# User's Manual

LN01 Piezoelectric Accelerometer (for FN series)

IM 01W03H01-01EN

#### 1. Introduction

This manual describes how to use the LN01 Piezoelectric Accelerometer (hereafter simply referred to as LN01). LN01 is designed to connect to Field Wireless Multi-Function Module FN510 as a receiver. Your LN01 was precisely calibrated at the factory before shipment. To ensure both safety and efficiency, please read this manual carefully before you operate the LN01.

#### Table 1.1 Related Document List

Title	Document No.
LN01 Piezoelectric Accelerometer (for FN series)	GS 01W03H01-01EN
FN510 Field Wireless Multi-Function Module (Accelerometer Input)	IM 01W03E03-01EN

#### Regarding This Manual

- This manual should be provided to the end users.
- This manual is an essential part of the product; keep it in a safe place for future reference.
- The contents of this manual are subjected to change without prior notice · All rights reserved. No part of this manual may be reproduced in any form without
- Yokogawa's written permission
- · Yokogawa makes no warranty of any kind with regard to this manual, including, but not limited to , implied warranty of merchantability and fitness for a particular purpose.
- If any question arises or errors are found, or if any information is missing from this manual, please inform the nearest Yokogawa sales office.
- · The specifications covered by this manual are limited to those for the standard type under the specified model number break-down and do not cover custom-made products.
- · Please note that changes in the specifications, construction, or component parts of the instrument may not immediately be reflected in this manual at the time of change. provided that postponement of revisions will not cause difficulty to the user from a functional or performance standpoint.

#### ■ Safety, Protection, and Modification of this Product

- · In order to protect the operator, product, and system controlled by the product, observe the safety precautions described in this manual. If users handle contrary to these instructions, we cannot guarantee the safety.
- Modification of the product is strictly prohibited.
- The following safety symbols are used in this manual

# WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

# CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or physical damage. It may also be used to alert against unsafe practice.

# IMPORTANT

Indicates that operating the hardware in this manner may damage it or lead to system failure.

# \land ΝΟΤΕ

Draws attention to information essential for understanding the operation and features.

#### Control of Pollution Caused by the Product

This is explanation for the product based on "Control of Pollution Caused by Electric Information Product" in the People's Republic of China.

#### 電子情報製品汚染制御管理弁法(中国版 RoHS)

产品中有害物质或元素的名称及含量

		有害物质					
型号	部件名称	铅	汞	镉	六价铬	多溴联苯	多溴二苯醚
		(Pb)	(Hg)	(Cd)	(Cr(VI))	(PBB)	(PBDE)
LN01	壳体(金属)	0	0	0	0	0	0
压电式加速度计	基板组件	×	0	0	0	0	0
(FN 系列用)	电缆	×	0	0	0	0	0
)·表示该部件的所有均质材料中的有害物质的含量均在 GB/T26572 标准中所规定的							

- 限量以下。 ×:表示至少该部件的某些均质材料中的有害物质的含量均在 GB/T26572 标准中所规
- 定的限量以上

#### 环保使用期限:



该标识适用于SJ/T11364 中所述,在中华人民共和国销售的电子 电气产品的环保使用期限。

#### 1.1 Safe Use of This Product

For the safety of the operator and to protect this product and the system, please be sure to follow this manual's safety instructions when handling this product. If these instructions are not heeded, the protection provided by this product may be impaired. In this case, Yokogawa cannot guarantee that this product can be safely operated. Please pay special attention to the following points:

### (a) Installation

- · This product may only be installed by an engineer or technician who has an expert knowledge of this product. Operators are not allowed to carry out installation unless they meet this condition
- · All installation shall comply with local installation requirements and the local electrical code.

#### (b) Wiring

- · This product must be wired by an engineer or technician who has an expert knowledge of this product. Operators are not permitted to carry out wiring unless they meet this condition
- (c) Maintenance
  - · Care should be taken to prevent the buildup of dust or other materials on the Name Plate. To clean these surfaces, use a soft cloth.
  - (d) Explosion Protected Type instrument
  - · Users of explosion protected instruments should refer first to "8. Explosion Protected Instrument'
  - The use of this instrument is restricted to those who have received appropriate training the device
  - · Take care not to create sparks when accessing the instrument or peripheral devices in a hazardous location
  - · Repair or modification to this instrument by customer will cause malfunction of explosion protect function and hazardous situation. If you need to repair or

modification, please contact the nearest Yokogawa office.

