

# Switchgear Medium Voltage

Empowering Industries with Reliable Switchgear  
Solutions, Ensuring Safety and Efficiency  
Every Step of the Way



# TABLE OF **CONTENT**

**04**

Switch Gear AIS & GIS 11 KVA

**05**

Product Features

**06**

Schematic Diagram of Structure

**07**

11KV 1-Segment Busbar Drawing

**08**

Switch Gear AIS & GIS 33KVA

**09**

Applications

**10**

Product Features

**11**

Schematic Diagram of Structure

**12**

33KV 1-Segment Busbar Drawing

**14**

Fuse configuration selection  
parameters table



# Switchgear Medium Voltage



- 01 Innovation at the Core:** Novo Electric Technology UK Ltd is at the forefront of developing cutting-edge switchgear solutions that redefine industry benchmarks for safety, reliability, and operational efficiency.
- 02 Tailored Excellence:** We deliver customized switchgear systems designed to meet the specific needs of your power infrastructure, ensuring it is always protected and optimized for peak performance.
- 03 Future-Ready:** Our commitment to quality and precision means your power systems are not only secure today but are also fully prepared to meet the complex challenges of tomorrow's evolving power landscape.



PERFORMANCE DRIVEN BY ROBUST  
**SWITCHGEAR SOLUTIONS**



# Switchgear AIS & GIS

## Product Summary

The N-IM-202 indoor metal-clad mobile switchgear is a full power distribution device for 3.6kV–11kV, 3 phase AC 50/60Hz, single bus sectionalized systems. It is primarily used for power transmission of middle/small generators in power plants, power reception and transmission for substations in power distribution and power systems of factories, mines, and enterprises, and starting of large medium voltage motors, among other things, in order to control, protect, and monitor the system. It complies with IEC62271-1, IEC62271-200, and other relevant standards. It has features of preventing to push or pull the breaker's handcart with load, breaker's erroneously open or close, shut off the breaker when the grounding switch is in the position of close, enter into an electriferous compartment, and incorrectly close the interlock function of the grounding switch.



## Product Features



1. The cabinets and partition boards adopting hot—dip Al—Zn alloy—coated steel sheet and frame adopting multiple bending technology make high overall intensity and good earth continuity.

2. Fully considering the operation characteristics of the neutral point of the power system without grounding or through the arc suppression coil grounding, increase the insulation clearance and enhance the insulation level, so as to ensure that the switchgear meets the high requirements for the insulation strength.

3. Completely metal clad and absolutely compartments separation.

4. The degrees of protection is IP4X, which effectively prevents the equipment from being invaded by sundries and insect pests.

5. Simple and effective mechanical block for five—preventions, preventing from mis—operating.

6. The movable handcart use worm and worm wheel propelling mechanism. The same type of handcart can be interchanged completely, easy to operate and maintain.

7. It can be installed away from the wall, which is more convenient for double sides maintenance. Or it can be installed against the wall, maintain in front of the cabinet, with less space occupation.

8. Min. width of panel is 550mm, which can increase the utilization of distribution room.

9. The product runs safely and reliably through the harsh condensation, filth and internal arc tolerance test.



# Technical Parameters General

Sr.	Content	Unit	Value		
1	Rated Voltage	kV	11	24	
2	Rated Current	A	630~4000		
3	Rated Frequency	Hz	50/60		
4	Power Frequency Withstand Voltage in 1 min	Phase, Earthed	kV	42	50
		Isolating Fracture	kV	48	65
5	Lightning Impulse Withstand Voltage(Peak)	Phase, Earthed	kV	75	95
		Isolating Fracture	kV	85	110
6	Rated Current of the Main Busbar	A	630~4000		
7	Rated Current of the Branch Busbar	A	630~4000		
8	Rated Short-circuit Breaking Current	kA	20/25/31.5/40/50		
9	Rated Short Circuit Making Current	kA	50/63/80/100/125		
10	Rated Short-time Withstand Current(4s)	kA	20/25/31.5/40/50		
11	Rated Peak Withstand Current	kA	50/63/80/100/125		
12	Frequency Withstand Voltage in 1 min of Aux Control Loop	V	2000		
13	Internal Arc Duration Test(0.5s)	kA	31.5~40		
14	Rated Voltage of Aux Control Loop	V	AC or DC 110/220		
15	Degrees of Protection	IP	IP4X (IP2X when the front door is opened)		

