



# MCC PDS

MODULAR POWER DISTRIBUTION AND  
CONTROL SOLUTIONS

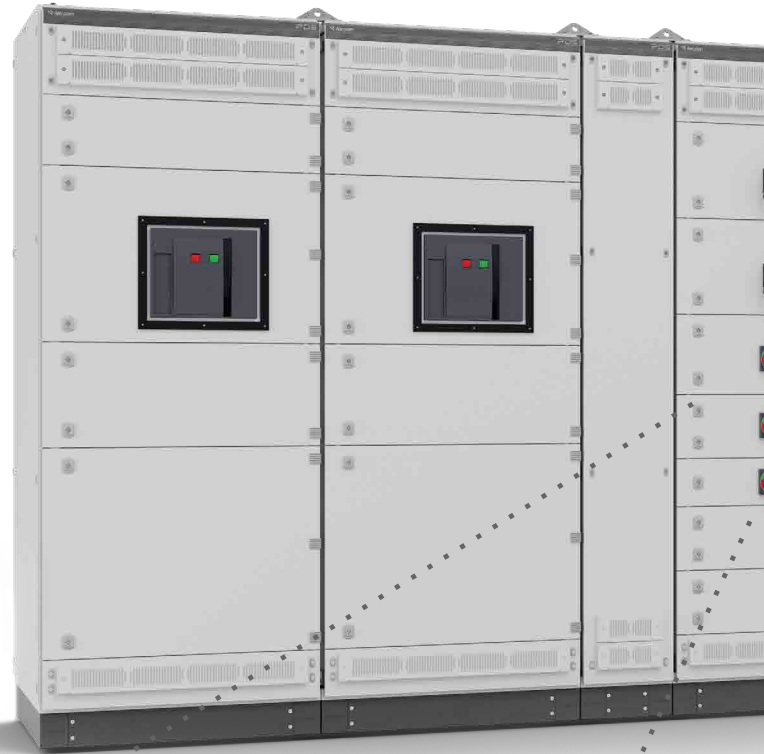
Connection from Network to Panel entry via cable or busbar.

Input-output and coupling applications with withdrawable or fixed Air Circuit Breaker (ACB) applications.



Supplying main panel cable or busbar connections for generators, autom applications.

# WIDE RANGE OF APPLICATION



Supplying, or feeding and switching the local distributors with MCCB (Moulded Case Circuit Breaker) applications.



Controlling the motors with Fixed Type MCC (DOL or DSD) applications.





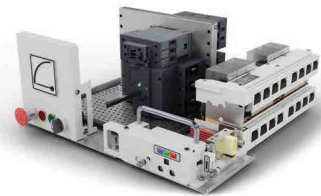
Panel system with connection from automatic starting



Possibility to replace with the spare equipment within 5 minutes with withdrawable MCCB (Moulded Case Circuit Breaker) applications.



Full adaptation to the system with rail supported mounting modules in power correction applications.



Full adaptation to the system with system modules with mounting plate or rail in speed control or automation applications.



Possibility to replace with the spare equipment within 5 minutes with withdrawable MCC (DOL or DSD) applications.



# SECTORAL APPLICATIONS

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## INFRASTRUCTURE



## DATA CENTER



## INDUSTRY



## MINING



PDS is designed for the needs of consumers in many fields from heavy industry to constructions. PDS, providing safe working conditions from Form 1 to Form 4b with its fixed and withdrawable models, offers various advantages in its fields of use.

