

sc200 Multi Sensor DTM

Short Instructions
September 2012





Table of Content

sc200 Multi Sensor DTM 1
Introduction & Identification 3
Requirements - SC Controller 4
Operation Overview 5
DTM installation 6
Sensors and Analyzers supported by the universal *SC_DTM* 7
Overview DTM structure 8
Online Identification of connected devices 9
Menu “SC device” 10
Menu “Settings” 11
Menu “Diagnostics” 12
Menu “Outputs” 14



Introduction & Identification

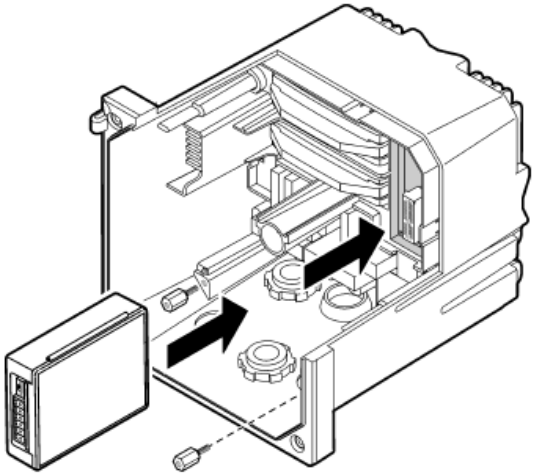
The sc200 standard controller is part of the platform for all intelligent probes and analyzers from HACH / HACH-LANGE. The sc platform is a full digital communication system based on the open Modbus standard. Equipped with the Profibus interface card the sc200 controller provide the complete range of values and parameters in a standardized method for up to two sensors (dual channel controller). The modular structure allows using the same GSD file for all sensors and analyzer. The sc200 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. FDT frame applications like PACTWare and other compatible FDT applications. The sc200 Multi Sensor DTM is carefully tested and certified by the FDT group.

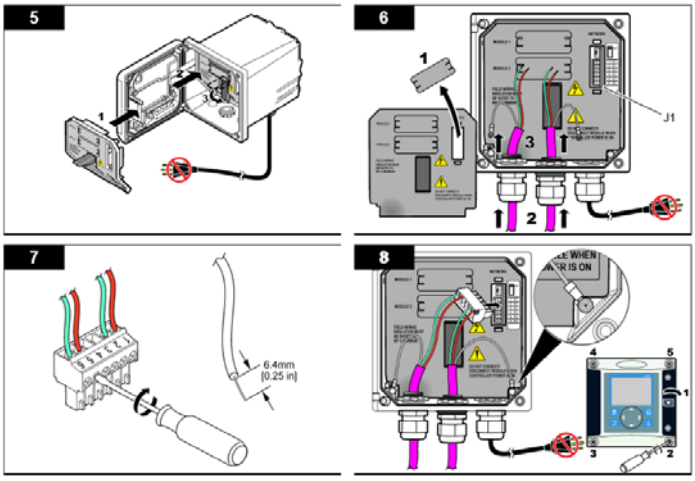




Requirements - SC Controller

1. sc200 equipped with Profibus network card, standard versions could be upgraded for Profibus using article number *YAB102 (Profibus Upgrade Kit)*
2. GSD file HALA09AC for general configuration





Note: **please reboot the controller after the first configuration and start up.**
Start-up takes approximately 60 seconds.

