CD78
Flame Proof Type Pressure Switch

Overview

This is a flameproof type pressure switch with IECEx certification, an internationally recognized certification system, which is miniaturized while maintaining the basic structure of conventional products with high reliability.

Features

- **Obtain certification under the IECEx System, an international certification system**
- **Japan: TIIS※1, Korea: KOSHA※2, Europe: ATEX Acquisition of Certification**
- **Dead Band adjustable type**
- **Compact and lightweight (weight reduced by 10% compared to the current product)**

※1: Public Interest Incorporated Association ; Technology Institution of Industrial Safety
※2: Korea Occupational Safety and Health Agency

Recommended pressure setting range
Pressure setting range varies by pressure range, please refer to the specifications.

*To keep high accuracy and long life of pressure switch, pressure adjustable range should be 30 to 65% of pressure range.
Please pay attention whether wetted parts materials are suitable for gases or liquids to be measured or not.

Specifications 1

Item	Description
Certifications (Symbol)	IECEx: Ex db ⅡB+H_2 T5 Gb / TIIS: Ex d ⅡB+H_2 T5 Gb / KOSHA: Ex d ⅡB+H_2 T5 / ATEX: ⟨Ex⟩Ⅱ 2 G Ex db ⅡB+H_2 T5 Gb
Media	Gas, liquid (No freezing)
Mounting type	Panel mounting, 2B pipe mounting
Connection	G3/8B, G1/2B, Rc1/4, Rc1/2, 1/4NPT female, 1/2NPT, Others
Wetted parts	Diaphragm SUS316 Flange・Socket SUS316
Pressure range	0.01 to 0.1MPa → 0.08 to 0.8MPa
Proof pressure	10 to 35MPa (Varies depending on ranges)
Operating temperature range	IECEx / KOSHA / ATEX: -20 to 60℃, TIIS: -20 to 40℃
Accuracy	±1%max.P.
Deadband	10 to 20%max.P.
Temperature coefficient	0.05%max.P./℃
Number of contacts	One contact (SPDT), Two contacts (DPDT)
Withstand voltage	2000V AC, 1 minute, Between terminal and case
Insulation resistance	DC500V megger, 100MΩ or higher, Between terminal and case
Setting Method	Internally adjustable
Outlet for electric wire	IECEx / KOSHA / ATEX: Conduit type, TIIS: Flameproof packing type
Case material, finishing	AC7A, ADC12・Blue / Gray with acid corrosion proof painted
Protection	IP66
Applicable standard	IEC 60079-0: 2011 IEC 60079-1: 2014 Internationally hermonized explosion-proof guidelines 2015
Weight	Approx. 14kg

Specifications 2

Electrical characteristic:

Switch	Rating			Withstand voltage	Insulation resistance
		Resistance load	Inductive load		
General type with one contact	125V AC	20 A	20 A	2000V AC Between terminal and case 1 minute	DC500V megger 100MΩ and above Between terminal and case
	250V AC	20 A	20 A		
	125V DC	0.5 A	0.05 A		
	250V DC	0.25 A	0.03 A		
Direct current type with one contact	125V AC	10 A	6 A		
	250V AC	3 A	1.5 A		
	125V DC	10 A	6 A		
	250V DC	3 A	1.5 A		
Simultaneously operating type with two contacts	125V AC	10 A	6 A		
	250V AC	10 A	4 A		
	125V DC	0.5 A	0.05 A		
	250V DC	0.25 A	0.03 A		

・Inductive load: Power factor 0.4 or over (AC)　　Time constant 7ms and below (DC)
※ Direct current type with one contact: For general purpose, those ratings increased DC.

