

# CANopen bus protocol DS301/DS404

- Supports CAN 2.0A/B
- LSS (DS 305 V2.)
- 0.2% non-linearity & hysteresis
- -58° ... +275°F media temp
- Bus speeds 10kbits/s....1Mbit/s
- Up to 1 kHz frequency of measurement & transmission
- Automatic baudrate detection - freely programmable by user



## About

The P87 offers all the benefits to allow for the utilization of 7-layer network CANopen bus protocol DS301/DS404. Designed to withstand the harshest environments such as on mobile hydraulic systems within the mining and AG sectors, the P87 is extremely versatile and reliable. Conforming to CiA standards,(Can in Automation), the P87 is fully programmable.

## Applications

- ✓ On & off-road vehicles
- ✓ Trains
- ✓ Facility automation
- ✓ Robotics
- ✓ Power train testing
- ✓ Hydraulics
- ✓ Pneumatics
- ✓ Chemicals
- ✓ Gases
- ✓ Refrigerants
- ✓ Oxygen
- ✓ Water

## P87 Transmitter Benefits CANopen Bus Protocol

- Canopen DS301
- Device profile DS404-1
- User adjustable output baudrate speed or automatic baudrate detection
- CiA (Can-in-Automation) bus speeds from 10kbits/s to 1Mbits/s
- Moving average filter from 1ms to 65s
- All standardized data types for PDO's floating point, integer with 32 & 16 bits
- Autobaud
- Supports 11 bit identifiers CAN 2.0 A/B
- Frequency of measurement and transmission speedup to 1kHz
- Auto-zero function
- Auto start mode for operation without master
- LSS (DS305) implemented
- Error control with heartbeat
- Selectable prefixed units of pressure: psi, bar, Pa, mmHg, atm & at
- Selectable prefixed units of temperature: °C, °F & °K
- Separate storage of parameters for communication and application
- Flash – update
- Output signal CANBUS (ISO 118982)
- Node ID LSS (DSP 305 V2.0) implemented
- Error control node guarding, heartbeat
- Number of PDO's: 2 TX
- PDO modes: time triggered, sync (cyclic)
- PDO linking
- PDO mapping
- Number of SDO's 1 per server
- Emergency messaging

# Build Your Part Number

## Series P87

Example: **P87GQ265C6D99D1-PSE3**

Series	
P87	

Pressure Reference	
G	Gauge

Output Signal	Supply
Q	CANopen bus protocol with pre-adjustment, Node-ID=1, automatic baudrate detection
	12/24 (9...32) VDC

Pressure Range (psi) - select one	Over Pressure (psi)	Burst Pressure (psi)	
24	0 ... 30	90	700
25	0 ... 50	150	850
26	0 ... 100	300	1450
27	0 ... 150	450	2500
28	0 ... 200	600	2500
29	0 ... 250	750	2500
31	0 ... 300	900	4000
32	0 ... 400	1200	4000
33	0 ... 500	1500	4000
34	0 ... 1000	3000	5000
35	0 ... 1500	4500	7000
36	0 ... 2000	6000	10000
37	0 ... 3000	9000	14500
38	0 ... 5000	12500	21500
39	0 ... 7500	18750	29000
41	0...10000	18750	29000
XX	Use "XX" for custom ranges (Ex: 0 ... 550 psi) Please inform range below part number		

Process Connection - select one; see diagrams page 8		
5A	1/8" NPT male	(max pressure 2000 psi)
5C	1/4" NPT male	
5G	7/16"-20UNF-2A male, SAE J1926-2 with FKM o-ring seal	(max pressure 900 psig)
5H	7/16"-20UNF female, SAE J512 with valve opener	(max pressure 800 psig)
5J	7/16"-20UNF female, SAE J512 without valve opener	(max pressure 800 psig)
5K	7/16"-20 UNF male, DIN3866 with FKM o-ring seal	(max pressure 800 psig)
5L	9/16"-18UNF-2A male, SAE J1926-2 with FKM o-ring seal	(max pressure 800 psig)
5N	G1/4" male with FKM o-ring seal	

# Build Your Part Number

**Series P87**

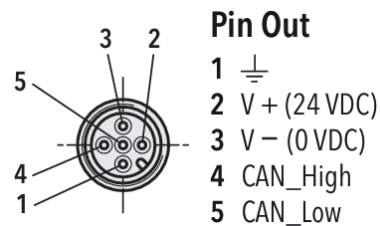
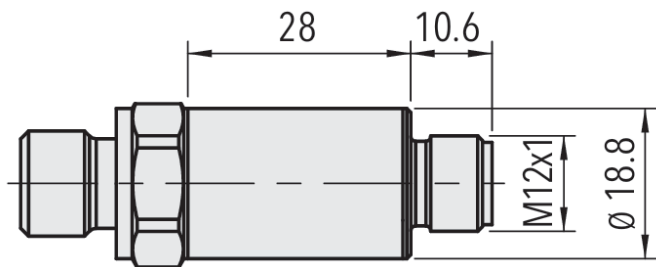
**Example: P87GQ265C6D99D1-PSE3**

