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MV Instrument Transformer

-INDOOR CURRENT TRANSFORMERS (up to 40,5kV)

- Block Type
- Narrow Type
- BusBar Type

-INDOOR VOLTAGE TRANSFORMERS (up to 40,5kV)

- Single phase or double phase, block type
- Single phase, fused type



MV Instrument Transformer



OUTDOOR CURRENT TRANSFORMERS (up to 72,5kV)

- Dry Type



OUTDOOR VOLTAGE TRANSFORMERS (up to 72,5kV)

- Single phase block type

LV Instrument Transformer

LOW VOLTAGE CURRENT TRANSFORMERS ($U_m = 0.72 \text{ Kv}$)

Types:

- Indoor Types
- Outdoor Types

L.V. Ring Types

L.V. Cable Types



Epoxy Insulators and Components

1) CAPACITIVE INSULATORS

- $U_m = 12-17,5-24-36 \text{ Kv}$

2) POST INSULATORS

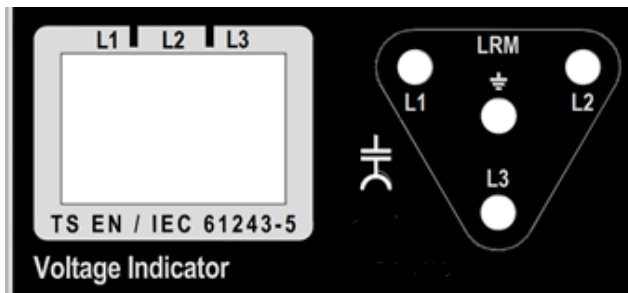
- $U_m = 12-17,5-24-36 \text{ kV}$

3) SCREWABLE BUSHING



Voltage Indicators

Capacitive voltage indicator is designed to detect the potential on the medium voltage busbars together with the capacitive voltage dividers.



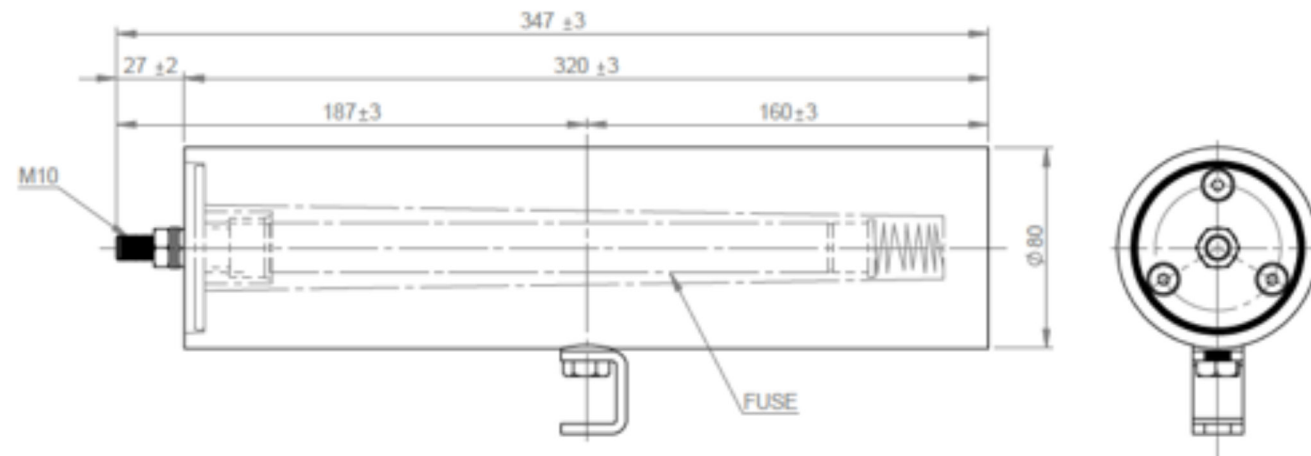
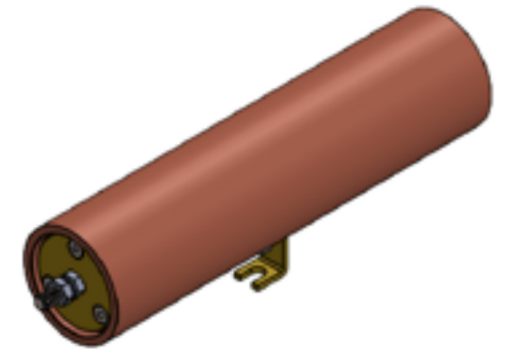
MANDATORY PRODUCTS

- 1 pc Voltage Indicator
- 3 pcs Capacitive Insulators
- 3 pcs coaxial cable (3m or 6m)



Fuse Tubes

MV and HV Epoxy resin insulated fuse tubes
12-17,5-24 kv



LV Current Transformers

A comprehensive range of reliable and accurate current transformers (CTs) for low-voltage industrial, commercial and residential metering applications.

