ISA Delhi Section

International Society of Automation

ISA(D) NEWSLETTER

Volume 3-Issue I

ISA(D) NEWSLETTER

February'2014

From Editor's Desk:

Greetings to all of you from ISA Delhi-Section!

We welcome you to the ISA-Delhi Section 9th Issue of Newsletter, February'2014 edition. This newsletter provides you with an insight journey of ISA-D on technical events, technical development and technology knowhow news. Please feel free to share this newsletter with others in your organization.

ISA-Delhi is delighted to share technical papers, experiences and industry analysis with you. We hope you will enjoy these as you have in the past.

We invite you all to enhance the value of this technical newsletter and will be happy to receive some technical write-up, technical experiences, your comments and feedback that you would like to share with ISA members, please write to isadelhi.org@gmail.com

AGM Cum Members Meet -2014 is slotted for 22nd March 2014 at Hyatt Regency Hotel, Bhikaiji Cama Place, New Delhi. We cordially invite you to be a part of this event with Family. You can block your dates in 2014 calendar.

With best wishes,

Manish Kumar
(ISA Delhi Section)

From the Desk of President:

I am glad to present before the members, the ninth issue of this News letter of ISA Delhi Section after a grand success of Mega Technical Event, PNID – 2013, one day Conference and Exhibition on Petroleum and Natural Gas Industries Domain in Hotel "The TAJ PALACE", Sardar Patel Marg , New Delhi on 3rd'October 2013 (Thursday).

I take the opportunity to once again thank all the dignitaries, participants, High Power Technical Committee members, executive committee members and all others who supported ISA-D to make this mega event a grand success.

On behalf of executive committee, I would like to give special thanks to Dr. Veerappa Moily, the hon'ble Minister of Petroleum & Natural Gas, and also thanks to all sponsors, exhibitors, speakers and also compliment them for sharing their valuable technical knowhow with all our participants from various Oil and Gas Industries.

I certainly wish that with the support of our active members, our next mega event "Conference and Exhibition", joint PNID and POWAT in Oct 2014 will also be a grand success.

I would like to complement Mr. Manish Kumar & Mr. Radheyshyam for their sincere efforts in bringing this ninth issue of ISA-Newsletter for the members.

With best wishes,

S K Dhawan
Hon President
ISA Delhi Section)

UPCOMING EVENT

AGM cum Members Meet – 2014 at "Hyatt Regency Hotel", Bhikaji Cama Place Ring Road, New Delhi on 22nd March 2014.

Glimpses of PNID – 2013
Conference and Exhibition on Petroleum and Natural Gas Industries Domain by ISA-Delhi Section

A mega Technical event, "**PNID – 2013**…. ***Instrumentation and Automation Drilling Platform to Dispatch Terminal*"**, one day Conference and Exhibition on Petroleum and Natural Gas Industries Domain was organized by ISA-Delhi Section in Hotel "The TAJ PALACE", Sardar Patel Marg , New Delhi on 3rd October 2013(Thursday). The event was graced by chief guest Dr. Veerappa Moily, Hon'ble Minister of Petroleum and Natural Gas and other Guests of Honour present were Shri Dipak Chakravarty, MD Numaligarh Refinery Ltd., Shri Ajay Deshpande, Director Technical, Engineers India Ltd., Mr. Ichiro Iino, MD-Hitachi, and ISA members and esteemed guests from various industries.

This event started in our socio-cultural way by welcoming and greeting our esteemed dignitaries and lighting of lamps. The programme was inaugurated by Dr M Veerappa Moily, Hon'ble Minister for Petroleum and Natural Gas.

Dr. Veerappa Moily, Hon'ble Minister of PNG inaugurating PNID-2013 by lighting lamp

Shri S K Dhawan, president ISA-Delhi in his welcome address thanked all the dignitaries for being part of this event and giving their precious time from their busy schedule. He also thanked all senior advisors, paper presenters, High Power Technical Committee members, sponsors, participants, exhibitors and all others who supported to make this mega event a happening from beginning.

Our Guest of Honour, **Shri Ajay Deshpande, D(T) EIL,** in his key note address emphasized that Instrumentation and Automation is the key enabler to meet the challenges of the refinery and petrochemical complex of the day with higher scale configuration, increased value added product profile and increase in complexity of material handled in Petroleum and Natural Gas sectors. He also highlighted the requirement and improvement for Instrumentation and automation technologies to meet the ever-increasing demand for high productivity, enhanced plant efficiency, increased reliability and security. He thanked ISA-Delhi for organizing this one day symposium on Automation in Oil & Gas.

