


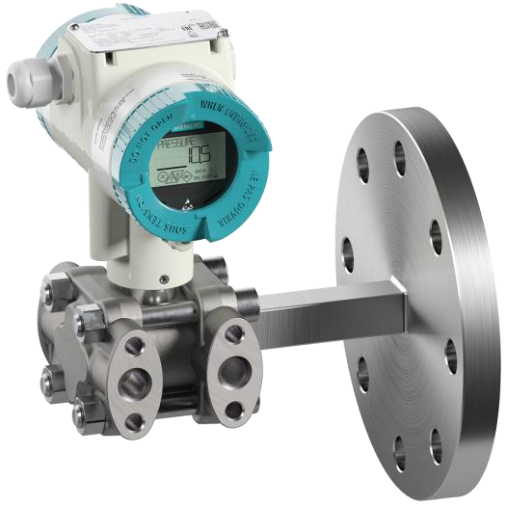

Sitrans P320 & P420

The next generation of pressure transmitters

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SITRANS Pressure Portfolio - From Basic to Premium

SITRANS P500

SITRANS P320 & P420

SITRANS P2XX , P Compact

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SITRANS P320 & P420
Versions for measuring

Gauge pressure

Absolute pressure

Differential pressure

Level with differential pressure measuring cell

Remote seals for transmitters and pressure gauges

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Introducing
SITRANS P320 & P420

- **Features and Specifications**
- Details and Comparison with the DSIII
- Display and Operation
- Model Number and Ordering

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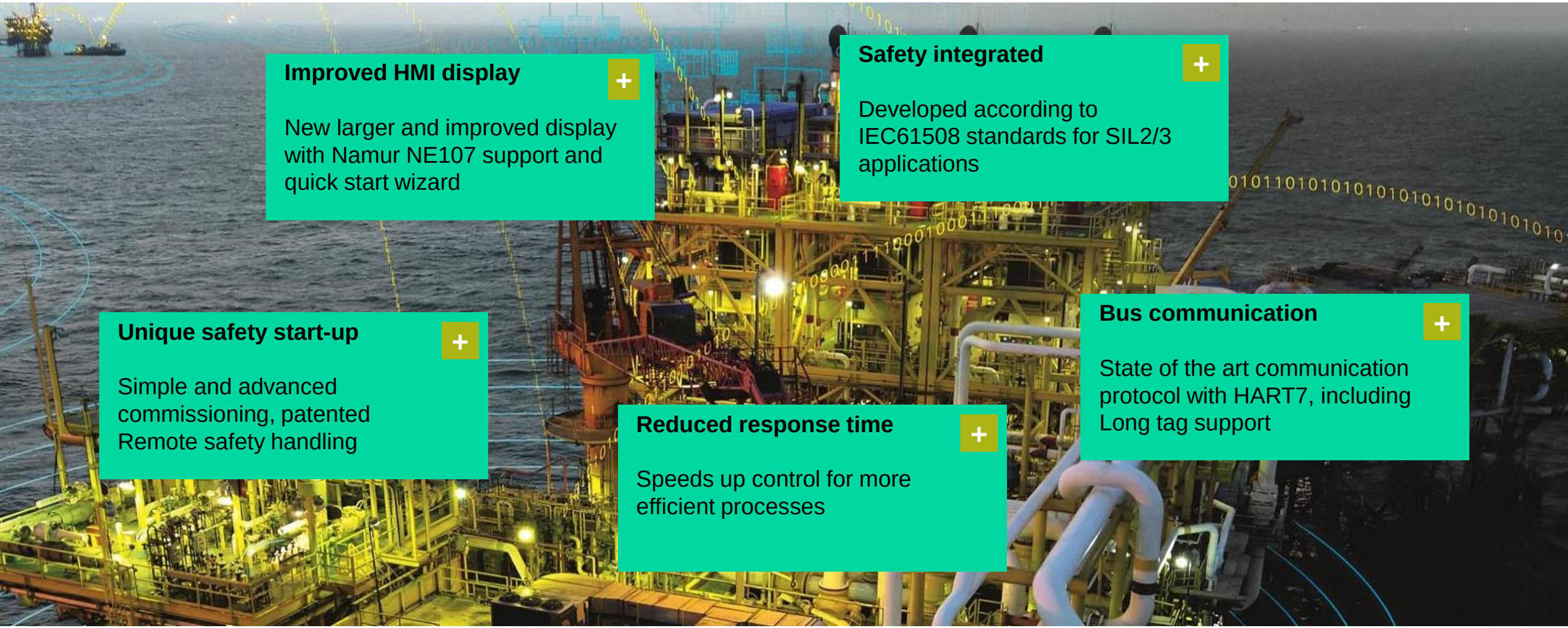
Top highlights at a glance
SITRANS P320/P420 – next generation pressure device



Improved HMI display +

New larger and improved display with Namur NE107 support and quick start wizard

Safety integrated +

Developed according to IEC61508 standards for SIL2/3 applications

Unique safety start-up +

Simple and advanced commissioning, patented Remote safety handling

Reduced response time +

Speeds up control for more efficient processes

Bus communication +

State of the art communication protocol with HART7, including Long tag support

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Optimizing your processes with easy handling and remote commissioning

Robustness
- Housing material in aluminum or stainless steel 316L
- Membrane material in stainless steel 316L, alloy C276, Monel 400, tantalum or gold

User-friendly
- Clear display, perfect readable
- Diagnostic icons (NE107)
- Specific error number in the bottom line

Safe
- Full SIL-2/3 assessment
- Intrinsic safety
- Ex approved, Ex I approved,
- IEC, ATEX, FM, CSA, KCC, EAC, INMETRO
- DNV-GL, LR, BV, ABS, KR, RINA, CCS, etc.

