

Transforming the everyday.

DI PA MI - Device Integration

SITRANS Libraries for Siemens Automation

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Plant operators are facing many challenges

Siemens' Automation and Instrumentation

As an Operator you want to ...

- Run the plant
- Ensure product quality
- Lower the costs
(increase efficiency, output, increase uptime & reduce (unplanned) maintenance...)
- Improve (flexibility, ...)

As an Engineer you want to ...

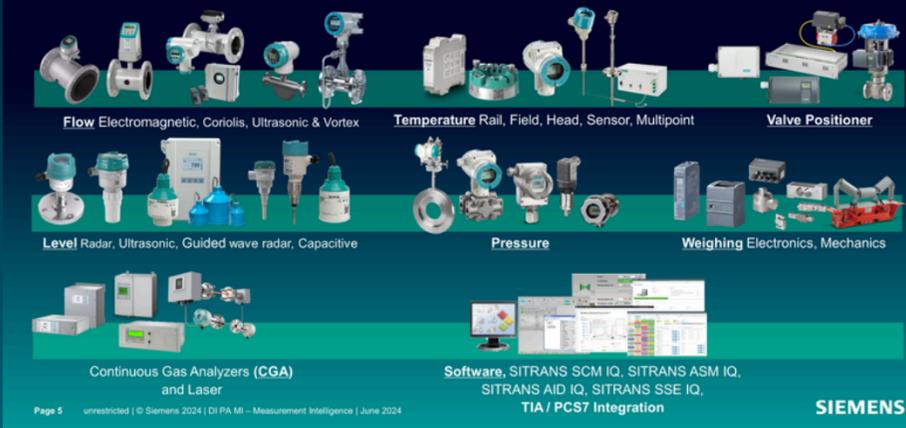
- Fulfil the customers' specification
- Reduce **engineering costs** & time for documentation
- Avoid risks (e.g. by using standards)
- Keep (ongoing) maintenance low

Sensors

- Provide the principal measurement value
- Secondary functionalities from advanced digital transmitters add value
(but are often neglected)

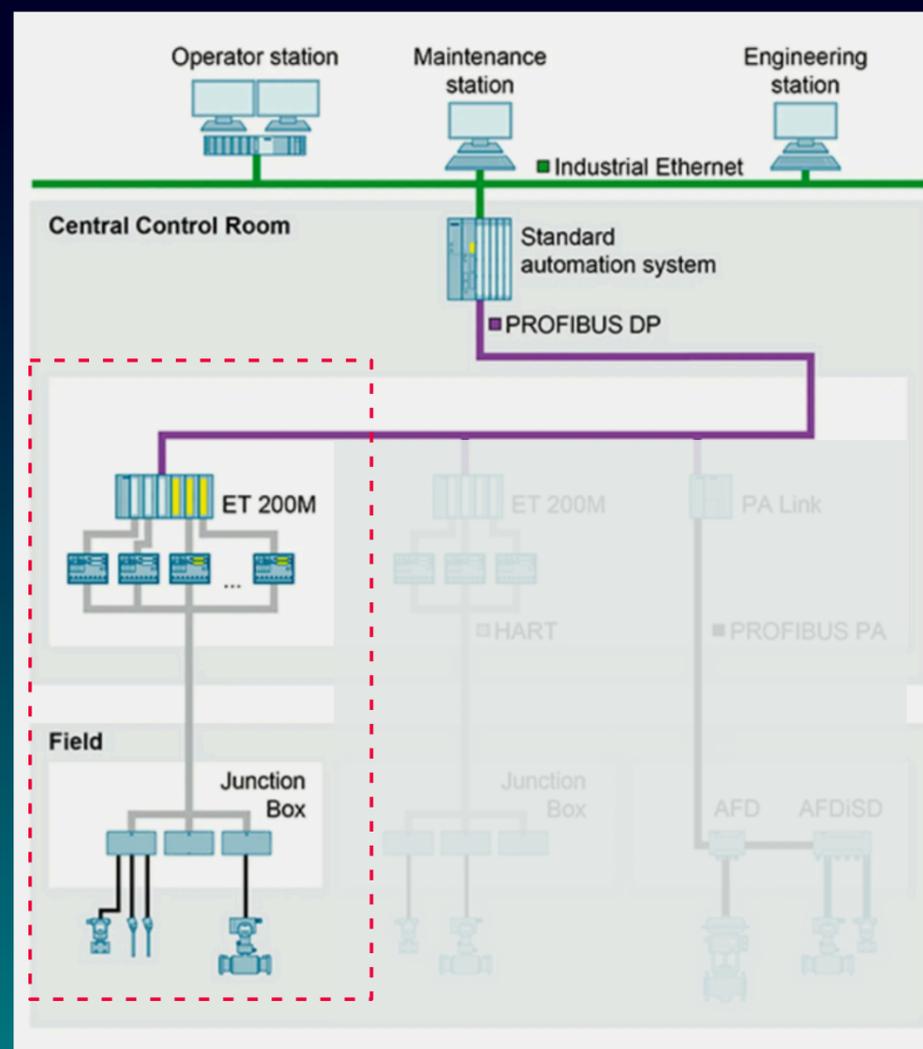
Measurement Intelligence Product Portfolio

We are the senses of our customers' operations, transforming data into sustainable value



Using 4...20 mA alone, valuable information from digital transmitters remains unused Siemens' Automation and Instrumentation

Still, many plants are using 4...20 mA signal only



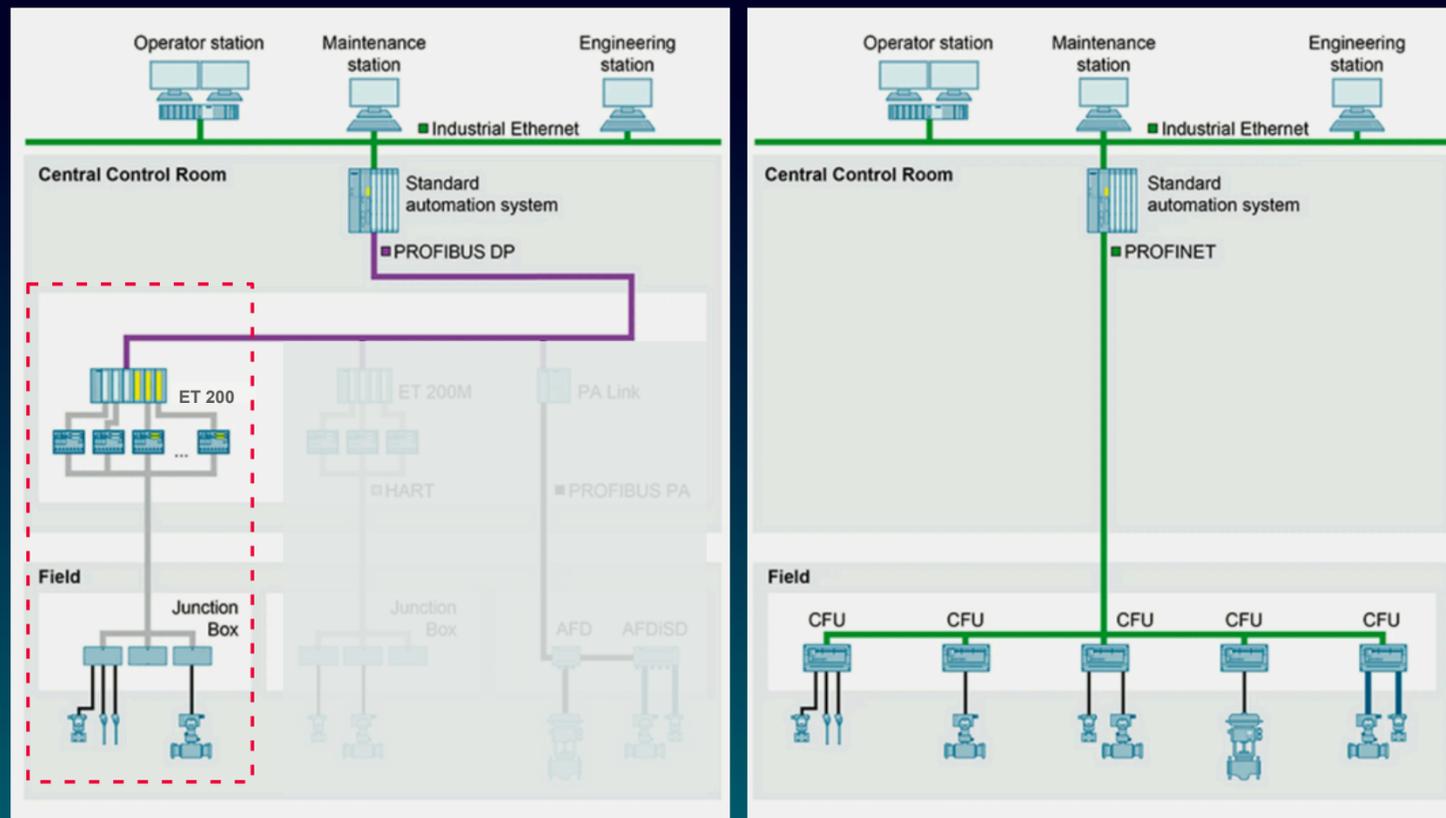
- Automation System
- 4...20 mA – transmitting main process value only.
- Digital transmitters (often) with extended functionality and communication
- Physics of medium (multiple)

<https://www.siemens.com/global/en/products/automation/process-control/dcs-hardware/distributed-peripheral.html>

With communication, the broad scope of functionality becomes available

Siemens' Automation and Instrumentation

Setup with communication



<https://www.siemens.com/global/en/products/automation/process-control/dcs-hardware/distributed-peripheral.html>

- Automation System, ET 200 SP
- **Communication (HART, Profinet,)**
- Digital transmitters (often) with extended functionality and communication
- Physics of medium (multiple)

.... access to the full functionality of transmitters

Up to four additional Process values (as acyclic data or configurable as cyclic - HART values)

