



TIEPCO

The International Electrical Products Co.

الشركة العالمية للمنتجات الكهربائية



A Subsidiary of Al Tuwairqi Holding Company

www.tiepc.com | tiepc-feedback@tiepc.com

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who we are & what we **DO**

From basic engineering to product selection and integration, we carry out all the activities, and come up with comprehensive solutions for our valued customers

TIEPCO is the first in the switchgear industry of the GCC region to have achieved the **ISO 9001: 2000** certification

A pioneer in the switchgear industry in the Kingdom of Saudi Arabia, TIEPCO started manufacturing for the medium and low voltage switchgear industry in 1987.

The International Electrical Products Company is a subsidiary of Al Tuwairqi Holding Co. Its head office is located in Rakkah, Dammam, where manufacturing was first started. Over the years, we have established ourselves as providers of high quality, customized products for a wide variety of applications for the local and international markets.

The Sales & Marketing, Design/ Engineering, Purchasing, Production and Quality Control Departments of TIEPCO are all under one roof in a purpose designed office and plant at the head office.

We produce high quality switchgear/ electrical Products for utilities and mega industrial commodities. Our product range includes, but is not limited to Medium Voltage Panels, Low Voltage Panels, Package Substations, Unit Substation, Industrial Enclosures and Cabinets, Protection & Control Panels up to 380kV, network, Automation, VFD/ Softstarter Panels.



Achieving **GREAT SUCCESS**

TIEPCO is an approved manufacturer for Saudi Electricity Company
and Saudi Aramco

Mission

TIEPCO aims to contribute significantly to the growth of the electrical power and distribution industry of the region. We like to work through our deadlines with the goal of delivering the switchgear consistently on time.

