

FOUNDATION™ Fieldbus End Users Council Australia

Newsletter



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Honeywell

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Jump Aboard 2003

FROM THE CHAIR- Are you ready to "Reap the Benefits"?

Good'day everyone, just where is this year going? The first thing that I wish you to think about is to assess if you are ready to take on Foundation fieldbus technology.

Can you answer the following questions?

- What is "Chicken Foot" Topology?
- What is the maximum length of a segment?
- Can Intrinsically safe principles be incorporated in High Speed Ethernet?
- What is a spur?
- What is a "brick"?
- How do you determine the "Macro-cycle"?

There are literally hundreds of other questions that could be asked in regards to Foundation fieldbus and any other fieldbus technology. What I am trying to get across is that if you do not know and you are not about to retire it is time to gain the associated competencies otherwise you may become unstuck. The reason for this? Well already major corporations in the world are making Foundation fieldbus and other fieldbus's the first choice in new "greenfield" applications. For existing plant companies are at last becoming smarter and undertaking business cases to determine the Net Profit Value of these projects.

You may say "I see companies putting in existing technologies - they get good results". Well the answer is that these companies are really missing opportunities for the future. Fieldbus is part of an overall business revolution which will enable things like remote maintenance hubs, campaign maintenance, plant "health" systems, automatic generations of work orders and a huge "swag" of other initiatives.

So are you ready to "Reap the benefits" both individually and for your company? Those individuals with the skills and knowledge will be in tremendous demand. There will be those who say "Fieldbus is easy....isn't it?" Well the answer is that it is not. Taking that attitude is at one's peril as experience tells that huge cost and stress impacts are likely to result from this approach.

So what are we as an end user council doing to help you? In September we are holding our one-day seminar "Jump Aboard 2003- Fieldbus - Reaping the benefits" with Foundation fieldbus Essentials courses being organised either before or after this event.

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more info <http://JA2003.shorturl.com/>

conference

The Seminar is being held in Sydney on September 9th at the Oil and Gas show, Melbourne on the 10th with an afternoon/evening presentation and finally Perth on Friday the 12th, again with a day event.

The theme is "Fieldbus-Reaping the Benefits" and we have an impressive array of International speakers. Indeed it is considered that we have achieved a "coup" in obtaining their time for a whole week.

In terms of value the seminar cost at \$395 is a bargain, especially if you **book before 15th August as this gets you Ian Verhappen's Foundation fieldbus Pocket Guide (Value \$80) for free!** Of course the whole event is tax deductible too. Lunch (Dinner in Melbourne) is included. In addition to the JA2003 papers and presentations the CD will include a swag of papers and technical goodies about Foundation fieldbus.

I must also thank our JA2003 Event Gold Sponsor, Honeywell and Silver Sponsor, Yokogawa. This sponsorship means we are in the position to keep the cost so low.

So what else has been happening? Whilst our technical afternoons in Perth have been quite well attended, Allen Tighe (our accredited trainer) has just finished a trip to

Melbourne and Sydney conducting an "Information evening". Unfortunately apathy reined again and the numbers attending this free event were extremely disappointing. Continued Professional Development- for some a joke it seems!

We are organising the 2003 AGM that will be held in conjunction with the Jump Aboard event. This year it will be held on the cocktail evening of Thursday 11th September.

On a personal note I am pleased to advise that I will be changing my direction and leave Woodside on the 31st July. This will give me the opportunity to work part time and to spend time on the things I like doing such as my website (www.iceweb.com.au) and also Foundation fieldbus work/ consultancy. As part of this I am looking at working on a voluntary basis with other members of committee in a similar position to upgrade the Foundation fieldbus CCI Centre of Excellence.

I look forward to networking with you all at Jump Aboard 2003 and seeing you "Reap the Benefits".

Jim Russell- Chair Foundation Fieldbus End User Council Australia (Inc)

-email:jimrussell@iceweb.com.au

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Just look at this International line up and great presentations! It is little wonder that we are getting interest from delegates overseas

HONEYWELL KEYNOTE PRESENTATION

Speaker to be announced

MANAGING A FOUNDATION FIELDBUS PROJECT

Ian Verhappen- ICEPros - Canada

There are a number of changes in work flow associated with implementing a fieldbus project. Changes need to be made within the engineering team, be it internal and/or an external contractor, as well as inside the company applying the technology. This paper discusses the relationship and work flow both internal and external to an organisation to successfully complete an Foundation Fieldbus project.

