

TECHNOLOGY

HOLYKELL®

HK7 Series
PRESSURE
• DATASHEET •

1. Pressure Measurement 2. Level Measurement 3. Temperature Measurement
4. Flow Measurement 5. Display & Control Instruments
6. Wireless Monitoring System 7. Velocity Measurement

HK7 Series Intelligent High-precision Monocrystalline Differential Pressure Transmitters



HK71



HK75



HK76



HK78

Profile

HK7 series intelligent pressure/differential pressure transmitters, the central sensing unit adopts the world's leading high-precision silicon pressure and differential pressure sensor technology and packaging process. The single crystal silicon pressure and differential pressure sensor is located at the top of the metal body, away from the contact surface of the medium. To achieve mechanical isolation and thermal isolation; The sensor lead of glass sintering unit realizes high-strength electrical insulation with the metal substrate, which improves the flexibility of electronic circuits and the ability to withstand transient voltage protection. The circuit adopts a modular design with a microprocessor as the core and assisted by advanced digital isolation technology, so that the instrument has extremely high anti-interference and stability.

The Hart protocol is used for communication, which can be remotely operated through a Hart handheld communicator or a computer installed with Hart software to complete the measurement information configuration. At the same time, the digital compensation technology is used, and the transmitter is compensated through the built-in temperature sensor to improve the accuracy, temperature drift is reduced and features good long-term stability and high reliability. The most user-friendly design of the external one-key reset function meets the requirements of safe operation in hazardous situations. The shortcut menu is convenient for operation, and can complete all parameter settings, which comprehensively improves the performance of the transmitter.

Features

- ◇Advanced monocrystalline silicon pressure sensor technology and packaging technology adopted;
- ◇Modularization design with microprocessor as the core and assisted by advanced digital isolation technology, which makes it with high anti-interference and stability;
- ◇Powerful 24-bit ADC achieves high precision;
- ◇Innovative dual compensation technology, 0.075% high precision.

Function Parameters

Range limit	Within the upper and lower limits of the measuring range, it can be adjusted arbitrarily. It is recommended to select a range code with the lowest possible turndown ratio to optimize performance
Zero point setting	Zero point and range can be adjusted to any value within the measurement range in the table, as long as: calibration range \geq minimum range
Influence of installation location	The change of the installation position perpendicular to the diaphragm surface will not cause the zero drift effect. If the installation position and the diaphragm surface change more than 90°, the zero position in the range of <0.4kPa will be affected. It can be adjusted by adjusting the zero and there is no impact on the range.
Output	Two-wire system 4-20mA, in line with NAMIR NE43 specification, superimposed digital signal (Hart protocol) Linear or square root output is optional.
Output signal limit	$I_{min}=3.9mA$, $I_{max}=21.0mA$
Fault warning	If the sensor or circuit fails, the automatic diagnosis function will automatically output 3.9 or 21.0mA (user can pre-set)
Alarm current	Low alarm mode (minimum): 3.9mA
High report mode (maximum)	21 mA
Alarm current default setting	High alarm mode
Response time	The damping constant of the amplifier component is 0.1s; the time constant of the sensor is 0.1 to 1.6s, depending on the range and the range ratio. The additional adjustable time constant is: 0~100s
Preheating time	<15s

Performance Parameters

Measuring medium	Gas, steam, liquid
Accuracy	±0.2%, ±0.075%, ±0.1% (Including linearity, hysteresis and repeatability from zero)
Stability	±0.1%/3 years
Ambient temperature influence	≤±0.04%/10°C
Influence of static pressure	±0.05%/10MPa
Power supply	10~36 V DC(24 V DC recommended)
Power influence	±0.001%/10 V (10~36 V DC), which can be negligible
Ambient temperature	-40°C ~85°C
Measuring medium temperature	-40°C~120°C
Storage temperature	-40°C ~105°C
Display	LCD, OLED
Module temperature shown on display	-20°C~70°C (LCD), -40°C~80°C (OLED)
Explosion-proof rating	Ex d IIC T6, Ex ia IIC T6
IP Rating for Housing	IP67