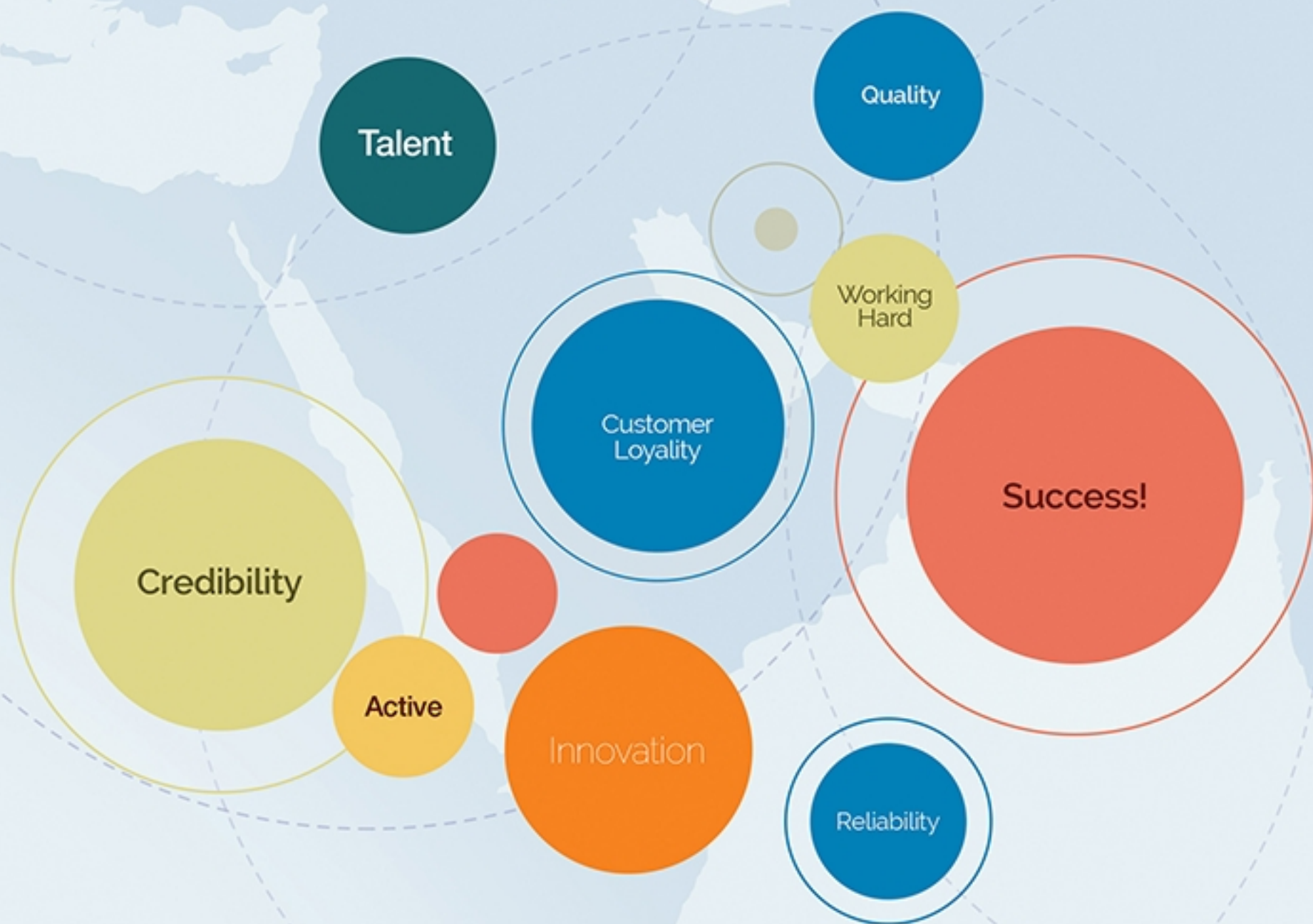
Vision

To stand up to the challenges of the phenomenal growth prospects of the energy needs in the region.

To empower and enhance our manufacturing expertise to achieve the production volumes and quality standards to face future challenges.

Our target is to produce the switchgear with exceptional quality, provide reliable solutions through the manufacture and supply of innovative design and product of cutting edge technology.

@ TIEPCO,
Quality is what gets the priority



Corporate Values

To maintain the utmost quality in our products and to make sure our valued customers get the best possible, we work with the slogan "**Getting it right from the start**" as the daily agenda.

We keep our strong human values system at the core of all our business strategies and pursue the organization goals.

We aim for the best possible quality in all our products from the moment they are planned to the moment they are dispatched, and beyond.

We make sure our products are well planned and well-constructed. From the blueprints to the instructions, and right down to the finished product, we follow the standards set out by the IEC and ISO.



TIEPCO

The International Electrical Products Co.

TIEPCO is an
APPROVED MANUFACTURER
for Saudi Electricity Company
and Saudi Aramco



Message From **Vice Chairman**

Dr. Khalid H. Al Tuwairqi

WE DREAM
TO MAKE
REALITIES
COME TRUE



Khalid Al Tuwairqi

It's my pleasure to introduce The International Electrical Products Company to all of you.

TIEPCO is a reliable, credible and innovative power company of the Kingdom of Saudi Arabia. Our quality products will always be more reliable and dependable. It is one of the greater reasons why we are known for our quality and achieved the **ISO 9001:2000** certification back in year 2001 before anyone else in the switchgear industry in all of the GCC region. Now TIEPCO has also achieved **ISO 9001:2008** certification.

The continuous improvement, innovative ideas, exploration in more areas of the energy industry, and being the first in the switchgear industry to achieve the ISO 9001:2000 certification & as approved manufacturer for **SAUDI ELECTRICITY COMPANY** and **SAUDI ARAMCO**, makes us stand out and be the first choice for our valued customers. Our vision is to create and allocate green power environment which will include innovative products and services.

I welcome everyone, dear employees, valued customers, respected visitors, to a new era of TIEPCO's successes and quality products, better service, and more innovative ideas.