Shri S K Dhawan – President – ISA-D

Shri Ajay Deshpande, Guest of Honour, PNID-2013

Shri Dipak Chakravarty, MD, Numaligarh Refinery, expressed his pleasure for being Guest of Honour for this PNID-2013 and he explained in speech how this kind of symposium help end users, consultants, professionals, EPC companies, vendors and a platform for sharing knowledge to meet the future challenges in Automation industry.

Mr. Ichiro Iino, MD, Hitachi expressed his gladness in his speech for being part of this mega event. He discussed how Oil & Gas sector, being a critical energy sector are in demand of development in Plant intelligence solutions that help in connecting and integrate systems that work in isolations.

Shri Dipak Chakravarty, MD, Numaligarh Refinery **Mr. Ichiro Iino, MD, Hitachi**

Our chief guest Dr. Veerappa Moily, Hon'ble Minister of Petroleum and Natural Gas, in his speech appreciated the efforts in gathering specialists from stake holders of the Oil and Gas domain and expressed the need of the hour to develop technological excellence towards making India energy independent in order to reduce huge import expenditure. He also talked about the importance of Oil & Gas sector as an important energy provider to the Nation and challenges faced by Oil & Gas sector for increasing demand, high productivity, improved plant efficiency, increased safety & security meeting regulatory requirements. He expressed his happiness about this symposium organized by ISA-D, being dedicated to Petroleum and Natural Gas Sector.

Dr. Veerappa Moily, Hon'ble Minister of Petroleum and Natural Gas, Chief Guest

Dr. Veerappa Moily and other esteemed dignitaries released the PNID-2013 souvenir

Shri. Rajiv Gupta, DGM-Instrumentation (EIL), Convener of PNID-2013 congratulated ISA-D for this mega event and accorded the formal vote of thanks to all dignitaries and participants for gracing this occasion and knowledge sharing platform. He also explained how engagement of various stake holders including technology providers and developers would certainly help in achieving the road map for implementing strategies for automation so essential for a world class Petroleum and Natural Gas utility.

Shri Rajiv Gupta during his vote of thanks

Dr. Veerappa Moily inaugurated the exhibition stalls in PNID-2013 with other dignitaries

Dr. Veerappa Moily at dais while receiving flower bouquet and ISA-Delhi memento

Technical Session-1 started with most talked topic on **"Latest Trends in Control and Analyser System Technolgies"** by eminent speakers from reputed industries with Chairperson Mrs. R Priyamvada and Co-Chairperson Mr. Rajiv Garg

- Network Security on Control System,
- Design of Interposing Switching Components,
- TDLR Analyser Technology
- Optical Sensors in Analyser Technology

Mr. Glenn Bounds from M/s Invensys, Singapore in his presentation on Network Security System focused on network attacks that have wreaked havoc on corporate and government information systems. He also elaborated the trends in terms of how the nature and sources of attacks have changed over the past few years, where the hacker community is beginning to focus their efforts, and how the industry needs to focus its security responses.

Mr. Nelson Finan, from M/s Finder, Italy enlightened our audience about Selection of Switching Interface – A Need for Reliable Control Systems. In his presentation he explained how the advancements in technology and the multiple options now available in these Relays, the need of the hour for optimization of the selection parameters and if considered at the time of detailed engineering, can not only help in increasing reliability, reducing the cabinet footprint, remove wiring errors, save space but also optimize costs directly as well as indirectly by energy saving.

Mr. Glenn Bounds from M/s Invensys

Mr. Nelson Finan, from M/s Finder

Mr. Jiwan Jain from M/s E&H, India appraised all the participants about "Tunable Diode Laser Spectroscopy" (TDLAS) technology and its application in analyser system. He explained how TDLAS offers significant advantages for measurement of trace gas concentrations due to their high sensitivity, high spectral precision, very fast response time, non-contact measurement and years of maintenance free operation.

Mr. V Desai, from M/s Servomex, India in their lectures talked about a Tunable Filter (TFS) Optical System for On-Line and Real-Time Hydrocarbon Gas Composition Analysis for monitoring of the feed gas compositions. In addition to basic principle of this technology, he also explained various components and calibration methods of the system and a detail comparison with gas chromatograph and its advantages were discussed.

