



### Main Features

- Ranges from -1...+1 bar to 0...1000 bar
- Accuracy:  $\pm 0.15\%$  FS typical
- ATEX certification for hazardous areas use (gas and dust)
- Ambient/process temperature T4 (-40°...+80°C)
- SIL2 approval according to IEC/EN 62061

KX pressure transmitters are based on proven thick film on stainless steel technology, with totally welded metal structure without internal seals, in order to be suitable with any kind of fluid.

Also the housing is stainless steel made, with IP65 to IP67 degree of environment protection.

This transmitter is suitable for all those applications which require robustness, safety as well as high accuracy.

The KX series can be used in applications characterized by the presence of explosive atmosphere (gas and dust).

### Main intrinsic safety characteristics

Transmitters are designed and produced in compliance with:

ATEX Directive 2014/34/EU

PESO CCoE regulation

Type of protection:

ATEX: group II, category 1G, 1D

GAS type of protection: Ex ia IIC T6 Ga; Ex ia IIC T5 Ga; Ex ia IIC T4 Ga (Ambient Temp.: -40...+60°C / +70°C / +80°C)

DUST type of protection: Ex ia IIIC T200 90°C Da; Ex ia IIIC T200 100°C Da; Ex ia IIIC T200 110°C Da (Ambient Temp.: -40...+60°C / +70°C / +80°C)

PESO: group II, category 1G

GAS type of protection: Ex ia IIC T6, T5, T4 Ga (Ambient Temp.: -40°C...+60°C / +70°C / +80°C)

Certificate Number:

EU-Type Examination certificate: IMQ 13 ATEX 026

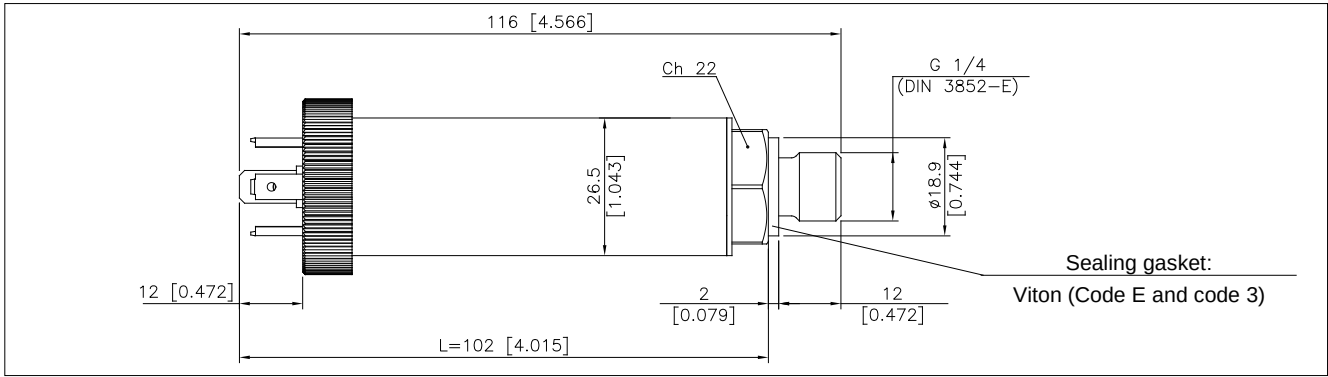
PESO approval: A/P/HQ/MH/104/6920 (P520345)

