Qualified pressure transducer for embedded aerospace applications

The PGA257 pressure sensor is designed for measuring the pressure of liquids or gases in aeronautical environments.

The measuring element, a thin, entirely metallic layer, a technology that EFE has been perfecting for over 30 years, makes it compatible with most industrial fluids, including the most corrosive ones, and effective across a wide range of temperatures.

The transmitters feature electronic circuits incorporating the most efficient and proven components, ensuring accuracy and reliability. They are equipped with electrical protections that enable them to be certified for use in aircraft.

The sensors have been qualified according to numerous sections of the RTCA DO-160 and MIL STD-810F standards.

KEY FEATURES

- Qualified RTCA DO-160 and MIL STD-810F
- Can be used from -55 to +90°C as standard
- Compact and lightweight
- Integrated electronics
- All stainless steel

APPLICATIONS

X	Aerospace
X	Flight testing

SPECIFICATIONS TECHNIQUES

- Pressure specifications

Pressure ranges (FS)	All ranges from 0-3 bar to 0-400 bar Negative pressures possible (please consult us)
Type	Absolute; Gage; Sealed gage
Safe overload	150% FS
Eclatement	300% FS

- Electrical specifications

Power supply	16 à 32Vdc
Consumption	< 10mA at 28Vdc < 15mA from 16 to 32Vdc
Insulation	> 1000 MOhms under 50Vdc at ambient temperature
Output at 0%	1Vdc
Sensitivity	9Vdc
Output signal convention	For compound ranges (±1 bar, for example), the output at 0% corresponds to the sensor signal for the minimum range (-1 bar) and the sensitivity to the signal delivered by the sensor for the entire measurement range (2 bar).

- Accuracy

Error band	±1% FS in the compensation range

- Environmental specification

Compensated temperature range	-40 to +90°C; -55 to +90°C Option : all temperatures between -55 and +90°C
Operating temperature	-55 to +90°C

- Technical specifications

Electrical connection	Connector EN3645-Y1AN35MN – 6 pins (equivalent to D38999/25YA35PN)
Mechanical connection	M10x1-4h male in accordance with NF L 43-215-M10 7/16-20 UNJF-3A male in accordance with SAE-AS4395 7/16-20 UNJF-3A male in accordance with MS33514-E4
Material(s) of wetted parts	Stainless steels 316L, 17-4PH and 15-5PH
Weight	< 120g (Gage) < 145g (Absolute)
Enclosure protection	IP65 for "absolute" and "sealed gage" versions

