

LIQUID LEVEL TRANSMITTER (FLOAT TYPE)

DATA SHEET

FNF

This is a liquid level transmitter utilizing an induction potentiometer.

The vertical displacement of a float on a liquid surface in an open tank is conveyed by a strip of stainless steel wire rope to the transmitter body, and inputted as a rotating angle to the induction potentiometer which transmits a signal current of 4 to 20mA DC proportionate to the displacement of the liquid level.

FEATURES

- 1. High reliability**
Use of a contactless induction potentiometer means a long life and high reliability of the instrument.
- 2. Various specifications available**
The transmitter can be provided with intrinsically safe explosionproofing, various materials for its components, an arrester, an alarm unit plus other specs.
- 3. The operating principle and structure of the transmitter are simplified which enables easy handling, maintenance and inspection.**

SPECIFICATIONS

Measuring range: 0 to 0.5.....40m
(Refer to standard measuring ranges)

Indicator: Digital type (4 digits)

Allowance: $\pm 1.0\%$ or $\pm 0.5\%$ on request

Output signal: 4 to 20mA DC

Ripple content: 1.5% p-p (at approx. 25kHz)

Allowable load resistance:
0 to 550 Ω (at 24V DC)

Power supply: 13 to 33V DC
(26V DC or less with intrinsically safe explosionproofing)
(27V DC or less with arrester)
100V/24V $\pm 10\%$, AC 50/60Hz
(see "Example of configuration")

Wiring method: 2-wire type

Ambient temperature:
-30 to +80°C
(but not usable in freezing condition)
50°C max. with intrinsically safe explosionproofing
60°C max. with arrester

Ambient humidity: Less than 95% RH

Liquid temperature: Less than 45°C
(when float material is PVC-vinyl chloride-)



Materials:
Float; Hard PVC or SUS304 (stainless steel)
Rope: Teflon coating on stainless steel wire
Counterweight; Iron piece coated with zinc metallikon or SUS304
Instrument body; Aluminum alloy

Conduit connection: G3/4

Case: Splash-proof type (JIS C 0920)

Arrester: Built in on request

Explosionproof structure: Intrinsically safe explosion-proofing i3nG5

Mass {weight}: Approx. 10.5kg
(excluding float and counterweight)

External dimensions (H x W x D):
Approx. 320 x 346 x 218mm

Finish color: Silver (melamine paint); may be provided with acid and alkaliproof treatment

Optional attachment: Alarm unit (limit switch)
(Alarm unit can't be installed with intrinsically safe explosionproof structure);
Contact capacity
250V AC 5A
230/115V DC 0.2/0.4A
N.O.-1a- contact
3 pieces are available in the transmitter for upper limit and lower limit

Range of delivery: Transmitter and standard accessories (rope, float, and counterweight)

Standard measuring ranges

Measuring ranges	Measuring ranges	Measuring ranges	Measuring ranges
0 to 0.5m	0 to 3.5m	0 to 6.0m	0 to 10.0m
0 to 1.5m	0 to 4.0m	0 to 6.5m	0 to 12.0m
0 to 2.0m	0 to 4.5m	0 to 7.0m	0 to 14.0m
0 to 2.5m	0 to 5.0m	0 to 8.0m	0 to 15.0m
0 to 3.0m	0 to 5.5m	0 to 9.0m	0 to 16.0m

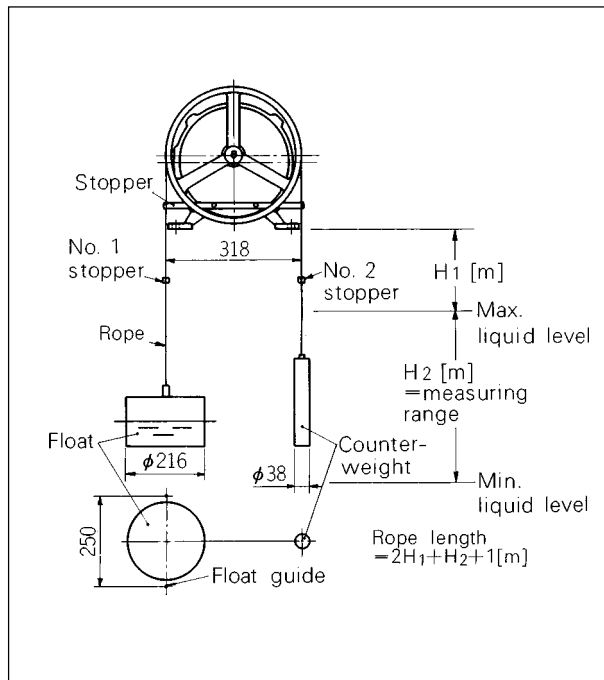
RELATED DEVICE

Distributor

ORDERING INFORMATION

1. Object to be measured or application
2. Product name
3. Code symbols
4. Measuring range
5. Rope length
6. Float, counterweight material
7. Whether or not any attachments (guide pulley, alarm unit, etc.) are required
8. Whether or not explosionproofing and other measures are required
9. Other matters that demand care