HK71 Smart Direct-mounted Gauge Pressure/Absolute Pressure Transmitter

Gauge pressure range and range

Range code	Measuring range(KPa)	Accuracy/Stability
A	-6~6	±0.075%F.S of the range/ The maximum error per year is ±0.1% of range
B	-40~40	
C	-100~100	
D	-100~400	
E	-100~4000	
F	-100~16000	



Absolute pressure range and range

Range code	Measuring range(KPa)	Accuracy/Stability
A	0~40	±0.075%F.S of the range/ The maximum error per year is ±0.1% of range
B	0~250	
C	0~2000	

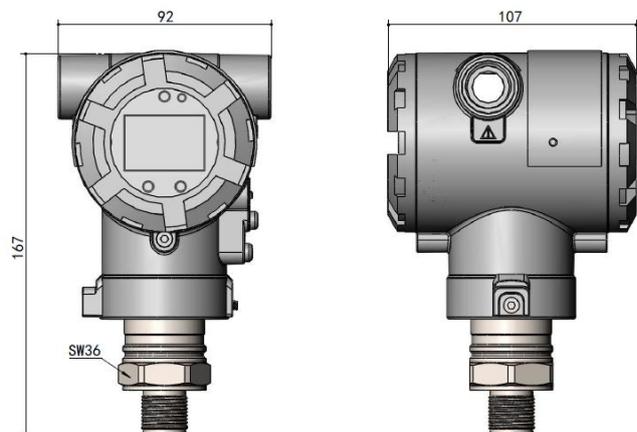
Gauge pressure overload limit

Range	1KPa A	6KPa B	40KPa C	100KPa D	400KPa E	4000KPa F	16000KPa G
Load limit	1MPa	2MPa	5MPa	7MPa	9MPa	10MPa	25MPa

Absolute pressure overload limit

Range	40KPa A	250KPa B	2000KPa C
Load limit	1MPa	4MPa	10MPa

Dimensions



How to Order

HK71			
Code	Type		
GP	Smart Pressure Transmitter		
AP	Smart Absolute Pressure Transmitter		
Code	Gauge Pressure Range (KPa)	Absolute Pressure Range (KPa)	
A	0~1~6	0~6~40	
B	0~6~40	0~40~250	
C	0~40~100	0~250~2000	
D	0~100~400		
E	0~400~4000		
F	0~4000~16000		
Code	Output signal		
H	4~20mA		
S	4~20mA+Hart		
Code	Accuracy		
J1	±0.2%		
J2	±0.1%		
J3	±0.075%		
Code	Display		
M1	LCD		
M2	OLED (Low temperature resistant -40°C)		
Code	Structure material		
	Pressure Connector	Diaphragm	
21	316 SS	316 SS	
22	316 SS	Hastelloy C alloy	
23	316 SS	Monel	
24	316 SS	Tantalum	
25	316 SS	Tantalum	
26	316 SS	With gold plating	
Code	Process Connection		
C1	M20×1.5 male		
C2	G1/2 male		
C3	G1/4 male		
C4	1/2 NPT male		

				C5	1/2 NPT female				
				T	Special request				
					Code	Hazardous location certification			
					E0	No explosion-proof			
					E1	Flame-proof, Ex d IIC T6			
					12	Intrinsically safe, Ex ia IIC T6			
					Code	Electrical connection			
					D1	M20×1.5			
					D2	1/2 NPT female			
						Code	Filling fluid		
						G1	Silicone oil		
						G2	Fluoro oil		
						Code	Mounting bracket		
						B0	Without mounting bracket		
						B1	Tube bending bracket		
GP	A	H J1	M1 21	C1	E1	D1	G1 B0	Model No. example	

