

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



HK76



HK75



HK78(for negative pressure)



HK78(for normal pressure)

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	Imin=3.9mA, Imax=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	$\pm 0.2\%, \pm 0.075\%, \pm 0.1\%$ (Including linearity, hysteresis and repeatability from zero)
Stability	$\pm 0.1\%/3$ years
Ambient temperature influence	$\leq \pm 0.04\%/10^\circ\text{C}$
Influence of static pressure	$\pm 0.05\%/10\text{MPa}$
Power supply	10~36Vdc (24Vdc recommended)
Power influence	$\pm 0.001\%/10\text{V}$ (10~36Vdc), which can be negligible
Ambient temperature	$-40^\circ\text{C} \sim 85^\circ\text{C}$
Measuring medium temperature	$-40^\circ\text{C} \sim 120^\circ\text{C}$
Storage temperature	$-40^\circ\text{C} \sim 105^\circ\text{C}$
Display	LCD, OLED
Module temperature shown on display	$-20^\circ\text{C} \sim 70^\circ\text{C}$ (LCD), $-40^\circ\text{C} \sim 80^\circ\text{C}$ (OLED)
Explosion-proof rating	Exd II CT6, Exia II CT4
IP Rating for Housing	IP65(HK71); IP67(HK75, HK76, HK78)

Overload and static pressure

	Range	Unilateral overload (negative end)	Unilateral overload (positive end)	Bilateral static pressure
A	1KPa	16MPa	16MPa	40MPa
B	6KPa	16MPa	16MPa	40MPa
C	40KPa	25MPa	25MPa	40MPa
D	400KPa	25MPa	25MPa	40MPa
E	4MPa	25MPa	25MPa	40MPa

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	-100~40000	



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	

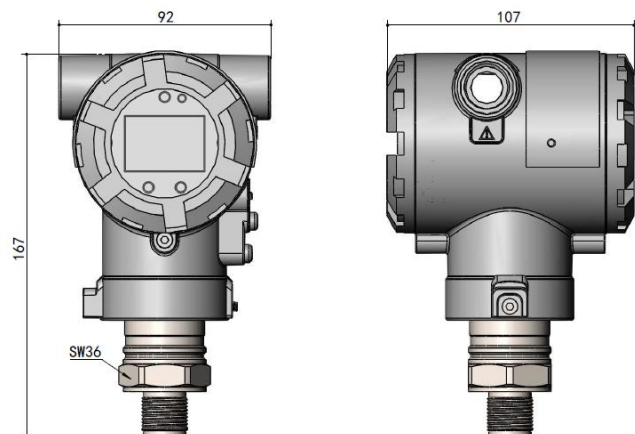
Gauge pressure overload limit

Range	1KPa A	6KPa B	40KPa C	100KPa D	400KPa E	4000KPa F	40000KPa G
Load limit	1MPa	2MPa	5MPa	7MPa	9MPa	10MPa	50MPa

Absolute pressure overload limit

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

Dimensions



How to Order

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	0~4000~40000										
		Code	Output signal									
		H	4~20mA									
		S	4~20mA+Hart									
			Code	Display								
			M1	LCD								
			M2	OLED(Low temperature resistant -40℃)								
				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 (do not fill in for ordinary type)						
					E0	Non-explosion proof						
					E1	Flameproof, Exd II CT6						
			12		Intrinsically safe, Exia II CT4							
					Code	Electrical connection						
					D1	M20×1.5						
					D2	User specified						
					Code	Special requirement						
			T		User specified							
		GP	A	H	M1	C1	E1	D1	T	Model No. example		

