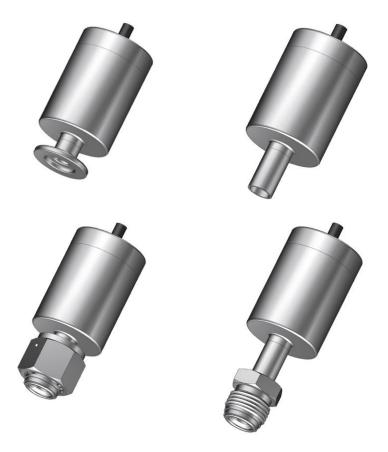
HPM18V Capacitance Diaphragm Gauge



Nanjing Hangjia Electronic Technology Co., Ltd.

Overview

HPM18V is a capacitive vacuum gauge, also called a capacitive thin film vacuum gauge (CDG). This product uses a ceramic capacitive sensor as a sensitive element and directly measures pressure using a vacuum connection. Its analog output signals such as 0-5 or 0-10 VDC are proportional to the measured pressure and are not affected by the type and composition of the process gas. Ceramic has the characteristics of high elasticity, wear resistance, corrosion resistance, and fast heat dissipation, which makes the vacuum gauge have very good thermal stability and low temperature drift.

HPM18V capacitive vacuum gauge has high measurement accuracy, excellent overpressure resistance and excellent long-term stability. Its corrosion-resistant ceramic sensor is temperature compensated, has a wide operating temperature range, and has good zero-point stability. The vacuum gauge is compact in overall size, easy to use and reliable, and is suitable for accurate measurement of medium and low vacuum with complex gas composition.

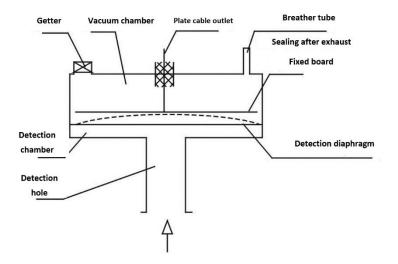
Application

- Vacuum application
- Laboratory and research and development
- Semiconductor industry
- Vacuum packaging
- Plasma etching process equipment

Features

- Capacitor film principle
- High precision and good stability
- Has excellent anti-overload capability
- Detection is not affected by gas type and composition
- Fast response and small hysteresis
- Direct pressure measurement, the analog output signal is proportional to the measured pressure
- Support various pressure interfaces KF, CF, VCR, etc. in the vacuum industry

Measuring Principle



Capacitive vacuum gauge, also called capacitive film vacuum gauge, works based on the principle of capacitance change and consists of a detection part and a conversion circuit.

The picture above is a schematic diagram of the detection part. The detection part has two chambers, the vacuum chamber and the detection chamber. The vacuum chamber is a fully sealed structure. After passing the leak detection by the helium mass spectrometer leak detector, it is exhausted for a long time, and finally the exhaust pipe is sealed to maintain a long-term high vacuum. The fixed electrode plate is in the vacuum chamber and is led out of the vacuum chamber by the electrode lead wire. The detection diaphragm is placed between the high vacuum chamber and the detection chamber of the low vacuum system to be tested. The detection diaphragm is a movable plate, which forms a flat capacitor with the fixed plate. The measured low vacuum pressure enters the detection chamber through the detection hole, and the detection diaphragm deflects, changing its distance from the fixed plate, and the capacitance value also changes accordingly. Different low vacuum pressures determine different capacitance values.

The capacitance signal formed by the detection part is sent to the circuit conversion part. The circuit conversion part converts the capacitance signal through transformation, sorting, amplification and conversion, and finally outputs a standard voltage or current signal. This standard electrical signal is derived from the capacitive signal and is proportional to the vacuum pressure.