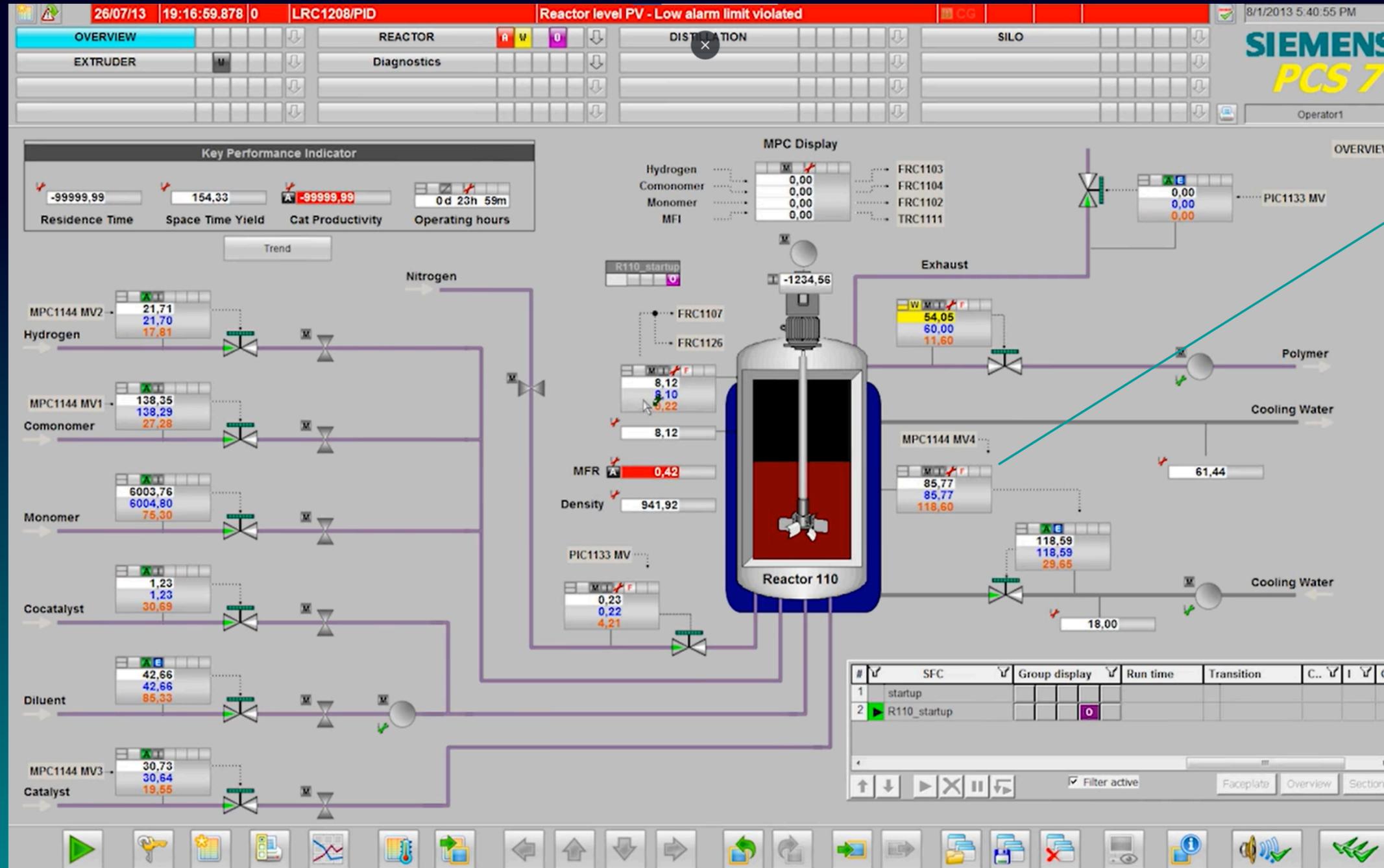
- Depending on the measurement principle, e.g. in Flow: density, viscosity, conductivity etc.
- Electronics temperature
- Echo confidence / Signal strength
- Volume or Level or Distance or ..

Access to additional functionalities, e.g.

- Multiple totalizer
- Zero-point adjustment
- Thresholding
- Extended diagnostics, including echo profiles

Parameterization from the Engineering Station (or point to point) with SIMATIC PDM

The transmitters' higher functionalities are accessible via the block icons (an operators view in PCS7)



- Each measurement point is represented by a block icon,
 - providing the primary process value
 - Status
 - Availability of further messages
 -

How to access to the additional functionality

SITRANS Libraries for Siemens Automation

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TIA - LT500 PN (Professional Panel)	
TIA - LT500 PN (Unified Panel)	
TIA - LR100 series	
TIA - P320/420	
TIA - FMT020/040 series	
TIA - PS100	
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SITRANS Library for TIA, Professional Panels: access to additional value and extended functionality including Web-Server (for parametrization)

SITRANS LT500 controller

SITRANS LT500 is the next evolution of level, flow, and pump controllers for radar and ultrasonic transmitters, transducers – or any 2-wire 4–20 mA device. It is the first choice for any level controller application and features single and dual point measurements, 6 relays, and Modbus RTU, HART, PROFIBUS DP, PROFIBUS PA, PROFINET

Select and order



The collage displays several key interface components:

- Overview 1:** Shows two measurement points (PT1 and PT2) with volume flow, level, and relay outputs (Relay 1-6) configured for pumps and time-of-day control.
- Overview 2:** Provides detailed data for Measurement point 1 and 2, including level, distance, volume, head, and sensor temperature.
- Relay assignment:** Configures six relays with on/off setpoints, sensor assignments, and pump modes (e.g., Fixed duty backup, Alternate duty backup).
- Alarms and diagnostics:** Lists various error conditions such as 'Sensor not found', 'Invalid pump configuration', and 'Loss of echo'.
- Configuration:** Allows for setting echo processing parameters, confidence levels, and PT bypass values for both measurement points.
- Peak values:** Tracks and displays minimum and maximum values for volume flow at different points.
- History and Trends:** Includes a data table and a trend graph showing level changes over time.
- Web server:** A 'Launch' button is visible in the Overview 1 screen, indicating access to the parametrization web interface.

SITRANS Library for TIA, Unified Panels: access to additional value and extended functionality including Web-Server (for parametrization)

SITRANS LT500 controller

SITRANS LT500 is the next evolution of level, flow, and pump controllers for radar and ultrasonic transmitters, transducers – or any 2-wire 4–20 mA device. It is the first choice for any level controller application and features single and dual point measurements, 6 relays, and Modbus RTU, HART, PROFIBUS DP, PROFIBUS PA, PROFINET

Select and order



SITRANS Library 8/28/2024, 10:39:05 AM

User Name: Administrator

Overview 1 Overview 2

Bar graph

PT1	PT2
340.000	4.000
288.000	4.800
216.000	3.000
144.000	3.400
72.000	1.200
0.000	0.000

PT1 PV: Application Volume flow, Connected sensor LR120, Value 98.690 m³/h

PT2 PV: Application Level, Connected sensor LR110, Value 2.586 m

Relay outputs: Relay 1 (MP1-Pump1), Relay 2 (MP2-Pump1), Relay 3 (Administrator), Relay 4 (MP2-Pump3), Relay 5 (Level1-On/Off: 5m4m), Relay 6 (Assigned to time of day)

Digital inputs: Digital input 1, Digital input 2

Device type: HART, Device connected

Web server: Launch

Overview Relay assignment Messages Trends Configuration Totalizers Alarms and diagnostics Peak values

SITRANS Library 8/28/2024, 11:42:31 AM

User Name: Administrator

Relay assignment

Relay 1	Relay 2	Relay 3
On setpoint: 6.000 m Off setpoint: 5.000 m Sensor: Measurement point 1 Pump: Pump 1 Mode: Fixed duty backup	On setpoint: 5.080 m Off setpoint: 3.810 m Sensor: Measurement point 2 Pump: Pump 1 Mode: Alternate duty backup	On setpoint: 3.175 m Off setpoint: 1.880 m Sensor: Measurement point 2 Pump: Pump 2 Mode: Alternate duty backup
Relay 4	Relay 5	Relay 6
On setpoint: 5.100 m Off setpoint: 4.100 m Sensor: Measurement point 2 Pump: Pump 3 Mode: Alternate duty backup	On setpoint: 5.000 m Off setpoint: 1.500 m Control source: Level (Point 1)	Not assigned to pump or basic control

Overview Relay assignment Messages Trends Configuration Totalizers Alarms and diagnostics Peak values

SITRANS Library 8/16/2024, 3:10:46 PM

User Name: User1

Configuration

PT1 Bypass value: On/Off, PT1 Actual value: 4.420 m

PT2 Bypass value: On/Off, PT2 Actual value: 5.305 m

Echo processing (PT1): Echo signal strength: 72.000 dB, Confidence: 0.000

Echo processing (PT2): Echo signal strength: 0.000 dB, Confidence: 0.000

Firmware compatibility: Compatible firmware

Configuration: Last read date and time: 8/16/2024 10:35:08 AM

Read all values, Read echo parameters, Read echo parameters

Overview Relay assignment Messages Trends Configuration Totalizers Alarms and diagnostics Peak values

SITRANS Library 8/28/2024, 10:45:24 AM

User Name: Administrator

Totalizers

Totalizer 1	Totalizer 2	Totalizer 3	Totalizer 4
Totalized volume: 42.127 m ³	Totalized volume: 42.373022 m ³	Totalized volume: 1.79459732444 gnl	Totalized volume: 0.000 gnl
Process value: Volume flow(PT1)	Process value: Volume flow(PT1)	Process value: Pumped volume(PT2)	Process value: Pumped volume(PT2)
Last read date and time: 8/28/2024 03:52:54 PM	Last read date and time: 8/28/2024 03:52:51 PM	Last read date and time: 8/28/2024 03:52:37 PM	Last read date and time: 8/28/2024 03:52:45 PM

Note: Enter user PIN

Reset all Totalizers

Overview Relay assignment Messages Trends Configuration Totalizers Alarms and diagnostics Peak values

SITRANS Library 8/28/2024, 10:39:33 AM

User Name: Administrator

Overview 1 Overview 2

PT1: Level: 2.603 m, Distance: 3.397 m, Volume: 0.013 Ml, Space: 2.397 m, Head: 2.603 m, Volume flow: 98.690 m³/h, Sensor temperature: 26.203 °C

PT2: Level: 2.586 m, Distance: 3.414 m, Volume: 0.000 Ml, Space: 2.414 m, Head: 2.586 m, Volume flow: 15699.679 m³/h, Sensor temperature: 25.899 °C

Common: Level difference: 0.017 m, Level average: 2.595 m

Overview Relay assignment Messages Trends Configuration Totalizers Alarms and diagnostics Peak values

SITRANS Library 8/16/2024, 3:09:57 PM

User Name: User1

Message

Date	Time	Decision
14.08.2024	11:58:01	17 Invald application configuration
14.08.2024	11:58:01	19 Sensor failure (alarms)

Overview Relay assignment Messages Trends Configuration Totalizers Alarms and diagnostics Peak values

SITRANS Library 8/16/2024, 3:10:27 PM

User Name: User1

Trend 1 Trend 2

PT1 PV: Level: 2.603 m

PT1 PV/Level: 1.000 m

Overview Relay assignment Messages Trends Configuration Totalizers Alarms and diagnostics Peak values

SITRANS Library 8/16/2024, 3:11:04 PM

User Name: User1

Alarms and diagnostics

- 0 Sensor not found
- 1 Sensor cable short circuit or polarity reversed
- 2 Temperature sensor malfunction
- 3 Invald pump configuration
- 4 Low level cut off active
- 7 Sensor overfill or flow
- 8 Filling too quickly
- 9 Draining too quickly
- 12 Loss of echo
- 13 Submergence detected
- 17 Invald application configuration
- 19 Sensor failure (alarms)
- 20 One or more process values with bad status
- 21 Spill condition has been reached or is imminent
- 46 Echo profile storage memory is full
- 47 Volume could not be calculated
- 48 Echo confidence low
- 49 Noise peak too high
- 70 Noise average too high

Overview Relay assignment Messages Trends Configuration Totalizers Alarms and diagnostics Peak values