Mr. Jiwan Jain from M/s E&H,

Mr. V Desai, from M/s Servomex

"Asset Management & ASME PTC Updation" was the topic for the Technical Session-2 with Chairperson Mr. D Singhal and Co-Chairperson Mr. Rajat Kishore after the lunch break:

- Essential Asset Monitoring,
- Asset Management System Interface with Field,
- Diagnostic Features acc. To NAMUR NE 107,
- ASME PTC 19.3 TW Latest Requirements,
- Manufacturer Perspective ASME PTC 19.3 TW

Shri Kaushal from M/s Emerson, India enlightened all the participants with his lecture on the Essential Asset Monitoring System and how it detects common faults and critical faults much ahead and helps in preventive maintenance and protects the costly assets in a plant. He also discussed various components used for asset monitoring and importance of each component and their specifications.

Mr. Unnikrishnan R from Pepperl+Fuchs, India detailed out how Asset Management System helps in predictive analysis and using the extracted data to predict future trends and behaviour patterns. He also explained how it produces interpretable information allowing oil and gas personnel to understand the implications of events, enabling them to take action based on these implications.

Shri Kaushal from M/s Emerson

Mr. Unnikrishnan R from Pepperl+Fuchs

Mr. R Kumarswamy from M/s STAHL, India explained Hazardous area remote I/O with enhanced diagnostics features acc. to NAMUR NE 107. In his lecture he explained how diagnostics and the correct implementation into DCS and Asset Management systems become more and more important to run plants more effectively to avoid unplanned shut downs. He also talked about explosion protected remote I/O systems which have been developed that offer a powerful diagnostics solution in combination with new smarter I/O modules. These new I/O modules for hazardous area Zone 1 and Zone 2 installation feature various unique possibilities for alarming and warning messages.

ASME PTC 19.3 TW latest requirements were presented by **Mr. Rejath J Thomas of M/s Technip**. He discussed the evolution of ASME PTC 19.3 Thermowell and its development. His presentation attempted to give a very brief insight to the various intricacies of the significantly revamped and improvised design Standard for the Thermowell, ASME PTC 19.3 TW 2010. He captured the complex procedures and steps involved in the evaluation of the thermowell design when required to be in compliance with the new standard, ASME PTC 19.3 TW 2010.

Mr. R M Bichu of M/s Pyrotech, India in his lecture discussed ASME PTC 19.3 TW from manufacturer perspectives. He presented technology involved in manufacturing Thermowell complying the ASME PTC 19.3 TW requirement.

Mr. R Kumarswamy from M/s STAHL

Mr. Rejath J Thomas of M/s Technip

Mr. R M Bichu from M/s Pyro India

Audiences enjoying the Tehnical Presentations

In Technical Session-3 **"Pipeline Protection and Fire Protection"**, eminent specialists from industries shared their vast experiences and expertise in their own fields with Chairperson Mr. S K Bardhan and Co-Chairperson Mr. Rajiv Gupta

- Fire Protection System
- Corrosion Integrity of Natural Gas Pipeline
- Leak Detection and Location Detection

Mr. Ray Browne from M/s K-Mass Thermal Designs, UK in his lecture of Fire Protection System gave a pictorial account of typical fires in the petrochemical industry and the findings of fire case study which details its cost and how the fire could be prevented in the future. He gave an explanation of the different types of passive fire protection available and how modern technology has radically altered what can now be achieved. He also talked about various standards and test carried out so the customers can understand exactly what is being offered.

Mr. Robert Pitman, Darchem Engineering discussed about Passive Fire Protection of Critical Safety Equipment and Instrumentation. In his presentation he highlighted types of fires, standards and specification considered for Passive Fire Protection (PFP) of equipment. He also talked about importance of PFP and their certification.

Mr. Ray Browne from M/s Thermal Designs

Mr. Robert Pitman, Darchem Engineering

Mr. Amitabh Chaturvedi, Honeywell India enlightened all the participants about Modeling Corrosion Integrity of Natural Gas Pipelines using NACE Standards. He discussed Liquid Petroleum Internal Corrosion Direct Assessment (LP-ICDA) designed to address pipelines that are fully packed with a liquid phase and also Wet Gas Internal Corrosion Direct Assessment (WG-ICDA) for wet gas pipelines much like Dry Gas ICDA (DG-ICDA) which has been developed to address normally dry gas transmission pipelines. He also explained how a software model that uses both DG-ICDA and WG-ICDA guidelines provided by NACE and it assists pipeline operators in understanding corrosion integrity of their pipelines in better way.