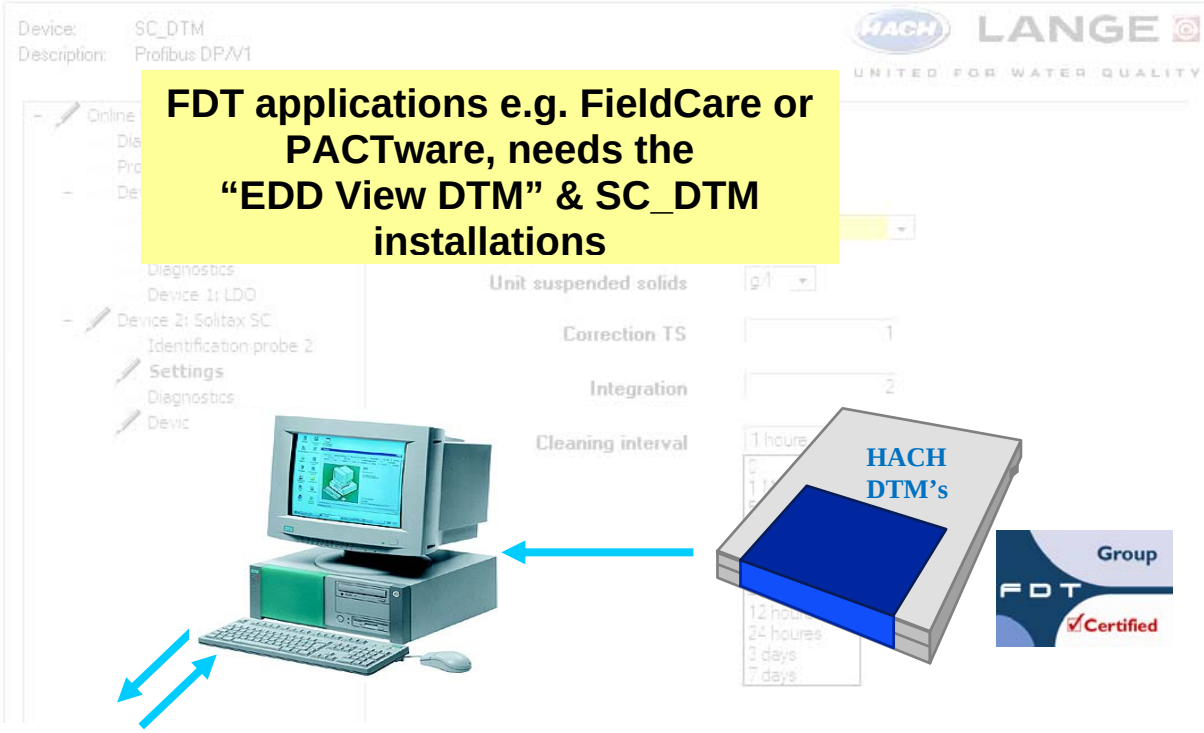


Operation Overview

The sc200 Dual Channel Controller equipped with Profibus provides all information from up to two sensors to the Profibus network.

Only one universal DTM is required to operate 2 sensors plus the sc200 controller

The EDD View DTM together with device related SC_DTM enables the FDT operations and face plates to run and operate the sc 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.