SITRANS Library 8/28/2024, 10:44:27 AM

User Name: Administrator

Peak values

Peak value 1	Peak value 2	Peak value 3	Peak value 4
Process value: Volume flow (point 2)	Process value: Volume flow (point 2)	Process value: Volume flow (point 1)	Process value: Volume flow (point 2)
Minimum value: 15655.230 m ³ /h	Minimum value: 0.000 m ³ /h	Minimum value: 98.680 m ³ /h	Minimum value: 0.000 m ³ /h
Maximum value: 10734.840 m ³ /h	Maximum value: 57867.770 m ³ /h	Maximum value: 99.321 m ³ /h	Maximum value: 57867.770 m ³ /h

Note: Enter user PIN

Last read date and time: 8/28/2024 03:54:13 PM

Read peak values

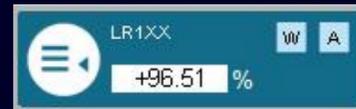
Overview Relay assignment Messages Trends Configuration Totalizers Alarms and diagnostics Peak values

SITRANS Library for TIA: access to additional value, extended functionality including parameterization of the transmitters

SITRANS LR100 series

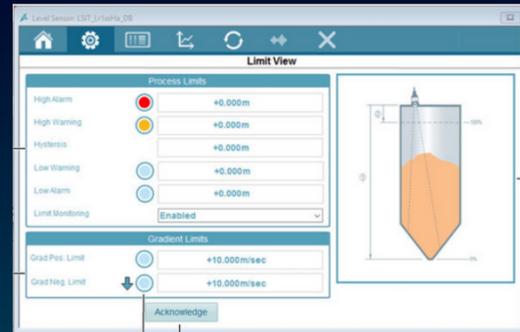
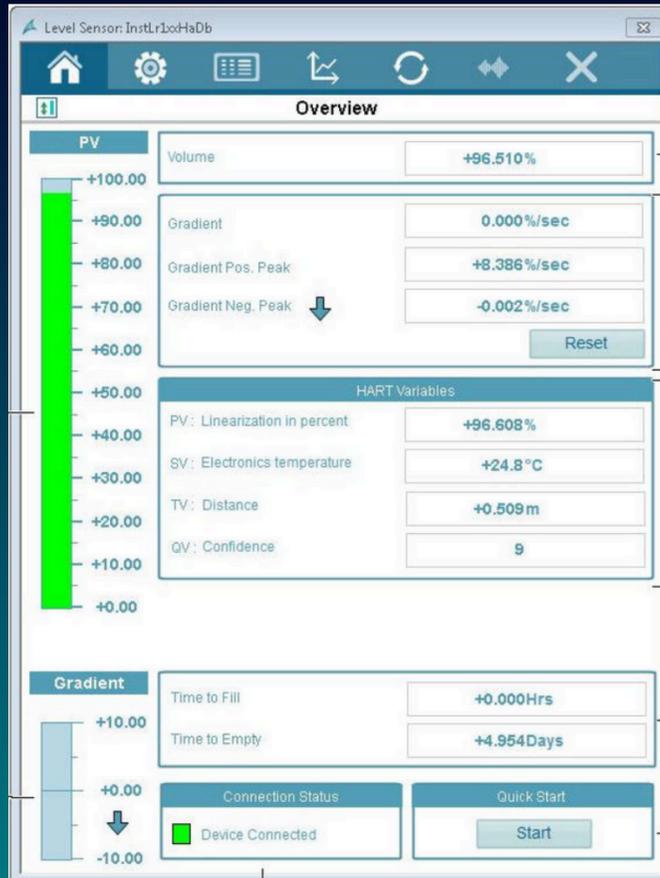
SITRANS LR100 series are 80 GHz compact radar transmitters with Bluetooth wireless technology. For level measurement of liquids or solids. Featuring a narrow beam for flexible installations in existing vessel openings – or non-intrusively through plastic vessels.

Select and order

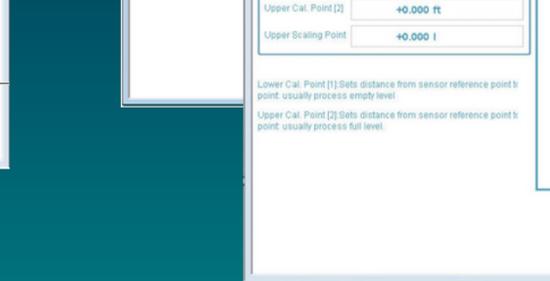
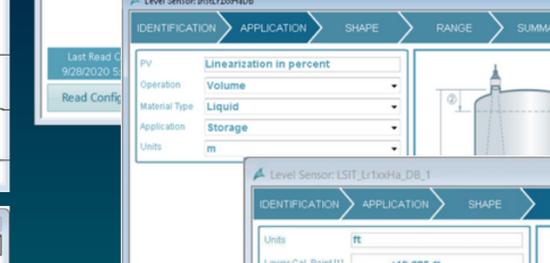
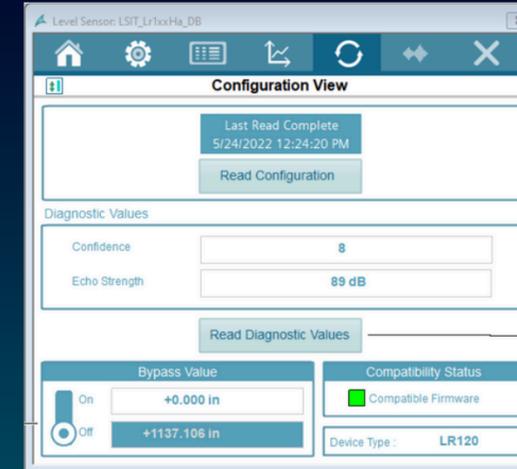
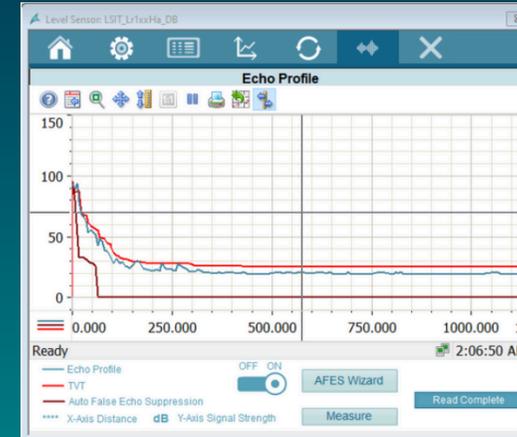
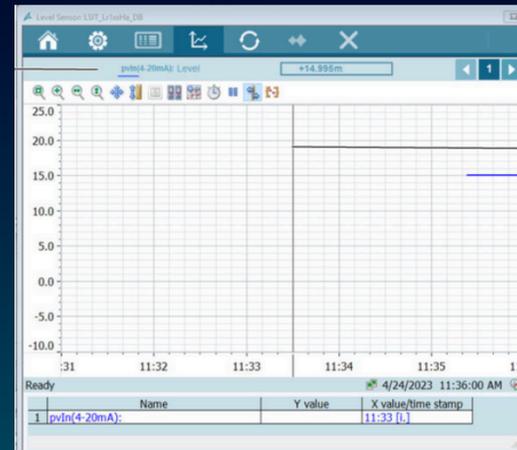


Value adding functionality

- Signal strength / echo profile for trouble shooting
- Thresholds
- Time to fill / empty



Date	State	Time	Description
28/09/20	RD	16:37:34	InstLr1xxHaDb: Device Disconnected

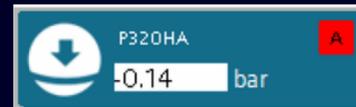


SITRANS Library for TIA

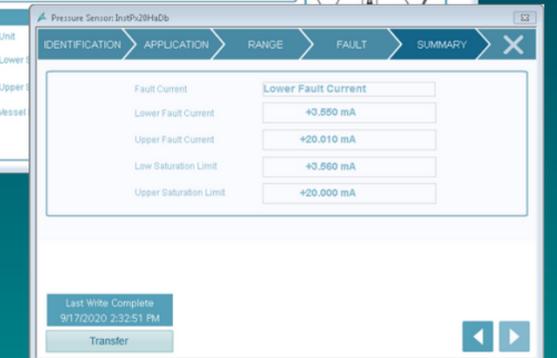
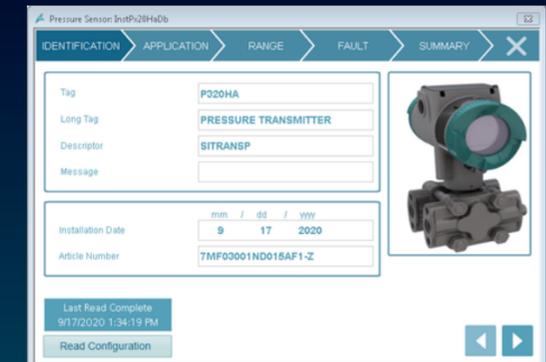
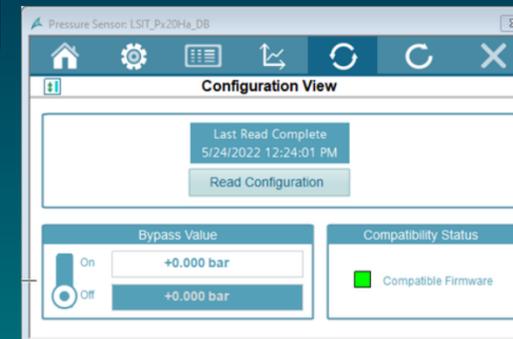
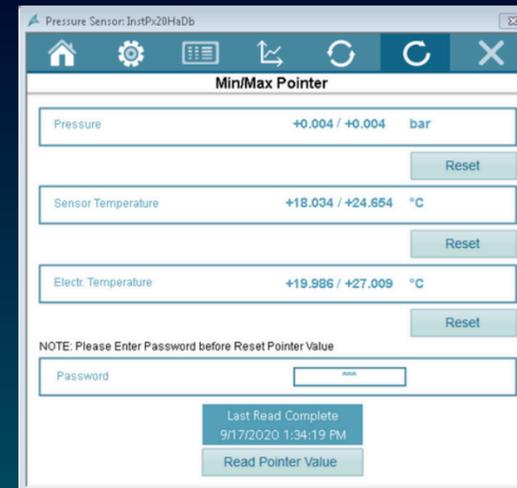
SITRANS Library for TIA: access to additional value, extended functionality including parameterization of the transmitters

Value adding functionality

- Electronics temperature as secondary indication for e.g. Sterilization in Place
- Thresholds and Min/Max Pointers
- Quick start wizard



FMS500

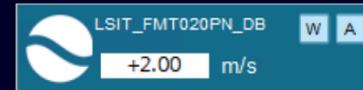


SITRANS Library for TIA

SITRANS Library for TIA: access to additional value and extended functionality of the transmitters

SITRANS FMT020

The new SITRANS FMT020 transmitter is a high performance, robust, intelligent product, designed for a wide range of applications requiring highly accurate and reliable flow measurement of conductive fluids.



