

KM17 Pressure Transmitter

Fluids and gases measurement
(Featuring stainless diaphragm)

Available for lot production

Overview

KM17 is miniaturized and lightweight sensor with improved temperature characteristic, vibration resistance and shock resistance as compared to conventional KM series, featured with current output.

Features

- Standard 4 to 20mA DC output specification (1200V AC withstand voltage products is ratiometric only.)
- Total Error Band: $\pm 2.0\text{F.S.}$ (Within compensated temperature range)
- Improvement of temperature characteristic
- All-welded construction
- IP 65 Ingress rating



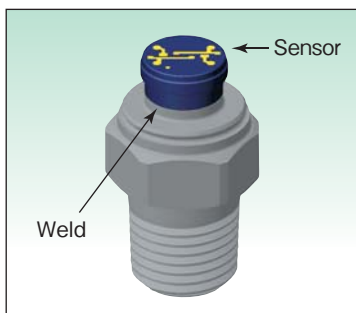
RoHS



(not applicable for high withstand voltage type)

Features of sensor

Since the sensor is electron beam welded to stainless steel fitting, it can be used for a variety of applications in condition including oil, air, and water measurement. Excellent in shock and vibration resistance under condition where good proof pressure and durability are necessary.



Introduction of KM series

	KM31	KM70
External appearance		
Condition	Small lot	Large lot
Total error band	$\pm 1.0\text{F.S.}$	$\pm 3.0\text{F.S.}$
Output	Ratio metric 1 to 5V DC Output 4 to 20mA Output Others	Ratio metric 1 to 5V DC
Points of features	<ul style="list-style-type: none"> • Various outputs compatible • Total error band • Small lot production • Wide range compatibility 	<ul style="list-style-type: none"> • Compound and low pressure range compatibility • Lot production

Specifications

Measuring range	Pressure range (MPa) ^{※1} Sealed pressure	Allowable maximum pressure	Accuracy (Atmospheric pressure 1013hPa)		
	-0.1 to 1		200% of pressure range	Room temperature: ±1.0%F.S. (23±2°C) Total Error Band: ±2.0%F.S. (-20 to 70°C)	※Accuracy includes the followings ①Linearity ②Hysteresis ③Repeatability
	-0.1 to 2				
	0 to 1				
	0 to 1.6				
	0 to 2				
	0 to 2.5				
	0 to 3.5				
	0 to 4				
	0 to 5				
	0 to 6				
	0 to 10		150% of pressure range	Room temperature: ±1.0%F.S. (23±2°C) Total Error Band: ±2.0%F.S. (-40 to 125°C)	
	0 to 16				
	0 to 20				
	0 to 25				
0 to 35					
0 to 40					
0 to 50					
Output signal	Output range	Supply voltage	Maximum supply voltage	Transmission method	
	0.5 to 4.5V DC Ratiometric	5.0±0.5V DC	16V DC max.	3 wire system	
	0.5 to 4.5V DC	9 to 36V DC	36V DC max.		
	0 to 5V DC				
	1 to 5V DC	9 to 36V DC ^(*)	36V DC max.	2 wire system	
4 to 20mA DC ^(*)					
Environmental specifications	Withstand voltage	Standard: 150V AC (1 minutes between case and all terminals tied) High withstand voltage type: 500V AC (1 minutes between case and all terminals tied) 1200V AC (1 minutes between case and all terminals tied)(Only for ratiometric)※ ※When there is no 3 terminals capacitor			
	Insulation resistance	Greater than 100MΩ (50V DC between case and all terminals tied)			
	Response time	1ms and under			
	Circuit protection	Reverse polarity protected (Power supply +/−)			
		Pressure range 3.5 MPa and below	Pressure range 4 MPa and above		
	Compensated temp. range	-20 to 70°C	-40 to 125°C (For cable type: -30 to 105°C)		
	Operating temp. range	-20 to 70°C	-40 to 125°C (For cable type: -30 to 105°C)		
	Storage temp. range	-30 to 80°C	-40 to 140°C (For cable type: -40 to 120°C)		
	Shock resistance	1000m/s ² (6ms or less, X, Y, Z 3 times for each at room temp.)			
	Vibration proof	200m/s ² (10 to 2000Hz, X: 4h, Y: 2h, Z: 2h at room temp.)			
Durability	More than 10,000,000 times. (10 to 100%F.S.)				
Protection rating	IP67 (When mating connector is connected for connector type. For cable type, body part only excluding tip of harness.)				
Material	Diaphragm	SUS630 (17-4PH) Welded to fitting			
	Fitting	SUS304 (G1/4A, 7/16-20UNF-2A SAE J1926-2 is SUS416 heat treated products.)			
	Case	SUS304			
Fittings	7/16-20UNF flared 37°	Maximum working pressure 5MPa (With throttle cannot be selected)			
	7/16-20UNF flared 45°				
	R1/8				
	R1/4				
	R3/8				
	G1/4A				
	G3/8A				
	1/8NPT				
	1/4NPT				
	G1/4A DIN 3852 Form A				
	G1/4A DIN 3852 Form E				
	7/16-20UNF-2A SAE J1926-2				
9/16-18UNF-2A SAE J1926-2					
3/4-16UNF-2A SAE J1926-2					
Electrical connections	Direct connector type	HW090			
		Econoseal J series (MARK II (+))			
		M12×1 (4pin)			
		AMP SEAL 16			
		METRI-PACK 150			
	Deutsche DT04-3P				
Shielded cable type	Shielded cable 1m (Standard)				
Weight	Approx. 50g (Connector type, R1/4) Approx. 100g (Cable type, R1/4) Approx. 60g (M12 connector, R1/4)				
CE marking	Applicable Directive: 2004/108/EC Applicable Standards: EN61326-2-3:2006 ※Ensure wirings not to be influenced by excess voltage by lightning etc. (Note) It doesn't conform to CE Marking because there is no 3 terminals capacitor when high withstand voltage type is selected.				
Option	Surge pressure protection: Throttle installed into orifice. An effect which suppresses surge pressure is obtained by installing a throttle into pressure orifice.				