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

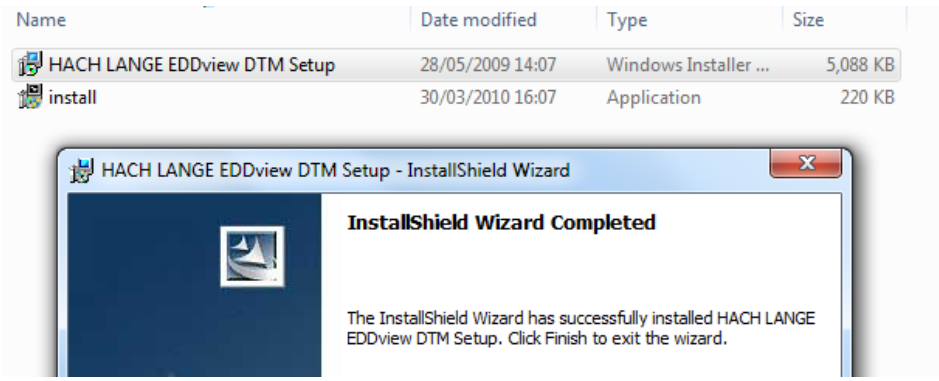




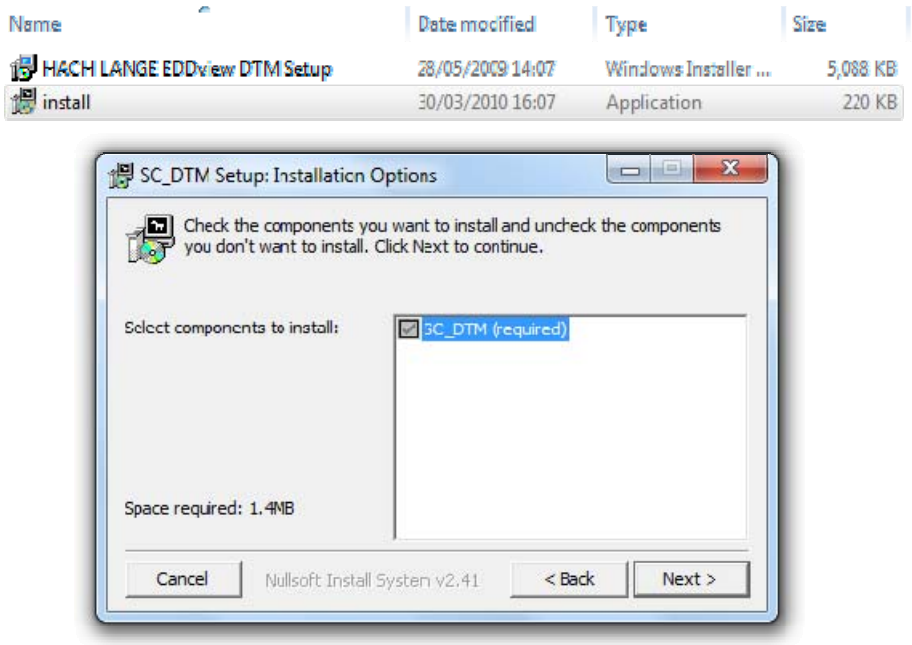
DTM installation

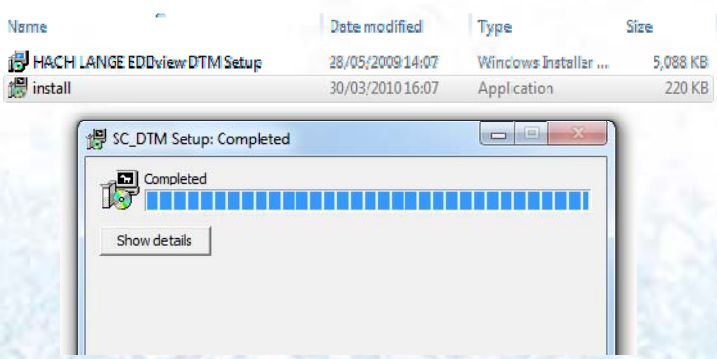
Using the MS SW installer

Double click
“HachLange_SC200_Multidevice_DTM.exe”
and follow the installation dialog



All needed components will be installed.







Sensors and Analyzers supported by the universal *SC_DTM*

All sensors and analyzers, as well as all combination of sensors are supported with only one universal DTM.

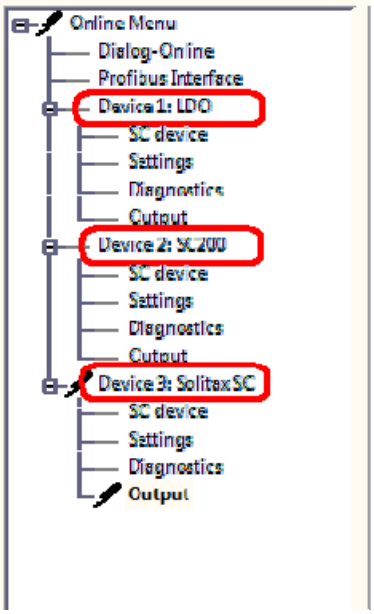
Single- and Dual Sensor Combinations
Device type
SOLITAX sc ,+Version: t-line, ts-line, inline, hs-line, highline
34xx Contacting Conductivity Digital Gateway
37xx Inductive Conductivity Digital Gateway
1720E Turbiditymeter
9184 SC Chlorine Analyzer
pH ORP Differential Sensor
ULTRATURB plus sc,
ULTRATURB seawater sc
Surface Scatter 7
LDO sc, +Version: LXV416.99.00001, LXV437.99.00001, 5790000, 9020000
pHD sc Differential pH ORP probe
NH4D sc Ammonium ISE probe
NO3D sc Nitrate ISE probe
AN-ISE sc Ammonium & Nitrate combination ISE probe
Amtax sc Ammonium analyzer for outdoor and indoor
Phosohax sc High range Phosphate analyzer for outdoor and indoor
Phosphax sc Low range Phosphate analyzer for outdoor and indoor
sc200 Universal sc controller
sc200 analog pH/ORP
sc200 analog O2
TSS sc, +Version TriClamp, HT, VARI, TITANIUM2, TITANIUM7
UVAS sc, +Version UVAS plus sc, UVAS eco sc
NITRATAX sc, +Version NITRATAX plus sc, NITRATAX clear sc, NITRATAX eco sc
1200-S sc
CLF10 sc
CLT10 sc
FP360 sc



Overview DTM structure

Sensor DTM's are all structured in the same manner for offline and online windows.

- ***Dialog:*** Online identification and selection of the connected probes. Click Reset and Read to accept new sensor configurations.
- ***Profibus Interface*** Identification of the DP/V1 Profibus interface card.
- ***Device 1:* Type of sensor first channel**.
- ***SC device*** Identification, Device ID, Serial number and sensor name of the first sensor/channel
- ***Settings*** 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*** Diagnostic data derived from the first sensor.
- ***Output (Measurement Values)*** All output values derived from the first sensor.
- ***Device 2:* sc200 controller**
- ***SC device*** Identification, Serial number and Tag name of the sc200 controller.
- ***Settings*** All settings regarding mathematical sc200 operations.
- ***Diagnostics*** Diagnostic data derived from the sc200 like int. temperatures, voltages and current consumption.
- ***Output*** Current output and calculated value derived from the sc200 controller.
- ***Device 3:* Type of sensor second channel.**
- ***SC device*** Identification, Device ID, Serial number and sensor name of the second sensor/channel
- ***Settings*** All settings from the second 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*** Diagnostic data derived from the second sensor.
- ***Output (Measurement Values)*** All output values derived from the second sensor.

