

**LOW VOLTAGE
DISTRIBUTION SYSTEMS &
ENERGY AUTOMATION**

- DISTRIBUTION BOARD

- *MAIN DISTRIBUTION BOARD (MDBs)*
- *SUB DISTRIBUTION BOARD (SDBs)*
- *POWER FACTOR CORRECTION BANK (PFC)*
- *AUTOMATIC TRANSFER SWITCH PANEL (ATS)*
- *EASY (WAY) PANEL BOARD*
- *SYNCHRONIZATION PANEL BOARD*
- *MOTOR CONTROL CENTER PANEL (MCC)*
- *METERING BOX*
- *CONTROL & AUTOMATION PANEL*
- *MONO BLOCK ELECTRICAL PANEL*
- *EX-PROOF PANEL*

LOW VOLTAGE MAIN DISTRIBUTION BOARD(MDBs)



TECHNICAL DATA

Rated Operating Voltage(V): Up to 690V
Rated Insulating Voltage(V): Up to 1000V
Rated Impulse withstand Voltage(kV): Up to 12kV
Rated Frequency: 50/60 Hz
Busbar Type: Pure Copper Bars, with 99,9% conductivity
Rated Current for Main Distribution Busbar(A): Up to 6300A
Conditional Short Circuit Current: Up to 100kA @ 0.2PF
Rated Short-time withstand Current: Up to 100 @ 1sec
Rated Short-time withstand Current: Up to 65 @ 3sec
Incoming Feeders: Up to 6300A
Distribution Feeders: Up to 6300A
Prospective Short Circuit Current: Up to 100kA @ 300ms
Form of Separation: Up to 4b
Ventilation: with Fan / Natural
Skid Base Height: Up to 300mm
Frame Thickness: Up to 3mm
Sheet Metal Material: AluZinc Steel, Electro Galvanized, Stainless Steel
Surface Protection: Electrostatic Powder Coating / Epoxy
Panel Mounting: Free Standing Only
Ambient Temperature: 40°C
Relative Humidity: max. 50% at 40°C
Product Standard: IEC 61439 1-2, IEC 60529 IEC62262, IEC 61641, IEC60068-3-3, IEC60068-2-57, IP65, IK10

INTRODUCTION

The Main Distribution Boards are used to distribute and control the power supply in large buildings such as shopping malls, hospitals, universities, and hotels. The main distribution boards are generally installed after the main power source (eg. transformers or generators) and used to divide the power feed into subsidiary outgoing feeders.

APPLICATION

- Hospitals
- Petrochemical Plants
- Airports
- Water Treatment Facilities
- Data Centers
- Major Governmental Facilities
- Defense Support Facilities
- Financial Institutions
- Large Office Buildings

TYPES

- Free Standing Indoor Type Modular Panels
- Free Standing Outdoor Type Modular Panels

Free Standing Indoor Type Modular Panels



Free Standing Outdoor Type Modular Panels



LOW VOLTAGE SUB DISTRIBUTION BOARD(SDBs)



TECHNICAL DATA

Rated Operating Voltage(V): Up to 690V
Rated Insulating Voltage(V): Up to 800V
Rated Impulse withstand Voltage(kV): Up to 8kV
Rated Frequency: 50/60 Hz
Busbar Type: Pure Copper Bars, with 99,9% conductivity
Rated Current for Main Distribution Busbar(A): Up to 630A
Conditional Short Circuit Current: Up to 50kA @ 0.25PF
Rated Short-time withstand Current: Up to 50kA @ 1sec
Incoming Feeders: Up to 4000A
Distribution Feeders: Up to 630A
Form of Separation: Up to 4b
Ventilation: Natural
Skid Base Height: 100mm
Sheet Metal Material: AluZinc Steel, Electro Galvanized, Stainless Steel
Surface Protection: Electrostatic Powder Coating / Epoxy
Panel Mounting: Wall Mounted and Free Standing
Ambient Temperature: 40°C
Relative Humidity: max. 50% at 40°C
Product Standard: IEC 61439 1-2, IEC 60529 IEC62262, IEC 61641, IEC60068-3-3, IEC60068-2-57

INTRODUCTION

The sub-distribution boards offer the right low voltage (LV) solution for large buildings by dividing the electrical power feed into subsidiary circuits. They are manufactured from high-quality materials and contain the latest safety features. Sub-distribution boards are generally installed between the main distribution boards and the final distribution boards.