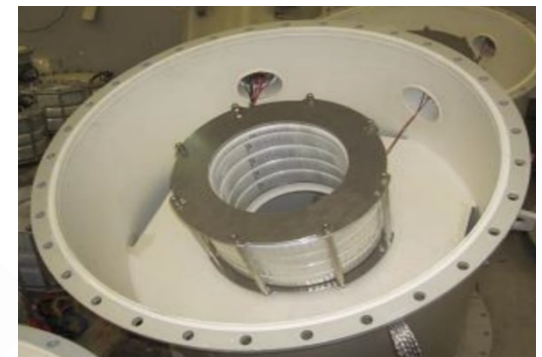
CT range is an essential component of the AC measurement system, designed to work optimally with panel instruments, transducers and energy meters. These CTs are made following stringent plant quality assurance procedures, which fully comply with applicable standards (IEC: 61869-2 & IS: 16227-2).

The range includes CTs for primary current from 30 A to 4000 A and secondary current of 5 A / 1 A



Ring type Transformers

- Bushing -Oil immersed Type L.V. C.T.
- Used in oil type power transformers,
- Paper or polyester insulated production is made according to customer request.
- Oil temperature max. It is produced in accordance with 130 C
- Production can be made in the requested size and protection classes in accordance with the customer's request.
- Productions are made as a single core or multiple phase core + assembly kit group.
- Label information and end markings: It is made in accordance with the proper standard + customer request



Sample image for installation

Outdoor Vacuum Circuit Breaker

- 38kV 800A 16kA

Vacuum Circuit Breaker is fully type tested in CESI Laboratories. The VCB is available up to 38kV with embedded 800A/1A current transformer and voltage sensors.

The BOTK insulating material is Hydrophobic Cycloaliphatic Epoxy (HCEP). Vacuum interrupters are embedded within the HCEP poles with current and voltage sensors.



MV Load Break Switch

It is a circuit element that switches on and off under operating conditions including over-currents. It has been designed to control the on and off position of the system. It is usually used for disconnecting. It is mostly used with a fuse at MV distribution networks.



MV Disconnect

It has been designed to ensure safe insulation of the circuit. It is usually associated with a ground knife.



EARTHING DISCONNECT

It has been designed to provide safety even under power. It earths the phase conductors whose power is cut.



MV Circuit Breaker

It is used for transferring, switching on and off the rated current in the distribution systems, and cutting off the overcurrent and short circuit currents.