# Technical Parameters

Sr.	Content	Unit	Value
1	Ambient temperature	°C	55
2	Rated current	A	2500
3	Short circuit level	KA	40
4	Charging motor voltage	v d.c	110
5	Frequency	HZ	50
6	Current transformer - <b>incomer</b>	A	2000/5/5/5
7	Rated current circuit breaker current transformer- <b>Bus section</b>	A	2500/5/5/5
8	Rated current - <b>Auxiliary transformer</b>	A	1250
9	Current transformer - <b>Auxiliary transformer</b>	A	150-300/5-5-5
10	Rated current circuit breaker - <b>Outgoing feeders</b>	A	1250
11	Current transformer - <b>Outgoing feeders</b>	A	600-300/5-5-5
12	Circuit breaker vacuum or SF6 spring charge mechanism		
13	Control, protection and circuit breaker		



# SCHEMATIC DIAGRAM OF STRUCTURE



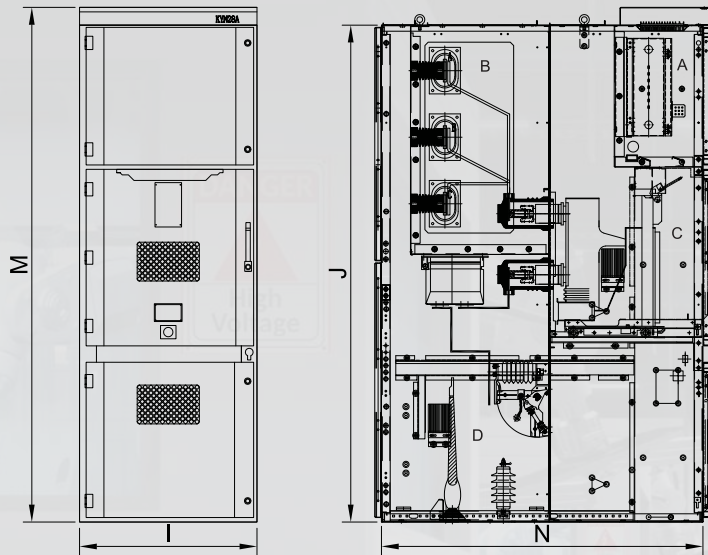
In compliance with the applicable safety



Robust and compact frame



Simplified installation and operations



- A: Relay & instrument compartment
- B: Busbar compartment
- C: VCB compartment
- D: Cable compartment

Dimensions of switchgear: (with \* is frame size excluding door panel size)

Voltage	Rated parameters	I(mm)	J(mm)	M(mm)	N*(mm)
11 kV	630~1250A down line	800	2240	2320	1450
11 kV	630~1250A Overhead cable	800	2240	2320	1610
12kV	1600A and above (rated current 1250A at an altitude of 4000m)	1000	2240	2320	1450
12kV	1600A and above (rated current 1250A at an altitude of 4000m)	1000	2240	2320	1610
24kV	Down line	1000	2320	2430	1760
24kV	Overhead cable	1000	2320	2430	2060