Product Range

Electrical Products

- Metal Clad Switchgear
- Metal Enclosed Switchgear
- Protection Relay & Control Panels
- Low Voltage Switchgear
- Soft Starter Panel
- VFD Panel
- Motor Control Center
- A/C, D/C Drives
- Package Substation up to 3150kVA,36kV
- Unit Substation up to 1600kVA,13.8KV

Industrial Enclosures & Cabinets

- Empty cubicles for relay panels
- Control Panels
- Telecommunication Panels/ Server Cabinets



Transmission & Distribution

Automation

- Network Management
- Substation & Feeder Automation
 - Substation Automation
 - Substation Control System
 - Feeder Automation
 - Process Control
- Plant Adaptation
 - Substation Adaptation
 - Switch actuation

Protection Panels

- Generator Protection
- Motor Protection
- Transformer Protection
- RTTC Panels
- Overhead Transmission Line Protection
- Bus bar Protection
- Underground Cable Protection
- CB Control Panels Annunciation
- Load shedding/ under frequency panels
- Synchronizing Panels
- Data Retrieval Panels
- Auto Bus transfer Panels
- Mosaic Mimic Control Panels
- Revenue metering Panels
- Data Collection Unit

Metered Ring Main Unit (MRMU)

The TIEPCO's Metered Ring Main Unit a Medium Voltage Switchgear made specifically to Saudi Electricity Company's specifications **32-SDMS-02, 32-SDMS-05 & 32-SDMS-06** conforms to the latest IEC 602271-200 standard. It is designed and manufactured utilizing the in house expertise and state of the art technology for primary portion from SEL Italy. We take pride in declaring ourselves one of the market leaders for MRMUs.

Characteristics

- Metal-enclosed, air-insulated switchgear
- Suitable for medium voltage distribution.
- Guaranteed arc-proof units.
- Tested in accordance with the main international Standards.
- Wide range of functional units available for all installation solutions.
- Modular structure, easily built-up.
- Highly effective use of space.
- Start-up, maintenance and service operations can be carried out from the front.
- Apparatus handling with the door closed.
- Complete with mechanical safety interlocks.
- Earthing switch with full making capacity.
- Maximum service continuity guaranteed.
- Available in 13.8kV, 36kV and 38kV range.
- Main busbar rating up to 630A.
- Available for indoor and outdoor installation.

Technical Specifications

Rated Voltage	17.5KV	36KV	38KV
Operating Voltage	13.8KV	33KV	34.5KV
Impulse Withstand Voltage	95KV	170-200KV	200KV
Power Frequency Withstand Voltage	38KV	70KV-85KV	110KV
Short Time Current	21kA/1s	25kA/1s	25kA/1s
Peak Rated Current	52.5KA	62.5kA	62.5kA
Busbar Current	Up To 630A		
Cable & LV Compartment Covers & Doors Painting	RAL 7033		
Cable Inputs / Outputs	Bottom		



Medium Voltage Switchgear

The TIEPCO Medium Voltage Metalclad & Metalenclosed Switchgear conforms to the latest IEC standard **62271-200** and is designed and manufactured fully taking into account the present and future power system requirement of its clients for maximum ratings.

Characteristics

- Metal-clad, metalenclosed air-insulated switchgear.
- Suitable for medium voltage distribution.
- Guaranteed arc-proof units – Internal Arc Classified IAC A FLR.
- Factory-tested for indoor installations.
- Tested in accordance with the main international standards.
- Wide range of functional units available for all installation solutions.
- Compartments segregated by metallic partitions.
- Modular structure, easily built-up.
- Highly effective use of space.
- Start-up, maintenance and service operations can be carried out from the front.
- Apparatus handling with the door closed.
- Units can be installed against the wall.
- Complete with mechanical safety interlocks.
- Earthing switch with full making capacity.
- Maximum service continuity guaranteed – Loss Of Service Continuity LSC2B.
- Main Busbar rating up to 4000A
- Up to 40KA, indoor or outdoor installation
- High reliability as designed to the excessive temperature of the region.

Technical Specifications



Rated Voltage U_r (max)	kV	7.2	17.5
Rated Power Frequency Withstand Voltage	kV/5min	20	38
Rated Lightning Impulse Withstand Voltage	kV	60	95
Rated Short-time Withstand Current I_k 1s, 2s, 3s	kA	20, 25, 31.5, 40	
Internal Arc Withstand Current	kA1s	Up to 40	Up to 40
Main Busbar Rated Current I_r (max)	A	Up to 4000	Up to 4000
Feeder Rated Current I_r (max)	A	630 - 3150	630 - 3150
Feeder Rated Current With Forced Ventilation	A	3600-4000	3600-4000

Medium Voltage Softstarter

The TIEPCO Medium Voltage Softstarters are produced with primary portion from renowned OEM. The switchgear is from galvanized steel in a stable heavy duty construction and separated in to two metal enclosed sections. One portion having Low voltage part and Busbar, and the other portion MV compartment inclusive of MV cable connection. The switchgear units can be installed as line up and are combinable among each other.