## OFFSHORE & MARINE



## AUTOMOTIVE



## PORT



## ENERGY GENERATION



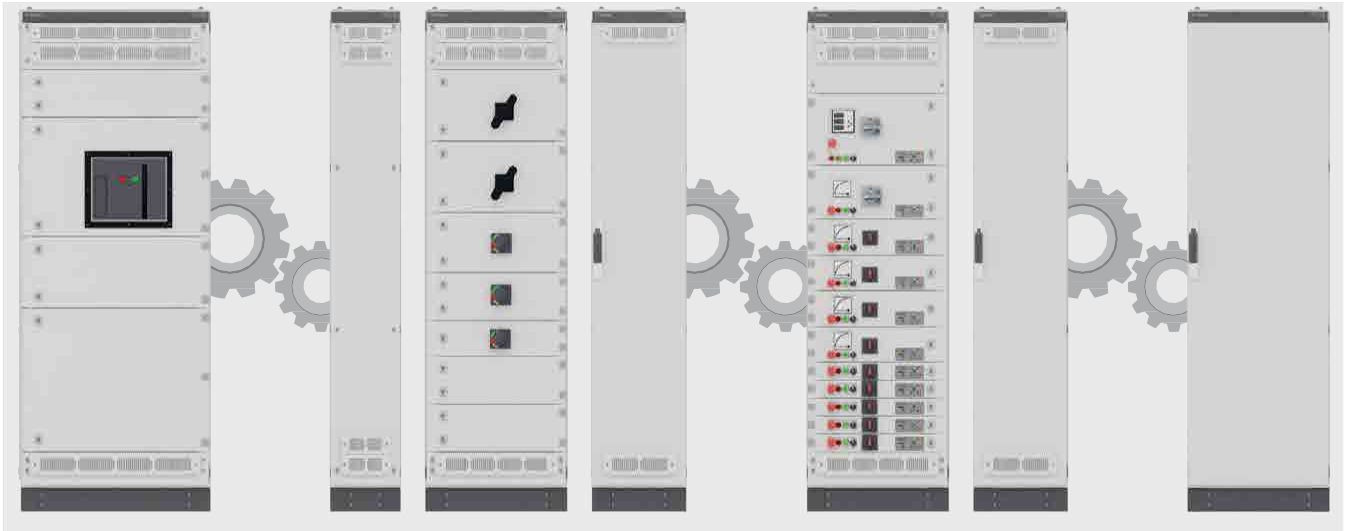
## RENEWABLE ENERGY



### Sector-Based Specific Applications

- IP53 protection class against tough external factors
- Special paint protection applications for corrosive environments
- Withdrawable applications for power continuity
- Arc protection for high safety
- Special coating for the conductive parts in corrosive environments
- Material and coating diversity special to fields of use
- Air conditioning options

# COMBINATION OF MODULES AND COMPLIANCE WITH STANDARDS



## PDS 4000A SYSTEM

Compatibility between modules is ensured by pursuing all functions of type test from design to test process for the modules designed for different purposes. This way, compliance with standards in product assemblies is ensured independent of persons and perfect consistency is achieved in entire product group.

Applied Standard	IEC 61439-1/2 IEC 61641, IEC 62208 IEC 60529, IEC 60068-3-3
Rated Voltage (Ue)	690 V
Nominal Current (In)	Up to 4000A
Rated Insulation Voltage (Ui)	Up to 1000V
Rated Impulse-Withstand Voltage (Uimp)	Up to 12kV
Degree of Protection (IP)	Up to IP53
Mechanical Strength (IK)	10
Rated Peak Withstand Current (Ipk)	Up to 176kA
Degree of Separation	Form 1-4b
Rated Short Time Withstand Current (Iow)	Max. 85kA – 1s. / 65kA – 3s.
Connection Type	F.F.F – W.W.W
Pollution Degree	3
Material Group	IIIa
Internal Arc Withstand	60kA rms – 0,3ms
Seismic Withstand	Up to ZONE 3



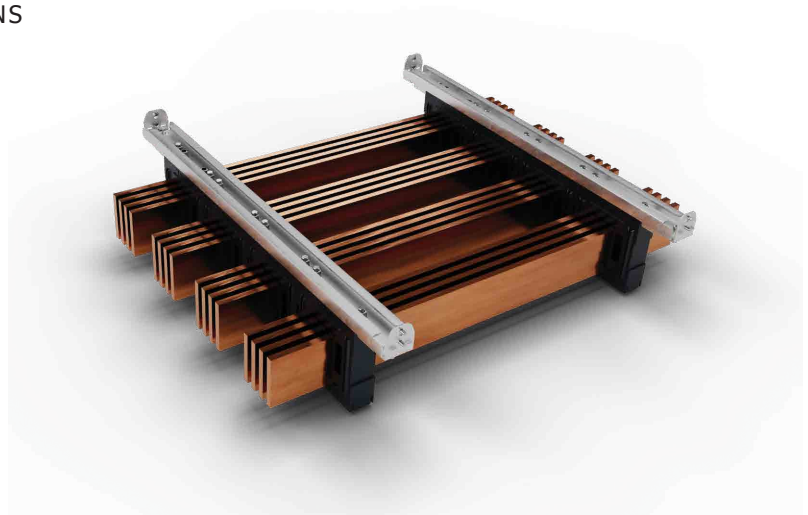
IP53



## SHORT CIRCUIT WITHSTAND OF BUSBAR SYSTEM AND ITS TECHNICAL SPECIFICATIONS

### PDS 4000A SYSTEM

$I_n$  = Up to 4000A  $I_{cw}$   
 $I_{cw}$  = Up to 85kA  
 $I_{pk}$  = Up to 176kA  
 $U_e$  = 690V  
 $U_i$  = 1000V  
 $U_{imp}$  = 12kV



- Mounting places on support rails are designed as standard and precautions are taken against faulty assembly.
- Busbar clamps are produced from glass fibre reinforced polyamide 6, 6 material and is in compliance with (UL 94 V-0) standards.
  - Designs are made compatible with all grounding systems.

### COOLING SYSTEM



• Continuous cooling thanks to special metal filter application suitable for temperature tests and compatible with high temperature conditions on panel modules.

