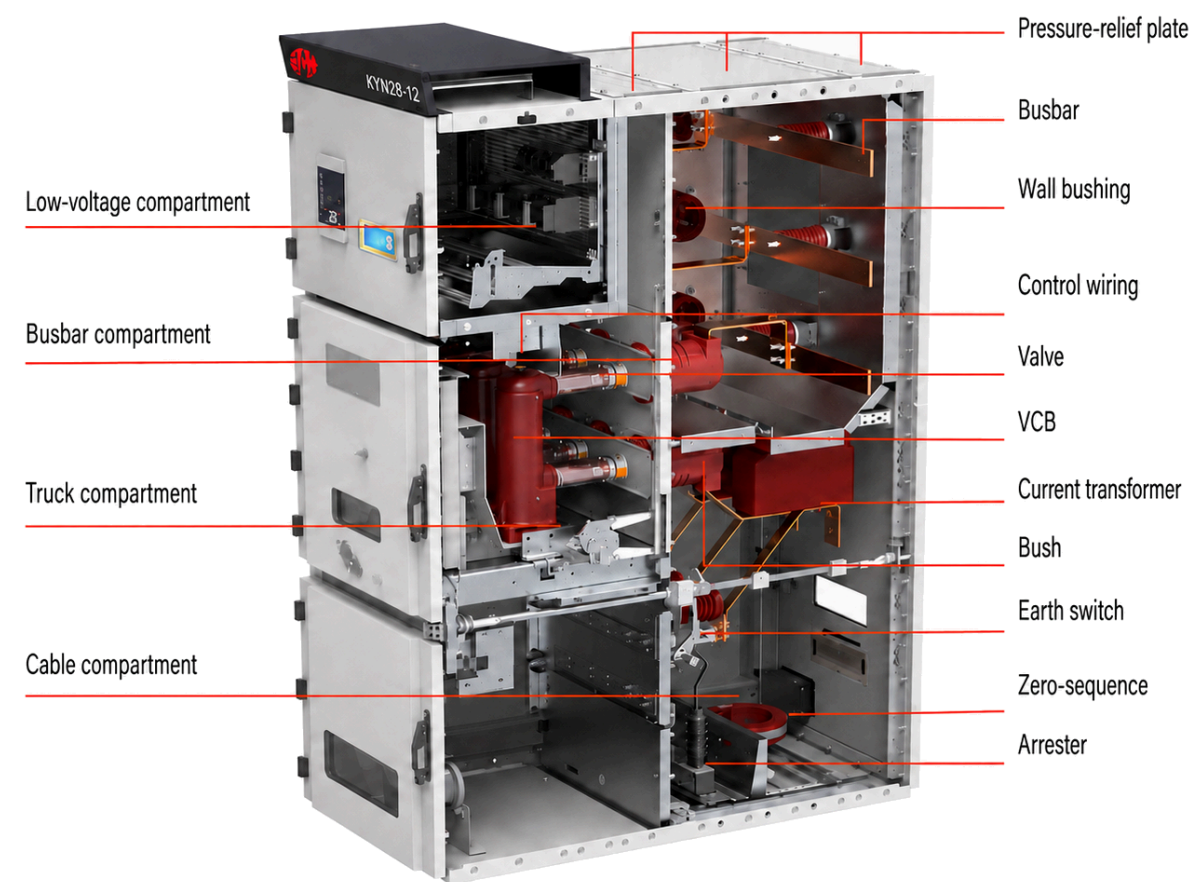


Fig. KYN28 internal arrangement — cutaway view

Compartments

Truck Compartment

- The truck moves on guide rails between the test / isolation and service positions and is operated with the door closed; position, breaker ON / OFF and spring-charge status are visible through the window
- Metal shutters open and close automatically with the truck movement; each shutter can be operated independently, ensuring personal safety

Cable Compartment

- Single-core cables up to six per phase, three-core cables up to three per phase; cable sealing ends mounted above 650 mm
- Optional parts: current transformer, voltage transformer, make-proof earthing switch, surge arrester, residual-current transformer, voltage indicator