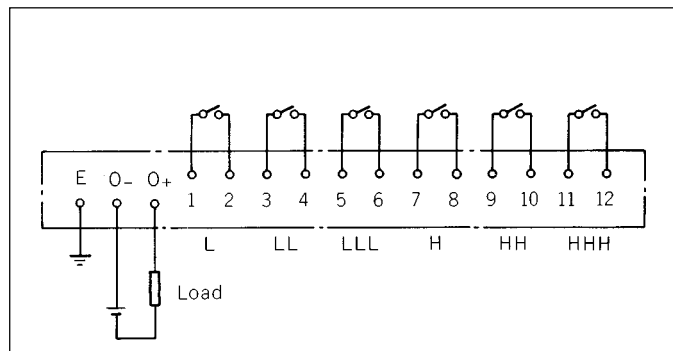
INSTALLATION DIAGRAM



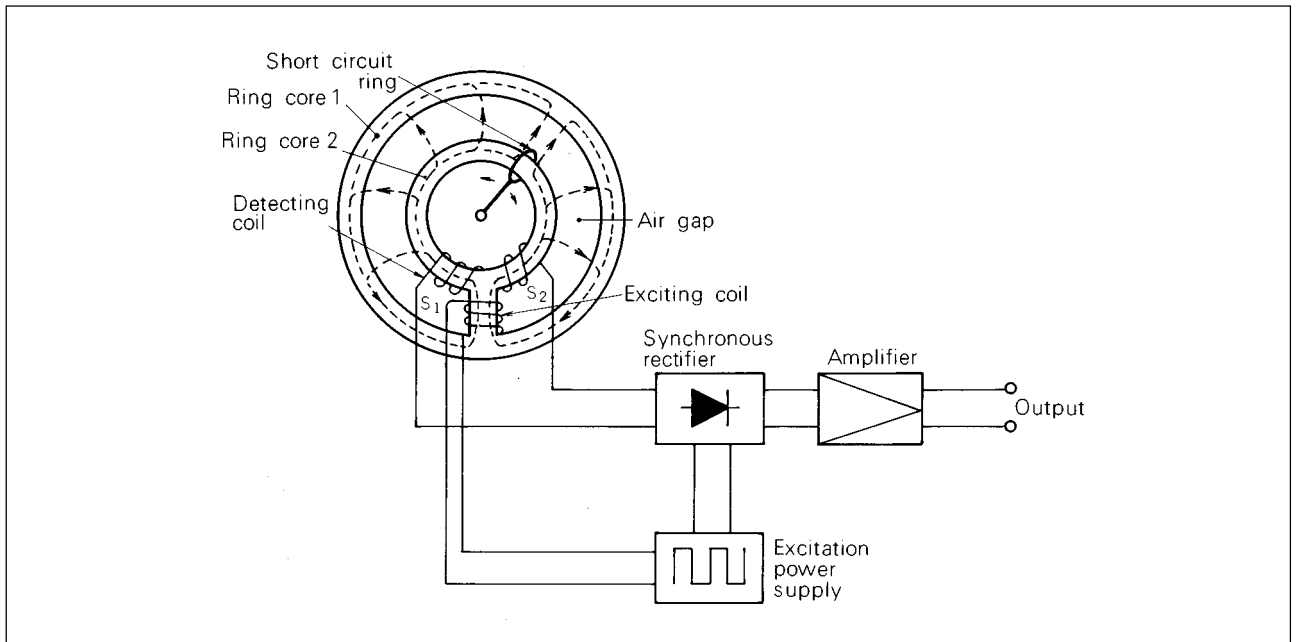
CODESYMBOLS

1	2	3	4	5	6	7	8	9	10	11	12	13	Description
F	N	F						4	1				
A	B	C	D	E	F	G	H	J	K				Length of rope [m]
													5
													10
													15
													20
													25
													30
													40
													50
													60
													80
V	S												Float material
													PVC
													SUS304 (stainless steel)
E	S												Counterweight material
													Steel
													SUS304 (stainless steel)
A	B												Transmitter
													4 to 20mA
													4 to 20mA intrinsically safe explosionproof structure
													Arrester with "A"
													Alarm unit (limit switch)
													Note: Impossible when "B" specified in 7th digit of code.
													0 None
													2 Upper.lower limit, 1 piece each
													4 Upper.lower limit, 2 pieces each
													6 Upper.lower limit, 3 pieces each
													Guide pulley
													0 None
													1 Provided with 1 pulley
													2 Provided with 2 pulleys
													3 Provided with 3 pulleys
													Allowance
													0 ±1% (standard instrument)
													1 ±0.5% (high allowance instrument)
													Treatment
													Y Standard
													* B Acid and alkaliproof treatment
													* D Chlorine-proof treatment

