

Order



e=CS²
Newsletter
Issue V
Jan-Dec '09

C&S Efacec Launches MV Switchgear Products

The company formally launched its products in April 2009 at a function held at Hotel Intercontinental Eros, New Delhi and has started the journey by executing a few prestigious orders.

NORMACEL is an Indoor metal clad air insulated MV switchgear with draw-out Vacuum Circuit Breaker DIVAC.

NORMACEL[®]



It is a factory assembled and tested product in accordance with IEC 62271-1, 100, 200.

NORMACEL is suitable for primary distribution from 3.6 to 24kV.

FLUOFIX[®] GC



FLUOFIX GC is an SF6 insulated compact Ring Main Unit with integrated protection and stainless steel tank that houses all live parts & protects against environment agents. FLUOFIX GC is suitable for secondary distribution networks of 11 & 24kV.

To know more technical details, please visit our website www.csefacec.com

Landmark Order 800MW

We have bagged the first order for the Generator Isolated Phase Bus Duct Package of 2x800MW Sri Damodaram Sanjeevaiah Coal Based Supercritical Thermal Power Station at Krishnapatnam, Andhra Pradesh. The project is being developed by Andhra Pradesh Power Development Co. Ltd. (APPDCL) - a joint venture of APGENCO and IL&FS.

This is the first order for supercritical 800MW Steam Turbine Generator & Auxiliaries in the country and was tendered through the International Competitive Bidding route.

C&S Electric continues to enjoy its top position in power projects with its strong, customer-focused approach and the constant quest for top-class quality. It is a significant step in fulfilling our aspiration to contribute to the nation's increasing demand for power, which is a growth engine of Indian economy.



Wishing you a happy & prosperous *New Year*

Higher Rating MCBs

Looking to the overwhelming response, we have now also added in our range Higher Rating MCBs of 80, 100 & 125Amp. These are again state-of-the-art products with added features such as:

- Terminal Connectors suitable for 50 sq. mm cable
- Terminal torque - 3.5 Nm
- Breaking Capacity - 10kA
- Complete Isolation/Disconnection & positive contact indication.
- Width per pole 26.6mm (1.5 times width of normal MCB)



It will be observed that WiNtrip MCBs & Distribution Boards have been especially designed with numerous exclusive best-in class features to meet the requirements of all segments such as Industrial, Commercial & Residential.

- Insulated Neutral Link
- Deep Drawn Door and Frame
- Reversible Door functioning on Hinge Mechanism
- All Double Door DBs with Lock and Key Version
- Steel Nut inserts and cages
- 60 micron Powder Coating
- 18 Gauge Sheet Metal
- Top and Bottom Detachable Gland Plates with Knock-outs
- Knock-outs at both sides and cable ties also for easy cable management
- IP 42 Protection
- Masking Sheet to protect during mansion
- Suitable for both flush and wall mounting.

This DB is unique and perfect in all respects and totally different from best of the competition.

TPNH Per Phase Isolation Distribution Boards (PPI DBs)

In PPI DBs only that phase where there is an Earth Leakage fault is isolated, avoiding total darkness since the other two phases remain on. The configuration of TPNH PPI DBs is 4 way incomer by way of Isolator / MCB, though the slot is for 8 way and 4+2 / 6+2 / 8+2 / 12+2 outgoing in all the three phases. Meaning thereby, we have in our range DBs for 4, 6, 8 and 12 ways outgoing. Here by +2 we mean, slot for sub incomer DP RCCB in each phase outgoing. Installation of DP RCCB in each phase avoids the total failure/darkness as only the

phase where earth leakage fault exist gets isolated. For this isolation, each phase is having separate Neutral Link.



These exclusive features with innovative technology have rendered the products much better safety, protection & durability for final power distribution.

VTPN DB with MCB as Incomer

We feel delighted to inform about release of our new product VTPN Double Door Distribution Board with MCB as Incomer in 4, 8 and 12 ways. They are 3 Phase Boards with Single Phase / 3-Phase outgoing with provision for 8-way incomer.