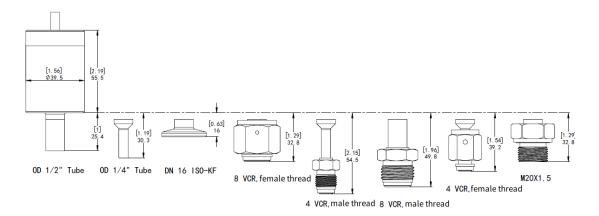
Technical Parameters

Overload 200 200 200 200 400 400 600 1000 Absolute Rated pressure 2 5 10 20 50 100 200 1000 Absolute Rated pressure 2 5 10 20 50 100 200 1000 Overload 2000 2000 2000 2000 4000 4000 6000 10000 Absolute Rated pressure 2 5 10 20 50 100 200 1000 Note: For other measuring ranges, please contact us. Measuring Medium Type Various gases compatible with contact materials 0000 1000 Noc Standard 0~5VDC /Vs=10~30 Vpc Standard 0~5VDC /Vs=8.5~30 Vpc Standard Standard 0~10%FS (20kPa,100kPa) 10.5%FS (500Pa,1kPa,2KPa) 11.5%FS (20kPa,100kPa) 10.5%FS (50Pa,1kPa,2KPa) 11.5%FS (20kPa,10kPa) 10.5%FS (50Pa,1kPa,2KPa) 11.5%FS (20KPa,2KPa) 11.5%FS (20KPa,2KPa) 11.5%FS (20KPa,2KPa) 11.5%FS (20KPa,2KPa)												
Overload 200 200 200 200 400 400 600 1000 Absolute Absolute Rated pressure 2 5 10 20 50 100 200 1000 Overload 2000 2000 2000 2000 4000 4000 6000 10000 Absolute (mbar) Rated pressure 2 5 10 20 50 100 200 1000 Overload 2000 2000 2000 2000 4000 4000 6000 10000 Measuring Medium Type Various gases compatible with contact materials 0000 10000 Vbc Standard 0~5VDC /Vs=10~30 Vbc Vbc Standard 0~5VDC /Vs=12~30 Vbc Standard 0.5VSFS (SQPa,100KPa) ±0.5%FS (20Pa) ±1.5%FS (20Pa) ±1.5%FS (20Pa) ±1.5%FS (20Pa) ±1.5%FS (20Pa) ±1.5%FS (20Pa) ±0.25%FS/sea', \$1kPa ±0.25%FS/sea', \$1kPa ±0.25%FS/sea', \$1kPa ±0.25%FS/sea', \$1kPa ±0.25%FS/sea', \$1kPa ±0.25%FS/sea', \$1kPa ±0.25%FS/sea'	Measuring	Range				1	1	1	1	1	[
Absolute (Torr) Rated pressure Overload 2 5 10 20 50 100 200 1000 Absolute (Torr) Rated pressure 2 5 10 20 50 100 200 1000 Absolute (mbar) Rated pressure 2 5 10 20 50 100 200 1000 Note: For other measuring ranges, please contact us. Weasuring Medium Type Various gases compatible with contact materials 0000 10000 Standard 4*20mA / Vs=10*30 V _{DC} Standard 0*10VDC /Vs=12*30 V _{DC} Standard Standard 0*10VDC /Vs=12*30 V _{DC} Standard Standard NSK5 (S0Pa, 10kPa) ±0.5%FS (S0Pa, 10kPa) ±0.5%FS (S0Pa, 10kPa) ±0.5%FS (S0Pa, 10kPa) ±0.5%FS (S0Pa, 10kPa) ±1.5%FS (20Pa) ±1.5%FS (20Pa) ±1.5%FS (20Pa) ±1.5%FS (20Pa) ±1.5%FS (20Pa) ±1.5%FS (20Pa) ±1.5%FS (20FS) Storage temperature: -30*85°C	Absolute	Rated pressu	re 0.2		0.5	1	2	5	10	20	100	
Overload 2000 2000 2000 4000 6000 10000 Absolute Rated pressure 2 5 10 20 50 100 200 1000 (mbar) Overload 2000 2000 2000 4000 4000 6000 10000 Note: For other measuring ranges, please contact us. Measuring Medium 4000 6000 10000 10000 Note: For other measuring ranges, please compatible with contact materials Output Signal/Power Supply 5 5 10 20 0 0000 10000 Standard 0~5VDC /Vs=10~30 Vpc Standard 0~5VDC /Vs=10~30 Vpc 5	(kPa)	Overload	200)	200	200	200	400	400	600	1000	
Absolute (mbar) Rated pressure Overload 2 5 10 20 50 100 200 1000 Note: For other measuring ranges, please contact us. Measuring Medium 4000 4000 4000 6000 10000 Note: For other measuring ranges, please contact us. Measuring Medium 50 100 200 1000 Standard 4*20mA / Vs=10*30 V _{DC} 50 100 50 100 1000 Standard 0~5VDC /Vs=10~30 V _{DC} 50 100 50 100 200 1000 10000 Standard 0~5VDC /Vs=10~30 V _{DC} 50 100 20 50 100 20 1000 10000 Standard 0~10VDC /Vs=12~30 V _{DC} 50 50 100 10.50% (500Pa, 1kPa) 10.55% (500Pa, 1kPa) 10.55% (500Pa, 1kPa) 10.55% (500Pa, 1kPa) 10.55% (500Pa) 10.55% (500Pa)<	Absolute	Rated pressu	re 2		5	10	20	50	100	200	1000	
Overload 2000 2000 2000 4000 4000 6000 10000 Note: For other measuring ranges, please contact us. Measuring Medium	(Torr)	Overload	200	0	2000	2000	2000	4000	4000	6000	10000	
Note: For other measuring ranges, please contact us. Measuring Medium Type Various gases compatible with contact materials Output Signal/Power Supply Standard 4~20mA / Vs=10~30 V _{DC} Standard 0~5VDC / Vs=12~30 V _{DC} Standard 0~10VDC / Vs=12~30 V _{DC} Standard RS485 / Vs=10~30 V _{DC} Performance ±0.1%FS (20kPa,100kPa) ±0.25%FS (5kPa,10kPa) ±0.5%FS (50DPa,1kPa,2KPa) ±1.5%FS (20OPa) Long-term stability ±0.5%FS/year, >1kPa *Accuracy ±0.5%FS/year, >1kPa *Accuracy complies with IEC 60770 (non-linearity, hysteresis, repeatability) Environmental Conditions Working temperature: -40~125°C (max 120min on +125°C) Ambient temperature: -30~85°C Storage temperature: -30~85°C Protection grade IP65 Temperature Drift -20~80°C Compensation temperature -20~80°C Temperature drift of zero point ±1.5%FS (Within compensation temperature) Electrical Protection Su dyport Reverse polarity protection No damage, the circuit does not work Mechanical stability Vibration <td>Absolute</td> <td>Rated pressu</td> <td>re 2</td> <td></td> <td>5</td> <td>10</td> <td>20</td> <td>50</td> <td>100</td> <td>200</td> <td>1000</td>	Absolute	Rated pressu	re 2		5	10	20	50	100	200	1000	