Process optimizing
- Reduced response time
- Remote commissioning
- Extended diagnostic functions with trend log and up to 1,500 points
- Wide measuring ranges

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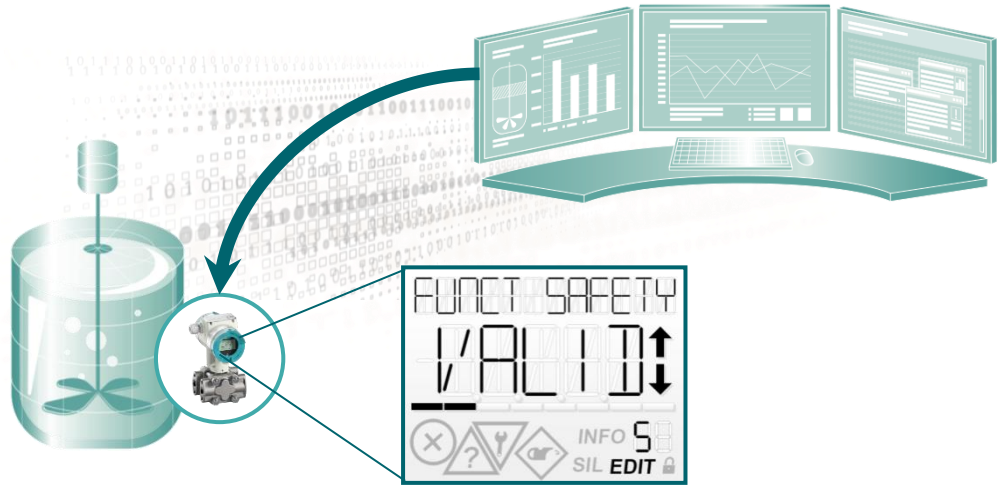
Easy safety via Remote Safety Handling

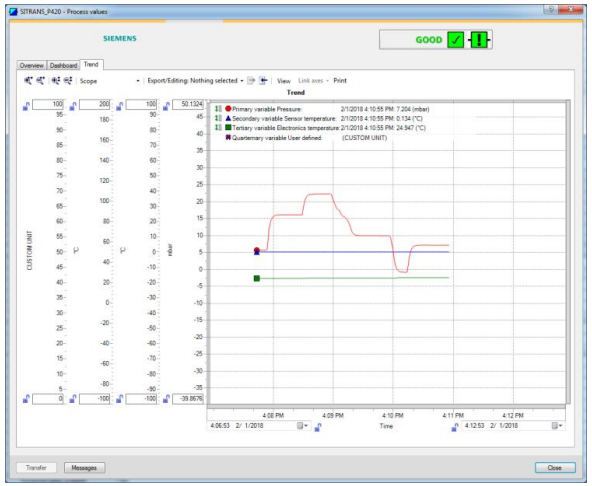


Remote Safety Handling: Safety commissioning and safety validation via remote:

- Remote Safety Handling via SIMATIC PDM
- All safety functions are available:
  - Safety validation
  - Support function test
  - Safety error handling
  - Parameter validation

- Remote service, saves time during SIL commissioning
- Reduce of start up costs
- No work in Ex areas

New features for Digitalization



New Data Logging function now available

Trend Log
- 2 Process values
- Max. 1500 points
- Buffer
  - Overwrite
  - Fill and Stop

Limit Monitoring
- 2 Limit Monitoring

Event Counter
- Overrun and Underrun
- Specific alarms

- Ready for “Digitalization”
- Easy and fast process optimizing
- Data analysis at a glance
- User specific maintenance set up
- Faster response to the Process
- Higher quality of the Process

Introducing
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SITRANS P320/P420
Next Generation Pressure Device

Product data overview

	Comparison DSIII	SITRANS P320	SITRANS P420
Linear Characteristic	1:1…5:1: 0.065% TD> 5:1: (0.005 x r +0.05)%	1:1…5:1: 0.065% TD> 5:1: (0.005 x r +0.05)%	**1:1…5:1: 0.04%** **TD> 5:1: (0.004 x r +0.045)%**
Temperature Error	(0.025 x r +0.125)% / 28K	(0.025 x r +0.125)% / 28K	**(0.0125 x r +0.0625)% / 28K**
Effect of Static Pressure	PKN = (0.1 x r) % / 70bar PKS = 0.14% / 70bar	PKN = (0.1 x r) % / 70bar **PKS = 0.1% / 70bar**	PKN = (0.1 x r) % / 70bar **PKS = 0.1% / 70bar**
Total Performance (TD 1:1)	0.192 %	**0.18%**	**0.12%**
Long Term Stability	0.125% / 5a	0.125% / 5a	0.125% / 5a
Step Response Time	< 170 ms	**135 ms DP / 105 ms P**	**135 ms DP / 105 ms P**
SIL	SIL proven in use for SIL 2/3 applications	Developed according to IEC61508 standards for SIL2/3 applications SFF > 92%	Developed according to IEC61508 standards for SIL2/3 applications SFF > 92%