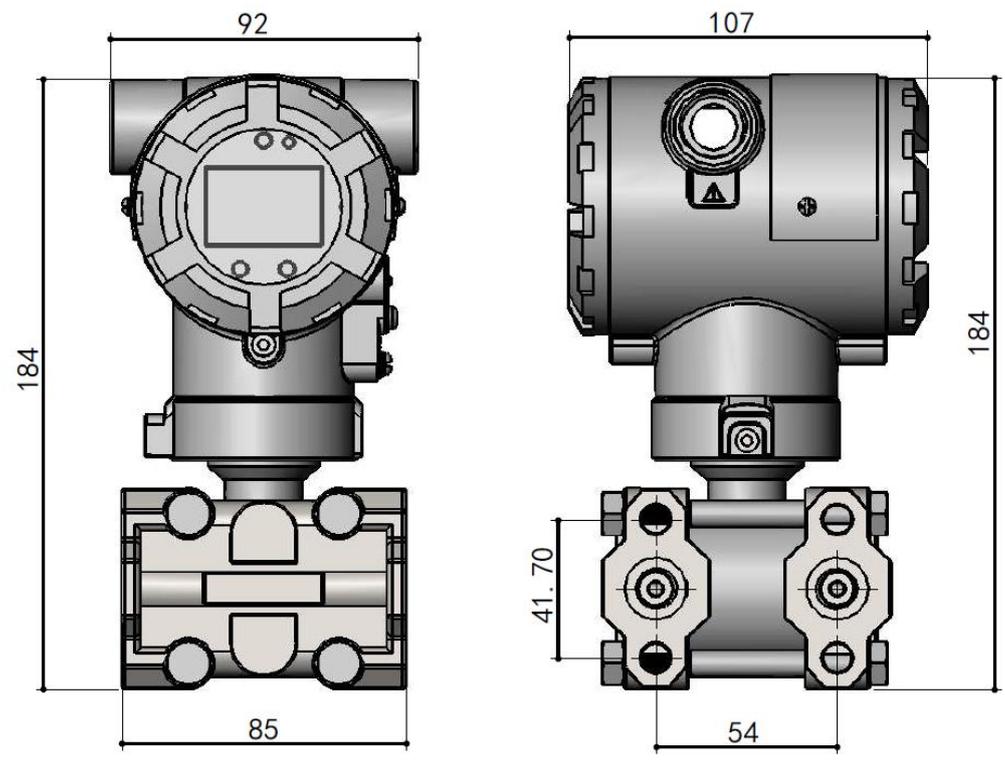
HK75 Intelligent High-precision Monocrystalline Differential Pressure Transmitter

Measuring Range

Range code	Measuring range(KPa)	Accuracy/Stability
A	-1~1	±0.075%F.S of the range; The maximum error per year is ±0.1% of range
B	-6~6	
C	-40~40	
D	-100~100	
E	-100~400	
F	-100~4000	



■ Dimensions



■ How to Order

HK75		
Code	Type	
DP	Smart Differential Pressure Sensor	
	Code	DP Range (KPa)
	A	0~0.2~1
	B	0~1~6
	C	0~6~40
	D	0~40~100
	E	0~100~400
	F	0~400~4000
	Code	Output Signal
	H	4~20mA
	S	4~20mA+Hart
	Code	Accuracy
	J1	±0.2%
	J2	±0.1%
	J3	±0.075%
	Code	Display
	M1	LCD

			M2	OLED(Low temperature resistant -40°C)						
				Code	Pressure Connection					
				C0	NPT1/4 pressure connector & rear welded \varnothing 14 pressure connector tube					
				C1	NPT 1/2 tapered female flange with waist-shaped thread					
				C2	T-shaped male connector with M20*1.5					
				C3	Integrated three valve group					
				Code	Filling fluid					
				G1	Silicone oil					
				G2	Fluoro oil					
				Code	Structure material					
					Flange	Drain/exhaust	Diaphragm			
				21	304 SS	304 SS	316 SS			
				22	316 SS	316 SS	316 SS			
				23	316 SS	316 SS	Hastelloy C alloy			
				24	316 SS	316 SS	Monel alloy			
				25	316 SS	316 SS	Tantalum			
				26	Hastelloy C alloy	Hastelloy C alloy	Hastelloy C alloy			
				27	Hastelloy C alloy	Hastelloy C alloy	Tantalum			
				28	Monel alloy	Monel alloy	Monel alloy			
				29	304 SS	304 SS	With gold plating			
				Code	Relief valve					
				X0	Vent valve					
				X1	Drain valve					
				Code	Mounting bracket					
				B0	Without mounting bracket					
				B1	Tube bending bracket					
				B2	Board-mounted bending bracket					
				B3	Tube mounted flat bracket					
				Code	Hazardous location certification					
				E0	No explosion-proof					
				E1	Flame-proof, Ex d IIC T6					
				E2	Intrinsically safe, Ex ia IIC T6					
				Code	Electrical connection					
				D1	M20×1.5					
				D2	1/2 NPT female					
DP	A	H J1	M1	C1 G1	21	X0	B1	E1	D1	Model No. Example