Value adding functionality

- Up to 4 cyclic Hart variables
- Clear visualization, Thresholds
- Easy operation of totalizers and pointers
- Easy **Zero Point Adjustment** from faceplate
- Wizards to check e.g. leakages

Select and order

The screenshots illustrate the following views and data:

- Overview 1:** Shows PV Value (+19.332 m³/h), Range HI (+7200.000), Range LO (-7200.000), Gradient (+0.298 m³/h/sec), Gradient Pos Peak (+1.838 m³/h/sec), and Gradient Neg Peak (-3.441 m³/h/sec).
- Overview 2:** Shows Process Values: VolFlow (+2.160 m³/h), FlowVel (+2.000 m/s), Electrical Conductivity (+1.000 S/m), and three Totalizer values (+2922.056 m³, +2917.243 m³, +2917.243 m³).
- Limit View:** Shows alarm thresholds for High Alarm (+1.500 m/s), High Warning (+0.100 m/s), Low Warning (+0.000 m/s), and Low Alarm (+0.000 m/s).
- Totalizer View:** Shows Totalized Amount (+784.518 m³), Direction (Forward), and Preset Value (+0.000).
- Configuration View - ZPA:** Provides step-by-step instructions for zero-point adjustment, including manual and automatic modes.
- Alarm Diagnostic View:** Lists diagnostic messages such as 'High Alarm limit violated' and 'Device disconnected'.
- Configuration View:** Shows process value configuration for VolFlow (+0.002 m/s) and low flow cut-off settings.
- Pointers View:** Shows four peak values for FlowVel and VolFlow, with their respective Min/Max ranges.

SITRANS Library for TIA: access to additional value, extended functionality including configuration view of the transmitters

Positioner SIPART PS100

The SIPART PS100 is a compact and reliable valve positioner. Its ease and speed of initialization make it a winner for valve manufacturers, the chemical industry, the energy sector, and many other fields. The SIPART PS100 is available in two enclosure versions: aluminum or polycarbonate cover. With retrofittable Bluetooth functionality, it offers many further advantages.



Select and order

The screenshots illustrate the following views:

- Overview:** Shows setpoint (in mA) at +13.600 mA and setpoint (in %) at +60.0%. It includes HART variables like PV Setpoint (+60.1%), SV Actual Value (+2.7%), TV Ctrl Deviation (+57.4%), and QV Current Temp (+22.652 °C). Control mode is set to Manual, and the command is Opening.
- Limit View:** Displays MV diff limits (ER) for High Alarm (+0.0%), Hysteresis (+1.0%), and Low Alarm (+2.0%). It also shows Readback value limits for High Warning (+20.0%), Hysteresis (+1.0%), and Low Warning (+10.0%).
- Configuration View:** Shows monitoring parameters like Control (+3.000 s) and Runtime (+3.000 s). It includes settings for MV= Rbk in tracking and MV= Mv External, along with a compatibility status indicator.
- Operations View:** Displays the status of various tests: Initialization (100% finished), Speed Test (100% finished), and Leakage Test (100% finished, with actual leakage at 0.063 %/min).
- Log View:** Shows a table of events:

Date	State	Time	Description
18/04/22	I	11:54:17	LSIT_PS100Ha_DB: ER low alarm limit violated
18/04/22	I	11:49:30	LSIT_PS100Ha_DB: Rbk High limit violated
- Identification:** Shows device details: Tag (PS100 HA), Long Tag (PS100 DEVICE), Descriptor (POSITIONER), Message (POS), Installation Date (4/5/2022), and Firmware Revision (1.04.00).

SITRANS Library for TIA

Value adding functionality

- Clear visualization, Control deviation
- Wizards to check e.g. leakages

SITRANS Library for PCS 7: access to additional value and extended functionality of the transmitters

SITRANS FMT020

The new SITRANS FMT020 transmitter is a high performance, robust, intelligent product, designed for a wide range of applications requiring highly accurate and reliable flow measurement of conductive fluids.



Select and order

Process variables

Volume Flow	49.99945 m ³ /h
Tot1	not configured in HW config
Tot2	1.068e12 cm ³
Tot3	1.068e11 cl
FlowVel	9.999928 m/s
EConduct	10.99989 mS/cm

Enabled operations Settings

Read config. data	...
Last read complete	12/22/23 15:30:18
Low flow Cut - off	
VolFlow	0.00 m ³ /h
FlowVel	0.00 m/s

Correct Device

SITRANS Library (add-ons)

Enabled operations pointers

Read Pointer values	...
Last read complete	12/22/23 14:40:11
Peak value 1: EConduct	
Minimum	0.70 mS/cm
Maximum	12.34 mS/cm
	Reset
Peak value 2: EConduct	
Minimum	0.70 mS/cm
Maximum	12.34 mS/cm
	Reset

< functionality of faceplates differ by device >

Use cases based on **Conductivity** (as cyclic data) allow **cost savings** for customers by avoiding additional measurements and savings on maintenance:

- Industry: **F&B; Dairies**
Conductivity as an indicator to identify during **cleaning in place** the cleaning fluids vs. milk-products, 2nd usage as an **indicator** for fat-content, indicating the **quality** (richness) of milk
- Industry: **HVAC**
Conductivity as indicator for **content of glycol**, protecting the cooling plant
- Industry: **Agriculture**; production of fertilizers
Conductivity as indicator for substance, **avoiding downtimes** due to clogging of pipelines
- Industry: **Water / Waster Water**
Conductivity as indicator of water-pureness (very pure water has low conductivity, leading to loss of measurement, though the MAG meter itself is ok)

SITRANS Library for PCS 7: access to additional value and extended functionality of the transmitters

SITRANS LR500 series

SITRANS LR500 series are 80 GHz radar level transmitters for continuous monitoring of liquids, slurries, and solids in storage and process vessels.

Select and order



SITRANS LR100 series

SITRANS LR100 series are 80 GHz compact radar transmitters with Bluetooth wireless technology. For level measurement of liquids or solids. Featuring a narrow beam for flexible installations in existing vessel openings – or non-intrusively through plastic vessels.

Select and order



9.00

Volume 8.86 m³

0.00

HART variables

Volume 8.86 m³

Distance 2.24 m

Sign. Strength 123.00 dB

Electr. temp. 27.95 °C

Time to fill ---

Time to empty 7.5 h

Enabled operations **Parameters**

Read config. data ...

Correct Device

Last read complete 5 /9 /24 16:47:43

SITRANS Library (add-ons)

Enabled operations **Diagnostic values**

Electr. temp. 79 °F

Confidence 12

Echo strength 123 dB

Read diag. values

Last read complete 4 /22 /24 20: 2:38

< functionality of faceplates differ by device >

.... Access to further functionality

Up to four additional Process values
(as acyclic data or configurable as cyclic - HART values)

- Volume or Level or Distance
- Electronics temperature
- Echo confidence / Signal strength

Access to additional functionalities, e.g.

- Time to fill / to empty

SITRANS Library for PCS 7: access to additional value and extended functionality of the transmitters

SIPART PS2

The SIPART PS2 is the most widely used valve positioner for linear and part-turn actuators in industrial applications. The all-round positioner of Siemens provides an extensive range of functions and is well equipped - even for extreme ambient conditions. The following enclosure options are available: Polycarbonate, Aluminum, Stainless steel, Flameproof aluminum or 316L stainless steel.



Positioner SIPART PS100

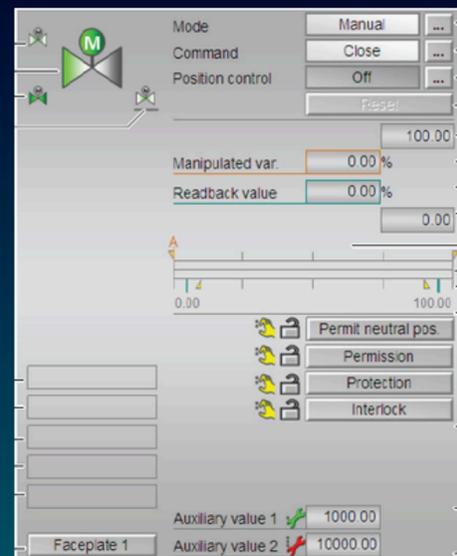
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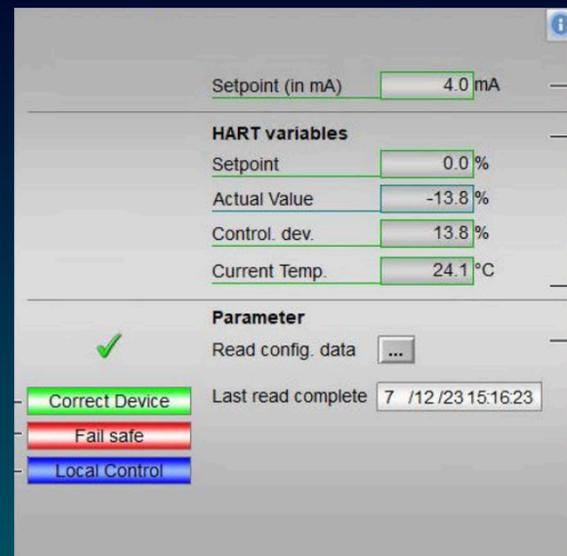
.... Access to further functionality

Select and order

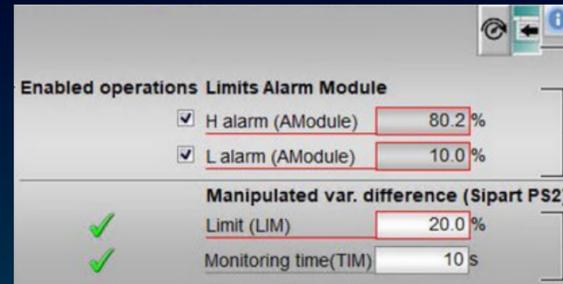
Select and order



Advanced process Library



SITRANS Library (add-ons)



< functionality of faceplates differ by device >

Additional Process values (as acyclic data or configurable as cyclic - HART values)

- Control deviation
- Electronics temperature

Access to additional functionalities, e.g.

- Limit Alarms

SITRANS Library for PCS 7 and PCS Neo: access to additional value and extended functionality of the weighing electronics



SIMATIC ET 200SP SIWAREX weighing modules for platform, hopper, batching and conveyor belt scales



SIWAREX DB digital junction box for enhanced diagnostics, 4 channels die-cast aluminum enclosure for connection of strain gauge load cells/full bridges (1-4mV/V) to SIWAREX weighing electronics, IP66

Plant/siwarexwp321_1

SIWAREX DB

Service mode ON ...

Conn. technology 4-wire ...