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Introducing
SITRANS P320 & P420

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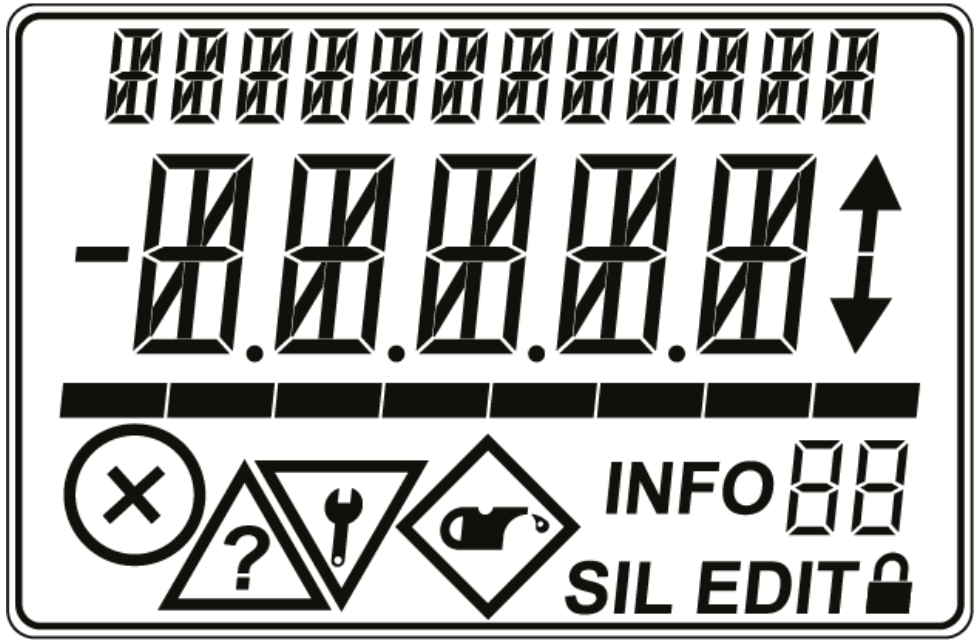
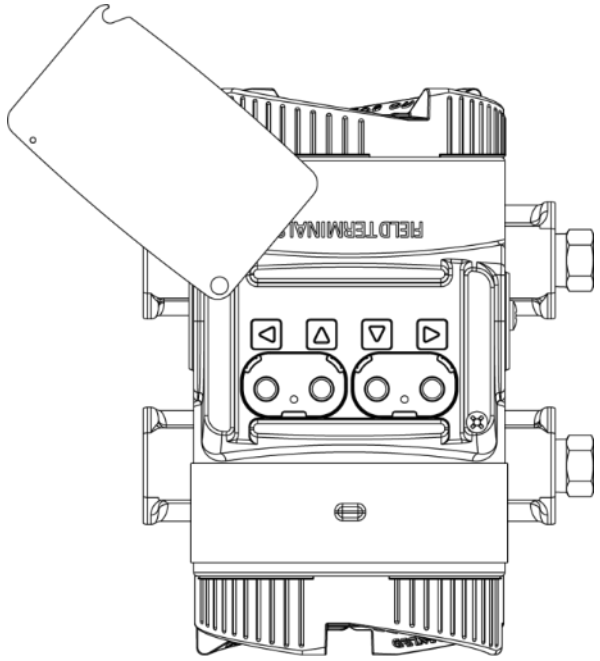
Display / Operation

Display

This display has three different views.:

- Measurement view
- Parameter view
- Edit view





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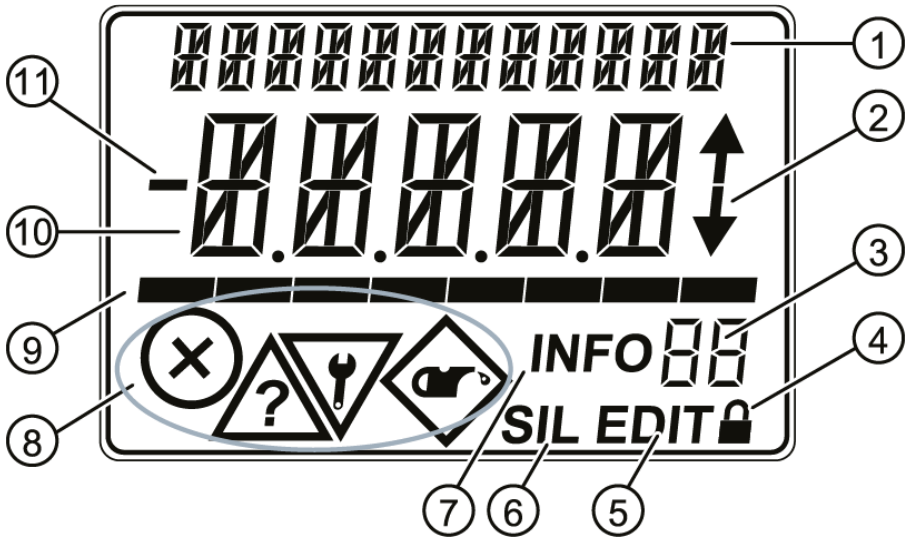
Display