Mr. Mohit Agarwal from Pentair, India presented Hydrocarbon Leak Detection and Location detection. He explained basic principle of Thick wall / Cable Technology System and Thin Film Carbon / Polymer Technology for hydrocarbon leak detection and location system for their application in hydrocarbon pipeline and above ground storage around the bund walls. He elaborated the various components and their certifications, approvals and listings.

Mr. Amitabh Chaturvedi, Honeywell India **Mr. Mohit Agarwal from Pentair, India**

Efforts of all the participants, sponsors, exhibitors, speakers were analysed by High Power technical Committee and best participants in each category like Best Stall and Best Paper were rewarded with token memento by ISA-D.

Token of appreciation Memento for Best Stall was presented by ISA Delhi section to exhibitors

Token of appreciation Memento for Best Technical paper was presented by ISA Delhi section

Esteemed Audiences enjoying the Tehnical Presentations

ISA Delhi Section acknowledged the active partcipation of all veterans from industries for being the Chairpesron and Co-Chairperson for various Technical sessions by presentening a token of appreciation.

Mrs. R Priyamvada presenting memento to Mr. V Desai

Mr. Rajiv Gupta presenting memento to Mr. Amitabh Chaturvedi

ISA Delhi Section also arranged lucky draw for all the esteemed audience, delegates who visited the exhibition and stalls in PNID-2013, winner was presented with Smart Tablet phone.

Winners of Smart Tablet Phone

This mega event concluded with vote of thanks by **Mr. Rajiv Gupta, Convenor-PNID-2013**, ISA-D section and gala networking dinner with all esteemed guests and members and heartfelt memorable moments.

Guests, Dignatories and all Participants enjoying during networking dinner

ISA DELHI OUTSTATION MEET: JAN'14

ISA-D organized an outstation meet in Golden Huts Resorts, Rewari with all its ISA-D Section Senior Leaders and HPTC Members and their families 25th and 26th January'2014. This adventurous visit was planned to encourage team building, leadership development & to seek strategic direction for future from senior leaders of the automation industry and also to develop execution plan for POWAT-2014 with executive committee members and also for development of cohesiveness and relationship among family members of all ISA-D members. While all ISA-D section leaders, HPTC members were busy in discussing strategic plan for ISA-D future technical events to be arranged in the year-2014, family members enjoyed magic show, various team building games, games for kids and families. This outstation meet was a memorable event for all ISA-Delhi members and their families.

Memorable Moments of ISA-D Outstation Meet

TECHNICAL MEET: MAY'13

ISA, Delhi Section arranged a Technical Meet on "Advance Technology on Analysers and Process Automation" in association with M/s ENDRESS + HAUSER (INDIA) PVT LTD on 31st May'2014 , at Mirza Ghalib Chamber, Scope Convention center, Scope Complex, Lodhi Road, New Delhi.

The Topic covered was:

- ***TDLAS Technology***
- ***Memosens Sensor Technology***
- ***Electronic Differential Pressure for Measurement System***

Tunable Diode Laser Absorption Spectroscopy (TDLAS) was presented by Mr. Jiwan Jain, Dy. General Manager-Solution, E&H. He explained the basic principle and discussed its basic advantages over other technology for analyser systems.

Memosens Sensor Technology was discussed by Mr. Rajiv Doshetty – Sr. Manager – Marketing (Analysis), E&H. He explained the benefits of this technology from glass-free pH measurement using ISFET sensors with Memosens technology and also selection of the ideal sensor for every application. He elaborated that the main attraction of Memosens technology is the digitalization of the analog measuring signal directly in the sensor.

Mr. Rahul Vartak-Sr. Manager- Marketing (Pressure Products), E&H, talked about **Electronic Differential Pressure for Measurement System.**

The event was graced by audience from consultant Community, Oil & Gas, Power, Cement, Paper & Pulp, Fertilizers & Chemical Industry. Live demonstration of various advanced applications and products gave the audience an opportunity to know about latest developments and their relevance in automation of plants.

TECHNICAL MEET: JULY'13

Technical Meet in association with M/s Pyrotech Marketing & Projects Pvt. Ltd., was organized by ISA Delhi Section on 19th of July 2013 (Friday) at "Mirza Galib Chamber", Scope Convention center, Scope Complex, Lodhi Road, New Delhi on **"Sensors to Control Rooms and beyond ……."**.

The topic of seminar focused on the diverse product line of M/s Pyrotech catering to tough industrial requirements which includes Sensors in fields and Control Systems in Control rooms, System Integration

Package for Electrical, Instrumentation, Automation and Communication, Enclosures for E&I Packages for operations of various industrial projects.

