

QPress Smart (HART) Process Pressure Transmitter QHP-PROCESS 5200 Series

Smart head-mount process transmitter with 100:1 turn-down, Ex ia/db/tb approvals and IP66/67 sealing.

Certifications

Quality Lab Solutions data sheet R4



Applications

- Process measurement in utilities, pumps, compressors, test rigs and general plant services
- Hazardous areas Zone 0/1/21
- Marine and offshore where class approvals are required.

Special Features

- 4–20 mA + HART (HART5 default; HART7 optional); Modbus RS485; Bluetooth option
- Turn-down ratio up to 100:1 with accuracy formula per URL and TD
- URL ranges: GP 0.4...400 bar; AP 0.1...100 bar; LRL/overload per table
- Damping configurable 0–100 s; response time ≤ 100 ms
- Load window 0–1476 Ω (operation), 250–800 Ω (HART)
- Ex ia/Ex db/Ex tb; NA Class/Div/Zone; marine approvals available (CCS, DNV, BV, ABS, LR, KR, NK, RS)
- Wetted materials: 316L, HC-276, Tantalum, Ceramic (AP 0.1/0.2 bar); oil-free option
- Process ports: M20×1.5, G1/2, 1/2-14 NPT male/female; vent hole $\Phi 3/\Phi 6/\Phi 14$
- Dual electrical entries M20×1.5 or 1/2 NPT with optional glands and flameproof plugs



QHP-PROCESS 5200

Description

QPress Smart (HART) Process Pressure Transmitter – QHP-PROCESS 5200 Series is a compact, head-mount unit for gauge and absolute measurement in plant services. A stainless-steel or aluminium housing with dual cable entries achieves IP66/67 ingress protection. URL options span 0.1...100 bar absolute and 0.4...400 bar gauge with a 100:1 turn-down; accuracy is defined against URL with temperature and turn-down effects stated. Outputs include 4–20 mA with HART (Bluetooth option) or Modbus RS485. Damping is adjustable 0–100 s and response time is ≤ 100 ms. Ex ia, Ex db and Ex tb variants cover Zone 0/1/21; North American Class/Div/Zone markings and marine approvals are available. Wetted materials include 316L, HC-276, Tantalum or Ceramic with silicone, low-temperature silicone or fluorocarbon oil fills to suit medium temperature envelopes.

Specifications

TECHNICAL SPECIFICATIONS	
Pressure range	GP URL: 0.4, 2.5, 10, 30, 100, 400 bar; AP URL: 0.1, 0.2, 0.4, 2.5, 10, 30, 100 bar; LRL/AP: 0 bar; LRL/GP: -0.4 or -1 bar
Pressure reference	Gauge; Absolute
Accuracy	GP: $\pm 0.075 \dots \pm 0.2$ %URL by range; AP: $\pm 0.1 \dots \pm 0.2$ %URL; see accuracy vs turn-down
Turn down	100:1
Temp. drift	GP: $\pm (0.075 + 0.0375 \cdot TD) \% / 10^\circ\text{C}$; AP: $\pm (0.125 + 0.075 \cdot TD) \% / 10^\circ\text{C}$ (0.1–0.4 bar) and $\pm (0.115 + 0.065 \cdot TD) \% / 10^\circ\text{C}$ (2.5–100 bar)
Response time	≤ 100 ms
Power consumption	≤ 500 mW @ 24 V
Ambient temp.	Without LCD -50...85 °C; With LCD -40...70 °C
Medium temp.	Silicone -40...200 °C; Low-temp silicone -55...120 °C; Fluorocarbon oil -55...85 °C
Storage temp.	Without LCD -50...100 °C; With LCD -40...85 °C
Sensor operating temp.	-40...105 °C
Operating humidity	5–100 %RH @ 40 °C
Warranty	2; 3; 5 years
Damping time	0–100 s
Relative humidity	5–100 %RH @ 40 °C
Protection	IP66; IP67
Overpressure	GP overload: 10 / 40 / 60 / 150 / 200 / 800 bar; AP overload: 6 / 10 / 10 / 40 / 60 / 150 / 200 bar
Net weight	1.56 kg
Size of hexagon	SW30
Approvals/Certification	CE; UKCA; RoHS; ATEX; IECEx; CSA; EAC; Marine: DNV; BV; ABS; LR; KR; NK; RS
EX Protection types	Ex ia; Ex db; Ex tb
Temperature class	T4 (IS); T6 (Flameproof); T80°C (Dust)
Electrical Outputs	4–20 mA + HART (HART5 default; HART7 optional); 4–20 mA + HART + Bluetooth; Modbus RS485 (RTU)
Process connections	M20×1.5 male; G1/2 male; 1/2-14 NPT male; 1/2-14 NPT female; Flange (non-diaphragm)
Cable Gland Types	M20×1.5 gland IP67; flameproof plug; adapters M20↔G1/2/NPT
Electrical entry threads	M20×1.5; 1/2 NPT (two entries)
Connector material	316 SS metal plug; PVC or 316 SS glands
Fill fluid options	Silicone; Low-temperature silicone; Fluorocarbon oil 2; None (ceramic)
Wetted parts	316L; HC-276; Tantalum; Ceramic (AP 0.1/0.2 bar)
Housing Material	316L stainless-steel or aluminium alloy (polyester coated)
Electrical connections	Dual entries: M20×1.5 or 1/2 NPT; optional cable glands/adapters; flameproof plug
Power Supply	18.3...44 V DC (IS 18.3...30 V DC); ≤ 500 mW @ 24 V DC
Longterm Stability	± 0.1 %SPAN/10 years
Vibration effect	< 0.1 %SPAN (IEC 61298-3)
Bluetooth option	Available
HART Version	HART5 default; HART7 optional

