

LOW VOLTAGE SOLUTIONS





PARTNERSHIP

SAFETY

DURABILITY

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alfanar Electric



alfanar electric is the Industrial arm of **alfanar**-manufacturing a variety of low, medium and high voltage electrical construction products.

alfanar operates factories in:

- Riyadh and Jubail, Saudi Arabia
- Dubai, UAE
- London, UK

alfanar has a development and engineering center in Chennai, India.

Industrial City Riyadh

The center of **alfanar**'s industrial activities is **alfanar** Industrial City situated in the Third Industrial Zone on Al-Kharj Road, Riyadh.

Spread across 700,000 square meters, the industrial city houses **alfanar**'s manufacturing facilities, a data and communication center as well as a commercial zone.

alfanar Low Voltage Factory



Low voltage factory is one of the major units in the ultramodern **alfanar** Industrial City where products are manufactured for safe distribution and efficient control of electricity in residential, commercial and industrial premises.

alfanar LV products conform to most of the national as well as international standards.

alfanar is proud to have competent team of qualified Engineers for all phases from Product Development to manufacturing, Designing, Planning, Production, Quality Assurance and Quality Control, having specialists for all these functions.

alfanar is able to offer locally developed indigenous designs for special environment of our region (high temperature & humidity). This unique fact means we are the only real manufacturer for low voltage solutions in the kingdom of Saudi Arabia. Type tested at leading international laboratories, our indigenous designs are approved by utility companies, ministries and major consultants and end users.

The range of **alfanar** low voltage products include:

- Low Voltage Switchboards
- Distribution Panel boards
- Load Centers (Plug-in, Bolt-on & Din rail)
- Motor Control Centers
- Automatic Transfer Switch
- Capacitor Banks
- Package & Unit Substations
- AC/DC Distribution Boards
- Control & Automation Panels
- Synchronizing Panels
- Mimic Panels & Control Desk

Key information about LV Factory



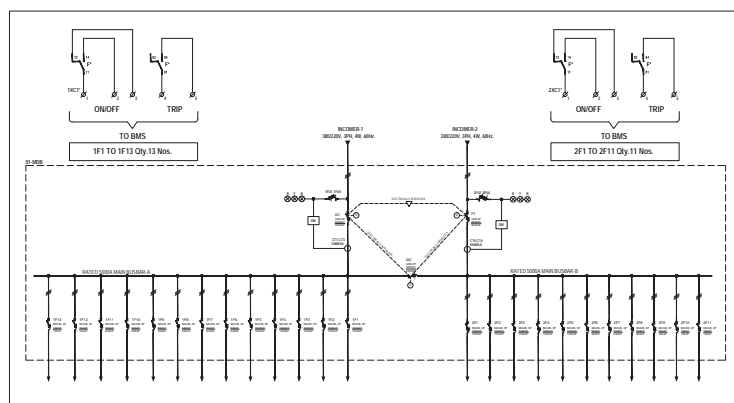
- Year of starting: 1989
- Location: New Industrial Area – Zone 3, ALFANAR CITY- Riyadh-KSA
- Manpower: 65 Engineers and support staff, 160 technicians and Workers
- Area: 14,000 m2
- ISO 9001 certification: since 2000

Design & Development Tools

- Pro-Engineer 3D modeling software
- Pro-Engineer software
- Master Cam Software
- AUTOCAD
- Prototype development shop

Manufacturing Tools & Machines Fabrication

- Cut to length line
- CNC Laser Cutting Machine
- CNC punch press/ Eccentric Press - 10 to 300 MT
- Corner forming machine/ Slitting line
- AUTOMATED Manufacturing line for Box Wrapper
- Junction Box Clinching Machine
- CNC bending machine
- CNC Shearing machine
- CNC Gasket forming machine
- Clinching Machine
- Rapid Prototyping machine
- Automatic TIG welding machines/ Standard MIG welding machines/ Spot welding machine
- Eccentric presses/ BHILER high speed precision press
- Orbital spin riveting/ Impact riveting





Painting

- Double line, Semi-automatic conveyors powder coating

Electro Plating

- In-house facility for Zinc plating/ Tin plating/ Nickel plating/ Silver plating

Assembly

- Line with conveyors/ Ultrasonic welding machine / Screw clinching machine

Injection Molding

- Thermo-set and Thermo-Plastic injection molding machines with robotic operation