Ian Verhappen is author of the Foundation Fieldbus Pocket Book and has overseen fieldbus installations at Syncrude Canada. It is his third paper for Jump Aboard.

CRUDE LOAD PLATFORM CONTROL & MONITORING SYSTEM

Alexandre da Silva Peixoto - SMAR Brazil

Upon the years, it has been proved by more than hundred of projects that the Foundation Fieldbus protocol is the right solution for process control. As an example for this kind of control system, this paper describes the complete project of a Crude Load Platform Control & Monitoring System based on Foundation fieldbus. This Crude Loading Platform is an integral part of loading operations for



the export of crude. The objective of the Crude Oil Platform project is to engineer a successful remote control and monitoring solution for the loading operations. The explanation of the offered system will be based on the advantages of using the Foundation Fieldbus instead of other technologies, and more than that, it will show the Field Control System integration with other protocols enabling an easy upgrade of any plant.

Alexandre Peixoto is an electrical engineer working for the international division of Smar.

FUTURE TECHNICAL DIRECTION OF FF

Stephen Mitschke - Fieldbus Foundation - Austin, Texas, USA

This paper describes the present and future roles of the FOUNDATION fieldbus H1 + HSE technology in the plant environment. Broad use of the Flexible Function Block will enable enhanced multi-vendor control applications such multi-variable control, self-tuning PID and variable speed drive control. For the highest in availability, the Fieldbus Foundation will test and register redundant HSE devices containing, each containing redundant interfaces, for both device and network fault tolerance. Cooperation with the HART® Communication Foundation and PROFIBUS Nutzerorganisation e.V. (PNO), will lead to extensions to the Device Description technology to support better visualisation for such applications as diagnostics and complex calibrations. The use of multi-variable optimisation will lead to expanded and efficient use of discrete data on both the H1 and HSE networks. Finally, FOUNDATION fieldbus will extend to other areas of the plant environment, including safety instrumented systems. Stephen Mitschke is the Senior Technical Consultant at the Fieldbus Foundation.

FIELDBUS NON-INCENDIVE CONCEPT TAKES FISCO INTO ZONE 2 AND DIVISION 2 HAZARDOUS AREAS

Phil Saward - MTL UK

The Fieldbus Intrinsically Safe Concept (FISCO) is recognised as having significant benefits for FOUNDATION™ fieldbus networks, compared with the original Intrinsic Safety ‘Entity’ model: more fieldbus instruments can be connected in the hazardous area, and users need to spend less time justifying and documenting the safety of a given installation.

In Zone 2 and Division 2 hazardous areas, the principles of FISCO may be applied with equal benefit to Non-incendive (Ex n) wiring, whilst taking advantage of the relaxed factors of safety appropriate to the lower level of risk. The resulting technique, FNICO – the Fieldbus Non-Incendive Concept - has the same ease of use as FISCO, but with even more power available to the fieldbus trunk while retaining the live-workable nature of the field wiring.

The paper will discuss the practical considerations of designing, installing and maintaining a FNICO fieldbus network, and will compare the technique with the alternative protection methods that may be considered for fieldbus in Zone 2 and Division 2 hazardous areas. The status of the draft FNICO Technical Specification and its recognition by the national approvals authorities will also be considered.

Phil Saward is a Hazardous Area Expert with MTL.

Foundation Fieldbus Experience - PDO YIBAL INSTRUMENT UPGRADE

Guus Kessler, Shell Development Australia

Petroleum Development Oman (Shell operated E&P company in Oman) was an early adopter of foundation fieldbus (FF) technology when this technology was selected for the Yibal facility expansion project. This project increased the gross liquid handling capacity of PDO's largest oil production station from 120,000 to 180,000 m³/d. The requirement for a complete control system upgrade, due to obsolescence of the existing control system, provided the opportunity to assess and select the latest control technology. The subsequent business case for the application of FF technology was primarily based on the potential for significant reduction in implementation cost and shut downtime. The long-term benefits from the technology, in terms of asset management tools and advanced diagnostics, was not regarded as the major driver, primarily since the project -and asset team did see the effective implementation of these tools as quite cumbersome. The technology was strongly pushed by the corporate functional discipline head for control and automation, which proved to be essential in order to break through project conservatism and minimum risk attitude. During the execution phase it became apparent that the Yibal project was far from an ideal test bed, due to lack of technical support in the region and insufficient front-end loading of the project. It was realised too late in the project execution phase, that significant amount of detail is required to procure and design a foundation fieldbus system.

