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Reducing total cost of ownership of instrumentation through the use of PROFIBUS' profile standard and Enhanced Electronic Device Description technology

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Agenda

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Introduction

- Cost of Commissioning
- Cost of Maintenance

Profile Standard

- How can Profiles speed up Commissioning?
- How can profiles speed up maintenance?
- Demo

Enhanced Electronic Device Descriptions

- How can Enhanced EDD's speed up Commissioning?
- How can Enhanced EDD's speed up maintenance
- Demo

Conclusions



Introduction

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Question: How is buying a process instrument like buying a cat?

Answer: In both cases you need to look at the total cost of ownership!



Story

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Kitten's name: Missy Cat

Cost of kitten: \$5.00

Total costs for 1st month: \$33.00

Cost of each month after that: \$18.00

Veterinarian bills for 1st year: \$550.00

Total costs for 1st year: \$781.00

Initial purchase price as % of total costs: **0.6 %**



Total Cost of Ownership of Instruments

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$$\text{Total Cost Of Ownership} = \text{Cost Of the Instrument} + \text{Cost Of Commissioning} + \text{Cost Of Maintenance}$$



Cost of Commissioning

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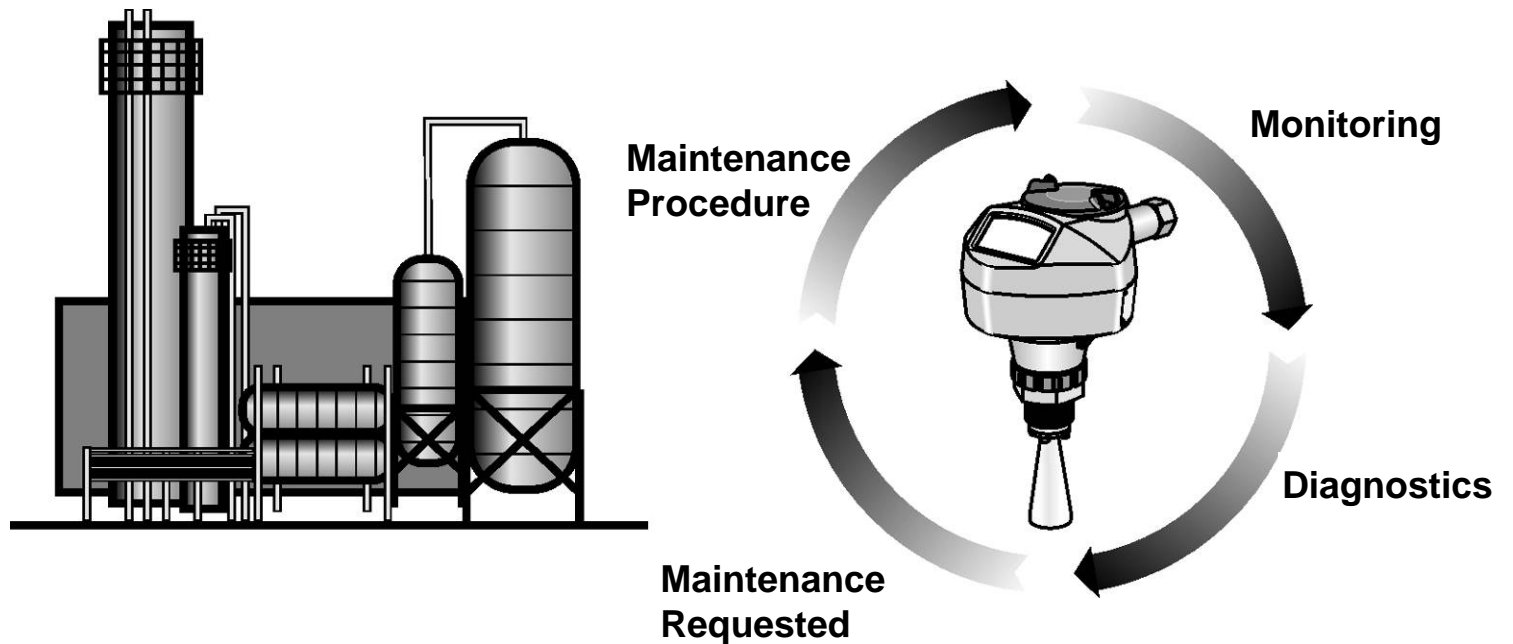
1. Learn/know about the field device
2. Physically install the field device
3. Connect to and identify the field device
4. Configure the required parameters
5. Test the configuration and interface to other systems
6. Repeat the process with every field device