CONNECTION DIAGRAMS



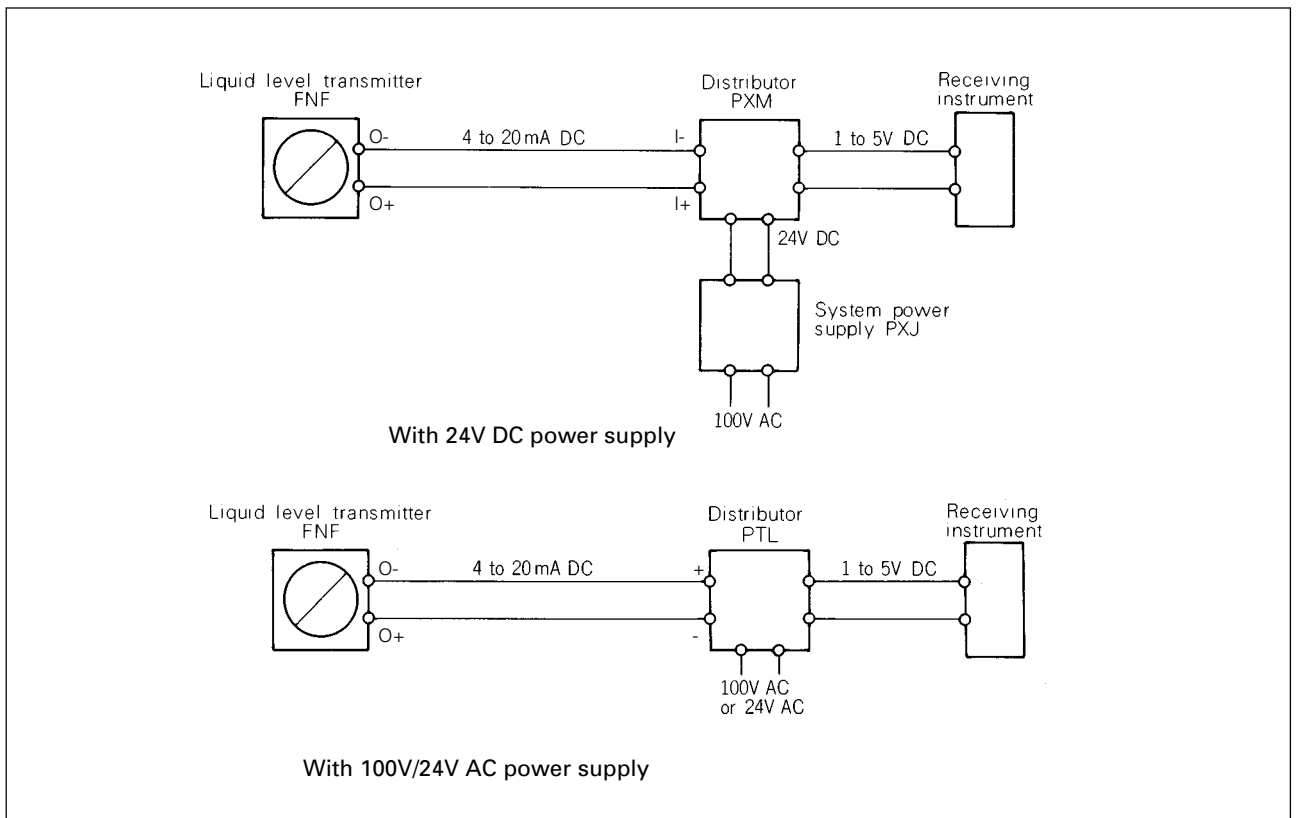
PRINCIPLE OF INDUCTION POTENTIOMETER



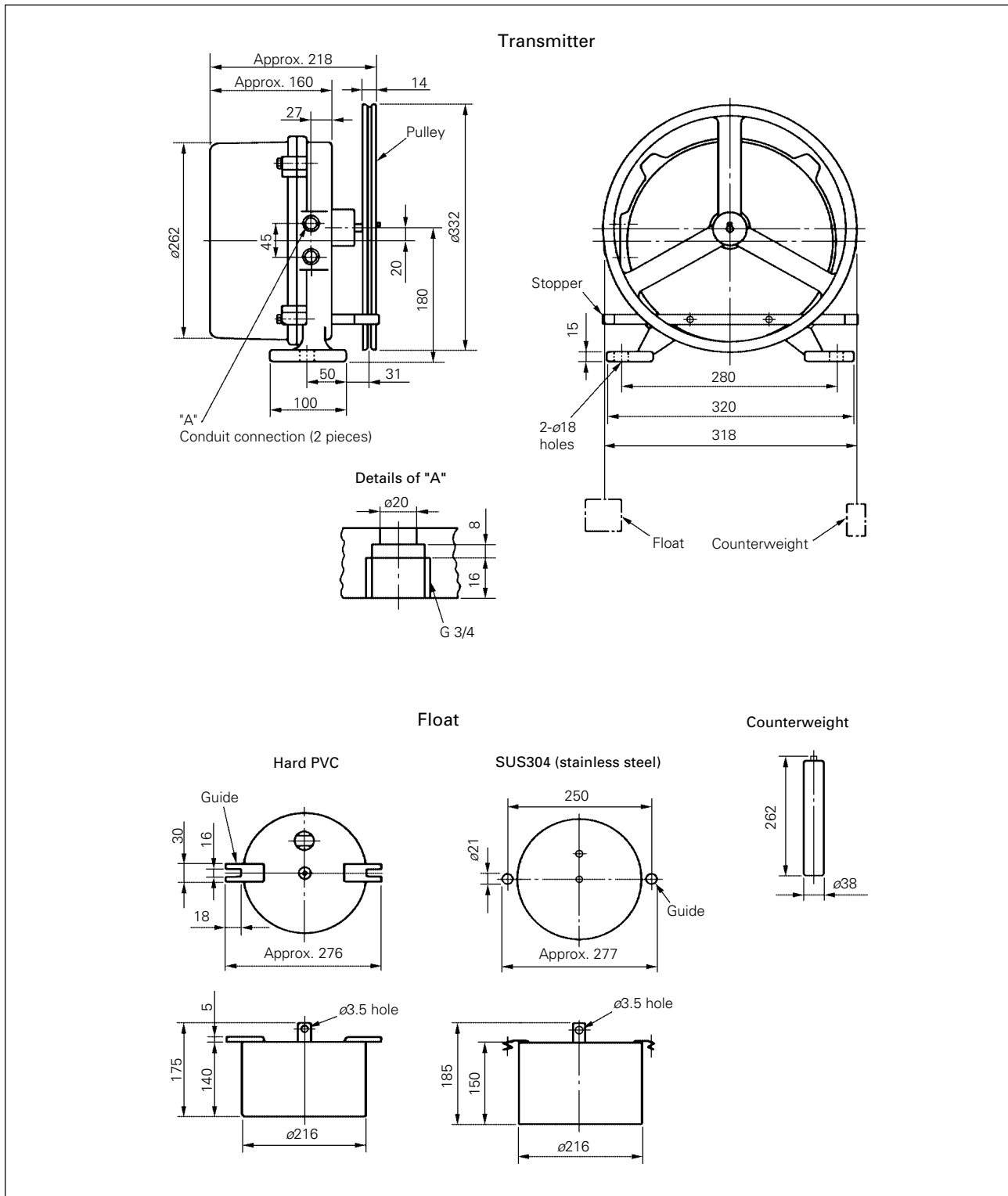
When the short circuit ring is positioned at the center, the magnetic flux at left and right sides is equal and the voltages produced at detecting coils S_1 and S_2 are equal. But if the ring rotates to the right side for example, then the

flux at S_1 will increase and that at S_2 will decrease. According to this difference an output voltage is provided which is proportional to the ring displacement (input rotating angle).

EXAMPLE OF CONFIGURATION



OUTLINE DIAGRAM (Unit:mm)



⚠ Caution on Safety

Asterisk (*) items: Non-standard.

*Before using this product, be sure to read its instruction manual in advance.

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