TIEPCO has the reference of supplying MV Softstarters in ministry of water projects duly coupling the MV starter with the Metalclad switchgear and MV PFI plant as complete package.

Technical Specifications

Rated Voltage	kV	7.2
Service Voltage	kV	4.16
Rated Frequency	Hz	60
Power Frequency Withstand Voltage	kV rms	20
BIL (1.2/50 Micro-Sec. Wave)	kV peak	60
Short Time Withstand Current	kA rms	16 - 1 s
Peak Withstand Current	kA peak	42
Internal Arc Withstand Current	kA rms	16 - 1 s
Busbar Rated Current	A	800
Loss Of Service Continuity		LSC 2A
Internal Arc Classified		IAC A FLR
Partition Class		PM



LV SWITCHGEAR & CONTROLGEAR

The TIEPCO Low Voltage Switchgear and Controlgear conforms to the latest **IEC 60439-1** standard and is designed and manufactured utilizing the in house expertise and state of the art technology, fully taking into account the power system and industrial control requirement of client.

TIEPCO LV Product Range includes:

- LV Panels all ratings upto 4000A in fixed and plug-in design.
- MCCs all ratings fixed design.
- VFD panels all ratings with VFDs from renowned manufacturers.
- Control kiosks all types for industrial use

Features

- Is up to 690VAC.
- Up to 100KA, indoor or outdoor installation.
- Up to Form 4 for customer safety requirement.
- High reliability as designed to the excessive temperature of the region.
- Flexibility of design, as cable entry can be from top or bottom.
- Customized Switchgear can be designed as per client's space constraints.

Technical Specification

Rated Insulation Voltage	1000VAC
Rated Voltage	690VAC
Altitude	Up to 1000m a.m.s.l
Installation	Indoor, Outdoor
System	3Ø,4W+G
Rated Phase Busbar Current	400A up to 4000A
Form	1 - 4
Protection Degree	IP 3X, IP54 (on request)
Connection Access	Rear / Front /Top / Bottom
Painting	RAL 7032/RAL 7033/RAL 7038



Pad Mounted Switchgear

The TIEPCO Pad Mounted Switchgear is designed and manufactured fully taking into account the specific requirement of Royal Commission for its infrastructure projects of industrial distribution network

Technical Specifications

Characteristics

- Metal-enclosed, air-insulated switchgear.
- Suitable for medium voltage distribution.
- Guaranteed arc-proof units.
- Tested in accordance with the main international Standards.
- Complete with mechanical safety interlocks.
- Available in 17.5KV and 36KV ratings.
- Configured with ring switches and tap off switch.
- Main busbar rating up to 630A and short time rating up to 25KA.
- Outdoor Installation.

Rated Voltage	17.5kv	36kv
Operating Voltage	14.4kv	34.5kv
Impulse Withstand Voltage	95kv	170kv
Power Frequency Withstand Voltage	38kv	70kv
Rated Frequency	60hz	
Short Time Current	25KA / 1 s	
Peak Rated Current	62.5KA	
Busbar Current	Up to 630a	
Internal Protection Degree	Ip3x	
Outdoor Enclosure Protection Degree	Ip54	
Accessibility	Front	
Outdoor Enclosure Color Finish	Munsell Green	
Switchgear Structure	Galvanized	
Cable Inputs / Outputs	Bottom	
Service Condition: Altitude	Upto 1000M Above Mean Sea Level	
Applicable Standard	IEC 62271-102, 103 & RC SPECS. 16409	



Pad Mounted Metering Unit

The TIEPCO Pad Mounted Metering Unit is designed and manufactured fully taking into account the specific requirement of Royal Commission for revenue metering of large industrial consumers

Characteristics

- Metal-enclosed, air-insulated switchgear.
- Suitable for medium voltage distribution.
- Guaranteed arc-proof units.
- Tested in accordance with the main international Standards.
- Complete with mechanical safety interlocks.
- Available in 17.5kV and 36KV ratings.
- Configured for incoming cable and metering compartment having medium voltage instrument transformers and suitable outgoing feeder with disconnector or direct connection.
- Duly equipped with standard revenue meter socket.
- Main busbar rating up to 630A and short time rating up to 25KA.
- Outdoor installation.