Cost of Maintenance

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■ Maintenance Cycle



How Can PROFIBUS HELP?

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- PROFIBUS protocol!
 - Profile standard
 - Enhanced Electronic Device Descriptions



EDDL

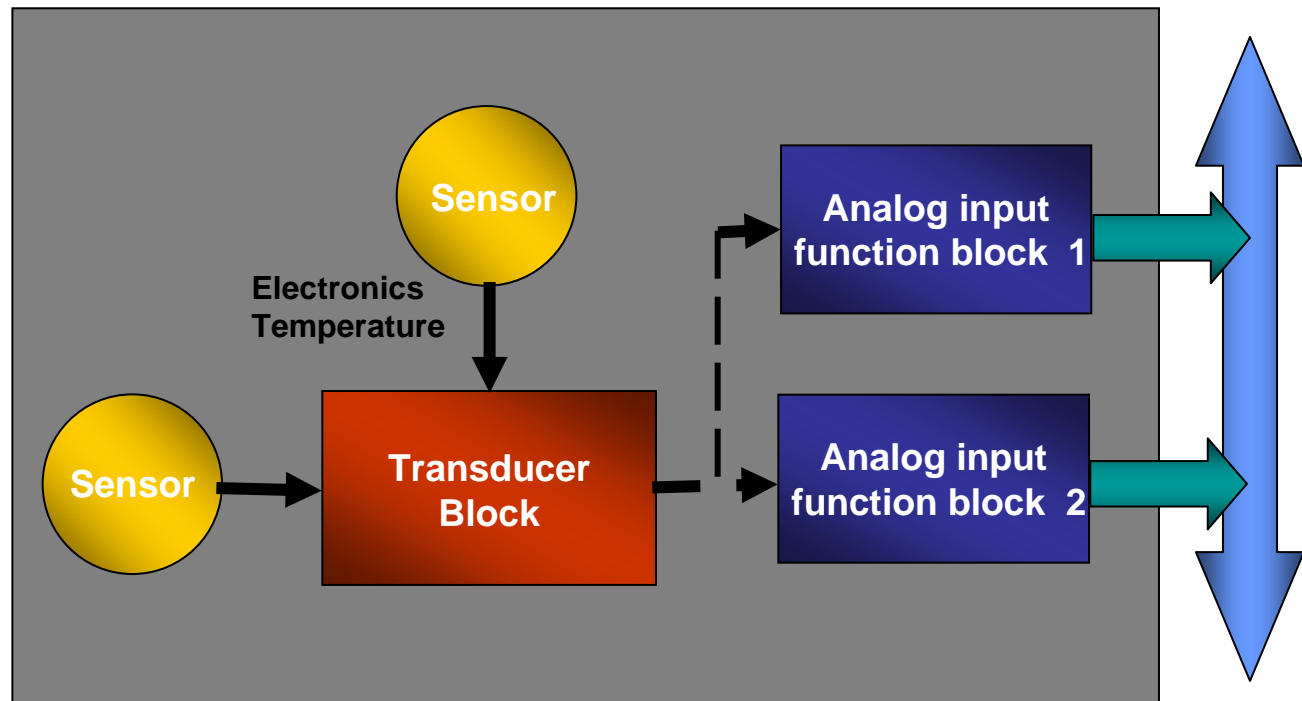
The key to interoperability



What is a Profile?