#### (e) Modification

· Yokogawa will not be liable for malfunctions or damage resulting from any modification made to this product by the customer.

#### (f) Product Disposal

· This product should be disposal of in accordance with local and national legislation/ regulations

#### (g) Authorized Representative in EEA

- The authorized representative for this product in the EEA is: Yokogawa Europe B.V
- Euroweg 2, 3825 HD Amersfoort, THE NETHERLANDS.

#### 1.2 Warranty

- · The warranty shall cover the period noted on the quotation presented to the purchaser at the time of purchase. Problems occurring during the warranty period shall basically be repaired free of change.
- If any problems are experienced with this product, the customer should contact the Yokogawa representative from which this product was purchased or the nearest Yokogawa office.
- · If a problem arises with this product, please inform us of the nature of the problem and the circumstances under which it developed, including the model specification and serial number. Any diagrams, data and other information you can include in your communication will also be helpful
- The party responsible for the cost of fixing the problem shall be determined by Yokogawa following an investigation conducted by Yokogawa.

#### 1.3 Trademark

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IM 01W03H01-01EN 1st Edition

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# 2. Notes on Handling

The LN01 is fully factory-tested before shipment. When the LN01 delivered, check the appearance for damage, and also check that the bundled items are included with your shipment.

# Bundled items

- LN01
- Mounting stud
- User's manual (IM 01W03H01-01)
- EU DECLARATION OF CONFORMITY (F9091RX), if optional specification /KS27 is specified.

# 2.1 Check the Model Name and Configuration

The model name and configuration are indicated on the nameplate. Verify that configuration indicate in the "Model" and "Suffix Code" on the Nameplate. A manual number omitting the language code at the end is printed on the nameplate.



MODEL: Specified model code.

- SUFFIX: Specified suffix code
- S/N: Serial number.
- SUPPLY: Supply voltage.
- yyyy.mm: Date of manufacture.
- TOKYO 180-8750 JAPAN: The manufacturer name and the address\*1
- \*1 "180-8750" is a zip code which represents the following address. 2-9-32 Nakacho, Musashino-shi, Tokyo Japan

# 2.2 Transport

To prevent damage while in transit, leave the product in the original shipping container until it reaches the installation site.

# 2.3 Storage

- 1. Choose a storage location that satisfies the following requirements.
- · A location that is not exposed to rain or water.
- · A location subject to a minimum of vibration or impact
- 2. The temperature and humidity limits refer to "7. Specification"

# 3. Component Names



# 4. Installation

### 4.1 Precautions

Before installing this product, please refer to the instruction manual of the receiver. For additional information on the ambient condition allowed at the installation location, refer to subsection 7.1 "Standard Specification".



- When installing LN01 or the mounting stud, be careful not to pinch your finger.
- LN01 should be fixed to proper mounting stud by tighten with specified torque.
- · Fix the integral cable to the structure to avoid that vibration of the cable affects the measurement.
- · Deformation, scratch and dirt on the detection surface and the mounting stud may affect a frequency response of the LN01. Please check the detection surface and the mounting stud before installing. Apply the silicone grease on the detection surface and the mounting stud

#### 4.2 Mounting

- The installation procedure is as follows.
- Select the mounting location which provides a flat surface of at 20 mm in diameter and a case thickness exceeding 6 mm. Drill a vertical hole in the surface and tap it to a minimum depth of 6 mm with a proper thread type.
- 2. Tighten the mounting stud to the surface.
- 3. Tighten a nut of LN01 with a torque of 5.1  $N{\cdot}m$  to fix to the mounting stud.

Removal is the reverse of the above.

#### 5. Wiring

# 

- Before installing, turn off the receiver.
- The wire is placed as far as possible from a large transformer, motor, power supply, such as distant electrical noise sources.
- Please keep a bending radius more than 50 mm and a margin for tension at wiring to prevent deterioration of the integral cable.

#### Wiring to receiver is as follows.



#### \* Screen line is connected to the braided shield.

#### 6. Operation

6.1 Preparation of operation



An ambient temperature affects a sensitivity of accelerometer. If a high accuracy measurement is required, please install LN01 to a location where a temperature change is small.

