

# KL19 High Precision Differential Pressure Transmitter

For gas measurement  
(Featuring silicone diaphragm)

## Overview

This differential pressure transmitter featuring silicone diaphragm contributes for high sensitive and high precision pressure measurements. It can be used mainly for clean room/bio clean room filter monitoring, pressure monitoring and control etc.

- Clean room pressure monitoring etc.
- Filter clogging detection in air conditioning system.

## Features

- Pressure measurements starting with 0 to 25Pa low pressure
- Accuracy :  $\pm 0.25\%$ F.S. (Standard  $\pm 0.5\%$ F.S.)
- SpoolCal™ actuator provides in-place calibration
- A2LA offers quality assurance system (ILAC / Mutual Recognition Arrangement)



## Function

The standard SpoolCal™ actuator valve provides a switch of pressure inlet port by isolating internal sensor from the process pressure. It provides various types of in-place diagnostics and calibration verification without physically disconnecting the process tubing.

- ① Calibration by an external pressure generator  
(After a 90°clockwise rotation of actuator valve. Quick zero check can be performed by shorting the probe's high and low ports.)
- ② Process pressure monitoring  
(After a 90°counterclockwise rotation of actuator valve.)

## Features of sensor

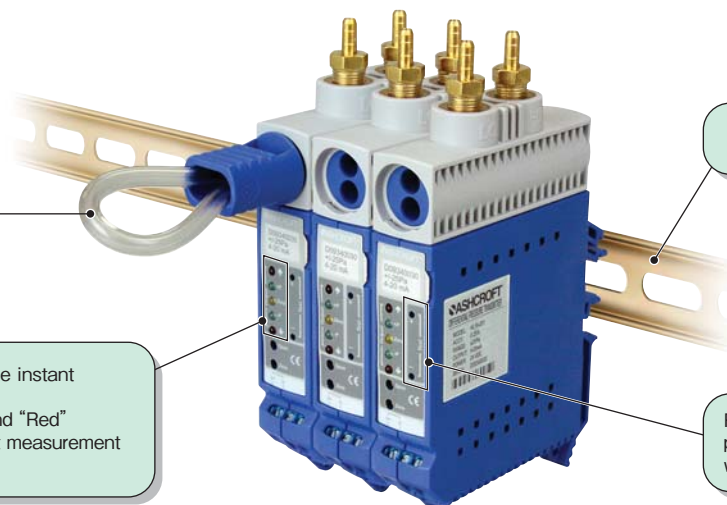
### Silicon Capacitive (SC) Sensor

Miniaturized sensing part designed with silicon diaphragm having less moving parts contributes for excellent vibration proof and shock resistance.

Actual size



SC Sensor  
Sensor chip



LED indicators for the instant troubleshooting.  
"Yellow", "Green", and "Red" indications represent measurement status

Saves installation space by  
DIN Rail Mount

Front access test jacks  
provide on-line output signals  
without removing wiring.

### Specifications

Item	Description
Media	Gas (Dry air and nitrogen gas) No water or dusts should be contained.
Installation environment	Install in location where no gases or liquids may exist that have the potential to become flammable or ignitable under normal operating condition
Type	DIN rail types (EN50022, 35 and 45)
Differential pressure range	0 to 25Pa → 5kPa, ±25Pa → ±100Pa
Output signal	4 to 20mA DC 2 wire system
Power supply (Load resistance)	12V DC (0Ω) to 36V DC (1091Ω) Refer to Power Supply Voltage - Loop Resistance Graph.
Allowable maximum pressure *1	Proof pressure for single port 50kPa Proof pressure for double ports 50kPa
Accuracy	±0.25%F.S. or ±0.5%F.S. including the effect of linearity, hysteresis and repeatability
Position effects	Mounting position effect Below 100Pa ≤ ±0.25%F.S., more than 100Pa ≤ ±0.1%F.S.
Pressure connection	φ5 Barb connection (Joint type)
Wetted parts	Brass, Silicon, Aluminum, Glass, Silicone rubber, PC resin
Temperature coefficient	±0.036%F.S./°C (Both zero and span)
Compensated temp. range	1 to 55°C (Non-condensing)
Operating temperature limits	-25 to 70°C (Non-freezing or condensing)
Storage temperature range	-40 to 80°C (Non-freezing or condensing)
Operating humidity limits	10 to 80%RH (Non-condensing)
Response time	250 ms
Case material	PC Resin, Incombustibility (UL94-V-1)
Casing protection structure	Indoor use
Weight	Approx. 185g
CE Compliance *2	Applicable Directive : 89/336/EEC Applicable Standards : EN61326:1997; EN61326/A1:1998; EN61326/A2:2001; EN61326/A3:2003 (EMI Class B / EMS Annex A, F)

\*1 This product is NOT suitable for use with leakage test requiring strict measurement of leakage amounts.

\*2 Ensure wiring connections not to be affected by oversupply of electric power due to lightning. Not allowed for the use as "Safety accessories."