HK76 Intelligent Monocrystalline Flat Diaphragm/Cylinder Flange Liquid Level Transmitter

Measuring Range

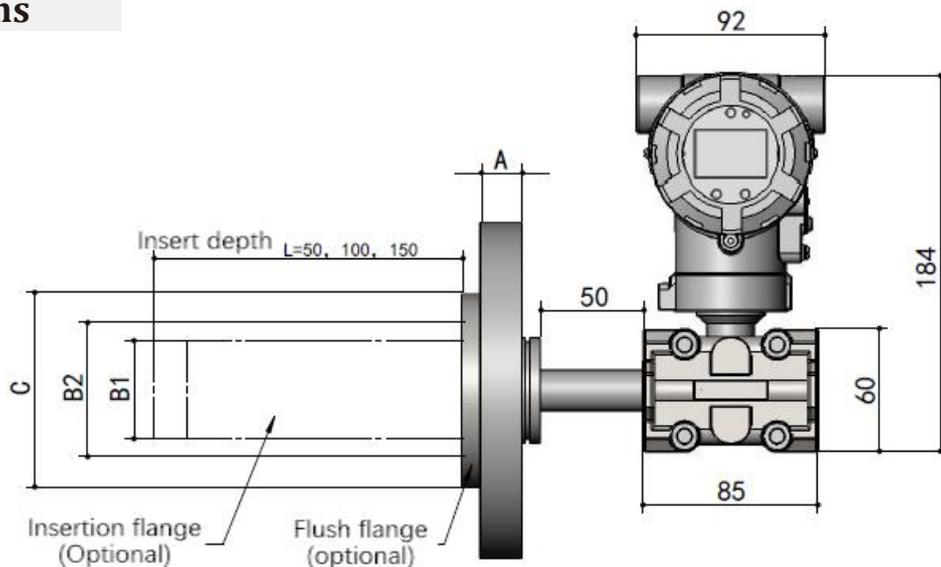
Range code	Min Range(KPa)	Max Range(KPa)	Rated pressure (maximum)
B	1	6	Rated pressure of liquid level flange
C	6	40	
D	40	400	
E	400	4000	



Comparison of relationship between flange and min range

Liquid level flange	Nominal diameter	Minimum range
Flat Diaphragm type	DN 50/2"	10KPa
	DN 80/3"	1KPa
	DN 100/4"	1KPa
Cylinder	DN 50/2"	16KPa
	DN 80/2"	1KPa
	DN 100/4"	1KPa

Dimensions



How to Order

HK76						
Code	Type					
LT	Intelligent Flat Diaphragm Flange Liquid Level Transmitter					
CT	Intelligent Cylinder Flange Liquid Level Transmitter					
	Code	Pressure Measuring Range(KPa)				
	B	1~6				
	C	6~40				
	D	40~400				
	E	400~4000				
	Code	Output Signal				
	H	4~20mA				
	S	4~20mA+Hart				
	Code	Display				
	M1	LCD				
	M2	OLED(Low temperature resistant -40°C)				
	Code	Accuracy				
	J1	±0.5%				
	J2	±0.2%				
	J3	±0.1%				
	J4	±0.075%				
	Structure material					
	Code	Flange	Code	Diaphragm	Code	Coating
	22	304SS	N1	316L SS	T1	None
	23	316SS	N2	Hastelloy C	T2	PFA
			N3	Monel alloy		
			N4	Tantalum		
			N5	Titanium		
	Code	Flange Dimensions				
	C1	DN50				
C2	DN80					
C3	DN100					
C4	2"					
C5	3"					
C6	4"					
C7	User specified					
Code	Cylinder length(mm)					
L10	0(Flat flange)					
L11	50					
L12	100					
L13	150					
LT	User specified					
	Code			Cylinder material		