Yet again, it is a state-of-the-art product with all class apart features. We enumerate the important ones;

- Fully Insulated Bus Bar
- Flexible HD Power Cables with PVC insulation and Protection Cover
- Pan Assembly

Metal Clad Loose Plugs and Sockets

Metal Clad Loose Plugs and Sockets offered by C&S are available in 4 variants i.e. 10A SPN, 20A SPN & TPN and 30A TPN. The basic features of our Die Casted Metal Clad Plugs and Sockets are as under:-

TPN Plug

- 3 pin PBT Plug for wiring RYB with separate brass earthpin
- Pins are of Nickel Plated Brass
- 440 Volt
- Screw type Heavy Duty PVC nozzle in the plug to support the outgoing wire
- Die cast metal clad with 60 Micron Powder Coating
- C&S Electric Hologram on the outer body to ensure authenticity.

TPN Socket

- Clamps are of Phosphor Bronze (Tin + Phosphorous + Copper) to maintain elasticity and tension
- 440Volt Ceramic/Porcelain Socket
- Die cast metal clad with 60 Micron Powder Coating
- Plastic cover to protect the socket when plug is not installed
- C&S Electric Hologram on the outer body to ensure authenticity.



SPN Plug

- 2 pin PBT Plug for wiring phase with neutral along with separate Brass earth pin
- Pins are of Nickel Plated Brass
- 250Volt PBT Plug
- Screw type Heavy Duty PVC nozzle in the plug to support the outgoing wire
- Die cast metal clad with 60 Micron Powder Coating
- C&S Electric Hologram on the outer body to ensure authenticity.

SPN Socket

- Clamps are of Phosphor Bronze (Tin + Phosphorous + Copper) to maintain elasticity and tension
- 250Volt PBT Socket
- Die cast metal clad with 60 Micron Powder Coating
- Plastic cover to protect the socket when plug is not installed
- C&S Electric Hologram on the outer body to ensure authenticity.



THE PROTECTOR
Life saver. Energy saver.

WiNtrip
Miniature Circuit Breaker

MCB • DB • RCCB • Isolators

Plug and Socket DBs (without MCB)

Powder coated sheet metal deep drawn DBs with Plug & Socket including insulated neutral link, adjustable din rail and connecting links. Features available in our boxes are;

- Deep Drawn Cover
- Body and Cover in different matching shades
- Body in matt finish and cover in semi glossy finish
- Paint 60 micron Powder Coating



- Twin clean Knock-outs at both top and bottom
- Insulated Neutral Link
- Connecting Links SPN 2.5sqmm wire; TPN 6sqmm
- Adjustable 35 sqmm Din Rail
- Provision for both flush and wall mounting

Industrial Plugs & Sockets

- Rating** ■ **3 P : 16~32A, 240V AC**
■ **5 P : 16~125A, 415V AC**

Benefits

- New generation Plugs & Sockets in IP44/IP67 category
- IEC 60309 series reliable & secure Plugs & Sockets
 - Exceptional high impact resistance
 - High thermal stability
 - High insulated Quality
 - Good resistance to various chemicals
- Color codes for easy identification of Plugs & Sockets



- Locking device prevent unintended withdrawal
- IEC series permits adaptability & replacement with international brands

Applications

- Data Processing Centres
- IT Parks, TV Production Houses, Sports Stadium
- Automobile, Pharma, Packaging, Chemical & Production Lines
- Machine Tools
- Hospitals & Hotels
- Mobile Control Panels
- Airports and Metro Rail Stations.

Industrial Plugs & Sockets Distribution Box

Benefits

- Authentically attractive deep drawn sheet metal top cover with tap tone colors.
- IEC 60309 series reliable and secure Plugs & Sockets
 - Exceptional high impact resistance
 - High thermal stability
 - High insulated quality
 - Good resistance to various chemicals
- Color codes for any identification of Plugs & Sockets
- Locking device prevent unintended withdrawal
- WiNtrip current limiting 10kA MCB adoptable
- Rating 3Pin 16-32A & 5Pin 32-63A



Applications

- Industrial Movable and Portable equipment
- Machine Tool
- Data Processing Centres
- Public Entertainment Premises
- Air -conditioner and Refrigeration
- Construction and demolition sites
- Hotels & Hospitals
- Tourist harbours & Camp sites

IRI Pro-v2 Compact O/C, S/C & E/F Relay

- Microcontroller based Numeric Relay.
- Digital filtering of the measured values to suppress the high frequency harmonics & transient DC components during short circuit.
- Selectable protective functions between: definite time over-current relay and inverse time over current relay.
- Two stage over-current time protection for phase current / earth fault current.
- Separately selectable characteristic for Earth fault and Phase fault.
- Continuous self-supervision of software and hardware.
- Wide operating ranges of the supply voltage [AC/DC] 24V-260V AC/24V-360V DC
- Last five faults recording with real time stamping (Date & Time).
- Relay assignment configurable from HMI.