• Filters are produced from metal material and have IP53 protection class. It can be removed and cleaned from outside. It is resistant to arc flashes and high temperature

• In Form3 and above closures in the output modules inside the panel, cold air enters from the side and exits from the top air filters by exiting from the top of the mounting plate to the back of the panel. Output modules are prevented from loading heat to each other.

## Grounding Continuity



- Grounding claws located on aluminium corner combination that joins main carcass structure are mounted to the internal surface of the unpainted profile tightly and abrasively. Thus the grounding continuity is ensured in all profiles and the parts that will be mounted to them.

- Grounding busbar in PDS panel modules is contacted to the panel in a way that it's conductive all the way through, being modular without drilling holes. Thanks to the connection system, ground busbar and panel carcass connection is ensured.

- In PDS panel, grounding contact in all inner covers is provided through the screws that are welded before painting.

- In the cable module, connection of ground busbar to main ground busbar or ground cable from outside to busbars are accurately provided.

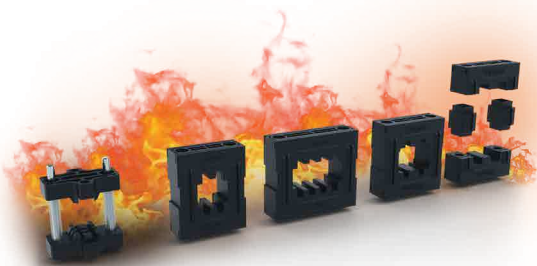


- In PDS panels, grounding contact in all outer doors are provided through the screws that are welded before painting.

## Flame-Proof Plastic Parts

For the purposes of isolation and protection of equipment from the forces originated by magnetic field in PDS cabins, insulated plastic parts are used. These plastic materials are produced accordingly with the heat resistant injection method.

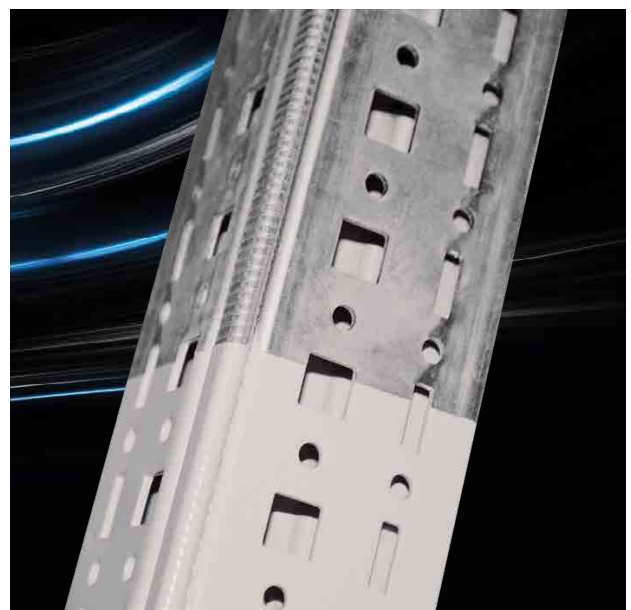
- Isolator busbar clamps used on main busbar and secondary output busbars are produced with PA(6,6) material and in V0 degree of incombustibility according to UL94 standards.
- For preventing the operator to contact with the conductors, polycarbonate plates are used. Its resistance against flame is in B-S1-d0 degree according to EN 13501-1 standard.



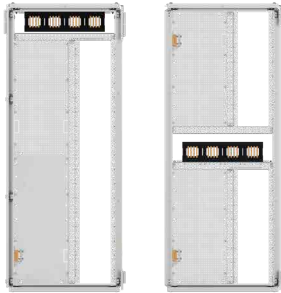


## Resistance Against Corrosion

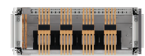
- All parts of PDS cabinets on the outer surface, including case profiles, are processed with electrostatic powder coating. In full automatic systems, parts are exposed to surface cleaning and iron phosphate processes, then painted and fired in standard.
- Materials inside the cabinet are not painted in order to sustain their conductivity. For corrosion protection, zinc coating is applied according to its wrought iron structure, or they are produced with cold galvanized sheet.
- PDS cabinets are suitable for use in indoors or rain protective areas according to EN 12944-2 standard. It is suitable for use in schools, shops, hotels, warehouses, sports halls and production areas which have highly humid and a little polluted air (food facilities, laundries, beer production facilities, milk facilities).
- The setup, which is protective against rain and in compliance with IP53 class, is suitable for use in city and industrial atmosphere, in outdoors where there is medium level of sulphur dioxide pollution and low saltrate.
- Being in compliance with all these standards, PDS cabinets are in UL/NEMA 12 standard.