Standardization of a field device from the bus point of view!

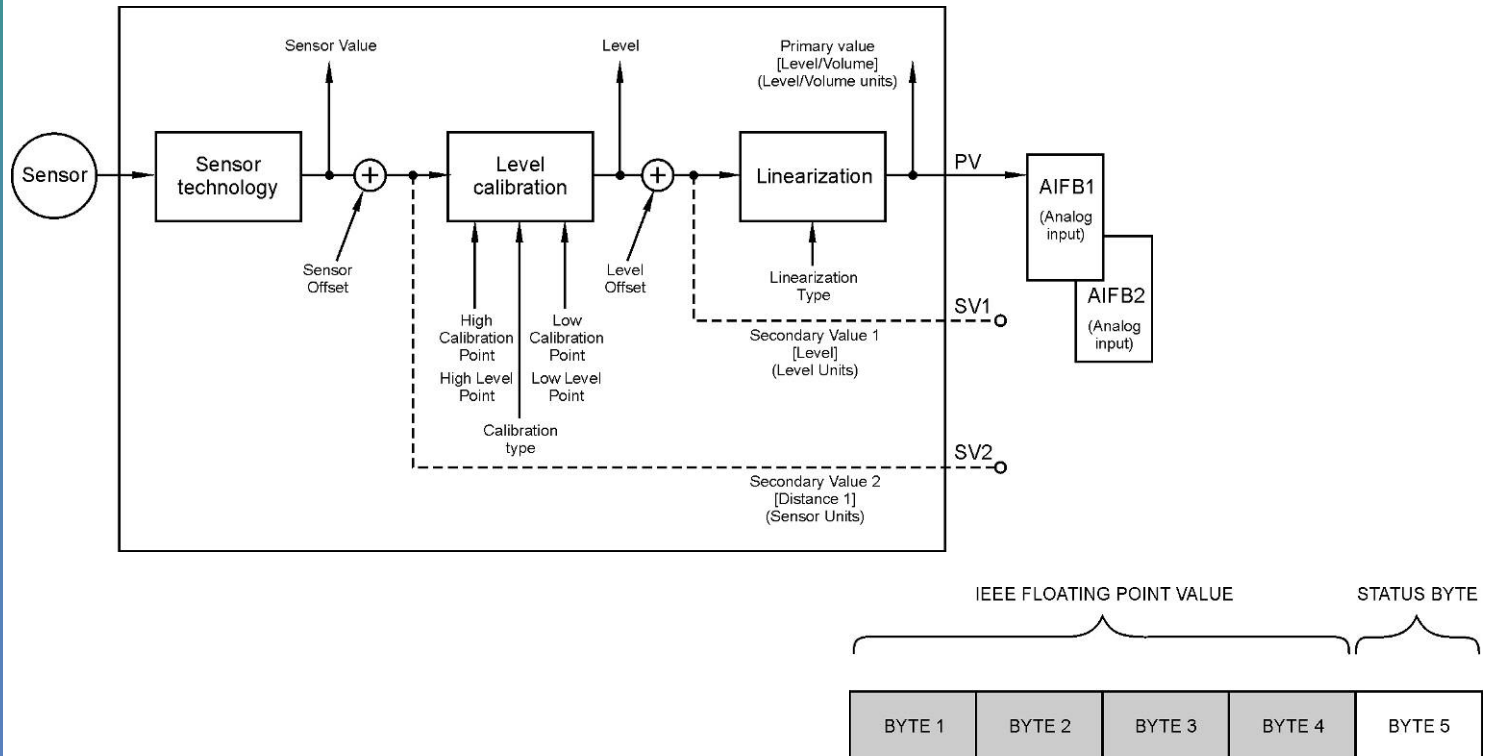
→ Commonality between devices



Profiles

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- Standard Parameters
- Standard blocks
- Standard output



Profile - versions

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- Version 3.0 – released 1999
- Version 3.01 – released 2004
 - Introduced condensed status
 - Reduced the number of error messages
 - Refined and improved the meaning of these messages
 - Created progresses alerts for maintenance messages
 - Permitted full control of error messages by end users
- Version 3.02 – released 2009
 - Improved speed of uploading/downloading (X5 to X10)
 - Improved device integration through better version handling which simplifies life cycle management
 - Approved by NAMUR working group 2.6 'Fieldbus'

How can Profiles speed up commissioning?