							Z0			None	
							Z1			304 SS	
							Z2			316L SS	
							Code	Capillary length(m)			
							F0			None	
							F1			1m	
							F2			2m	
							F3			3m	
							F4			User specified	
							Code	Mounting bracket			
							A1			Without mounting bracket	
							A2			Tube bending bracket	
							A3			Board-mounted bending bracket	
							A4			Tube mounted flat bracket	
							Code	Filling fluid			
							G1			Silicone oil	
							G2			Fluoro oil	
							Code	Hazardous location certification			
							E0			No explosion-proof	
							E1			Flameproof, Ex d II CT6	
							E2			Intrinsically safe, Ex ia IIC T6	
							Code	Electrical connection			
							D1			M20×1.5	
							D2			1/2 NPT female	
LT	B	H	M1	J1 22 N1 T1	C1	L10	Z0 F1	A1 G1	E0	D1	Model No. Example

HK78 Intelligent Monocrystalline Dual-remote Flat Diaphragm/Cylinder Flange Liquid Level Transmitter



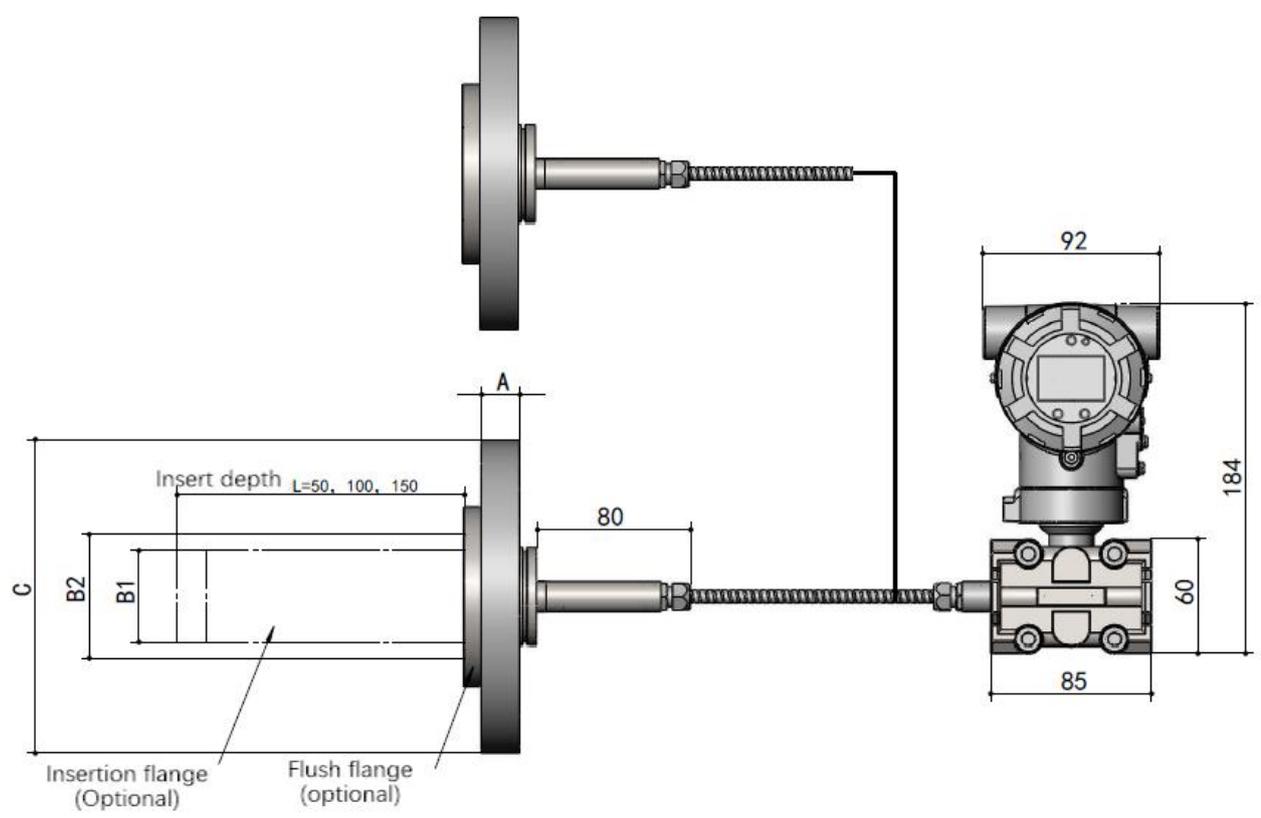
Measuring Range

Range code	Min Range(KPa)	Max Range(KPa)	Rated pressure (max)
B	1KPa	6KPa	Rated pressure of liquid level flange
C	6KPa	40KPa	
D	40KPa	400KPa	
E	400KPa	4MPa	

Comparison of relationship between flange and min range

Flange	DN	Min range	
		Unilateral remote transmission	Bilateral remote transmission
Flat Diaphragm	DN 50/2"	10KPa	10KPa
	DN 80/3"	6KPa	1KPa
	DN 4"	6KPa	1KPa
Cylinder	DN 50/2"	10KPa	10KPa
	DN 80/2"	6KPa	1KPa
	DN 4"	6KPa	1KPa

Dimensions



How to Order

HK78					
Code	Type				
DY	Intelligent remote differential pressure transmitter				
GY	Intelligent remote pressure transmitter				
Code	Pressure measurement range(KPa)				
B	1~6				
C	6~40				
D	40~250				
E	250~4000				
Code	Output				
