



Level



Pressure



Flow



Temperature



Liquid
Analysis



Registration



Systems
Components



Services



Solutions

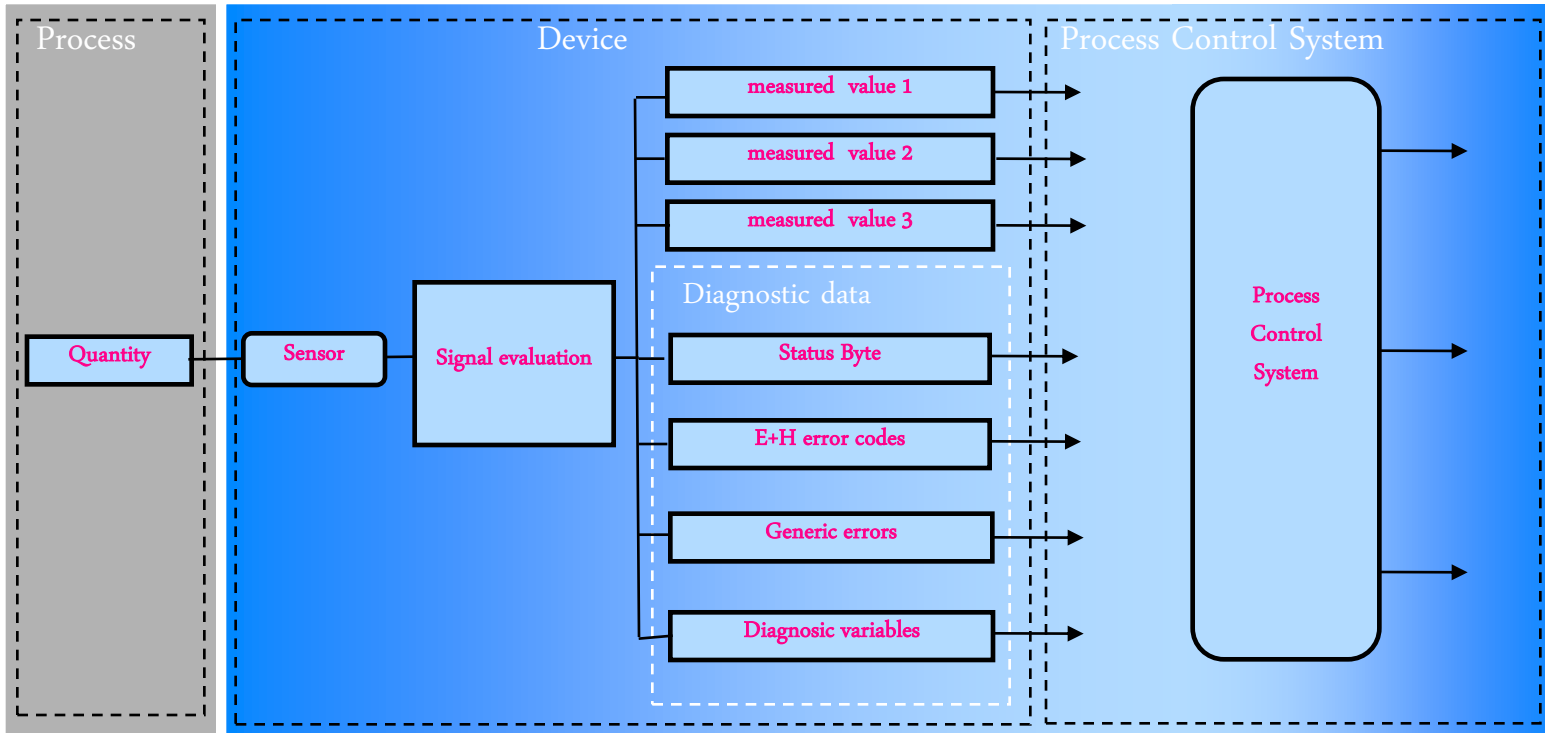
Profibus process day

Transparency of diagnostics

Endress+Hauser 

People for Process Automation

Available device diagnostic data



- **Measured values:** process variables (level, flow, density, pH etc)
- **Manufacturer specific error codes:** device specific alarms and warnings (E641, E700 etc)
- **Generic errors:** common device errors (configuration error, maintenance required etc)
- **Diagnostic variables:** quality of measurement (excitation current, signal to noise ratio, sensor impedance)