- Relay reset configuration from HMI.
- Primary current display with CT Ratio.
- Front USB interface for PC/Laptop.
- Front IP54 dust cover.

eGen+ Powerful AMF Relay

eGen+ is designed for the control of emergency and standby power systems. It integrates the functions of engine start relay, engine and alternator supervision and annunciation.



- 24 LEDs for annunciation of status of various faults/inputs. **10 LEDs** are user programmable.
- Provision for operating 12 Auxiliary relays [externally mounted] for control, annunciation and protection purpose. 6 relays are user programmable.
- 16 Opto-Isolated Digital Inputs, 10 inputs are user programmable.
- Last 50 event record with non volatile memory backup.
- All fault/event status with Real Time Clock stamp
- Last 10 fault record in non volatile memory backup.
- Fuel Pilferage Protection through Analog and Digital Input.
- Best Phase Selection especially for PIU interface.
- Thermal Management Scheme based on state of available batteries.
- Last 5 DG Start-Stop record with run duration with non volatile memory backup.
- Month-wise energy consumption record in non volatile memory.
- Over/under frequency/speed indication/shutdown.
- Internal fault annunciation for fail to start, over speed & low battery.
- Connectivity through **GSM** Modem on **GPRS** for transfer of complete information to base station.
- **SMS** alert on events/faults to maximum 5 user programmable mobile nos.

IRU-Pro AC Voltage Protection Relay



- Numeric DSP technology based relay.
- Two Groups of configuration parameter.
- Protection ANSI: 27, 59, 59N, 47, 59D
- Inverse as well as Definite Trip timing curve selection for under/over voltage.
- Over voltage detection in positive, negative-an zero sequence system.
- Suitable for Star/Delta connection.
- PT Ratio for Primary Voltage display configuration.
- Block on under voltage in case of Power failure (user selectable).
- Last 10 faults saving in memory for all line voltages and the voltages of the symmetrical components, with time stamp.
- Recoding of up to last 100 events with time stamp.
- Assignment matrix for output relays for all protections.
- USB front end interface for PC/Laptop interface.
- Wide range SMPS based Auxiliary Supply (24- 260V AC/24-360V DC).
- Front IP54 dust cover.

New products from C&S's research & development and engineering floors

Compact Changeover Switch

C&S introduce a new series of compact & light weight Change Over Switches. These new switches enables quick change-over to back-up electrical supplies in the event of power failure, this switch is ideal for applications demanding a constant supply of power including Hospitals, Hotels, Banks and utility operations.

The New Compact Change-over Switch is available in both open and enclosed versions from 40~200A and fully rated for AC 23-AC22 duty at 415VAC.



Salient Features:

- Comply with the latest requirements of IEC-60947-1&3 / IS 13947-1&3 standards.
- Compact construction
- Modular design in 4 pole (40A ~200A), suitable for utilization category AC-22A & 23A
- Available in open execution & in sheet steel enclosure.
- Adjustable telescopic shaft
- Handle with in-build padlockable facility in-off position
- Provision for defeating door interlock

Function

- These changeover switches are used to control & disconnect all kind of circuit-disconnection feeders & motor load
- By means of manual operation, changeover performs circuit switching & are mainly used as a switching device of two independent circuit -I & II

Accessories

- Auxiliary contact: 1NO + 1NC or 2NO + 2NC
- Key & Castle locks

Frame - 1



Rating 40 ~ 100A

Frame - 2



Rating 125 ~ 250A

robusta - Built for Performance

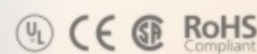
C&S Electric launched robusta Contactors from 9A to 800A in 3 Pole & 4 Pole configurations for AC / DC applications with wide band coils. A comprehensive range of accessories common to the entire range makes it versatile and helps minimize maintenance inventory.

robusta

Contactor | **Overload Relay**
9A - 800A (AC3) | 0.1A - 1000A



Features and benefits:



Compact Modular Design

- Design Flexibility
- Space Saving

Low Power Consumption Coils

- Energy Saving
- Down Sizing of Control Transformer

Protective Security Cover

- Prevents Accidental Manual Operation
- Prevents Dust Entry

Safety First

- Finger Safe IEC rated IP 20 Terminals
- Power & Control Terminals Touch-Safe

Common Accessories

- Design and assembly flexibility
- Saves inventory costs

Installation Made Easy

- DIN Rail/Screw Mounting
- Assembly Time & Labour Saving



Swift & Safest transfer to keep you connected

Office & Retail Lighting

Suspended Light



- Direct and Indirect light distribution
- Luminaire wired with electronic ballast
- Perforated metal / Thin PMMA / Metal louvers refractor
- Housing made of extruded aluminium section with die cast aluminium end covers
- Colour: Powder coated in Titanium Grey

- Glare free lighting
- High aesthetic with efficient optical system

Floor Light

- Indirect light distribution
- Luminaire wired with electronic ballast
- Perforated metal / Thin PMMA / Metal louvers refractor
- Housing made of extruded aluminium section with die cast aluminium end covers
- Colour: Powder coated in Titanium Grey
- Glare free lighting
- High aesthetic with efficient optical system



Wall Light



- Direct & indirect light distribution
- Plain translucent, concentric circular or honey comb screened diffuser or metal perforated diffuser
- Housing made of extruded aluminium section with die cast aluminium end covers
- Colour: Powder coated in Titanium Grey

- Glare free lighting
- High aesthetic with efficient optical system

Recess Mounting Light

- Direct and Indirect light distribution
- Luminaire wired with electronic ballast
- Thin PMMA/Metal louvers/Thin prismatic PMMA refractor
- Housing made of CRCA painted sheet or die cast aluminium
- Colour: Powder coated in Titanium Grey/White
- Glare free lighting
- High aesthetic with efficient optical system



Down Light



- Direct light distribution
- Luminaire wired with electronic ballast/driver
- Housing made of CRCA painted sheet or die cast aluminium
- Colour: Powder coated white/silver grey
- High aesthetic with efficient optical system

Landscape Lighting

Post Top Lantern

- Housing: Die cast aluminium
- Finish: UV stabilised polyurethane painting with chemical cromotised protection
- Hardware: 304 grade stainless steel
- Diffuser: UV stabilised clear one piece PMMA
- Reflector: Chemically polished & electrochemically anodised aluminium
- Deflector: Painted aluminium
- Photometry: Direct & direct-indirect lighting distribution
- Gasket: Silicon rubber with high thermal resistivity
- Degree of protection: **Optical compartment IP66** & control gear compartment IP 55
- Electrical protection: class I



Bollard & Column Light



- Housing: Zn plated ERW MS tubular sections or aluminium sections
- Finish: UV stabilised polyurethane painting with chemical cromotised protection
- Hardware: 304 grade stainless steel
- Diffuser: UV stabilised clear or opal one piece PMMA

- Reflector: Chemically polished & electrochemically anodised aluminium
- Deflector: Painted aluminium
- Photometry: Direct & Direct-Indirect lighting distribution
- Gasket: Silicon rubber with high thermal resistive
- Degree of protection: **Optical compartment IP66** & Control gear compartment IP 55
- Electrical protection: Class I

Spike Light

- Housing: Die cast aluminium
- Finish: UV stabilised polyurethane painting with chemical cromotised protection
- Hardware: 304 grade stainless steel
- Diffuser: Toughened clear or frosted glass
- Reflector: Chemically polished & electrochemically anodised aluminium
- Gasket: Silicon rubber with high thermal resistivity
- Degree of protection: **Optical compartment IP65**
- Electrical protection: Class I



Ground Burials Light



- Housing: Die cast aluminium
- Finish: UV stabilised polyurethane painting with chemical cromotised protection
- Hardware: 304 grade stainless steel
- Diffuser: Toughened clear or frosted glass
- Reflector: Chemically polished &

- electrochemically anodised aluminium or metalised aluminium
- Gasket: Silicon rubber with high thermal resistivity
- Drive over/walk over luminaires
- Degree of protection: **IP 67 & IP 66**
- Electrical protection: Class I

Column Flood Light

- Housing: Die cast aluminium
- Finish: UV stabilised polyurethane painting with chemical cromotised protection
- Hardware: 304 grade stainless steel
- Diffuser: Toughened clear or frosted glass
- Reflector: Chemically polished & electrochemically anodised aluminium or pre-anodised aluminium
- Gasket: Silicon rubber with high thermal resistivity
- Degree of protection: **IP 65**
- Electrical protection: Class I



