



PROFIBUS DP/V1

Since April 2007

EDD's for SIMATIC PDM

Short Instructions

May 2008

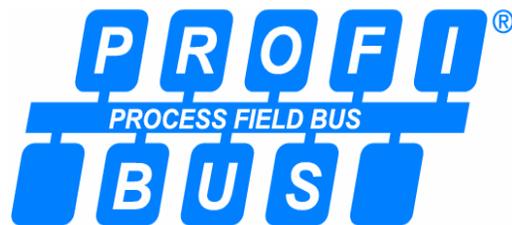




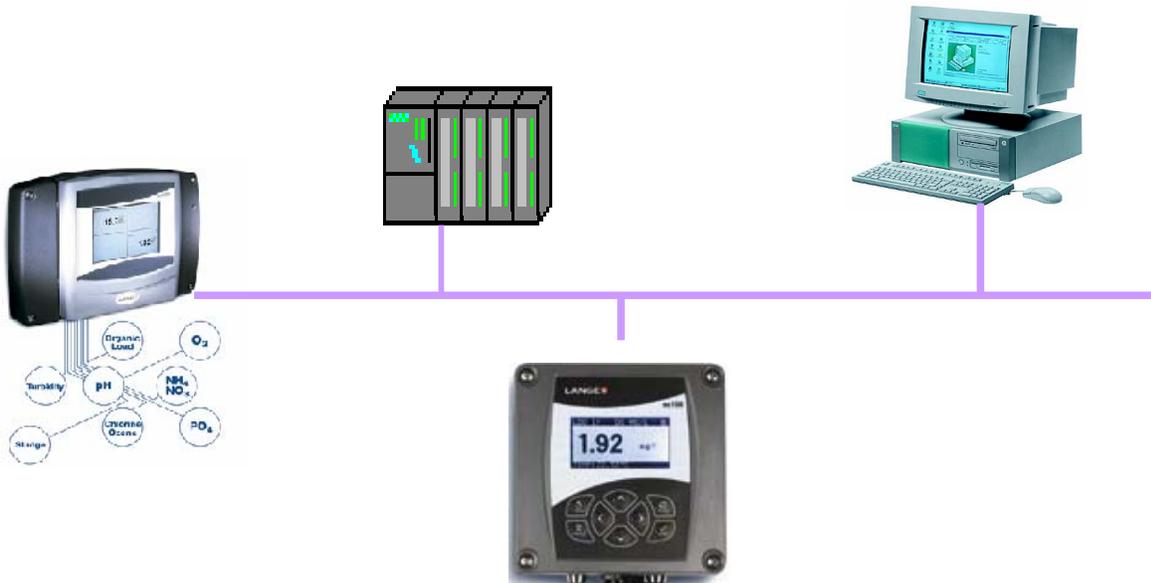
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Introduction & Identification

The SC100 and SC1000 standard controllers are the platform for all intelligent probes and analyzers from HACH-LANGE. The SC platform is a full digital communication system based on the open Modbus standard. Equipped with the Profibus interface card the SC controllers provide the complete range of values and parameters in a standardized method. The modular structure allows using the same GSD file for both controllers and all measurements. The HACH-LANGE SC100 and SC1000 is a PNO/PTO certified Profibus DP/V1 device which allows the access from master class1 (PLC SCADA) and master class 2 systems e.g. SIMATIC PDM





Requirements - SC Controller

1. SC100: Software Version V4.0 or higher, since May 2008
To verify the software version please enter SYSTEM SETUP > TEST/MAINT > CODE VERSION
2. Network card version V4.0 or higher, built-in since April 2007, see the label on the PROFIBUS network card.

Note: please reboot the controller after the first start up.
Start-up takes approximately 50 seconds.



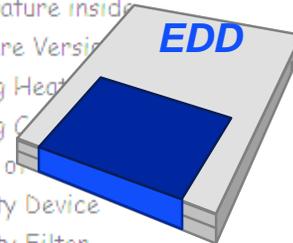
Operation Overview

The EDD files enable the PDM operations and face plates to run all the HACH LANGE probes and analyzers. These files are used to describe the entire probe/sensor properties as well as the menus, online windows and the face plate behaviour.