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- Reduce the total amount of knowledge
- Easier and faster to identify the field device
- Speed up commissioning by reduced knowledge
- Speed up verification by use of simulation function

How can Profiles speed up commissioning?

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The image displays two side-by-side screenshots of the SIMATIC PDM software interface, showing parameter configuration for two different devices.

Left Window: SITRANS PROBE LU 6m

Parameter	Value
» » Analog Input Function Block 1	
Static Revision No.	0
Unit	%
Filter Time Const	10
Function	Volume/Level
» » » Batch Information	
Batch ID	0
Batch Unit	0
Batch Operation	0
Batch Phase	0
» » » Process Value Scale	
Lower Value	0.00
Upper Value	100.00
» » » Output scale	
Lower Value	0.00
Upper Value	100.00
» » » Output Limits	

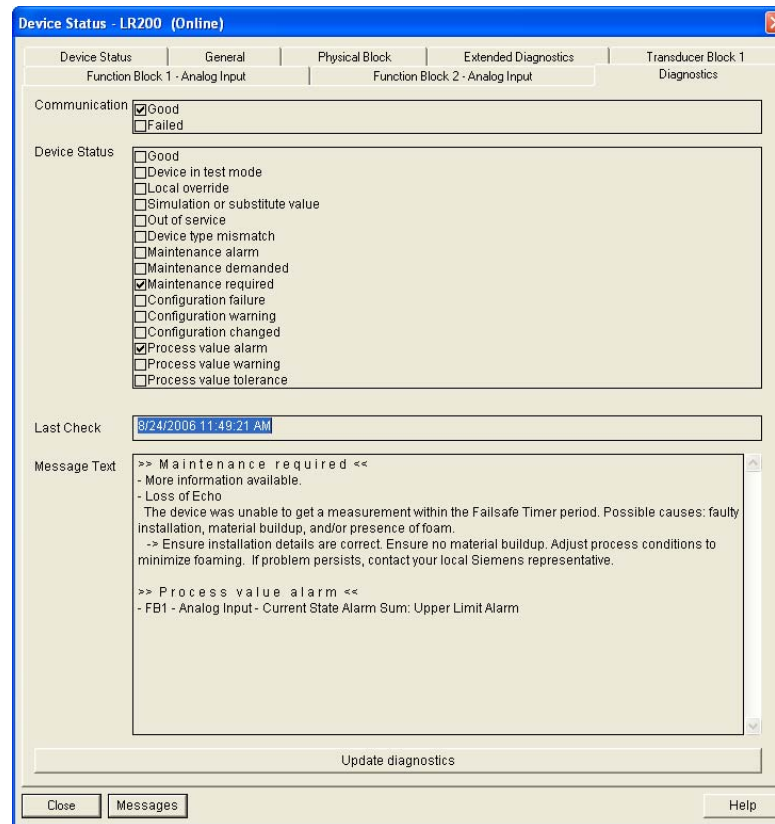
Right Window: VEGAPULS 60

Parameter	Value
» » Level	
Static Revision No.	0
TAG (VEGA Output Level)	Sensor
Unit	%
Integration time	0
» » » Scaling (PV-scale)	
Lower Value	0
Upper Value	10
» » » Output scale	
Lower Value	0
Upper Value	10
Decimal Point	1
» » » Output Limits	
Upper Limit Alarm	3.4e+038
Upper Limit Warning	3.4e+038
Lower Limit Warning	-3.4e+038
Lower Limit Alarm	-3.4e+038
Limit Hysteresis	0.1

How can profiles speed up maintenance?