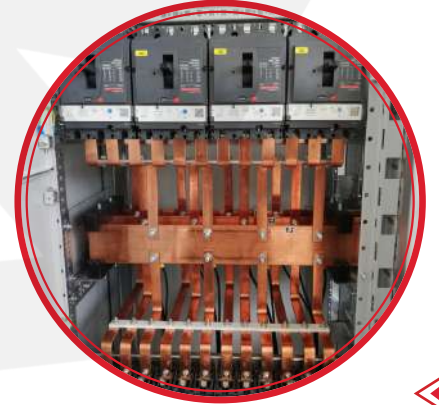
APPLICATION

- Water Treatment Facilities
- Data Centers
- Major Governmental Facilities
- Hospitals
- Petrochemical Plants
- Airports
- Financial Institutions
- Large Office Buildings

TYPES

- Free Standing Indoor Type Modular Panels
- Free Standing Outdoor Type Modular Panels
- Wall Mounted Type Modular Panels
 - Surface Mounted Type
 - Flush Mounted Type

Free Standing Indoor Type Modular Panels



Free Standing Outdoor Type Modular Panels

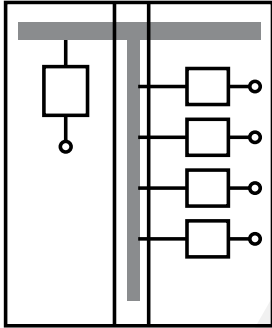


Wall Mounted Type Modular Panels

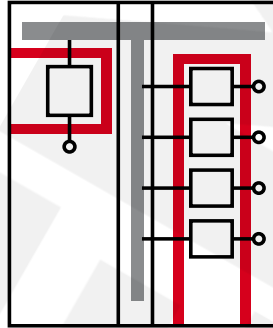


SEPARATION FORM INFORMATION

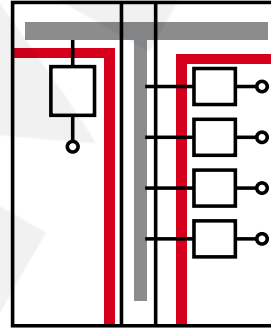
Form	IEC Standard Definition	Specific Recommendations
1	No Internal separation	Protection over busbar for customer safety
2a	Separation of busbars from the functional units	Terminals not separated from busbars
2b	Separation of busbars from the functional units	Terminals separated from busbars
3a	Separation of busbars from the functional units and of all functional units from each other	Terminals not separated from busbars
3b	Separation of busbars from the functional units and of all functional units from each other	Terminals separated from busbars
4a	Separation of busbars from the functional units and of all functional units from each other, also separation of terminals from any functional unit	Terminals in the same compartment as associated functional units
4b	Separation of busbars from the functional units and of all functional units from each other, also separation of terminals from any functional unit	Terminals in the same compartment as associated functional units