①	Display of name and unit of: • Measured values (Measurement view) • Parameters (Parameter view, Edit view)
②	Specifies whether there are previous parameters or subsequent parameters.
③	Display of Measured value number, Parameter number; ID of the messages ⑦
④	Device is write-protected.
⑤	Device in the parameter view: When you press the ▶ button in the parameter view, the parameter can be edited and the "EDIT" symbol flashes..
⑥	Functional Safety is enabled.
⑦	The ID ③ and the displayed "INFO" symbol serve to identify the diagnostic message. For the IDs of the messages and their meaning, refer to the section "Diagnostics and troubleshooting
⑧	NE 107 symbols. For a description and priority, refer to the section "Diagnostics and troubleshooting”
⑨	Bar graph display for measured values or progress indicator in wizards.
⑩	Main line; 5-digit display of measured values and parameter values..
⑪	Sign of the measured value..

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Display / Operation
Measurement view

Measurement view

The measurement view shows the current measured values as well as status and diagnostic messages::

① Name and unit of the measured value (alternating)
② Measured value
③ Measured value ID
④ Bar display

Measured value ID	Name of measured value	Meaning
P1	PRESSURE	Pressure
	PRESS GAUGE	Gauge pressure
	PRESS ABS	Absolute pressure
P2	SENSOR TEMP	Sensor temperature
P3	ELECTR TEMP	Electronics temperature
P4	LEVEL	Level
P5	VOLUME	Volume
P6	VOLUME FLOW	Volume flow
P7	MASS FLOW	Mass flow
P8	USER DEFINED	Customized characteristic curve
P9	% OF RANGE	Percent of range
PA	LOOP CURRENT	Loop current
PB	CURR VOLTAGE	Terminal voltage

SITRANS-P320-P420-operating-instruction-06-2018.ai Source: SITRANS P320/P420 (mA/HART) Operating Instructions, 06/2018, A5E44852162-AA page 73

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Display / Operation
Measurement view

Parameter view

The parameter view shows the parameters, parameter values and the wizards of the device.

① Name and unit of the parameter (alternating)
② Parameter value
③ Parameter ID
④ "EDIT" symbol (permanently enabled)

Parame-ter ID	Parameter name on the display	Meaning
01	PRESS UNITS	Pressure units
02	LOWER RANGE	Set lower range value (without pressure applied)
03	UPPER RANGE	Set upper range value (without pressure applied)
04	DAMPING	Damping value
05	APPLICATION	Application [1)]
06	SQRT POINT	Application point for volume flow and mass flow (VSLN and MSLIN)
07	ZERO POINT	Zero point adjustment
08	APPLY LRV	Apply lower range value (with pressure applied)
09	APPLY URV	Apply upper range value (with pressure applied)
10	FAULT CURR	Select fault current
11	LO FAULT CUR	Lower fault current
12	UP FAULT CUR	Upper fault current
13	SATURAT LOW	Lower saturation limit
14	SATURAT HI	Upper saturation limit
15	SV SELECT	SV selection, set secondary variable
16	LEVEL UNITS	Level unit
16	VOL UNITS	Volume units
16	VFLOW UNITS	Volume flow units
16	MFLOW UNITS	Mass flow units
17	TEMP UNITS	Temperature units for sensor and electronics temperature
18	LOWER SCALNG	Lower scaling point
19	UPPER SCALNG	Upper scaling point
20	LOW FLOW CUT	Low flow cut-off for volume flow and mass flow (VSOFF and MSOFF)
21	VESSEL DIM A	Vessel dimension A
22	VESSEL DIM L	Vessel dimension L
23	BUTTON LOCK	Enable and disable button lock
24	CHANGE PIN	Change user PIN
25	RECOVERY ID	Display Recovery ID
26	PIN RECOVERY	PIN recovery
27	USER PIN	Enable and disable user PIN
28	DEVICE MODE	Active device mode
29	FUNCT SAFETY	Enable and disable Functional Safety
30	DISPLAY TEST	Display test
31	LOOP TEST	Loop test
32	START VIEW	Start view
33	PRESSURE REF	Pressure reference
34	IDENTIFY	Identify the device
35	RESET	Reset

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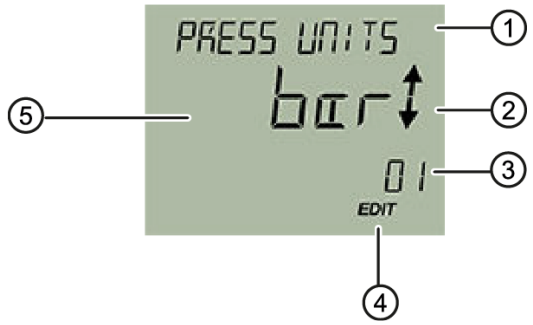
Display / Operation
Edit view

Edit view

You change the parameter values in the edit view. Wizards are available for specific parameters.