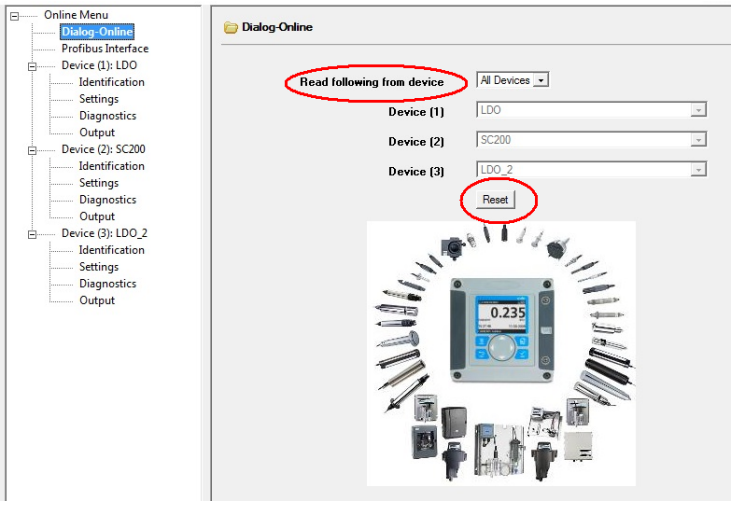


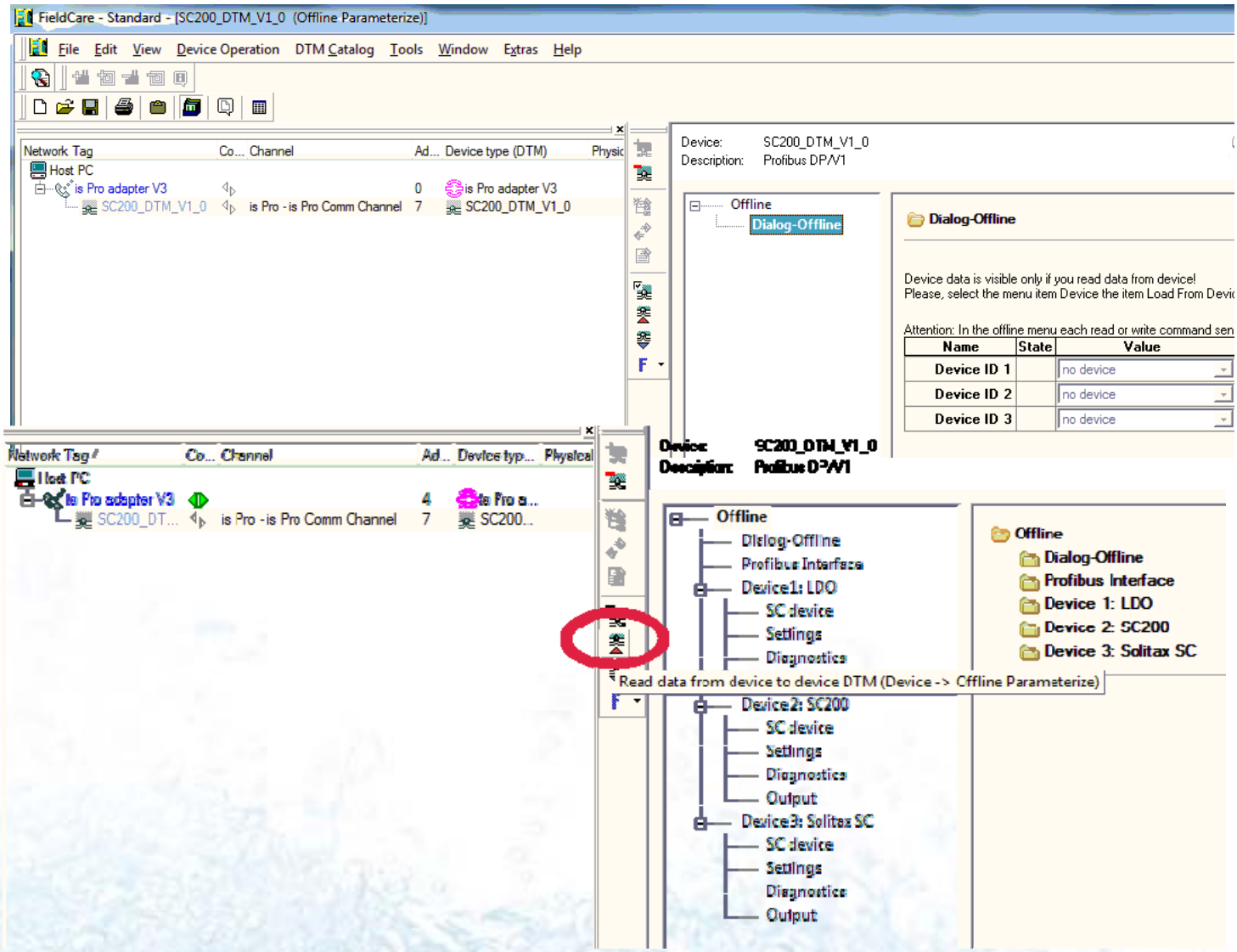


Online Identification of connected devices

Due to the generic structure of the Multi Sensor DTM, identification and recognition of the connected sc200 sensor configuration always require a initial “READ DATA FROM DEVICE”

Use the “Dialog Online” to change or accept new sensor configurations.