#### 6.2 Start of operation

- 1. Connect LN01 to the receiver. Make sure the supply voltage of the receiver meets the specification.
- 2. Turn on the receiver, then LN01 starts measurement. Make sure a measurement value of the receiver is around 0 when LN01 is not fixed to the mounting stud.
- 3. Fix LN01 to the mounting stud.
- 4. LN01 outputs a signal that proportional to the vibration.

# 7. Specification

## 7.1 Standard Specification

# MEASUREMENT RANGE

Frequency Range(Refer to 100 Hz): 10 Hz to 3000 Hz (±1dB) 5 Hz to 10000 Hz (±3dB) Operation Acceleration Range: ±300 m/s<sup>2</sup> (Peak) D PERFORMANCE SPECIFICATIONS Sensitivity : 2.0 mV/m/s<sup>2</sup> ±10% (at 100 Hz) Temperature Characteristics: 15 [%] 10 Rate 5 0 -5 -10 ů -15 -20 0 20 40 60 80 -40



Temperature [°C]

100

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Transverse Sensitivity: ≤ 5% Mounted Resonant Frequency: ≥ 30000 Hz Power Supply Voltage: 3.4 V Consumption Current: 1.2 mA □ NORMAL OPERATING CONDITION Ambient Temperature Range: -40 to 85°C (altitude up to 3000 m) Ambient Humidity Range: 0 to 100% RH (non-condensation, excluding the end of cable) Shock Resistance: > 10,000 m/s<sup>2</sup> **REGULATORY COMPLIANCE STATEMENTS** CE Conformity EMC: EN61326-1 Class A Table 2 \* The instrument continues to operate at a measurement accuracy of within ±20% of the range during testing. Safety: EN61010-1 (Indoor/Outdoor use) Environment: EN50581 Canadian Safety Standards: CAN/CSA-C22.2 No. 61010-1, CAN/CSA-C22.2 No. 94.2, IEC60529

Degrees of Protection:

IP66, IP67 and Type 4X applied when the end of cable properly protected from ingress of dust and water.

### PHYSICAL SPECIFICATIONS

Housing Material: SCS14 stainless steel

- Weight: 73 g (without the integral cable and the mounting stud)
- Integral Cable: Length: 10 m, Outer diameter: 4.3  $\pm$  0.2 mm
- Mounting: M20 female screw for the mounting stud

#### 7.2 Model and Suffix Code

	Model	Suffix Codes			Description
[	_N01				Piezoelectric Accelerometer (for FN series)
0	General Specification	Mounting stud	-A		M6 male
			-B		1/4-28 UNF male
		-		0	Always 0
0	Optional Codes				/

