



HVAC/REFRIGERATION PRESSURE SENSOR

81CP52-01, 82CP59-01, 82CP60-01 and 82CP61-01

WORLD CLASS PERFORMANCE

The 81/82CP Series is ideal for demanding Air Conditioning and Refrigeration applications where long-term reliability & accuracy is a must. This series provides proven reliability at a competitive price.

Sensata Technologies has been a leading global supplier of pressure sensors & switches for over 50 years.

Features & Benefits

- UL recognized
- Ceramic capacitive sensor
- Durable, compact design
- Low cost
- Accurate performance over wide temperatures
- Overvoltage and short circuit protected

Applications

- Discharge and suction pressure monitoring
- Subcooling and superheat calculations
- Compressor oil pressure monitoring
- Condenser fan control
- Compressor staging and unloading
- Electronic expansion valve control
- Remote systems diagnostics and trending

Technical Specifications

Pressure Ranges

0-10 Bar(a)	81CP52-01
0-20 Bar(a)	82CP59-01
0-35 Bar(a)	82CP60-01
0-46 Bar(a)	82CP61-01

Performance

Accuracy ±0.6% F.S. typ.
(linearity, hysteresis, repeatability, and calibration)

Static Error Band @ 25°C, 5.0 VDC

Total Error Band:

-20°C to +85°C ±0.8% F.S. typ.

-40°C to +125°C ±1.0% F.S. typ.

(Values are typical. Higher accuracies are possible, consult factory.)

Operating Temperature -40°C to 135°C

Storage Temperature -40°C to 150°C

Physical

Proof Pressure.....	81CP52-01	3.5X
	82CP59-01	3X
	82CP60-01	2X
	82CP61-01	2X

Burst Pressure 110 Bar(a)

Cycle Life 10M F.S. cycles

Random Vibration (50-2000 Hz) 11 g

Drop (any Axis) 1.5 m

Electrical Connection ... Nema 4X, IP65

Electrical

Supply Voltage (V_{in}) 4.5 to 5.5 Vdc

Output Voltage (V_{out}) 0.5 to 4.5 Vdc typical

Supply Current 8 mA max
(Max @ 5.5Vdc with no load)

Output Current 2.5 mA
(Max sink or source)

Output Load 10K ohms typical

Output Response Time 10 mS

Overvoltage Protection 16 Vdc

Reverse Voltage -14 Vdc

Short Circuit Protected Yes

EMC (512 MHz-1 GHz) 50 V/m

EMC (1 MHz-512 MHz) 100 V/m

ESD (CDF-AEC-Q100-002) 15kV

Agency

UL recognized File #SA995
(up to 22 Bar application pressure)