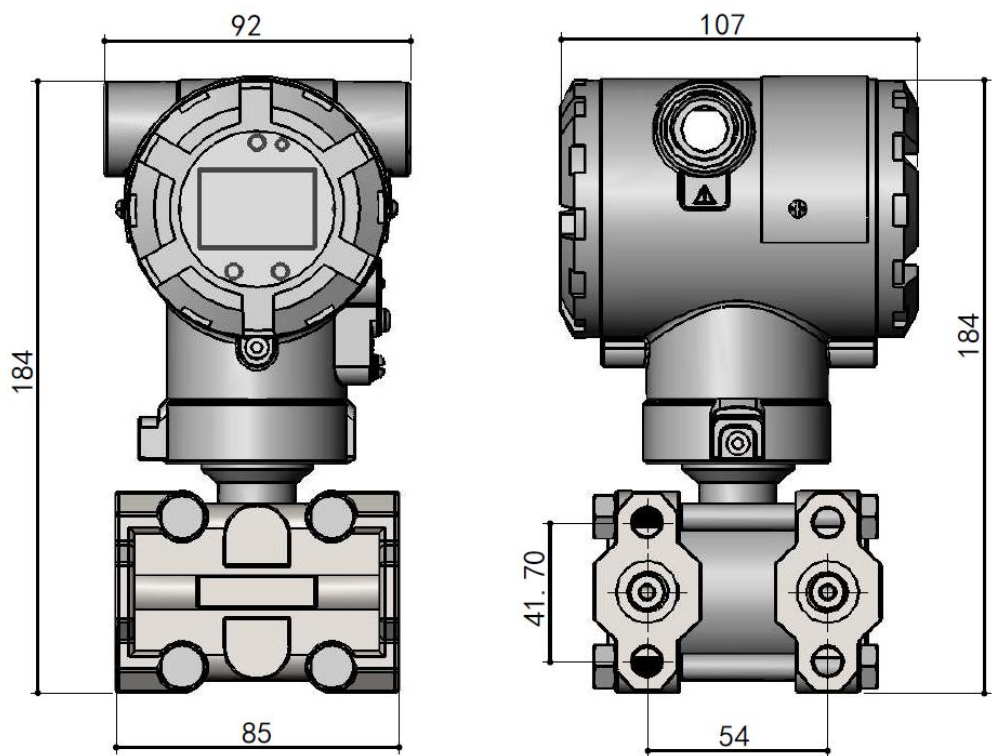
HK75 Intelligent High-precision Monocrystalline Differential Pressure Transmitter

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

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												
		J	Square root 4~20mA												
			Code	Display											
			M1	LCD											
			M2	OLED(Low temperature resistant -40℃)											
				Code	Pressure Connection										
				C0	NPT1/4 + Φ14										
				C1	NPT1/2										
				C2	M20×1.5										
				C3	Integrated three valve group										
					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					
			24		316 SS	316 SS			Monel alloy						
			25		316 SS	316 SS			Tantalum						
			26		Hastelloy C	Hastelloy C			Hastelloy C						
			27	Hastelloy C	Hastelloy C			Tantalum							
			28	Monel alloy	Monel alloy			Monel alloy							
				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, Exd II CT6												
		E2	Intrinsically safe, Exia II CT4												
			Code	Electrical connection											
				D1	M20×1.5										
			D2	User specified											
DP	A	H	M1	C1	21	X0	B1	E1	D1	Model No. Example					

HK76

Intelligent Monocrystalline Flat Diaphragm/Cylinder
Flange Liquid Level Transmitter



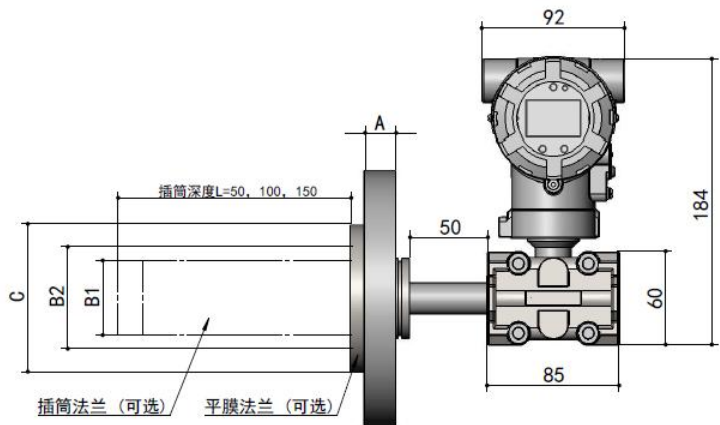
Measuring Range

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

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℃)
	Structure material
	Code Flange Material 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 Mounting 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 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 Hazardous location certification (do not fill in for ordinary type)
	E0 No explosion-proof
	E1 Flameproof, Exd II CT6