EXC voltage

Temperature

	LC 1	LC 2	LC 3	LC 4
Load	<input checked="" type="checkbox"/> enabled ...	<input checked="" type="checkbox"/> enabled ...	<input type="checkbox"/> disabled ...	<input type="checkbox"/> disabled ...
ADC digits	<input type="text" value="817494"/>	<input type="text" value="219557"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Signal voltage	<input type="text" value="7.77mV"/>	<input type="text" value="2.09mV"/>	<input type="text" value="0.00mV"/>	<input type="text" value="0.00mV"/>
Impedance	<input type="text" value="345.50Ohm"/>	<input type="text" value="345.50Ohm"/>	<input type="text" value="0.00Ohm"/>	<input type="text" value="0.00Ohm"/>
SENSE voltage	<input type="text" value="4.75V"/>	<input type="text" value="4.75V"/>	<input type="text" value="0.00V"/>	<input type="text" value="0.00V"/>
EXC current	<input type="text" value="13.80mA"/>	<input type="text" value="13.80mA"/>	<input type="text" value="0.00mA"/>	<input type="text" value="0.00mA"/>

Send Data Receive Data

Plant/siwarexwp321_1

Limit 1

Limit 1 ON

Limit 1 OFF

Limit 2

Limit 2 ON

Limit 2 OFF

Reference

Limit 1&2 Gross (relative) ...

Limit 3 - empty range

Limit 3 ON

Delay time

Send Data Receive Data

Plant/siwarexwp321_1

Mode M

Scale commands ...

Weight

Tare

Module disturbed

Limit 1

Limit 2

Limit 3

Standstill

Tared

Plant/siwarexwp321_1

Service mode ON ...

Load cell parameters

No. of support points

Avg. char. value

Nom. load one cell

Sampling rate 100 Hz ...

Backup ...

Calibration ...

RS485 parameters

Protocol SIWAREX DB ...

Baud rate 115200 bit/s ...

Parity even ...

Decimal points xxxxxxxx ...

Send Data Receive Data

Plant/siwarexwp321_1

Service mode ON ...

Auto. zero tracking No ...

Resolution PV ...

Filter frequency Hz

Filter order 4 ...

Average filter d

Calibration weight 0 kg

Calibration weight 1 kg

Calibration weight 2 kg

Backup ...

Calibration ...

Calibration digits 0

Calibration digits 1

Calibration digits 2

Send Data Receive Data

Plant/siwarexwp321_1

Service mode ON ...

Weight unit kg ...

Gross indicator B ...

Min. weighing range d

Max. weighing range kg

Resolution (d) kg

Tare limit %

Negative zero limit %

Positive zero limit %

Standstill range d

Standstill time ms

Standstill wait time ms

% of kg

Send Data Receive Data

Plant/siwarexwp321_1

Enabled operations

- Automatic
- Manual
- Out of service
- Service mode ON
- Service mode OFF
- Cal. weight 0 valid
- Cal. weight 1 valid
- Cal. weight 2 valid
- Zero
- Tare
- Delete tare
- Factory defaults
- Automatic calibration

SITRANS Libraries for Siemens Automation

Topic	Page No.
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Overview on PA and MI portfolio, Hydrogen	27
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Libraries are compatible to latest PCS 7 and TIA versions and cover the majority of MI portfolio

TIA Portal

- o Available

<https://support.industry.siemens.com/cs/document/109811343/sitrans-library-v5-2-for-tia-portal-v19-or-higher?dtl=0&lc=de-f>

PCS 7

- o Available

<https://support.industry.siemens.com/cs/document/109774248/sitrans-library-v1-0-compatible-to-simatic-pcs-7-v9-1-sp2-uc1-uc2-and-uc3?dtl=0&lc=en-WW>

Specific libraries for SIWAREX

- o Available for PCS 7 / PCS NEO

<https://mall.industry.siemens.com/mall/en/WW/Catalog/Product/7MH4900-1AK62>

- o Available for TIA

<https://support.industry.siemens.com/cs/de/de/view/94109373>

Gas analysis library for PCS 7

- o Compatible to V8 (V10. pending)

<https://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10314044?tree=CatalogTree>

SITRANS LIBRARY TIA Portal compatible devices

V6.2 updated November 2024
Compatible to TIA Portal V19, supporting WinCC unified comfort and professional panels.

	Device	Communications
Pressure transmitter	SITRANS P320	4...20mA HART
	SITRANS P420	4...20mA HART
	SITRANS P420	4...20mA HART
Temperature transmitter	SITRANS TH300	4...20mA HART
	SITRANS TH320/TR320	4...20mA HART
	SITRANS TH420/TR420 (enhanced real-time diagnostic feature)	4...20mA HART
Positioner	SIPART PS100	4...20mA HART
Flow transmitter	SITRANS F M MAG6000	4...20mA HART
	SITRANS FMT020	4...20mA HART
	SITRANS FMT020 «NEW support of Zero Point Adjustment»	PROFINET
	SITRANS FST070	PROFINET
Level transmitter and controller	SITRANS Probe LU240	4...20mA HART
	SITRANS LR110/LR120/LR150	4...20mA HART
	SITRANS L1500	PROFINET

SITRANS LIBRARY SIMATIC PCS 7 compatible devices

V1.2 updated November 2024
Base version: SIMATIC PCS 7 V9.1. SP2 Update Collection UC1
Compatible with:

- SIMATIC PCS 7 V9.1. SP2 (up to UC5)
- SIMATIC PCS 7 V10

Support of SIMATIC CFU HART. «NEW for V1.2»

	Device	Communications
Pressure transmitter	SITRANS P300	PROFIBUS PA, 4...20mA HART
	SITRANS P320	4...20mA HART
	SITRANS P420	PROFIBUS PA, 4...20mA HART
Temperature transmitter	SITRANS TF320/TF420	4...20mA HART
	SITRANS TH320/TR320	4...20mA HART
	SITRANS TH420/TR420	PROFIBUS PA, 4...20mA HART
Positioner	SIPART PS2	PROFIBUS PA, 4...20mA HART
Flow transmitter	SIPART PS100	4...20mA HART
	SITRANS F M MAG6000	PROFIBUS DP
	SITRANS FMT020	PROFINET, 4...20mA HART
	SITRANS FST070	PROFINET
Level transmitter and controller	SITRANS Probe LU240	4...20mA HART
	SITRANS LR110/LR120/LR150	4...20mA HART
	SITRANS LR200*	PROFIBUS PA, 4...20mA HART
	SITRANS LR250*	4...20mA HART
	SITRANS LR500	4...20mA HART
	SITRANS LR560*	PROFIBUS PA, 4...20mA HART
SITRANS LUT400	4...20mA HART	

* All products are compatible and system tested with SIMATIC CFU HART except those marked with an asterisk.

Siemens AG 2024
Process Industries and Drives
Östliche Rheinbuckelstr. 50
76187 Karlsruhe
Germany
PDF only
© Siemens AG



Note for Siemens Sales: see planned launches in the product launch calendar
<https://product-launch-calendar.siemens.com/webapps/PLC/product/home?year=1&month=&bu=2&bs=&cl=211&br=&fm=&ct=null&tp=&ms=&cte=null>

For Siemens' Measurement Intelligence Instrumentation: SITRANS Library and projects

SITRANS Library and ready to use projects for SIWAREX

SIMATIC Process Function Library (generic)

The screenshot displays the Siemens Industry Online Support website. The main content area features the title "SITRANS Library V6.1 for TIA Portal V19 or higher" and a search bar. Below the title, there is a section for "Terms and conditions of use" and "Downloads". The "Downloads" section lists various files for download, including "Ready-for-use TIA Portal" and "Ready-for-use small TIA Portal". A large teal plus sign is overlaid on the right side of the screenshot.

The screenshot displays the Siemens Industry Online Support website. The main content area features the title "Sales and Delivery Release incl. download: SIMATIC Process Function Library (PFL) V4.0" and a search bar. Below the title, there is a section for "Product information" and "Related links". A large teal plus sign is overlaid on the left side of the screenshot.

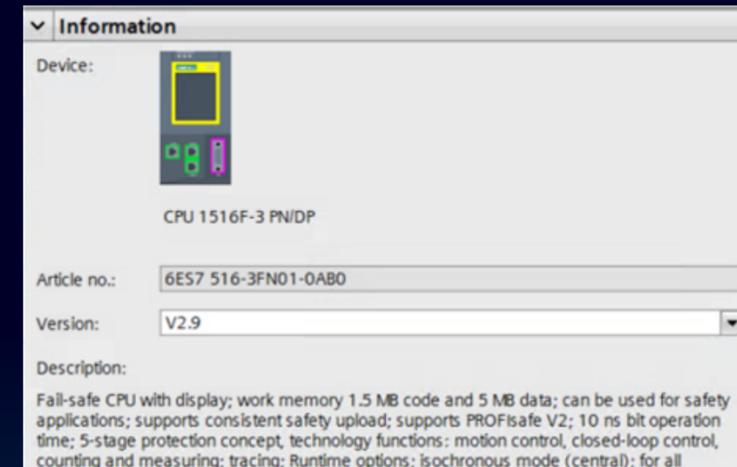
<https://support.industry.siemens.com/cs/ww/en/view/109971764>

For further devices, use the generic SIMATIC Process Function Library

SITRANS Libraries for TIA Portal are system-tested as follows

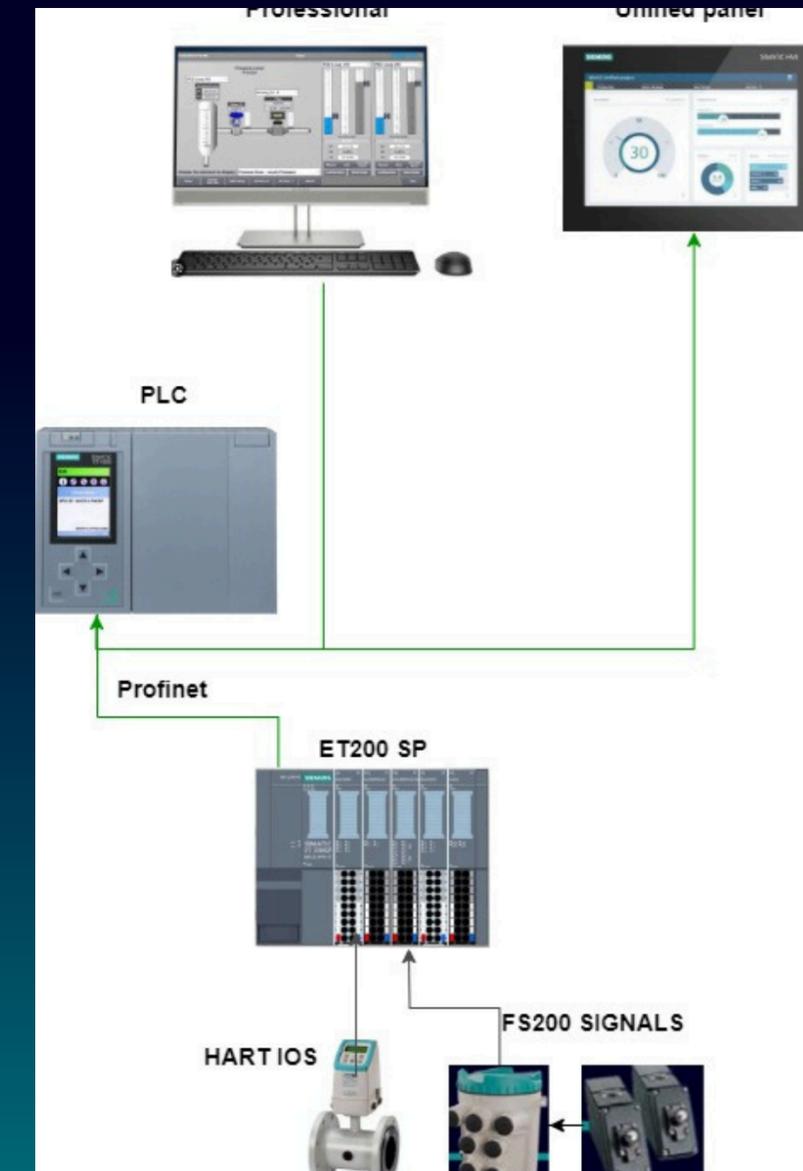
Library tests are executed with below Configuration