Measuring Medium Type Various gases compatible with contact materials Output Signal/Power Supply Standard Standard 4~20mA / Vs=10~30 V _{DC} Standard 0~5VDC /Vs=8.5~30 V _{DC} Standard 0~10VDC /Vs=12~30 V _{DC} Standard 0~10VDC /Vs=12~30 V _{DC} Standard 0~10VDC /Vs=12~30 V _{DC} Performance ±0.1%FS (20kPa, 100kPa) ±0.25%FS (5kPa, 10kPa) ±0.25%FS (5kPa, 10kPa) ±0.5%FS (50OPa, 1kPa, 2KPa) ±1.5%FS (20OPa) ±0.5%FS (50OPa, 1kPa, 2KPa) ±1.5%FS (20OPa) ±0.5%FS/year, 51kPa ±0.5%FS (20OPa) ±0.5%FS/year, 51kPa ±0.25%FS/year, 51kPa *Accuracy complies with IEC 60770 (non-linearity, hysteresis, repeatability) Environmental Conditions Environmental Conditions Working temperature: -40~125°C (max 120min on +125°C) Temperature range Working temperature: -30~85°C Protection grade IP65 Temperature drift of zero point ±1.5%FS (Within compensation temperature) Temperature drift of full scale ±1.5%FS (Within compensation temperature) Electrical Prot	(mbar)	Overload	200	0	2000	2000	2000	4000	4000	6000	10000	
Type Various gases compatible with contact materials Output Signal/Power Supply Standard 4~20mA / Vs=10~30 V _{DC} Standard 0~5VDC /Vs=8.5~30 V _{DC} Standard Standard 0~10VDC /Vs=12~30 V _{DC} Standard Standard 0~10VDC /Vs=12~30 V _{DC} Standard Performance ±0.1%FS (20kPa,100kPa) ±0.25%FS (5kPa,10kPa) ±1.5%FS (200Pa) Accuracy ±0.5%FS (50Pa,1kPa,2KPa) ±1.5%FS (200Pa) ±1.5%FS (200Pa) Long-term stability ±0.5%FS/year, >1kPa ±0.25%FS/year, >1kPa *Accuracy complies with IEC 60770 (non-linearity, hysteresis, repeatability) Environmental Conditions Temperature range Working temperature: -40~125°C (max 120min on +125°C) Ambient temperature: -30~85°C Storage temperature: -30~85°C Protection grade IP65 Temperature Drift Compensation temperature Compensation temperature -20~80°C Temperature drift of full scale ±1.5%FS (Within compensation temperature) Electrical Protection No damage, the circuit does not work Reverse polarity protection No	Note: For other measuring ranges, please contact us.											
Output Signal/Power Supply Standard 4~20mA / Vs=10~30 V _{bc} Standard 0~5VDC /Vs=8.5~30 V _{bc} Standard 0~10VDC /Vs=12~30 V _{bc} Standard 0~10VDC /Vs=10~30 V _{bc} Performance ±0.1%FS (20kPa,100kPa) ±0.25%FS (5kPa,10kPa) Accuracy ±0.5%FS (500Pa,1kPa,2kPa) ±1.5%FS (200Pa) Long-term stability ±0.5%FS/year, ≤1kPa ±0.5%FS/year, >1kPa *Accuracy complies with IEC 60770 (non-linearity, hysteresis, repeatability) Environmental Conditions Temperature range Working temperature: -40~125°C (max 120min on +125°C) Ambient temperature: -30~85°C Storage temperature: -30~85°C Storage temperature: -30~85°C Storage temperature: -30~85°C Protection grade IP65 Temperature Drift Compensation temperature) Compensation temperature -20~80°C Temperature drift of lul scale ±1.5%FS (Within compensation temperature) Electrical Protection Support Reverse polarity protection No damage, the circuit does not work Mechanical stability Vibration	Measuring Medium											
Standard 4"20mA / Vs=10~30 V _{bc} Standard 0~5VDC /Vs=8.5~30 V _{bc} Standard 0~10VDC /Vs=12~30 V _{bc} Standard RS485 /Vs=10~30 V _{bc} Performance ±0.1%FS (20kPa,100kPa) ±0.25%FS (5kPa,10kPa) ±0.25%FS (500Pa,1kPa,2KPa) ±1.5%FS (200Pa) Long-term stability ±0.5%FS (500Pa,1kPa,2KPa) *Accuracy complies with IEC 60770 (non-linearity, hysteresis, repeatability) Environmental Conditions *Accuracy complies with IEC 60770 (non-linearity, hysteresis, repeatability) Environmental Conditions Working temperature: -40~125°C (max 120min on +125°C) Ambient temperature: -30~85°C Storage temperature: -30~85°C Protection grade IP65 Temperature Drift 200%0°C Compensation temperature -20~80°C Temperature drift of zero point ±1.5%FS (Within compensation temperature) Electrical Protection \$uport Short circuit protection Support Reverse polarity protection No damage, the circuit does not work Mechanical stability 20g(20~5000Hz) Vibration 20g(20~5000Hz) <td colspan="9">Type Various gases compatible with contact materials</td> <td></td>	Type Various gases compatible with contact materials											
Standard 0~5VDC /Vs=8.5~30 V _{DC} Standard 0~10VDC /Vs=12~30 V _{DC} Standard RS485 /Vs=10~30 V _{DC} Performance ±0.1%FS (20kPa,100kPa) ±0.25%FS (5kPa,10kPa) 40.25%FS (5kPa,10kPa) ±0.5%FS (500Pa,1kPa,2KPa) ±1.5%FS (200Pa) Long-term stability ±0.5%FS (5kPa,10kPa) ±0.5%FS (200Pa) Long-term stability ±0.5%FS (year, ≤1kPa ±0.25%FS (year, ≤1kPa *Accuracy complies with IEC 60770 (non-linearity, hysteresis, repeatability) Environmental Conditions Environmental Conditions Working temperature: -40~125°C (max 120min on +125°C) Ambient temperature: -30~85°C Storage temperature: -30~85°C Protection grade IP65 Temperature Drift Compensation temperature Componsation temperature -20~80°C Temperature drift of full scale ±1.5%FS (Within compensation temperature) Electrical Protection Support Reverse polarity protection No damage, the circuit does not work Mechanical stability 20g(20~5000Hz) Vibration 20g(20~5000Hz) Insulation >200MΩ @500VDC	Output Signal/Power Supply											
