

Datasheet for

SITRANS P320 Pressure transmitter

Ordering data:

7MF03401PM215AM2
A00+C11+C14+E00+H02+Y01

General

Manufacturer	Siemens
Supplier	Siemens
Product designation	differential pressure transmitter
Product designation	differential pressure transmitter for flow measurement
Brand name	SITRANS P320
Type designation	SITRANS P320 Pressure transmitter
Article number	7MF03401PM215AM2-Z A00+C11+C14+E00+H02+Y01
Net weight	4 kg
Slogan	Digital pressure transmitter with extended diagnostic capabilities and remote safety handling

Mode of operation and application

Measuring principle	piezo-resistive
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Input

Measurand	Mass flow
Measurand	Volume flow
Measurand	Temperature
Measurand	Differential pressure

Measuring range

Measuring range, differential	
Measuring range, differential (minimum)	-5 bar
Measuring range, differential (maximum)	5 bar

Measuring span

Measuring span (maximum)	5 bar
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Output

Current output

Number of outputs	1
Signal range	4 ... 20 mA
Failure signal (minimum)	3,55 mA
Failure signal (maximum)	22,8 mA
Output voltage	
Output voltage (minimum)	10,5 V
Output voltage (maximum)	45 V
Output current	
Output current (minimum)	3,55 mA
Output current (maximum)	22,8 mA
Time constant for smoothing	
Time constant for smoothing (minimum)	0 s
Time constant for smoothing (maximum)	100 s
Load (maximum)	1.500 Ohm
Load with HART-Communicator	

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Load with HART-Communicator (minimum)	230 Ohm
Load with HART-Communicator (maximum)	850 Ohm
Load with HART-Modem	
Load with HART-Modem (minimum)	230 Ohm
Load with HART-Modem (maximum)	850 Ohm
Load with HART SIMATIC PDM	
Load with HART SIMATIC PDM (minimum)	230 Ohm
Load with HART SIMATIC PDM (maximum)	600 Ohm
Interface	NAMUR NE43

Accuracy

Measuring accuracy, relative	0,065 %
Base factor	Full-scale value

Operating conditions

Medium temperature	
Medium temperature (minimum)	-40 °C
Medium temperature (maximum)	100 °C
Standard for vibration resistance	IEC 60068-2-6
Vibration resistance during operation (maximum)	5 m/s ²
Standard for shock tests	IEC 60068-2-27
Degree of pollution	Pollution degree 2
Standard for the degree of pollution	IEC 60664-1
Overvoltage class	Installation category III
Standard for the overvoltage class	IEC 61010-1

Pressure

Operating pressure, relative	
Operating pressure, relative (minimum)	-970 mbar
Operating pressure, relative (maximum)	160 bar
Operating pressure, absolute (minimum)	30 mbar
Test pressure, relative (maximum)	240 bar

Environmental conditions

Ambient temperature during operation	
Ambient temperature during operation (minimum)	-40 °C
Ambient temperature during operation (maximum)	85 °C
Ambient temperature during storage	
Ambient temperature during storage (minimum)	-50 °C
Ambient temperature during storage (maximum)	85 °C
Ambient temperature during transport	
Ambient temperature during transport (minimum)	-40 °C
Ambient temperature during transport (maximum)	85 °C
Environmental category during operating according to IEC 60721	4K26
Standard for environmental conditions Standard for environmental conditions	IEC 60721-3-4
Relative humidity during operation	

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Relative humidity during operation (minimum)	4 %
Relative humidity during operation (maximum)	95 %
Degree of protection	
IP rating	IP66
NEMA Enclosure Type	NEMA Type 4X
Electromagnetic compatibility EMC	
Standard for EMC	NAMUR NE21
Standard for EMC	EN 61326-1

Structural Design

Mechanical design

Design of the device	compact version, sensor integrated
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Process connection

Number of process connections	2
Design	oval flange
Standard	DIN 19213

Process connection at the low-pressure side

Design	oval flange
Standard	DIN 19213
Nominal size	1/4"-18 NPT
Pressure rating	PN 160
Design of the thread for fastening at low-pressure side	M10x1,5