Electrical Connection	
<b>6D</b>	Male electrical connector M12x1, 5-pole

Pin-Out	
<b>99</b>	Standard

Removeable Pressure Peak Damping Element	
<b>D1</b>	1.0 mm - best for viscosities similar to heavy oils

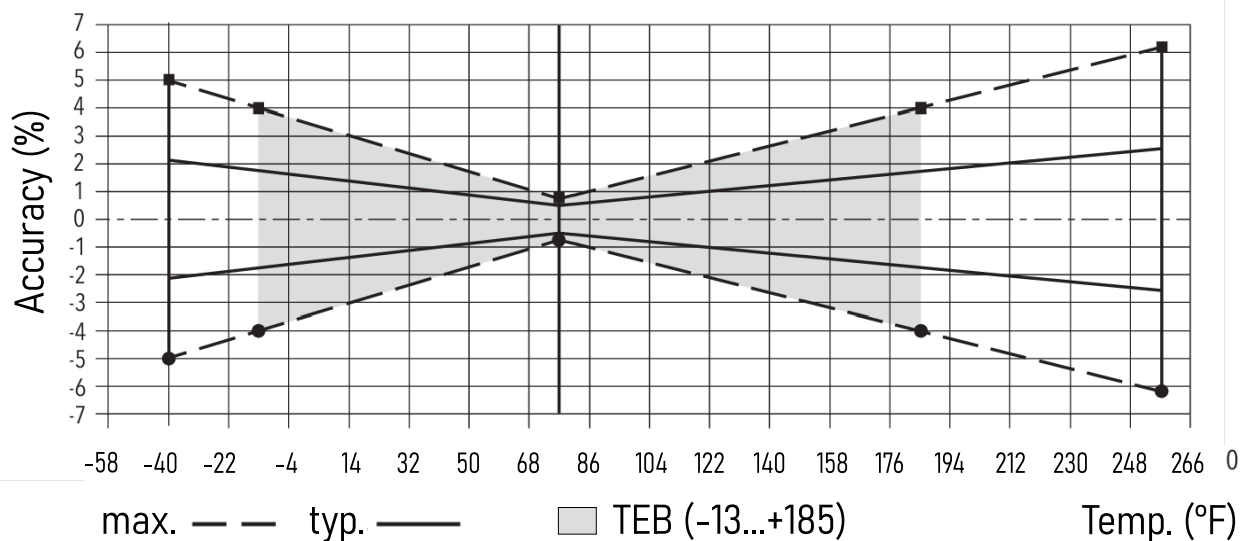
Mating Electrical Connection Assembly – optional; will be quoted as a separate line item	
<b>Part#</b>	
<b>PSE1</b>	M12x1, 5 pole – straight with cable gland (field wireable)
<b>PSE2</b>	M12x1, 5 pole - straight with 1 meter PUR cable
<b>PSE3</b>	M12x1, 5 pole - straight with 3 meter PUR cable
<b>PSE4</b>	M12x1, 5 pole - straight with 1 meter PUR shielded cable
<b>PSE5</b>	M12x1, 5 pole - straight with 3 meter PUR shielded cable
<b>PSE6</b>	M12x1, 5 pole - 90° (field wireable)
<b>PSE7</b>	M12x1, 5 pole - 90° with 1 meter PUR shielded cable
<b>PSE8</b>	M12x1, 5 pole - 90° with 3 meter PUR shielded cable