- 1) **SF6 GAS CIRCUIT BREAKER**
- 2) **VACUUM CIRCUIT BREAKER**



Lateral Type



Frontal Type

Vertical Type Fused Load Disconnect

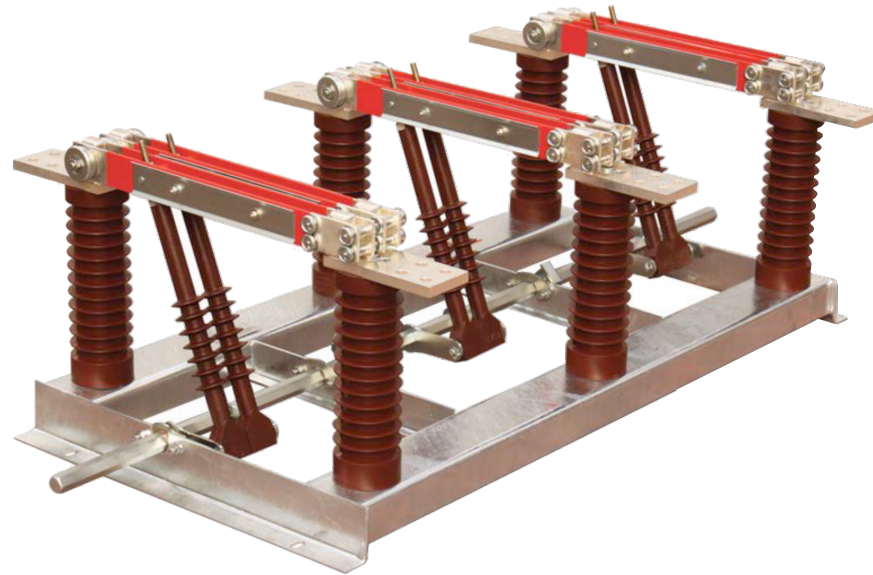
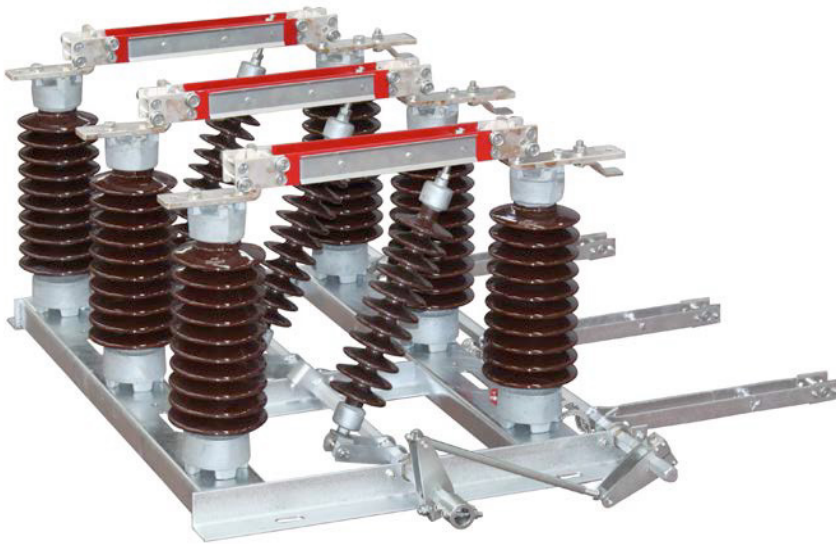


Type 1: Three Phases Can Be Opened Separately



Type 2: Three Phases Can Be Opened Together

MV Indoor and Outdoor Disconnectors



HV-MV-LV Fuses

High and LV Voltage fuses are current limiting. Suitable for both outdoor and indoor applications.

- Transformer Protection
- Voltage Transformer Protection
 - Capacitor Protection
- Cable and Line Protection
- Short circuit protection of motors
 - Nh Fuses



Thermostat

0-40 / 30-90 / 30-110 / 40-120 / 60-190 / 60-200 / 50 -285 / 50-300 C
stove, water heater, water heater, tea machine, boiler, fryer, oven,
pipe welding machine and special machine thermostat types.

Code	Operating range C	Terminal	Mile	Long Spiral lenght(mm)	Sensor Size	Sensor Diamete
NT-117 CO (112 CO)	0-40	2	16 ± 1	900	133 ± 5	Ø 6
NT-117 DO (112 DO)	0-40	2	16 ± 1	900	133 ± 5	Ø 6
NT-167 CO/1 (162 CO/1)	0-40	2	16 ± 1	900	125 ± 5	Ø 6
NT-167 DO/2	0-40	2	16 ± 1	900	150 ± 5	Ø 6
NT-127 DO (122 DO)	30-90	2	16 ± 1	900	98 ± 5	Ø 6
NT-127 DO/1 (122 DO/1)	30-90	2	16 ± 1	1550	95 ± 5	Ø 6
NT-127 DO/2 (122 DO/2)	30-90	2	16 ± 1	3050	95 ± 5	Ø 6
NT-177 DO (172 DO)	30-90	3	16 ± 1	900	95 ± 5	Ø 6
NT-127 BO	30-90	2	23 ± 1	900	95 ± 5	Ø 6
NT-137 DO	30-110	2	16 ± 1	900	95 ± 5	Ø 6
NT-137 DO/1 (132 DO/1)	40-120	2	16 ± 1	900		Ø 6
NT-139 DO (134 DO)	30-110	2	16 ± 1	3050	95 ± 5	Ø 6
NT-171 S/1	30-85	3	23 ± 1	450	108 ± 5	Ø 6
NT- 187 DO (182 DO)	30-110	3				
NT-187 DO/1 (182 DO/1)	40-120	3				
NT-202 BO	50-300	3	16 ± 1	900	157 ± 5	Ø 3
NT-232 DU/12	60-190	2	13 ± 1	320	73 ± 5	Ø 6
NT-234 AT	60-190	2	23 ± 1	2050	73 ± 5	Ø 6
NT-251 HA	60-200	2	16 ± 1	420	58 ± 5	Ø 6
NT-251 HA/1	50 -300					