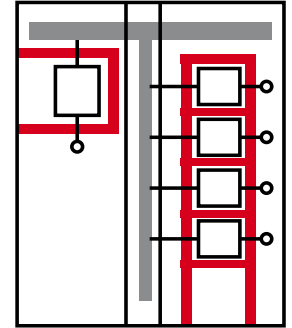
Form 1



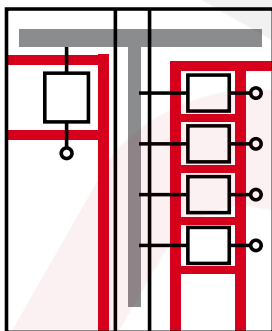
Form 2a



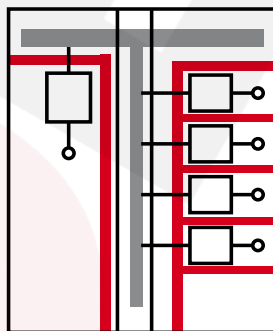
Form 2b



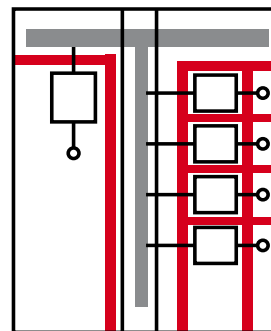
Form 3a



Form 3b



Form 4a



Form 4b

 Busbar
 Separation

POWER FACTOR CORRECTION BANKS (PFC) COMPENSATION PANEL



TECHNICAL DATA

Reactive Power(KVAr): 1600KVAr
Rated Voltage(V): From 380 up to 525V
Rated Insulation Voltage(kV): 800V
Rated Impulse withstand Voltage: Up to 6kV
Rated Frequency: Up to 60Hz
Busbar Type: Pure Copper Bars, with 99,9% conductivity
Rated Current for Main Distribution Busbar(A): Up to 1600A
Conditional Short Circuit Current: 50kA
Rated Short-time withstand Current: 50kA @ 1sec
Incoming Feeders: Up to 2500A
Form of Separation: Up to 3a
Ventilation: Natural
Skid Base Height: 100mm
Sheet Metal Material: AluZinc Steel, Electro Galvanized, Stainless Steel
Surface Protection: Electrostatic Powder Coating / Epoxy
Panel Mounting: Wall Mounted and Free Standing
Ambient Temperature: 40°C
Relative Humidity: max. 50% at 40°C
Product Standard: IEC 61439 1-2, IEC 60529 IEC62262, IEC 61641, IEC60068-3-3, IEC60068-2-57

INTRODUCTION

Power factor correction (PFC) aims to improve power factor and power quality. It reduces the load on the electrical distribution system, increases energy efficiency, and reduces electricity costs. It also decreases the likelihood of instability and failure of equipment. Power factor correction is obtained via the connection of capacitors which produce reactive energy in opposition to the energy absorbed by loads such as motors, locally close to the load. This improves the power factor from the point where the reactive power source is connected, preventing the unnecessary circulation of current in the network.

APPLICATION

- Electrical Plants
- Networks
- Airports
- Hospitals
- Factories
- Shopping malls
- Hotels
- Commercial and Residential Towers
- Power Generation
- Transmission
- Distribution substations
- Water and Waste Water Treatment Plants
- Oil and gas Plants
- Petrochemical plants

TYPES

- PFC Bank with Harmonic Filter Protection
- PFC Bank without Harmonic Filter Protection
- PFC Bank with Shunt Reactor Protection

PFC Bank with Harmonic Filter Protection

Harmonic filters, known as Harmonic Correction Units provide dynamic harmonic mitigation and power factor correction by actively injecting reactive currents into an electrical distribution system to cancel damaging harmonic currents and supporting power factor requirements at the point of connection.



PFC Bank without Harmonic Filter Protection

Power factor correction (PFC) aims to improve power factor, and therefore power quality. It reduces the load on the electrical distribution system, increases energy efficiency and reduces electricity costs. It also decreases the likelihood of instability and failure of equipment.

Power factor correction is obtained via the connection of capacitors which produce reactive energy in opposition to the energy absorbed by loads such as motors, locally close to the load. This improves the power factor from the point where the reactive power source is connected, preventing the unnecessary circulation of current in the network.

PFC Bank with Shunt Reactor

A shunt harmonic filter is, essentially, a power factor correction capacitor combined with a series iron core reactor. A filter provides power factor correction at the fundamental frequency and becomes an inductance (like a motor) at frequencies higher than its turning point.



