

AC-T precision pressure transmitters 2nd generation

Calibrated and temperature compensated for PCB mounting



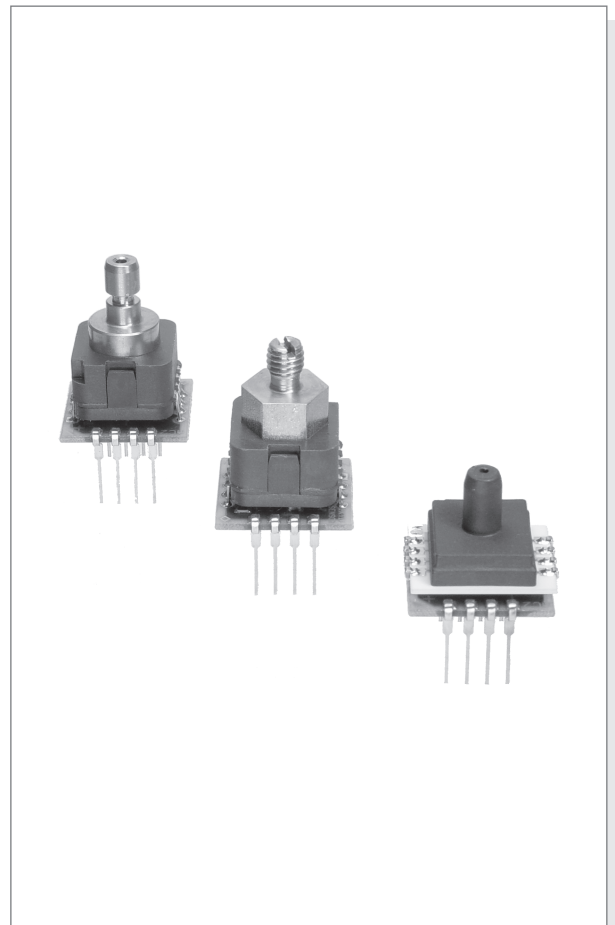
Description

All pressure transmitters contain piezo-resistive silicon sensor elements from AKTIV SENSOR's clean room.

The electronics compensates non-linearity and temperature errors and provides a precise calibrated output signal.

Due to the highly integrated electronics, the T series shows a high immunity against electromagnetic interferences (EMI).

The AC pressure transmitters are designed for PCB mounting and can be integrated into complex devices.



Features

RoHS compliant

DIL package for PCB mounting

M5, M6 or hose pressure connection

Absolute pressure (e.g. barometrical)

Relative pressure
(positive, negative, symmetrical)

Rated pressure from 100mbar to 25bar

Measured media for absolute pressure:

Air, non-aggressive process gases
(moisture 0 - 85% r.h. without dew).

Unsuitable for substances which react to glass, silicon, ceramic, Valox, silicone glue or silicone gel

Measured media for relative pressure:

Air, process gases (moisture 0 - 100% r.h.),
water, oil, petroleum, ...

Unsuitable for substances which react to glass, silicon, stainless steel or silicone glue

Output proportional to pressure:

0.3 - 2.7V for 3V systems (e.g. USB)

0.5 - 4.5V, other values upon request

Defined output at sensor failure

Applications

Hydraulics and pneumatics

Medical technology

Automatic control

Household applications

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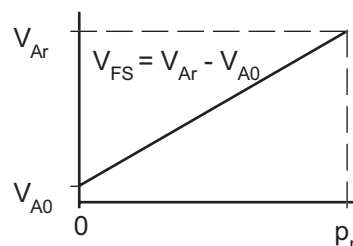
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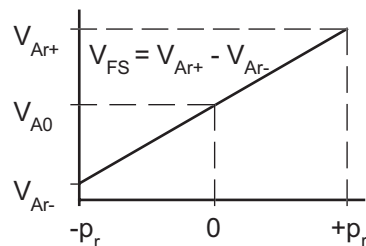
Technical data

Absolute maximum ratings	Symbol	Unit	Min.	Max.		
Storage temperature	T_{st}	°C	-40	105		
Operating temperature	T_a	°C	-30	85		
Compensated range	type TN type TE	T_c	°C	0	70	
				-20	85	
Overload factor	p_{ov}/p_r		1.5	-		
DC break down voltage	V_{is}	V	500	-		
Supply voltage for output	V_{CC}	V				
V3Tx L (0.3 - 2.7V)					2.85	3.3
V4Tx L (0.5 - 4.5V)					4.75	5.5
V4Tx H (0.5 - 4.5V)					7.5	20
Supply current ($I_A = 0$)	I_{CC}	mA		7		
Signal output current	I_A	mA		2		
Output signal at sensor failure	V_{ERR}	V		0.01		