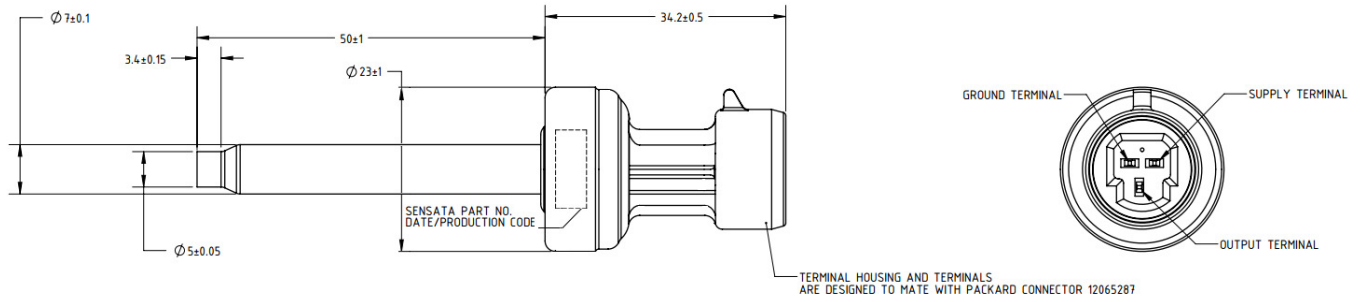
RoHS compliant according 2002/95/EC

The World Depends on Sensors and Controls

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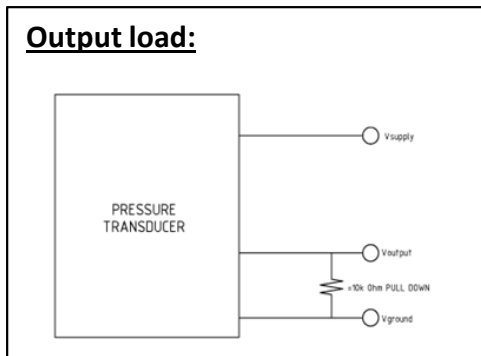
Dimensions



Material:

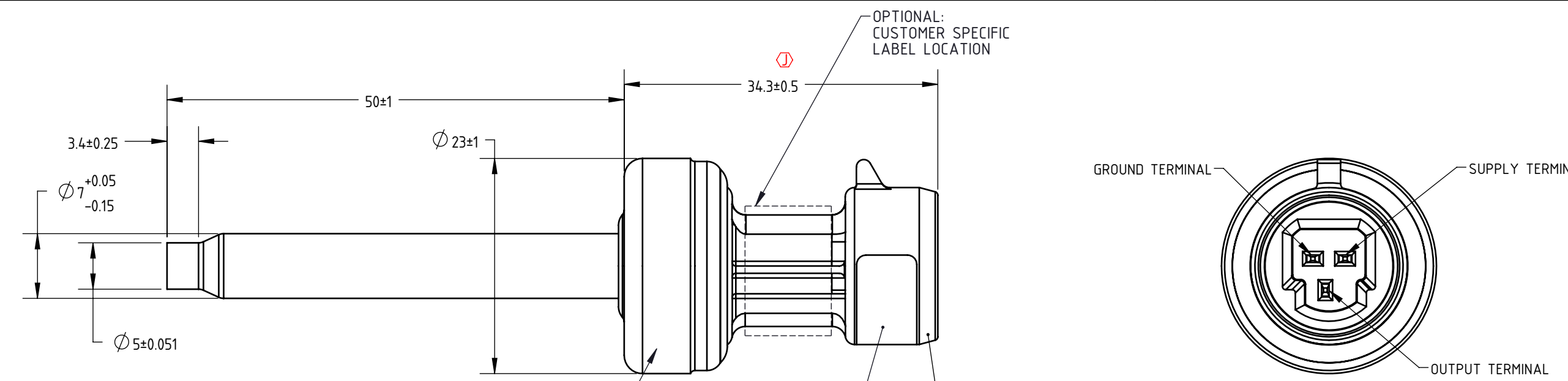
Housing.....Stainless Steel
 Connector.....Polyetherimide Resin (PEI) 20% Glass, Color Black
 Tube.....CDA122 Copper

Output load:



Refrigerant Compatibility	Seal Material	Maximum Seal Temperature Range
R12 R22 R134a R404a R407c R410a R502 R507	Neoprene*	-40°C to 120°C
R134a R404a R407c R410a R507	HNBR (Hydrogenated Nitrile)*	-20°C to 135°C

* Seal selection also depends on oil type used.

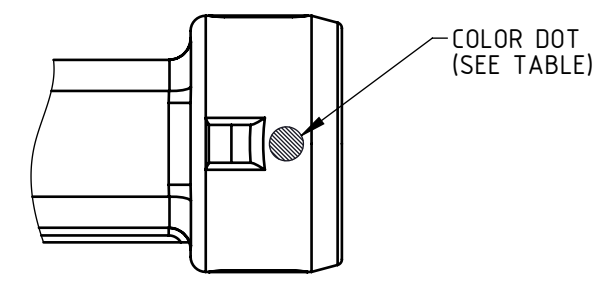


SENSATA PART NO. PRESSURE RANGE DATE/PRODUCTION CODE

COLOR DOT AND/OR ATEX/IECEX LABEL LOCATION

OPTIONAL: CUSTOMER SPECIFIC LABEL LOCATION

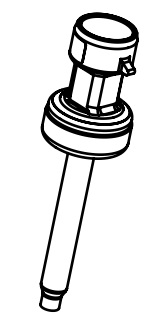
TERMINAL HOUSING AND TERMINALS ARE DESIGNED TO MATE WITH PACKARD CONNECTOR 12065287