① Name of parameter and, if available, unit (alternating)
② Enumeration arrows (for enumerations only)
③ Parameter-ID
④ "EDIT" symbol (flashing)
⑤ Parameter value

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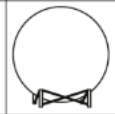
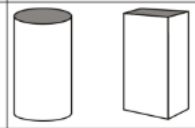
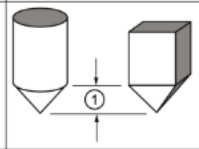
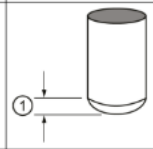
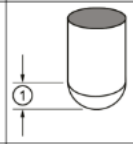
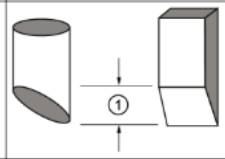
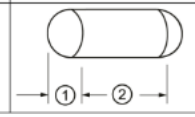
Display / Operation
Application

Device with display		Remote operation	
"Application" parameter [05]		Settings > Select output > Application or using the Quick start wizard	
Setting range:	**Application**	**Characteristic curve**	
	Pressure	PRESS	Linear, proportional to pressure
	Level	LEVEL	Linear, proportional to level
	Volume flow	VSLN	Linear, square root Proportional to flow rate, linear up to the application pointApplication point [06]
		VSOFF	Hold at 0, square root Proportional to flow rate, deactivated up to the application pointLow flow cut-off [20]
		VSLN2	Two-step linear - square root Proportional to flow, two-step linear up to the application point
		VSL2B	Two-step linear, square root (bidirectional)
	Volume	CYLIN	Cylinder vessel
		SPHER	Sphere vessel
		VLIN	Linear vessel
		CONIC	Conical bottom vessel
		PARAB	Parabolic bottom vessel
		HALF	Half sphere bottom vessel
		FLAT	Flat sloped bottom vessel
		PARAE	Parabolic ends vessel
	Mass flow	MSLN	Linear, square root Proportional to flow rate, linear up to the application pointApplication point [06]
		MSOFF	Hold at 0, square root Proportional to flow rate, deactivated up to the application pointLow flow cut-off [20]
		MSLN2	Two step linear, square root Proportional to flow, two-step linear up to the application point
		MSL2B	Two-step linear, square root (bidirectional)
	Customized characteristic curve	CUSTM	Custom
Factory setting:	PRESS, or as specified in order		

Display	Vessel	Description
CYLIN		Cylinder vessel
SPHER		Sphere vessel
LINR		Linear vessel
CONIC		Conical bottom vessel ①:Vessel dimension A
PARAB		Parabolic bottom vessel ①:Vessel dimension A
HALF		Half sphere bottom vessel ①:Vessel dimension A
FLAT		Flat sloped bottom vessel ①:Vessel dimension A
PARAE		Parabolic ends vessel ①:Vessel dimension A ②:Vessel dimension L

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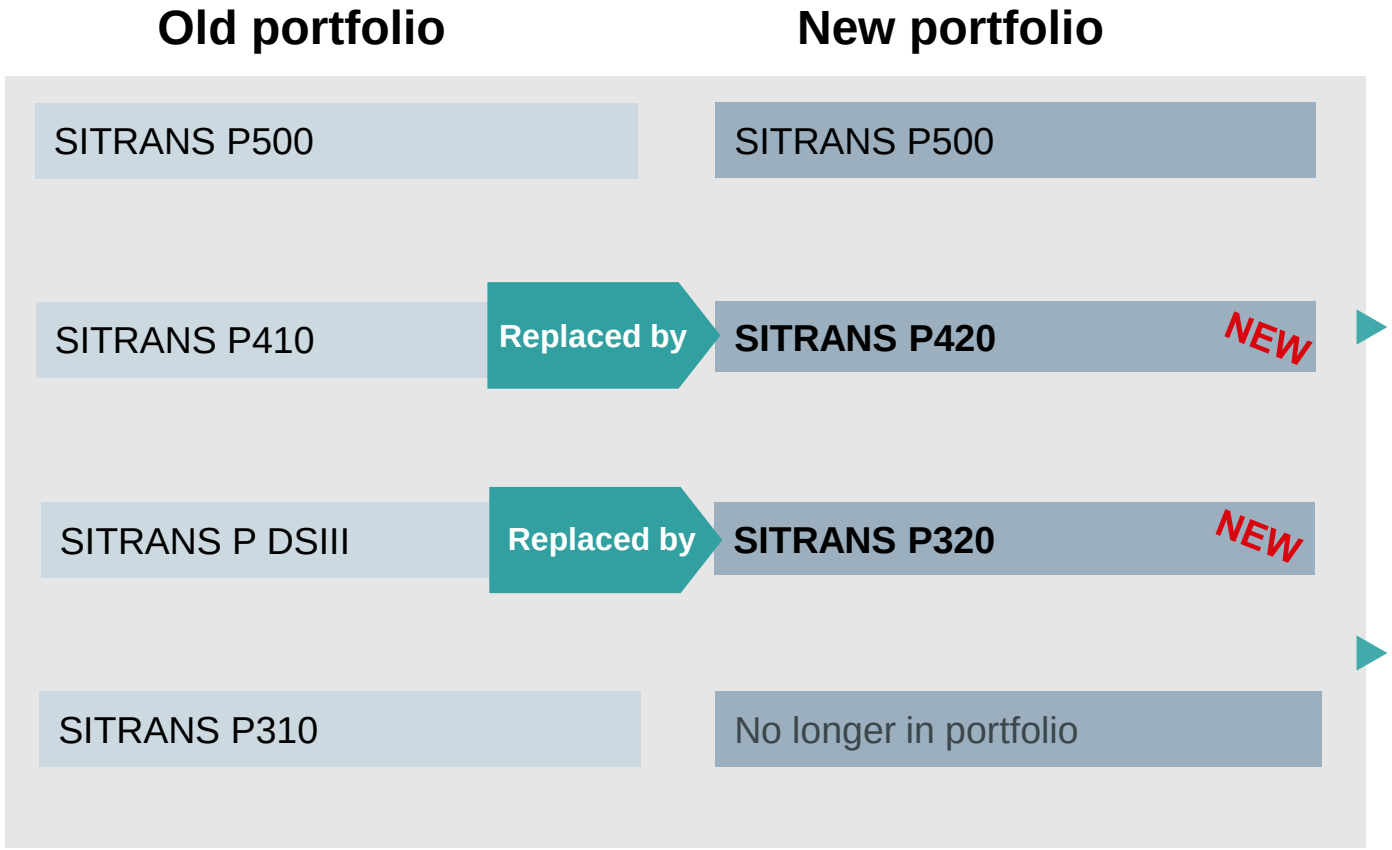
SITRANS P320 / P420
with HART communication