SIMATICPDM
Needs only the
EDD Electronic Device Description
to adapt the devices in detail



Parameter
>> Diagnostics
Status
Error Classes Member
Temperature Electrode
Temperature inside
Software Versi
Housing Heat
Housing C
Degree of
Humidity Device
Humidity Filter
Reagent Level

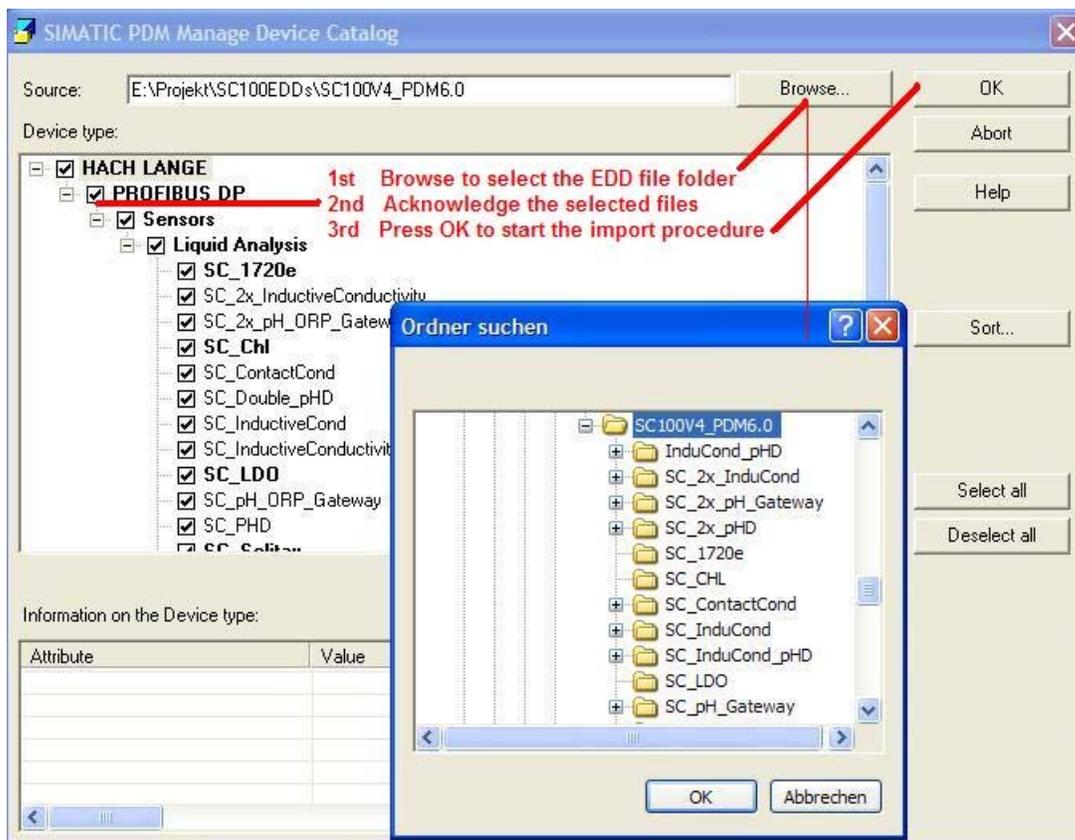
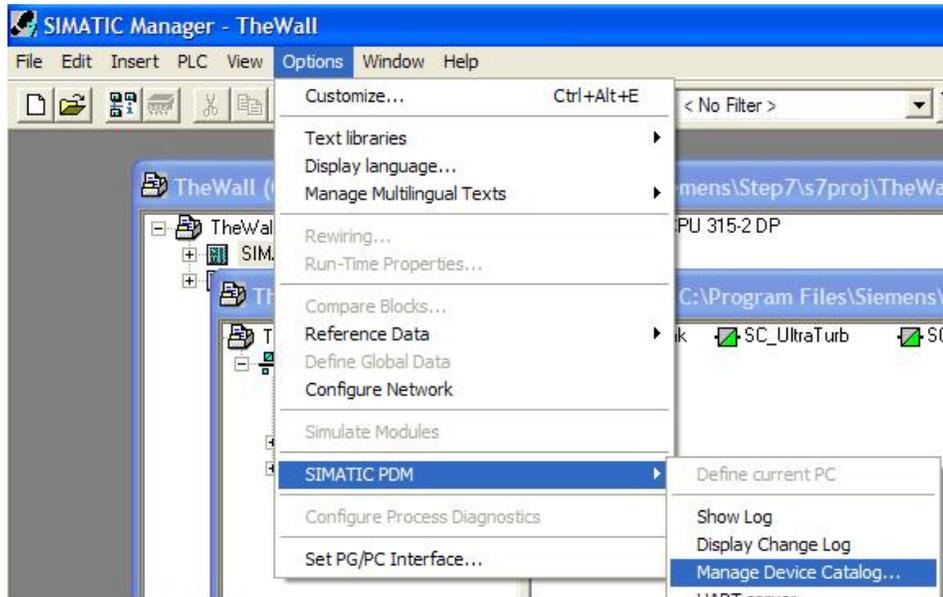