## CONSISTENT POWER MANAGEMENT WITH RELIABLE SWITCHGEAR TECHNOLOGY



**11  
KVA**



# 11KV 1-SEGMENT BUSBAR DRAWING

		Main Bus - Bar - TMY - 2*(100*10)									
		Primary rated voltage (KV): 11 KV	Secondary rated voltage (V): DC110								
<b>Cabinet color: to be determined</b>											
Switch cabinet type: KMO28-12 Number: 28 face											
<b>Circuit Name:</b>		Section I #5 Feeder	Section I #4 Feeder								
<b>Specification of switchgear support busbar</b>		Section I #3 Feeder	Section I #2 Feeder								
<b>Switch cabinet number</b>		Section I #1 Feeder	Section I # Auxiliary Transformer								
		I- Section incoming cabinet	I- Section segment cabinet								
			I- section isolation cabinet								
Cabinet size: width x depth x height	800x1500x2350	800x1500x2350	800x1500x2350	800x1500x2350	800x1500x2350	800x1500x2350	1000x1800x2350	800x1500x2350	1000x1800x2350	1000x1800x2350	
Component Name	Model and Specifications	Specification	Qty	Specification	Qty	Specification	Qty	Specification	Qty	Specification	Qty
Circuit breaker	VXB-12P/12500-40		1		1		1		1		1
Isolated Vehicle	GL-12/2500										1
Isolated Vehicle	RD+BL-12/250										
Current Transformer	LZZBJ9-35	600-300/5A 5P30/0.5/0.2s 30/30/30VA	3	600-300/5A 5P30/0.5/0.2s 30/30/30VA	3	600-300/5A 5P30/0.5/0.2s 30/30/30VA	3	600-300/5A 5P30/0.5/0.2s 30/30/30VA	3	600-300/5A 5P30/0.5/0.2s 30/30/30VA	3
Voltage Transformer (Fully Insulated)	JDZ9-10/11,0.11/0.11		0.5/3P								30/50VA
Fuse											
Lightning arrester (with counter)	H15MWZ(R)-51/34		3		3		3		3		3
Earthing Switch	JN15-12/315		1		1		1		1		1
Zero sequence Transformer	100/1A 10P10 5VA LX- 160		1		1		1		1		1
One time harmonic eliminator	LXQ-12										1
Intelligent Control			1		1		1		1		1
Microcomputer Harmonic elimination											1
Multi function power meter			1		1		1		1		1
Kilowatt-hour meter	0.25L level										1

Contract Number	Project	SUBSTATION PROJECT		Date	06.07.2024	3 pages in total
Organization	One proof reading	Approved		Unit	NOVO ELECTRIC TECHNOLOGY UK LTD	page 1



# Switchgear

## Medium Voltage

**33  
KVA**

Empowering Industries with Reliable Switchgear Solutions, Ensuring Safety and Efficiency Every Step of the Way





# Switchgear AIS & GIS

## Product Summary

N-IM-203 Air insulated metal-clad moveable switchgear is an indoor switchgear assembly that operates at 50/60Hz three phase and has a rated AC voltage of 33.0kV. It is used for transmission and distribution in generators, transformer substations, and industrial and mining businesses. It can also be used to manage, protect, and monitor electric circuits, and it is especially beneficial in high-frequency working circumstances. It complies with IEC62271-1, IEC62271-200, and other related standards.



## Environmental Conditions

1. Ambient temperature range: +55°C to -15°C. The average temperature within 24 hours is no more than +55°C.
2. Altitude: No greater than 1000 metres.
3. Relative Humidity: the average daily value is no more than 95%, and the average monthly value is no higher than 90%.
4. Earthquake intensity: no more than 8 degrees.
5. Vapor pressure: The average daily value should not exceed 2.2kPa, and the average monthly value should not exceed 1.8kPa.
6. Installation places free of fire, explosive hazards, significant pollution, chemical corrosion, and strong vibration.

**33**  
**KVA**

## Product Features

1. The cabinets and partition boards are made of hot-dip Al-Zn alloy-coated steel sheet, and the frame is built, resulting in a high overall intensity and strong earth continuity.
2. The cabinet is a combination type, whereas the breaker handcart is a floor structure type.
3. The new composite insulating vacuum circuit breaker is interchangeable and easily replaced.
4. The handcart has a screw propulsion mechanism, which allows it to travel effortlessly while preventing misoperation from damaging the propulsion gear.
5. All procedures can be completed while the cabinet door is closed.
6. The interlocking between the main switch, the handcart, and the switch cabinet uses the obligatory mechanical locking mechanism, which meets the five preventive functions.
7. The cable room is large and can connect to a variety of cables.
8. The IP4X degree of protection successfully keeps knickknacks and insect pests out of the equipment.
9. The product passes the rigorous condensation, dirt, and internal arc tolerance tests with safety and dependability.