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DSIII to P320 Conversion

	DSIII MLFB	P320 MLFB	P420 MLFB
Gauge Pressure	7MF4033	7MF0300	7MF0400
Gauge Pressure • **(DP cell)**	n/a	7MF0310	7MF0410
Front-Flush Diaphragm • **(Gauge or Absolute)**	7MF4133	Digit in gauge or absolute Process connection “K”	Digit in gauge or absolute Process connection “K”
Absolute Pressure	7MF4233	7MF0320	7MF0420
Absolute Pressure • **(DP Cell)**	7MF4333	7MF0330	7MF0430
Differential Pressure • **(MWP 2320 psi)**	7MF4433	7MF0340	7MF0440
Differential Pressure • **(MWP 6092 psi)**	7MF4533	7MF0350	7MF0450
DP for Level	7MF4633	7MF0360	7MF0460

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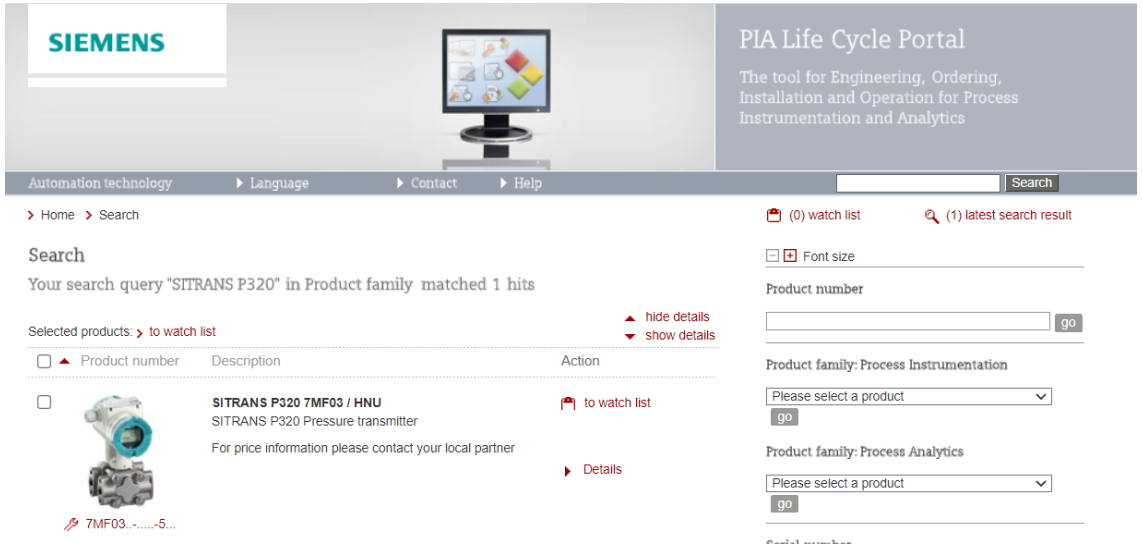
SITRANS P320&P420 Product configuration

PIA configuration website

SITRANS P320
https://www.pia-portal.automation.siemens.com/SIE/Z3_PIA_PORTAL/?sap-language=EN&P_MATNR=7MF0300/

SITRANS P420
https://www.pia-portal.automation.siemens.com/SIE/Z3_PIA_PORTAL/?sap-language=EN&P_MATNR=7MF0400



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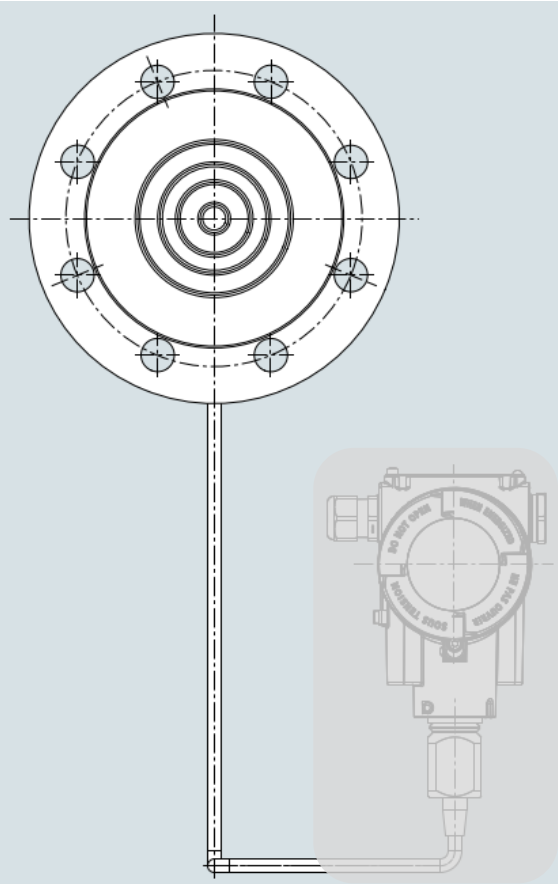
Remote seals product configuration for gauge pressure or absolute pressure
Type 7MF0810