1. Standalone Controller (6ES7516-3FN01-0AB0) CPU-1.5 MB Code Memory, combined with
 - i. ET200SP PN (6ES7155-6AU01-0CN0)
 - ii. ET200SP PN HA (6DL1155-6AU00-0PM0)
 - iii. CFU HART (6ES7655-5PX41-1XX0)



1. Redundant Controller (6ES7517-3HP00-0AB0) CPU-1.5 MB Code Memory, combined with
 - i. ET200SP PN (6ES7155-6AU01-0CN0)
 - ii. CFU HART (6ES7655-5PX41-1XX0)

1. Runtime tests with
 - i. Professional and
 - ii. Unified Comfort panel screen

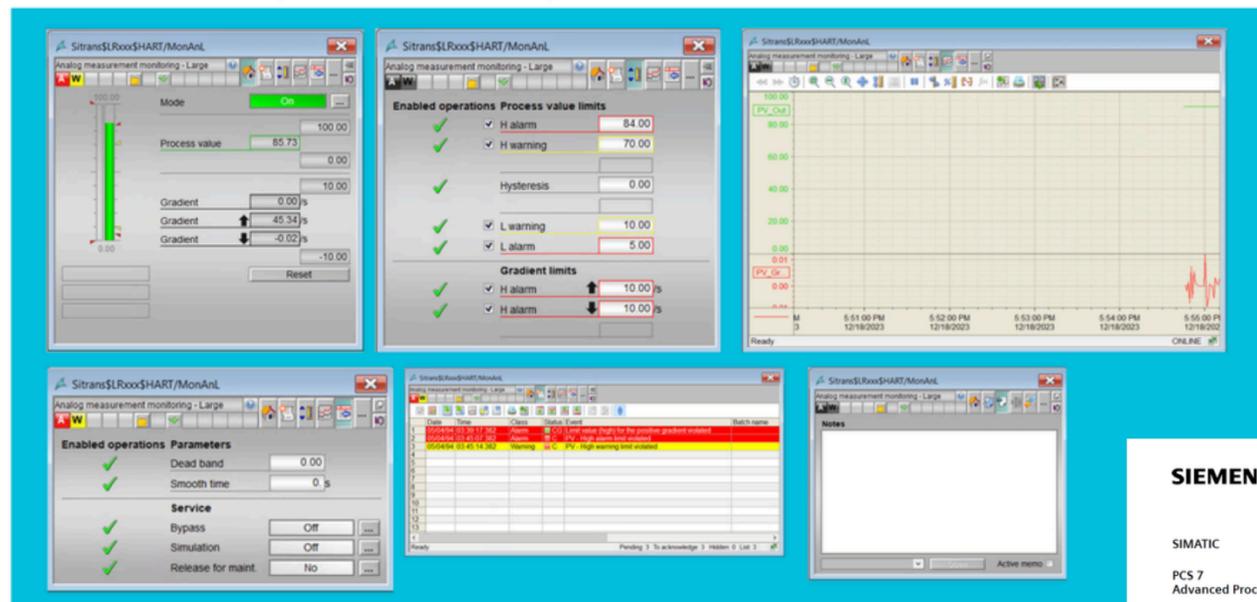


In PCS 7, the Advanced Process Library is the basis for the SITRANS Library Siemens' Automation and Instrumentation

Advanced process libraries APL
fully supporting main process value

SITRANS Library – easy access to secondary
process values and full functionality of transmitters

APL standard view (valid for all devices)



Page 5 Internal | © Siemens 2024 | Device Integration | J. Kiehne Roopa Mandi Shiva | September 2024

Advanced process Library

Advanced process Library on SIOS:

<https://support.industry.siemens.com/cs/ww/en/view/109973505>

Webinar on PCs 7 V.10 Launch (Siemens internal):

https://siemens-learning.sabcloud.com/Saba/Web_spf/EU2PRD0112/app/workspace/detail/pocn00000000593628



SITRANS Library: access to additional value and extended functionality of the transmitters



Page 7 Internal | © Siemens 2024 | Device Integration | J. Kiehne Roopa Mandi Shiva | August 2024

Use cases based on **Conductivity** (as cyclic data) allow **cost savings** for customers by avoiding additional measurements and savings on maintenance:

- Industry: **F&B; Dairies**
Conductivity as an indicator to identify during **cleaning in place** the cleaning fluids vs. milk-products, 2nd usage as an indicator for fat-content, indicating the **quality** (richness) of milk
- Industry: **HVAC**
Conductivity as indicator for **content of glycol**, protecting the cooling plant
- Industry: **Agriculture**; production of fertilizers
Conductivity as indicator for substance, **avoiding downtimes** due to clogging of pipelines.

SIEMENS

SIMATIC
PCS 7
Advanced Process Library (V10.0)

Function Manual

07/2024
A001028101-01

Cybersecurity information	1
Industrial Security	2
Basics of APL	3
Operator control blocks	4
Condition Monitoring	5
Monitoring blocks	6
Controller blocks	7
Desing blocks	8
Motor and valve blocks	9
Interlock blocks	10
Message blocks	11
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Continued on next page

SIEMENS

SITRANS
SITRANS Library
SITRANS Library PCS7 APL V010

Function Manual

01/2024
A001028101-01

Cybersecurity information	1
Configurable response using the Feature ID	2
Supported Devices of CFC Templates	3
Driver block	4
SITRANS LRxxx PA	5
SIPART PS2 PA	6
SITRANS PA20 PA	7
SITRANS LRxxx HART	8
SITRANS LU HART	9
SIPART PS2 HART	10
SIPART PS100 HART	11
SITRANS FST070 TM	12
SITRANS T HART	13
SITRANS P PA	14
SITRANS P HART	15
SITRANS FM MAG 6000 DP	16
Multiranger 200 DP	17
SITRANS LUT400 HART	18
SITRANS LR1xx HART	19
SITRANS FMT020 PN	20
SITRANS FMT020 HART	21

(very pure water
surement,

SIEMENS

SITRANS Library

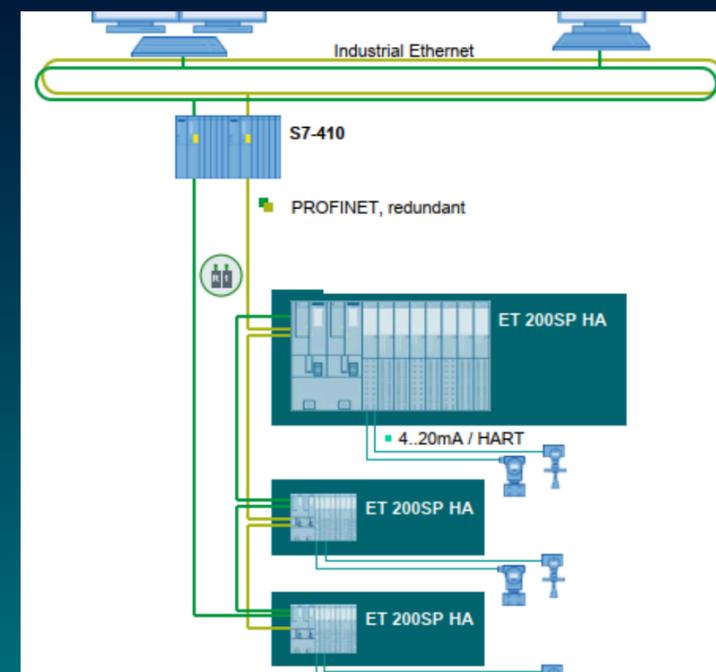
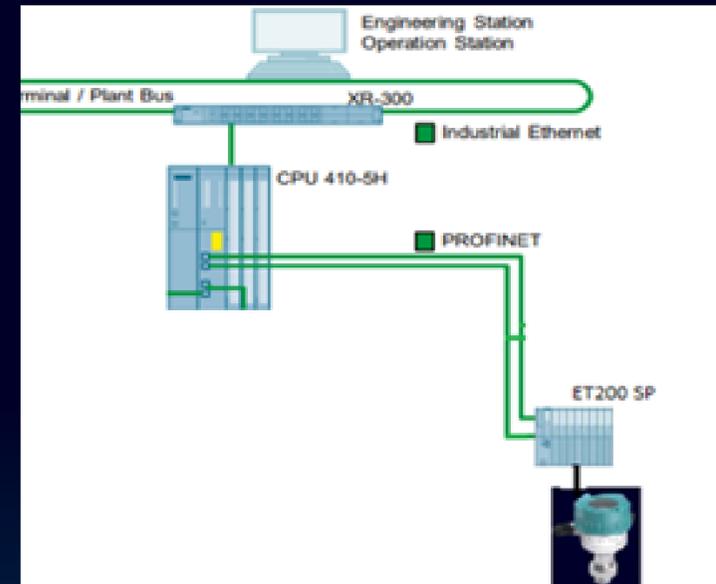
SITRANS Libraries for PCS7 are system-tested as follows

Library tests are executed with below Configuration

1. Standalone Controller (6ES7410 -5HX08- 0AB0) with Interface Modules
 - i. ET200SP PN (6ES7155-6AU01-0CN0)
 - ii. ET200SP PN HA (6DL1155-6AU00-0PM0)
 - iii. CFU HART (6ES7655-5PX41-1XX0)