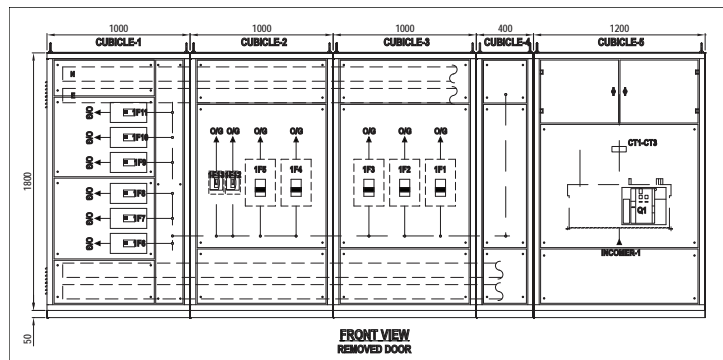
Moulds and Dies

- Injection moulds, Compression moulds, Vacuum forming moulds, Thermoforming moulds, Extrusion dies, Single stroke press tools, Progressive press tools

Product Standards Compliance

Our low voltage products comply with the following national & international Standards:

- IEC 61439-1/61439-2/61439-3
- NEMA PB1 & NEMA PB2, NEMA 250
- SASO 1609 & SASO 1611



MF Switchgear



alfanar's new MF panel is designed and tested as per new IEC standard 61439-2. This panel is available up to 6300A, 100kA 1 Sec, Form 4b.

Low Voltage Switchboards are mainly used for electrical power distribution and control. They are generally installed immediately after the power source (transformers or generators).

Electrical Characteristics

- Rated insulation voltage up to 1000V
- Main busbars rated from 630A to 6300A
- Busbar short-circuit withstand capacity up to 100kA for 1 Sec / 50KA for 3 Sec
- Neutral busbars are rated up to 100% of the main busbar and Earth busbars are rated up to 100% of the Neutral busbar
- Tested for Internal Arc Fault as per IEC 61641 for 65KA, 300ms (Classified as PSC assembly providing PERSONAL and ASSEMBLY protection under arcing conditions)

Available Extensions and Augmentations

- Forms of internal separation from Form 1 to Form 4b
- Easy interchangeability of components
- Protection Class up to IP54
- Ambient temperature up to 55 °C
- Can be interfaced with the Building Management system (BMS) for monitoring and controlling circuit breakers
- Extendable on both sides
- Silver Plated / PVC sleeved Copper Busbars
- Aluminum gland plates
- RAL 7035 color as standard, other colors on request

Modular Construction

- Compact and flexible modular design conserves space
- Customizable to special dimensions according to customer needs

Mechanical Strength

- High turn frequency of frame structure ensures greater mechanical strength and toughness
- Made of electro-galvanized sheet steel (2.0mm to 3.0mm thick for frame)
- Stainless steel enclosures for NEMA-4X indoor & outdoor applications
- Tested to withstand vibration caused by an earthquake of magnitude 8, in accordance with IEC 60068-3-3. This makes our design extremely suitable for sites with seismic risk, like western region of KSA.

Regulatory Compliance

- ASTA certified and compliant to IEC standards 61439-1/61439-2/61439-3
- Designed to meet local technical standards, practices and requirements



Fully Knock-Down kits

- Allows for easy dismantling and assembly, parts are joined by bolts and nuts, which eliminates need for welding process



Easy Access

- Accessible from front / rear
- Cable entry from top / bottom, with removable gland plates

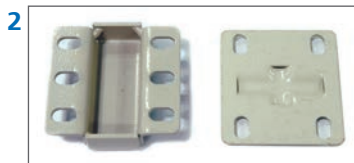


MF Switchgear Features



Natural Ventilation

MF special design allows free flow of air passage to ensure better heat dissipation (Front and Rear)



Joints

Used to connect frames made from Aluminum and Zinc alloy Suitable for frame separation as per installation requirements



Frame

High turn frequency of frame structure ensures greater mechanical strength and toughness, using most innovated tools and fully automated CNC machines
Frames made of electro-galvanized sheet steel (2.0mm to 3.0mm thick for frames)



Key-Lock

Metal locks to prevent forced access and unauthorized usage



Hinges

Used to connect doors with frames made from steel



Eye-Bolt

Used to lift the panel with sling



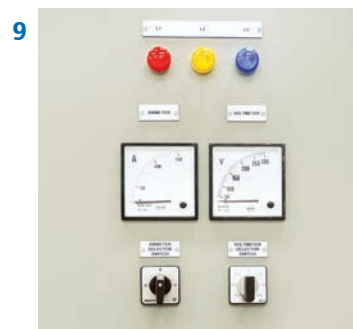
Gasket

Doors are sealed with gasket foam to prevent penetration of moisture and dust, gasket returns to original shape even after being compressed for prolonged periods of time, continuous foam with no joints ensures good IP rating



Door Handles

Used to release the interlock mechanism to enable the operator opening the breaker safely



Customized Design

Flexibility in compartments design and arrangements to meet customer needs



Air Circuit breaker
alfanar Terasaki ACB



Horizontal and Vertical Busbar

Use of high quality, high conductivity copper for better performance
Busbar short-circuit withstand capacity up to 100kA for 1 Sec (3sec on special request)