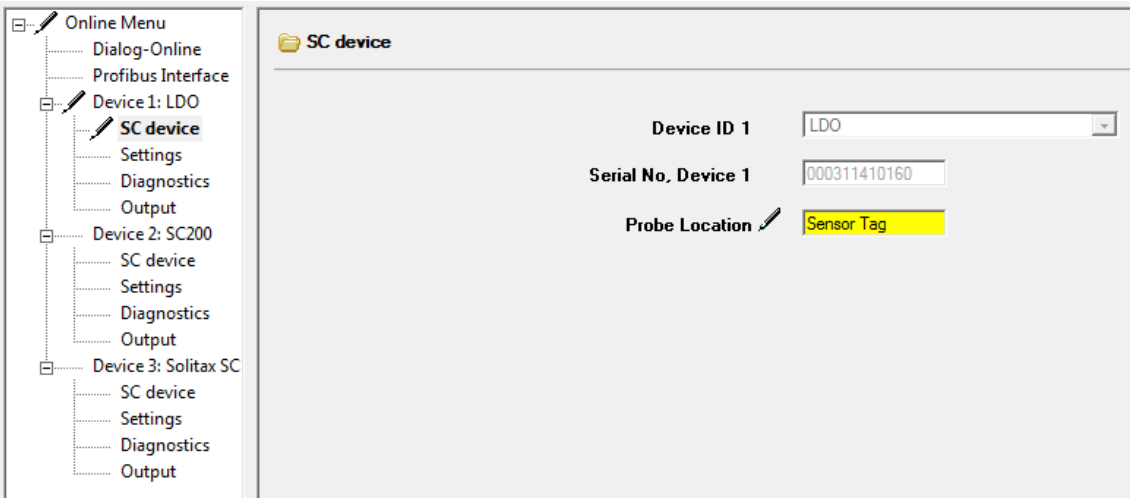


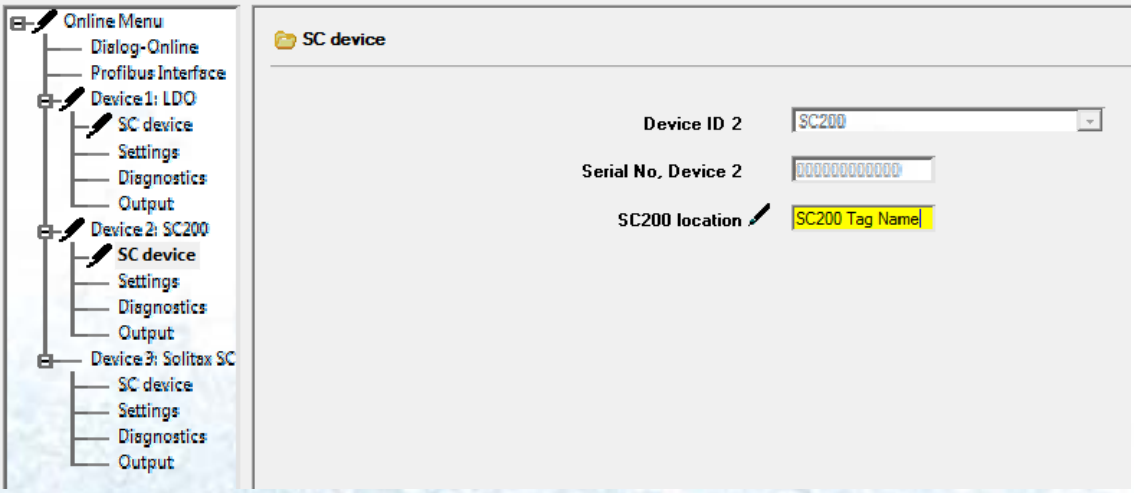


Menu “SC device”

The world wide unique identification for all sc devices is a combined key using the serial number and the device ID (type of sensor). These parameters are write protected.

Customizing sensors and sc200 ID’s is made by assigning the Tag Name to the location, which is a Read/Write parameter available for each individual device.