3 levels of diagnostic transparency

- Level 1
 - Device status byte
- Level 2
 - Faceplates
- Level 3
 - Condition monitoring

+ device configuration & asset management using FieldCare condition monitoring

+ diagnostic data, showing diagnostic text

Device status monitoring

Good
Bad
Uncertain

Level 1



Level 2



Level 3

Level 1 – Status byte

ProfiTrace V1.6.2 (c) 2004-2006 PROCENTEC "Masterfoods 301007.ptd"

File Action Filter Trigger Toolbars View Settings Help

Load data Save Data File viewer Setup record trigger Start message recording Stop message recording Set record filter Set view filter

Init ProfiCore Close ProfiCore PA Probe Auto-detect baudrate Set baudrate 93.75 kbps

System activity: Live list: Message recording: Record to file:

Info Panel

Live list Messages Messages (with view filter applied) Station statistics view Data inspection

Framestructure: **SD2 message**
 Source address: **70**
 Model Name: **Prosonic M**
 Destination address: **0**
 Frametype: **Response message**

PROFIBUS DPV0 Message:
 Data Exchange (Con/Res)

Interpreted data:
 Al_0_Value = **82.133934**
 Al_0_Status = **Good(NC)/Ok/Ok**
 Al_1_Value = **12.595571**
 Al_1_Status = **Good(NC)/Ok/Ok**

FrameN	Timestamp	At	Frame	Addr	Service	Msg type	Req/Res	SAPS	Data	Data
91838	504424.29 ms	SD2	0->65	SPD_HIGH	Data Exchange	Req	5	C1 00 82 25 01		
91839	504426.24 ms	SD2	0<-65	DL	Data Exchange	Res	5	00 00 00 00 47		
91840	504429.47 ms	SD2	0->66	SPD_HIGH	Data Exchange	Req	5	00 00 00 00 00		
91841	504431.42 ms	SD2	0<-66	DL	Data Exchange	Res	5	00 00 00 00 47		
91842	504434.66 ms	SD2	0->68	SPD_HIGH	Data Exchange	Req	5	00 80 C4 AA F6		
91843	504436.61 ms	SD2	0<-68	DL	Data Exchange	Res	10	3E 49 B9 00 80 3E 49 B9 00 80		
91844	504440.43 ms	SD2	0->69	SPD_HIGH	Data Exchange	Req	5	26 C2 01 00 00		
91845	504442.38 ms	SD2	0<-69	DL	Data Exchange	Res	10	BA 38 80 00 80 BA 38 80 00 80		
91846	504446.20 ms	SD2	0->70	SPD_HIGH	Data Exchange	Req	5	00 80 07 00 00		
91847	504448.15 ms	SD2	0<-70	DL	Data Exchange	Res	10	42 A4 44 93 80 41 49 87 75 80		
91848	504451.97 ms	SD2	0->3	SPD_HIGH	Data Exchange	Req	5	00 00 00 00 00		
91849	504453.92 ms	SD2	0<-3	DL	Data Exchange	Res	5	41 7E 07 C0 80		
91850	504457.15 ms	SD2	0->13	SPD_HIGH	Data Exchange	Req	5	00 00 00 00 00		
91851	504459.10 ms	SD2	0<-13	DL	Data Exchange	Res	10	40 03 B7 E6 89 41 98 00 00 89		
91852	504461.05 ms	SD2	0<-30	SPD_LOW	Get Diagnos...	Req	6...	0		
91853	504463.00 ms	SD2	0<-30	DL	Get Diagnos...	Res	6...	00 0C 00 00 15 3A		
91854	504468.10 ms	SD4	0->0	Token pass	Pass token					
91855	504470.05 ms	SD1	0->87	FDL Status		Req				
91856	504514.44 ms	SD4	0->0	Token pass	Pass token					
91857	504516.39 ms	SD1	0->88	FDL Status		Req				
91858	504560.79 ms	SD4	0->0	Token pass	Pass token					
91859	504562.74 ms	SD1	0->89	FDL Status		Req				
91860	504607.15 ms	SD4	0->0	Token pass	Pass token					
91861	504609.10 ms	SD1	0->90	FDL Status		Req				