Architectural Facade Light



- Housing: Die cast aluminium
- Finish: UV stabilised polyurethane painting with chemical cromotised protection
- Hardware: 304 grade stainless steel
- Diffuser: Toughened clear or frosted glass
- Reflector: Chemically polished & electrochemically anodised

aluminium or pre-anodised aluminium

- Gasket: Silicon rubber with high thermal resistivity
- Degree of protection: **IP 67 & IP 66**
- Electrical protection: Class I

Outdoor Lighting

Non-Integral Flood Light

- Housing: Single piece pressure die cast aluminium alloy LM24 or spun aluminium
- Finish: UV stabilised polyurethane painting with chemical cromotised protection.
- Hardware: 304 grade stainless steel
- Diffuser: Toughened clear glass with ceramic screening
- Reflector: Pre-anodised plain aluminium specular or hammered finish
- Gasket: Silicone rubber with high thermal resistivity
- Degree of protection: **Optical compartment IP65**
- Electrical protection: Class I



Integral Flood Light



- Housing: Single piece pressure die cast aluminium alloy LM24 or spun aluminium
- Finish: UV stabilised polyurethane painting with chemical cromotised protection.
- Hardware: 304 grade stainless steel
- Diffuser: Toughened clear glass with ceramic screening

- Reflector: Pre-anodised plain aluminium specular or hammered finish
- Gasket: Silicone rubber with high thermal resistivity
- Electric gear: Detachable wired gear tray
- Degree of protection: **Optical compartment IP66**
- Electrical protection: Class I

Decorative Street Light

- Housing: Single piece pressure die cast aluminium alloy LM24 or spun aluminium
- Finish: UV stabilised polyurethane painting with chemical cromotised protection.
- Hardware: 304 grade stainless steel
- Diffuser: Heat resistance toughened glass or UV stabilised PMMA clear or Textured
- Reflector: Deep drawn pot optic of high purity aluminium sheet electro-Chemically polished & anodised
- Gasket: Silicone rubber with high thermal resistivity
- Various mounting options.
- Degree of protection: **Optical compartment IP66** & Control gear compartment IP 55
- Electrical protection: Class I





Busbar compartment

- Spacious busbar compartment for adequate air clearances
- Unique 3 phase cast resin insulator
- Internal Arc Protected
- Suitable for Higher Current Ratings



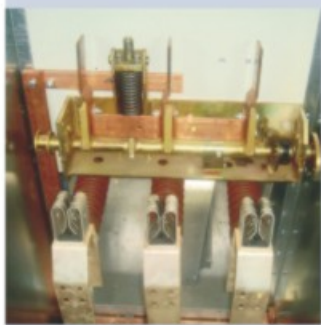
Current Transformer (CT) & Cable compartment

- Spacious compartment to accommodate one set of Dual Core CTs and 2 runs of cable
- Option of rear extension to accommodate extra CTs or cables
- Adequate height for cable termination
- Suitable for Multi / Single Core Al/Cu Cables
- Front access to cable compartment
- Cable door interlocked with earth switch position
- Internal Arc Protected



Voltage Transformers (VT) compartment

- Withdrawable line VT at bottom & Bus VT at top provided in the breaker panel
- Removable fuses mounted on the VT
- Safety shutters between VT and Cable Compartment close automatically on VT withdrawal
- VT door interlocked with Earth Switch operation



Earthing Switch/Earthing Truck

- Bus/Cable circuit Earthing is achieved through a fault-making Earthing Switch interlocked with the circuit breaker.
- Earthing Truck for Bus/Cable available
- Earth Switch can be placed in Test / Service position with CB door closed



Breaker Interlocks

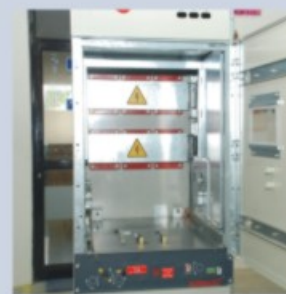
- It is not possible to close the Earth switch if the circuit breaker is at service position.
- It is not possible to close the circuit breaker if its movable truck is not placed in the test or service position.
- Anti pumping feature provided
- Control Plug interlock available

Metering compartment

- Metering compartment with numerical / static / electromagnetic relays indicating meters, lamps and control switches
- Protection and measuring apparatus customised as per requirement
- Bigger size Metering Compartment available
- Innovative plate design to accommodated last minute customer needs.