Hermetic Oil Type Transformers

They are produced in a range of 50 - 2500 kVA, up to 36 kV high voltage level, with three or single phase, oiled, naturally cooled (ONAN), idle tap changer or automatic on-load tap changer, both externally and indoors. Hermetic oil type distribution transformers are manufactured by filling the oil under vacuum by balancing the oil pressure and atmospheric pressure at the desired temperature and not to allow the cooling oil to come into contact with the atmosphere. As a result of changing oil pressure due to thermal changes in hermetic oil type distribution transformers, the internal heat is controlled by natural conservator and contraction of boiler wave walls. Mechanical design and manufacturing are made to withstand these effects.

Hermetic oil type distribution transformers are shorter in length than a conservator tank transformer". Therefore, it can be used in smaller areas. Since the oil does not come into contact with the atmosphere in hermetic transformers, it does not require oil change in certain periods as in transformer with conservator tank.

Measurement Devices



Ammeters & Voltmeters



**Three-Phase
Digital Panel Meters**



Digital Panel Meters



Position Indicators



**Single & Multi Function
Transducers**

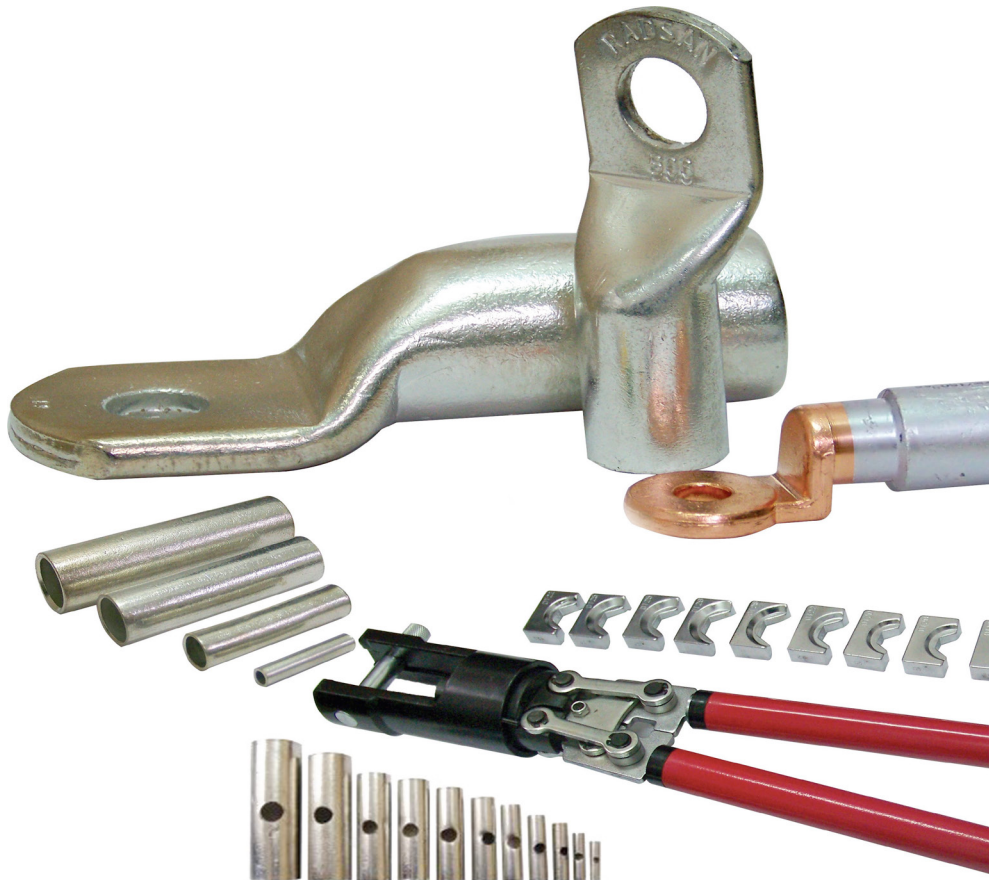


Energy Meters

**Industrial Relay-Time Relay-Signal
Relay-Miniature PCB Power Relays**

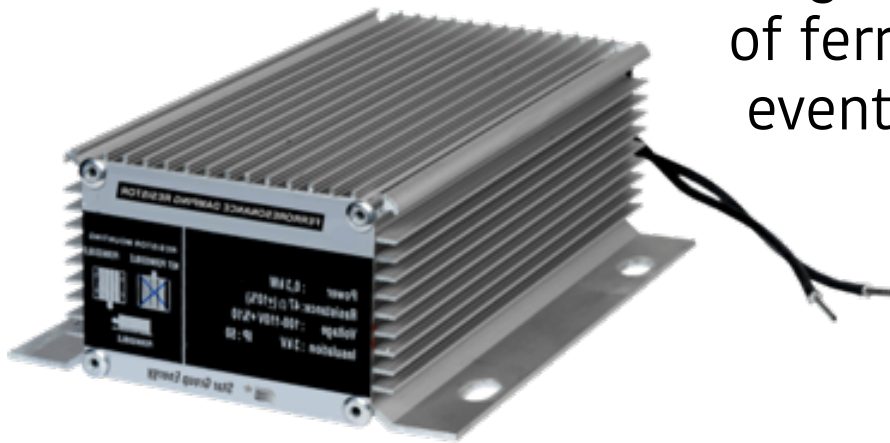


Cable Equipments And Connectors

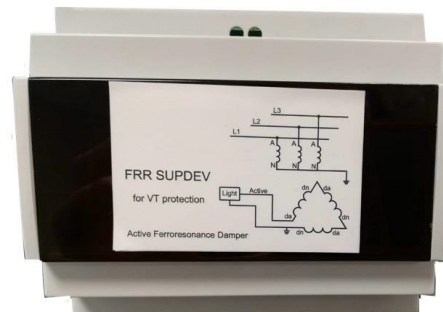


Ferroresonance Damping Resistor

Damping resistance is a device designed to protect metering voltage transformers from harmful effects of ferroresonance which is a nonlinear resonance event in medium voltage power networks with ungrounded or indirectly grounded.