## Technical Parameters

Sr.	Content	Unit	Value
1	Rated Voltage	kV	33
2	Rated Current	A	630/1250/1600/2000/2500
3	Rated Frequency	Hz	50/60
4	Power Frequency Withstand Voltage in 1 min	Phase, Earthed	kV 95
		Isolating Fracture	kV 110
5	Lightning Impulse Withstand Voltage(Peak)	Phase, Earthed	kV 185
		Isolating Fracture	kV 215
6	Rated Current of the Main Busbar	A	630/1250/1600/2000/2500
7	Rated Current of the Branch Busbar	A	630/1250/1600/2000/2500
8	Rated Short-circuit Breaking Current	kA	20/25/31.5
9	Rated Short-time Withstand Current(4s)	kA	20/25/31.5
10	Rated Peak Withstand Current	kA	50/63/80
11	Rated Short Circuit Making Current	kA	50/63/80
12	Frequency Withstand Voltage in 1 min of Aux Control Loop	V	2000
13	Internal Arc Duration Test(0.5s)	kA	31.5
14	Degrees of Protection	IP	IP4X (IP2X when the front door is opened)
15	Rated Voltage of Aux Control Loop	V	AC or DC 110/220

## Product Summary

N-IM-204 Full Gas Insulated RMU is indoor cabinet type AC metal sealed switching device, with AC 10kV and 50/60Hz. It is suitable for distribution systems, ring power supply and biradial power supply system in factories, workplaces, residential high-rise buildings, it possesses functions of receiving, distribution and protection. It can also be used in the prefabric



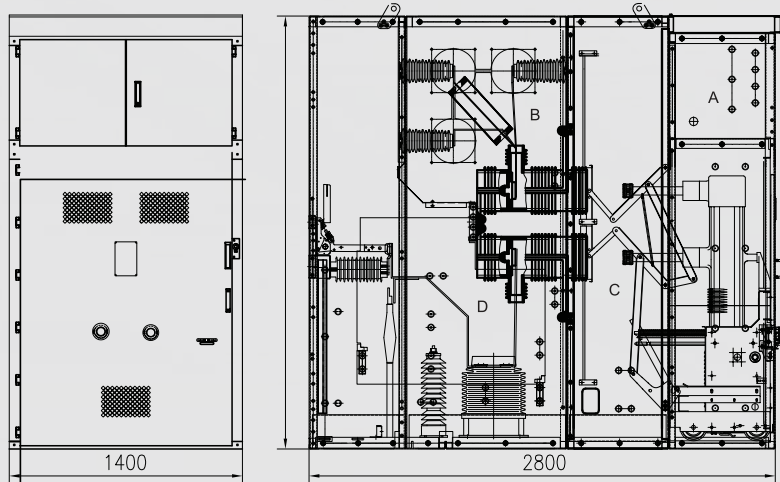
# Technical Parameters

Sr.	Content	Unit	Value
1	Ambient temperature	°C	55
2	Rated current	A	2500
3	Short circuit level	KA	40
4	Charging motor voltage	v d.c	110
5	Frequency	HZ	50
6	Current transformer - <b>incomer</b>	A	2000/5/5/5
7	Rated current circuit breaker current transformer- <b>Bus section</b>	A	2500/5/5/5
8	Rated current - <b>Auxiliary transformer</b>	A	1250
9	Current transformer - <b>Auxiliary transformer</b>	A	150-300/5-5-5
10	Rated current circuit breaker - <b>Outgoing feeders</b>	A	1250
11	Current transformer - <b>Outgoing feeders</b>	A	600-300/5-5-5
12	Circuit breaker vacuum or SF6 spring charge mechanism		
13	Control, protection and circuit breaker		

