

digitalYEWFLO Series Vortex Flowmeter

Manual Change No.17-0023-E

Please replace to the contents in each page described below for the IM01F06A00-01EN(19th).

No.	Page / Section	Addition / Correction	Description
1	3-1	Addition of description for Piping Precautions. (Please add to the contents on the right and use it.)	<p>● Piping Condition</p> <p>In case the piping conditions are compounded, install on the straight pipe section where the upstream part is sufficiently rectified.</p>
2	13-3	13.1 Standard Specifications	Update standard
3	13-5	Addition of description for Special Specifications. (Please add to the contents on the right and use it.)	<p>Note: An exclusive User's Manual might be attached for products whose suffix code or optional codes contain code "Z".</p> <p>Please read it along with their standard manual.</p>
4	14-1	14.1 ATEX	Update standard
5	15-1	15. PED (PRESSURE EQUIPMENT DIRECTIVE)	Update standard

Status Output Function*:**Flow Switch:**

In case flow rate decreases under the flow set value, a status signal is output.

Status signal output mode can reverse (ON/OFF).

Data Security During Power Failure:

Data (parameter, totalizer value, etc) storage by EEPROM. No back-up battery required.

Correction:**Instrument Error Correction:**

Vortex flowmeter instrument errors can be corrected by segment approximations.

Reynolds Number Correction:

Output error at Reynolds number 20000 or less is corrected by using five-break-point line-segment approximation.

Gas Expansion Correction:

When measuring a compressibility gas and steam, this expansion factor is useful to correct the error at high velocity of flow (35m/s or more).

Down-scale or Up-scale burn out.

In case a CPU or EEPROM failure occurs, flow meter output the signal of Up-scale (21.6 mA or more).

Up-scale or Down-scale (3.6 mA or less) is user-selectable through the fail mode alarm jumper.

Indicator:

Flow rate (% or engineering units) or temperature value and totalizer can be indicated simultaneously.

Short message for self diagnostics indicated. Local parameter setting can be operated by key switches.

In mounting direction, the right and left 90° is rotatable.

EMC Conformity Standards:

EN 61326-1 Class A, Table 2 (For use in industrial locations), EN 61326-2-3

- Performance Specification during immunity test

Flowrate output: Output fluctuation within measurement accuracy

Temperature output: Output fluctuation within $\pm 1.0^{\circ}\text{C}$

Note1: This instrument is a Class A product, and it is designed for use in the industrial environment. Please use this instrument in the industrial environment only.

Note2: Use the metal conduit for the remote cable.

CE Marking:

CE Marking is indicated on the name plate of non-explosion protected type and ATEX explosion protected type.

Pressure Equipment Directive:

Type of equipment: piping

Type of fluid: liquid and gas

Group of fluid: 1 and 2

Module: H

MODEL	DN(mm)*	PS(MPa)*	PS-DN(MPa·mm)	CATEGORY**
DY015	15	42	630	Sound Engineering Practice (SEP)***
DY025	25	42	1050	Sound Engineering Practice (SEP)***
DY040	40	42	1680	II****
DY050	50	42	2100	II****
DY080	80	42	3360	II****
DY100	100	42	4200	II****
DY150	150	42	6300	III
DY200	200	42	8400	III
DY250	250	42	10500	III
DY300	300	42	12600	III
DY400	400	25	10000	III

* PS: Maximum allowable pressure for Flow tube, DN: Nominal size

** Table 6 covered by ANNEXII of Directive 2014/68/EU

*** Article 4, paragraph 3 of Directive 2014/68/EU

**** MODELS classified in CATEGORY II shall not be used for unstable gases of Group 1.

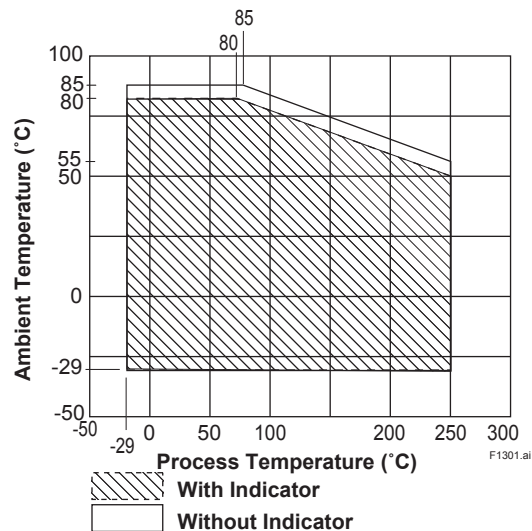


Figure 13.1 Ambient Temperature limit (Integral Type)

14. EXPLOSION PROTECTED TYPE INSTRUMENT

In this chapter, further requirements and differences for explosion protected type instrument are described except TIS Flame proof. For explosion protected type, the description in this chapter is prior to other description in this User's Manual.