(*)When the load resistance 500 Ω or more are needed, the loop supply voltage of 20V DC or more is necessary.

※ 1 Units of psi and bar can also be manufactured. Note applications are limited to applications specified by Measurement Law. For more information, please contact us.

Dimensions 1

Unit: mm

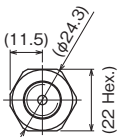
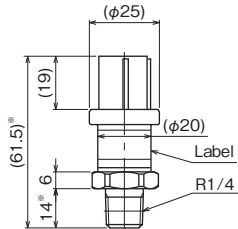
DIRECT CONNECTOR TYPE

3 poles HW090 type connector 3 way (T type) (Sumitomo Wiring Systems)

- | | |
|------------------|-------------------|
| 2 wire system | 3 wire system |
| 1: · · Power (+) | 1: · · Power (+) |
| 3: · · Power (-) | 2: · · Output (+) |
| | 3: · · Common |



Terminal: Sn plate
Part number of plug housing mating connector: F: 6189-0131
(Sumitomo Wiring Systems)



※Picture shown for 1/4.
Refer to **Dimensions 3** for other threads.

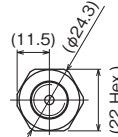
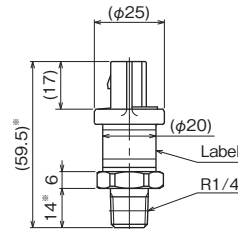
KM17-17

Econoseal J series (MARK II (+)) 3 poles cap equivalent

- | | |
|------------------|-------------------|
| 2 wire system | 3 wire system |
| 1: · · Power (+) | 1: · · Power (+) |
| 3: · · Power (-) | 2: · · Output (+) |
| | 3: · · Common |



Terminal: Sn plate
Part number of plug housing mating connector: 2822390-1
(Tyco Electronics Japan G.K.)

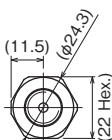
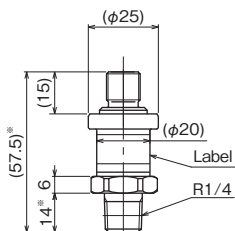


※Picture shown for 1/4.
Refer to **Dimensions 3** for other threads.