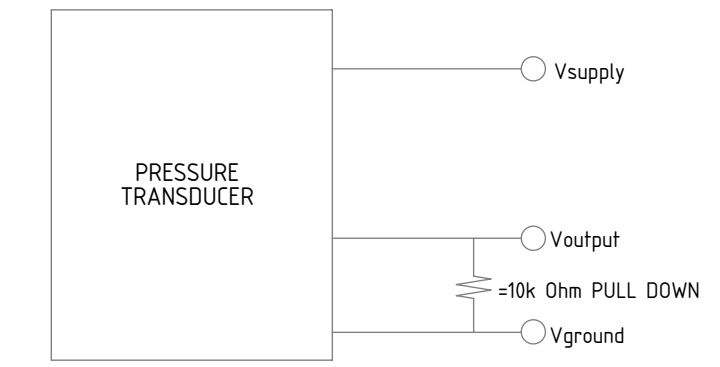
REVISION TABLE					
REV.	DESCRIPTION	DRAFTER	ECO No	DATE	REQUESTOR
J	SEE REVISION ADDENDUM	A. Mateva	ECO-418197	09-Mar-2021	C. Calzada

TECHNICAL SPECIFICATIONS:

ELECTRICAL	
POWER SUPPLY VOLTAGE	5.0±0.5 VDC
SUPPLY CURRENT	8.0mA MAX.
OUTPUT LOAD	10k Ohm PULL DOWN
OUTPUT VOLTAGE RANGE	0.5 TO 4.5V TYPICAL
ENVIRONMENT	
OPERATING TEMPERATURE	-40° TO 120°C
PRESSURE RANGE	SEE GRAPHS
BURST PRESSURE	110 BAR
MATERIAL	
HOUSING	STAINLESS STEEL
CONNECTOR	POLYETHERIMIDE RESIN (PEI) 20% GLASS, COLOR BLACK
PRESSURE SEAL	NEOPRENE
TUBE	CDA122 COPPER
PERFORMANCE	
TOTAL ERROR BAND (@-20 TO 85°C)	±0.8 [%Vsupply] (typical)
TOTAL ERROR BAND (@-40 TO 125°C)	±1.0 [%Vsupply] (typical)
TOTAL ERROR BAND (@-30 TO 70°C)	±1.0 [%Vsupply] (guaranteed)
TOTAL ERROR BAND (@-30 TO 135°C)	±1.4 [%Vsupply] (guaranteed)