									E2	Intrinsically safe, Exia II CT4	
										Code	Electrical connection
										D1	M20×1.5
										D2	User specified
LT	B	H	M1	22	C1	L10	F1	A1	E0	D1	Model No. Example

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



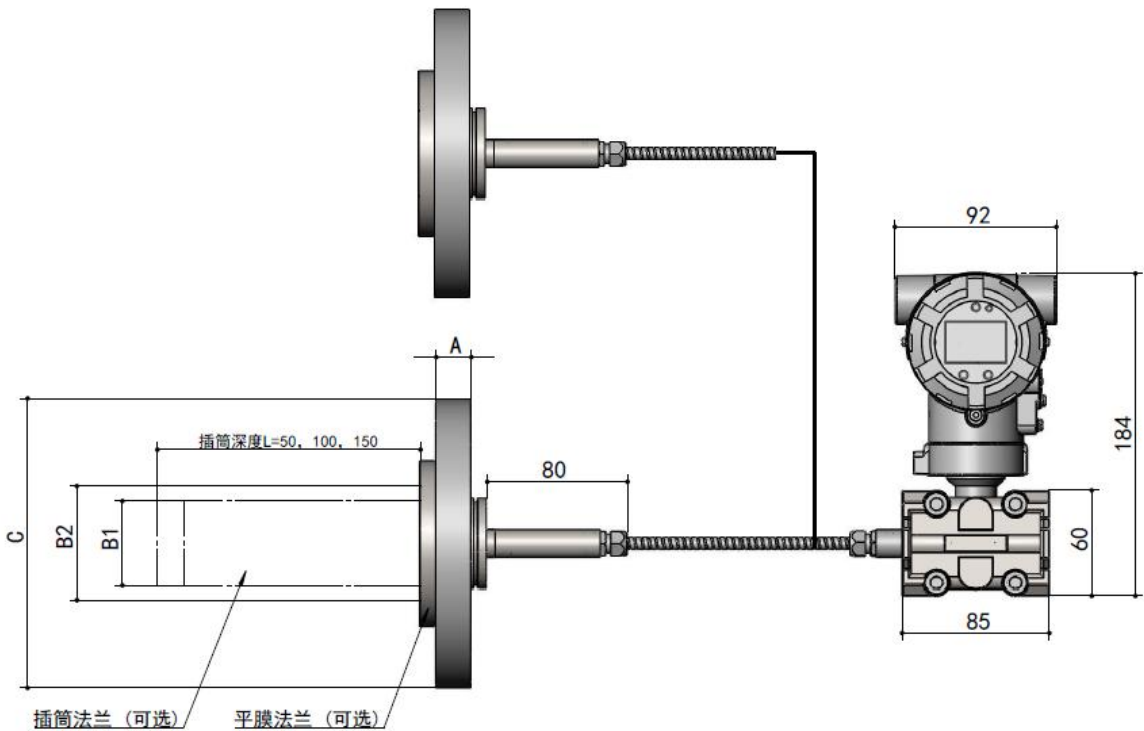
Measuring Range

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



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	Display									
			M1	LCD									
			M2	OLED(Low temperature resistant -40℃)									
				Structure material									
				Code	Flange Material		Code	Diaphragm material		Code	Coating		
				22	304 SS		N1	316L SS		T1	None		
				23	316 SS		N2	Hastelloy C		T2	PFA		
							N3	Monel alloy					
							N4	Tantalum					
							N5	Titanium					
					Code	Mounting 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											
	X0	1m											
	X1	2m											
	X2	3m											
	X3	User specified											
	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 (do not fill in for ordinary type)	
										E0	None explosion-proof	
										E1	Flameproof, Exd II CT6	
										E2	Intrinsically safe,Exia II CT4	
											Code	Electrical connection
											D1	M20×1.5
											D2	User specified
DY	B	H	M1	22 N1 T1	C1	Y0	X0	10	B0	E0	D1	Model No. Example