KM17-57

M12×1 Connector (4pin)

- | | |
|------------------|-------------------|
| 2 wire system | 3 wire system |
| 1: · · Power (+) | 1: · · Power (+) |
| 3: · · Power (-) | 3: · · Common |
| | 4: · · Output (+) |



※Picture shown for 1/4.
Refer to **Dimensions 3** for other threads.

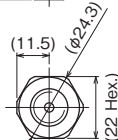
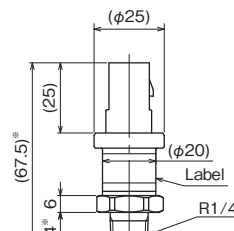
KM17-M7

AMP SEAL 16 Connector (Tyco Electronics Japan G.K.)

- | | |
|------------------|-------------------|
| 2 wire system | 3 wire system |
| 1: · · Power (+) | 1: · · Power (+) |
| 2: · · Power (-) | 2: · · Common |
| | 3: · · Output (+) |



Terminal: Au plate
Part number of plug housing mating connector: 2176429-1
(Tyco Electronics Japan G.K.)



※Picture shown for 1/4.
Refer to **Dimensions 3** for other threads.

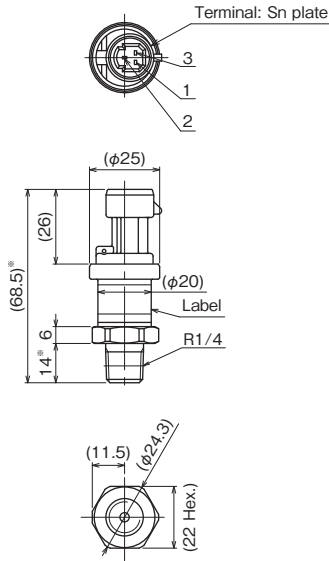
KM17-67

Dimensions 2

Unit: mm

DIRECT CONNECTOR TYPE METRI-PACK 150 series

- | | |
|------------------|-------------------|
| 2 wire system | 3 wire system |
| 1: · · Power (+) | 1: · · Power (+) |
| 3: · · Power (-) | 2: · · Output (+) |
| | 3: · · Common |

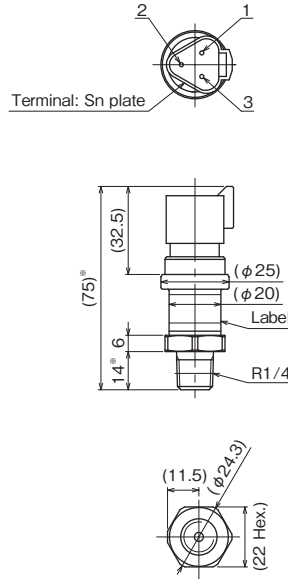


※Picture shown for 1/4.
Refer to [Dimensions 3](#) for other threads.

KM17-87

Deutsche connector DT04-3P

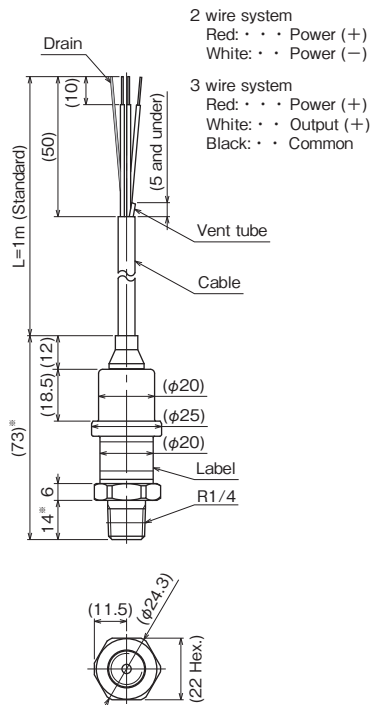
- | | |
|------------------|-------------------|
| 2 wire system | 3 wire system |
| 1: · · Power (+) | 1: · · Power (+) |
| 3: · · Power (-) | 2: · · Output (+) |
| | 3: · · Common |



※Picture shown for 1/4.
Refer to [Dimensions 3](#) for other threads.