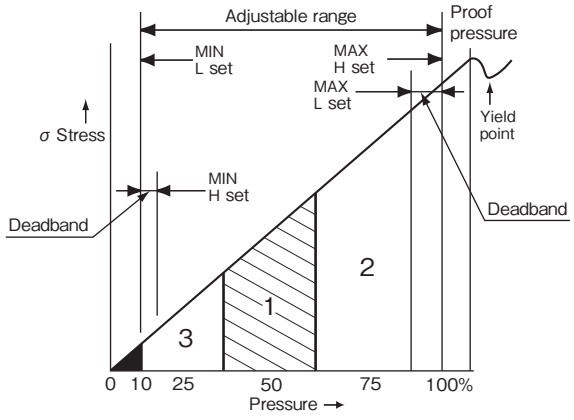
Pressure range and deadband・Maximum working pressure:

Pressure range MPa	Deadband MPa (Adjustable range)	Maximum working pressure MPa
0.01 to 0.1	0.01 to 0.02	10
0.02 to 0.2	0.02 to 0.04	10
0.04 to 0.4	0.04 to 0.08	30
0.08 to 0.8	0.08 to 0.16	35

How to select effective operating pressure range
・Set value is accurate and stable: 30% max.P. and above
・Maintain long life: 65% max.P. and below
・Set value is accurate maintaining long life (ideal): 30 to 65% of adjustable range

In the right figure
Range 1. Effective range both for accuracy and long life
Range 2. Effective range for maintaining accuracy
Range 3. Effective range for maintaining long life

Recommended pressure setting range
Upper limit type: (Lowest pressure range+Deadband) to 100%max.P.
Lower limit type: Lowest pressure range to (100%max.P.-Deadband)



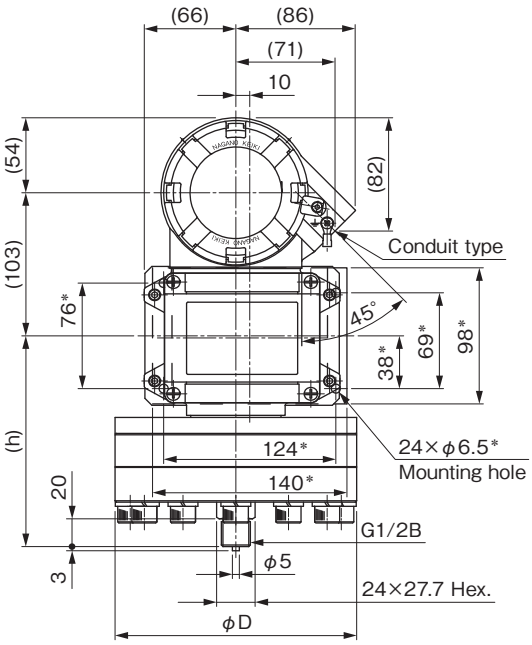
Dimensions 1

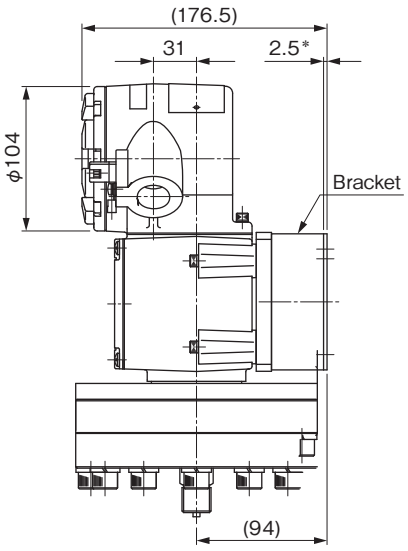
Unit: mm

IECEx/KOSHA/ATEX (Outlet for electric wire: Conduit type)