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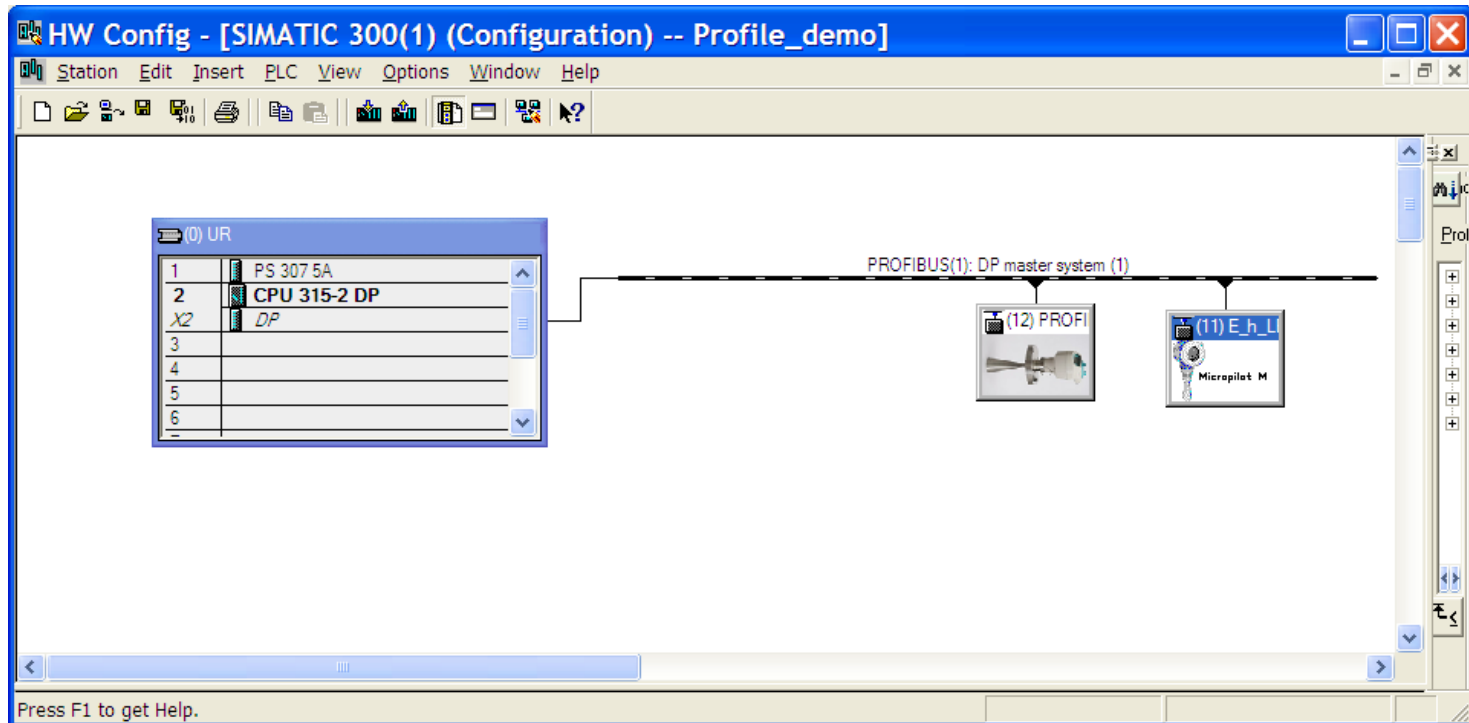
- Provide instant alerts to problems
- Enable predictive maintenance
- Common approach to diagnostic messages



Demo

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Enhanced Electronic Device Descriptions (Enhanced EDD)

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- EDD are text based files that describe:
 - All parameters in a field device
 - How to read/write those parameters
 - All parameter interactions
 - How to display those parameters
 - Simple procedures for setup and troubleshooting
- International standard IEC 61804-2
- Extended (Enhanced EDD) in IEC 61804-3 to:
 - Improve graphics
 - Saving of data
 - Etc.