Neutral busbars rated up to 100% of the main busbar, Earth busbars rated up to 100% of the Neutral busbar

Dimensions*

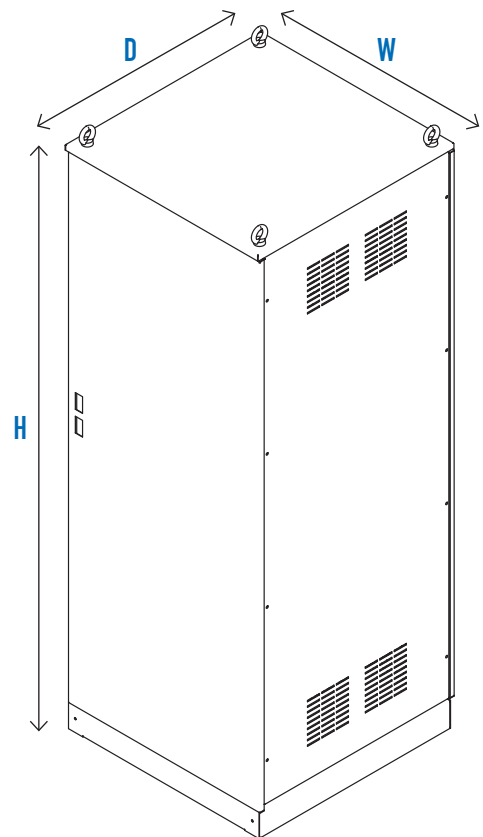
alfanar Main Switchboard

The table below comprises the dimensions of the standard switchboard

	Height, H (mm)	Width, W (mm)	Depth, D (mm)
Form 1 & 2	1800, 2150	400, 600, 800, 1000, 1200	600, 800, 1000, 1200
Form 3 & 4	2350	400, 600, 800, 1000, 1200	600, 800, 1000, 1200

Bus bar Sizing

Rating A	Busbar size
250	1 x 20 x 10
400	1 x 30 x 10
630	1 x 50 x 10
1250	1 x 85 x 10
1600	2 x 55x 10
2000	2 x 70 x 10
2500	2 x 85 x 10
3000	3 x 85 x 10
3200	3 x 100 x 10
4000	3 x 120 x 10
5000	5 x 100 x 10
6300	5 x 150 x 10
Above 6300 A	contact alfanar



Due to extreme climatic conditions of KSA, [alfanar](#) use bigger copper sizes for busbars.

* Note:

At 40°C ambient temperature with natural ventilation, for higher temperature please contact [alfanar](#)

Cubical Sizing

ACBs (up to form 4b)			
Cubicle width (mm)	max In (A)	lcw (kA 1sec)	Type of circuit breaker
800	3200	100	AR208, AR212, AR216, AR220, AR325, AR332
1000	4000	100	AR440
1200	6300	120	AR650, AR663



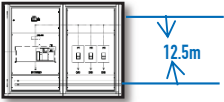

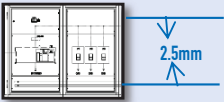

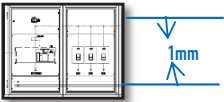
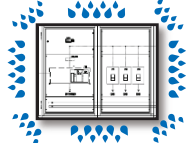

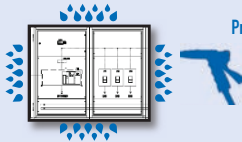

MCCBs – Parallel Circuits (up to form 4b)			
Cubicle width (mm)	max In (A)	lcw (kA 1sec)	Number & Type of circuit breaker
600	1600	100	1 x S1600
			1 x S1250
800	2000	100	2 x S1000
			2 x S800/H800/L800
1000	3200	100	2 x S1600
			2 x S1250

MCCBs – through Distribution busbar (maximum 2000A)			
Cubicle width (mm)	max In (A)	lcw (kA 1sec)	Number & Type of circuit breaker
800 (form 1 & 2)	2000	100	H800/S630, H400/S400/E400, H250/S250/ E250, H125/S125/ E125 – number of MCCBs determined by total current
1000 (form 3)			
1200 (form 4)			

