Foundation Field-Bus in Steel Plant Application

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Trend of Industrial Automation

- Global Standardization for Inter-operability.
- Converging Technology.
- Special emphasis on Safety and Security.
Trend of Instrumentation Signals

- Pneumatic: 3-15 PSI, 1930’s
- Electrical (analog): 4-20 mA, 1960’s
- Electrical (hybrid): HART, 1980’s
- Electrical (digital): fieldbus, 1985

- IEC Standards release:
  - Foundation H1: 1994
  - Profibus PA: 1996
  - Foundation HSE: 2000
  - PROFINet: 2001
Some of the essential features of modern automation

- On line Configuration.
- Use of Functional Block.
- On line addition/removal of field devices.
- Automatic device detection.
- Automatic Network Address Management.
- True geographic distribution of control.
Major Characteristics of Steel Plant

- Predominant HT drives.
- Predominant weighing and batching process.
- Predominant use of VVVF drives.
- Predominant use of digital input/output.
Standard Automation Configuration of a Steel Plant Process
Automation Configuration Diagrams of a steel plant process using Foundation Field Bus
Challenges for gaining use of Foundation Field Bus in steel plant.

- Technological improvement with more and more instruments and instrumentation systems to support Foundation Field Bus.

- Inclination of Technology Provider’s acceptance of Foundation Field Bus.
The advantages, in general, as being experienced by the Steel Plant users:

- Reduction in installation & commissioning time.
- Management of field devices.
- Remote configuration of field devices.
- Improvement in diagnostic study and effective maintenance.
CONCLUSION

• Growth potential in Steel Sector is very high.
• A less protocol specific network and cabling will result in bringing down further the cost as well as provide transparency in plant wide flow of information.
• Some untapped resources like wireless technology will bring significant impact.
• Foundation Field Bus Technology as well as the associated instrumentation manufacturers and technology providers shall have better correlation in order to give rise required solution for the tremendous future growth in steel plants.