For Marine Application

KJ55
Intrinsically Safe Pressure Transmitter

Overview

This pressure transmitter can be used in zone 0 area where potentially explosive gas always exists conforming to IEC intrinsically safe standard. (Exia IIC T5)

Features

- **It can be used in zone 0, 1 and 2 including area where potentially explosive gas always exists.**
- **Small and lightweight.**
- **Intrinsic safety approved type.**
- **In combination with the insulated safety barrier, Type A intrinsically safe ground work is unnecessary.**

Application example

- **Cargo pump, ballast pump, eductor input/output and its driving pressure**
- **Cargo oil, fuel oil pressure measurement**
- **Cargo tank pressure measurement (Overpressure or underpressure)**

Specifications

Media:
Gas, liquid (Compatible with wetted parts)

Type:
Surface mounting

Connection:
G3/8B, G1/2B, Rc1/4

Wetted parts:
Sensing element: SUS630 (17-4PH),
or Co-Ni alloy (high corrosion resistant use)
Fitting: SUS316

Pressure range:
-0.1 to 0.4MPa → 0 to 50MPa

Operating temperature:
-20 to 60℃ (No freezing or condensation)

Storage temperature range:
-30 to 80℃ (No freezing or condensation)

Accuracy:
± 0.5%F.S. (23℃±5℃)

Power source:
24V DC±10%

Output:
4 to 20mA DC (2 wire system)

Load resistance:
500Ω max.

Temperature coefficient:
± 0.05%F.S./℃ (Zero)
± 0.05%F.S./℃ (Span)

Outlet for electric wire:
Watertight cable gland JIS 20f

Case material:
ADC12

Enclosure rating:
Splash-proof (IP54)

Weight:
Approx. 0.7kg

Specification of intrinsically safe construction

Item	Description
NK Standard approval number	08T610
Intrinsically safe construction type	Exia — Technological standard intrinsically safe construction ⅡC — Gas group T5 — Temperature class
Safety maintenance rating	Maximum allowable voltage of intrinsically safe circuit (Ui): 28V Maximum allowable current of intrinsically safe circuit (Ii): 93mA Maximum allowable power of intrinsically safe circuit (Pi): 651mW Internal inductance of intrinsically safe circuit (Li): 9μH Internal capacitance of intrinsically safe circuit (Ci): 0.065μF Ambient temperature: 60℃
External transmission cable	Maximum allowable inductance: 2.5mH Maximum allowable capacitance: 0.015μF (Varies depending on the barrier used.)
Withstand voltage	500V AC, 1minute

Combination of conditions related to safety rating

Safety maintenance rating of KJ55	Combination conditions	Safety maintenance rating of safety barrier
Allowable voltage of intrinsically safe circuit (Ui)	≧	Maximum voltage of intrinsically safe circuit (Uo)
Allowable current of intrinsically safe circuit (Ii)	≧	Maximum current of intrinsically safe circuit (Io)
Allowable power of intrinsically safe circuit (Pi)	≧	Maximum power of intrinsically safe circuit (Po)

Combination of conditions on parameters

Parameters of KJ55 and wiring	Combination conditions	Parameters of safety barrier
Input inductance of KJ55 (Li) + Inductance of wiring (Lw)	≦	Allowable inductance of intrinsically safe circuit (Lo)
Input capacitance of KJ55 (Ci) + Capacitance of wiring (Cw)	≦	Allowable capacitance of intrinsically safe circuit (Co)

Recommended safety barrier (Insulated type)

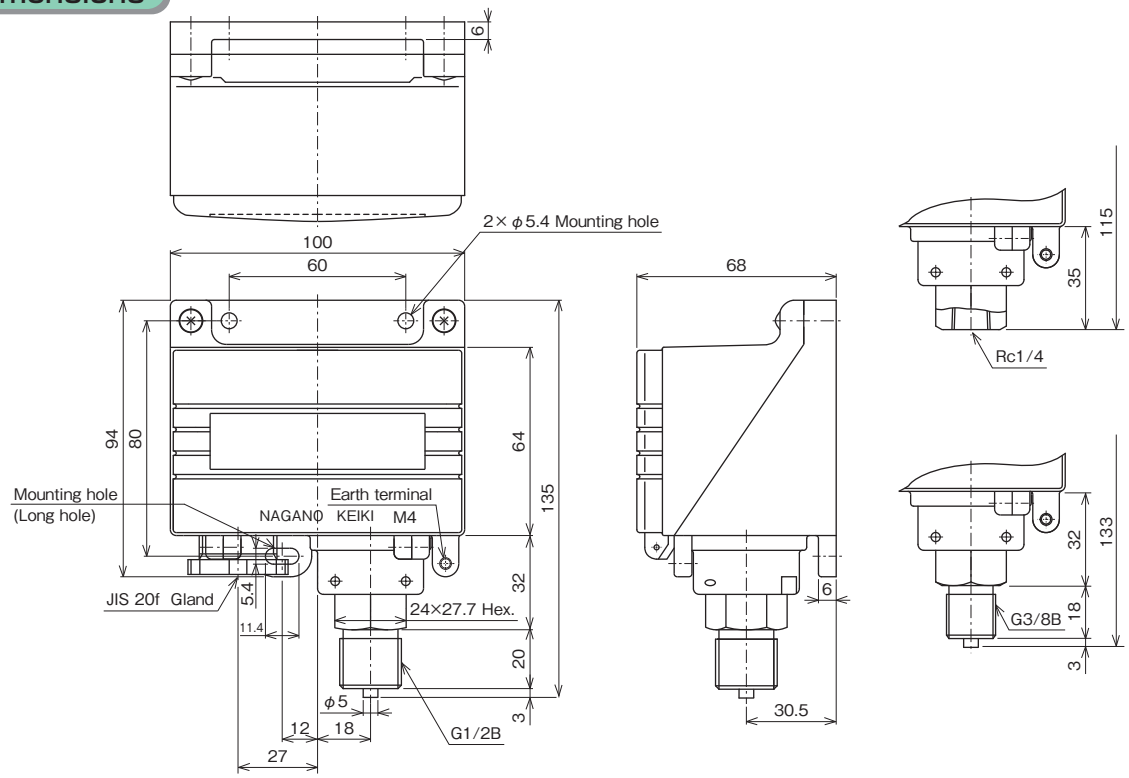
＊The safety barrier can be selected by the customer.