Riveted
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Higher S
& Sei
Environ



Breaker Compartment

- Racking In/Out from test to service in door closed position
- Positive guides for safe and enduring alignment of power & controls contacts
- Live parts covered by automatic safety metallic shutters
- Internal Arc Protected



Interlocks

Mechanical interlocks provide the operators and equipment security and protection

- It is not possible to insert the circuit breaker if the Earth switch is closed.
- The cable compartment access is interlocked with the Earth switch but, under certain special conditions, it is possible to operate the Earth switch in order to perform the cable tests.
- Other interlocks are available under request.

FLUOFIX[®] GC



Electrical long life

Switch electrical long life exceeds the IEC 60265-1 class E3 (capability of frequent switching of higher currents and higher frequency of making on short-circuits), fulfilling the most difficult network conditions.



Design
meet
stresses
seismic
requirements

Earthing circuit

- Circuit earthing is made through the ISFG three position switch disconnecter, with full making capacity.
- To verify the earthing circuit position a direct mechanical indicator is provided in the front of the panel.
- All switchboard metal parts are earthed. The general earthing busbar is located externally at the bottom of the unit.



Protection and Remote Control

Fluofix GC is available with several equipments for remote monitoring, control and protection:

- Short circuit indicators
- Pressure indicators
- Protection and control relays
- Motor operated mechanisms



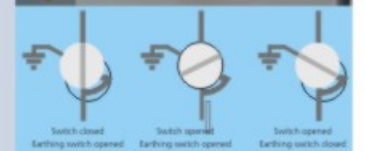
Live cables and phase sequence

The voltage presence is visualized by means of neon indicator lights connected to the capacitor dividers mounted on each phase. The phase sequence is verified through a portable equipment.



Interlocks

Mechanical and electrical interlocks are provided to safeguard the personnel and Fluofix GC equipment.



High Voltage SF6 tank

- Fluofix GC main structure is a common welded stainless steel tank, SF6 filled at 0.3 bar relative.
- The tank special design enables it to withstand an internal overpressure without suffering any significant deformation.
- Inside the tank are located the three-position switch disconnectors and the busbars.



Gas tightness

The enclosure is filled with SF6 gas in the factory and the leakage rate is rigorously checked in a leakage detector chamber. According to the IEC 62271-200, Fluofix GC is sealed for life and no internal pressure checking is necessary.



Operating Mechanism

Operating mechanisms designed and tested as free maintenance equipment. Special care is taken in design and material selection, like bearings, mechanisms, cams and surface treatment.

- Switch is class M2 as per IEC 60265-1 with extended mechanical endurance of 5000 operations.
- Normal service conditions, it is possible to motorise the mechanism with an additional kit assembly.
- The handle was designed with an antireflex system, preventing false operations.



Cable compartment

- RMU bottom support frame, is simultaneously the cable compartment.
- Support frame has a front cover that gives access to the cable connection, mechanically interlocked with the earthing switch & designed to resist to internal arc faults.
- Installation work and cable testing are easy to perform.



expanding frontiers



Generator Protection Relay

Adding value to our customers - Control and Relay Panel Division

As a step towards adding value to its customers C&S has set up the Control and Relay Panel

Unit at Noida. With the signing of Value Added Reseller Agreement with GE Multilin, C&S has expanded its offerings to include Transmission and Generation Verticals of the Power Sector. The Solution portfolio includes Protection, Control, Automation and Metering solutions with the Best in Class product range from GE Multilin backed by domain expertise from C&S. C&S has in-house strengths in Designing and Engineering, Manufacturing, Testing and Commissioning of 11 KV to 220 KV Control and Relay Panels. With a 220 KV Switchyard and a Mini Hydel Project under execution C&S is currently

developing expertise to enhance its offerings to include
Electrical Balance of Plant.



Universal Series Relay for Transformer and Distance Protection



Production and Manufacturing Facility at NOIDA

Major Jobs executed / under execution:

- 132 KV Feeder Duplex type Control and Panel equipped with IEC 61850 enabled Distance and Transformer Protection Numerical Relays including Backup Protection.
- 220KV SEZ and MPP Switchyard for Abhijeet, Nagpur. The Control & Relay Panels and associated protection scheme include Distance Protection, Transformer Protection, Bus Bar Protection Scheme. The interlocks and trip logics are implemented over IEC 61850 Softlogic.

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Control, Automation and Metering solutions with the Best in Class product range from GE Multilin backed by domain expertise from C&S. ”



Power Quality Meter

Strength include:

- Access to latest and wide range of technology from GE Multilin at an affordable cost.
- Faster Delivery and Service due to in-house capability.
- Timely and Quality support during the complete life cycle of the system.