How can Enhanced EDD's speed up commissioning?

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Quick Start Wizards

Quick Start - Step 4 of 5 - Sitrans LR250 Device Rev 3

Step 4 of 5: Ranges

SIEMENS

These Parameters specify the Ranges of the Sensor.

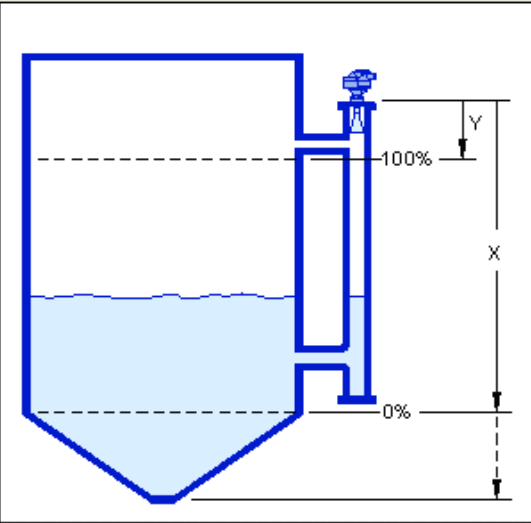
Select the settings for the ranges:

Unit:

High Calibration Point (Y): m

Low Calibration Point (X): m

Response Rate:

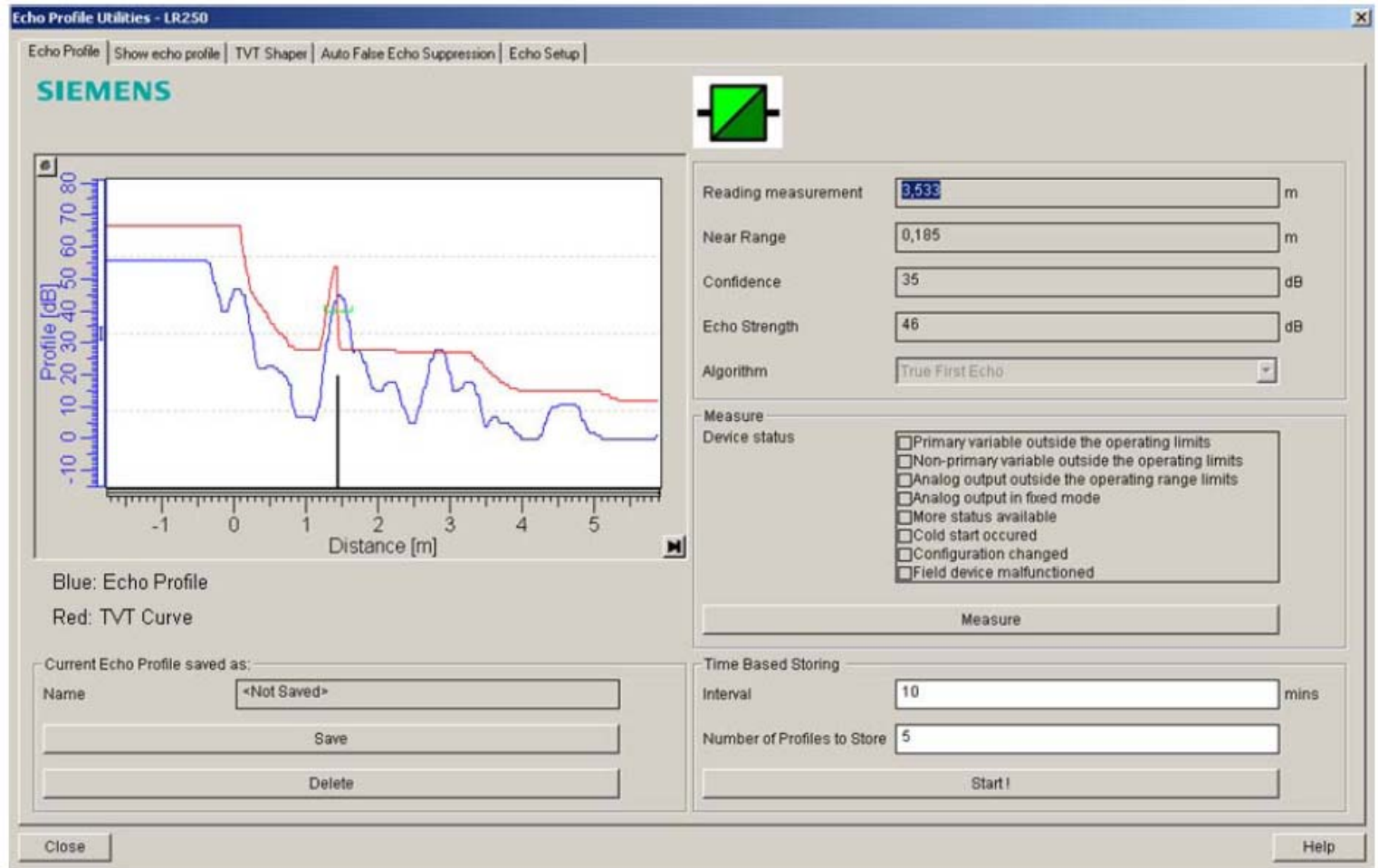


Cancel < Back Next > Help

How can Enhanced EDD's speed up commissioning?

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Commissioning/troubleshooting aids

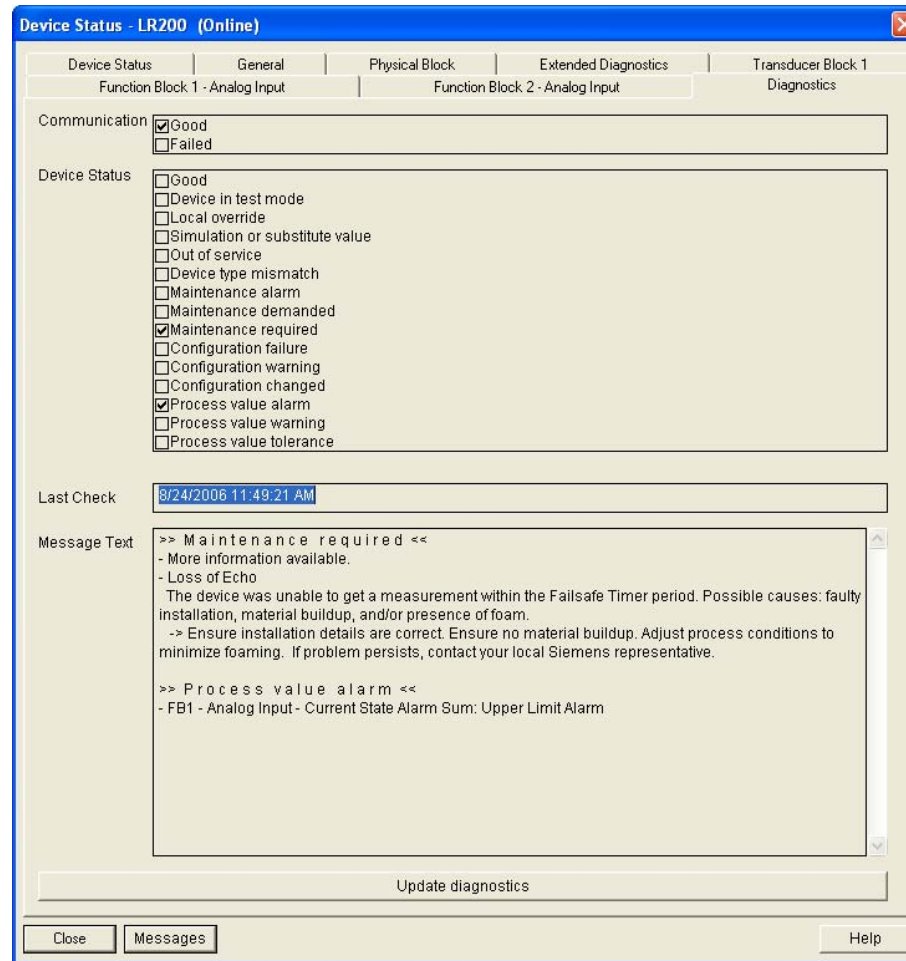


How can Enhanced EDD speed up maintenance?