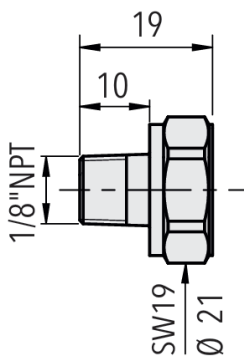
# Technical Parameters

Technical Parameters		
<b>Accuracy</b>	At 77°F	± 0.5% FS typical
	TEB (Total Error Band) from -13...+185°F	± 1.75% FS typical
	NLH (nonlinearity & hysteresis) at 77°F (BSL)	± 0.2%
	TC zero point and span	± 0.03%
	Long term stability 1 year at 77°F	± 0.1%
	Resolution	≥ 10 bit @ 1 ms / 13 bit @ ≥ 8 ms
	Sampling rate (fix)	1ms (1 kHz)
	Measuring filter (moving average)	Repeating average and moving average according to DS-404
<b>Electrical</b>	Supply / Output	12/24 (9...32) VDC / Bus protocol CANopen
	Current consumption / power consumption	< 0.5W
<b>Environmental</b>	Media temperature	-40°F ... +257°F
	Ambient temperature	-40°F ... +257°F
	Protection	IP67
	Vibration	16 g RMS (10...2000 Hz) (EN60068-2-64) 25 g sin (80...2000 Hz), 1 oct./min, (1x @ 77°F) (EN60068-2-6)
	Shock	50 g / 8 ms 100 g / 6 ms Male electrical plug M12x1 (EN60068-2-27)
<b>EMC</b>	Emission	EN/IEC 61000-6-3
	Immunity	EN/IEC 61000-6-2
<b>Mechanical</b>	Wetted parts (sensor)	1.4542 (AISI630)
	Wetted parts (process connection)	1.4542 (AISI630)
	Housing	1.4301 (AISI304)
	Sealing	FKM -0.4...257°F
	Weight	appr. 60 g
	Installation torque	25 Nm

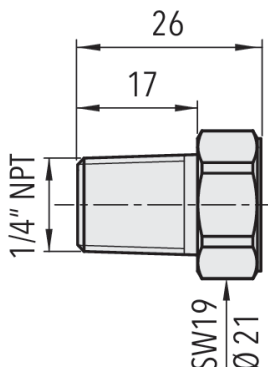
## Accuracy Across Temperature



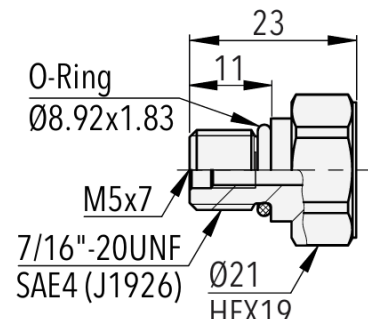
# Process Connection Dimensions



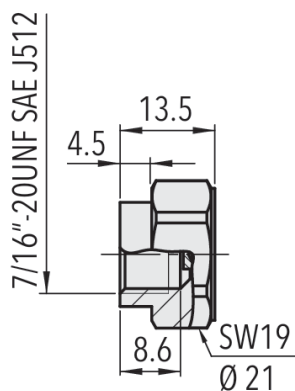
1/8" NPT male



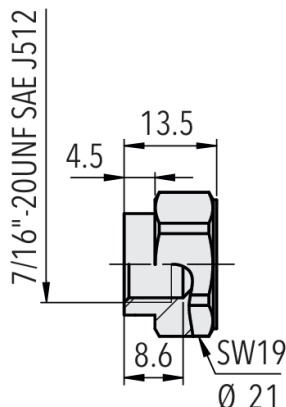
1/4" NPT male



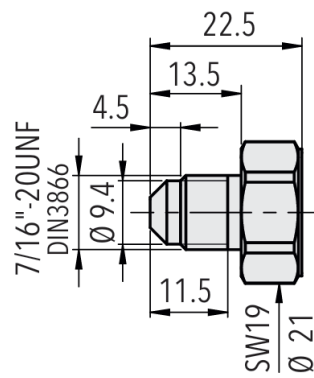
7/16" -20UNF-2A male,  
SAE J1926-2



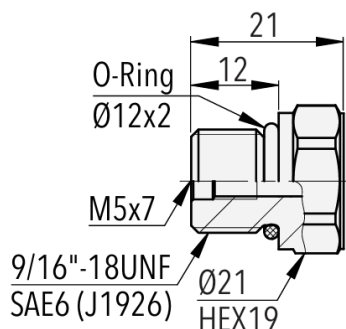
7/16" -20UNF female,  
SAE J512 with valve opener



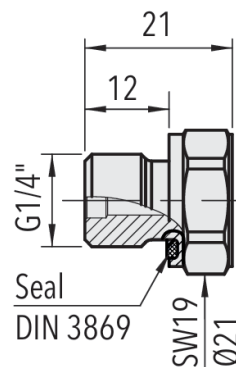
7/16" -20UNF female,  
SAE J512 without valve opener



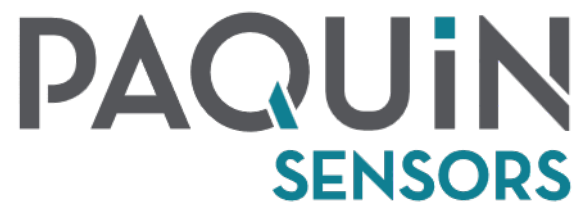
7/16" -20 UNF male,  
DIN3866 with FKM o-ring seal



9/16" -18UNF-2A male,  
SAE J1926-2 with FKM o-ring seal



G1/4" male with FKM o-ring seal



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