Process connection at the high-pressure side

Design	oval flange
Standard	DIN 19213
Nominal size	1/4"-18 NPT
Pressure rating	PN 160
Design of the thread for fastening at high-pressure side	M10 x 1,5

Material

Process connection

Material at low-pressure side	stainless steel
Material number at low-pressure side according to DIN EN 10027-2	1.4408
Material number at low-pressure side according to AISI	316
Material at high-pressure side	stainless steel
Material number at high-pressure side according to DIN EN 10027-2	1.4408
Material number at high-pressure side according to AISI	316

Enclosure

Material	aluminum
Material number according to DIN EN 10027-2	3.2581
Grade according to DIN EN 10027-1	GD-AISi12
Coating	Polyurethane (PUR):
Material of the process flange sealing at low-pressure side	fluorocarbon-rubber (FKM/FPM)

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Material of the process flange sealing at high-pressure side	stainless steel
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Material of the process flange at high-pressure side	fluorocarbon-rubber (FKM/FPM)
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Material of the sealing screw at high-pressure side	Stainless steel
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Material number of the sealing screw at high-pressure side according to DIN EN 10027-2	1.4404
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Material number of the sealing screw at high-pressure side according to AISI	316
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Separation & Measuring Membrane

Material of the separation membrane at low-pressure side	nickel alloy
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Brand name of the separation membrane at low-pressure side	alloy C276
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Material number of the separation membrane at low-pressure side according to DIN EN 10027-2	2.4819
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Material number of the separation membrane at low-pressure side according to AISI	alloy C276
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Material of the separation membrane at high-pressure side	Nickel alloy
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Brand name of the separation membrane at high-pressure side	alloy C276
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Material number of the separation membrane at high-pressure side	2.4819
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Material number of the separation membrane at high-pressure side	alloy C276
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Cable entry & cable gland

Material of the cable entry	polyamide (PA)
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Miscellaneous

Material of the gasket between sensor and housing	acrylonitril-butadiene-styrol-rubber (NBR)
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Filling liquid in the measuring cell	silicone oil
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Material of the nameplate	Stainless steel
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Material number of the nameplate according to DIN EN 10027-2	1.4404
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Material number of the nameplate according to AISI	316L
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Material of the tag plate	stainless steel
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Material number of the tag plate according to DIN EN 10027-2	1.4404
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Material number of the tag plate according to AISI	316L
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Material of the processing flange screws at low-pressure side	Stainless steel
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Material of the sealing screw at low-pressure side	Stainless steel
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Material number of the sealing screw at low-pressure side according to	1.4404
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Material number of the sealing screw at low-pressure side according to	316
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Electrical connections

Connection technology	2-wire connection
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Potential insulation	galvanic isolation
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Number of cable entries	2
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Design of the cable entry	1/2"-14 NPT
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Design of the electrical connection	screw-type terminals
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Display and operating controls

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Design of the display	multisegment display
Operating controls	Pushbutton
Number of controls	4
Ambient temperature for display readability	
Ambient temperature for display clarity (minimum)	-20 °C
Ambient temperature for display clarity (maximum)	80 °C

Power supply

Type of the auxiliary power supply	electrical
Electrical	
Type of power supply	External
Voltage type	DC
Nominal voltage, DC	24 V
Supply voltage, DC	
Supply voltage, DC (minimum)	10,5 V
Supply voltage, DC (maximum)	45 V

Communication

Protocol	HART
Protocol version	Version 7
Number of cyclic transmitted values (maximum)	4
Transmittable value	differential pressure
Transmittable value	elektronic device temperature
Transmittable value	mass flow
Transmittable value	measuring cell temperature
Transmittable value	volume flow

Certificates and approvals

Verification of suitability	CE
Verification of suitability	RCM
Fluid group according to PED 2014/68/EU	gas group 1
Fluid group according to PED 2014/68/EU	liquid group 1
Pressure device category according to PED 2014/68/EU	Article 4.3
Type of calibration	5-point calibration
Standard for calibration	IEC 60770-2
Manufacturer declaration	2.2 (Test report)
Standard for factory certificate	EN 10204
Reliability (MTBF)	
MTBF	382 a
Standard for MTBF	SN 29500
Determination procedure	Number of registered failures
Applicability	Measuring device

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