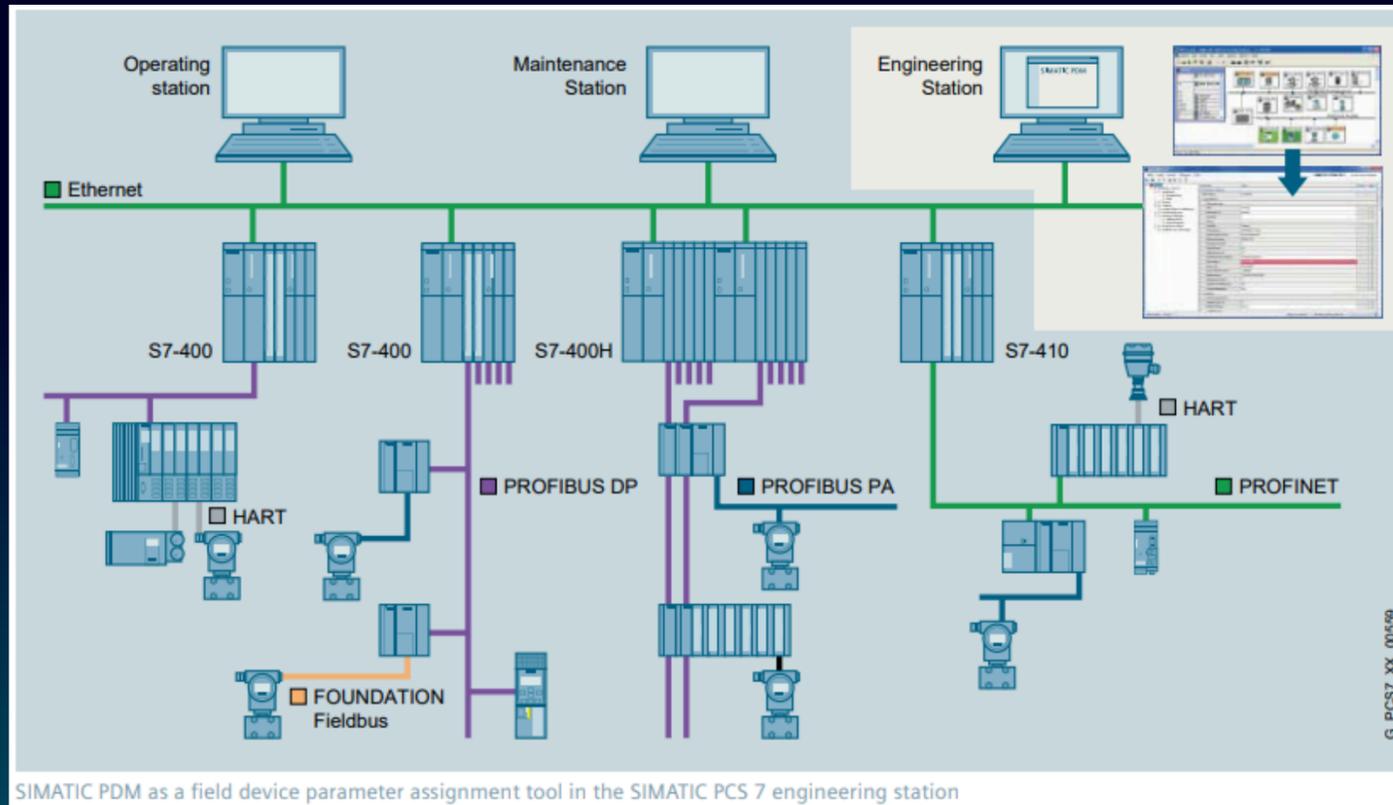
1. Redundant Controller (6ES7410 -5HX08- 0AB0) with Interface Modules
 - i. ET200SP PN (6ES7155-6AU01-0CN0)

3. Runtime Test



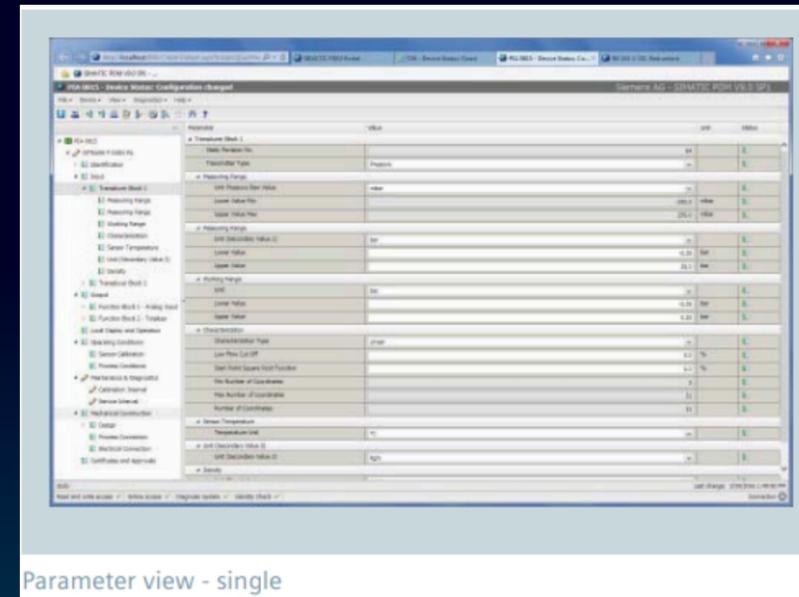
SIMATIC PCS 7, CPU 410E Process Automation, central processing unit for S7-400 and S7-400H/F/FH, 5 interfaces: 2x PN, 1x DP, 2x for sync modules for using as spare part, without System Expansion Card

With communication all instrumentation can be accessed from a PCS 7 engineering station for parameterization, wizards and visualizations with Simatic PDM

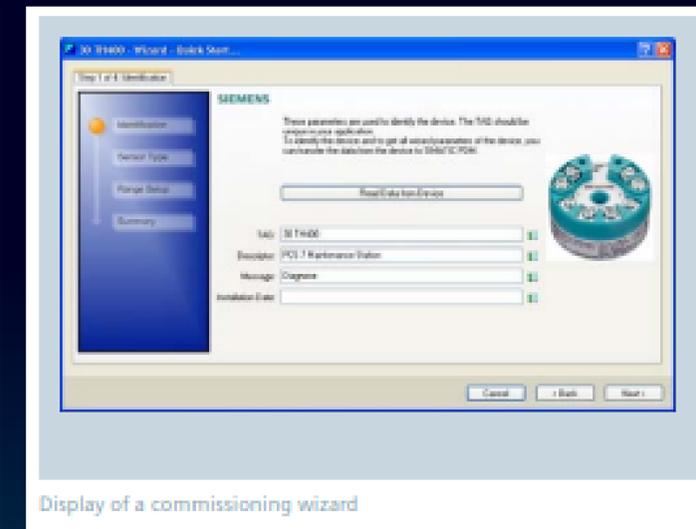


SIMATIC PDM as a field device parameter assignment tool in the SIMATIC PCS 7 engineering station

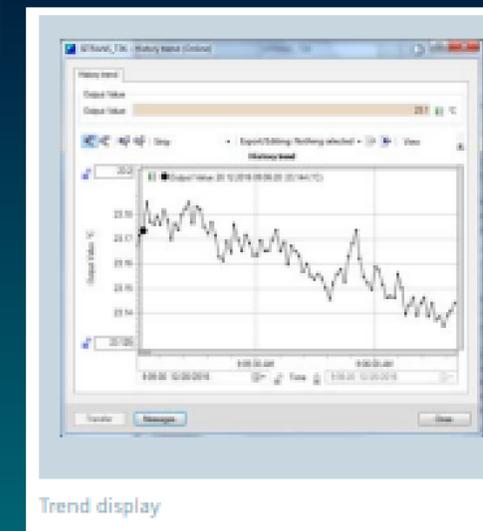
<https://www.siemens.com/global/en/products/automation/process-control/simatic-pcs-7/plant-device-management.html>



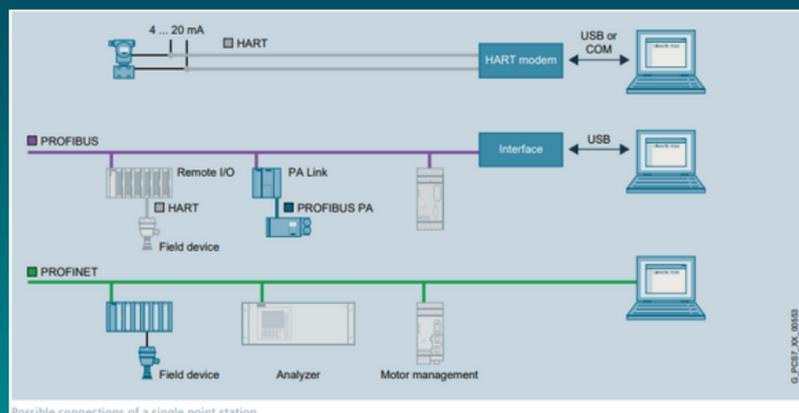
Parameter view - single



Display of a commissioning wizard



Trend display



Possible connections of a single point station

Alternative: direct point2point connection with e.g. a modem

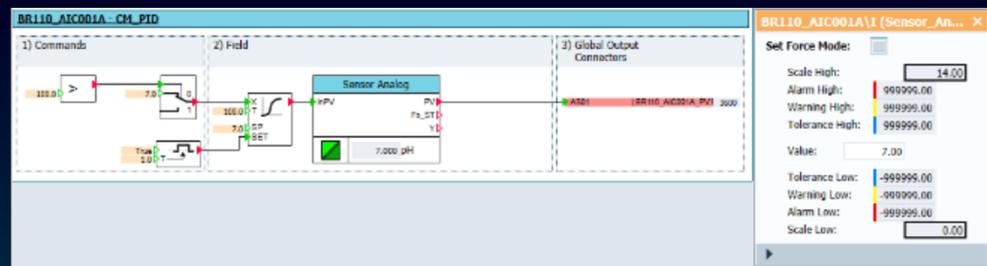
SITRANS Libraries for Siemens Automation

Topic	Page No.
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SIMIT	
Typical I/O configurations	
Overview on PA and MI portfolio, Hydrogen	27
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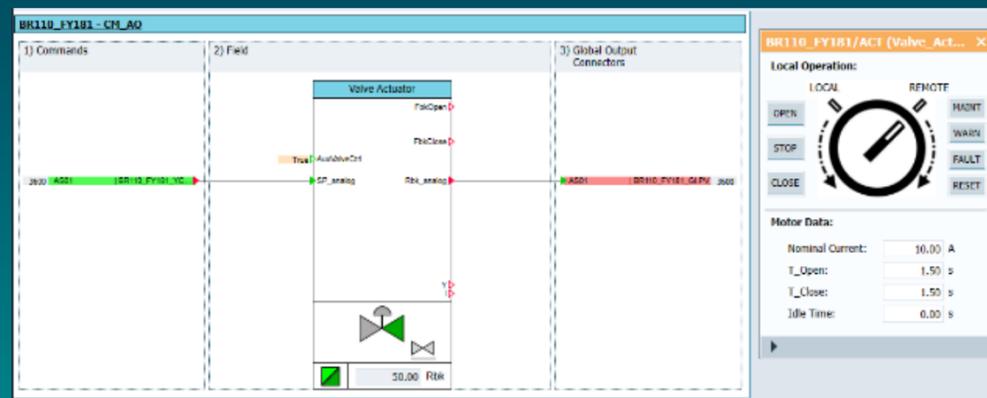
Outlook: a next step could be the simulation of Instrumentation (tailored Faceplates)** for operator trainings and FAT

Agnostic SIMIT blocs available today

- Sensor Analog on PV (only) with high/low alarms



- Valve with advanced functions for testing, virtual commissioning and operator training (e.g. channel driver support, local operation, status and timing manipulation, etc.)