KM17-47

Shielded cable type



※Picture shown for 1/4.
Refer to [Dimensions 3](#) for other threads.

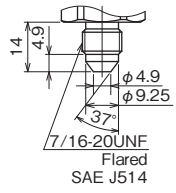
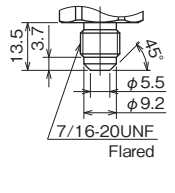
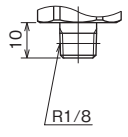
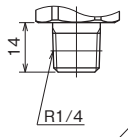

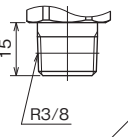
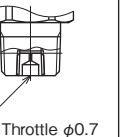
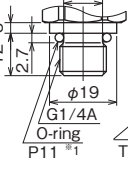
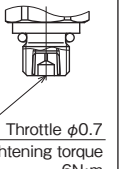
KM17-37

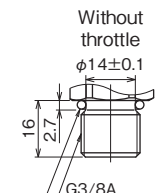
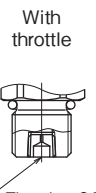

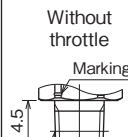

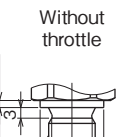
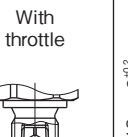
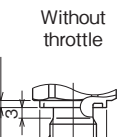
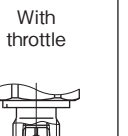
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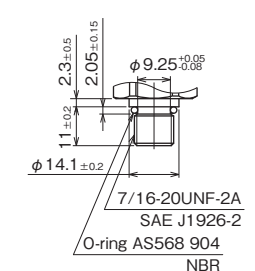
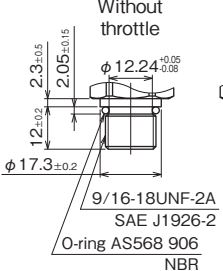
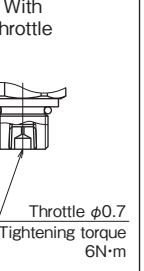
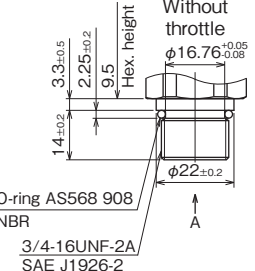
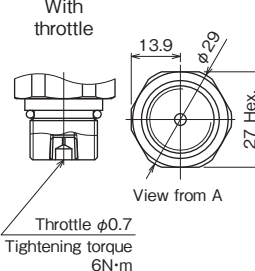
Pressure Transmitter

Dimensions 3

Unit: mm

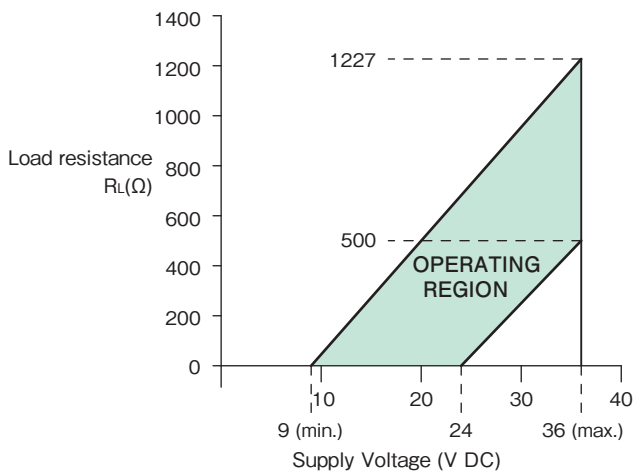
Process Connection								
KM17-□4□	KM17-□5□	KM17-□6□	KM17-□7□		KM17-□8□	KM17-□B□		
 <p>14 4.9 φ4.9 φ9.25 37° 7/16-20UNF Flared SAE J514</p>	 <p>13.5 3.2 φ5.5 φ9.2 5° 7/16-20UNF Flared</p>	 <p>10 R1/8</p>	<p>Without throttle</p>  <p>14 R1/4</p>	<p>With throttle</p>  <p>Throttle φ0.7 Tightening torque 6N·m</p>	<p>Without throttle</p>  <p>15 R3/8</p>	<p>With throttle</p>  <p>Throttle φ0.7 Tightening torque 6N·m</p>	<p>Without throttle</p>  <p>12 3 φ11±0.1 2.7 φ19 G1/4A O-ring P11*1</p>	<p>With throttle</p>  <p>Throttle φ0.7 Tightening torque 6N·m</p>
Allowable working pressure: 5MPa (50bar, 750psi)			Allowable working pressure 50MPa: (500bar, 7500psi)					