QUALIFICATIONS

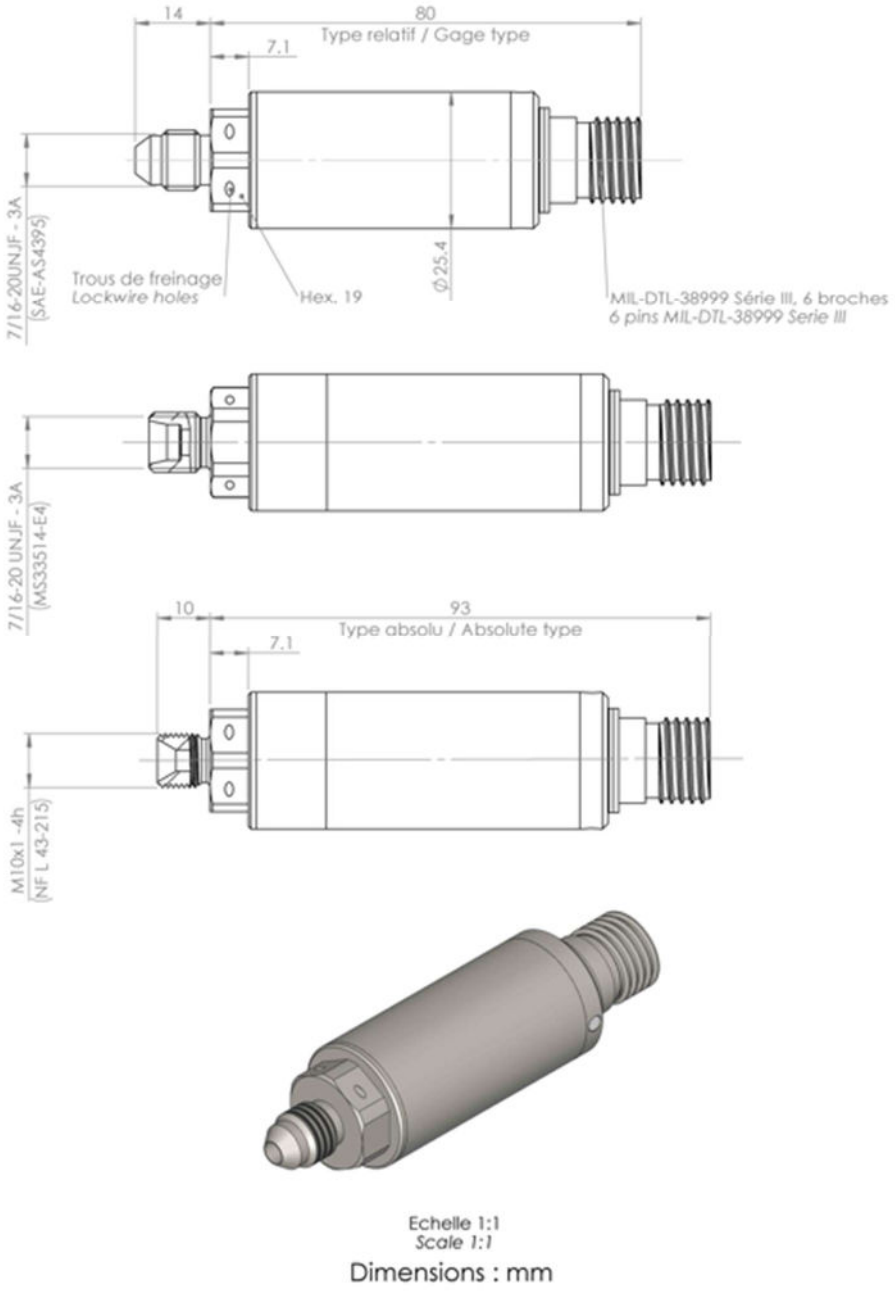
PGA257 COMPLIANCE				
ENVIRONMENT	**TEST**	**NORME**	**SECTION**	**CATEGORY**
CLIMATIC ENVIRONMENT	Temperature test	RTCA DO-160E	Section 4	Category B3
		RTCA DO-160F	Section 4	Category F2
		RTCA DO-160D	Section 4	Category D2
	Altitude test	RTCA DO-160E	Section 4	Category B3
		RTCA DO-160G	Section 4	Category F2
		RTCA DO-160D	Section 4	Category D2
	Temperature variations	RTCA DO-160E	Section 5	Category B
		RTCA DO-160F	Section 5	Category B
	Humidity	RTCA DO-160E	Section 6	Category B
		MIL STD-810F	Method 507-4	
	Salt Spray	RTCA DO-160E	Section 14	Category S
		MIL STD-810F	Method 509-4[1]	
	Sand and dust	RTCA DO-160E	Section 12	Category S
	Icing	RTCA DO-160G	Section 24	Category A
		RTCA DO-160D	Section 24	Category A
	Waterproofness	RTCA DO-160E	Section 10	Category W
	Explosion proofness	RTCA DO-160E	Section 9	Category E
		RTCA DO-160G	Section 9	Category A
MECHANICAL ENVIRONMENT	Vibrations	RTCA DO-160E	Section 8	Zone 2 Curve 1a/G
		RTCA DO-160G	Section 8	Level R
		RTCA DO-160G	Section 8	Category S Curve C
	Shocks	RTCA DO-160E	Section 7	Category D
		RTCA DO-160G	Section 7	/
		MIL STD-810F	Method 516.5	Procedure VIII
	Crash safety	RTCA DO-160E	Section 7	Category E
		RTCA DO-160G	Section 7	/
	Acceleration	MIL STD-810F	Method 513.5	Procedure I and II
	Gunfire Vibrations	MIL STD-810F	Method 519.5	Procedure IV
	Load Factors	MIL STD-810E	Method 513.4	Only Z+
ELECTRICAL NETWORK REQUIREMENTS DC NETWORK "NORMAL" & "ABNORMALE" OPERATING CONDITIONS	Normal Steady state voltage	RTCA DO-160D	section 16	paragraph 16.5.2.1 test b.1 & b.2
	Ripple voltage	RTCA DO-160D	section 16	paragraph 16.5.2.2
	Normal Transient Voltage	RTCA DO-160D	section 16	paragraph 16.5.2.4
	Abnormal Steady state voltage	RTCA DO-160D	section 16	paragraph 16.5.4.1
	Abnormal Transient Voltage	RTCA DO-160D	section 16	paragraph 16.5.4.3 16.5.4.4
	Steady state voltage ("Emergency")	RTCA DO-160D	section 16	paragraph 16.5.2.1 test b.3
	Transient Voltage ("Emergency")	RTCA DO-160D	section 16	paragraph 16.5.4.3 16.5.4.4
	Starting operation	RTCA DO-160D	section 16	paragraph 16.5.2.5
	Normal Power interruption	RTCA DO-160D	section 16	paragraph 16.5.2.3
	Abnormal Power interruption	RTCA DO-160D	section 16	paragraph 16.5.2.3
ELECTROMAGNETIC REQUIREMENTS	Voltage Spike	RTCA DO-160E	section 17	Category A
	Magnetic effect	RTCA DO-160E	section 15	Category A
	Audio frequency conducted susceptibility	RTCA DO-160E	section 18	Category R
		MIL STD-461E	CS101	
	Induced signal susceptibility	RTCA DO-160E	section 19	Category ZC
		MIL STD-461E	CS115	
	Radio frequency susceptibility	RTCA DO-160E	section 20	Category R
		MIL STD-461E	CS114	Curve #4
	Emission of radio frequency energy	RTCA DO-160E	section 21	Category H
	Radiation emission – Electric field	MIL STD-461E	RE102	
	Radiation emission – Magnetic field	MIL STD-461E	RE101	
	Lightning indirect effects	RTCA DO-160E	section 22	Waveform set A - level 3 Waveform set J - level 3
		RTCA DO-160D	section 22	Category A2GZ5
	Electrostatic Discharge	RTCA DO-160E	section 25	Category A
		EN61000	4-2	