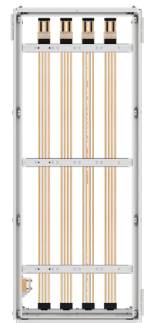
## Insulation And Dielectric Design



Rated impulse-withstand voltage and rated insulation voltage are taken into account in specifying the insulation gaps and surface leakage path lengths between different circuits. On the busbar systems ensuring easy mounting, thanks to the modular structure, it is designed to make insulation gaps between phase-phase and phase-neutral 70mm in the smallest point. Since the assembly locations on the support rails are already designated, possibilities of mistake during production are eliminated.



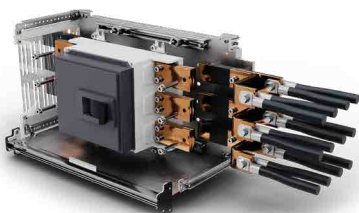
On the open type circuit breaker input busbars which are compatibly designed for all open type circuit breakers, the problems that might originate due to heating and dielectric are taken into account. For avoiding heating problem, ventilation spaces are created to provide IP XXB protection in separators which are formed.



## Maintainability And Easy Part Replacement

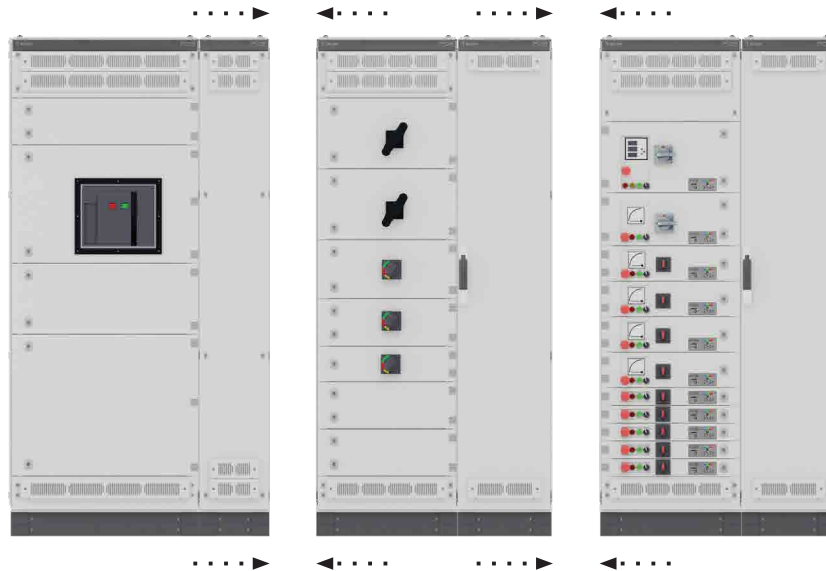


- Only 5 minutes is enough to replace any faulty part in the groups located on PDS withdrawable modules. Even with the personnel trained in average level.
- During the replacement of the faulty part inside the drawer, other sections can continue to fully function.
- Spare drawer on withdrawable module can be used for future needs and can easily be put into use.

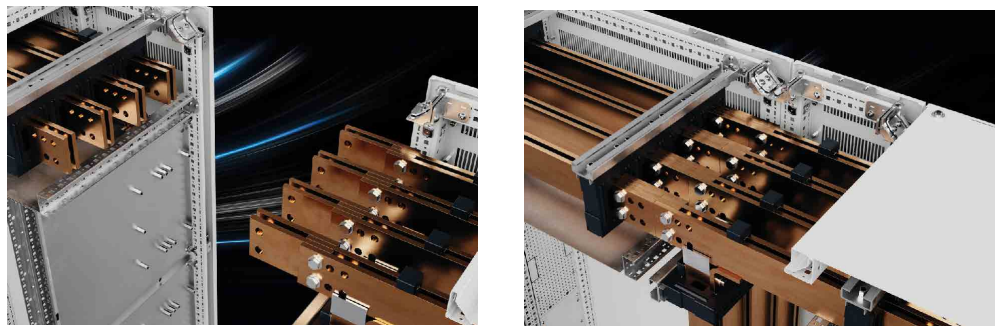


- MCCB (Moulded Case Circuit Breaker) replacement within 10 minutes.
- Thanks to the Easy-Fix assembly system for MCCB outputs in PDS panels, it is not necessary to remove all busbars and terminal connections for removing equipment. MCCB input and output connections and mounting plate can easily be removed and connected back from the front side of the body connection.

## PDS 4000A Panel Combination System



Main busbar combination system can be used in combination of panel groups as well as independent combination of suitable panel modules.



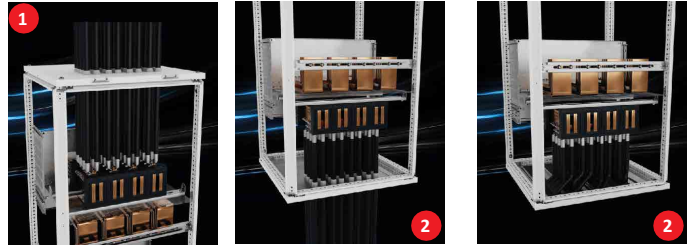
Mounting holes are prepared on the separation point of main busbar, which is specified before project or mounting. Separated panel groups are easily combined by guiding to each other with group combination system and groups on field. Busbars are safely combined to each other with special busbar connection screws.