AUTOMATIC TRANSFER SWITCH PANEL (ATS)



TECHNICAL DATA

- Rated Insulation Voltage: 1000V
- Busbar Short-circuit withstand Capacity: Up to 100KA for 1sec
- Main Busbars Rated: Up to 6300A
- Neutral and Earth Busbars Rated: Up to 100% of the main busbar

TYPES

- Change-over Switches
- Breaker Type Switches (MCCB or ACB)
- Parallel Operating
- Bypass Operating

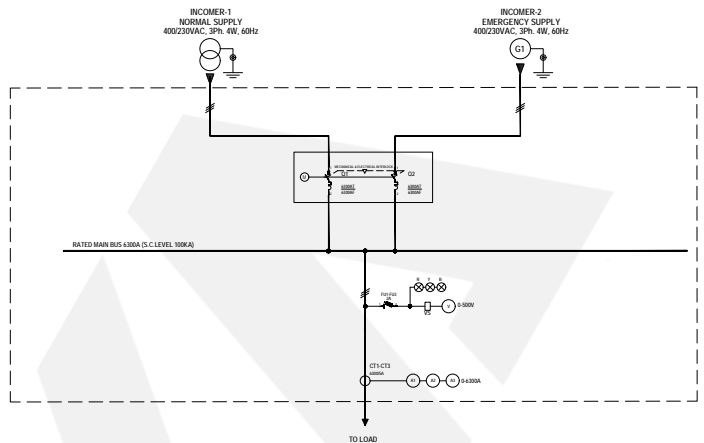
INTRODUCTION

An automatic transfer switch is an electromechanical separator that allows switching electrical loads between two different sources. It is a device used to switch the power supply from the main line to the emergency line in order to minimize the problems caused by faulty conditions in the public grid. The transfer switch plays an important role in keeping critical electrical loads functional during power outages. An automatic transfer switch is the safest way to connect a backup power source to your home or facility. It makes the transition in the fastest and most reliable way.

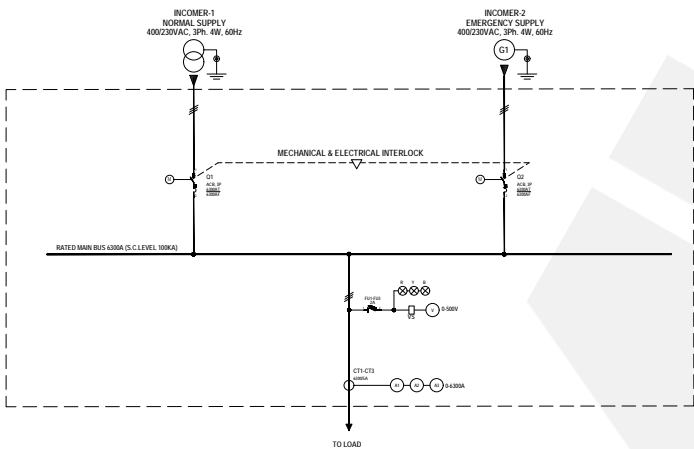
APPLICATION

- Industries
- Commercial Infrastructure
- Power Plants

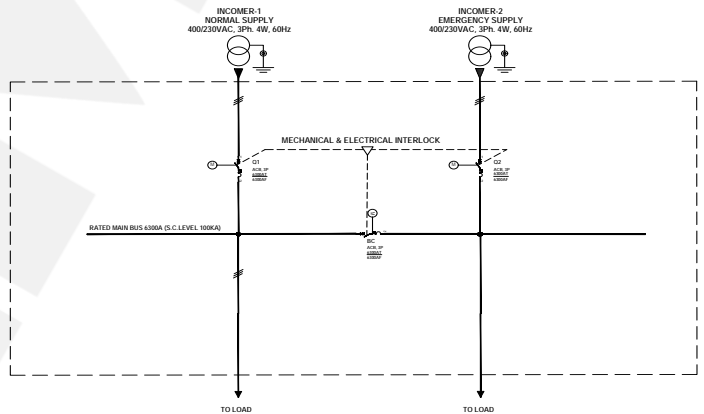




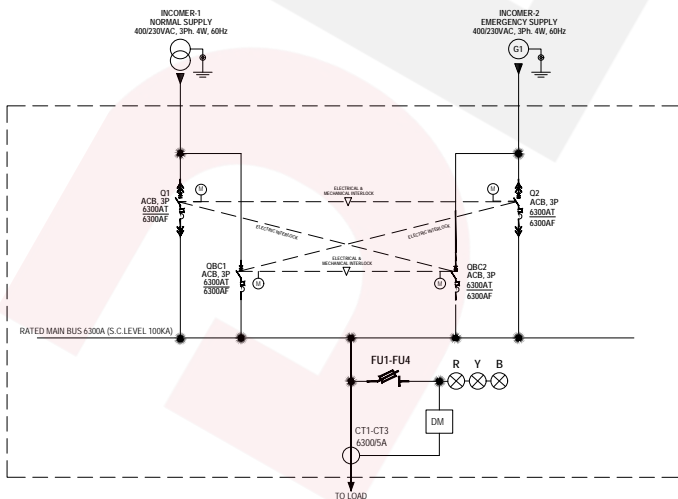
Change-over Switches



Breaker Type Switches (MCCB or ACB)