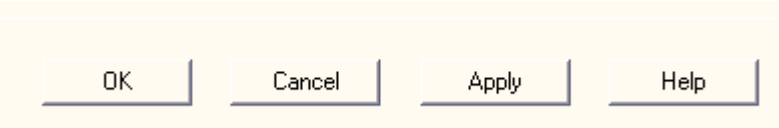




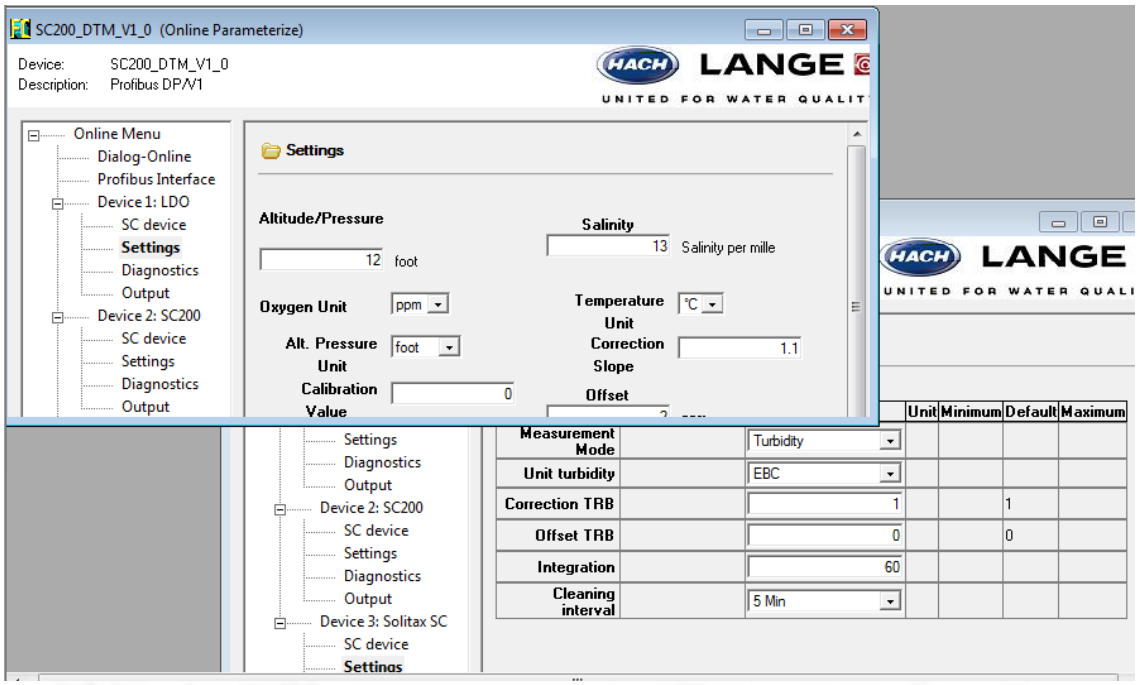
Menu “Settings”

Set up menues are related to the kind of sensor (Device ID). Due to the digital smart design of the sc sensor platform, default settings stored inside the intelligent sensors may fit to most applications.

The “Settings” menu provide access to all sensor related set up parameters in online and ofline mode. All settings could be uploaded from the device or downloded to the device using the “Apply” button. The complete configuration could be stored at the PC.



Set up of two sensors could be done using two independend windows.





Menu “Diagnostics”

Diagnostic menues are related to the sc200 or the kind of sensor (Device ID). The definition of Error and Status indications are the same for all sc sensors and analyzers.

Error/Status

STATUS:	ERROR:
-OK-	-No Error-

List of error and status messages related to sensors and analyzers:

Table 9 Error messages

Message	Indication
Measurement calibration error	An error has occurred during the last calibration
Electronic adjustment error	An error has occurred during the last electronic calibration
Cleaning error	The last cleaning cycle failed
Measuring module error	A failure has been detected in the Measurement Module
System re-initialization error	Some settings are inconsistent and have been reset to factory defaults
Hardware error	A general hardware error has been detected
Internal communication error	A communication failure within the device has been detected
Humidity error	Excessive humidity has been detected within the device
Temperature error	Temperature within the device exceeds a specified limit
Sample warning	Some action is required with the sample system
Questionable calibration warning	The last calibration may not be accurate
Questionable measurement warning	One or more of the device measurements are out of range or are of questionable accuracy
Safety warning	A condition has been detected which may result in a safety hazard
Reagent warning	The reagent system requires attention
Maintenance required warning	The device requires maintenance