Accuracy

Pressure reference	Turn-down (TD)	Accuracy expression	Applicable nominal ranges
GP	$TD \leq 5$	$\pm 0.10\%$ URL	0.4 bar
GP	$TD \leq 5$	$\pm 0.075\%$ URL	2.5 / 10 / 30 / 100 / 400 bar
GP	$TD > 5$	$\pm(0.025 + 0.015 \cdot TD)\%$	0.4 bar
GP	$TD > 5$	$\pm(0.0025 + 0.0145 \cdot TD)\%$	2.5 / 10 / 30 / 100 / 400 bar
AP	$TD \leq 5$	$\pm 0.20\%$ URL	0.1 / 0.2 / 0.4 bar
AP	$TD \leq 5$	$\pm 0.10\%$ URL	2.5 / 10 / 30 / 100 bar
AP	$TD > 5$	$\pm(0.025 + 0.035 \cdot TD)\%$	0.1 / 0.2 / 0.4 bar
AP	$TD > 5$	$\pm(0.025 + 0.015 \cdot TD)\%$	2.5 / 10 / 30 / 100 bar

Ambient temperature effects

Pressure reference	Effect (per 10°C)	Applicable nominal ranges
GP	$\pm(0.075 + 0.0375 \cdot TD)\%$ of span per 10°C	0.4 / 2.5 / 10 / 30 / 100 / 400 bar
AP	$\pm(0.125 + 0.075 \cdot TD)\%$ of span per 10°C	0.1 / 0.2 / 0.4 bar
AP	$\pm(0.115 + 0.065 \cdot TD)\%$ of span per 10°C	2.5 / 10 / 30 / 100 bar

Environmental conditions

Item	Condition	Notes
Operating temperature	-50 to +85 deg (no LCD); -40 to +70 deg (with LCD)	Explosion-proof short pipe surface ≤ 80 deg
Storage temperature	-50 to +100 deg (no LCD); -40 to +85 deg (with LCD)	-
Sensor operating temperature	-40 to +105 deg	-
Medium temperature (silicone fill)	-40 to +200 deg	Subject to diaphragm and O-ring ratings
Medium temperature (low-temp silicone)	-55 to +120 deg	-
Medium temperature (fluorocarbon oil 2)	-55 to +85 deg	Select for oxygen service
Operating humidity	5 %RH to 100 %RH @ 40 deg	-