Simple output



Symmetrical output



Data @ $T_a = 25^\circ\text{C}$, $I_A < 0.1\text{mA}$ V3Tx L: $V_{CC} = 3\text{V}$ V4Tx L: $V_{CC} = 5\text{V}$, V4Tx H: $V_{CC} = 15\text{V}$	Symbol	Unit	Simple output			Symmetrical output		
			Min.	Typ.	Max.	Min.	Typ.	Max.
Offset	V_{A0}	V	0.285	0.3	0.315	1.485	1.5	1.515
V3 (0.3 - 2.7V)								
V4 (0.5 - 4.5V)			0.485	0.5	0.515	2.485	2.5	2.515
Span at rated pressure p_r	V_{FS}	V	$V_{FS} = V_{Ar} - V_{A0}^{1)}$			$V_{FS} = V_{Ar+} - V_{Ar-}^{1)}$		
V3 (0.3 - 2.7V)			2.385	2.4	2.415	2.385	2.4	2.415
V4 (0.5 - 4.5V)			3.985	4	4.015	3.985	4	4.015
Non-linearity ²⁾	L	%FS ¹⁾		± 0.1	± 0.25		± 0.25	± 0.5
Response time	t_{10-90}	ms		1			1	
Temperature hysteresis ³⁾		%FS ¹⁾		± 0.1	± 0.5		± 0.1	± 0.5
Supply voltage rejection	SVR	%FS/V ¹⁾			0.01			0.01

Data in temperature range V3Tx L: $V_{CC} = 3\text{V}$, V4Tx L: $V_{CC} = 5\text{V}$, V4Tx H: $V_{CC} = 15\text{V}$	Symbol	Unit	Standard (TN: 0..70°C)			Extended (TE: -20..85°C)		
			Min.	Typ.	Max.	Min.	Typ.	Max.
Temperature coefficient of Offset ⁴⁾	TCV_{A0}	%FS/K ¹⁾		± 0.015	± 0.05		± 0.008	± 0.015
$p_r < 0.25\text{bar}$								
$p_r \geq 0.25\text{bar}$				± 0.015	± 0.03			
Temperature coefficient of Span ⁴⁾	TCV_{FS}	%FS/K ¹⁾		± 0.015	± 0.03		± 0.008	± 0.015

¹⁾ Span (Full Scale) $FS = V_{FS}$, $V_{A0} = V_A(0)$, $V_{Ar} = V_{Ar+} = V_A(+p_r)$, $V_{Ar-} = V_A(-p_r)$, $p_r =$ rated pressure

²⁾ Non-linearity (including hysteresis), determined with the end point method

³⁾ Determined during temperature cycles in operating temperature range (cycles with 1K/min)

⁴⁾ Applied for compensated temperature range T_c

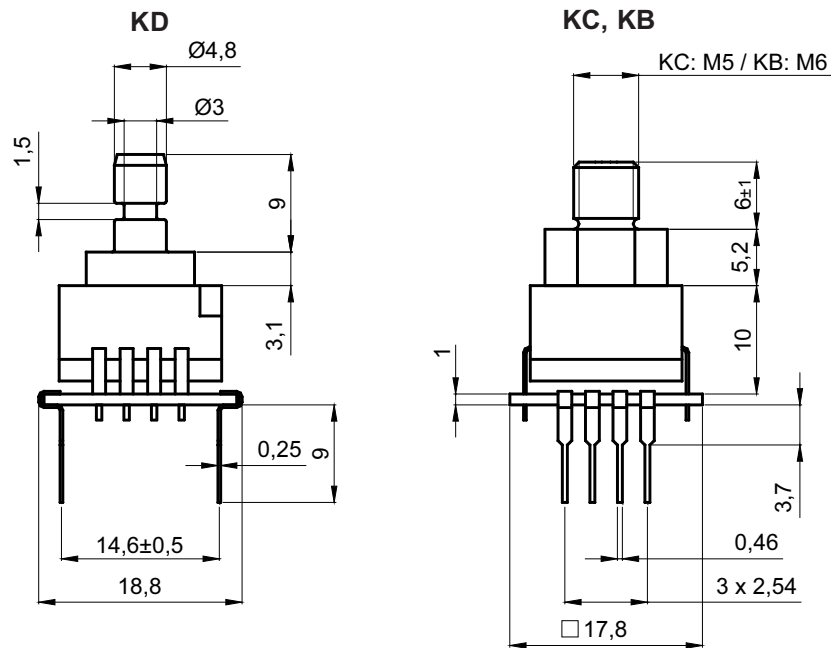
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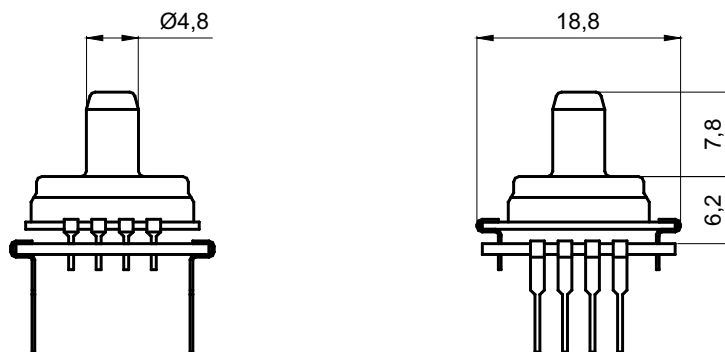