PIA configuration website
https://www.pia-portal.automation.siemens.com/SIE/Z3_PIA_PORTAL/?sap-language=EN&P_MATNR=7MF0810

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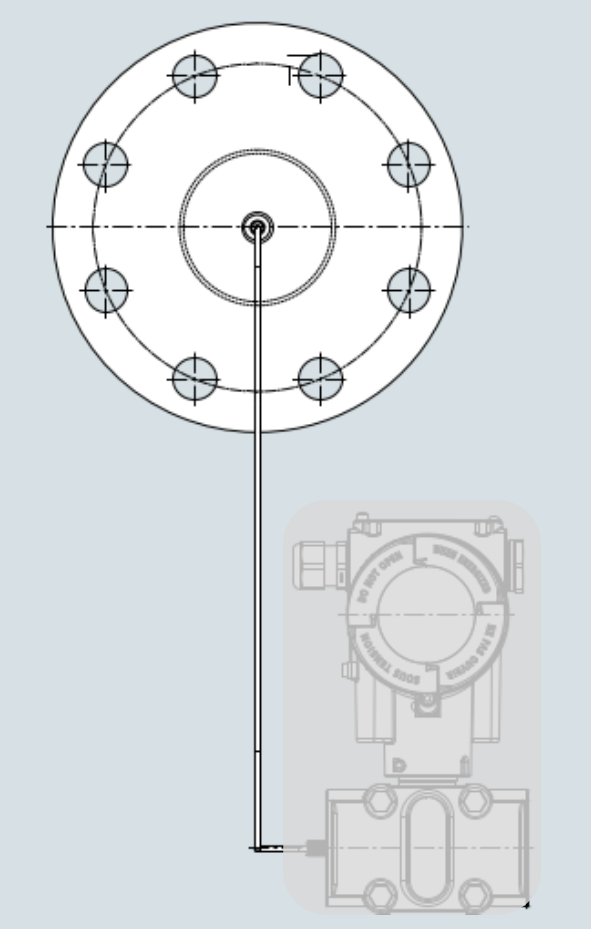
Remote seals product configuration for absolute pressure with Dp cell Type 7MF0811



PIA configuration website
https://www.pia-portal.automation.siemens.com/SIE/Z3_PIA_PORTAL/?sap-language=EN&P_MATNR=7MF0811

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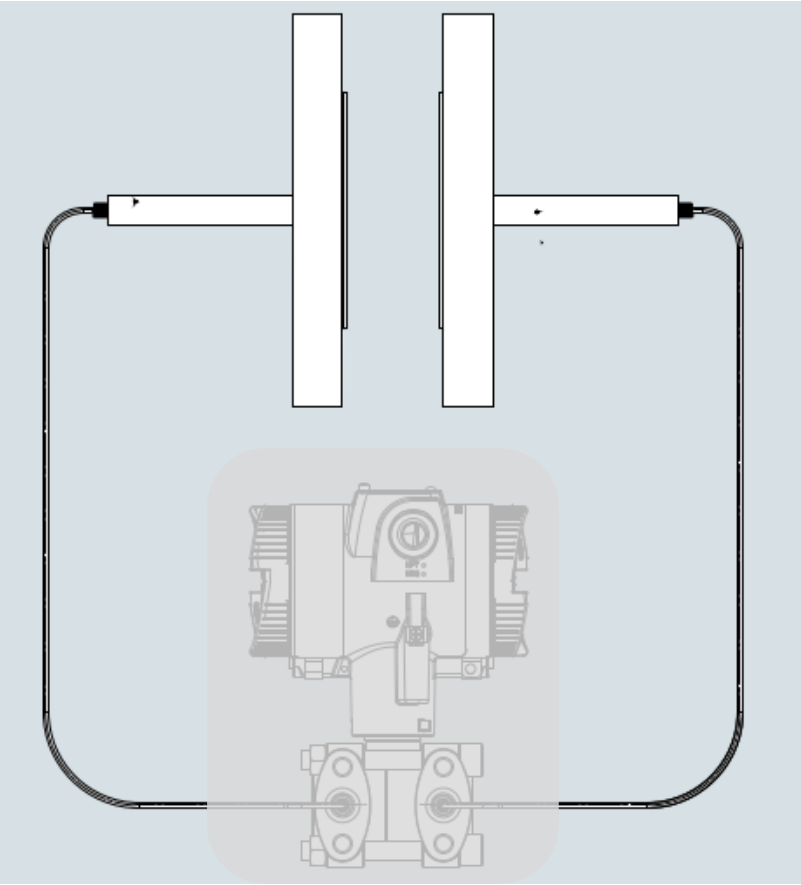
Remote seals product configuration for differential pressure and level
Type 7MF0812