Mr. N K Pandey and his team from M/s Pyrotech demonstrated their products and explained about the technology, efficiency and robustness of the system.

Audience from consultants, Oil & Gas, Power, nuclear power, Cement, Paper & Pulp, Fertilizers & Chemical Industry graced the occasion. Extensive Interactions & demonstrations of various advanced applications and products were also arranged by M/s Pyrotech, which gave the audience an opportunity to know about latest developments and their relevance in Industrial environment.

TECHNICAL MEET: SEPTEMBER'13

"State of the Art Technology for Test & Calibration of Flowmeters / Level Devices" was the topic of discussion during the technical meet arranged by ISA, Delhi Section in association with "NAGMAN INSTRUMENTS & ELECTRONICS (P) LTD." on 7th September 2013(Saturday) at "The Auditorium", Scope Convention center, Scope Complex, Lodhi Road, New Delhi.

Technical meet started with socio cultural way by lighting lamps in presence of all delegates, speakers from Nagman Instruments & Electronics (P) Ltd. and esteemed guests.

The presentation started with topic **"Flowmeter and Level Instruments Calibration System – FLOCAL / FLOVEL",** by Mr. Bala Subramanayan from M/s Nagman. Mr. Bala talked about the features of the FLOCAL / FLOVEL and its efficient uses in the industry. Starting with its basic working principle and he covered all its advantages over other products and its uses.

Temperature and Pressure Calibration System was presented by Mr. Anand. He explained about the various products and technology available with M/s Nagman for Temperature and Pressure Calibration Systems.

Live demonstration of Flowmeter Calibration, Level Transmitter Calibration, Pressure and Temperature Calibration was center of attraction for the delegates and audiences from various sectors of industries.

Various queries of the audience were answered and clarified by experts from M/s Nagman.

Cyber SeCurity Meet with Control SyStem SeCurity Center - Japan

ISA Delhi section formed one separate team for cyber security system comprising of Users, Consultants and specialists from system suppliers. Profile of the team is to understand the need of control system's cyber security and implementation techniques for security measures to their plant meeting the latest security measures requirements. The convener of the team is Mr. Sarangapani from NTPC as he is the member of IEC-Cyber security and Mr. S Mahesh Kumar from EIL is the Technical Coordinator and following are the members of the Cyber security team.

- Mr. Alok Srivastava NTPC, Member
- Mr. S.K Bardhan, Indian Oil Corporation Limited, Member
- Mr. PK Sahay, Engineers India Limited, Member
- Mr. Mainak Nandi, Engineers India Limited, Member
- Mr. Rudrajit Roy, Honeywell India, Member
- Mr. Gautam Sinha, Emerson, Member

A technological meet was organized by the ISA Delhi section on the 16th December'2013 under the chairmanship of Mr. SK. Dhawan, President, ISA Delhi Section to discuss the aspect of cyber security in the field of control systems. Control System Security Center (CSSC) Japan "a technology research association, was established in March, 2012 as a corporation under the Minister of Economics, Trade and Industry Japan with 8 corporations relating to control systems with its mission to strengthen security in the field of control systems. Mr. Tsutomu Yamada, senior researcher department of Energy Management Systems Research and Mr. Akio Sato from CSSC Japan graced the occasion. Meet was attended by eminent members across various segments of industry, consultants, end users including Indian Oil, Engineers India Limited, NTPC, and PDIL etc. The meeting highlighted the critical issue of cyber-attacks towards control systems of important infrastructures, such as power and gas plants and the consequent national security and risk management we might expose ourselves to a possibility of outage of control systems of important infrastructures and leakage of confidential information.

Members from CSSC highlighted their objectives as being concentrated to the following at present:

- R&D of technology to enhance security of control systems
- R&D of technology to enhance security of wide-area cooperative systems
- R&D of system security verification technology
- R&D of control security test beds

Members informed that CSSC conducts various operations thoroughly including R&D, international standardization, certification, human resource development, promotion and security verification of each system.

The subsequent open discussion highlighted the various security concerns of the industry. It was addressed that as the higher level of control system is much focused upon for security assessment, often the lower tier

gets ignored. The discussion not only highlighted industry concerns of external threat to the higher level control infrastructure from rogue elements but also stressed on the aspect of detection and mitigation of "dormant malicious code" within the firmware of the actual control systems that could be activated through remote triggering. The house discussed on the aspect of certification of firmware for the control system of various Foreign OEMs for the end users. It was concluded that the M/s CSSC shall try to collaborate with CERT-IN to address the concerns raised by the control system industry in India.