# Technical Parameters

Content		Unit	C Module			F Module			V Module		
Rated Voltage		kV	12	24	33	12	24	33	12	24	33
Rated Frequency		Hz	50/60								
Rated Current		A	630			Depends on the current rating of the fuse			630		
Power-Frequency Withstand Voltage	Phase to Phase Phase to Eath	kV	42	65	95	42	65	95	42	65	95
	Between Open Contacts	kV	48	79	95	48	79	95	48	79	95
Lightning Impulse Withstand Voltage (Peak)	Phase to Phase Phase to Eath	kV	75	125	250	75	125	250	75	125	250
	Between Open Contacts	kV	85	145	250	85	145	250	85	145	250
Zero Gauge Pressure Test		-	Pass								
Rated Short-time Withstand Current		kA/s	25kA/4s	25kA/3s	25kA/3s	-			25kA/4s	25kA/3s	25kA/3s
Rated Peak Withstand Current		kA	63			-			63		
Rated Short-Circuit Making Current		kA	50			Limited By HV Fuses			50		
Rated Short-Circuit Breaking Current		kA	-			Limited By HV Fuses			25		
Rated Transfer Current		A	-			1750	1400	-			
Rated Active Load Breaking Current		A	630			-			-		
Rated Closed-Loop Breaking Current		A	630			-			630		
1min Power-Frequency Withstand Voltage(Control and Auxiliary Circuit)		V	2000								
Load Switch/Circuit Breaker		Time	5000			5000			10000		
Isolation Switch/Grounding Switch		Time	3000			3000			3000		
Loop Resistance		μΩ	≤120			-			≤120		
Rated Inflation Pressure (Absolute Pressure)		Bar	1.3								
Minimum Inflation Pressure (Absolute Pressure)		Bar	1.2								
Annual Relative Gas Leakage Rate		%	≤0.05								

## Schematic Diagram of Structure



- A: Relay & instrument compartment
- B: Busbar compartment
- C: VCB compartment
- D: Cable compartment

Switchgear Dimensions:  
(with \* is frame size excluding door panel size)

Voltage	Rated parameters	A(mm)	B(mm)	C(mm)	D(mm)
33KV	Down line	1400	2600	2650	2800
	Overhead cable	1400	2600	2650	3000

Remarks: 1600mm wide cabinet type can be customized.

## Environmental Conditions

1. The ambient temperature shouldn't be lower than  $-40^{\circ}\text{C}$  or higher than  $+55^{\circ}\text{C}$ . Within a day, the average temperature shouldn't rise above  $+55^{\circ}\text{C}$ .
2. Altitude: Up to 2,000 meters.
3. Relative Humidity: the average value is not more than 95% on a daily basis or 90% on a monthly basis.
4. The maximum intensity of an earthquake is 8 degrees.
5. Vapor Pressure: the average daily and monthly values are limited to 2.2 and 1.8 kPa, respectively.
6. Installation sites free from severe pollution, chemical corrosion, fire, explosion risk, and strong vibration.



EMPOWERING OPERATIONS WITH DURABLE AND  
**EFFICIENT SWITCHGEAR**

**33**  
KVA



Rated voltage	a	a1	a2	b	b1	b2	b3	c	c1
11kV	371	696	1021	1736	1336	710	400	798	150
24kV	445	845	1245	2000	1550	796.5	450	800	150
33kV	512	992	1472	2200	1835	750	365	967	-

Note: b2.b3 height can be customized upon request

## Fuse configuration selection parameters table

Rated voltage	Transformer rated capacity(kVA)													
	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000
	Hv fuse rated current(A)													
6/7.2	16	20	20	25	31.5	40	50	63	80	100	125	160	200	250
10/12	10	16	16	20	25	31.5	40	50	63	80	80	100	125	160
15/17.5	6.3	10	10	16	16	20	25	31.5	40	80	80	80	100	125
20/24	6.3	10	10	10	16	16	20	25	31.5	40	50	63	80	100
35/40.5	3.15	6.3	6.3	6.3	10	10	16	16	20	25	31.5	40	50	56

Note: the above is the general selection principle of fuse. Since the fuse tube of the inflation cabinet is sealed in an airtight box, especially in a sultry areas, it is recommended to select the fuse according to one step larger than conventional current. Specific please according to the local design scheme.