#### ■ OPTIONAL SPECIFICATIONS (For Explosion Protected Types)

ltem		Description	
Factory	United	FM Intrinsically safe Approval (United States)	
Mutual (FM)	States	Applicable Standards: Class 3600:2011, Class 3610:2015,	
		Class 3810:2005,	
		ANSI/ISA-60079-0:2013,	
		ANSI/ISA-60079-11:2014,	
		NEMA 250-2014,	
		ANSI/IEC 60529-2004(R2011)	
		Intrinsically safe for Class I, II, III, Division 1, Groups A, B, C,	FS17
		D, E, F and G	
		Class I; Zone 0, in Hazardous Locations AEx ia IIC	
		Enclosure: IP66/IP67 and Type 4X, Temperature Class: T4,	
		Amb.Temp.: -40 to 100°C (-40 to 212°F) *1	
		Electrical Parameters: Ui = 5.88 V, li = 150 mA, Pi = 221 mW	
		(linear source), Ci = 11.2 µF, Li = 38.3 µH	
		Dielectric strength: ≥ 500 V a.c. r.m.s., 1 minute	
	Canada	FM Intrinsically safe Approval (Canada)	
		Applicable Standards: CAN/CSA-C22.2 No. 60079-0:15	
		CAN/CSA-C22.2 No. 60079-11:14	
		CAN/CSA-C22.2 No. 61010-1-12	
		CAN/CSA-C22.2 No. 94-M91 (R2011)	
		CAN/CSA-C22.2 No. 60529-05 (R2015)	
		Ex ia IIC T4 Ga	
		Intrinsically safe for Class I, II, III; Division 1; Groups A, B, C, D,	CS17
		E, F and G;	
		Enclosure: IP66/IP67 and Type 4X, Temperature Class: T4,	
		Amb.Temp.: -40 to 100°C (-40 to 212°F) *1	
		Electrical Parameters: Ui = 5.88 V, Ii = 150 mA, Pi = 221 mW	
		(linear source), Ci = 11.2 µF, Li = 38.3 µH	
		Dielectric strength: ≥ 500 V a.c. r.m.s., 1 minute	
ATEX		ATEX Intrinsically safe Approval	
		Applicable Standards: EN 60079-0:2012+A11:2013, EN 60079-	
		11:2012	
		Certificate: FM16ATEX0066X	
		II 1 G Ex ia IIC T4 Ga	
		Degrees of Protection: IP66/IP67 according to EN 60529:	KS27
		1991+A1:2000+A2:2013	
		Amb.Temp.(Tamb): -40 to 100°C (-40 to 212°F) *1	
		Electrical Parameters: Ui = 5.88 V, Ii = 150 mA, Pi = 221 mW	
		(linear source), Ci = 11.2 µF, Li = 38.3 µH	
		Dielectric strength: ≥ 500 V a.c. r.m.s., 1 minute	
IECEx		IECEx Intrinsically Safe Approval	
		Applicable Standards: IEC 60079-0:2011, IEC 60079-11:2011	
		Certificate: IECEx FMG 16.0027X	
		Ex ia IIC T4 Ga	
		Degrees of Protection: IP66/IP67 according to IEC 60529:2013	SS27
		Amb.Temp.(Tamb).: -40 to 100°C (-40 to 212°F) *1	
		Electrical Parameters: Ui = 5.88 V, Ii = 150 mA, Pi = 221 mW	
		(linear source), Ci = 11.2 µF. Li = 38.3 µH	
		Dielectric strength: ≥ 500 V a.c. r.m.s., 1 minute	

\*1: This ambient temperature range is for intrinsic safety certification. Regarding the actual operational temperature, refer to "NORMAL OPERATING CONDITION" section.

#### OPTIONAL ACCESSORIES

Item	Parts Number	Description
Nounting stud	F9091RB	M6 male
-	F9091RC	1/4-28 UNF male

### 7.3 External Dimensions

Unit: mm (approx. inch)



Mounting stud Code	Thread Type	Parts No.
-A	M6X1	F9091RB
-B	1/4-28 UNF	F9091RC

### **Revision Information**

#### Title : LN01 Piezoelectric Accerometer (For FN series) Manual No.: IM 01W03H01-01EN

Edition	Date	Page	Revised item
1st	Feb. 2017	_	New Publication

### 8. Explosion Protected Instrument

#### 8.1 FM Approval (United States)

8.1.1 US Certification

(1) Technical Data

- Model LN01 with optional code /FS17 for potentially explosive atmospheres: • Applicable Standard:
- Class 3600:2011, Class 3610:2015, Class 3810:2005, ANSI/ISA-60079-0:2013, ANSI/ISA-60079-11:2014, NEMA 250-2014, ANSI/IEC60529-2004 (R2011)
- Intrinsically safe for Class I, II, III; Division 1, Groups A, B, C, D, E, F& G;
- Class I; Zone 0, in Hazardous Locations, AEx ia IIC
- Temperature Class: T4
- Ambient Temperature: -40 to 100°C (-40 to 212°F)
- Enclosure: IP66/IP67 and Type 4X
- (2) Electrical Parameters

Refer to the Control Drawing (IIE031-A71).

(3) Installation Refer to the Control Drawing (IIE031-A71).

(4) Maintenance and Repair



The instrument modification or parts replacement by other than an authorized representative of Yokogawa Electric Corporation is prohibited and will void the certification.