### TECHNICAL DATA

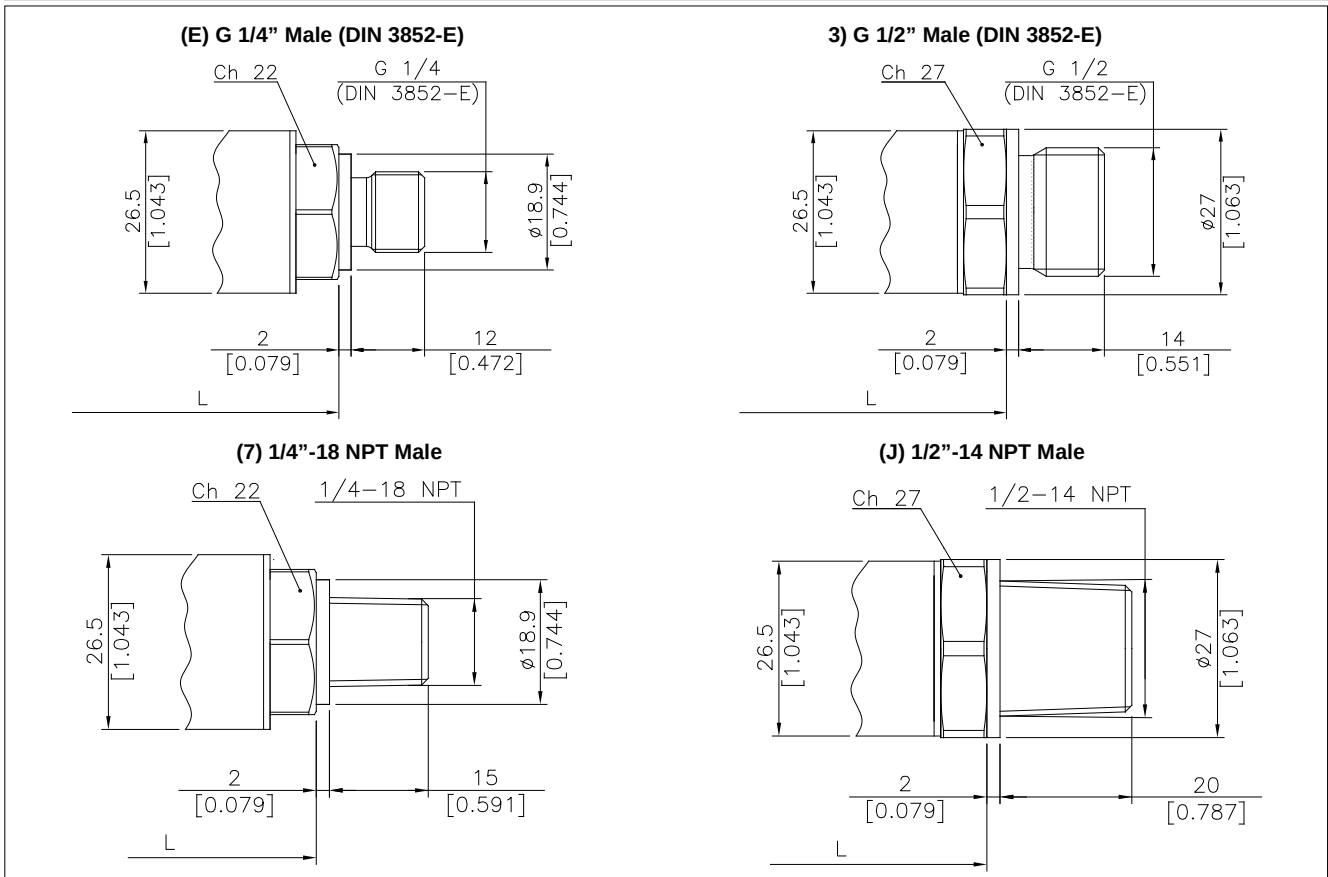
Output signal	Current 4-20 mA (2 wire system)
Accuracy (1)	$\pm 0.15\%$ FS typical; $\pm 0.2\%$ FS max
Non Linearity	$< \pm 0.1\%$ FS BFSL
Hysteresis	$< \pm 0.1\%$ FS
Repeatability	$< \pm 0.05\%$ FS
Pressure ranges	from $\pm 1$ bar to 1000 bar (see table)
Resolution	Infinite
Overpressure (without degrading performance)	See table
Pressure containment (Burst test)	See table
Pressure media	Fluid compatible with 17-4PH and AISI 430F Stainless Steel
Housing	Stainless Steel INOX AISI 304
Power supply	10...30Vdc
Dielectric strength	In conformity to 500 Vac @ 60 sec. test
Zero output signal	4mA (nominal)
Full scale output signal	20mA (nominal)
Max allowed load	See load diagram
Long term stability	$< 0.1\%$ FS/year
Operating temperature range (process)	-40...+125°C (-40...+257°F) For Atex application see table on page 3
Operating temperature range (ambient)	-40...+105°C (-40...+221°F) For Atex application see table on page 3
Compensated temperature range	-20...+85°C (-4...+185°F)
Storage temperature range	-40...+125°C (-40...+257°F)
Temperature effects over compensated range (zero)	$\pm 0.01\%$ FS/°C
Temperature effects over compensated range (span)	$\pm 0.01\%$ FS/°C
Response time (10...90%FS)	$< 1$ msec.
Zero offset tolerance	$\pm 0.15\%$ FS typ; $\pm 0.25\%$ FS max
Span offset tolerance	$\pm 0.15\%$ FS typ; $\pm 0.25\%$ FS max
Mounting position effects	Negligible
Humidity	Up to 100%RH non-condensing
Weight	110 gr. nominal
Mechanical shock	100 g / 11 msec. according to IEC 60068-2-27
Vibrations	20 g max at 10-2000Hz according to IEC60068-2-6
Output short circuit and reverse polarity protection	YES