- Diagnostic
- Parameterization
- Online values / displays
- Up-and Download settings
- Backup and Restore



PDM EDD import

Using the SIMATIC Manager enter from
OPTIONS > SIMATIC PDM > Manage Device Catalog





PDM device selection and assignment

HACH LANGE sensors are now available within the device catalog located at
“Sensors > Liquid Analysis > HACH LANGE”

The screenshot shows the SIMATIC Manager interface. A context menu is open over the 'Insert New Object' option, with 'PROFIBUS DP device' selected. Below it, the 'Insert SIMATIC PDM PROFIBUS DP device Object(s)' dialog box is open, with 'Name' set to 'PROFIBUS DP device', 'Address' set to '7', and 'Number' set to '1'. The 'Assign ...' button is highlighted with a red arrow. A second dialog box, 'SIMATIC PDM Device Selection TheWall\Netze\PROFIBUS DP-Netz\TAG', is open, showing a tree view of the DP-Device Catalog. The 'Sensors' folder is expanded, and 'Liquid Analysis' is selected. Under 'Liquid Analysis', the 'HACH LANGE' folder is expanded, showing various sensor models. The 'Description' field at the bottom of the dialog box contains the text 'united for water quality'.

Function	Shortcut
Open Object	Ctrl+Alt+O
Cut	Ctrl+X
Copy	Ctrl+C
Paste	Ctrl+V
Delete	Del
Insert New Object	
SIMATIC PDM	
Print	
Object Properties...	Alt+Return

Insert SIMATIC PDM PROFIBUS DP device Object(s)

Name: PROFIBUS DP device Select object ...

Address: 7 (0 to 126)

Number: 1 (Maximum: 1)

Device type: Assign ...

OK

SIMATIC PDM Device Selection TheWall\Netze\PROFIBUS DP-Netz\TAG

DP-Device Catalog: 122 devices (48 hidden)

- Actuators
 - Hydraulic
- Controller
- Frequency Converter
- Semiconductor Devices
- Sensors
 - Acoustic
 - Flow
 - Gas Analysis
 - Level
 - Liquid Analysis
 - Endress + Hauser
 - HACH LANGE**
 - AMTAX inter 2
 - Phosphax sigma
 - PhosphaxInter2
 - SC_2x_InductiveConductivity
 - SC_2x_pH_ORP_Gateway
 - SC_ContactCond.

OK Cancel Help

Device ID:

Device catalog...

Description: united for water quality

Order No.:



HACH LANGE EDD structure

HACH LANGE EDD's are all structured in the same manner.

- **Profibus Interface** Identification of the DP/V1 Profibus interface card.
- **Identification probe 1** Device ID, Serial number and sensor name of the first sensor.
- **Identification probe 2** Device ID, Serial number and sensor name of the second sensor, if available. Verify the device ID with the EDD name/type to check if the selected EDD matches the installed sensor types.
- **Settings 1** All settings from the first sensor. The white background color indicates that the entry is writeable. Opening the face plate in MAINTENANCE mode allows only the read access, write access is available using the "SPECIALIST" mode.
- **Diagnostics 1** Diagnostic data derived from the first sensor.
- **Measurements probe 1** All output values derived from the first sensor.
- **Settings 2** All settings from the second sensor, if available.
- **Diagnostics 2** Diagnostic data derived from the second sensor.
- **Measurements probe 2** All output values derived from the second sensor.

SIMATIC PDM - SC_UltraTurb_LDO [Project: TheWall -- C:\Program Files\Siemens\Step7\s7proj\TheWall]

File Device View Options Help

Parameter	Value
UltraTurb & LDO	
» Profibus Interface	
Vendor Name	HACH LANGE
Fieldbus type	YAB015 DP/V1
Model Number	240107 Rel 1.2
» Identification probe 1	
Device ID	ULTRATURB SC
Serial No 1	0x0
Serial No 2	0x120
Serial No 3	0x7351
Location	UltraTurb 1st
» Identification probe 2	
Device ID	LDO
Serial No 1	0x3
Serial No 2	0x1141
Serial No 3	0x160
Probe Location	LDO 2nd
» Settings 1	
Measurement unit	FNU
Correction	1
Offset	0
Wiper state	park position
Response time	15



Online Measurement Windows

All HACH LANGE EDD's support a dynamic measurement monitor, displaying the measurements, units and status information which are updated periodically.