Panel mounting

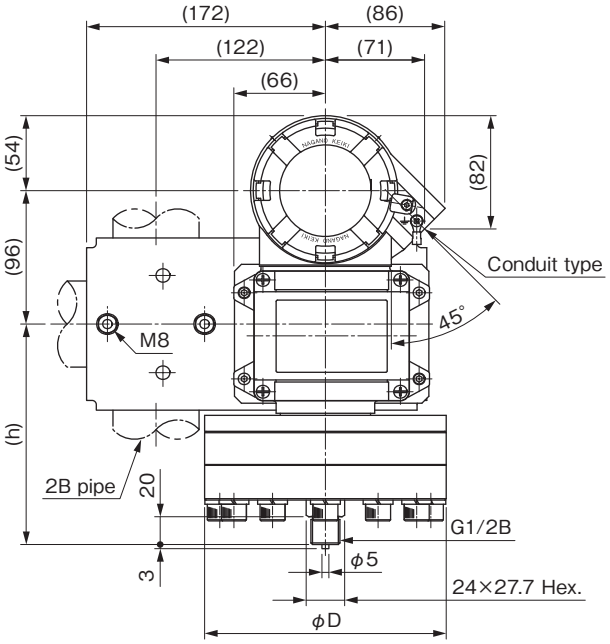
[*Mark] Size: CD75 Compatible bracket (Optional)

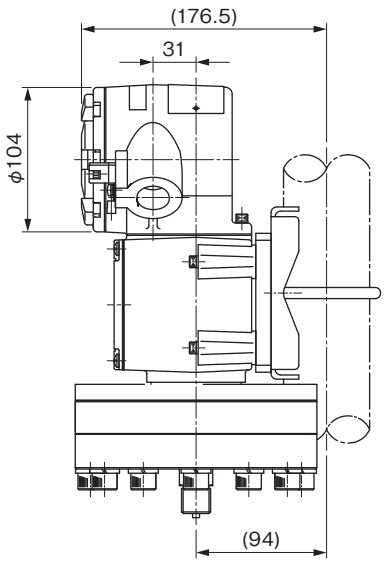




[*Mark] Bracket size

2B pipe mounting





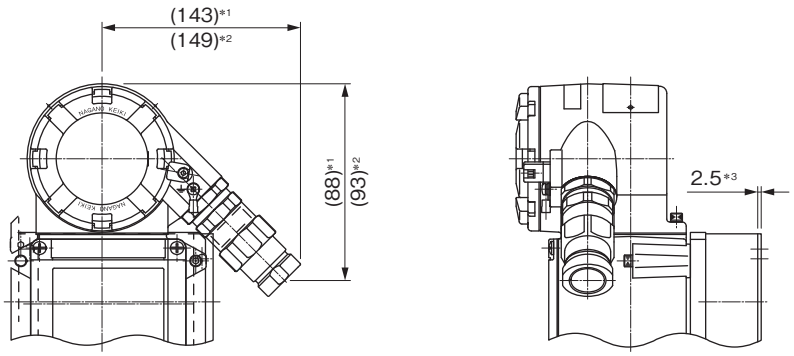
Range	D	h
0.01 to 0.1MPa	174	152
0.02 to 0.2MPa	156	148
0.04 to 0.4MPa	128	150
0.08 to 0.8MPa	118	148

Dimensions 2

Unit: mm

TIIS (Outlet for electric wire: Flameproof packing type)

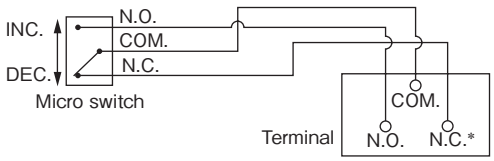
Panel / 2B pipe mounting



[*1] Size: Flameproof cable gland, Connection 3/4 [*2]Size: Flameproof cable gland, Connection G1/2 [*3] Size: Bracket size

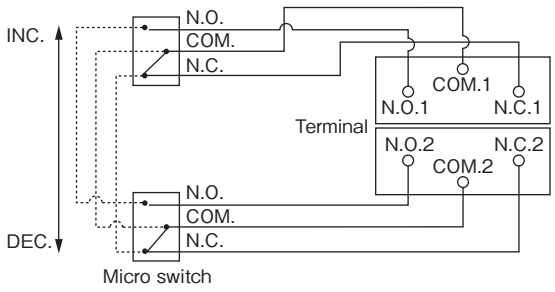
Wiring diagram

One contact (SPDT)