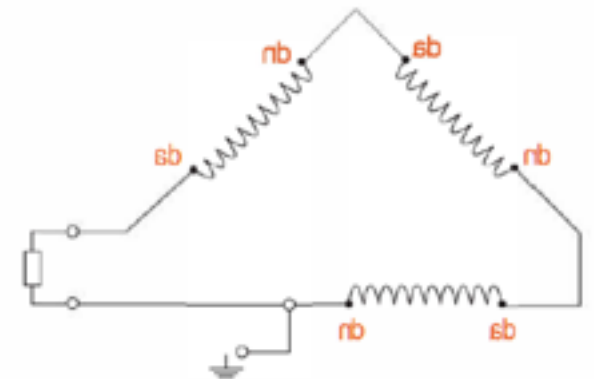


Analogue Damping Resistance



Digital Damping Resistance

Earth fault winding resistor



Pannel Heaters

PTC mini resistor, self regulating

OVERCURRENT PROTECTION: Electronic thermal overload

HEATING CAPACITY: W15 – W25

POWER SUPPLY: 110-250V AC DC

MAX.CURRENT: 2A



Alluminium profile, anodized Fan Resistor Heater

OVERCURRENT PROTECTION: Electronic thermal overload

HEATING CAPACITY: W250 – W500 – W750

POWER SUPPLY: 230V 50/60 Hz

MAX.CURRENT: 1.2a – 2.4a – 3.6a



PTC resistor, self regulating

OVERCURRENT PROTECTION: Electronic thermal overload

HEATING CAPACITY: W30 – W50 – W75-W100 – W150

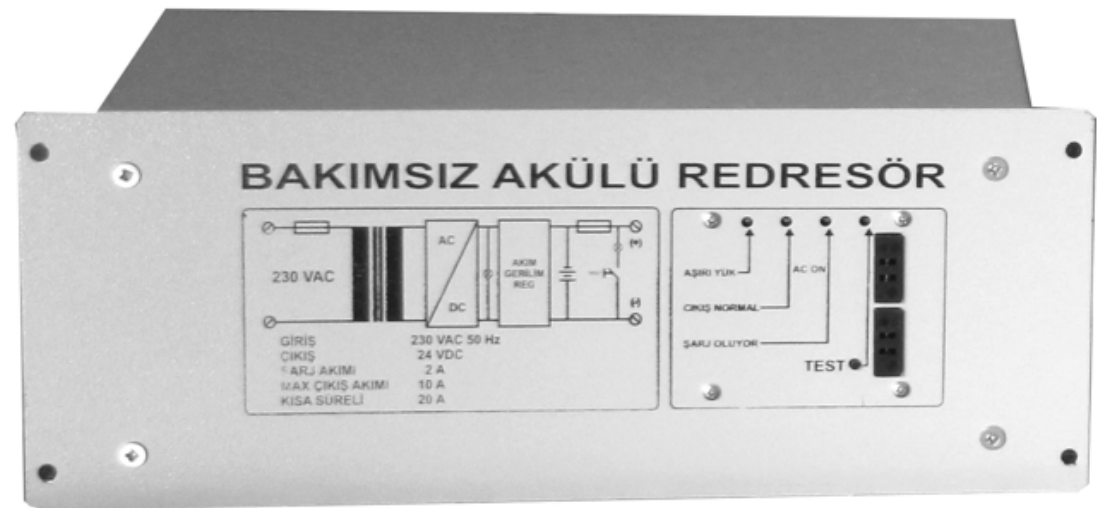
POWER SUPPLY: 110-250V AC DC

MAX.CURRENT: 2a – 4a – 6a



Maintenance Free Battery Rectifier

7 Ah / 12 Ah / 18 Ah / 26 Ah Capacity Battery Rectifier Group;
It is a low cost and reliable DC power supply with an internal battery group in its cabinet. Internal VRLA (AGM) batteries require no maintenance, can meet high current demands and have low discharge current



Battery Rectifier

Battery Rectifier Groups have two values of 24V and 110V, and are designed to continuously and safely feed the systems requiring DC supply of energy distribution stations and to keep the battery groups charged. They are safer and more efficient products with thyristor rectification circuits. They can be used with battery sets between 7Ah and 200Ah according to preference. Transformer output power is 25A, automatic fuses at the outputs are supported by auxiliary contacts. Thanks to the battery maintenance and protection system, it supports healthier and longer-lasting use of the battery.

Input Voltage: 220 / 230 VAC

Output Voltage: 24V-110V DC

Output Current: 25A

Battery capacity: 7Ah...200Ah



Medium Voltage Invertors



Inrush Current Reactor



Low voltage Reactors



ZnPS LV Power Capacitor



Inductive Load Reactor



ZnPP AG Power Condensers



Harmonic Filter Reactor

Medium Voltage Compensation Panel