The screenshot shows the SIMATIC PDM interface. A table in the background lists parameters for the 'UltraTurb & Inductive Conductivity Gateway'. A red arrow points from the 'Profibus Interface' entry in the table to the 'Display - SC_UltraTurb_InductiveConductivi (Online)' window.

Parameter	Value	Unit	Status
UltraTurb & Inductive Conductivity Gateway			
» Profibus Interface			

Display - SC_UltraTurb_InductiveConductivi (Online)

Measured Value |

Sensor Measurement 1	0,68 FNU
LED current	959 mA
Status	<input type="checkbox"/> Calibration start / in progress <input type="checkbox"/> Cleaning start / in progress
Sensor Measurement 2	54,46
Measurement Mode	Conductivity
Conductivity Unit	mS/cm
Status	<input type="checkbox"/> Calibration start / in progress <input type="checkbox"/> Cleaning start / in progress
Temperature 2	25,00 C

Transfer

Close Messages Help



Online Configuration Windows

All HACH LANGE EDD's support a dialog for configuration purpose. Dual Sensor EDD's offer different windows for sensor 1 and sensor 2.

Note: Please close all dynamic measurement windows while performing parameterization or parameter download / upload procedures!

The screenshot shows the SIMATIC PDM software interface. The main window displays a tree view on the left with the following items:

- Settings sensor 1 (checked)
- Settings sensor 2
- Clean / Wipe 1 (checked)
- Change Location 2
- Settings 2
- Diagnostics 2
- Measurements probe 2

Two configuration dialog boxes are open:

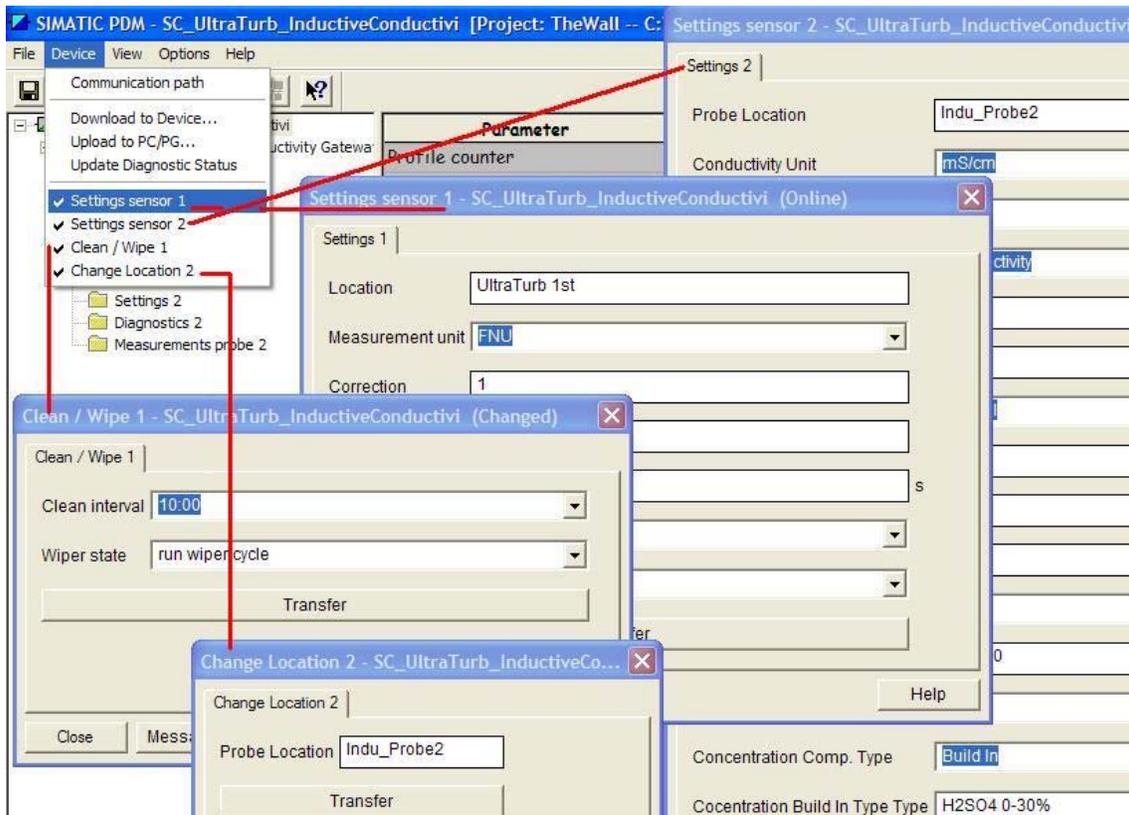
- Settings sensor 1 - SC_UltraTurb_InductiveConductivi (Online)**: This dialog contains the following fields:
 - Location: UltraTurb 1st
 - Measurement unit: FNU
 - Correction: 1
 - Offset: 0
 - Response time: 15 s
 - Logger interval: 10min
 - Clean interval: 10:00
- Clean / Wipe 1 - SC_UltraTurb_InductiveConductivi (Changed)**: This dialog contains the following fields:
 - Clean interval: 10:00
 - Wiper state: run wiper cycle