WARNING

- Only trained persons use this instrument in industrial locations.



CAUTION

- Process temperature and ambient temperature on this section are specifications for explosion protected type. Read section 13.1 "Standard Specifications" before operating.

14.1 ATEX



WARNING

- Only trained persons use this instrument in industrial locations.
- Electrostatic charge may cause an explosion hazard. Avoid any actions that cause the generation of electrostatic charge, such as rubbing with a dry cloth on coating face of product.

(1) Technical Data

• Flameproof

Applicable Standard : EN 60079-0: 2012+A11: 2013,
EN 60079-1: 2014

Certificate : DEKRA 11ATEX0212X

Type of Protection:

Ex d IIC T6...T1 Gb (Integral Type and Remote Type Detector)

Ex d IIC T6 Gb (Remote Type Converter)

Group: II, Category: 2 G

Specification of Protection:

Temperature Class: (Integral Type and Remote Type Detector)

Temperature Class	Process Temperature
T6	-40°C to +80°C
T5	-40°C to +100°C
T4	-40°C to +135°C
T3	-40°C to +200°C
T2	-40°C to +300°C
T1	-40°C to +450°C

*1 Note: Use /HT version above +250°C

Temperature Class: T6 (Remote Type Converter)

Ambient Temperature:

-30 to +60°C (With Indicator)

-40 to +60°C (Without Indicator)

Power Supply: 10.5 to 42Vdc max.

Output Signal: Current Output; 4 to 20mA

Pulse Output; On=2Vdc, 200mA

Off=42Vdc, 4mA

Special Fastener: Class A2-50 or more

• Intrinsically Safe

Applicable Standard: EN 60079-0: 2012+A11: 2013,
EN 60079-11: 2012

Certificate: DEKRA 13ATEX0192 X

Type of protection:

Ex ia IIC T4...T1 Ga (Integral Type)

Ex ia IIC T6...T1 Ga (Remote Type Detector)

Ex ia IIC T4 Ga (Remote Type Converter)

Group: II, Category: 1G

Ambient Temperature:

-50 to +60°C (Integral Type)

-50 to +80 [+79]°C (Remote Type Detector)

(Option /LT below -29°C, [] for Option /MV at T6)

-50 to +80°C (Remote Type Converter)

15. PED (PRESSURE EQUIPMENT DIRECTIVE)

This chapter is described further requirements and notices concerning the PED (Pressure Equipment Directive). The description in this chapter is prior to other description in this User's Manual.

(1) Technical Data

Pressure Equipment Directive:

Type of equipment: piping

Type of fluid: liquid and gas

Group of fluid: 1 and 2

Module: H

MODEL	DN(mm)*	PS(MPa)*	PS-DN(MPa·mm)	CATEGORY**
DY015	15	42	630	Sound Engineering Practice (SEP)***
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DY150	150	42	6300	III
DY200	200	42	8400	III
DY250	250	42	10500	III
DY300	300	42	12600	III
DY400	400	25	10000	III

* PS: Maximum allowable pressure for Flow tube, DN: Nominal size

** Table 6 covered by ANNEX II of Directive 2014/68/EU

*** Article 4, paragraph 3 of Directive 2014/68/EU

**** MODELS classified in CATEGORY II shall not be used for unstable gases of Group 1.

CE Marking is indicated on the name plate of non-explosion protected type and ATEX explosion protected type.

(3) Operation



WARNING

- The temperature and pressure of fluid should be applied under the normal operating condition.
- The ambient temperature should be applied under the normal operating condition.
- Please pay attention to prevent the excessive pressure like water hammer, etc. When water hammer is to be occurred, please take measures to prevent the pressure from exceeding PS (maximum allowable pressure) by setting the safety valve, etc. at the system and the like.
- When external fire is to be occurred, please take safety measures at the device or system not to influence the flowmeters.
- Please pay attention not to abrade the metal pipe, when using the fluid to abrade the metal pipe such as slurry and sand are contained.

(2) Installation



WARNING

- Please tighten the bolts for piping joint according to the appropriate torque values.
- Please take measure to protect the flowmeters from forces caused by vibration through piping.