Item	Description
Manufacturer Type NK type approval Intrinsically safe construction type	・Cooper Industries Japan K.K. MTL5541 12T607 Exia ⅡC

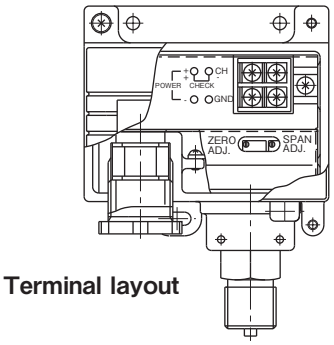
＊Earth of intrinsically safe regulation is unnecessary because an insulated barrier is isolated from intrinsically safe circuit.
＊Select NK type approval

Dimensions

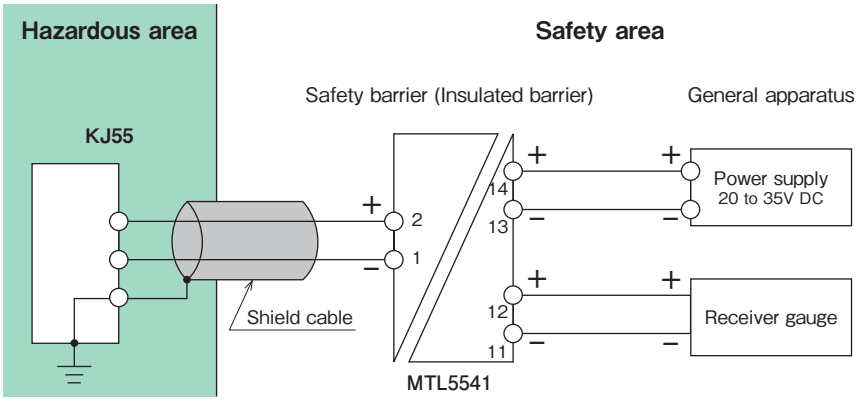
Unit: mm



System layout



Terminal layout



Reference data

• Classification of applicable to hazardous area (Whole range)

Hazardous area	Contents
Zone 0	A place where hazardous atmosphere is continuously present or present for a long period under ordinary circumstances.
Zone 1	A place where hazardous atmosphere is likely to occur under ordinary circumstances.
Zone 2	A place where hazardous atmosphere is likely to occur under abnormal circumstances.

• Ignition point of gas or steam which T5 can apply (Within bold-line rectangle)

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 gas or steam which can apply Exia ⅡC T5 (Within bold-line rectangle)

Group \ Temperature class	T1	T2	T3	T4	T5	T6
ⅡA	Acetone Ammonia Carbon monoxide Ethane Propane Methanol Methane	Ethanol 1-butanol Butane	Hexane Gasoline Oil naphtha Coal tar naphtha	Acetaldehyde Ethyl ether		
ⅡB	Coal gas	Ethylene Ethylene oxide	DME	Ethyl methyl Ether		
ⅡC	Hydrogen Water gas	Acetylene			Carbon bisulfide	Nitric acid ethyl

Model number configuration

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

Model

K J 5 5 —	8			—		5	1	1	R		×	×	×	×	×	
Pressure Transmitter	①	②	③		④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮
Model number					Product specifications						Additional specifications (Optional)					

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

① Type	8	Surface mounting NK Standard approved type			
② Connection	3	G3/8B			
	4	G1/2B			
	5	Rc1/4			
③ Wetted parts	4	Diaphragm: SUS630 (17-4PH) Socket: SUS316			
	6	High corrosion-proof use Diaphragm: Co-Ni alloy Socket: SUS316			
④ Pressure range	A	-0.1 to 0.4MPa	U	0 to 3MPa	
	B	-0.1 to 0.5MPa	K	0 to 3.5MPa	
	C	-0.1 to 1MPa	L	0 to 5MPa	
	F	-0.1 to 1.5MPa	M	0 to 10MPa	
	D	-0.1 to 2MPa	V	0 to 15MPa	
	G	0 to 0.5MPa	N	0 to 20MPa	
	H	0 to 1MPa	W	0 to 25MPa	
	S	0 to 1.5MPa	Y	0 to 30MPa	
	J	0 to 2MPa	P	0 to 35MPa	
	T	0 to 2.5MPa	Q	0 to 50MPa	
⑤ Accuracy	5	±0.5%F.S.			
⑥ Power source	1	24V DC±10%			
⑦ Output	1	4 to 20mA DC 2 wire system			
⑧ Outlet for electric wire	R	JIS 20f			
⑨ Treatment	0	Not required			
	1	Use no oil			
	2	Use no water			
	3	Use no oil & water			
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 strength calculation Attending inspection			

Treatment against wetted parts

■**Use no oil**
Oil used in manufacturing the gauges had been flushed out & no oil residue remained inside its wetted parts.

■**Use no water**
Water used in manufacturing the gauges had been flushed out & no water residue remained inside its wetted parts.

■**Use no oil & water**
Oil/Water used in manufacturing the gauges had been flushed out & no oil/water residue remained inside its wetted parts.

＊Specify code "X" to refer N/A