Dimensioned drawings and terminal assignment

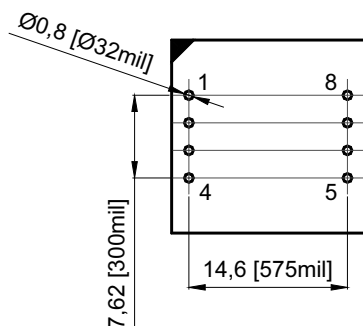
Types KB, KC, KD for relative pressure



Type LN for absolute pressure



Suggestion for drilling plan (top view) and pin assignment



- | | |
|----------|-----------------|
| 1 - VCC | Supply voltage |
| 2 - GND | Ground |
| 3 - VA | Output signal |
| 4 | Do not connect! |
| 5 - n.c. | |
| 6 - n.c. | |
| 7 - n.c. | |
| 8 - n.c. | |

Please take note:

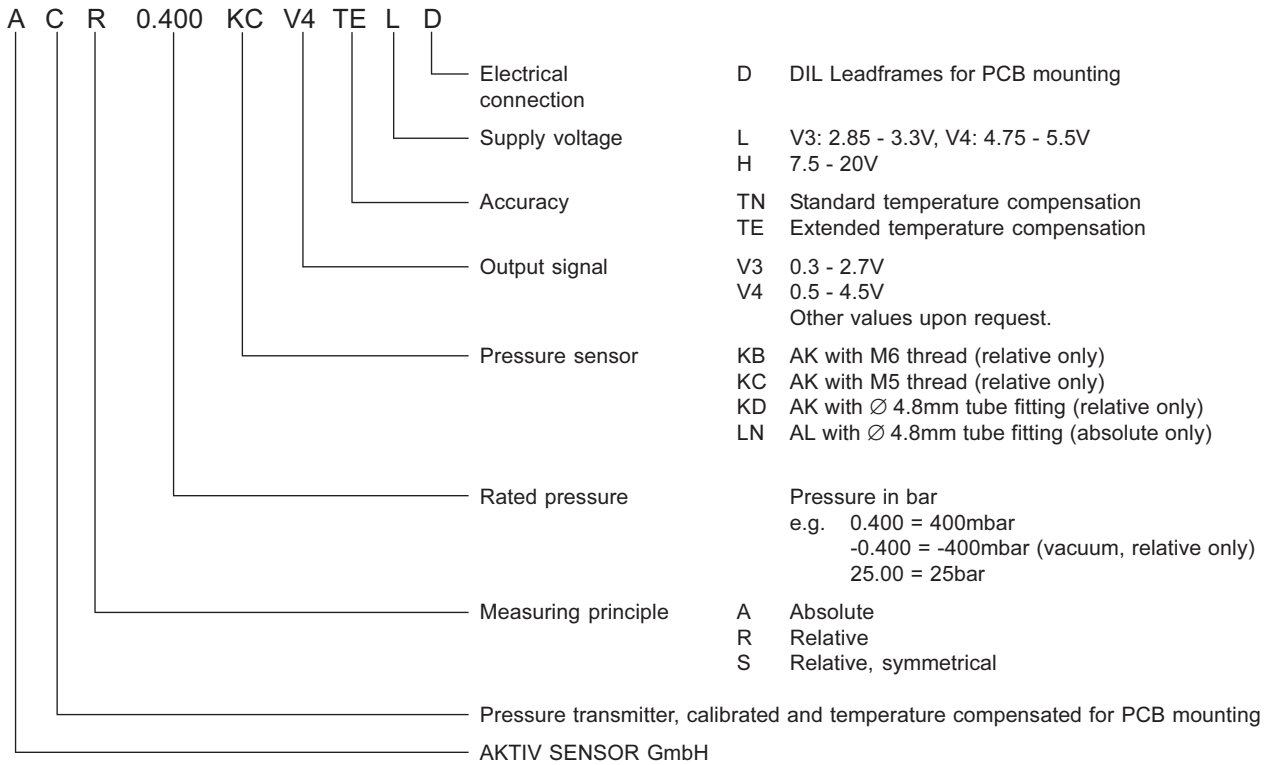
To avoid irreparable damage it is absolutely imperative to connect the coloured wires or marked pins in the correct manner as described in this data-sheet.

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Component and order numbers



Available rated pressures [bar] (others upon request)	0.100	0.160	0.250	0.400	0.600	1.000	1.600	2.500	4.000	6.000	10.00	16.00	25.00
ACA - Absolute			✓	✓	✓	✓	✓	✓					
ACR - Relative	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ACS - Relative symmetrical	✓	✓	✓	✓	✓	✓							

Relative pressure transmitters also available with negative (vacuum) range.

Matching accessories are listed in the accessories datasheet

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