### Loop resistance

#### [Loop Resistance]

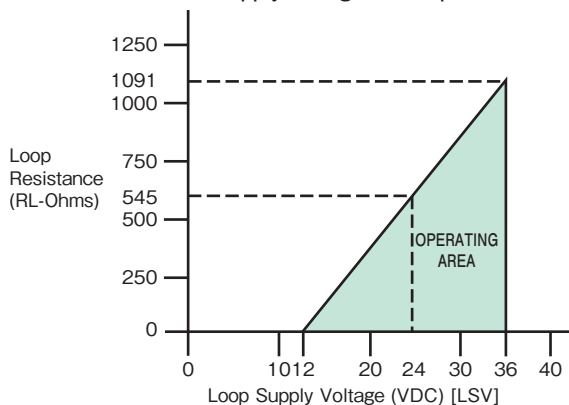
Minimum loop voltage supply:  
LSV (min) = 12 VDC + [0.022 (A) × RL (Ω)]

Where:

LSV = Loop Supply Voltage (VDC)  
RL = Loop Resistance (Rs+ Rw) (Ω)

Rs = Sense Resistance (Ω)  
Rw = Wiring Resistance (Ω)

Power Supply Voltage vs. Loop Resistance



### LED Range Status Indicators

These processes show status that operating pressure is measured within or outside of specified measuring range and the result of self diagnostic check.

Do not use this process for calibration purpose

#### Positive pressure

↑ (Outside of specified measuring range): Range over 106% (Red)  
+P (Within the specified measuring range):  
Within the range between 3% and 106% of specified range (Green)  
Zero (Zero): ±3% at zero (Yellow)  
-P (Within the specified measuring range):  
Within the range between -6% and -3% of specified range (Green)  
↓ (Outside of specified measuring range): Range under -6% (Red)

Ex.) For diff. pressure range: 0 to 100Pa

LED (Red): Within the range between -6Pa and 106Pa  
LED (Green): Within the range between 3Pa and 106Pa  
Within the range between -6Pa and -3Pa  
LED (Yellow): Within the range between -3Pa and 3Pa

#### Positive/Negative pressure \* ±25Pa, ±50Pa, ±100Pa

↑ (Outside of specified measuring range): Range over 106% (Red)  
+P (Within the specified measuring range):  
Within the range between 3% and 106% of specified range (Green)  
Zero (Open to atmosphere): ±3% at centered zero (Yellow)  
-P (Within the specified measuring range):  
Within the range between -106% and -3% of specified range (Green)  
↓ (Outside of specified measuring range): Range under -106% (Red)

Ex.) For diff. pressure range: ±100Pa

LED (Red): Within the range between -106Pa and 106Pa  
LED (Green): Within the range between 3Pa and 106Pa  
Within the range between -106Pa and -3Pa  
LED (Yellow): Within the range between -3Pa and 3Pa

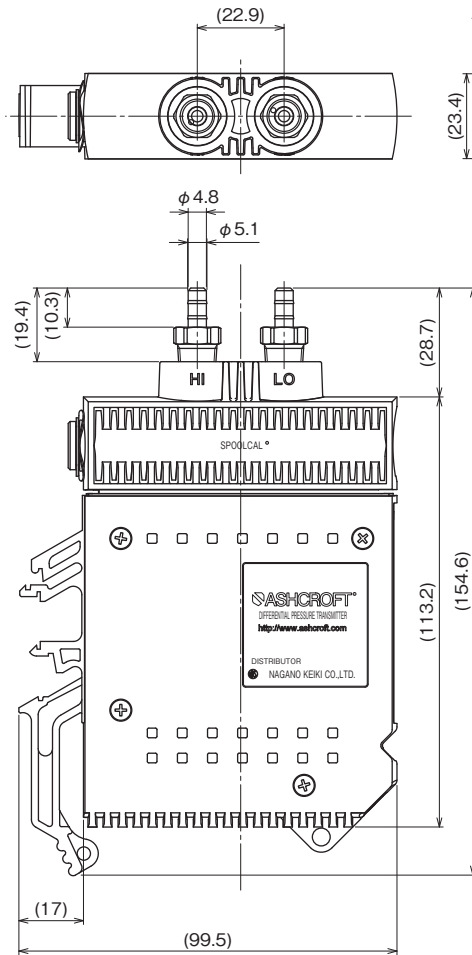
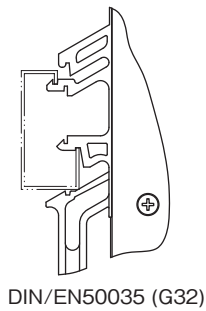
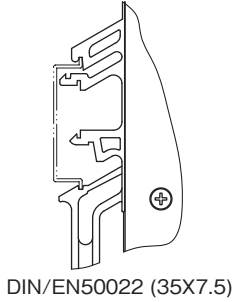
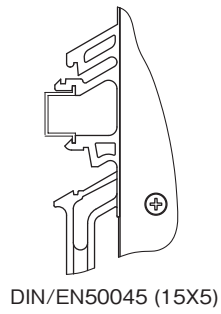