Parallel Operating



Bypass Operating

EASY(WAY) DISTRIBUTION PANEL BOARD



TECHNICAL DATA

Rated Insulation Voltage(V): 1000V
Main Busbars Rate(A): Up to 800A
Rated Impulse withstand Voltage: Up to 8 kV
Ambient Temperature: Up to 40°C
Number of Ways: From 4 Ways up to 24 Ways
Number of Phases: 3 or 4 Phases
Installation Type: Commercial
Busbar Plating Material: Silver / Tin Plated
Colour: RAL 9001 (Other colours can be produced upon the customer's request)

INTRODUCTION

Easy (Way) Panel can be produced upon the customers' special needs for different variety of use.

APPLICATION

- Factories
- Power Generation
- Transmission
- Petrochemical Plants
- Distribution Substations
- Oil and Gas Plants
- Different Variety of Use



SYNCHRONIZATION PANEL BOARD



TECHNICAL DATA

Rated Insulation Voltage(V): 1000V
Main Busbars Rate(A): Up to 12.000A
Ambient Temperature: Up to 40°C
Busbar Insulating Material: PVC Sleeved Copper Busbars
Busbar Plating Material: Silver / Tin Plated
Colour: RAL 7035 (Other colours can be produced upon the customer's request)
Product Standards: IEC 61439-1, IEC 61439-2, IP55

INTRODUCTION

Synchronization panels are designed for commercial and industrial environments. Their main function is to ensure that electrical energy sources (for example, more than one generator) operate simultaneously, that is, as a single source. It is to provide a large amount of power from multiple motor generators.

APPLICATION

- Networks
- Airports
- Hospitals
- Factories
- Shopping Malls
- Hotels
- Commercial and Residential Towers
- Power Generation
- Transmission
- Distribution Substations
- Water and Waste Water Treatment Plants
- Oil and gas Plants
- Petrochemical Plants
- Refineries



MOTOR CONTROL CENTER PANEL (MCC)



TECHNICAL DATA

Rated Operating Voltage(V): Up to 690V
Rated Insulation Voltage(V): Up to 1000V
Rated Impulse withstand Voltage(kV): Up to 12kV
Rated Frequency: 50/60 Hz
Busbar Type: Pure Copper Bars, with 99,9% conductivity
Rated Current for Main Distribution Busbar(A): Up to 6300A
Conditional Short Circuit Current: 100kA @ 0.2PF
Rated Short-time withstand Current: 100kA @ 1sec
Rated Short-time withstand Current: 65kA @ 3sec
Incoming Feeders: Up to 6300A
Distribution Feeders: Up to 6300A
Form of Separation: Up to 4b
Ventilation: with Fan / Natural
Frame Thickness: Up to 2mm
Sheet Metal Material: AluZinc Steel, Electro Galvanized, Stainless Steel
Surface Protection: Electrostatic Powder Coating / Epoxy
Panel Mounting: Free Standing only
Ambient Temperature: 40°C
Relative Humidity: max. 50% at 40°C
Product Standard: IEC 61439 1-2, IEC 60529 IEC62262, IEC 61641, IEC60068-3-3, IEC60068-2-57

INTRODUCTION

MCC Panels are panels that provide automatic or manual, remote or close control of motors, pumps, fans. It is the type of panel used in multi-motor drives in the facilities. A motor control center (MCC) is an assembly of one or more enclosed sections having a common power bus and principally containing motor control units. Motor control centers are in modern practice a factory assembly of several motor starters. The Motor Control Center is a combination of motor starters, power feeders, and interlocking relays in a modular enclosure. MCC panels are a compact solution allowing for better control, design, and safe electrical system with its most advanced technology for drawer units "IDS system".