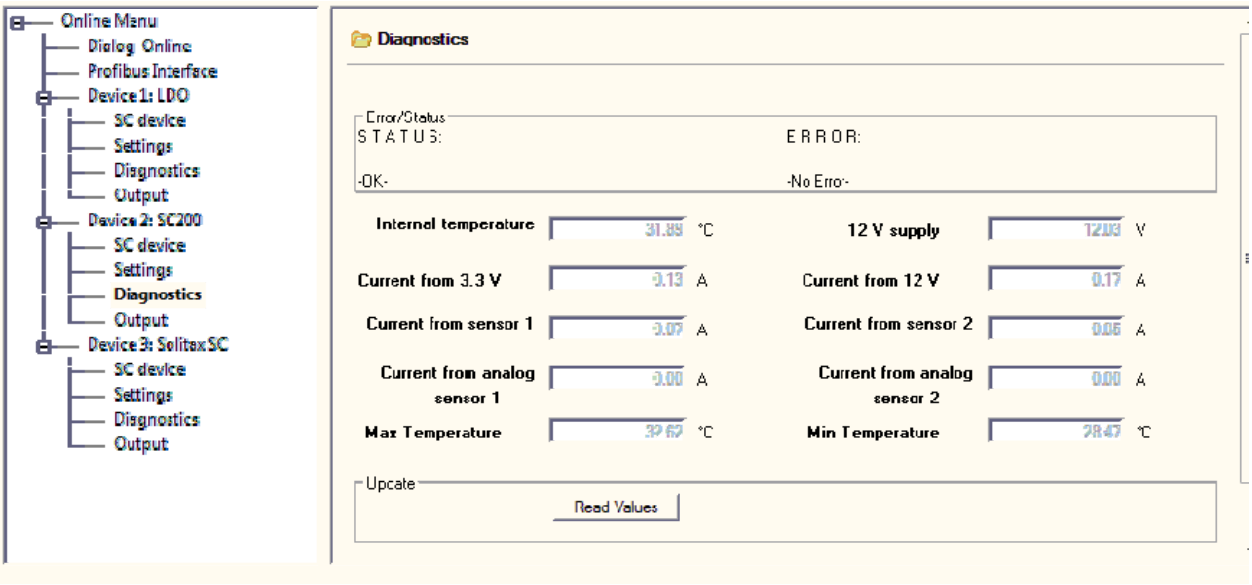
Table 10 Status indicator messages

Status 1	Note
Calibration in progress	The device is in a calibration mode. Measurements may not be valid.
Cleaning in progress	The device is in a cleaning mode. Measurements may not be valid.
Service / Maintenance menu	The device is in a service or maintenance mode. Measurements may not be valid.
Common error	The device has recognized an error. See Error Register for Error Class.
Measurement 0 Quality Bad	Precision of measurement is out of specified limits.
Measurement 0 Low Limit	Measurement is below the specified range.
Measurement 0 High Limit	Measurement is above the specified range.
Measurement 1 Quality Bad	Precision of measurement is out of the specified limits.
Measurement 1 Low Limit	Measurement is below the specified range.
Measurement 1 High Limit	Measurement is above the specified range.
Measurement 2 Quality Bad	Precision of measurement is out of the specified limits.
Measurement 2 Low Limit	Measurement is below the specified range.
Measurement 2 High Limit	Measurement is above the specified range.
Measurement 3 Quality Bad	Precision of measurement is out of the specified limits.
Measurement 3 Low Limit	Measurement is below the specified range.
Measurement 3 High Limit	Measurement is above the specified range.