Technical Specifications

Rated Voltage	17.5kv	36kv
Operating Voltage	14.4kv	34.5kv
Impulse Withstand Voltage	95kv	170kv
Power Frequency Withstand Voltage	38kv	70kv
Rated Frequency	60hz	
Short Time Current	25ka /1sec	
Peak Rated Current	62.5KA	
Busbar Current	Up to 630a	
Internal Protection Degree	Ip3x	
Outdoor Enclosure Protection Degree	Ip54	
Accessibility	Front	
Outdoor Enclosure Color Finish	Munsell Green	
Switchgear Structure	Galvanized	
Cable Inputs / Outputs	Bottom	
Service Condition: Altitude	Upto 1000M Above Mean Sea Level	
Applicable Standard	IEC 62271-102, 103 & RC SPECS. 16409	



Power Quality Management

TIEPCO is actively doing business in PQM segment and have served numerous steel plants with appropriate MV Compensation system and same are in operation since 2007. We also provide services for measuring and reporting the power quality.

The measuring and reporting of Power Quality requires that the proper equipment that can measure and analyze in conformity with related standards are used by professional engineers who are well conversant with power quality field. We have a dedicated team of professional engineers to perform this delicate task.

Consequent to site visit and recording of data and measurement finally the optimum solution is offered to the costumer, with detail budget and implementation plan. TIEPCO remains involved in the project implementation and commissioning stage and provides services for technical reviews and sourcing of requisite equipment.

Compensation Systems are also arranged on customer demand from renowned OEMs (mainly from EUROPE) and all installation, testing and commissioning services are also provided.



Package Substations up to 3150kVA, 36kv

The TIEPCO Package Substation conforms to the latest **IEC** standard and is designed and manufactured utilizing the in house expertise and fully taking into account the project and power system requirement of its clients.

TIEPCO manufactured Package substation has following salient features:

- Is up to 17.5KV or 36KV on HV side and up to 480V on LV side
- Main busbar rating up to 630A on HV side and up to 3000A on LV side.
- Upto 3150 kVA
- Have three separate duly segregated compartments
- Customized solutions are available with PFI plants on LV side (optional)

PACKAGE SUBSTATION COMPRISES OF THREE PORTIONS

1- MV COMPARTMENT - Having RING MAIN UNIT

Rated Voltage	17.5kv	36kv
Operating Voltage	13.8kv	33kv
Impulse withstand Voltage	95kv	170kv-200kv
Power frequency withstand Voltage	38kv	70kv-85kv
Short time Current	21ka /1sec	25ka /1sec
Busbar Current	Up to 630a	
Auxiliary Voltage	220VAC	

2- TRANSFORMER COMPARTMENT - Having TRANSFORMER

Rated Voltage	17.5kv	36kv
Rated Capacity	Max. 2500 KVA	Max 3150 KVA
Rated Primary Voltage	13.8KV	33KV
Rated Secondary Voltage	UP TO 480VAC	
Cooling	ONAN	
Paint	RAL7033	

3- LOW VOLTAGE COMPARTMENT - Having LV Switchgear

As per client / project SLD requirement Main Busbar upto 3000A



Unit Substations

The TIEPCO Unit Substation conforms to the latest IEC and prevailing utility standard (32-SDMS-01).