Standard 0~10VDC /Vs=12~30 V _{DC} Standard RS485 /Vs=10~30 V _{DC} Performance ±0.1%FS (20kPa,100kPa) ±0.25%FS (5kPa,10kPa) Accuracy ±0.25%FS (5kPa,10kPa) ±0.5%FS (50OPa,1kPa,2KPa) ±1.5%FS (20OPa) ±0.5%FS/year, ≤1kPa ±0.5%FS/year, ≤1kPa *Accuracy complies with IEC 60770 (non-linearity, hysteresis, repeatability) ±0.25%FS/year, >1kPa *Accuracy complies with IEC 60770 (non-linearity, hysteresis, repeatability) Environmental Conditions Temperature range Working temperature: -40~125°C (max 120min on +125°C) Ambient temperature: -30~85°C Storage temperature: -30~85°C Protection grade IP65 Temperature Drift 20~80°C Compensation temperature -20~80°C Temperature drift of zero point ±1.5%FS (Within compensation temperature) ±1.5%FS (Within compensation temperature) ±1.5%FS (Within compensation temperature) Electrical Protection Support Reverse polarity protection No damage, the circuit does not work Mechanical stability 20g(20~5000Hz) Vibration 20g(20~5000Hz) Insulation >200MΩ @500VDC	Standard		4~20m/	1	/ V	s=10~30	V _{DC}					
Standard RS485 /Vs=10~30 V _{DC} Performance ±0.1%FS (20kPa,100kPa) Accuracy ±0.5%FS (5kPa,10kPa) ±0.25%FS (5kPa,10kPa) ±0.5%FS (20vPa) ±0.5%FS (20vPa) ±1.5%FS (20vPa) ±1.5%FS (20vPa) ±0.5%FS/year, ≤1kPa ±0.25%FS/year, >1kPa ±0.25%FS/year, >1kPa *Accuracy complies with IEC 60770 (non-linearity, hysteresis, repeatability) Environmental Conditions Temperature range Working temperature: -40~125°C (max 120min on +125°C) Ambient temperature: -30~85°C Storage temperature: -30~85°C Protection grade IP65 Temperature Drift Compensation temperature -20~80°C Temperature drift of zero point ±1.5%FS (Within compensation temperature) ±1.5%FS (Within compensation temperature) ±1.5%FS (Within compensation temperature) Electrical Protection Support Short circuit protection Support Reverse polarity protection No damage, the circuit does not work Mechanical stability 20g(20~5000Hz) Vibration 20g(20~5000Hz) Insulation >200MΩ @500VDC	Standard		0~5VDC	2	/Vs:	=8.5~30	V _{DC}					
Performance Accuracy ±0.1%FS (20kPa,100kPa) ±0.25%FS (50Pa,1kPa,2KPa) ±0.5%FS (500Pa,1kPa,2KPa) ±1.5%FS (200Pa) Long-term stability ±0.50%FS/year, ≤1kPa ±0.25%FS/year, >1kPa *Accuracy complies with IEC 60770 (non-linearity, hysteresis, repeatability) Environmental Conditions Temperature range Working temperature: -40°125°C (max 120min on +125°C) Ambient temperature: -30°85°C Temperature Drift Vorking temperature: -30°85°C Compensation temperature -20°80°C Temperature drift of zero point ±1.5%FS (Within compensation temperature) Electrical Protection Support Reverse polarity protection No damage, the circuit does not work Mechanical stability 20g(20°5000Hz) Vibration 20g(20°5000Hz) Impact resistance 50g(11ms) Insulation resistance >200MΩ @500VDC	Standard		0~10VD	C	/Vs=	12~30 V _c	ЭС					
±0.1%FS (20kPa,100kPa) ±0.25%FS (50Pa,1kPa,2KPa) ±0.5%FS (200Pa) Long-term stability ±0.5%FS/year, ≤1kPa *Accuracy complies with IEC 60770 (non-linearity, hysteresis, repeatability) Environmental Conditions Temperature range Working temperature: -40°125°C (max 120min on +125°C) Ambient temperature: -30°85°C Protection grade IP65 Temperature Drift Compensation temperature -20°80°C Temperature drift of zero point ±1.5%FS (Within compensation temperature) Electrical Protection Support Reverse polarity protection Support Reverse polarity protection No damage, the circuit does not work Mechanical stability 20g(20°5000Hz) Impact resistance 50g(11ms) Insulation resistance >200MΩ @500VDC	Standard		RS485		/Vs=	:10~30 V	DC					
Accuracy±0.25%FS (5kPa,10kPa) ±0.5%FS (200Pa,1kPa,2KPa) ±1.5%FS (200Pa)Long-term stability±0.50%FS/year, ≤1kPa ±0.25%FS/year, >1kPa*Accuracy complies with IEC 60770 (non-linearity, hysteresis, repeatability)Environmental ConditionsEmperature rangeWorking temperature: -40~125°C (max 120min on +125°C) Ambient temperature: -30~85°C Storage temperature: -30~85°CProtection gradeIP65Temperature DriftIP65Compensation temperature-20~80°CTemperature drift of zero point±1.5%FS (Within compensation temperature)Electrical ProtectionSupportReverse polarity protectionNo damage, the circuit does not workMechanical stability20g(20~5000Hz)Vibration20g(20~5000Hz)Impact resistance50g(11ms)Insulation resistance>200MΩ @500VDC	Performan	се										
Accuracy±0.5%FS (500Pa,1kPa,2KPa) ±1.5%FS (200Pa)Long-term stability±0.50%FS/year, ≤1kPa ±0.25%FS/year, >1kPa*Accuracy complies with IEC 60770 (non-linearity, hysteresis, repeatability)Environmental ConditionsTemperature rangeWorking temperature: -40~125°C (max 120min on +125°C) Ambient temperature: -30~85°C Storage temperature: -30~85°CProtection gradeIP65Temperature DriftCompensation temperature ±1.5%FS (Within compensation temperature)Temperature drift of zero point±1.5%FS (Within compensation temperature)Electrical ProtectionSupport No damage, the circuit does not workMechanical stability20g(20~5000Hz) S0g(11ms)Insulation>200MΩ @500VDC			±0.1%F									