Mr. S. Mahesh Kumar, Technical Co-Ordinator of the ISA (D) section cyber security team accorded the formal vote of thanks to all who had contributed in organizing this meet.

Participants during Technical Discussion

POWAT – 2013, Power Automation Technology Event (Conference and Exhibition) at Hotel "Hyatt Regency", Bhikaji Cama Place, New Delhi on 12th & 13th April 2013.

A mega Technical Conference and Exhibition, POWAT-2013, two day Conference and Exhibition on Automation-for Sustainable Development with a strong focus on Power Automation Technology was organized by ISA-Delhi Section in the Hotel "Hyatt Regency", Bhikaji Cama Place, New Delhi on 12th and 13th April 2013. The event was graced by dignitaries and Senior leaders from power industry such as Shri A.K. Jha, Director Technical, NTPC, Guest of Honour, Shri N. Murugesan- Director General CPRI, Shri Debabrata Guha – Chief Corporate Engineering, Tata Power. ISA members from various parts of India & globe, Technocrats from the power field and esteemed guests from various industries attended the meet. Event started in our socio-cultural way by welcoming the esteemed dignitaries with Bouquet and lamp lighting.

In his welcome address **ISA-D president, Shri Prasenjit Pal** thanked all esteemed dignitaries, senior advisors, paper presenters, ISA-D Committee members, sponsors, participants and all others who supported to make this mega event one of the best in the country. He further went on to emphasize the importance of bringing all stakeholders of power sector in adopting the latest instrumentation and automation standards to achieve the goal of sustainable development.

Our Guest of Honour Shri P Sudhakar expressed his gladness that ISA-D POWAT 2013 is focusing on the vital issues which are challenging the Indian Power Sector with a strong emphasis on environment sustainability. He congratulated ISA-D for successfully getting all stakeholders on a single platform to discuss and engage in a meaningful future and clear path for the Indian Power sector.

ISA-D president, Shri Prasenjit Pal

Shri P Sudhakar

Shri Debabrata Guha while addressing the audience congratulated ISA Delhi on organizing this kind of symposium which provides a knowledge sharing platform for end users, consultants, professionals, EPC companies and vendors. He also emphasized on the event agenda dedicated to advancing sustainable, energy efficient and futuristic technologies and how automation which has taken big leaps in technology will enable us to address our needs.

Our Chief Guest Shri A.K. Jha expressed gladness that ISA-D organized such a mega event with a large cross section of national and international experts presenting papers and sharing the new breakthroughs in automation solutions across the broad spectrum of power generation such as thermal, nuclear and renewable energy. He also said that such events held on a regular basis by ISA-D would add practical value to the industry and immensely benefit the participating delegates and power sector.

Shri Debabrata Guha **Shri A.K. Jha**

Technical session started with invited papers in Session-1 (in Day-1) on **"Power Spectrum"** by eminent speakers from reputed power industries on topics with **Session Chair Shri N. Murugesan, Director General, CPRI and Session Co-chair Mr. D K Jain, CEO, NSL Power.** In Session 1, the invited papers had a strong emphasis on renewable energy sources and how automation plays a big part in realizing their true potential

In Session 2, the focus was on the "**Innovative Technologies implemented across Power Industries**" with **Session Chair Mrs. Arundhati Bhattacharya, GM & HOD PE C&I, NTPC and Co-chair Mr. S Bhatnagar, GM & HOD C&I, BHEL PEM.** This session focused on machinery protection systems, Remote monitoring and diagnostic solutions and Genrator condition monitoring among others.
In the final session on day 1, speakers threw light on the "**Technical Solutions to Power Sector Challenges"** with **Session Chair was Mr. Ajit Kumar, Ed (BD), NTPC and Session Co-chair Dr. Tariq Alam, CEO, PL Delta Technologies.** Papers on topics such as Solar simulator, Intelligent combustion optimization, Analysis of Power system failure at IFFCO among others were presented.

The session 4 of day 2 looked into **"Automation/ Technologies in Nuclear Power Plants"**. It was **Chaired by Mr. M Bharat Kumar, Associate Director (C&I, R&D and Simulator) and Co-chaired by Mr. Rajiv Gupta, DGM Instrumentation, Engineers India Limited.** Topics with focus on Nuclear Power such as Design of an Electromagnetically Shielded Electronics cabinet for Indian NPPS, Environmental Qualification of Instruments etc. were touched upon.