KM17-□C□	KM17-□J□	KM17-□K□		KM17-□P□		KM17-□T□		
<p>Without throttle</p>  <p>16 2.7 φ14±0.1 G3/8A O-ring P14*2</p>	<p>With throttle</p>  <p>Throttle φ0.7 Tightening torque 6N·m</p>	<p>Marking of NPT</p>  <p>10 1/8NPT</p>	<p>Without throttle</p>  <p>14.5 1/4NPT</p>	<p>With throttle</p>  <p>Throttle φ0.7 Tightening torque 6N·m</p>	<p>Without throttle</p>  <p>12 2^{0.2} 3 φ18 G1/4A DIN3852 Form A</p>	<p>With throttle</p>  <p>Throttle φ0.7 Tightening torque 6N·m</p>	<p>Without throttle</p>  <p>12 2^{0.2} 3 φ18.9 G1/4A DIN3852 Form E</p>	<p>With throttle</p>  <p>Throttle φ0.7 Tightening torque 6N·m</p>
*2 JIS B 2401 Class 1 B NBR		Allowable working pressure: 50MPa (500bar, 7500psi)						

KM17-□W□	KM17-□X□		KM17-□Y□	
 <p>2.3±0.05 2.05±0.15 φ9.25^{+0.05} 11±0.2 φ14.1±0.2 7/16-20UNF-2A SAE J1926-2 O-ring AS568 904 NBR</p>	<p>Without throttle</p>  <p>2.3±0.05 2.05±0.15 φ12.24^{+0.05} 12±0.2 φ17.3±0.2 9/16-18UNF-2A SAE J1926-2 O-ring AS568 906 NBR</p>	<p>With throttle</p>  <p>Throttle φ0.7 Tightening torque 6N·m</p>	<p>Without throttle</p>  <p>14±0.2 3.3±0.5 2.25±0.2 9.5 Hex. height φ16.7^{+0.05} φ22±0.2 O-ring AS568 908 NBR 3/4-16UNF-2A SAE J1926-2 A</p>	<p>With throttle</p>  <p>13.9 φ29 View from A Throttle φ0.7 Tightening torque 6N·m</p>
Allowable working pressure: 50MPa (500bar, 7500psi)				

Units of psi and bar can also be manufactured. Use is limited to applications specified by Measurement Law. For more information, please contact us.

Loop Resistance at 2 wire system 4 to 20mA DC output



$$\text{Minimum power supply} = 9(V) + (0.022(A)) \times R_L$$

$$\text{Maximum power supply} = 24(V) + (0.024(A)) \times R_L$$

$$R_L = R_s + R_w$$

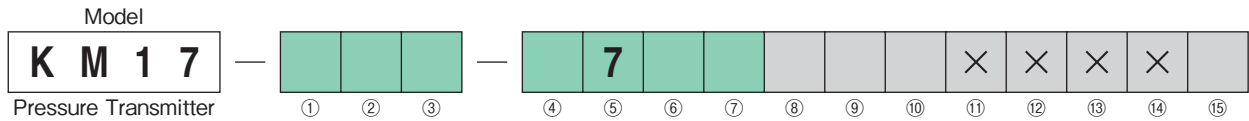
$$R_s = \text{Sensing resistance } (\Omega)$$

$$R_w = \text{Resistance for cable } (\Omega)$$

When the load resistance 500 Ω or more are needed, 24V DC supply voltage or more is necessary.

Model number configuration

Please specify the model number, each specs and the range for ordering.