[1] Absolute type only

CODIFICATION

Pressure sensor for embedded applications	PGA25	7	S	10bar	A	35	20	E	1	-
Output signal										
1-10Vdc non-regulated power supply		**7**								
Material										
Stainless steel			**S**							
Range										
Exemple : 0-10bar				**10bar**						
Type										
Absolute					**A**					
Gage					**G**					
Sealed Gage					**SG**					
Mechanical connection										
M10x1-4h male following NF L 43-215-M10						**35**				
7/16-20 UNJF-3A male following SAE-AS4395						**10A**				
7/16-20 UNJF-3A male following MS33514-E4						**36**				
Electrical Connection										
Connector EN3645-Y1AN35MN – 6 pins (D38999)							**20**			
Compensated temperature										
-40 à + 70°C								**D**		
-55 à + 90°C								**E**		
Accuracy										
Error band ± 1% FS in the compensated temperature range									**1**	
Options										
-										**-**

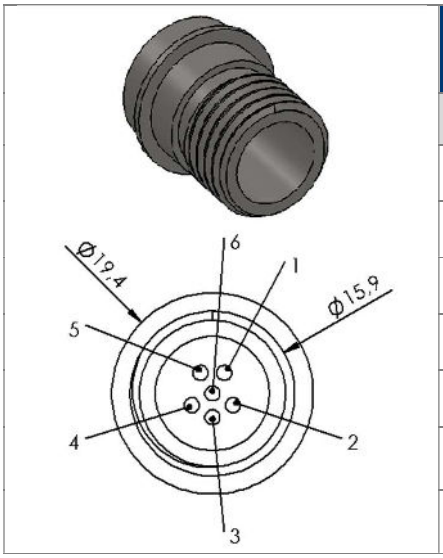
DIMENSIONS



Echelle 1:1
Scale 1:1

Dimensions : mm

WIRING



EN3645-Y1AN35MN – 6 Pins	
Output voltage	PIN
+ Power Supply	1
- Alimentation (0 VDC)	PIN 2
+ Signal	PIN 3
- Signal (0 VDC)	PIN 4
Not connected	PIN 5
Not connected	PIN 6
Sensor's housing	MASS

AGENT

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