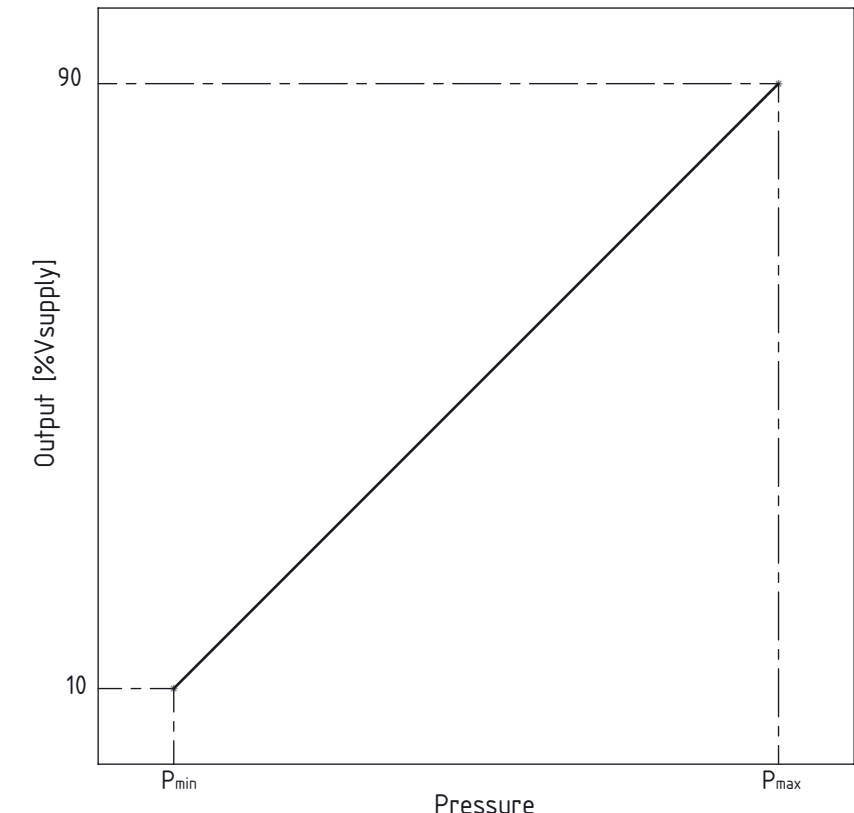


ELECTRONIC WIRING SCHEME EXAMPLE



PART NUMBER	DOT OR LABEL	PMIN (kPa Abs)	PMAX (kPa Abs)
81CP52-01	NO DOT	100	900
82CP59-01	BLUE DOT	100	2000
82CP60-01	GREEN DOT RGB [41,171,135]	100	3500
82CP61-01	RED DOT	100	4600
82CP76-01	NO DOT	100	5100
81CP52-01.A01MX	ATEX/IECEX LABEL	100	900
82CP60-01.A01MX	GREEN DOT RGB [41,171,135] AND ATEX/IECEX LABEL	100	3500

TRANSFER CURVE: OUTPUT VS. PRESSURE



Output ratio versus pressure:

$$R = \frac{0.8}{P_{max} - P_{min}} (P - P_{min}) + 0.1$$

Pressure versus output ratio

$$P = \frac{P_{max} - P_{min}}{0.8} (R - 0.1) + P_{min}$$

FOR REFERENCE ONLY, CHECK LATEST REVISION BEFORE USE.		JAN TINBERGENSTRAAT 80 7559 SP HENGELLO THE NETHERLANDS	
FIRST ISSUE DATE 10-Sep-2012	NEITHER THIS PRINT NOR THE INFORMATION CONTAINED HEREON IS TO BE USED AGAINST THE INTERESTS OF SENSATA TECHNOLOGIES OR AGAINST THE INTERESTS OF ANY OF ITS AFFILIATED COMPANIES OR WHOLLY OWNED SUBSIDIARIES.		
DRAWN R. Gering	TITLE ENVELOPE DRAWING		
ENGINEER J. Klein Bluemink	PRESSURE SENSOR TIF TUBE		
ENGINEERING SUPERVISOR J. Kruiise	DRAWING STATUS: PRODUCTION		
PRODUCT GROUP H&I	DRAWING NUMBER T-678538-ENV		
MATERIAL N.A.	TOLERANCES: LINEAR ANGLES EDGES 0 UP TO 6: ±0.1 OVER 6 UP TO 30: ±0.2 OVER 30 UP TO 120: ±0.3 OVER 120 UP TO ∞: ±0.5 <small>acc. ISO 13715:2000</small>		REV J
GEN. ROUGHNESS /Ra	CALCULATED WEIGHT	DO NOT SCALE DRAWING	THIRD ANGLE PROJECTION
		DRAWING SIZE A2	SCALE 2:1
		SOLIDWORKS	SHEET 1 OF 2