Model number	Product specifications	Additional specifications (Optional)
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① Model	1	Direct connector type HW090	Sealed pressure type
	3	Shielded cable type (1m Standard)	Sealed pressure type
	4	Direct connector type Deutsche DT04-3P	Sealed pressure type
	5	Direct connector type Econoseal J series (MARK II (+))	Sealed pressure type
	6	Direct connector type AMP SEAL 16	Sealed pressure type
	8	Direct connector type METRI-PACK 150	Sealed pressure type
	M	Direct connector type M12×1 (4pin)	Sealed pressure type

② Process connection		Standard for fitting	Maximum pressure range
	4	7/16-20UNF flared37° (With throttle cannot be selected)	5MPa
	5	7/16-20UNF flared45° (With throttle cannot be selected)	
	6	R1/8 (With throttle cannot be selected)	
	7	R1/4	50MPa
	8	R3/8	
	B	G1/4A ※SUS416 for the range 10MPa and above	
	C	G3/8A	
	J	1/8NPT (With throttle cannot be selected)	
	K	1/4NPT	
	P	G1/4A DIN 3852 Form A	
	T	G1/4A DIN 3852 Form E	
	W	7/16-20UNF-2A SAE J1926-2 (With throttle cannot be selected) ※SUS416 for the range 10MPa and above	
X	9/16-18UNF-2A SAE J1926-2		
Y	3/4-16UNF-2A SAE J1926-2		

③ Specification	A	Standard (Withstand voltage type 150V AC for 1 minute)
	B	High withstand voltage type (Withstand voltage type 500V AC for 1 minute) (Note)
	D	High withstand voltage type (Withstand voltage type 1200V AC for 1 minute) (Note) (Only for the specification that power supply 5V DC and output 0.5 to 4.5V DC are required.)

Please specify pressure range and unit of measure along with corresponding ordering code.

※Psi and bar units are available (For export only).

④ Pressure range (MPa)	6	-0.1 to 1
	7	-0.1 to 2
	G	0 to 1
	H	0 to 1.6
	J	0 to 2
	V	0 to 2.5
	K	0 to 3.5
	W	0 to 4
	L	0 to 5
	M	0 to 6
	N	0 to 10
	X	0 to 16
	Q	0 to 20
	P	0 to 25
	R	0 to 35
	Y	0 to 40
	S	0 to 50

⑤ Accuracy (Atmospheric pressure 1013 hPa)	7	Room temperature: ±1.0%F.S. (23±2°C) Total Error Band: ±2.0%F.S. (Within compensated temperature range)
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⑥ Supply voltage ⑦ Output	⑥	⑦	⑥ Supply voltage	⑦ Output
	D	Y	5.0±0.5V DC	0.5 to 4.5V DC Ratio metric 3 wire system
	W	Y	9 to 36V DC	0.5 to 4.5V DC 3 wire system
	W	6	9 to 36V DC	0 to 5V DC 3 wire system
	W	8	9 to 36V DC	1 to 5V DC 3 wire system
W	1	9 to 36V DC	4 to 20mA DC 2 wire system	

(Note) It doesn't conform to CE Marking because there is no three terminals capacitor when the high withstand voltage specification is selected.

※1 Please contact us when you need a cable with mating connector.

Treatment against wetted parts

■ Use no oil

Oil used in manufacturing the gauges had been flushed out & no oil residue remained inside its wetted parts.

■ Use no water

Water used in manufacturing the gauges had been flushed out & no water residue remained inside its wetted parts.

■ Use no oil & water

Oil/Water used in manufacturing the gauges had been flushed out & no oil/water residue remained inside its wetted parts.

* Specify code "X" to refer N/A

⑧ Leads / Cable length	0	Direct connector type ※1 Shielded cable type Cable 1m (Standard)
	9	Shielded cable type Shielded cable type can be made from 2 to 5m. Order by 1m length.

⑨ Surge pressure protection (Throttle)	0	Not required
	F	S45C
	G	SUSXM7 (Water measurement application)

⑩ Treatment	0	Not required
	A	Use no oil
	B	Use no water
	4	Use no oil & water

⑮ Documents	0	Not required
	1	Required (Documents available upon request) Datasheet (Drawing / Specifications) Instruction manual Calibration test report