±0.5%FS (S00Pa,1kPa,2KPa) ±1.5%FS (200Pa)Long-term stability±0.50%FS/year, ≤1kPa ±0.25%FS/year, >1kPa*Accuracy complies with IEC 60770 (non-linearity, hysteresis, repeatability)Environmental ConditionsEnvironmental ConditionsFemperature rangeWorking temperature: -40~125°C (max 120min on +125°C) Ambient temperature: -30~85°C Storage temperature: -30~85°CProtection gradeIPotection gradeIPotection gradeIPotection gradeIPotection gradeIPotection fitCompensation temperature-20~80°CTemperature drift of zero point±1.5%FS (Within compensation temperature)Electrical ProtectionShort circuit protectionShort circuit protectionShort circuit protectionNo damage, the circuit does not workMechanical stabilityVibration20g(20~5000Hz)Impact resistance50g(11ms)Insulation resistance>200MΩ @500VDC	A		±0.25%	FS (5kPa,10	kPa)						
±0.50%FS/year, ≤1kPa ±0.25%FS/year, >1kPa *Accuracy complies with IEC 60770 (non-linearity, hysteresis, repeatability) Environmental Conditions Temperature range Working temperature: -40~125°C (max 120min on +125°C) Ambient temperature: -30~85°C Storage temperature: -30~85°C Protection grade IP65 Temperature Drift Compensation temperature Compensation temperature -20~80°C Temperature drift of zero point ±1.5%FS (Within compensation temperature) Temperature drift of full scale ±1.5%FS (Within compensation temperature) Electrical Protection Support Reverse polarity protection No damage, the circuit does not work Mechanical stability 20g(20~5000Hz) Vibration 20g(20~5000Hz) Impact resistance 50g(11ms) Insulation resistance >200MΩ @500VDC				.5%FS (500Pa,1kPa,2KPa)								
Long-term stability±0.25%FS/year, >1kPa*Accuracy complies with IEC 60770 (non-linearity, hysteresis, repeatability)Environmental ConditionsEmperature ConditionsTemperature rangeWorking temperature: -40~125°C (max 120min on +125°C) Ambient temperature: -30~85°C Storage temperature: -30~85°CProtection gradeIP65Temperature DriftCompensation temperature ±1.5%FS (Within compensation temperature)Temperature drift of zero point±1.5%FS (Within compensation temperature)Temperature drift of full scale±1.5%FS (Within compensation temperature)Electrical ProtectionSupportShort circuit protectionSupportReverse polarity protectionNo damage, the circuit does not workMechanical stability20g(20~5000Hz)Vibration20g(20~5000Hz)Impact resistance50g(11ms)Insulation resistance>200MΩ @500VDC			±1.5%F	±1.5%FS (200Pa)								
±0.25%FS/year, >1kPa*Accuracy complies with IEC 60770 (non-linearity, hysteresis, repeatability)Environmental ConditionsEnvironmental ConditionsTemperature rangeWorking temperature: -40~125°C (max 120min on +125°C)Ambient temperature: -30~85°CStorage temperature: -30~85°CProtection gradeIP65Temperature DriftCompensation temperature-20~80°CTemperature drift of zero point±1.5%FS (Within compensation temperature)Temperature drift of full scale±1.5%FS (Within compensation temperature)Electrical ProtectionSupportShort circuit protectionNo damage, the circuit does not workMechanical stability20g(20~5000Hz)Vibration20g(20~5000Hz)Impact resistance50g(11ms)Insulation resistance>200MΩ @500VDC	Long-term stability			FS/year, ≤1kPa								
Environmental ConditionsEnvironmental ConditionsWorking temperature: -40~125°C (max 120min on +125°C)Ambient temperature: -30~85°CStorage temperature: -30~85°CProtection gradeIP65Temperature DriftCompensation temperature-20~80°CTemperature drift of zero point±1.5%FS (Within compensation temperature)Temperature drift of full scale±1.5%FS (Within compensation temperature)Electrical ProtectionShort circuit protectionSupportReverse polarity protectionNo damage, the circuit does not workMechanical stabilityVibration20g(20~5000Hz)Impact resistanceJog(11ms)InsulationInsulation resistance>200MΩ @500VDC				FS/year, >1kPa								
Temperature rangeWorking temperature: -40~125°C (max 120min on +125°C) Ambient temperature: -30~85°C Storage temperature: -30~85°CProtection gradeIP65Temperature Drift-20~80°CCompensation temperature-20~80°CTemperature drift of zero point±1.5%FS (Within compensation temperature)Temperature drift of full scale±1.5%FS (Within compensation temperature)Electrical ProtectionSupportShort circuit protectionSupportReverse polarity protectionNo damage, the circuit does not workMechanical stability20g(20~5000Hz)Vibration20g(20~5000Hz)Impact resistance50g(11ms)Insulation resistance>200MΩ @500VDC	*Accuracy complies with IEC 60770 (non-linearity, hysteresis, repeatability)											