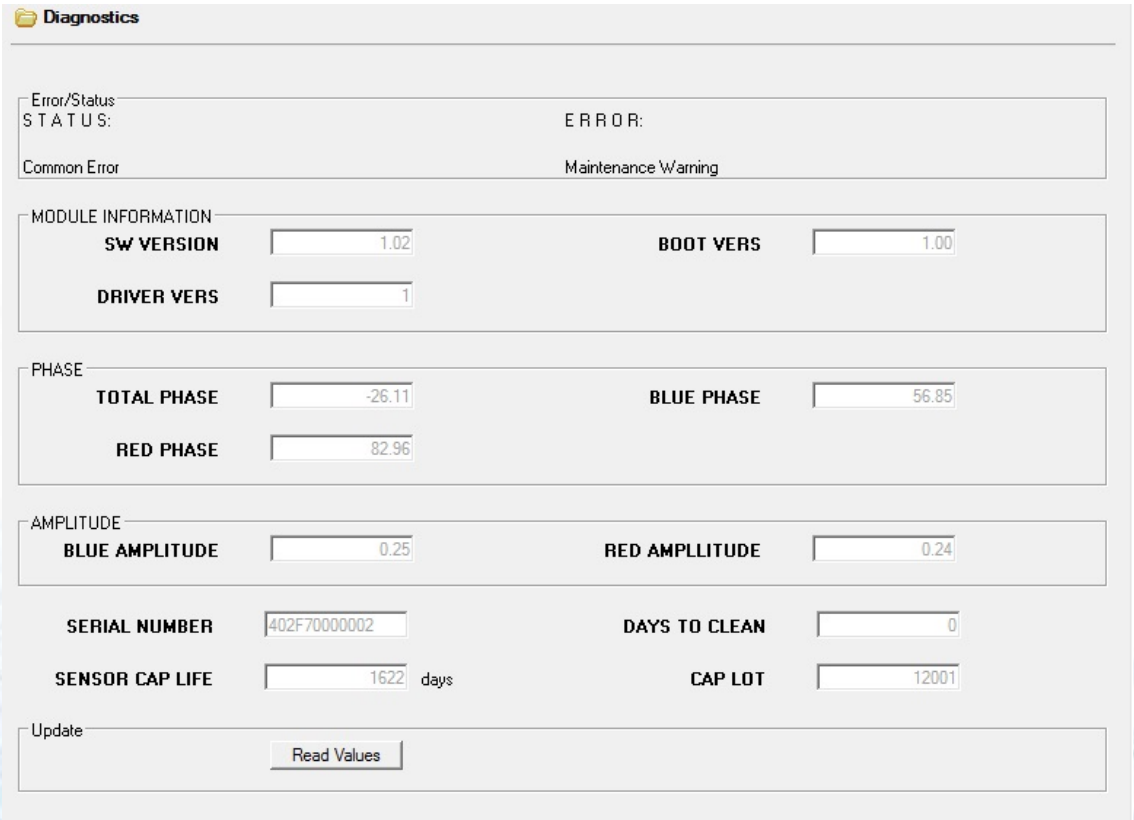


Updating the content is done initially by entering the diagnostic page or using the “Read Values” button.

Example diagnostic page sc200



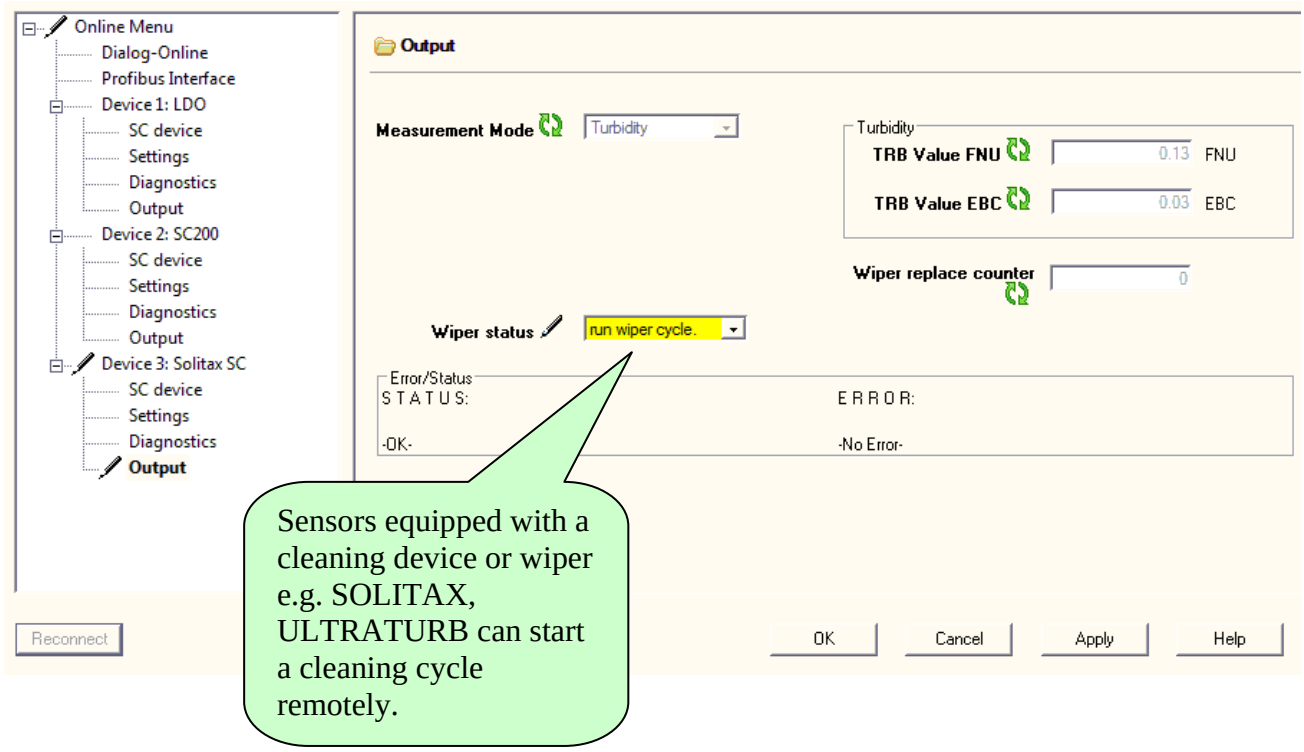
Example diagnostic page LDO





Menu “Outputs”

Output menues are designed to support a dynamic measurement monitor, displaying the measurements, units and status information which are updated periodically.



Sensors equipped with a cleaning device or wiper e.g. SOLITAX, ULTRATURB can start a cleaning cycle remotely.

Example “Output” page LDO