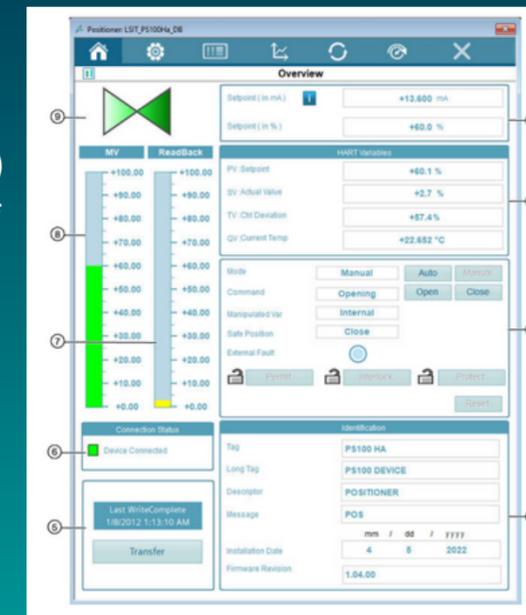


(Potential) SIMIT of MI – instrumentation**

- Sensor Simulations / Faceplates**
 - SIMIT support operational view (faceplates*)
 - **Secondary process values** (depending on the technology) *
 - of **physical qualities** of e.g. the fluids (conductivity / viscosity / density / temp.) contribution to the recognition of the media
 - Accessing the **longevity** of the sensor (electronic temperature)
 - Accessing **stability of measurement** (echo profile, signal strength)
 - Extended **diagnostic messages*** and in future **execution of self-tests**** and suggested mitigation measures**
 - Fail-save **behavior** e.g. in case of loss of signal** (FAT relevant)
 - **Further functionality** (e.g. totalizer)*



- Valve Simulations / Faceplates**
 - SIMIT support operational view (faceplates*)
 - Operation of Set-point and control deviation*
 - Operation of Fail-safe position*
 - Execution of **partial stroke test**** (relevant for safety applications)



* Available in SITRANS Library / faceplate, not (yet) in SIMIT
 ** Idea status

SITRANS Libraries for Siemens Automation

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Siemens Process Automation offers a complete product portfolio

Engineering/ Management- Level



COMOS
Plant Engineering



PlantSight
DT Cloud Services



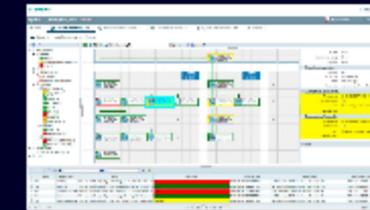
SIMIT
Simulation



XHQ Operations
Intelligence



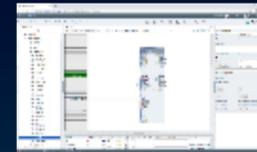
MES Solutions
Pharmaceuticals



Operating and Control Level



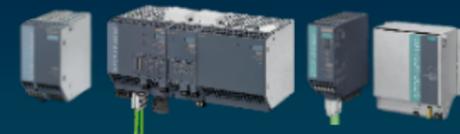
SIMATIC PCS 7



SIMATIC PCS neo



SIMATIC PCS Hardware



Power supplies



SIMATIC HW modules



SIMATIC S7-400



Field Level



Analytical Products
and Solutions



Process instrumentation

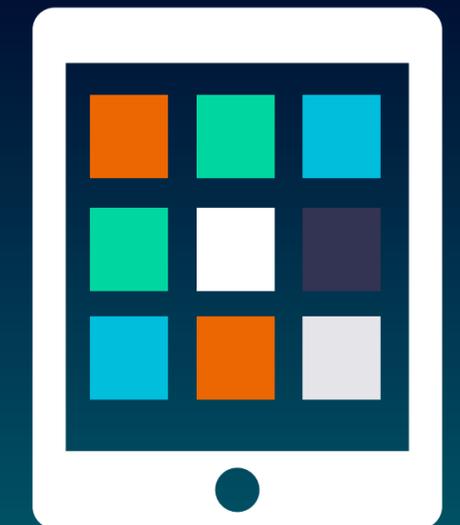


Industrial Identification
and Localization



Industrial
Communication

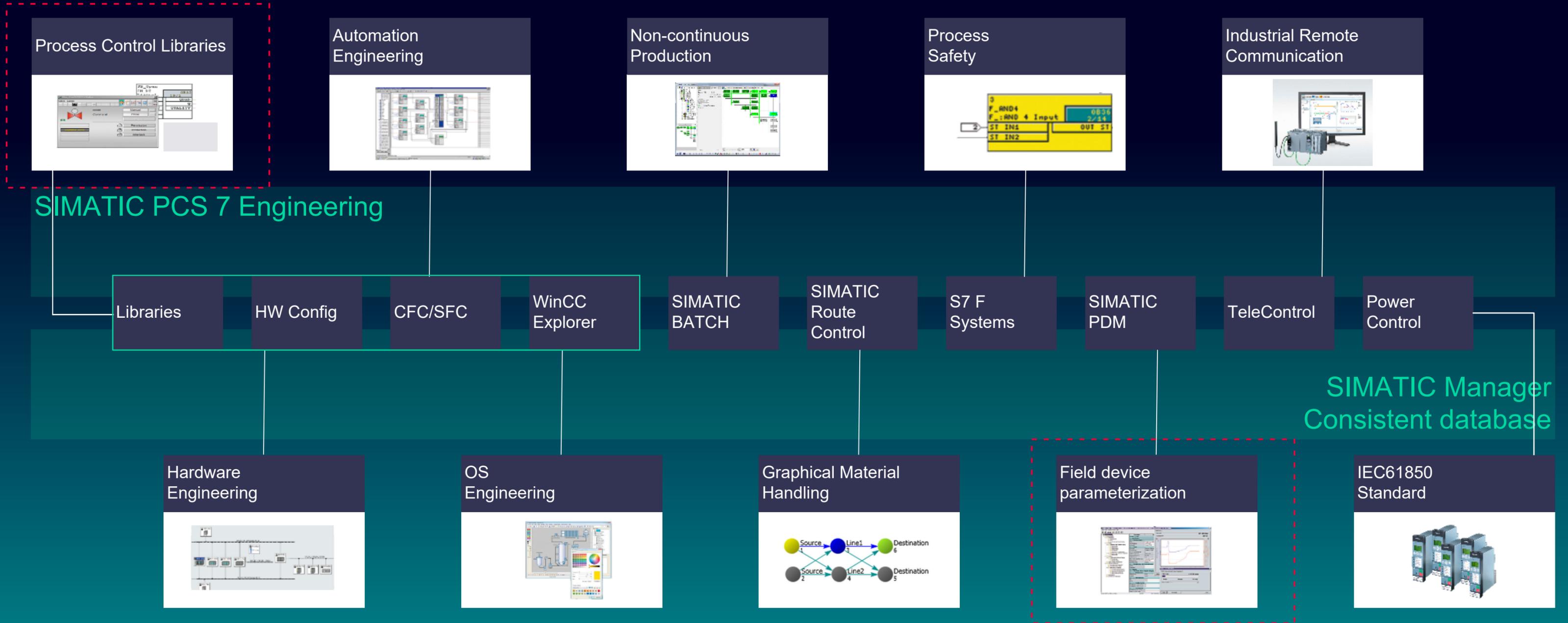
Apps and Digital Services for Process industries



Process Automation

SIMATIC PCS 7 – Engineering System

Seamlessly coordinated – Programmed for success



SIMATIC PCS 7 – Advanced Process Library (APL)

Standard Library and door opener for other libraries

APL functionality can be complemented with further libraries on-demand, while keeping a consistent look & feel.

PCS 7 Industry Library (IL)

Expansion of the APL standard library by characteristic industry functions. Modules for HVAC, integration of Package units.

PCS 7 Condition Monitoring Library (CML)

Expansion of the APL standard library with functions for monitoring of pumps and control valves.

PCS 7 Advanced Process Graphics

Providing graphical objects for a task related design and intuitive visualization of plant situation.

SITRANS Library

Integration of SIMATIC software, SITRANS and SIPART process instruments into the SIMATIC PCS 7 based on APL.

APL Features

- Standardized modular software functions for process control and visualization
- Ready-made and tested function blocks, faceplates and symbols

Easy project planning



Reliable process control



Reduced engineering overheads



Measurement Intelligence Product Portfolio

We are the senses of our customers' operations, transforming data into sustainable value



Flow Electromagnetic, Coriolis, Ultrasonic & Vortex

Temperature Rail, Field, Head, Sensor, Multipoint

Valve Positioner



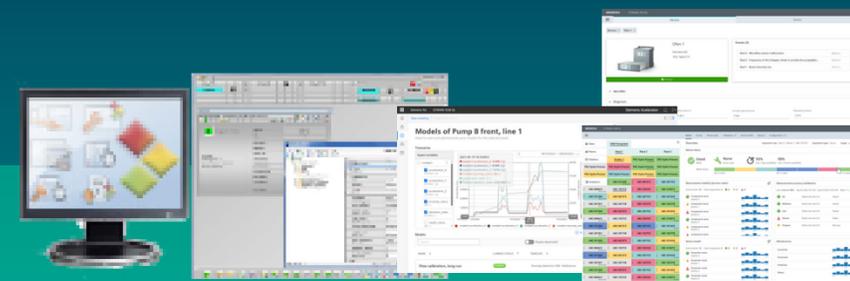
Level Radar, Ultrasonic, Guided wave radar, Capacitive

Pressure

Weighing Electronics, Mechanics



Continuous Gas Analyzers
and Laser



Software, SITRANS SCM IQ, SITRANS ASM IQ,
SITRANS AID IQ, SITRANS SSE IQ,
TIA / PCS7 Integration

Siemens Measurement Intelligence Portfolio for Hydrogen

Latest product modifications / launches for Hydrogen

Additional information



SIPROCESS GA700 / BR6

Standardized applications for measurement of hydrogen and oxygen in safety and non-safety environment



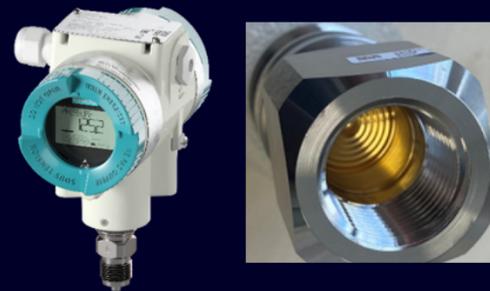
SITRANS P220

Piezoresistive metal diaphragm with thick-film resistor bridge (dry measuring cell)
Measuring ranges from 100 bar to 1050 bar now available
No impact on the accuracy by the medium due to oil free sensor



SITRANS P320/420

Portfolio extension with gold-plated p measuring cell
Enables measurement of up to 100% hydrogen



SITRANS FC

New Coriolis Mass flowmeter portfolio with extended performance and feature range, suitable for H2 application
Available with SIL 2 and OIML certification (H2)



SITRANS FS230 Clamp On

Flow Clamp On Ultrasound measurement for retrofit application with the benefit of non-intrusive measurement. Certified with 25% H2 content.



SITRANS Libraries for Siemens Automation

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Contact

Jan Kiehne



Siemens AG

Digital Industries

Process Automation

Service & Support

DI PA MI SUP

Östliche Rheinbrückenstr. 50

76187 Karlsruhe, Germany

Mobile: +49 (173) 1965071

<mailto:jan.kiehne@siemens.com>

www.siemens.com