EMC standards

Test	Standard	Test conditions	Performance level
Radiated emission (enclosure)	CISPR 32	30 MHz–1000 MHz	Qualified
Conducted emission (DC port)	CISPR 32	0.15 MHz–30 MHz	Qualified
Electrostatic discharge immunity	IEC 61000-4-2	8 kV contact, 15 kV air	B
RF electromagnetic field immunity	IEC 61000-4-3	10 V/m (80 MHz–1 GHz)	A
Power-freq magnetic field immunity	IEC 61000-4-8	30 A/m	B
Electrical fast transient/burst immunity	IEC 61000-4-4	4 kV (5/50 ns, 100 kHz)	B
Surge immunity	IEC 61000-4-5	2 kV line-line; 4 kV line-ground (1.2/50 μ s)	B
Conducted RF immunity	IEC 61000-4-6	3 V (150 kHz–80 MHz)	A

Power supply & Load

Item	Specification	Notes
Supply voltage (HART)	18.3–44 VDC	13 VDC possible for non-IS on request
Supply voltage (IS HART)	18.3–30 VDC	Intrinsically safe circuits
Loop load (operation)	0–1476 Ω	-
Loop load (HART comms)	250–800 Ω	-
Transmission distance	< 1000 m	Twisted pair recommended
Power consumption	≤ 500 mW @ 24 VDC (20.8 mA)	-

Measuring Range (Gauge Pressure)

Range Code	Measuring Range	Minimum Range	LRL	URL	Overload	Overpressure	Accuracy
01	0-0.4 bar	0.02 bar	-0.4 bar	0.4 bar	10 bar	2500%FS	$\pm 0.075\% \text{URL} / \pm 0.1\% \text{URL} / \pm 0.2\% \text{URL}$
02	0-2.5 bar	0.125 bar	-1 bar	2.5 bar	40 bar	1600%FS	$\pm 0.075\% \text{URL} / \pm 0.1\% \text{URL} / \pm 0.2\% \text{URL}$
03	0-10 bar	0.5 bar	-1 bar	10 bar	60 bar	600%FS	$\pm 0.075\% \text{URL} / \pm 0.1\% \text{URL} / \pm 0.2\% \text{URL}$
04	0-30 bar	1.5 bar	-1 bar	30 bar	150 bar	500%FS	$\pm 0.075\% \text{URL} / \pm 0.1\% \text{URL} / \pm 0.2\% \text{URL}$
05	0-100 bar	5 bar	-1 bar	100 bar	200 bar	200%FS	$\pm 0.075\% \text{URL} / \pm 0.1\% \text{URL} / \pm 0.2\% \text{URL}$
06	0-400 bar	50 bar	-1 bar	400 bar	800 bar	200%FS	$\pm 0.075\% \text{URL} / \pm 0.1\% \text{URL} / \pm 0.2\% \text{URL}$

Measuring Range (Absolute Pressure)

Range Code	Measuring Range	Minimum Range	LRL	URL	Overload	Overpressure	Accuracy	Notes
01	0-0.1 bar	0.05 bar	0 bar	0.1 bar	6 bar	6000%FS	$\pm 0.1\% \text{URL} / \pm 0.2\% \text{URL}$	Ceramic diaphragm
02	0-0.2 bar	0.1 bar	0 bar	0.2 bar	10 bar	5000%FS	$\pm 0.1\% \text{URL} / \pm 0.2\% \text{URL}$	Ceramic diaphragm
03	0-0.4 bar	0.2 bar	0 bar	0.4 bar	10 bar	2500%FS	$\pm 0.1\% \text{URL} / \pm 0.2\% \text{URL}$	
04	0-2.5 bar	0.5 bar	0 bar	2.5 bar	40 bar	1600%FS	$\pm 0.1\% \text{URL} / \pm 0.2\% \text{URL}$	
05	0-10 bar	2 bar	0 bar	10 bar	60 bar	600%FS	$\pm 0.1\% \text{URL} / \pm 0.2\% \text{URL}$	
06	0-30 bar	3 bar	0 bar	30 bar	150 bar	500%FS	$\pm 0.1\% \text{URL} / \pm 0.2\% \text{URL}$	
07	0-100 bar	10 bar	0 bar	100 bar	200 bar	200%FS	$\pm 0.1\% \text{URL} / \pm 0.2\% \text{URL}$	