H	4~20mA				
S	4~20mA+Hart				
Code	Accuracy				
J1	±0.2%				
J2	±0.1%				
J3	±0.075%				
Code	Display				
M1	LCD				
M2	OLED(Low temperature resistant -40°C)				
Structure material					
Code	Flange	Code	Diaphragm	Code	Coating
22	304 SS	N1	316L SS	T1	None
23	316 SS	N2	Hastelloy C alloy	T2	PFA
		N3	Monel alloy		
		N4	Tantalum		
		N5	Titanium		
Code	Flange Dimensions				
C1	DN50				
C2	DN80				
C3	DN100				
C4	2"				
C5	3"				
C6	4"				
C7	User specified				
Code	Remote transmission device				
Y0	Single flat flange type				
Y1	Double flat flange type				
Y2	Single cylinder flange type				
Y3	Double- cylinder flange type				

						Y4	One flat one cylinder flange type					
							Code	Capillary length				
								High pressure side			Low pressure side	
							XN	None	L0	1m		
							X0	1m	L1	2m		
							X1	2m	L2	3m		
							X2	3m	LX	User specified		
							X3	User specified				
							Code	Filling fluid				
							G1	Silicone oil				
							G2	Fluoro oil				
							Code	Cylinder length(mm)				
							10	0(Flat flange)				
							11	50				
							12	100				
							13	150				
							T	User specified				
							Code	Mounting bracket				
							B0	Without mounting bracket				
							B1	Tube bending bracket				
							B2	Board-mounted bending bracket				
							B3	Tube mounted flat bracket				
							Code	Hazardous location certification				
							E0	Non-explosion proof				
							E1	Flameproof, Ex d IIC T6				
							E2	Intrinsically safe, Ex ia II CT6				
								Code	Electrical connection			
								D1	M20×1.5			
								D2	1/2 NPT female			
DY	B	H	M1	22 N1 T1	C1	Y0	X0 L0 G1	10	B0	E0	D1	Model No. Example