00: 42 A4 44 93 80 41 49 87 75 80

Primary variable

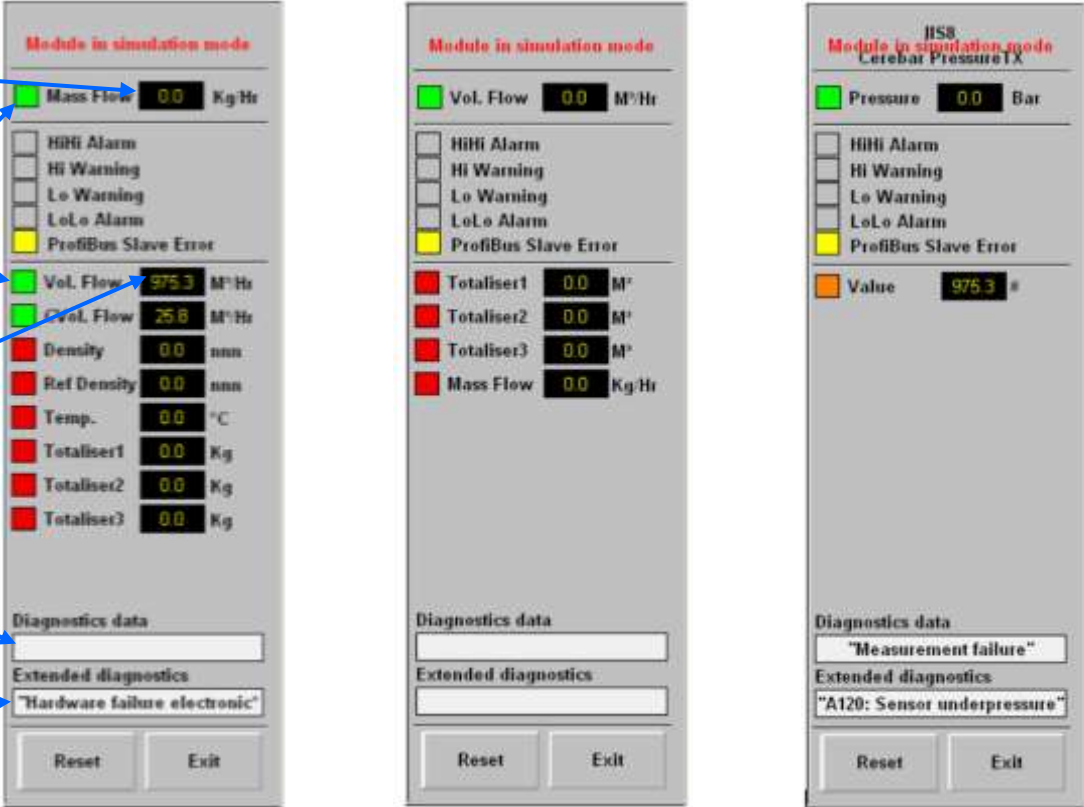
Secondary variable

Status byte

Activity log Message data Plugin output

Level 2 - SCADA faceplates

Global Templates provide the following features:



The image displays three SCADA faceplate templates, each with a 'Module in simulation mode' header. The first template is for flow measurement, the second for totalization, and the third for pressure measurement. Blue arrows point from labels on the left to specific features in the templates.

Primary Information: Points to the main measurement value (e.g., Mass Flow, Vol. Flow, Pressure) and its units.

Measurement Quality: Points to the quality indicators (e.g., HIHI Alarm, HI Warning, Lo Warning, LoLo Alarm, Profibus Slave Error).

Extended Information: Points to additional data points (e.g., Density, Ref Density, Temp., Totaliser1, Totaliser2, Totaliser3).