Output Signals

Code	Output	Power Supply	Load
IH	4-20 mA (2-wire) + HART	18.3–44 VDC (non-IS) / 18.3–30 VDC (IS)	0–1476 Ω ; 250–800 Ω for HART comms
IB	4-20 mA (2-wire) + HART + Bluetooth	18.3–44 VDC (non-IS) / 18.3–30 VDC (IS)	0–1476 Ω ; 250–800 Ω for HART comms
RM	RS485 (MODBUS RTU)	18.3–44 VDC	

HART Protocol

Code	Description
H5	HART 5 (default)
H7	HART 7

Electrical Connections & Pin outs

Code	Description	Pinout
E7	Terminal block via cable gland, dual conduit entries on case	- 2-wire current (IH/IB): Pin + = Supply +24V; Pin – = Loop– - Digital RS485 (RM): +24V to +; 0V to –; RS485A; RS485B

Construction Materials			
Code	Diaphragm	Pressure Port	Housing
24	316L	316L	316L or aluminium case
27	HC-276	316L	316L or aluminium case
TA	Tantalum	316L	316L or aluminium case
CE	Ceramic	316L	316L or aluminium case

Enclosure & Conduit entry				
Code	Case Material	Conduit Thread	Outlet Ports	Notes
EC1	316L SS	M20×1.5 (dual outlets)	2	
EC2	316L SS	1/2 NPT (dual outlets)	2	No glands included
EC3	Aluminium (polyester coated)	M20×1.5 (dual outlets)	2	
EC4	Aluminium (polyester coated)	1/2 NPT (dual outlets)	2	

Cable Gland & Adapter

Code	Type	Thread	Material	Cable OD range	IP rating	Notes
GL0	None	—	—	—	—	
GLA	Flameproof metal plug (single ended)	—	316 SS	—	—	Flameproof
GL1	Waterproof cable gland with plug	M20×1.5	PVC	6–12 mm	IP67	
GL2	Non-flameproof adapter (M20×1.5 M to M20×1.5 F)	M20×1.5	316 SS	6–8 mm	IP67	
GL3	Flameproof adapter (M20×1.5 M to 1/2 NPT F)	M20×1.5 to 1/2 NPT	316 SS	6–12 mm	IP67	
GL4	Flameproof adapter (M20×1.5 M to M20×1.5 F)	M20×1.5 to M20×1.5	316 SS	6–12 mm	IP67	
GL5	Flameproof adapter (M20×1.5 M to G1/2 F)	M20×1.5 to G1/2	316 SS	6–12 mm	IP67	

Application

Code	Description
OX	Oxygen service (use fluorocarbon fill, oil-free treatment)
OF	Oil-free degreasing of wetted parts

Power Supply

Code	Supply
V4	18.3–44 VDC (HART)
VI	18.3–30 VDC (IS HART)

Sensor structure/ Remote seal

Code	Supply
SS1	Single-flange diaphragm seal

Fill Fluid

Code	Fluid	Medium temp range	Notes
FFN	No fill (ceramic only)	—	
FFS	Silicone oil	-40 to +105 deg	
FFL	Low-temp silicone oil	-55 to +120 deg	
FFE	Fluorocarbon oil 2	-55 to +85 deg	Select for oxygen service

Display

Code	Display	Temp window
D0	None	-40 to +70 deg (Ex) / -50 to +85 deg (non-Ex)
D1	LCD	-40 to +70 deg