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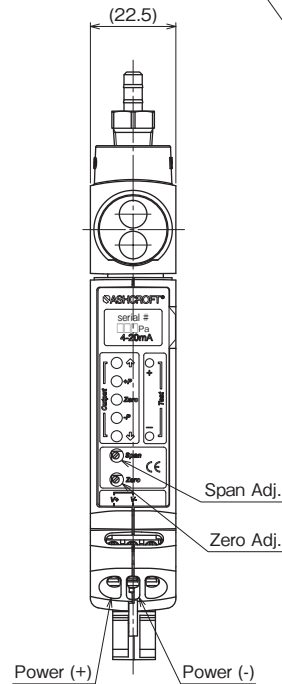
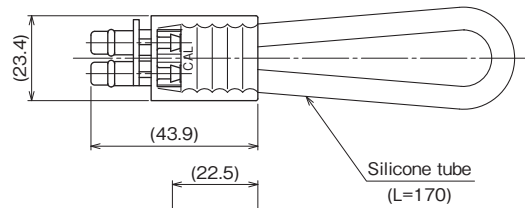
## High Precision Differential Pressure Transmitter

### Dimensions

Unit: mm



### Accessory (Actuator tool)

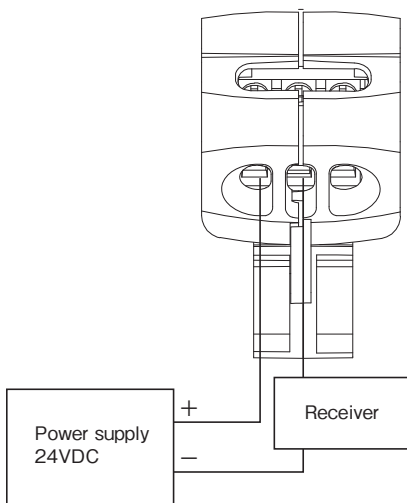


### Label



### Wiring

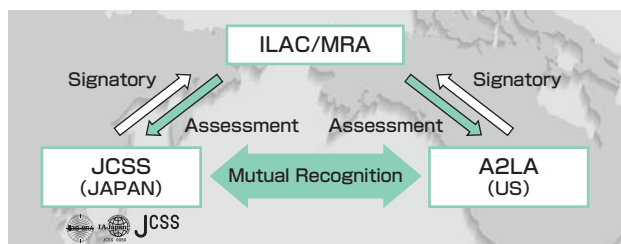
2 wire system (4 to 20mA DC)



### Traceability system assured by mutual recognition arrangements

The accuracy assurance of this product is certified by traceability system of A2LA (American Association for Laboratory Accreditation), ISO/IEC17025 accreditation body. The conformity and competence of A2LA and IAJapan (International Accreditation Japan) are recognized and assured with a signatory status to mutual recognition arrangements (MRA).

ILAC/MRA Signatories are obliged to recognize the system and competence of the other signatories as being equivalent to those of their own. The certificates/reports with ILAC/MRA Marks may be accepted as appropriate by overseas users or regulators.



# KL19

## High Precision Differential Pressure Transmitter

### Model number configuration

Please specify the model, each requiring specification and differential pressure range to order.

Model **KL19** — **201** — **91** × × × × × × × ×


High precision differential pressure transmitter

Model number		Product specifications	Additional specifications (Optional)
① Type	2	DIN rail mounting (EN50022, 35, 45)	
② Pressure connection	0	φ5 barb fitting	
③ Wetted parts	1	Brass, Silicon, Aluminum, Glass, Silicone rubber, PC resin	
④ Differential pressure range	K	0 to 25Pa	
	M	0 to 50Pa	
	N	0 to 100Pa	
	P	0 to 250Pa	
	Q	0 to 500Pa	
	R	0 to 1kPa	
	S	0 to 2.5kPa	
	T	0 to 5kPa	
	7	±25Pa	
B	±50Pa		
C	±100Pa		
⑤ Accuracy	4	±0.25%F.S.	
	5	±0.5%F.S.	
⑥ Power supply	9	12V DC (0Ω) to 36V DC (1091Ω)	
⑦ Output	1	4 to 20mA DC	
⑮ Documents	0	Not required	
	1	Required (Documents available upon request) Datasheet (Drawing / Specifications) Instruction manual Inspection procedure Calibration test report (One-part one sheet) Inspection / Traceability certificate	

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

Allowable maximum pressure \*  
Proof pressure for single port: 50kPa  
Proof pressure for double ports: 50kPa

This label is affixed on body to identify that Nagano keiki is the distributor for the product.



\* This product is NOT suitable for use with leakage test requiring strict measurement of leakage amounts.

\* Specify code "X" to refer N/A

#### Warning

The product can't be used for corrosive, flammable gas and fluids measurements.