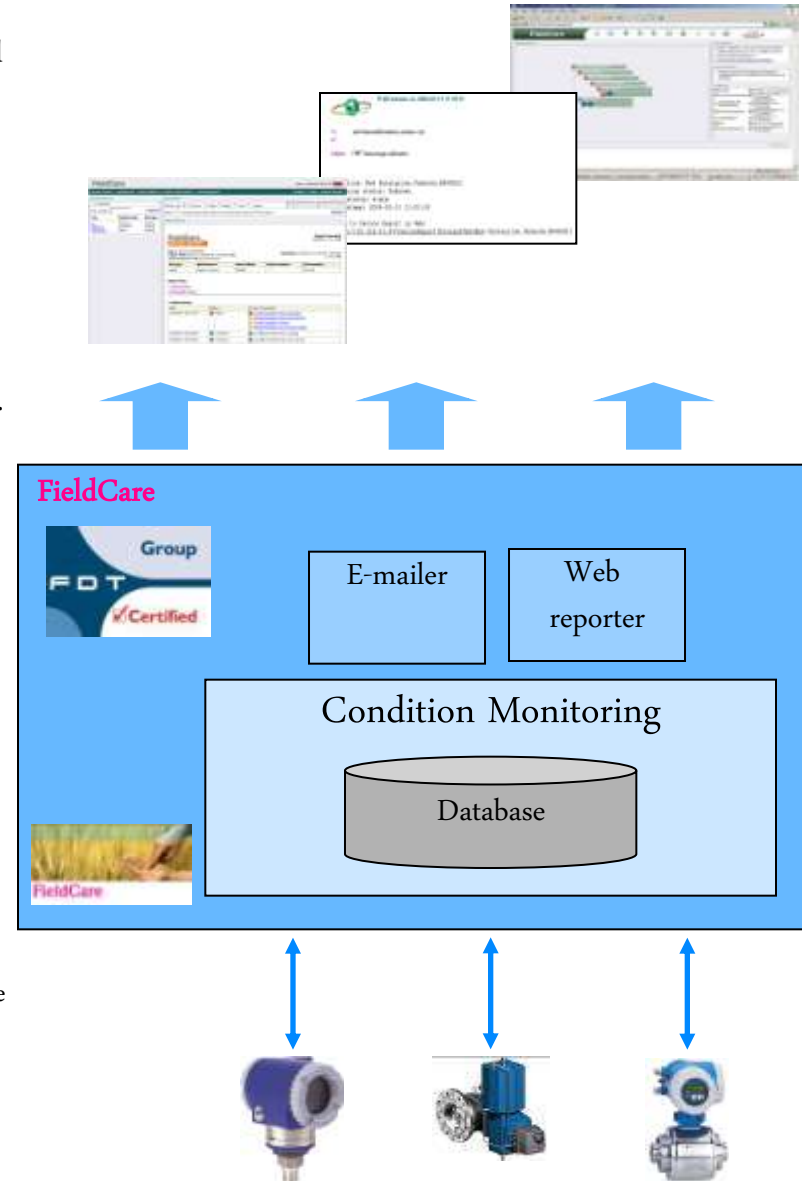
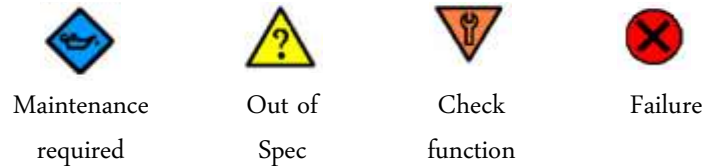
Diagnostics: Points to the 'Diagnostics data' field.

Extended Diagnostics: Points to the 'Extended diagnostics' field.