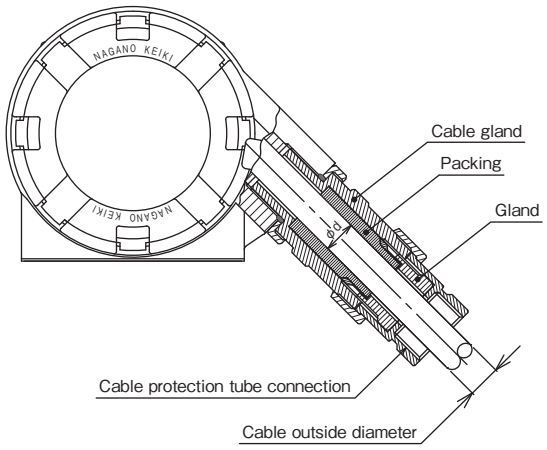
*Please connect the (+) polarity with common terminal COM1 for S.P.D.T. specification for 1 point of contact direct current.

Two contacts (DPDT)



Outlet for electric wire

Conduit Connection	Packing inner diameter (d) ϕ	Applicable cable outside diameter ϕ	Protection tube Connection
M20	7	6 to 7	G1/2
	8	7 to 8	
	9	8 to 9	
	10	9 to 10	
	11	10 to 11	
	12	11 to 12	
M25	11	10 to 11	G3/4
	12	11 to 12	
	13	12 to 13	
	14	13 to 14	
	15	14 to 15	
	16	15 to 16	



Flameproof

Type approval number certified for explosion protected equipment:

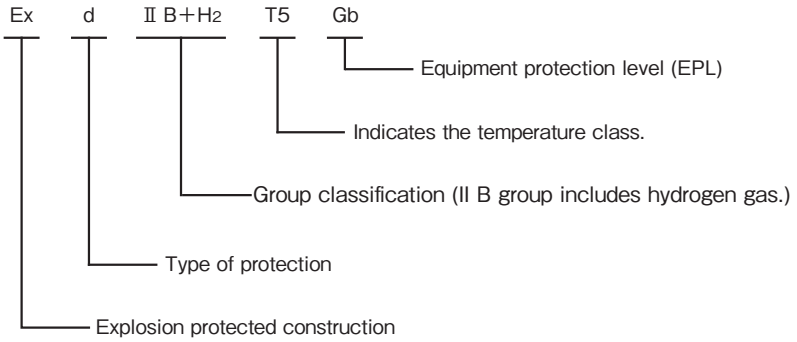
Obtain certification under the IECEx System, an international certification system.

Approval number	
IEC	IECEx CML 16.0024X
TIIS	TC22173X
KOSHA	17-AV4BO-0421X
ATEX	CML 17ATEX1264X

Flameproof enclosure:

Flameproof enclosure refers all-sealed enclosure construction that can withstand the pressure of explosion of the potentially explosive mixture inside, and prevent the transmission of explosion to the potentially explosive atmosphere surrounding the enclosure.
Our pressure switch manufactured in accordance with the principle can be located at factory and other workplaces for use in potentially explosive atmosphere where flammable gas or vapor of combustible liquid exists.

Ex d ⅡB+H_2 T5 Gb:



Group classification

Electrical equipment intended for use in potentially explosive atmosphere is classified into group I and II. This pressure switch is classified into II which means suitable for non-mine locations or other workplaces that could be endangered by potentially explosive atmosphere.

Applicable group and classification of gas or steam

Classification of gas or steam	Applicable group		
A	ⅡA	ⅡB	ⅡC
B	—	ⅡB	ⅡC
C	—	—	ⅡC

Ignition point of gas or steam which T5 can apply

Ignition point of gas or steam	Applicable temperature class					
Higher than 450℃	T1	T2	T3	T4	T5	T6
Higher than 300℃	—	T2	T3	T4	T5	T6
Higher than 200℃	—	—	T3	T4	T5	T6
Higher than 135℃	—	—	—	T4	T5	T6
Higher than 100℃	—	—	—	—	T5	T6
Higher than 85℃	—	—	—	—	—	T6