Tests

Ingress Protection

Ingress protection levels defined by IEC 60529 and are included in IEC 61439-1

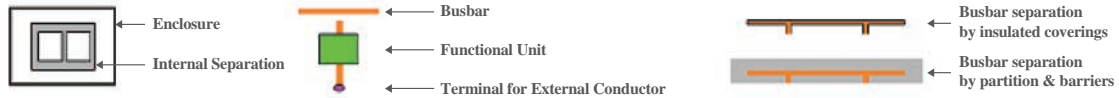
First Digit			Second Digit		
IP	Protection from solids	Description	IP	Protection from liquids	Description
0	Non-protected	No Protection	0	Non-protected	No Protection
1	 Protected from solids > 50mm in diameter	Protected from solids > 50mm in diameter	1	 Protected against vertical dripping/falling water drops	Protected against vertical dripping/falling water drops
2	 Protected from solids > 12.5mm in diameter; fingers 80mm in length	Protected from solids > 12.5mm in diameter; fingers 80mm in length	2	 Protected against dripping water, enclosure is tilted up to 15 ° from normal position	Protected against dripping water, enclosure is tilted up to 15 ° from normal position
3	 Protected from solids > 2.5mm in diameter	Protected from solids > 2.5mm in diameter	3	 Protected against spraying water greater than 60° from vertical	Protected against spraying water greater than 60° from vertical
4	 Protected from solids > 1mm in diameter	Protected from solids > 1mm in diameter	4	 protected against splashing water from any direction (360 °)	protected against splashing water from any direction (360 °)
5	 Dust protected–Dust ingress not totally prevented, but insufficient to interfere with equipment operation	Dust protected–Dust ingress not totally prevented, but insufficient to interfere with equipment operation	5	 Protected against water jets where water is projected by a nozzle against the enclosure from any direction	Protected against water jets where water is projected by a nozzle against the enclosure from any direction
6	 Dust tight–Totally no ingress of dust	Dust tight–Totally no ingress of dust			

Forms of Internal Separation

Definition

IEC Standards 61439-2 defines different means of separation, known as forms of dividing switchboard sections into separate compartments, essentially for the protection of life and property during operation & maintenance. This separation is achieved by barriers or partitions and distinguishable basically by 4 forms of separation

Key:



Notes:

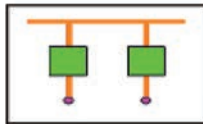
Forms of Separation can be achieved by using:

- (i) Partitions/barriers of metallic or non-metallic material
- (ii) The integral housing of the device

All diagrams from figures AA 1, 2, & 3 from Annex AA
Text from UK National Annex
Both from BS EN 61439-2

Form 1

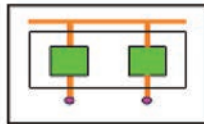
Form 1



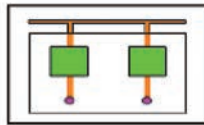
Form 1:
No internal separation is provided.

Form 2

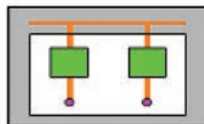
Form 2a



Form 2b Type 1



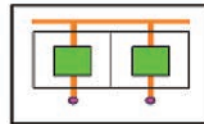
Form 2b Type 2



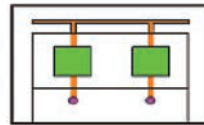
Form 2:
Functional unit separate from the busbars
The 'a' designation denotes terminals are not separate from the busbar
The 'b' designation denotes terminals are separate from the busbar
Type 1 utilises insulated coverings for busbar separation
Type 2 utilises insulated partitions and barriers for busbar separation.

Form 3

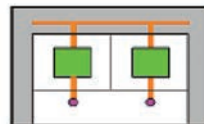
Form 3a



Form 3b Type 1



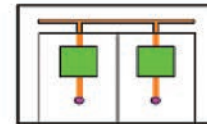
Form 3b Type 2



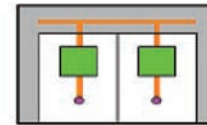
Form 3:
As Form 2 plus:
Functional units separate from other functional units
The 'a' designation denotes terminals are not separate from the busbar
The 'b' designation denotes terminals for external conductors are in a separate compartment to the functional unit
Type 1 utilises insulated coverings for busbar separation
Type 2 utilises insulated partitions and barriers for busbar separation.

Form 4

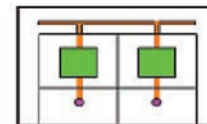
Form 4a Type 1



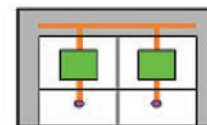
Form 4a Type 2 & Type 3



Form 4b Type 4



Form 4b Type 5,6 & 7



Form 4:
As Form 3 plus:
Terminals for external conductors separate each other
The 'a' designation denotes terminals within the functional unit
The 'b' designation denotes terminals for external conductors are in a separate compartment to the functional unit
Types 1 & 4 utilises insulated coverings for busbar separation
Types 2, 3, 5, 6 & 7 utilise partitions and barriers for busbar separation
Types 3 & 7 feature integral glanding
Type 5 utilises insulated coverings for terminals for external conductors.

Motor Control Center (MCC)



alfanar's Motor Control Center is a combination of motor starters, power feeders and interlocking relays in a modular enclosure. MCCs are mainly used in industrial process plants to protect and control motor loads and other similar applications.