MV Compensation Systems are advanced technology solutions used to compensate reactive power in electrical networks and to increase power quality. In facilities consisting of MV loads, MV (Medium Voltage) Compensation Systems are installed to compensate the reactive power of these loads. While it can be designed as a fixed type as MV motor head compensation, it can also be produced as an automatic type where the steps can be automatically activated and deactivated with a MV reactive power relay by connecting to a MV busbar. Optionally, unbalance protection can be provided with a double star connection.

What is MV Compensation System?

So, What is (Medium Voltage) MV Compensation System? It is a method applied to compensate reactive power and increase power quality in medium voltage electrical networks. Reactive power is necessary for the operation of motors, transformers and other inductive loads in industrial facilities with large energy consumption. However, this reactive power creates unwanted loads on energy transmission lines and leads to energy losses. Therefore, MV Compensation Systems are used to balance the reactive power and improve the power factor.



Kiosks

1) Monoblock Concrete Kiosks



2) Prefabricated Kiosks



3) Sheet Metal Kiosks



Neutral Grounding Resistors

Neutral Grounding Resistors

Neutral Grounding Resistors are used to limit phase-to-earth fault current to ensure the safety of workers and equipment in electrical systems. While determining the limiting current of the neutral grounding resistor, the value of the phase-ground short-circuit current that will occur in the immediate vicinity of the transformer or generator to which it will be connected is calculated. Generally, the appropriate resistance value is selected to limit the fault current to 10% of this short circuit current. At the same time, the value of the limited fault current to be selected must be at an optimum value so that it can be detected by the relays. For this reason, the primary value of the current transformer used in the neutral grounding resistor can be chosen differently than the limited fault current value.