# Cable Entry System



ACB (Air Circuit Breaker) top penetration is done to the panel module with the cable glands that provide isolation in cable entry from top. For this penetration system, main busbar should be in middle position. Same system is used for busbar top entries.

ACB (Air Circuit Breaker) bottom penetration is done to the module with the glands above the bottom plates or foam isolation entry system in cable entry from bottom.



### 3 CABLING MODULE (BOTTOM CONNECTION)

For connection to output terminals of MCCB (Moulded Case Circuit Breaker), MCB (Miniature Circuit Breaker) or fixed MCC (Motor Control) modules, penetration to the panel is provided through cable modules.

In bottom cable entry system; cables penetrate the cable module with glands or foam isolation system from the top of the floor plates, connect to the cable clamps which are mounted on the side surface and which will reduce the cable weight stress, and safe connection to terminals is ensured.



### 4 CABLING MODULE (TOP-REAR CONNECTION)

Another method for cable connection to output terminals of MCCB (Moulded Case Circuit Breaker), MCB (Miniature Circuit Breaker) or MCC (Motor Control) fixed modules is penetration of cables to the cable module from the rear part through the rear cover.

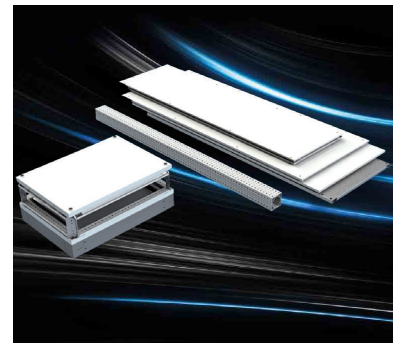
It's preferred especially in dense cabling cases or in cases where cable penetration cannot be done from bottom and penetration from top cable tray is inevitable.

Cables are carried from cable tray, which is on top of the panel, to the back of the cable module, from inside the entry plates to the terminals. IP54-65 glands or IP4X foam isolation plates can be preferred for isolation. While cable penetrations are done to the panel module, cable weights are removed from cable clamps on the back module and the back module is closed with covers for safety.

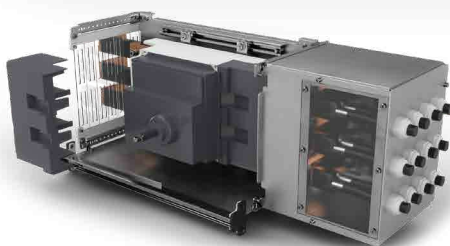
## Easy, Fast And Correct Installation



- Packing and packaging for each panelgroup.
- Minimizing loss of time by finding the palette and parcel numbers of related parts from packing list.
- Easiness to sort different product groups according to different operators and installation occasions.