Session 5 focused on **"Automation in Thermal Power Plants"** with **Session Chair Mr. Pankaj Bhartiya, GM-CENPEEP, NTPC and Co-chair Mr. V P Raman, DVP, ISA District-14.** Thermal power plant solutions like Real time Measurement of Carbon in Fly Ash for Coal Fired Boilers in Power Plants, Predictive Emissions Monitoring Systems (PEMS) etc. were explained in this session.

The event concluded with a panel discussion on **"Cyber Security in the context of Plant DCS Controls"** with **Panel Chairman Mr. S.C. Pandey, ED (NC), NTPC and Co-Chairman Mr. Nandkumar, MD, Chemtrol**.

This mega event concluded with gala networking with all esteemed guests and members and heartfelt memorable moments. Existing ideas and technologies were nurtured by the discussions and new insights developed in the minds of the doyens of the industry which would usher India to reach greater heights in the Power Sector.

GLIMPSES OF POWAT – 2013

Efforts of all the participants, sponsors, exhibitors, speakers were analysed by High Power technical Committee and best participants in each category like Best Stall and Best Paper were rewarded with token memento by ISA-D for their participation ISA-D POWAT-2013.

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Token of appreciation Memento for Best Technical paper was presented by ISA Delhi section

ISA Delhi Section acknowledged the active partcipation of all veterans from industries for being the Chairpesron and Co-Chairperson for various Technical sessions by presentening a token of appreciation.

ISA Delhi Section also arranged lucky draw for all the esteemed audience, delegates who visited the exhibition and stalls in POWAT-2013, winner was presented with Smart Tablet phone.

Winners of Smart Tablet Phone

This mega event concluded with vote of thanks by **Mr. Soumitra Bhattacharya, Convenor-POWAT-2013**, ISA-D section and gala networking dinner with all esteemed guests and members and heartfelt memorable moments.

Guests, Dignatories and all Participants enjoying during networking dinner

Climate Control in Electrical and Automation Cabinets

Most engineers intuitively know it's a good idea that electronic /electrical panels are designed so that its internal environment can be monitored and controlled. They understand that there are limits operating temperatures for the components inside a panel and that the overall reliability of the equipment shall conform to such application and operating condition.

It is clear that in many industries and applications, particularly those that are critical, it is almost certain that the project has been tested according to the calculations of risk analysis MTBF (Mean Time Between Failures) of the final equipment, where aspects of macroclimate are carefully considered.

However, for most apparently less arduous applications, temperature control is not addressed particularly accurately, although there is a trend towards miniaturization of components and enclosures, along with higher density packaging - all this requires all the more attention on climate control inside.

1. QUANTIFYING the Need

If there is any need to justify the modest cost and effort incurred in adding the temperature control of a panel, follow large and well - respected references that are worth being taken into consideration:

The first is the rule of 10 - degrees , this rule says that for every increase of 10 ° K temperature , the average reliability is reduced by 50 % . Put another way - if we can lower the temperature of 10 ° K we can expect reliability to be multi-folded. Basically this is a rule associated with electronics as well as other components where there is the possibility of failure due to electro-chemical action. A good example is electromechanical components such as relays, switches, and contactors - switching loads of low value or low levels of voltage and current. They can be particularly affected by corrosion, electrolytic action and the formation of oxides and sulphides.

Another useful source of information is the operating reliability Handbook “HDBK - 217D” . There you can find mathematical expressions to calculate the probability of failure of numerous electrical and electronic components and equipment according to various application scenarios and environments . The difference here is that the failure modes described in the manual derived from practical tests , rather than a theoretical basis. As an example, the failure mode (part ΛT) relays to show the service with a reduction of 10 ° K with life at room temperature reduction is 1.6.

Also for example, a specific rate of failure when it comes to moisture there is, this is part of the fault (πE) environment, and the values for the distinction between a climate controlled and an uncontrolled environment is based on a factor 2.3. Therefore, the importance of humidity on the reliability is evident.

It is important to be aware that high temperature is not necessarily the only Question when it comes to long term failures in equipment. Exceeding the maximum operating temperature can make the components inside the cabinet stop working - almost immediately and often surprises the designers.

2. PRACTICAL Application

It should now be apparent that some form of climate control within a panel or enclosure is probably desirable, and quite possibly essential. Thus, following three approaches that should be observed:

- Put a thermostat cooling (or air) temperature monitoring in conjunction with a chassis fan to ensure the operation of equipment and / or to ensure that the maximum operating temperature characteristics of the components are not met

- Place a heating thermostat monitoring temperature in conjunction with a heater, particularly to ensure that the internal temperature does not drop below the dew point. Although high levels of relative humidity, especially in conjunction with higher temperatures to 65 ° C are not desirable, it is particularly important that the level of water vapor is maintained in suspension in the air, or is not permitted to the same condense on the equipment for obvious reasons - the effects in the medium and long term will directly affect the insulation and safety equipment.