TIEPCO manufactured Unit substation has following salient features:

- Is up to 17.5KV on HV side and up to 400V on LV side
- Main busbar rating up to 4000A on LV side.
- Upto 1500 kVA

A - UNIT SUBSTATION COMPRISES OF TWO SECTIONS

TRANSFORMER SECTION

Rated Voltage	17.5KV
Rated Capacity	1500 KVA
Rated Primary Voltage	13.8KV
Rated Secondary Voltage	Up to 400V AC
Cooling	ONAN
Paint	RAL7033



B - LOW VOLTAGE COMPARTMENT- HAVING LV SWITCHGEAR AS PER RATING OF TRANSFORMER ENUNCIATED BELOW:

COMPONENTS	UNIT SUBSTATIONS RATING							
	300kVA		500kVA		1000kVA		1500kVA	
	231/133V	400/231V	231/133V	400/231V	231/133V	400/231V	231/133V	400/231V
LV Panel Incoming Busbar / Link rating - min. (A)	800	500	1600	800	3000	1600	4000	2500
CT Rating On Incoming Busbar (A)	750/5	750/5	1500/5	750/5	3000/5	1500/5	4000/5	3000/5
Number Of Outgoing MCCBs Rated 400A	2	1	4	2	6	4	7	5
Provision Of Space for Spare MCCBs	2	1	4	2	6	4	7	5
Phase Busbar min. Rating (A)	800	500	1600	800	3000	1600	4000	2500
Symmetrical Short Circuit Rating for 2 Sec. (rms), kA	25	25	25	25	40	25	65	40

Industrial Enclosures and Cabinets

TIEPCO provides fabrication of following

- Relay Panel Type TRP
- Control Pane Type TCP
- Manufactured as per Saudi Electric Company's specification 31-TMSS-01
- Manufactured as per Saudi Aramco Company's specification 16-SAMSS-514
- Type Tested in accordance with IEC60529 for class of Enclosure Protection (IP41 & IP 55)



TIEPCO offers a variety of sizes for industrial enclosures and cabinets. This includes IT server network racks of all sizes and we also customize sizes and number of compartments/shelves according to customers' requirements.

Automation Solutions

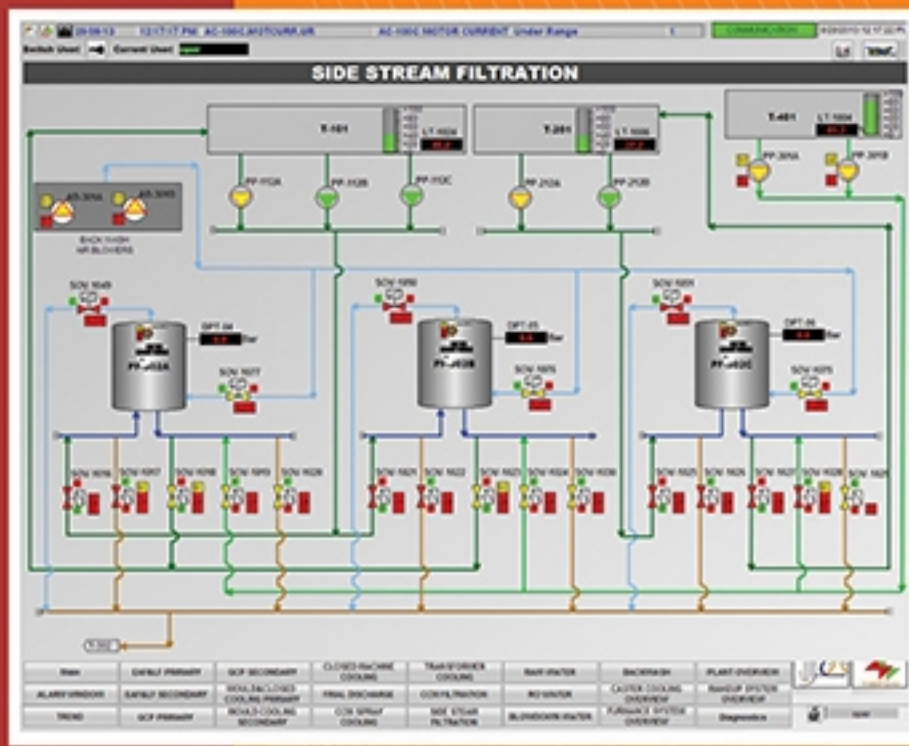
The TIEPCO's PLC and Automation Panels meet the following specifications:

1- Saudi Electricity Company

31-TMSS-01, 01-TMSS-01, 11-TMSS-10,
38-TMSS-05, 40-TMSS-02

2- Saudi Aramco

16-SAMSS-514, 16-SAMSS-513 and
34-SAMSS-815, moreover conforms to the
latest IEC 60297, IEC 60529, ANSI/NFPA 70 and
ANSI/ECA 310D standards.