However, for the Yibal asset, the implementation of the FF control system proved to be a success albeit that it did not fully deliver against its business case. The full benefits of the availability of reliable real-time digital data were not realised and in general requires a more “visionary” approach that cuts across the existing company organisational silos while identifying the requirements of all stakeholders and end-users from the start. These requirements are to be included in the purchase order (hardware) and software configurations. This was not adequately done for the Yibal project. However, the application of FF technology did yield significant savings during construction and commissioning phase and as such did deliver actual cost savings for the project.

PDO (and Shell Global Solutions) has now adopted FF technology as the standard for all Brown -and Greenfield projects and consider the technology now field proven with the potential to deliver a more cost effective solution at reduced project time and installation risk. In addition, the technology is regarded as a better long term strategic fit and potential technology enabler, leveraging fully from the benefits offered by the digital world while improving inter-operability between vendors and reducing risk for system obsolescence. These benefits could be particularly important when fields enter the “end-game” and require life extension projects at minimised life cycle cost

LATEST INFORMATION VIA THE FFEUC-AUS WEBSITE

For the latest information on all FFEUC-Aus Inc activities and some great Foundation fieldbus technical data please visit our website www.iceweb.com.au/ffeuca/index.htm



SAFETY FIELDBUS

Dr Josef Börcsök- HIMA - Germany

Safety-related bus systems

Safety related communications can share the same communication media as non safety related communications and as such differ only in the communication protocol. For safety related protocols, the ability to detect all possible faults/hazards and to manage them below an acceptable probability is critical.

These faults include (1) Random faults (e.g EMI), (2) Failures of the standard hardware and (3) Systematic faults

The primary function of a safety related system is to mitigate risk, and as such any associated safety related networks should not contribute more than 1% to any dangerous failure probability calculation.

This paper reviews the fundamental principles and failure modes of safety networks in contrast to normal networks. The fundamental contributors to all possible faults/hazards and the methods to detect and mitigate these will be discussed. In conclusion, new and existing technologies

INFRASERV STUDY:

NEW FOUNDATION FIELDBUS INTERFACE TECHNIQUES PROVIDE HIGH AVAILABILITY AND SAVE COSTS

Andreas Agostin - Pepperl And Fuchs Singapore

The highly recognized and well-known German companies InfraServ Hoechst and Aventis Pharma performed a comparison study between a real world installation using conventional technology and a comparable planned installation using Fieldbus.

Conclusion: Fieldbus is available, and Fieldbus can reduce costs if overall used together with the herein described FieldBarrier.

Andreas Agostin comes from Pepperl and Fuchs Singapore

Note: Whilst the FFEUC-Aus will endeavor to maintain the speaker list above, it is not guaranteed.

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Project News

Shell leverage fieldbus technology to reduce the total life cycle cost to 4 of its ageing facilities.

Shell Norco Chemical Reinstrumentation Program

Shell Chemical LP Sees Fieldbus As A Strategic Technology. For more details visit

<http://www.fieldbus.org/International/Australia/newsrelease.htm>.

Shell Brent Alpha Redevelopment

Shell extend the production life of North Sea Brent Alpha Platform to at least 2010. For more details visit

<http://www.fieldbus.org/International/Australia/newsrelease.htm>.

PDO Yibal Instrument Upgrade

Attend JA2003 for more details.

Shell Deer Park Refining Company's Reinstrumentation Project

Shell Deer Park's vision to supply refined products at a lowest total cost... For details visit

<http://www.e-chemmerce.com/c2/0202/p/0202p3.html>

End Users Around The World Are Gathering in Houston

In conjunction with the ISA, the End User Council will be holding their meeting on October 24, 2003 (day after the ISA show).

End Users will present case studies regarding the impact of FOUNDATION fieldbus on a facility after it has been commissioned, particularly in the areas of maintenance practices, computer-based maintenance, and life cycle benefits. In addition, Fieldbus Foundation President Richard Timoney, End User Advisory Council (EUAC) Chair Ian Verhappen, and foundation staff will present current technology development updates.

Each attendee will receive a CD containing copies of all the presentations along with the new Technical Overview and the End User System Engineering Guideline.

To find out more, visit <http://www.fieldbus.org/files/events/houston.pdf>



Foundation fieldbus End User Advisory Council

The FFEUAC has been focusing on the issue of the Foundation fieldbus engineering guideline that will be available free of charge. This document which is likely to be in excess of 100 pages is going to be an invaluable tool to those starting on the "bus route". This is likely to be issued by the end of August and if so will be included in the Jump aboard 2003 CD.