APPLICATION

- Production Lines
- Factories
- Smart Buildings
- Treatment Plants
- Pumping Stations

TYPES

Draw-out Type

- Direct On-line
- Star/Delta
- Feeder

Fixed Type

- Direct On-line
- Star/Delta
- Soft Starter Unit
- Variable Speed Drive
- Auto Transformers

Draw-out Type Panel



	1/1 Full size	1/2 Half Size	1/4 Quarter Size
Dimetions	H:150 600*D:600*W:500	H:150*D:600*W:220	H:225*D:600*W:100
Starter kW	0,37 kW 300 kW	0,37 kW 18,5 kW	0,37 kW 5,5 kW
Current-A	1 25 A 630 A	Max 50 A	Max 50 A

Fixed Type Panel



METERING BOXES



TECHNICAL DATA

Rated Operating Voltage(V): Up to 690V
Rated Insulating Voltage(V): Up to 1000V
Rated Impulse withstand Voltage(kV): Up to 12kV
Rated Frequency: 50/60 Hz
Busbar Type: Pure Copper Bars, with 99,9% conductivity
Rated Current for Main Distribution Busbar(A): Up to 6300A
Conditional Short Circuit Current: Up to 100kA @ 0.2PF
Rated Short-time withstand Current: Up to 100 @ 1sec
Rated Short-time withstand Current: Up to 65 @ 3sec
Incoming Feeders: Up to 6300A
Distribution Feeders: Up to 6300A
Prospective Short Circuit Current: Up to 100kA @ 300ms
Ventilation: with Fan / Natural
Skid Base Height: Up to 100mm
Frame Thickness: Up to 2mm
Sheet Metal Material: AluZinc Steel, Electro Galvanized, Stainless Steel
Surface Protection: Electrostatic Powder Coating / Epoxy
Ambient Temperature: 40°C
Relative Humidity: max. 50% at 40°C
Product Standard: IEC 61439 1-2, IEC 60529 IEC62262, IEC 61641, IEC60068-3-3, IEC60068-2-57, IP65, IK10

INTRODUCTION

Metering panels are a kind of control panels that are very much required for domestic as well as industrial purposes for the measurement of the amount of power used up and the rate of power consumption. The metering panels are the best equipment that can easily be installed and can conveniently be used for the processes of power consumption. These metering panels are provided with anemometers and galvanometers for the calculation of present incoming and output voltage amplitude.

APPLICATION

- Construction
- Mining
- Film & Drama Production Sets
- Demolition
- Emergency Services
- Oil Refining
- Sport Arenas
- Agricultural

TYPES

- Free Standing Indoor Type Panel
- Free Standing Outdoor Type Panel
- Surface Mounted Indoor Type Panel
- Surface Mounted Outdoor Type Panel
- Flush Mounted Indoor Type Panel



Free Standing Outdoor Type Panel



Free Standing Indoor Type Panel



Surface Mounted Outdoor Type Panel



Surface Mounted Indoor Type Panel



Flush Mounted Indoor Type Panel

CONTROL & AUTOMATION PANEL



TECHNICAL DATA

Rated Operating Voltage(V): Up to 690V
Rated Insulating Voltage(V): Up to 1000V
Rated Impulse withstand Voltage(kV): Up to 12kV
Rated Frequency: 50/60 Hz
Busbar Type: Pure Copper Bars, with 99,9% conductivity
Rated Current for Main Distribution Busbar(A): Up to 6300A
Conditional Short Circuit Current: Up to 100kA @ 0.2PF
Rated Short-time withstand Current: Up to 100 @ 1sec
Rated Short-time withstand Current: Up to 65 @ 3sec
Incoming Feeders: Up to 6300A
Distribution Feeders: Up to 6300A
Prospective Short Circuit Current: Up to 100kA @ 300ms
Form of Separation: Up to 4b
Ventilation: with Fan / Natural
Skid Base Height: Up to 300mm
Frame Thickness: Up to 2mm
Sheet Metal Material: AluZinc Steel, Electro Galvanized, Stainless Steel
Surface Protection: Electrostatic Powder Coating / Epoxy
Panel Mounting: Free Standing Only
Ambient Temperature: 40°C
Relative Humidity: max. 50% at 40°C
Product Standard: IEC 61439 1-2, IEC 60529 IEC62262, IEC 61641, IEC60068-3-3, IEC60068-2-57, IP65, IK10