Electrical

- Rated insulation voltage up to 1000V
- Main busbars rated up to 4000A
- Busbar short-circuit withstand capacity up to 100kA for 1 Sec
- Neutral busbars rated up to 100% of the main busbar, Earth busbars rated up to 100% of the Neutral busbar

Available Extensions and Augmentations

- Fully compartmentalized design conforming to form of separation Form-3B
- Easy interchangeability of components
- Protection Class up to IP54
- Ambient temperature up to 55 °C
- Can be interfaced with the Building Management System (BMS) for monitoring and controlling the loads
- Silver Plated / PVC sleeved Copper busbars
- Aluminum gland plates
- RAL 7035 color as standard, other colors on request

Modular Construction

- Modules:
 - Draw-out Module - up to 225A
 - Fixed type – any rating
- Draw-out modules of same size are interchangeable, which helps in reducing the maintenance time

Mechanical Strength

- High turn frequency of frame structure ensures greater mechanical strength and toughness
- Made of electro-galvanized sheet steel polyester powder coated in RAL 7035.
- Removable modules and their chassis made of Alu-Zinc sheet steel

Easy Access

- Accessible from front and rear
- Cable entry from top

Regulatory Compliance

- Compliant to IEC 60439-1 / 61439-2

Safety

- All module covers are an integral part of the modules and come with positive interlocks, i.e., Operating handles of the main power devices at the front of the module are interlocked with the cover and chassis to avoid accidental withdrawal during operation



Types of starters

Fixed/Draw-out Module

- Direct On-line (Reversing & Non-reversing)
- Star/Delta

Fixed Module

- Direct On-line
- Star/Delta
- Auto Transformer
- Soft Start Unit
- Variable Speed Drive



Synchronizing Panel



alfanar's Synchronizing Panels supply large amount of power by using multiple generators working in parallel on load sharing

Electrical

- Rated insulation voltage 1000V
- Main busbars rated up to 10,000A
- Busbar short-circuit withstand capacity up to 100KA for 1 sec
- Neutral busbars rated up to 100% of the main busbar, Earth busbars rated up to 50% of the Neutral busbar

Available Extensions and Augmentations

- Protection Class up to IP54
- Ambient temperature up to 55 °C
- Silver / tin Plated / PVC sleeved Copper Busbars
- RAL 7035 color as standard, other colors on request
- Aluminum gland plates

Construction and Accessibility

- Made of electro-galvanized sheet steel (2.0mm to 3.0mm thick for frame)
- Accessible from front / rear
- Cable entry from top or bottom, with removable gland plates

Safety

- Type tested in accordance with IEC 60439-1 standard for higher safety

Automatic Transfer Switches (ATS Panels)

alfanar's Automatic Transfer Switches (ATS Panels) provide a solution to handle transfer of critical loads to emergency sources with reliability. They ensure the continuity of electric supply to an installation with minimum interruption by making an automatic changeover from normal supply to emergency supply.

Electrical

- Rated insulation voltage 1000V
- Main busbars rated up to 6300A
- Busbar short-circuit withstand capacity up to 100KA for 1 sec
- Neutral busbars rated up to 100% of the main busbar, Earth busbars rated up to 50% of the Neutral busbar

Available Extensions and Augmentations

- Protection Class up to IP54
- Ambient temperature up to 55 °C
- Silver / tin Plated / PVC sleeved Copper Busbars
- Polyester powder coated in RAL-7035, other paint shades on request.
- Aluminum gland plates
- Can be interfaced with the Building Management System (BMS) for monitoring and controlling
- With multiple incomers and bus-couplers
- With bypass

Construction and Accessibility

- Made of electro-galvanized sheet steel (2.0mm to 3.0mm thick for frame)
- Accessible from front / rear
- Cable entry from top or bottom with removable gland plates
- Automatic transfer of supply from conventional source to emergency source with open transition scheme
- Available in two models:
 - 1- Digital controller
 - 2- Conventional components

Safety

- Type tested in accordance with IEC 60439-1 standard for higher safety



MB Distribution Board



alfanar's Distribution Board (MB) is available up to 630A. The design provides complete flexibility to the customers at the time of installation, Tested as per IEC 61439-2 It serves as a complete solution for the distribution of power.