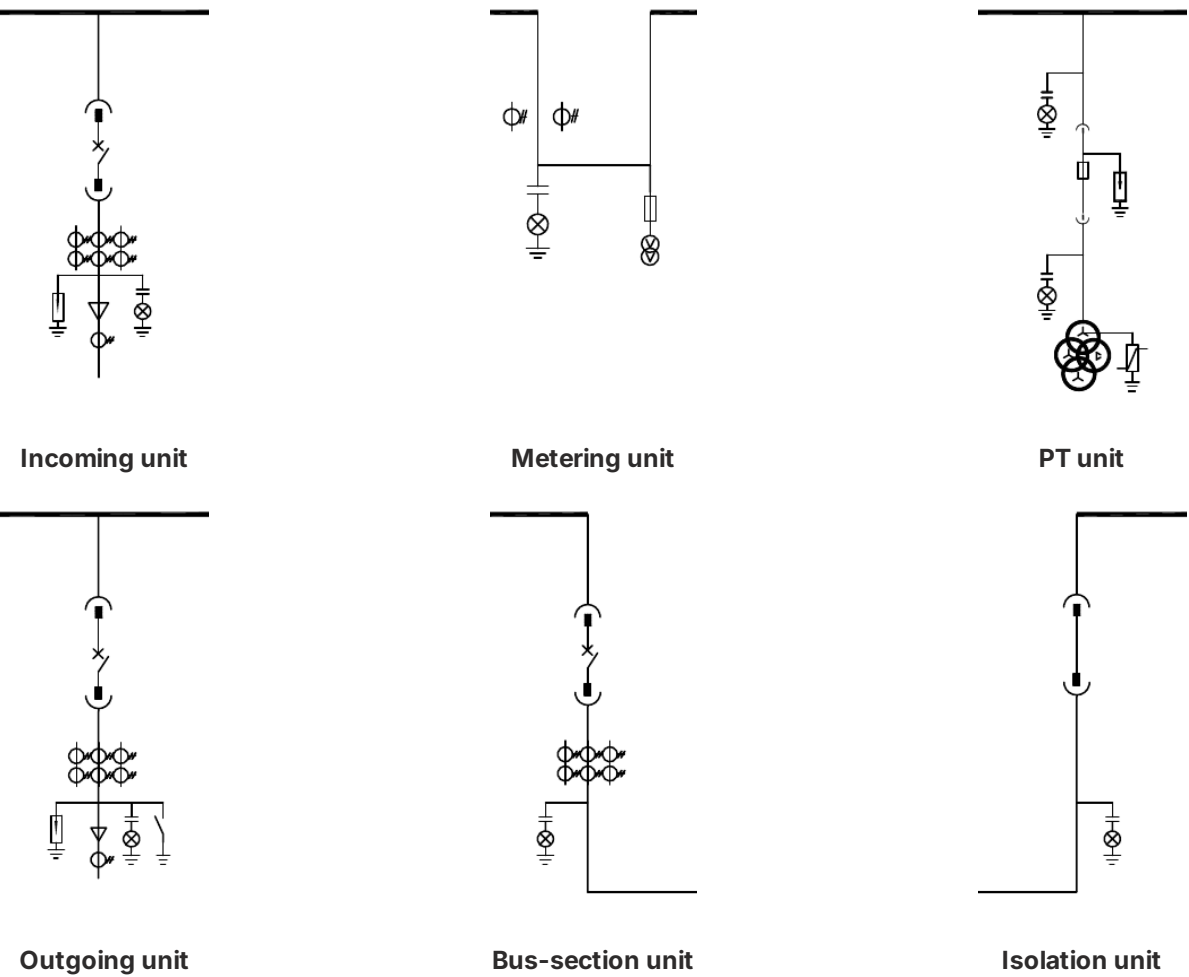
Busbar Compartment

- The main busbar is made of one to three copper bars per phase according to the rated current, insulated by heat-shrink sleeves
- Adjacent panels are divided by inter-panel bushings and bushing plates, preventing transfer of faults between panels

Low-Voltage Compartment

- The compartment and its door panel accept various secondary equipment; the control busbar on top is covered by a rotary steel sheet, convenient for site installation

Fig. 1 — Typical Primary Scheme Units



* Scheme units apply to both 12 kV and 24 kV classes. Full scheme sheets with equipment lists are available on request.

Ordering Instruction

- Single-line system diagram of the primary wiring scheme, model and specification of the main busbar
- Secondary schematic diagram and terminal arrangement of each panel; otherwise wiring follows our manufacturing standard
- Control busbar arrangement and type of the small busbar
- Distribution room layout drawing and relevant section sketch; where a busbar bridge is required, state the span and the height above ground
- List and specification of the main electrical components
- Regional or special operating requirements, and the type and quantity of non-standard accessories and spare parts, stated in detail when ordering

Fig. 2 — KYN28-24 Outline and Installation Dimensions



* KYN28-12: 800/1000 × 1500/1800 × 2300 mm. Certified installation drawings are issued for approval after order.

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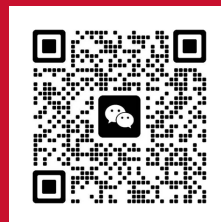
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