PIA configuration website
https://www.pia-portal.automation.siemens.com/SIE/Z3_PIA_PORTAL/?sap-language=EN&P_MATNR=7MF0812

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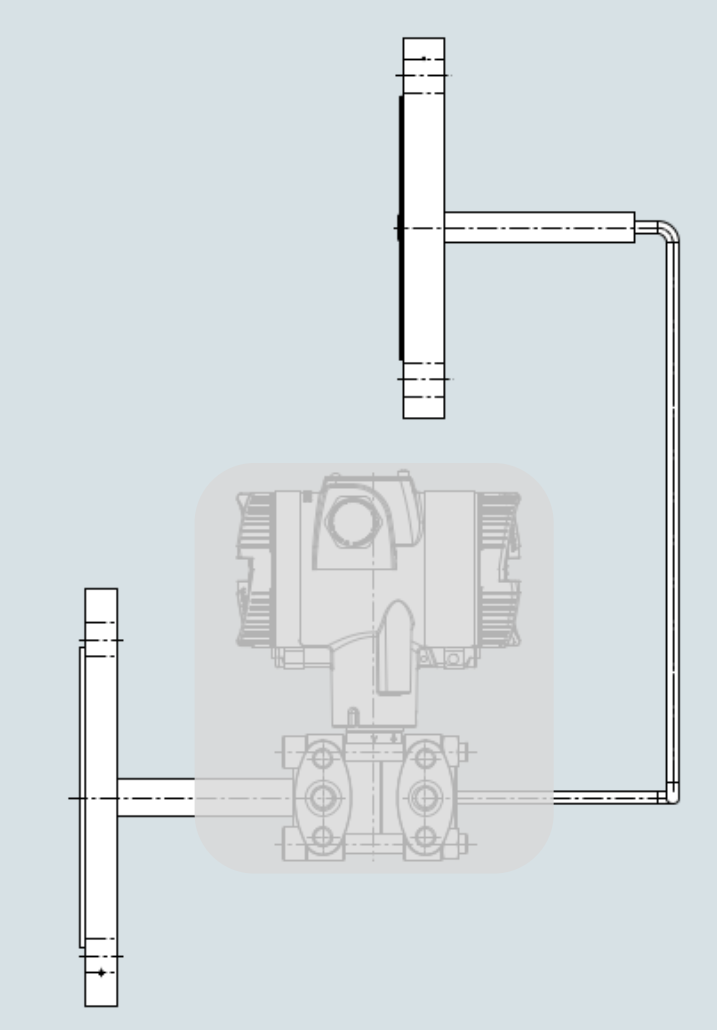
Remote seals product configuration for differential pressure and level
Type 7MF0813



PIA configuration website
https://www.pia-portal.automation.siemens.com/SIE/Z3_PIA_PORTAL/?sap-language=EN&P_MATNR=7MF0813

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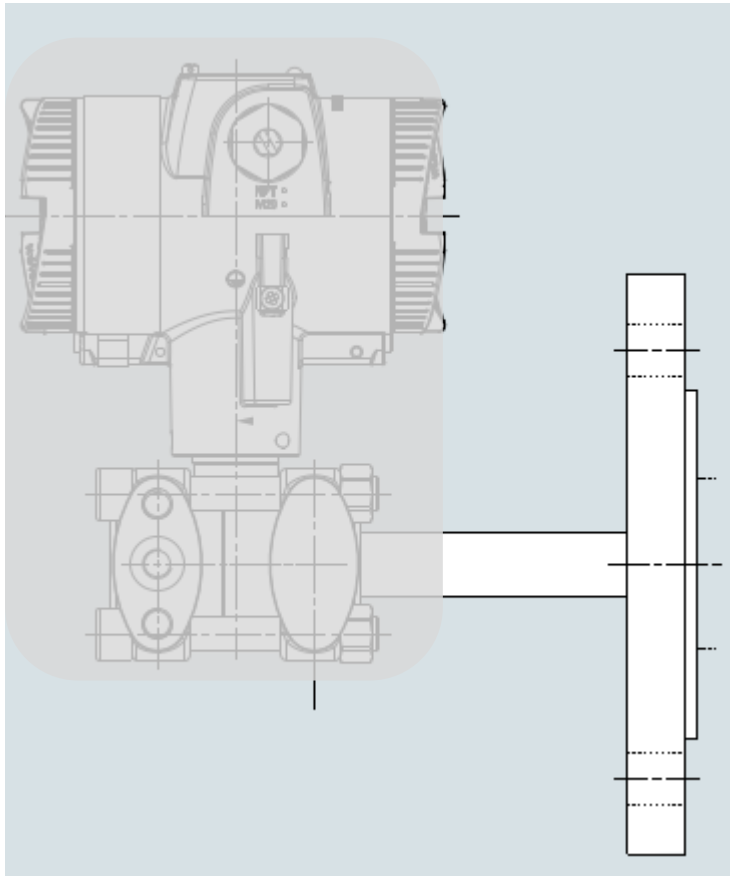
Remote seals product configuration for level Type 7MF0814



PIA configuration website
https://www.pia-portal.automation.siemens.com/SIE/Z3_PIA_PORTAL/?sap-language=EN&P_MATNR=7MF0814

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Thank you for your attention!

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