- Put both thermostats for ventilation and for the heating separately where-ever necessary.

3 . SELECTING the proper Thermostat

Choose a thermostat with a specific field of monitoring to be used and mounted in an enclosure. Should be simple and compact and fit directly into a 35mm rail. What has a bimetallic contact sensor element that should provide an accurate switching, completely free of any electronic circuit, fully adapted to their function and application, being able to provide a long electrical life.

The adjustment range of 0 ° C to 60 ° C, generally meets the majority of application. If RH (relative humidity) is high, the thermostat will have a higher heat setting with respect to ventilation by minimizing the temperature difference and therefore the risk of condensation. If the probability of a high relative humidity is small , so it can be used to extend the range of the two temperatures, which , although still within the specification of the components will allow greater fluctuation in temperature at a lower rate switching and higher electrical life for the thermostats .

4. Heaters and Fans

The amount of detail behind the design of the heater or a fan going beyond the space available for this article, but there are a number of factors that need to be considered and characteristics that need to be known .

Briefly, the data required are:

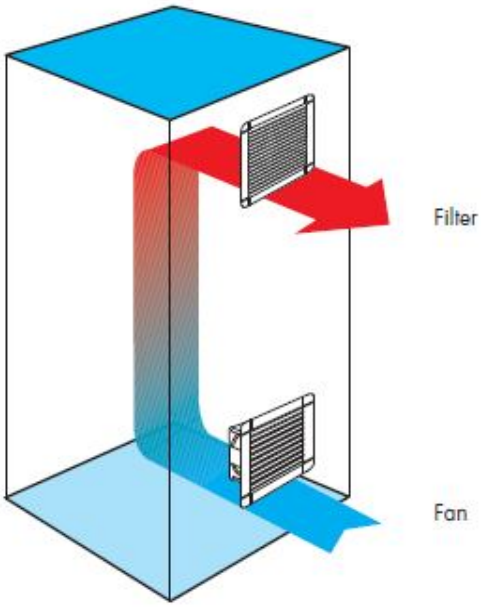

Fig: Typical Mounting Arrangement of Fans and Exhaust Filters

- Estimating the RH and lifting the maximum difference of internal temperature allowed.
- Cabinet dimensions
- Position of the component relative to other components of the adjacent cabinet.
- Coefficient of heat transfer cabinet (depending on material)
- The difference in temperature desired (interior and exterior in relation to the case)
- Self -assessment of internal power dissipated by the components.

Appropriate Use of ACCESSORIES: There are typical accessories that may be considered for optimum climate control

Pressure Compensating Devices: In sealed cabinets and enclosures the internal pressure can vary due to changes in temperature. The Internal Vs External pressure differential needs to be relieved while maintaining a high level of protection thus preventing the ingress of dust and moisture into the cabinet. Pressure Compensating Devices used are in accordance with DIN EN 62208 standards.

Fig: Typical IP 55 Pressure Compensating Devices – Usually mounted on the upper side of the cabinet

Filter classes	Example of particle	Particle size
EU1 – EU4	Textile fibers, hair, sand, pollen, spores, insects, cement dust	> 10 µm
EU5 – EU9	Pollen, spores, cement dust, tobacco smoke, oil smoke, soot	(1...10) µm

Filters: Within DIN 24185 are specified 9 filter classes, categorized into 4 course dust filers and 5 fine dust filters. The Coarse Dust Filters (EU1-EU4) are able to filer particles >10 µm and the Fine Dust Filters (EU5-EU9) are able to filter particles from 1 to 10 µm.

Conclusion

Overall, control the climate inside an electrical panel need not be expensive, if the design is considered during the initial stages of the project. Furthermore, the benefits in terms of improved reliability, reduction or elimination of downtime on the cost of rewiring the equipment, and other expenses incurred, this monitoring could become almost mandatory.

Contact Us

For further queries and suggestions contact our editorial board comprising:-

1) Manish Kumar
manish.kumar@eil.co.in

Mobile: +91-9810890933

2) Radheyshyam Tiwari
radheytiwari@gmail.com

Mobile: +91-9313384543

Email: isadelhi.org@gmail.com **Web-site:- www.isadelhi.in** **Office phone no:- 011-41759416**