A red arrow points from the 'Settings sensor 1' menu item to the 'Settings sensor 1' dialog box. Another red arrow points from the 'Clean / Wipe 1' menu item to the 'Clean / Wipe 1' dialog box.



Online configuration windows are used to upload or download complete parameter sets. Particularly with regard to Dual Sensor EDD's the use of the assigned "Setting Windows" is performing much faster then the parameterization from the main page, because only the changed parameters will be updated.

Sensors equipped with a cleaning device or wiper e.g. SOLITAX, ULTRATURB and many analyzers have a separated dialog window available to start a cleaning cycle remotely.





Available Single Sensor EDD's

Single Sensor EDD's	
Device type	EDD Name
SOLITAX	SC_Solitax
LDO	SC_LDO
34xx Contacting Conductivity Digital Gateway	SC_ContactCond
37xx Inductive Conductivity Digital Gateway	SC_InduCond
1200 SC pH/ORP Combination Digital Gateway	SC_pH_Gateway
1720E Turbiditymeter	SC_1720e
9184 SC Chlorine Analyzer	SC_CHL
pH ORP Differential Sensor	SC_pHD
ULTRATURB plus sc	SC_UltraTurb
Amtax_SC	SC1000Amtax
Phosphax_SC	SC1000Phosphax
Nitratax SC	SC1000Nitratax
Amtax inter2	AmtaxInter
Phosphax inter2	PhosphaxInter
Surface Scatter 7	SC_SS7
Phosphax sigma	PhosphaxSigma
1200 S-SC pH/ORP	SC1000_pH_ORP



Available Dual Sensor EDD's

Dual Sensor EDD's	
Device type	EDD Name
Dual pH ORP Differential Sensor	SC_2x_pHD
Dual 37xx Inductive Conductivity Digital Gateway	SC_2x_InduCond
Dual SC pH/ORP Combination Digital Gateway	SC_2x_pH_Gateway
37xx Inductive Conductivity Digital Gateway + pHD	SC_InduCond_pHD
UltraTurb + 37xx Inductive Conductivity	SC_UltraTurb_InduCond
UltraTurb + LDO	SC_UltraTurb_LDO
UltraTurb + pHD	SC_UltraTurb_pHD

Sensor sequencing:

Dual sensor EDD's combine two sensors operating with one SC-Controller, either SC100 or SC1000. It is important that the order of the sensors is the same on in the SC-Controller and in the EDD!

Order of the Sensors on SC100:

The order of probes is determined by the internal Modbus address. The first sensor that was scanned and recognized by the SC100 gets the address 1. The second sensor will be assigned to address 2. Scanning both sensors at the same time will result in random assignment which may result in conflicts with the order in the EDD.

The order of sensors can be changed manually by changing the MODBUS address. Please enter

SYSTEM SETUP > NETWORK SETUP > MODBUS ADDRESS

Order of the Sensors on SC1000:

The order of probes is determined by the order they are configured within the PROFIBUS telegram. The first sensor configured in the telegram matches to the first sensor in the EDD, the second sensor matches to the second sensor in the EDD. To change the order enter:

SYSTEM SETUP > NETWORK SETUP > PROFIBUS > TELEGRAM

Note: The sensor order specifies also the data order at the cyclic Profibus communication!!