220 KV Transformer and Backup Protection IEC 61850 enabled DUPLEX Panel

Electrical Contracting Division specializes in turnkey / EPC projects



Bina Refinery

Today C&S Electric is a leading player in the field of contracting and it has successfully accomplished several highly prestigious projects in the country. The main focus of this division is on;

- Turnkey / EPC contracts for plant electricals
- EPC contracts for captive and power projects
- Energy audit and conservation services

With a Pan India presence and skilled service professionals, we have handled projects in public and private sectors from concept to commissioning and material procurement to installation. These projects include the scope of work like electrical contracting encompassing diesel generating sets, LT power & control panels, MV switchgear, transformers, etc-right from design, engineering & manufacture / procurement to supply, erection, testing & commissioning.

We have the ability to implement mega-size as well as medium & small range projects including revamps and all these factors distinguish us as a versatile engineering contractor. Our projects are executed by trained specialists with our trademark attention to detail and quality using state-of-the-art design tools and softwares. Consequently our plants stand out for their durability, high yield, energy efficiency and environment-friendly considerations.

Major projects handled by us include BPCL, SAIL, Sir Ganga Ram Hospital, Neyveli Lignite Corporation, NTPC, NDMC, DDA, CPWD, Satluj Jal Vidyut Nigam Ltd, PM House and EPIL-CDRI which involve turnkey contracts and sub-station works (Siri Fort & Tal Katora Indoor Stadium Complexes for **Commonwealth Games**).

Our strengths are;

- Technical competency
- Efficient project management team
- Strict compliance with schedules / deadlines
- Huge financial capacity
- Competitive pricing
- Quality and safety consciousness
- Commitment to customers



C&S Control & Relay Panel Plant, NOIDA



North Block, New Delhi

facility upgrade

Environmentally friendly "GREEN" powder coating shop at Noida 2 works

A new powder coating facility was inaugurated on December 9th 2009, on an investment of Rs. 1.5 crores, at the LT switchboard manufacturing plant in Noida Phase 2. The new facility will offer higher productivity and better quality and will consume less energy. This will make it cost effective as well as environmentally friendly. It will also optimize the utilization and minimize the waste of powder.

The shop has a capacity of 1,200 Square meters per shift. The powder spraying guns can coat 8 square meters of surface in one minute.

Precise selection of automatic pre treatment process with RoHS compliant chemicals, automated paint applicator and recovery system (supplied by

WAGNER Spray Tech GmbH, Germany) fitted with speed, height and depth control system.

The spray guns are with touch screen control and are PLC programmable keeping human intervention at a minimum level. There is conveyerized movement from pre treatment to unloading after powder coating, with a speed of 2.5 meters per minute. The auto lubrication system of the conveyor is an added advantage.

The shop is fitted with two ovens, one for water dry off after pre treatment and another for paint baking. The paint baking oven is of "camel back" design with optimum energy saving feature. LPG is the fuel used which gives the highest calorific value and lowest environmental pollution possible.



Powder coating booth with auto reciprocators and level sensors for speed, depth & height control

Air emissions from the powder recovery, confirm to stringent EU norms and emit breathable air again showing C&S's concern for the environment.



View of powder coating plant-with camel back ovens & automated overhead conveyor



Touch screen PLC controller in Wagner (Germany) make automatic reciprocators

R.O. water is used for pre treatment process. The Effluent treatment plant is also made to the latest specifications and engineered to prevent any effluents from polluting the environment.

Dedicated Export Unit



Assembly Area

We have a dedicated plant in Noida Special Economic Zone which caters to overseas customers exclusively. This plant is having an area of around 3,650 sqm and ISO 9001:2000 certified. The products being supplied from this unit include low voltage Controlgear components such as Contactors, Overload Relay, Capacitor Duty Contactors and other Contract Manufacturing components to meet stringent specifications / applications of world renowned groups like GE and Eaton. This plant is well equipped with latest manufacturing machines and assembly lines with on-line testing and calibration facilities to produce Quality products for the export market. The products are being exported to over 73 countries across the globe and have earned the reputation of bagging regular & repeat business over the years. We envisage that the turnover of this plant shall multiply in the years to come, which shall retain our No. 1 position as supplier of Controlgear components from Indian industry.