The top ten items being worked on by this committee have been updated as follows:

Item	Priority
Flexible Function Block Demonstration	1
Higher conformance with HIST to be encouraged. Develop core set of functionality that all hosts support.	2
Hardware components have a FF tick marking or similar, via self-test procedure.	3
Fieldbus for Safety Applications	3
Focus on Management layer to define and show life cycle economics / lost opportunity	5
Transducer Block standardisation	6
EUAC requests that when a Device Registration license gets updated/registered, Exhibit A includes listing of any methods that are contained in that device.	7
HIST - End Users would like to see this document be deeper and broader to provide more reassurance of true interoperability so that there are no surprises after a person selects a plant wide system.	7
Interoperability "labs" as Regional Centres of Excellence either Private or commercial ventures	9
Updated and Improved FF web site	10
Device Profile Specification	10

If you have any issues for this committee please contact the Oceania representative Jim Russell (jimrussell@iceweb.com.au)

Fieldbus Non-Incendive Concept -FNICO

Well we have another fieldbus "busword" -FNICO. This is a pretty important one in that the benefits of FISCO may be applied to fieldbus circuits in Zone 2 and Division 2 hazardous areas.

With this concept the rigours of Intrinsic Safety are not mandatory and a lower level of protection is acceptable to match the reduced risk. The concept gives even more power available to the segment while retaining the live-workable nature of the wiring.

Do you want to learn more? Come along to Jump Aboard 2003 in September!

Application Guides available from the Foundation

The following Application Guides (in PDF format) are available for downloading from the Foundation website, <http://www.fieldbus.org/about/foundationtech/resources/>

31.25 kbit/s Intrinsic Safe Systems

Technical Overview

Wiring & Installation 31.25 kbit/s, Voltage Mode, Wire Medium

Function Block Capabilities in Hybrid/Batch Applications

North American End User Council- Presentations available via the Web

Some really good presentations from the recent meeting in San Ramon are now available for download at http://www.fieldbus.org/News/?news_x_language_id=291

Presentations

Fieldbus Seminar - Part 1 Technology Background

ICE-Pros, Inc. - Ian Verhappen

Fieldbus Seminar - Part 2 Life Cycle Economic Advantages Associated with Using Fieldbus

Shell Global - Herman Storey

Overview and Learning's Form a Large Scale HSE FF Implementation at Oconee Nuclear Station

Energy Systems Solutions - Mike Baker

Fieldbus Installation Lessons Learned & Check-out Documentation Requirement

Frank Electrical - James. R. Brandenburg

NEC and APi4F Issues/Analysis with Reference to FF Wiring

Turck Process Automation - Brad Larson

Flexible Function Block (FFB) Control Applications

Sterling Valley - David Hobart

Surge Protection for Foundation Fieldbus Systems

MTL - David Crandal

AGA Mass Flow Implementation Using FF Function Blocks

Hanel Corp - Blair Hanel

ISA - Foundation fieldbus Pocket Book - Early Birds who book Jump Aboard 2003 by 15th August will receive a FREE COPY!! \$80 value!

Visit <http://JA2003.shorturl.com> for more details

This book provides quick reference information on the Foundation Fieldbus H1 protocol, installation tips, and other useful information that design engineers, control system engineers, and instrumentation technicians need to know about Foundation Fieldbus when meeting with a vendor or client, and while managing an installation at a job site.

The pocket guide covers essential information on power distribution and network power supply requirements. Packed with handy reference information, the guide includes rules for cabling length, documentation requirements, a commissioning checklist, topology diagrams, system sizing formulas, and tips for integrating with other systems. It explains the Fieldbus Intrinsic Safety Concept (FISCO) along with configuration and troubleshooting tips. Helpful worksheets for segment loading and bandwidth calculations are also included.

INDCOM 2003 Presentations Available Online - Limited Time Only

To view and to download go to: http://www.idc-online.com/html/slides_download.html

For a limited time of a week, IDC Technology have placed a selection of some of the practical powerpoint presentations covering Fieldbus, DeviceNet, Industrial Ethernet, Wireless Networking and Industrial Network Security at their successful two day conference INDCOM2003 presented by experts in the business from throughout the world.

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Should you note any error/omission or an article offends please do not ignore it, contact the secretary tiong.lim@woodside.com.au and we will review, rectify and remove as necessary.