INTRODUCTION

Control and Automation Panel is a feeding system known as the main electrical cycle for any commercial building or a house. After the main cable comes to the automation panel system, it is transferred to the next circuits and dispersed by the breakers. Every device at this point must have a proper power distribution in order to give the best performance. In this way, it becomes possible to distribute electricity correctly. Automation panels combine the functions of a programmable controller and operator interface into a single unit.

APPLICATION

- Power Generation
- Transmission
- Distribution Substations
- Water and Waste Water Treatment Plants

TYPES

- Programmable Logic Controller (PLC Panel)
- Scada / RTU Panel (Scada / Remote Terminal Unit)
- Automation Control Centers (ACS)
- HV / MV Secondary Protection & Control Panel



PLC Panel

Programmable Logic Controller (PLC) is essentially a CPU contained inside the control panel. This unit is the brains of the control panel, providing monitoring and control of the various mechanical processes. It will include various inputs and outputs to and from mechanized functions of the production equipment.



Scada / RTU Panel

RTU stands for Remote Terminal Unit (also called Remote Telemetry Unit or Remote Telecontrol Unit). A RTU is a microprocessor based device that monitors and controls field devices, that then connects to plant control or SCADA (supervisory control and data acquisition) systems.



ACS Panel

ACS panels are designed to control all kinds of technological applications in industrial facilities in the most appropriate way.



HV / MV Secondary Protection Control Panels

DEMKA can supply Control Panels, Protection Relay Panels, LCC Panels, Marshaling Box from 3.3 up to 500kV according to international standards. DEMKA can also provide project design, test, and commissioning services.

MONO-BLOCK ELECTRICAL PANEL



Operating Desk Type Panels



Operating Console Type Panels



Data Rack Type Cabinets



PC Cabinets



Kiosk Type Control Cabinets

EX-PROOF PANEL



TECHNICAL DATA

Stainless Steel / Aluminium Casting / FRP

Material

- S.Steel 1.25 mm or 1.5 mm; 1.4404-316L / DIN EN 1706 EN AC-ALSi 12 (Fe) / Glass Fibre Reinforced Thermoset Polyester, Graphite added

Impact Resistance

- 7 Joule to EN 60079-0

Ingress Protection

- IP 66 to EN 60529

IP Rating

- IP66 (EN 60529) / IP55 / IP66 (EN 60529)

Others

- Pad-lockable, removable, screw-type solid door
- 180° Concealed hinge
- Door fastening with captive screws
- Ambient Temperature for Stainless Steel -55°C to +135°C
- Ambient Temperature for Aluminium Casting and FRP -40°C to +55°C for T5
- Ambient Temperature for Aluminium Casting and FRP -40°C to +40°C for T6
- Horizontal or vertical terminal options
- Ex e & Ex ia protection
- Zone 1 (Category 2), Zone 2 (Category 3) & Zone 21 & 22.
- M6/M10 integral internal-external earthing stud

INTRODUCTION

Most explosion-proof enclosure designs use stainless steel, cast aluminium, or fibreglass. Each enclosure is expected to withstand a hydrostatic pressure that is at least two times the maximum explosion pressure.

This parameter, together with flame path requirements, varies from one zone of protection to another.

Explosion-proof control panels find applications in industries that have demanding safety requirements. They are widely used in the oil and gas industries, wastewater industries manufacturing industries, and other processing industries. In all these cases, the enclosures may differ in design depending on the specifications that they are designed to comply with.

APPLICATION

- Power Distribution
- Indoor & Outdoor Application
- Oil and Gas Industries
- Wastewater Industries

TYPES

- Stainless Steel Panels
- Aluminium Casting Panels
- Fibreglass Reinforced Polyester (FRP)