1 Includes combined effects of Non Linearity BFSL (Best Fit Straight Line), Hysteresis and Repeatability (acc. to IEC 62828-2)

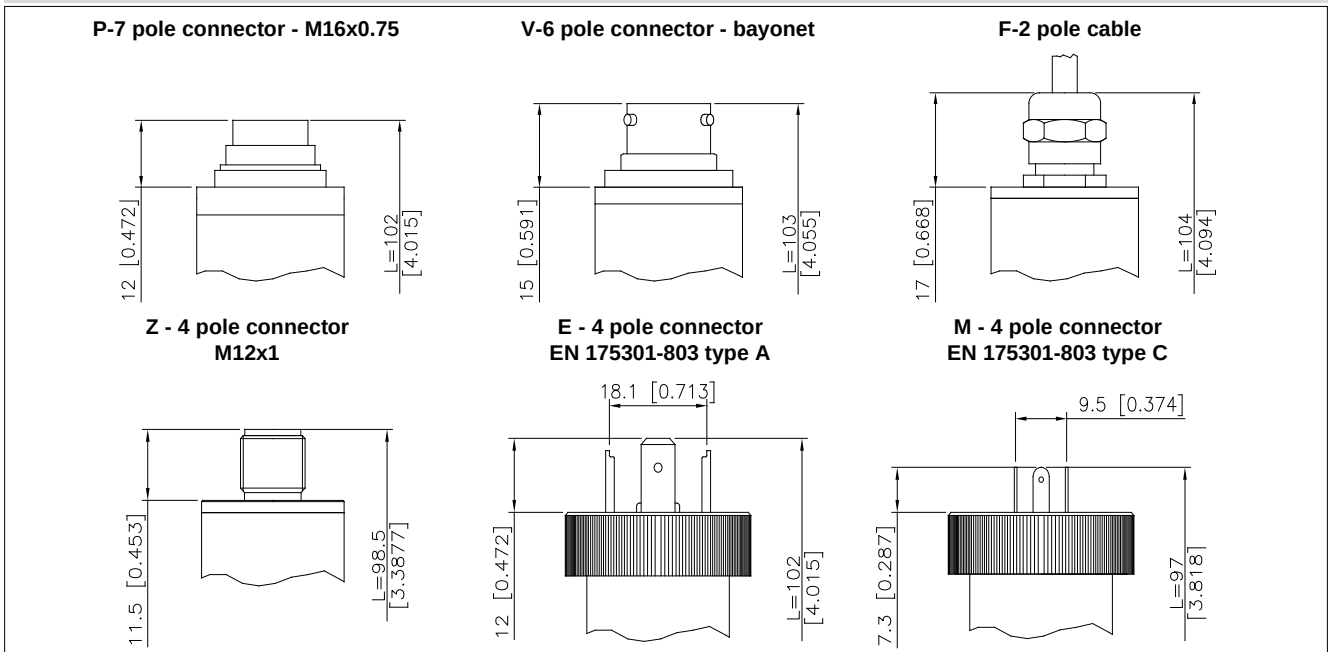
## INSTALLATION DRAWINGS



## PRESSURE CONNECTION



## ELECTRICAL CONNECTION



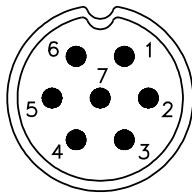
## INTRINSIC SAFETY CHARACTERISTICS (ATEX)

	II 1G Ex ia IIC T6 Ga II 1D Ex ia IIIC T <sub>200</sub> 90°C Da	II 1G Ex ia IIC T5 II 1D Ex ia IIIC T <sub>200</sub> 100°C Da	II 1G Ex ia IIC T4 II 1D Ex ia IIIC T <sub>200</sub> 110°C Da
Maximum voltage $U_i$	30Vdc	30Vdc	30Vdc
Maximum current $I_i$	100mA	100mA	100mA
Maximum power $P_i$	0,75W	0,75W	0,75W
Maximum inductance (*) $L_i$	0,25 mH	0,25 mH	0,25 mH
Maximum capacity (*) $C_i$	15nF	15nF	15nF
Ambient temperature	-40...+60°C	-40...+70°C	-40...+80°C
T Class (Group II)	T6	T5	T4
T assigned (Group III) (**)	T <sub>200</sub> 90°C	T <sub>200</sub> 100°C	T <sub>200</sub> 110°C

(\*) Includes inductance and capacity values of a cable:(L typical 1  $\mu$ H/m and C typical 100 pF/m) with maximum length 15 mt  
(\*\*) with a 200 mm dust layer

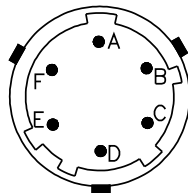
## ELECTRICAL CONNECTION - Connectors

**P - 7 pole connector**



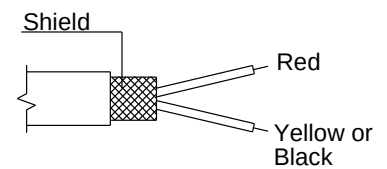
Male connector  
7 pole M16x0.75

**V - 6 pole connector**



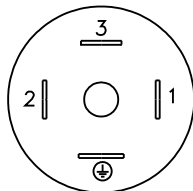
Male connector,  
6 pole bayonet

**F - 2 pole cable**



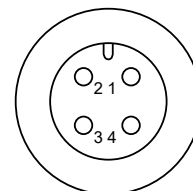
Cable gland with shielded  
cable 2x0.25 - 1m.