Example of applicable gas or steam

Group \ Temperature class	T1	T2	T3	T4	T5	T6
ⅡA	Acetone Ammonia Carbon monoxide Ethane Acetic acid Ethyl acetate Toluene Propane Benzene Methanol Methane	Ethanol 1-butanol Butane	Hexane	Acetaldehyde		
ⅡB		Ethylene Ethylene oxide		Ethyl methyl Ether		
ⅡC	Hydrogen	Acetylene			Carbon bisulfide	Nitric acid ethyl

Equipment protection level (EPL) classification symbol

Ga: Equipment for explosive atmospheres due to the presence of gas, with a level of protection 'very high', which is not a source of ignition in normal operation, or in case of expected failure or when subjected to a rare failure.
Gb: Equipment for use in explosive atmospheres due to the presence of gas, with a 'high' level of protection that is not the source of ignition in normal operation or when subject to expected malfunctions, although not on a regular basis.
Gc: Equipment for use in explosive atmospheres due to the presence of gas, with a level of protection "increased" that is not a source of ignition in normal operation. It has some additional security measures in order to ensure that it remains a source of ignition not active in case of expected events on a regular basis (for example, the failure of a lamp).

Model number configuration

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

Model

C	D	7	8	—	①	②	③	—	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮
Flameproof Type Pressure Switch																×	×	×	×	

Model number			Product specifications	Additional specifications (Optional)
① Mounting type (Certifications)	0	Panel mounting	Conduit type	IECEx
	2	2B Pipe Mounting	Conduit type	IECEx
	4	Panel mounting	Flameproof packing type	TIIS
	5	2B Pipe Mounting	Flameproof packing type	TIIS
	6	Panel mounting	Conduit type	KOSHA
	8	2B Pipe Mounting	Conduit type	KOSHA
	M	Panel mounting	Conduit type	ATEX
	P	2B Pipe Mounting	Conduit type	ATEX

② Connection	3	G3/8B
	4	G1/2B
	7	Rc1/4
	9	Rc1/2
	M	1/2NPT
	X	1/4NPT Female
		Others
③ Switch	0	S.P.D.T. General type with one contact
	1	S.P.D.T. Direct current type with one contact
	2	D.P.D.T. Simultaneously operating type with two contacts

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

④ Pressure range (MPa)	1	0.01 to 0.1
	2	0.02 to 0.2
	3	0.04 to 0.4
	4	0.08 to 0.8
⑤ Switch Action / Number of contact	A	H : Upper limit with one contact
	B	L : Lower limit with one contact
	D	2H : Simultaneously operating upper limit with two contacts
	E	2L : Simultaneously operating lower limit with two contacts
		Others
⑥ Switch	0	Standard
	3	Standard + Gold plated (Direct current type not available)
		Others

⑦ Electrical Wire Outlet / ⑧ Diameter	⑦ Electrical Wire Outlet		⑧ Diameter	
	2	Conduit	M	M25×1.5
			N	3/4 NPT Female
	3	Flameproof packing	1	G1/2×Gasket inner size 7mm
			2	G1/2×Gasket inner size 8mm
			3	G1/2×Gasket inner size 9mm
			4	G1/2×Gasket inner size 10mm
			5	G1/2×Gasket inner size 11mm
			6	G1/2×Gasket inner size 12mm
			D	G3/4×Gasket inner size 13mm
			E	G3/4×Gasket inner size 14mm
			F	G3/4×Gasket inner size 15mm
			G	G3/4×Gasket inner size 16mm
		Others (With adapter)		

⑨ Treatment	0	Not required
	1	Use no oil
	2	Use no water
	3	Use no oil & water
⑩ Other Additional Specifications	0	Not required
	1	Case Finish
⑮ Documents	0	Not required
	1	Required (Documents available upon request) Datasheet (Drawing / Specifications) Instruction manual Inspection procedure Mill test report Calibration test report (One-part one sheet) Inspection / Traceability certificate Attending inspection

＊Specify code "X" to refer N/A