Flat-pack with specially designed body structure

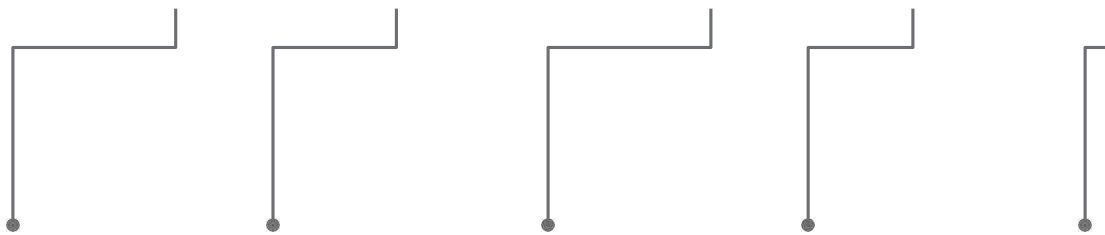


Easy forming



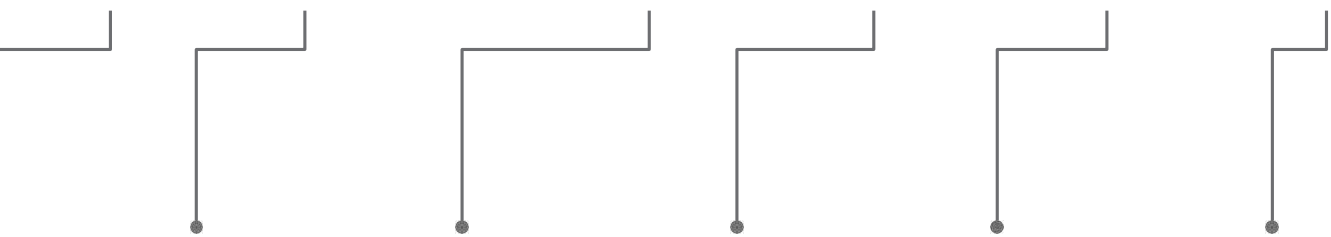
Non-perforated busbar assembly

# PDS 4000A Configuration Options



	ACB Mid Busbar Module	Convert Module	ACB Top Busbar Module	Distribution Module	Feeder Module
<b>Width</b>	600/800	300/400	600/800	300/400	400/600/800
<b>In</b>	Up to 4000A	1350A - 6300A	Up to 6300A	495A - 4000A	Up to 1600A
<b>Icw</b>	Up to 85kA	Up to 85kA	Up to 85kA	Up to 85kA	Up to 85kA
<b>Ue</b>	690V	690V	690V	690V	690V
<b>Ui</b>	1000V	1000V	1000V	1000V	800V
<b>Uimp</b>	12kV	12kV	12kV	12kV	8kV
<b>Form</b>	1-4b	1-4b	1-4b	1-4b	1-4b
<b>IP</b>	IP53	IP53	IP53	IP53	IP53
<b>F.F.F</b>	+	-	+	-	+
<b>W.W.W</b>	+	-	+	-	-

# PDS 4000A Configuration Options



Cabling Module	Combined Feeder Module	Cabling Module	Withdrawal Module	Cabling Module
400/600	200+400 / 200+600	400/600	600	400/600
-	495-3400A Secondary Busbar Power	-	1000A	-
-	Up to 85kA	-	60 kA	-
690V	690V	690V	690V	690V
800V	800V	800V	800V	800V
8kV	8kV	8kV	8kV	8kV
1-4b	1-4b	1-4b	3b / 4b	1-4b
IP53	IP53	IP53	IP 40	IP53
-	+	-	-	-
-	-	-	+	-

# PDS 4000A Fixed & Drawable ACB (Air Circuit Breaker) Modules

## COUPLING MODULE



MAIN BUSBAR RATED CURRENT (In)		
Height (H)	Depth (D)	Busbar (In)
2000	600	1350A /1620A/1860A/2300A
2000	800	2500A /3000A/3400A/4000A

Earthing : TN-C-S , TN-C , IT , TT

### FEATURES

- IEC 61439-1/2
- Busbar System =Copper (Cu) holeless plug-in system
- Rated Voltage(Ue) =690V
- Rated Insulation Voltage(Ui) =1000V
- Short Circuit Peak withstand (Ipk) =176kA
- Short Circuit withstand (Icw) =Max.85kA-1s/65kA-3s

## ACB MODULE (Top Busbar Position)



## ACB MODULE (Mid Busbar Position)



### MODULE SIZES

- Width: 600,800
- Height: 2000
- Depth: 600,800

### FRONT PROTECTION OPTIONS

- External Partial Doors
- Internal Covers +Solid FrontDoor
- Internal Covers +Glazed FrontDoor

### FEATURES

- IP (EN 60529) =IP53
- IK 10
- Segregation: Form 1 ,2,3,4
- Corrosion Class :C3 (Mid)



## Fixed & Drawabletip ACB (Air Circuit Breaker) Cassettes

EXTERNAL



INTERNAL



RATED CURRENTS (In)

Height (H)	Depth (D)	ACB CURRENT (Iu)
500/600	600/800	630A/800A/1000A/1250A /1600A/2000A
500/600	800	2500A /3200A/4000A

### ACB CASSETTE SIZES

- Width: 600,800
- Height: 500,600
- Depth: 600,800

### FEATURES

IP (EN 60529) =IP53  
IK 10  
Segregation: Form 1 ,2,3,4  
Corrosion Class :C3 (Mid)

### FRONT PROTECTION OPTIONS

- External Partial Doors
- Internal Covers

### FEATURES

IEC 61439-1/2  
Rated Voltage(Ue) =690V  
Rated Insulation Voltage(Ui) =1000V  
Short Circuit Peak withstand (Ipk) =176kA  
Short Circuit withstand (Icw) =Max.85kA-1s/65kA-3s

# PDS 4000A Fixed Type MCB/ MCCB/MCC Feeder Modules

## COMBINED FEEDER MODULE INTERNAL PROTECTION (Top Busbar Position)



### MODULE SIZES

- Width: 600 (200+400) , 800 (200+600)
- Height: 2000
- Depth: 600,800

## FEEDER MODULE WITH SAPARATE DISTRIBUTION MODULE (Top Busbar Position)



### DISTRIBUTION MODULE SIZES

- Width: 300,400
- Height: 2000
- Depth: 600,800

### FEEDER MODULE SIZES

- Width: 400,600,800
- Height: 2000
- Depth: 600,800

## CABLE CONNECTION MODULE (Top Busbar Position)



### CABLE CONNECTION MODULE SIZES

- Width: 400,600
- Height: 2000
- Depth: 600,800

### FEATURES

- IEC 61439-1/2
- Busbar System =Copper (Cu) holeless plug-in system
- Rated Voltage(Ue) =690V
- Rated Insulation Voltage(Ui) =1000V
- Short Circuit Peak withstand (Ipk) =176kA
- Short Circuit withstand (Icw) =Max.85kA-1s/65kA-3s