- Protects and controls power systems efficiently.
- Includes breakers, fuses, and relays.
- Works with low, medium, and high voltage.
- Ensures safety during maintenance.
- Prevents damage from electrical faults.
- Vital for homes, businesses, and industries.
- Can be automated for remote control.
- Optimizes power distribution reliability.
- Reduces downtime with quick fault isolation.
- Enhances system flexibility and scalability.



**EFFICIENT SWITCHGEAR** ➤ ➤ ➤

**33  
KVA**

# 33KV 1-SEGMENT BUSBAR DRAWING

<b>Main Bus - Bar: TMV - 2*(100*10)</b>											
<b>NOVO</b> Electric Technology UK Ltd	Primary rated voltage(KV):33KV Secondary rated voltage(V):10KV										
<b>Cabinet color: to be determined</b>											
Switch cabinet type:K1N061-4/5 Quantity: 31 faces											
<b>Circuit name:</b>	Section I #5 Feeder	Section I #4 Feeder	Section I #3 Feeder	Section I #2 Feeder	Section I #1 Feeder	I Section PT cabinet	II Reactive power compensation	I-Section Inerting cabinet	Section I # Auxiliary Transformer	II Section segmented Inerting cabinet	II Section Inerting cabinet
<b>Switch cabinet number</b>											
<b>Cabinet size: width x depth x height</b>	1400x2800x2600	1400x2800x2600	1400x2800x2600	1400x2800x2600	1400x2800x2600	1400x2800x2600	1400x2800x2600	1400x2800x2600	1400x2800x2600	1400x2800x2600	1400x2800x2600
<b>Component Name</b>											
<b>Model and Specifications</b>											
Circuit breaker	VXB-40SP/7500-40										
Circuit breaker	VXB-40SP/7250-40										
Isolated Vehicle	GI-40/5/2500										
Isolated Vehicle	GI-40/5/250										
Current Transformer	LZ2B/9-35	600-300/5A 5P30/0.5/0.2s 30/30/30VA	600-300/5A 5P30/0.5/0.2s 30/30/30VA	600-300/5A 5P30/0.5/0.2s 30/30/30VA	600-300/5A 5P30/0.5/0.2s 30/30/30VA	600-300/5A 5P30/0.5/0.2s 30/30/30VA	600-300/5A 5P30/0.5/0.2s 30/30/30VA	2500/5A 5P30/0.5/0.2s 30/30/30VA	150-300/5A 5P30/0.5/0.2s 30/30/30VA	600-300/5A 5P30/0.5/0.2s 30/30/30VA	600-300/5A 5P30/0.5/0.2s 30/30/30VA
Voltage Transformer (Fully Insulated)	J029-40/5/1/√3 / √3	0.5/9P									
Fuse	XRN-40/5/1A										
Lightning arrester (with counter)	HVSWZR)-5/7/34	3	3	3	3	3	3		3		3
Earthing Switch	JN2-40/5/3/15	1	1	1	1	1	1		1		1
Zero sequence Transformer	100/1A 10P10 5VA LX-φ160	1	1	1	1	1	1		1		1
One Time harmonic Eliminator	LXQ-12							1			
Intelligent Control		1	1	1	1	1	1		1		1
Microcomputer Harmonic elimination function power meter								1			1
Kilowatt-hour meter	0.25L level	1	1	1	1	1	1		1		1

Contract Number	Project	SUBSTATION PROJECT				Date	Unit	
Organization	One proof reading	Approved				06.07.2024	NOVO ELECTRIC TECHNOLOGY UK LTD	3 pages in total page 1



# Switchgear Medium Voltage



**11**  
KVA

**33**  
KVA