Accuracy options

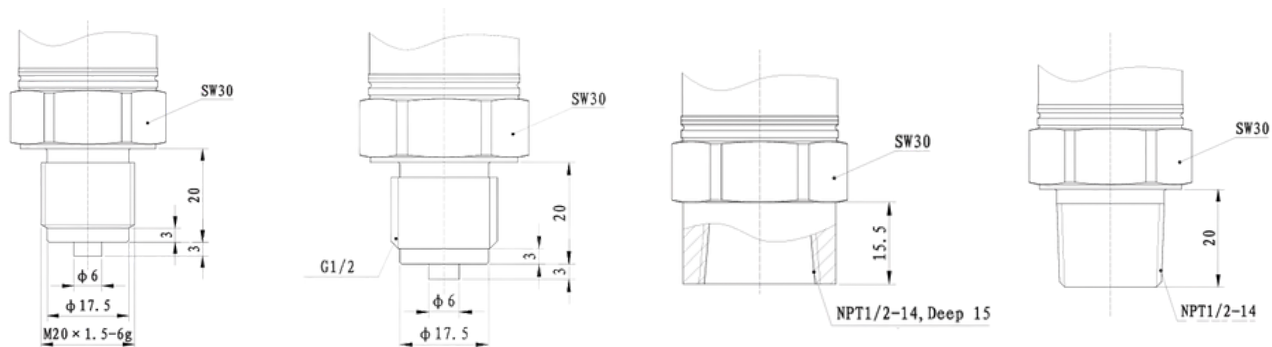
Code	Accuracy
AG	±0.075%URL
A1	±0.1%URL
A2	±0.2%URL

Certification/Documentation

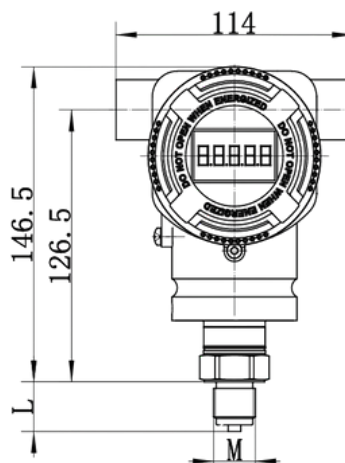
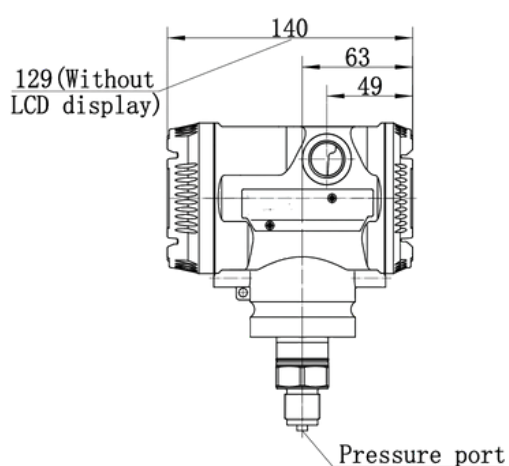
Code	Description
CE	CE (EMC)
UK	UKCA
RO	RoHS
AT	ATEX (db / ia / tb)
IX	IECEx (db / ia / tb)
UL	CSA/UL North America (Division/Zone)
CU	EAC Ex

Process Connections/Drawings

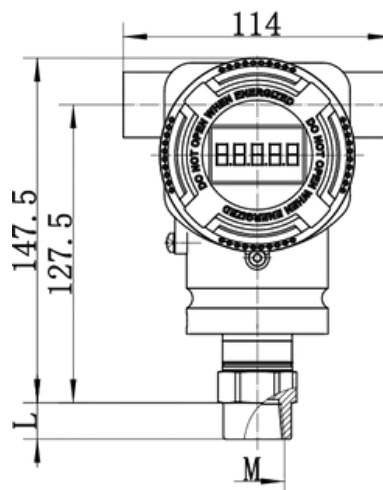
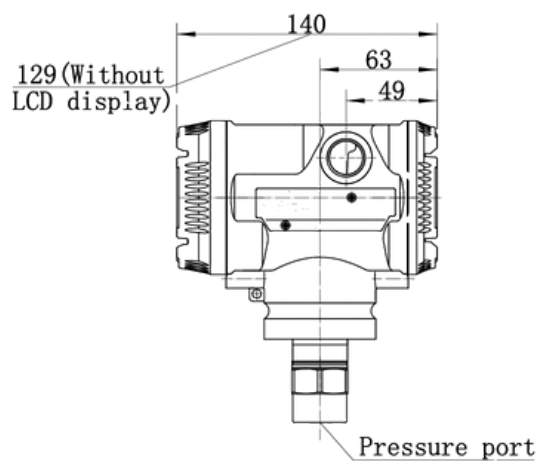
Code	Thread / Port
P01	M20×1.5 male (Φ3 vent)
P02	G1/2 male (Φ3 vent)
P03	1/2-14 NPT male (Φ6 vent)
P04	1/2-14 NPT female (Φ14 vent)
P20	Raised-face flange (non-diaphragm)