Temperature rangeAmbient temperature: -30~85°C Storage temperature: -30~85°CProtection gradeIP65Temperature Drift-20~80°CCompensation temperature-20~80°CTemperature drift of zero point±1.5%FS (Within compensation temperature)Temperature drift of full scale±1.5%FS (Within compensation temperature)Electrical ProtectionSupportShort circuit protectionSupportReverse polarity protectionNo damage, the circuit does not workMechanical stability20g(20~5000Hz)Vibration20g(20~5000Hz)Impact resistance50g(11ms)Insulation resistance>200MΩ @500VDC	Environme	ental Condition	s									
Storage temperature: -30~85°CProtection gradeIP65Temperature DriftCompensation temperature-20~80°C-20~80°CTemperature drift of zero point±1.5%FS (Within compensation temperature)Temperature drift of full scale±1.5%FS (Within compensation temperature)Electrical ProtectionSupportShort circuit protectionSupportReverse polarity protectionNo damage, the circuit does not workMechanical stabilityVibrationVibration20g(20~5000Hz)Impact resistance50g(11ms)Insulation resistance>200MΩ @500VDC					Working temperature: -40~125°C (max 120min on +125°C)							
Protection gradeIP65Temperature Drift-20~80°CCompensation temperature-20~80°CTemperature drift of zero point±1.5%FS (Within compensation temperature)Temperature drift of full scale±1.5%FS (Within compensation temperature)Electrical ProtectionSupportShort circuit protectionSupportReverse polarity protectionNo damage, the circuit does not workMechanical stability20g(20~5000Hz)Vibration50g(11ms)Insulation>200MΩ @500VDC	Temperatu	re range		Ambient temperature: -30~85°C								
Temperature DriftCompensation temperature-20~80°CTemperature drift of zero point±1.5%FS (Within compensation temperature)Temperature drift of full scale±1.5%FS (Within compensation temperature)Electrical Protection±1.5%FS (Within compensation temperature)Short circuit protectionSupportReverse polarity protectionNo damage, the circuit does not workMechanical stability20g(20~5000Hz)Vibration20g(20~5000Hz)Impact resistance50g(11ms)Insulation>200MΩ @500VDC				Storage temperature: -30~85°C								
Compensation temperature-20~80°CTemperature drift of zero point±1.5%FS (Within compensation temperature)Temperature drift of full scale±1.5%FS (Within compensation temperature)Electrical ProtectionShort circuit protectionShort circuit protectionSupportReverse polarity protectionNo damage, the circuit does not workMechanical stability20g(20~5000Hz)Vibration20g(20~5000Hz)Impact resistance50g(11ms)Insulation>200MΩ @500VDC	Protection grade			IP	IP65							
Temperature drift of zero point±1.5%FS (Within compensation temperature)Temperature drift of full scale±1.5%FS (Within compensation temperature)Electrical ProtectionSupportShort circuit protectionSupportReverse polarity protectionNo damage, the circuit does not workMechanical stability20g(20~5000Hz)Vibration50g(11ms)Insulation>200MΩ @500VDC	Temperatu	ire Drift										
Temperature drift of full scale±1.5%FS (Within compensation temperature)Electrical ProtectionSupportShort circuit protectionSupportReverse polarity protectionNo damage, the circuit does not workMechanical stability20g(20~5000Hz)Vibration20g(20~5000Hz)Impact resistance50g(11ms)Insulation>200MΩ @500VDC	Compensat	tion temperatu	re	-2	-20~80°C							
Electrical ProtectionShort circuit protectionSupportReverse polarity protectionNo damage, the circuit does not workMechanical stabilityVibrationVibration20g(20~5000Hz)Impact resistance50g(11ms)Insulation>200MΩ @500VDC	Temperatu	re drift of zero	point	±1.5%FS (Within compensation temperature)								
Short circuit protectionSupportReverse polarity protectionNo damage, the circuit does not workMechanical stabilityVibration20g(20~5000Hz)Impact resistance50g(11ms)InsulationInsulation resistance>200MΩ @500VDC	Temperature drift of full scale				±1.5%FS (Within compensation temperature)							
Reverse polarity protection No damage, the circuit does not work Mechanical stability 20g(20~5000Hz) Vibration 20g(11ms) Impact resistance 50g(11ms) Insulation >200MΩ @500VDC	Electrical Protection											
Mechanical stabilityVibration20g(20~5000Hz)Impact resistance50g(11ms)Insulation>200MΩ @500VDC	Short circuit protection				Support							
Vibration20g(20~5000Hz)Impact resistance50g(11ms)Insulation>200MΩ @500VDC	Reverse polarity protection				No damage, the circuit does not work							
Impact resistance 50g(11ms) Insulation >200MΩ @500VDC	Mechanical stability											
Insulation Sector Sect	Vibration				20g(20~5000Hz)							
Insulation resistance >200MΩ @500VDC	Impact resi	istance			50g(11	Lms)						
	Insulation											
Dielectric strength <2mA @500VAC 1min	Insulation I	resistance			>200N	1Ω @500	VDC					
	Dielectric s	trength			<2mA @500VAC 1min							