Relay Test Panel

C&S Efacec, the Medium Voltage Switchgear Joint Venture, has enhanced its manufacturing and testing facility by adding state-of-the-art equipment for special processes like Stainless Steel welding, Leak Detection & SF₆ filling and Final Circuit Breaker testing. This ensures that the products coming out of the C&S Efacec plant in Greater Noida are of global standards.

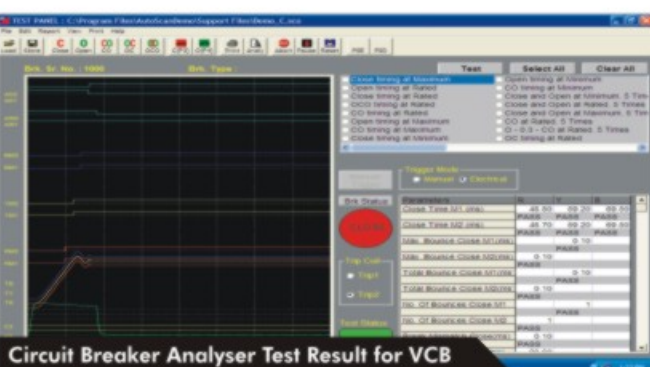
Leak Detection & Gas Filling Machine

This is the best & largest machine in the South Asia in terms of size of the test chamber & accuracy of Mass Spectrometer used to detect leakages in Ring Main Unit Tanks. The machine will detect a leak of 6X10⁻⁶ mbar l/s at 300mbar, 100% Helium. The process is fully automated with predefined cycle of evacuation, leak testing with Helium, purging with Nitrogen and then filling of SF₆ & leak testing with SF₆ with no manual intervention. The machine has a capacity of testing 15-20 tanks per day.



Leak Detection & SF₆ Filling Machine from Kontikab AB, Sweden

facility upgrade @ C&S Efacec



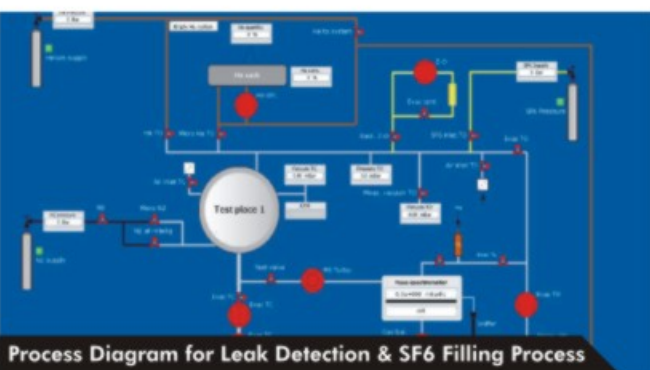
Circuit Breaker Analyser Test Result for VCB



Stainless Steel Welding Facility



Pre Despatch Inspection by customer for VCB Panels



Process Diagram for Leak Detection & SF₆ Filling Process

Circuit Breaker Analyser

The circuit breaker analyser is one of the best used by the switchgear industry and is being used by CPRI also. This gives a complete blue print of the circuit breaker by measuring parameters like opening & closing time, contact travel, contact bounce, speed at differed time moments. The measured values are compared with the design data fed in the system thus ensuring the performance of

the circuit breakers.

Stainless Steel Welding Facility

The Ring Main Unit tank is made of Stainless Steel and welded to ensure sealed for life feature of the RMUs. For Stainless Steel welding, special TIG & MIG welding machines have been imported from Fronius Austria. These are the same machines as being used by Efacec in their factory in Portugal.



Dynamic Circuit Breaker Analyser

CS²



e=CS²
Newsletter
Issue V
Jan-Dec '09

Product in focus



WiNtrip

Miniature Circuit Breaker



THE PROTECTOR

Life saver. Energy saver.



C&S Electric introduces WiNtrip MCB, the new age protector that protects your home and loved ones against fire and shock hazards. There's much more to new age protection as it also protects you from inflated electricity bills. WiNtrip consumes only 50% energy as compared to maximum permissible watt loss specified by ISI. So embrace the protector and bring home WiNtrip MCB. Safeguard your premises and save your hard earned money.

WiNtrip is a quality product from C&S Electric Co. - one of India's largest electrical equipment manufacturers and exporters

It has 16 state-of-the-art manufacturing plants, 22 sales offices and its products are exported to 73 countries.



RoHS
Compliant

Comprehensive Range of MCB, RCCB, Isolator & DB.

C&S Electric Ltd.

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