Transmitter with display & male process connection



Transmitter with display & female process connection



Mounting options



MB1



MB2

Optional Extras

Group	Code	Description
Mounting bracket accessories	MB1	L-shaped bracket (sq), 316 SS
	MB2	L-shaped bracket (sq), Q235 carbon steel
Flange (non-diaphragm)	FL1	DN50 PN10–PN40 RF raised face flange (HG/T 20592-2009)
	FL2	DN25 PN10–PN40 RF raised face flange (HG/T 20592-2009)
	FL3	DN20 PN10–PN40 RF raised face flange (HG/T 20592-2009)
Calibration / Verification	CAL	Factory verification report; specify LRL/URL if required
Leakage test report	VT1	10 bar, 10 min (nominal 0.4 bar)
	VT2	40 bar, 10 min (nominal 2.5 bar)
	VT3	60 bar, 10 min (nominal 10 bar)
	VT4	150 bar, 10 min (nominal 30 bar)
	VT5	200 bar, 10 min (nominal 100 bar)
	VT6	800 bar, 10 min (nominal 400 bar)
Function settings	ST	Damping time adjustable 0–100 s (default 0 s)
	WH	High alarm: 20.8 mA (HART5) / 21 mA (HART7)
	WL	Low alarm: 3.8 mA (HART5) / 3.7 mA (HART7)
HART configuration	H5	HART 5 (default)
	H7	HART 7
Identification plate	IP1	316L hanging nameplate; specify ID ≤16 chars
Valve manifold (integrated)	VM1	Factory assembled with MICROSensor valve manifold
Diaphragm surface treatment	DG5	Gold plating 5 µm
Application	OF	Oil-free degreasing of wetted parts
	OX	Oxygen service (select fluorocarbon oil)
Lithium battery compliance	LB1	Low Cu/Zn requirements for lithium battery industry
Language & documentation	LG-EN	English nameplate + documentation + certificates
Language & documentation	LG-RU	Russian nameplate + documentation + certificates
Delivery documentation	DS1	Additional acceptance documents per order
Warranty period	WY2	2-year warranty
	WY3	3-year warranty
	WY5	5-year warranty

Hazardous area

Code	Scheme	Explosion protection marking	Key standards (non-PRC)	Notes
AT	ATEX (EU)	II 1G Ex ia IIC T4 Ga	EN IEC 60079-0; EN 60079-11	Intrinsically safe
AT	ATEX (EU)	II 2G Ex db IIC T6 Gb; II 2D Ex tb IIIC T80°C Db	EN IEC 60079-0; EN 60079-1; EN 60079-31	Flameproof & dust
IX	IECEX (International)	Ex ia IIC T4 Ga	IEC 60079-0; IEC 60079-11	Intrinsically safe
IX	IECEX (International)	Ex db IIC T6 Gb; Ex tb IIIC T80°C Db	IEC 60079-0; IEC 60079-1; IEC 60079-31	Flameproof & dust
UL	North America (CSA/UL)	Class I, Div 1, Groups A–D T4; Class I, Zone 0, AEx ia IIC T4 Ga	ANSI/UL 60079-0/-11; UL 61010-1; CSA C22.2 60079-0/-11	Intrinsically safe
UL	North America (CSA/UL)	Class I, Div 1, Groups A–D T6; Class II Div 1 Groups E–G T80°C; AEx db IIC T6 Gb; AEx tb IIIC T80°C Db	ANSI/UL 60079-0/-1/-31; CSA C22.2 60079-0/-1/-31	Flameproof & dust
CU	EAC Ex (Eurasian)	1Ex db IIC T6 Gb; 0Ex ia IIC T4 Ga	GOST 31610.0; GOST IEC 60079-1/-11	—