Structure Material

Ordering Code	Part	Materials				
S4		SS304				
S6	Pressure Interface	SS316L				
PE		РЕЕК				
M6	Sensor	Ceramic Al ₂ O ₃ 99.9%				
FK	O Dina	FKM Fluoro rubber				
NB	O-Ring	NBR Nitrile				

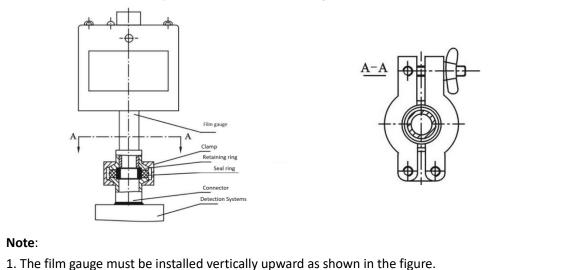
Structure Drawings



Installation Notes

ISO-KF interface installation diagram

When installing the capacitive film vacuum gauge, it is recommended to use the national standard GB4982-85 (equivalent to ISO 2861/1-74 or DIN 28403) KF vacuum quick connector. The user only needs to weld the joint to the system to be tested, and after confirming the seal through leak detection, install the retaining ring, O-ring and film gauge in sequence, then clamp it firmly with the clamp of the connector, and finally tighten the nut, and it is complete. Installation work. The installation is very convenient, and the sealing is reliable.