Electrical

- Rated insulation voltage up to 800V
- Main busbars rated up to 630A
- Busbar short-circuit withstand capacity up to 50kA for 1 Sec
- Neutral busbars rated up to 100% of the main busbar, Earth busbars rated up to 50% of the Neutral busbar

Available Extensions and Augmentations

- Enclosure types available in stainless steel for NEMA-4X indoor & outdoor applications
- Up to 12 outgoing MCCB's
- Enclosures with sheet thickness of 2.0mm
- Protection Class up to IP65
- Ambient temperature up to 55 °C
- Can be interfaced with the Building Management System (BMS) for monitoring and controlling circuit breakers and contactors
- Silver Plated / PVC sleeved Copper busbars
- Aluminum gland plates
- RAL 7035 color as standard, other colors on request

Modular Construction

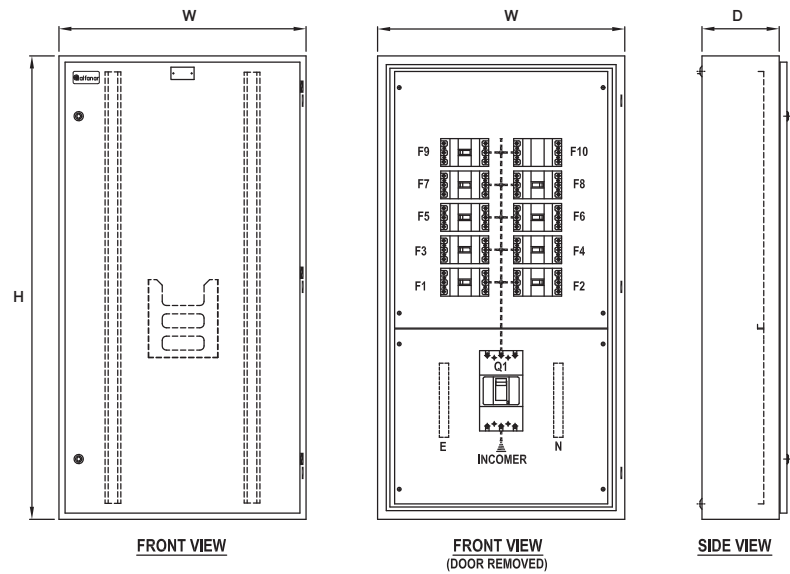
- Enclosure types tested up to 630A in accordance with IEC 61439-2
- Easy interchangeability of components
- Wall mounted and free standing designs
- Available in 4-way to 12-way outgoing triple pole MCCB's
- Enclosure types available up to IP 65

Mechanical Strength

- Made of electro-galvanized sheet steel (1.6mm thick), the frame structure ensures greater mechanical strength and toughness

Easy Access

- Front access for cable termination
- Cable entry from top or bottom, with removable gland plates



Dimensions

Up to 250A			
Without Metering			
No. of Ways	Height	Width	Depth
4 way	1100	800	250
6 way	1100	800	250
8 way	1200	800	250
10 way	1400	800	250
12 way	1400	800	250

For 400A & 630A			
Without Metering			
No. of Ways	Height	Width	Depth
4 way	1200	800	250
6 way	1200	800	250
8 way	1300	800	250
10 way	1500	800	250
12 way	1500	800	250

Note:

Since design is a continuous development process, the dimensions are subject to change without prior notice.

Package and Unit Substation



alfanar's Package and Unit Substations are custom-built, factory-assembled tested units. They are designed and manufactured as per customer's specific needs. They are built in accordance with IEC standards and Saudi Electricity Company (SEC) specifications. The design is provided with high level of flexibility to cover a wide range of applications.

Electrical

- Distribution Transformer rating up to 3500 KVA
- Ring Main Unit with two ring load break switches plus one fused switch/circuit breaker for the tee-off switching
- Rated impulse voltage up to 12 KV on LV side & up to 95KV / 200KV on MV side
- Main busbars rated up to 6300A
- Busbar short-circuit withstand capacity up to 65KA for 1 sec (40KA for 2 sec)
- Neutral busbars rated up to 100% of the main busbar and Earth busbars rated up to 50% of the Neutral busbar

Available Extensions and Augmentations

- Protection Class up to IP54
- Ambient temperature up to 55 °C
- Can be interfaced with the Building Management System (BMS) for monitoring and controlling
- Silver / tin Plated / PVC sleeved Copper Busbars
- RAL 7035 color as standard, other colors on request
- Stainless steel housing for special applications

Modular Construction

- Compact and flexible modular design conserves space
- Customizable to special dimensions according to customer needs
- All compartments with independent doors for easy operation and maintenance
- Provision of efficient ventilation to prevent excessive rise in temp.