### MAIN BUSBAR RATED CURRENT (In)

Depth (D)	Busbar Current (In)
600	1350A /1620A/1860A/2300A
800	2500A /3000A/3400A/4000A

### DISTRIBUTION MODULE RATED CURRENT (In)

Width (W)	Depth (D)	Busbar (In)
200	600	495A-1860A
200	800	495A-3400A
300	600	495A-1860A
300	800	495A-3400A
400	600	495A-2300A
400	800	495A-4000A

### FRONT PROTECTION OPTIONS

- External Partial Doors
- Internal Covers +Solid FrontDoor
- Internal Covers +Glazed FrontDoor

### FEATURES

- IP (EN 60529) =IP53
- IK 10
- Segregation: Form 1 ,2,3,4
- Corrosion Class :C3 (Mid)

Earthing System : TN-C-S , TN-C , IT , TT

## Fixed Type MCB/MCCB/MCC Feeder Cassettes

**MCB (Miniature Circuit Breaker) CASSETTES**



**MCB CASSETTE SIZES**

Width (W)	Height (H)	Din Mod
400	200	12 (12x1)
400	300	24 (12x2)
600	200	24 (24x1)
600	300	48 (24x2)
800	200	36 (36x1)
800	300	72 (36x2)

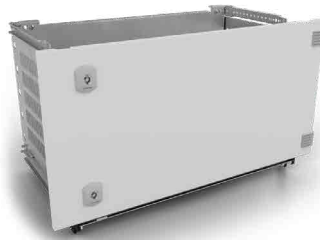
**FEATURES**

- IP (EN 60529) =IP53
- IK 10
- Segregation :Form 1 ,2a-4b
- Corrosion Class :C3 (Mid)

**MCCB (Moulded Case Circuit Breaker) CASSETTES (Easyfix)**



**MCCB /MCC EMTY CASSETTES**



**FRONT PROTECTION OPTIONS**

- External Partial Doors
- Internal Covers

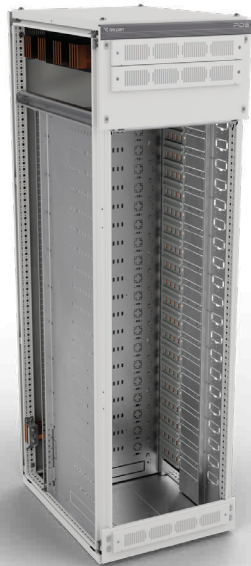
**MCCB/MCC CASSETTE SIZES**

Width (W)	Height (H)	Easyfix Option
400, 600, 800	150	-
	200	•
	250	•
	300	•
	350	•
	400	•
	450	-
	500	-
600	-	

**FEATURES**

- IP (EN 60529) =IP53
- IK 10
- Segregation: Form 1 ,2,3,4
- Corrosion Class :C3 (Mid)

# PDS 4000A Drawable Type MCC/MCCB Feeder Modules



## DRAWABLE FEEDER MODULE SIZES

Width (W)	Height (H)	Depth (D)	Loading Height (H)
600	2000	600	1500
600	2000	800	1500

### FEATURES

External Front Protection

IP (EN 60529) =IP40

IK 10

Segregation :Form 4

Corrosion Class :C3 (Mid)

## MAIN BUSBAR RATED CURRENT (In) MODULE

Height (H)	Depth (D)	Busbar (In)
2000	600	1350A /1620A/1860A/2300A(3-4 PHASES)
2000	800	2500A /3000A/3400A/4000A(3-4 PHASES)

## DISTRIBUTION BUSBAR RATED CURRENT (In) MODULE

Width (W)	Depth (D)	Busbar (In)
600	600	1000A (3-4 PHASES)
600	800	1000A (3-4 PHASES)