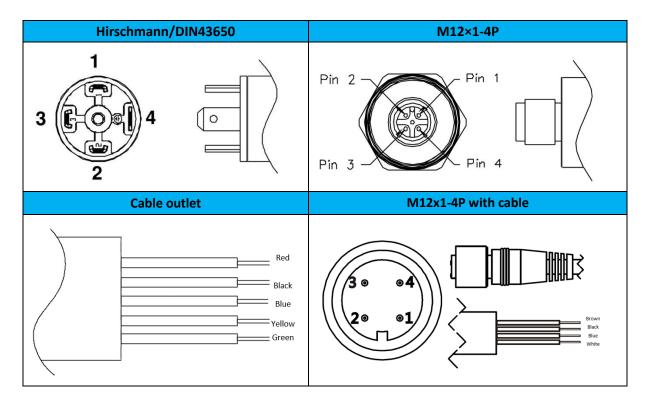


2. During the disassembly and assembly process, care should be taken to handle it with care and avoid collisions to avoid instrument errors. Otherwise, it needs to be recalibrated before it can be used.

3. The diaphragm gauge cannot be installed in a vibrating position. If it must be installed in a vibrating position, please use a vacuum hose to connect it to avoid vibration.

4. The film gauge can also be installed using CF type vacuum flange, VCR, etc. Please consult the sales engineer for details.

Electrical Connection



Two-wire 4~20mA current output							
	Power supply+ (+V)	Power suppl	y- (0V/+OUT)	Empty		
Hirschmann/DIN43650	1			2	3, 4		
Cable outlet	Red		Black		-		
M12×1	1		2		3,4		
M12×1 (with cable)	Brown		Black		Blue, white		
Three- wire 0~5V/10V voltage output							
	Power supply+(+V)	Comr	mon Ground (GND)	Output(+OUT)		Empty	
Hirschmann/DIN43650	1		2	3		4	
Cable outlet	Red		Black	Blue		-	
M12×1	1		2	3		4	
M12×1(with cable)	Brown		Black	Blue		White	

Four-wire Modbus-RTU/RS485						
	Power supply+(+V)	Power supply-(-V)	RS485A	RS485B		
Hirschmann/DIN43650	1	2	3	4		
Cable outlet	Red	Black	Yellow	Green		
M12×1,4P	1	2	3	4		
M12×1(with cable)	Brown	Black	Blue	White		

Ordering Guide

ltem	Type							
HPM18V	Capacitance Diaphragm Gauge							
	Range	Measuring Range						
	0.000	Fill X directly	1					
	(0 ~ X)kPa	Also support Torr or mbar						
		Item	Output					
		B1	4~20mA					
		B3	0-10V					
		B4	0-5V					
		B7	RS485					
			Item	Process Connection				
1			VKF16	DN 16 ISO-KF				
			VCF16	DN 16 CF				
1			VT4	1/2" OD Tube	1			
			VT2	1/4" OD Tube				
			VR8F	1/2 VCR, female thread swivel joint				
			VR8M	1/2 VCR, male thread swivel joint				
			VR4F	1/4 VCR, female thread swivel joint				
			VR4M	1/4 VCR, male thread swivel joint				
			VP1	M20×1.5 male				
				ltem	Electronic output			
				C1	DIN43650			
				C2	Cable outlet			
				C5	M12*1			
				CD15	15 Pins, D-sub connector			
					Item	Sensor		
					M6	Ceramic Al2O3		
						ltem	Wetted part material	
						S4	304	
						S6 PE	316L	
1						PE	PEEK	
							ltem	Additional Function
1							A	Absolute(typical)
							QF	Delivery inspection report
								Other customized requirements
HPM18V	(0~1)kPa	B1	VKF16	C2	M6	S6		A

Certification Information

Factory certification	
Certification organization	CQM
Quality management system	ISO 9001:2015
Certification scope	Research, development and manufacture of pressure transmitter
	and temperature transmitter
Certificate No.	00223Q21711R1S
CE	
Certification organization	ECM
Certification scope	Pressure Transmitter (Differential Pressure Transmitter)
Standard	EN IEC 61000-3-2:2019+A1:2021
	EN IEC 61000-3-3:2013+A1:2019+A2:2021
	EN IEC 61000-6-4:2019, EN IEC 61000-6-2:2019
Certificate No.	6G241223.NHEWC83