Easy Access

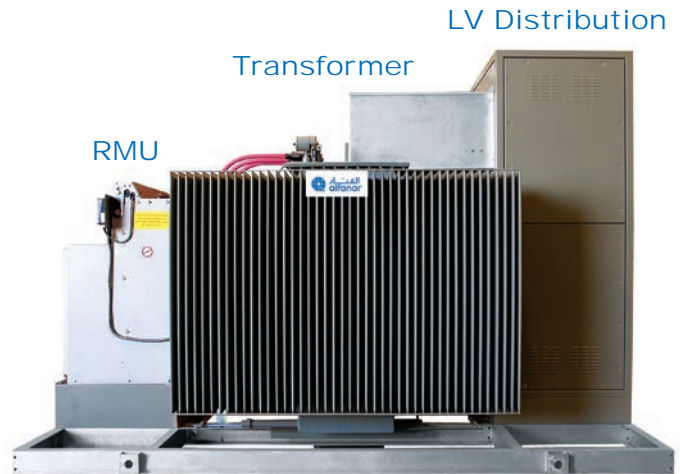
- Accessible from all compartments sides
- Removable gland plates and cable at the base of substation assembly for easy termination of HV and LV cables
- Direct cable connection between RMU and Transformer
- Direct copper connection between Transformer and LV distribution

Safety

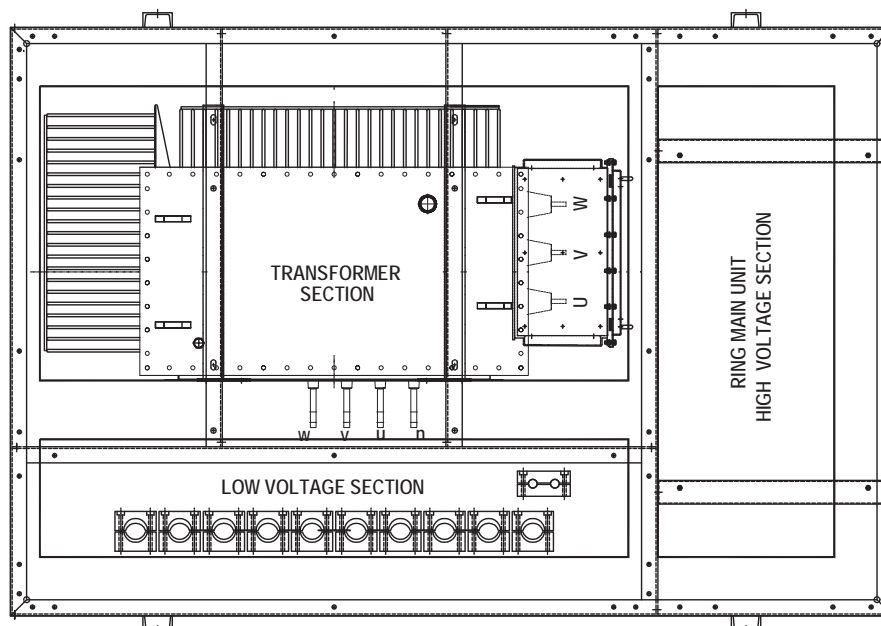
- Type tested in accordance with IEC 61330 standard for higher safety
- Comply with SEC specifications

Mechanical Strength

- Use of electro-galvanized sheet 2.0 to 3.0 mm thick for frame
- High turn frequency of frame structure ensuring greater mechanical strength and toughness
- Steel segregation between all compartments



alfanar package substation mounting view as per SEC specifications



Verification Tests



Verified by Testing according to IEC 61439 Standard

These tests apply to the full range of **alfanar** LV Switchgear up to 6300A with a short circuit rating up to 100KA,

1 sec, peak 220KA, and 50/60 Hz.

Degree of protection for foreign particles and water: up to IP 54

Forms of Internal Separation: up to Form 4b



ASTA certificates for alfanar tested LV Switchboard for ranges (630A, 3200A, 6300A)



3 Phase Design partnerships with alfanar for design verification process

The new standard IEC 61439-2 is different from the old one (60439-2 that asked for only 7 tests on a prototype panel). The new standard asks to verify the design of each & every assembly and has given this responsibility to the manufacturer. For this verification, the new standard offers several possibilities (not only testing).

alfanar has selected **3 PHASE DESIGN** as the third party to build, in collaboration, the design rule verification process in order to fully comply with IEC 61439-2 for each and every assembly we manufacture. The basis of this design verification is the extensive testing done in European labs on different variants of our assemblies.

Table of comparison between old standard 60439 and new standard 61439

Test/Verification		Old Standard	New Standard
1	Strength of the material and parts	No	Yes
2	Degree of protection of enclosures	Yes	Yes
3	Clearances and creepage distances	Yes	Yes
4	Protection against electric shock and integrity of protective circuits	Yes	Yes
5	Incorporation of switching devices and components	No	Yes
6	Internal electrical circuits and connections	No	Yes
7	Terminals for external conductors	No	Yes
8	Power-frequency withstand voltage/Impulse withstand voltage	Yes	Yes
9	Temperature-rise limits	Yes	Yes
10	Short-circuit withstand strength	Yes	Yes
11	Electromagnetic compatibility (EMC)	No	Yes
12	Mechanical operation	Yes	Yes

Impulse Voltage test 12KV as per IEC 61439-2

alfanar has conducted and passed lighting impulse testing of 6300A/ 415V/ 1000V/ 60Hz power switchgear and control gear assembly at KSU lab, Riyadh and KA lab, Nottingham.