**E/M - Connector EN 175301-803**



E - 4 pin DIN type A  
M - 4 pin microDIN type C

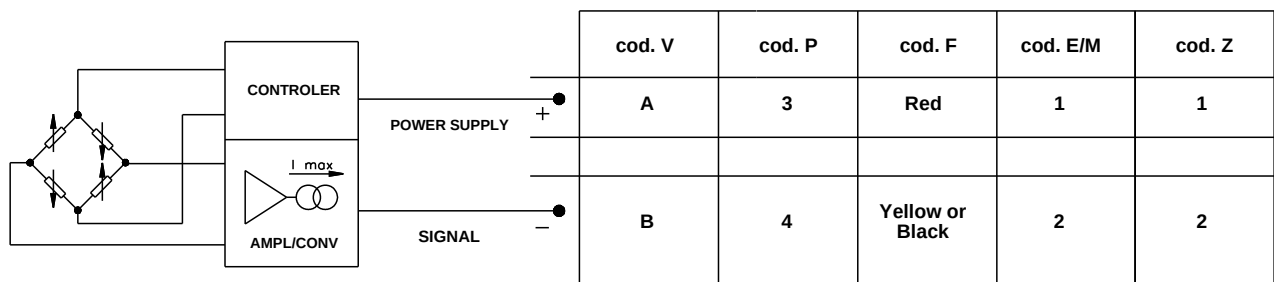
**Z - Connector 4 pin M12 x 1**



4 pole male connector

## ELECTRICAL CONNECTION - Connection diagrams

AMPLIFIED CURRENT OUTPUT - mod. E



## PRESSURE RANGES

RANGES (Bar)	2	2.5	4	6	10	16	20	25	40	60	100	160	200	250	400	600	1000
Overpressure (Bar)	4	5	8	12	20	32	40	50	80	120	200	320	400	500	800	1200	1200
Burst pressure (Bar)	8	10	16	24	40	64	80	100	160	240	400	640	800	1000	1500	1500	1500
COMPOUND RANGES (Bar)	-1..+1		-1..+1.6		-1..+2		-1..+2.5		-1..+4		-1..+6		-1..+10				
Overpressure (Bar)	4		5		6		7		10		14		22				
Burst pressure (Bar)	8		10		12		14		20		28		44				

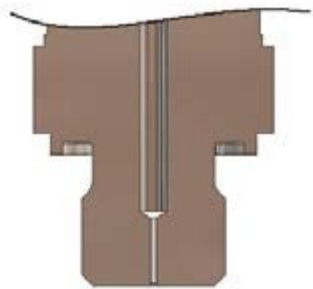
## PRESSURE PEAKS PROTECTION

Many industrial applications, especially in hydraulics, could present dangerous phenomena like cavitation, liquid hammer or pressure peaks, due for example to pumps start and stop or fast closing of a valve.

These phenomena can be harmful to the transducer.

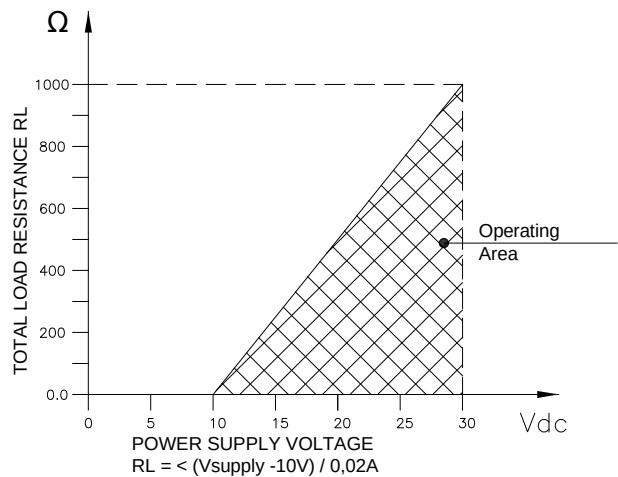
The KX series, upon request, is available with an integrated pressure snubber which, thanks to a 0.5mm diameter through hole, eliminates these harmful peaks, to protect the transducer.

Contact us to request the version with pressure snubber



## LOAD DIAGRAM

### Current output



## SIL CERTIFICATION (Safety Integrity Level) - FUNCTIONAL SAFETY

Safety is a critical requirement especially for machine builders. The new European Directive 2006/42/EC defines all the essential requirements in this regard.

In the context of functional safety, the European directive is received by the technical standard **IEC / EN 62061** "Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems" (SRECS)

KX pressure transmitters are certified SIL CL 2 by the Certification Body TÜV Rheinland with Test Report No. FS 28713306, in accordance with that rule, for use in applications "High Demand Mode" and then may be used in SRECS systems of machinery, where the safety variable to control will be the pressure of a fluid.