Characteristics

- Indoor panels metal enclosed, free standing, integrally designed with all necessary control, instruments, meters, PLC controllers, I/O modules, protective and auxiliary relays, and other appurtenances.
- Panels are fabricated from minimum 2mm thick steel.
- Bottom of panels are covered with three (3), 3mm steel plates.
- The gland and bottom plates are vermin proof.
- In each panel removable type lifting eyes are provided.
- In PLC/Automation panels swing door splinter proof with transparent tempered glass with minimum thickness 3mm are provided.
- All the PLC/Automation panels are hinged door in the front and rear.
- Test facilities are provided to each protective relay, meter, instrument, PLC modules.
- All the wiring used within panels are rated 600/1000V with PVC insulated stranded annealed copper conductor in SEC projects. In Saudi Aramco projects type SIS, XHHW or THHN/THWN are used.
- White color ferrules with black lettering are used on both sides of wire to identify the device number and terminal number. For all trip circuits red ferrules are provided on wires.
- A copper ground bus is provided running the entire length of panel line-up.

Protection Relay & Control Panels

Essential for all the business occasion.
The purely and brief design shows your
confidence and profession.

TIEPCO's Relay and Control Panels are meeting following specifications:

- 1- **Saudi Electricity Company**
31-TMSS-01, 01-TMSS-01, 11-TMSS-10, 38-TMSS-05, 40-TMSS-02
- 2- **Saudi Aramco**
16-SAMSS-514, 16-SAMSS-513 and 34-SAMSS-815
- 3- **Other International IEC/ANSI Standards**
IEC 60297, IEC 60529, ANSI/NFPA 70 and ANSI/ECA 310D



Characteristics



- Indoor panels metal enclosed, free standing, integrally designed with all necessary control, instruments, meters, PLC controllers, I/O modules, protective and auxiliary relays, and other appurtenances.
- Panels are fabricated from minimum 2mm thick steel. Bottom of panels are covered with three (3), 3mm steel plates.
- The gland and bottom plates are vermin proof.
- In each panel removable type lifting eyes are provided.
- In relay panels swing door splinter proof with transparent tempered glass with minimum thickness 3mm are provided.
- All the control panels are dead front type and hinged door in the rear.
- Test facilities are provided to each protective relay, meter, and instrument separately through Field Test switches.
- All the wiring used within panels are rated 600/1000V with PVC insulated stranded annealed copper conductor in SEC projects. In Saudi Aramco projects type SIS, XHHW or THHN/THWN are used.
- White color ferrules with black lettering are used on both sides of wire to identify the device number and terminal number. For all trip circuits red ferrules are provided on wires.
- A copper ground bus is provided running the entire length of panel line-up.
- Colored Mimic Bus Diagram is provided on the front of Control Panel showing the bus bars, feeders, power transformers, circuit breakers, grounding switches etc. for each level.
- All routine tests prescribed in IEC 60439-1 or ANSI/IEEE C37.21 standards are performed on complete panel assembly.
- All the relays and meters are tested with secondary injection sets.
- Functional checks of complete panel are performed in the factory against approved vendor drawing and as per standard requirement.



TIEPCO

The International Electrical Products Co.
الشركة العالمية للمنتجات الكهربائية



Head Office / Factory

P.O. Box 1266 Dammam 31431, Kingdom of Saudi Arabia

Phone: +966 (13) 8122964 - (13) 8123016

Fax: +966 (13) 8123156

Email: tiepc-feedback@tiepc.com

Website: www.tiepc.com

Sales & Marketing:

General Inquiries: tiepc-sales@tiepc.com

Phone: +966 (13) 8122964 - (13) 8123016

Operation:

General Inquiries: tiepc-opr@tiepc.com

Phone: +966 (13) 8122964 - (13) 8123016

Regional Office

Riyadh Office:

Phone: +966 11 478 9912,

Fax: +966 11 476 7693

Jeddah Office:

Phone: +966 12 653 1437

+966 12 653 1561

Fax: +966 12 657 4403