MV Cubisles

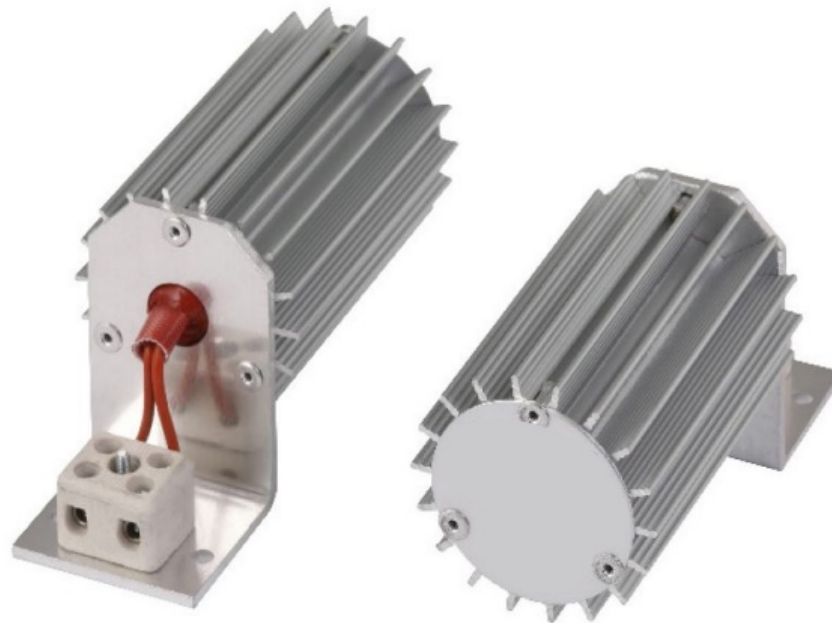
- High reliability, easy of installation and flexibility in secondary distribution with our air-insulated metal-enclosed modular medium voltage switchgear up to 36kV and SF6 insulated switchgears.



Anti-Condensation Heaters

Increasing the temperature within the switchgear by only 3-4 ° C greatly reduces the risk. According to some approaches, it is considered safe to keep humidity below 65% and some to below 80%.

The fact is that, regardless of the temperature and humidity value, the **anti-condensation heater** must be used in all conditions and the temperature of the switchgear should be kept above the dew point.



High Voltage Current And Voltage Transformers



Voltage transformers are used in high voltage transformer substations in the 245-550 kV range. They convert high voltage meters, measuring instruments and protection devices into standardized equivalent values. Current transformers are used in high voltage switching devices in the 245-550 kV range. These devices convert high current into standardized equivalents for meters, measuring instruments and protection devices. The current distribution across the insulator is optimized by a special arrangement of the control electrode inside the silicon composite insulator. The housing components are made of helium-proof, corrosion-resistant cast aluminum. All housing components under pressure are individually tested according to the applicable pressure vessel standards. The SF₆ gas density is monitored by a temperature-compensated gas density monitor with alarm contacts. The special design means that the function of the gas density monitor can be checked without dismantling. A corrosion-resistant metal bursting disk, protected by a metal cover, is located in the upper part of the housing and provides safe pressure relief in the event of a fault. The spaciouly designed terminal box is equipped with a side-opening cover. Pure SF₆ gas is used for ambient temperatures down to -40 °C. The transformer is filled with a mixed gas for lower ambient temperatures down to -60 °C.

Charging Station



AC

- 22 kW AC power, max. 32 A current.
- 1 type 2 socket.
- Includes power meter.
- Communication: 4G/LAN
- Authorization: OCPP 1.6
- It can be mounted directly on the wall or on the floor with a pedestal.
- Connection type: 3P+N+E.

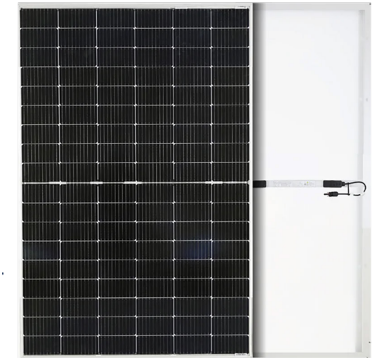
DC SI-CHARGE

- 180-300 kW
- Max. 500 A current (on 1 CCS socket)
- 2 CCS2 charging sockets
- Built-in charging cables (5m)
- Includes DC Power Meter.
- Communication: 4G/LAN
- Authorization: OCCP 1.6j
- 24" HD touch screen
- It can be mounted directly on the ground.
- Connection type: 3P<+N+E>



Solar Panels

Watt Production: 520-555
Effective Efficiency: Up to 21.42%



Watt Production: 600
Effective Efficiency: Up to 23.23%