**NOTE:** 1) The SIL certification is supplied standard

2) Full specifications and installation and user manual of KX certified SIL 2 can be provided on request

## ACCESSORIES ON REQUEST

### Connector Plugs

#### Connection E

Connector EN 17301-803 Type A Prot. IP65

**CON 006**

#### Connection P

7 pole female cable connector, Prot. IP40

**CON 320**

#### Connection M

Connector EN 17301-803 Type C Prot. IP65

**CON 008**

#### Connection Z

Connector 4 pin M12x1 Prot. IP67

**CON 293**

#### Connection P

7 pole female cable connector, Prot. IP67

**CON 321**

#### Connection V

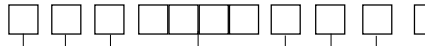
6 pole female cable connector, Prot. IP66

**CON 300**

## ORDERING INFORMATION

Pressure transmitter

**KX**



**0000X000X00**

OUTPUT SIGNAL	
4...20 mA	<b>E</b>

PRESSURE CONNECTIONS	
G 1/4 gas male (DIN 3852-E)	<b>E</b>
G 1/2 gas male (DIN 3852-E)	<b>3</b>
1/4"-18 NPT male	<b>7</b>
1/2"-14 NPT male	<b>J</b>

ELECTRICAL CONNECTIONS	
Connector EN 175301-803 A (P18)	<b>E</b>
2 pole shielded cable	<b>F</b>
4 pole connector M12x1	<b>Z</b>
Connector EN 175301-803 C (P 9.5)	<b>M</b>
7 pole screw connector	<b>P</b>
6 pole connector bayonet	<b>V</b>

<b>0</b>	ATEX Approval
<b>P</b>	PESO Approval

Mechanical and/or electrical characteristics differing from standard may be arranged on request.

	ATEX	PESO	TAMB
<b>4</b>	T4/ T <sub>200</sub> 110°C	T4	-40...+80°C
<b>5</b>	T5/ T <sub>200</sub> 100°C	T5	-40...+70°C
<b>6</b>	T6/ T <sub>200</sub> 90°C	T6	-40...+60°C

RESPONSE TIME	
<b>V</b>	Fast (< 1 msec)

ACCURACY	
<b>T</b>	± 0.15% FS Typ.

RANGE			
	bar		bar
<b>N01U</b>	-1...+1	<b>B16U</b>	16
<b>N1V6</b>	-1...+1.6	<b>B02D</b>	20
<b>N02U</b>	-1...+2	<b>B25U</b>	25
<b>N2V5</b>	-1...+2.5	<b>B04D</b>	40
<b>N04U</b>	-1...+4	<b>B06D</b>	60
<b>N06U</b>	-1...+6	<b>B01C</b>	100
<b>N01D</b>	-1...+10	<b>B16D</b>	160
<b>B02U</b>	2	<b>B02C</b>	200
<b>B2V5</b>	2.5	<b>B25D</b>	250
<b>B04U</b>	4	<b>B04C</b>	400
<b>B06U</b>	6	<b>B06C</b>	600
<b>B01D</b>	10	<b>B01M</b>	1000

### CALIBRATION STANDARDS

Instruments are calibrated against precision pressure calibration equipment which is traceable to International Standards.

**Es: KX - E - E - E - B35D - T - V - 4**

Intrinsically safe pressure transmitter, 4...20mA signal output, G 1/4 male pressure connection, EN 175301-803 type A electrical connector, 0...350 bar measurement range, ± 0.15% FS accuracy, 1 msec response time, T4 temperature class.

Sensors are manufactured in compliance with:

- EMC 2014/30/EU Electromagnetic Compatibility Directive
- RoHS 2011/65/EU
- Ex regulations (see page 1)

Electrical installation requirements and Conformity certificate are available on request

We reserves the right to make any kind of design or functional modification at any moment without prior notice.