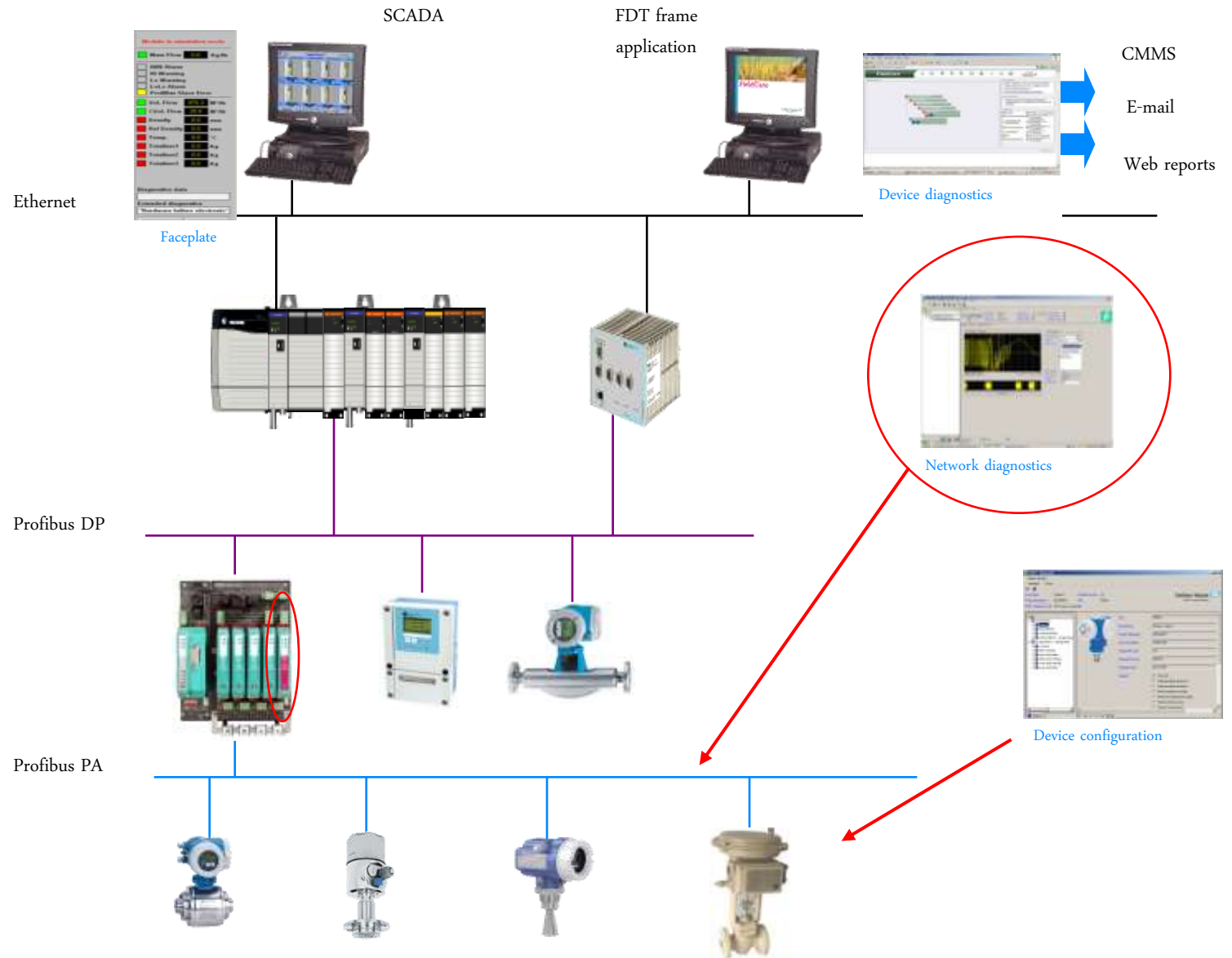
Each faceplate includes 'Reset' and 'Exit' buttons at the bottom.

Level 3 - FieldCare Condition Monitoring

- Reads error status and diagnostic variables from field devices using the PROFIBUS communication network.
- Writes date and time stamped data in the database.
- Displays current plant condition using NAMUR NE107 symbols. Assigns predefined text descriptions.
- Generates e-mail notifications sent to defined addresses and provides a web based link to device reports.



Diagnostics available from all levels





Level



Pressure



Flow



Temperature



Liquid
Analysis



Registration



Systems
Components



Services



Solutions

Profibus process day

...demonstration

Endress+Hauser 

People for Process Automation