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Troubleshooting aids

Diagnostic screens



Demo

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Conclusions

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Profiles → Commonality → saves time & money

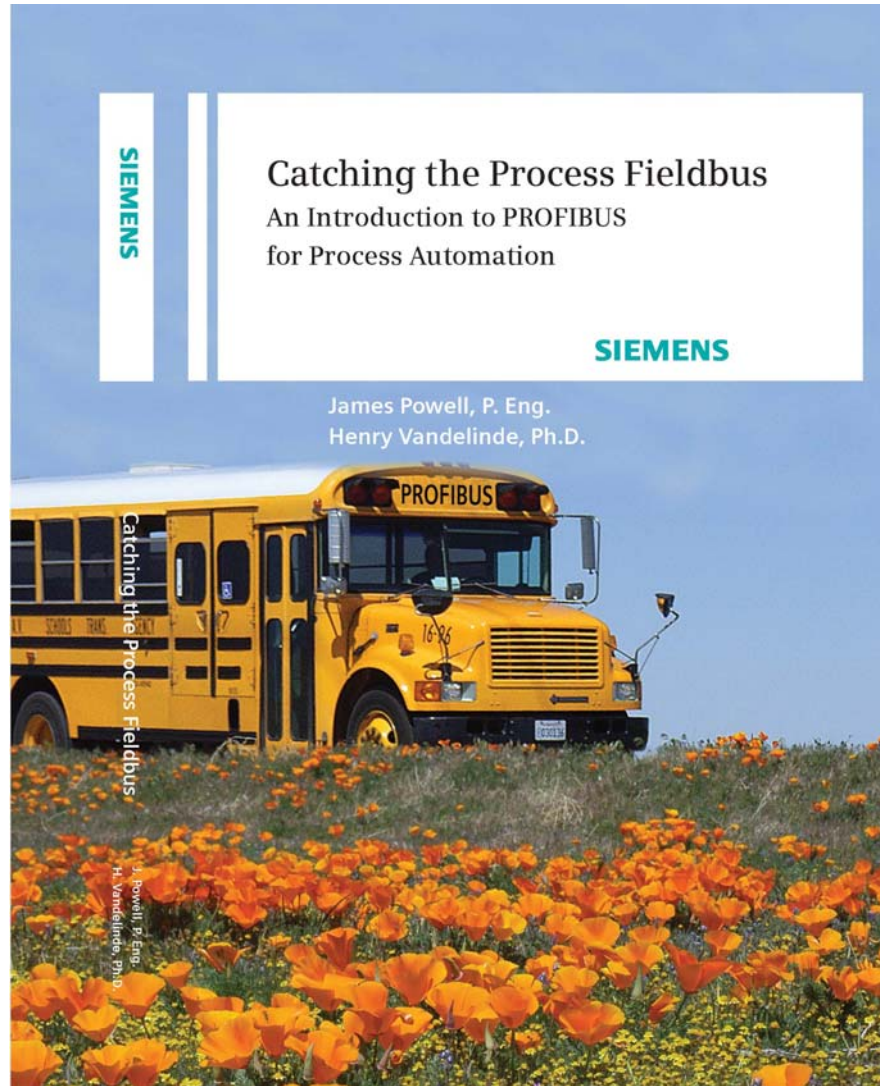
Enhanced EDD → better tools → saves time & money

Reduces Total cost of ownership!

References

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Questions?

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