The results mentioned that the apparatus met the impulse voltage test requirements according to IEC 61439-2: Edition 1.0, 2009-01, Clause 10.9.3 for lighting impulse test voltage of 12 KV peak.



Covered Sectors

Power Distribution System that support the building needs



alfanar Power and Distribution Switchboards have an excellent reputation in Infrastructure projects



alfanar power distribution system & motor control center for industrial process plants



alfanar offers high reliable power distribution system for data centers



alfanar Power and Distribution Switchboards meets High Standards of the Oil and Gas Sector



ABS Quality Evaluations

Certificate Of Conformance

This is to certify that the Quality Management System of:

Alfanar Electrical Systems

P. O. Box 564
Riyadh 11383
Saudi Arabia

has been assessed by ABS Quality Evaluations, Inc. and found to be in conformance with the requirements set forth by:

ISO 9001:2008

The Quality Management System is applicable to:

DESIGN AND MANUFACTURING OF LOW VOLTAGE SWITCHGEAR AND CONTROLGEAR ASSEMBLIES,
MEDIUM VOLTAGE SWITCHGEAR AND CONTROLGEAR ASSEMBLIES, ELECTRICAL WIRING ACCESSORIES,
LOW, MEDIUM AND HIGH VOLTAGE CABLES, OVERHEAD CONDUCTORS AND DISTRIBUTION TRANSFORMERS.

Additional Facility: P. O. Box 282735
Dubai Investment Park
Dubai
United Arab Emirates

Activity: Multi purpose electrical enclosure manufacturing AND Low voltage
Switchgear Assembly.

Certificate No: 34039
Certification Date: 27 January 2009
Effective Date: 14 December 2011
Expiration Date: 13 December 2014
Issue Date: 14 December 2011

Alex Weisselberg

Alex Weisselberg, President



Validity of this certificate is based on the periodic audits of the management system defined by the above scope and is contingent upon prompt, written notification to ABS Quality Evaluations, Inc. of significant changes to the management system or components thereof.

ABS Quality Evaluations, Inc. 16855 Northchase Drive, Houston, TX 77060, U.S.A.
Validity of this certificate may be confirmed at www.abs-qe.com/cert_validation.

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STANDARDS

alfanar Low Voltage Systems (Power and Control) conform to the following standards and specifications:

Product Design and Manufacturing	IEC 61439-2
Degree of Protection	IEC 60529
Package & Unit Substations	IEC 61330 and SEC Specifications

ROUTINE TESTS

Factory routine tests are conducted on each of the **alfanar** Low Voltage System (Power and Control) products in accordance with relevant specifications and standards.

OUR OBJECTIVE

WE REACH EXACTING STANDARDS IN THE SAFETY AND DISTRIBUTION OF POWER AND GO WELL BEYOND A CUSTOMER'S EXPECTATIONS. THIS IS DONE BY FOCUSING OUR TECHNOLOGY AND EXPERTISE ON THE ULTIMATE REWARD WE CAN GET, COMPLETE SATISFACTION OF OUR CUSTOMERS.

QUALITY POLICY

The Quality Policy of **alfanar** is to:

- Provide products conforming to governing standards and of consistent quality
- Excel in all our operations to achieve customer's satisfaction for products and services through continual improvement
- Develop and maintain a motivated team of competent employees and vendors
- Redefine and execute new processes and systems that meet the changing market requirements.

alfanar PRODUCTS

- Oil-Immersed Distribution Transformers
- Switches and Socket Boxes
- Junction Boxes
- Service Enclosures IP65
- Stainless Steel Enclosures NEMA-4X
- Telephone Enclosures
- Circuit Breaker Enclosures – NEMA 1 & NEMA 3R Types with Multiple Outlets
- Modular Enclosures
- Load Centres
 - NEMA Type LA Load Centres
 - IEC Type LD Load Centres
 - Split Busbar Unit Type LAS/LDS Load Centres
- MCCB Distribution Boards
- Pump Control Panels
- Motor Control Centres
- LV Switchboards up to 6300A, Tested for 100KA, 1 Sec Short Circuit Withstand
- Package Substations
- Control and Automation Panels
- Relay and Control Panels
- Medium Voltage Switchgears
- Pole Mounted Metering Structures
- AC/DC Panels up to 5000A, Tested for 85kA, 1 Sec Short Circuit Withstand
- Extendable and Non-Extendable Ring Main Units

K.S.A. Toll Free: 800 124 1333
www.alfanar.com

Continuous efforts are being made to improve the design and quality of our products. Hence, the products supplied may slightly differ from those illustrated in this catalogue.