Accessory

Code	Description
Code	Description
AX10	Cable gland kit
AX20	USB HART modem
AX30	RS485-USB converter

Order Guide

Segment	Your Code	Options
Product family	QHP-PROCESS 5200 Series	QHP-PROCESS 5200 Series
Pressure Reference	GP / AP	Select pressure reference
Range	01...06 (GP) / 01...07 (AP)	See Measuring range
Accuracy	AG / A1 / A2 (GP); A1 / A2 (AP)	See Accuracy options
Output	IH / IB / RM	See Output Signals
Power Supply	V4 / V1	See Power Supply
Enclosure & Conduit Entry	EC1 ... EC4	See Enclosure & Conduit Entry
Cable Gland & Adapter	GL0 ... GL5 / GLA	See Cable Gland & Adapter
Display	D0 / D1	See Display
Construction Materials	24 / 27 / TA / CE	See Construction Materials
Sensor Structure & Remote Seal	SS1	See Sensor Structure & Remote Seal
Fill Fluid	FFN / FFS / FFL / FFE	See Fill Fluid
Process Connection	P01 ... P04 / P20	See Process Connections & Drawings
Electrical Connection	E7	See Electrical Connections
Cable Material (E1 only)	P1 / P2 / P3	See Cable Material
Cable Length (E1 only)	C00 ... C05	See Cable Length
Certification	AT / IX / UL / CU / NA / CE / RO	See Certification
Hazardous Area	AT / IX / UL / CU	See Hazardous Area
Marine Class Certification	MC1 ... MC7	See Marine Class Certification
Metrological Certification	ME1 / ME2	See Metrological Certification
Calibration (LRV-URV)	CAL	See Calibration (LRV-URV)
Function Settings (Damping/Alarm)	ST / WH / WL	See Function Settings
HART Version	H5 / H7	See HART Version
Language & Nameplate	LG-EN / LG-RU	See Language & Nameplate
Identification Plate	IP1	See Identification Plate
Verification & Leak Test	VT1 ... VT6	See Verification & Leak Test
Valve Manifold (Integrated)	VM1	See Valve Manifold (Integrated)
Application	OX / OF	See Application
Flange (non-diaphragm)	FL1 / FL2 / FL3	See Flange (non-diaphragm)
Diaphragm Surface Treatment	DG5	See Diaphragm Surface Treatment
Lithium Battery Compliance	LB1	See Lithium Battery Compliance
Delivery Documentation	DS1	See Delivery Documentation
Warranty Period	WY2 / WY3 / WY5	See Warranty Period
Accessories	AX**	See Accessory

Ordering Example 0–10 bar gauge; $\pm 0.1\%$ URL; 4–20 mA + HART; 18.3–44 VDC; aluminium case with dual M20×1.5 entries and waterproof gland; LCD; 316L wetted parts; single-flange seal; silicone oil; G1/2 male; terminal wiring; ATEX certification and marking;

Family	Ref	Range	Accuracy	Output	Power Supply	Enclosure & Conduit Entry	Cable Gland & Adapter	Display	Construction Materials	Sensor Structure & Remote Seal	Fill Fluid	Process Connection	Electrical Connection	Certification	Hazardous Area
QHP-PROCESS 5200	GP	03	A1	IH	V4	EC3	GL1	D1	24	SS1	FFS	P02	E7	AT	AT
Marine Class Certification	Metrological Certification	Calibration (LRV-URV)	Function Settings (Damping/Alarm)	HART Version	Language & Nameplate	Identification Plate	Verification & Leak Test	Valve Manifold (Integrated)	Application	Delivery Documentation	Warranty Period	Accessories	Flange (non-diaphragm)	Diaphragm Surface Treatment	Lithium Battery Compliance
MC2	ME1	CAL	ST	H5	LG-EN	IP1	VT3	VM1	OX	DS1	WY3	AX20	-	-	-

Notes

Ensure media compatibility with wetted parts. Torque depends on gasket, mating material and lubrication.