Earthing :TN-C-S , TN-C , IT , TT

### FEATURES

IEC 61439-1/2

Busbar Ssystem =Copper (Cu) holeless plug-in system

Rated Voltage (Ue) =690V

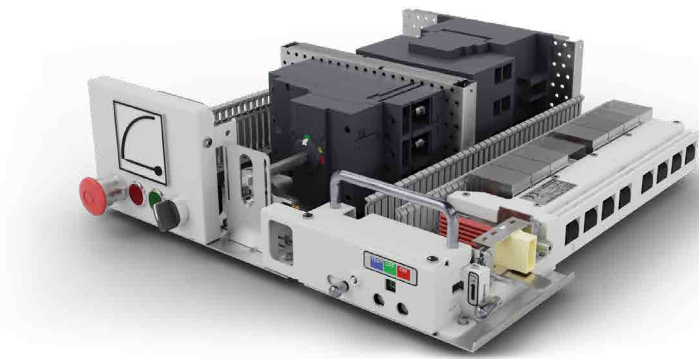
Rated Insulation Voltage (Ui) =800V

Short Circuit Peak withstand (I<sub>pk</sub>) =132kA

Short Circuit withstand (I<sub>cw</sub>) =Max.60kA-1s

# Drawable Type MCC/MCCB Cassettes

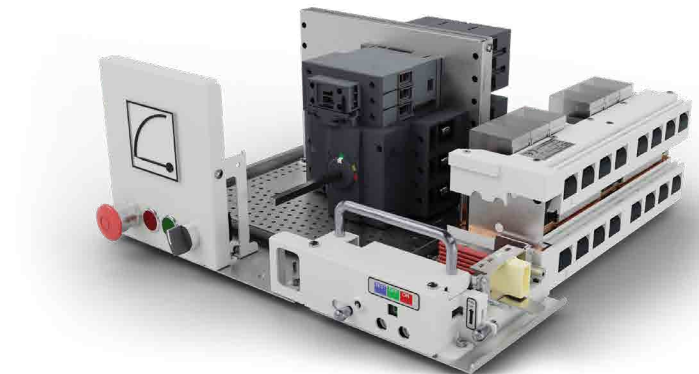
## DRAWABLE MCC (DOL) CASSETTES



CASSETTE SIZES		
Width (W)	Height (H)	Max. Power
600	75	15kw
600	150	55kw
600	225	110kw

**FEATURES**  
 IP (EN 60529) =IP40  
 IK 10  
 Segregation : Form 4  
 Corrosion Class :C3 (Mid)

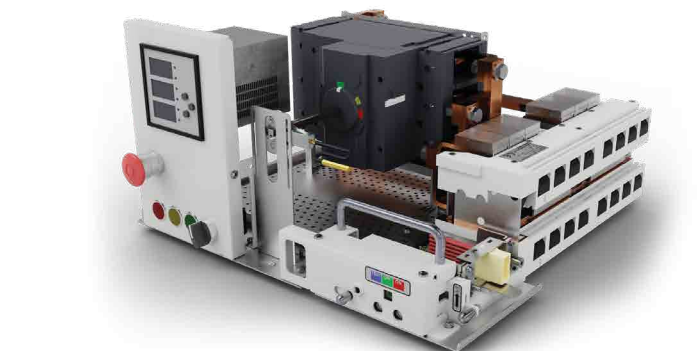
## DRAWABLE MCC (DELTA STAR) CASSETTES



CASSETTE SIZES		
Width (W)	Height (H)	Max. Power
600	150	55kw
600	225	75kw
600	300	110kw

**FEATURES**  
 IP (EN 60529) =IP40  
 IK 10  
 Segregation : Form 4  
 Corrosion Class :C3 (Mid)

## DRAWABLE MCCB CASSETTES



CASSETTE SIZES		
Width (W)	Height (H)	Max. Power
600	150	200A
600	225	250A
600	300	630A

**FEATURES**  
 IP (EN 60529) =IP40  
 IK 10  
 Segregation : Form 4  
 Corrosion Class :C3 (Mid)

# PDS 4000A Auxiliary Modules

## CONVERT MODULE (CHANGING BUSBAR POSITION)



CONVERT MODULE SIZES		
Width (W)	Height (H)	Depth (D)
400	2000	600
400	2000	800

### FEATURES

IP (EN 60529) =IP53

IK 10

Segregation: Form 1 ,2,3,4

Corrosion Class :C3 (Mid)

## CORNER MODULE (Top And Mid Postion)



CORNER MODULE SIZES		
Width (W)	Height (H)	Depth (D)
600	2000	600
800	2000	800

### FEATURES

IP (EN 60529) =IP53

IK 10

Segregation: Form 1 ,2,3,4

Corrosion Class :C3 (Mid)

# Drawable Type MCC/MCCB Cassettes

**CABLE CONNECTION MODULE  
(For Acb Rear Connections)**



MODULE SIZES		
Width (W)	Height (H)	Depth (D)
600	2000	400
800	2000	400

**FEATURES**

IP (EN 60529) =IP53

IK 10

Segregation: Form 1 ,2,3,4

Corrosion Class :C3 (Mid)

**CABLE CONNECTION MODULE  
(For Feeder Module Top-Rear Connections)**



MODULE SIZES		
Width (W)	Height (H)	Depth (D)
400	2000	600+400
400	2000	800+400
600	2000	600+400
600	2000	800+400

**FEATURES**

IP (EN 60529) =IP53

IK 10

Segregation: Form 1 ,2,3,4

Corrosion Class :C3 (Mid)



PT GUNA ERA MANUFATURA

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