### (5) Control Drawing (IIE031-A71)



Model: LN01 Date: December 15, 2015

- Notes:
- 1. No revision to this drawing without prior approval of FM
- Installation must be in accordance with the National Electric Code (NFPA 70), ANSI/ISA-RP12.06.01, and relevant local codes.
- IS Apparatus (or Associated Apparatus) must be an FM-approved linear source which meets the following conditions:
  - Uo ≤ Ui Io ≤ Ii Po < Pi
  - $P_0 \le P_1$  $C_0 \ge C_1 + C_{cable}$
  - $Lo \ge Li + Lcable$
  - Ccable: capacitance of Extension Cable
  - Leable: inductance of Extension Cable (Capacitance and inductance of Integral Cable are included in Ci and Li respectively.)
- Control equipment connected to Associated Apparatus must not use or generate a voltage more than Um of the Associated Apparatus.
- 5. The control drawing of IS Apparatus (or Associated Apparatus) must be followed when installing the equipment.
- 6. The internal circuitry of LN01 provides insulation withstanding at least 500 V a.c. r.m.s. from the enclosure.
- Integral Cable may be cut and shortened, or Extension Cable may be added, as long as the conditions of Note 3 are satisfied.
- 8. Screen of Integral Cable is not connected to the circuit or the enclosure of LN01.
- 9. In order to avoid a build up of electrostatic charges, the equipment should be installed so that the resistance from the enclosure to the ground is < 10<sup>9</sup> Ω. When this cannot be achieved, any actions that cause the generation of electrostatic charge, such as rubbing with a dry cloth on the product, must be avoided.
- 10. In order to maintain IP66/IP67 or Type 4X, the other end of Integral Cable also must be protected from ingress of dust and water.
- 11. WARNING SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY

Yokogawa Electric Corporation

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#### 8.1.2 Nameplate

Rey



\* yyyy.mm is date of manufacture (e.g. 2016.10)

# 8.2 FM Approval (Canada)

# 8.2.1 Canada Certification

- (1) Technical Data
- Model LN01 with optional code /CS17 for potentially explosive atmospheres: • Applicable Standard:
- CAN/CSA-C22.2 No. 60079-0:15, CAN/CSA-C22.2 No. 60079-11:14, CAN/CSA-C22.2 No. 61010-1-12, CAN/CSA-C22.2 No.94-M91 (R2011),
- CAN/CSA-C22.2 No. 60529-05 (R2015)
- Ex ia IIC T4 Ga
- Intrinsically safe for Class I, II, III, Division 1, Groups A, B, C, D, E, F & G
- Ambient Temperature: -40 to 100°C (-40 to 212°F)
- Enclosure: IP66/IP67 and Type 4X
- (2) Electrical Parameters
- Refer to the Control Drawing (IIE031-A72).
- (3) Installation

Refer to the Control Drawing (IIE031-A72). (4) Maintenance and Repair



The instrument modification or parts replacement by other than an authorized representative of Yokogawa Electric Corporation is prohibited and will void the Certification.

#### (5) Control Drawing (IIE031-A72)



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#### Model: LN01

Date: December 15, 2015

Notes:

- Installation must be in accordance with the Canadian Electrical Code Part I (C22.1), ANSI/ISA-RP12.06.01, and relevant local codes.
- 2. IS Apparatus (or Associated Apparatus) must be a linear source which meets the following conditions:
  - $\begin{array}{l} U_0 \leq Ui \\ I_0 \leq Ii \\ P_0 \leq Pi \\ C_0 \geq Ci + Ccable \\ L_0 \geq Li + Lcable \\ Ccable: capacitance of Extension Cable \\ Lcable: inductance of Extension Cable \\ (Capacitance and inductance of Integral Cable are included in Ci and Li respectively.) \end{array}$
- 3. The internal circuitry of LN01 provides insulation withstanding at least 500 V a.c. r.m.s. form the enclosure.
- 4. Integral Cable may be cut and shortened, or Extension Cable may be added, as long as the conditions of Note 2 are satisfied.
- 5. Screen of Integral Cable is not connected to the circuit or the enclosure of LN01.
- 6. In order to avoid a build-up of electrostatic charges, the equipment should be installed so that the resistance from the enclosure to the ground is < 10°  $\Omega$ . When this cannot be achieved, any actions that cause the generation of electrostatic charge, such as rubbing with a dry cloth on the product, must be avoided.
- 7. In order to maintain IP66/IP67 or Type 4X, the other end of Integral Cable also must be protected from ingress of dust and water.
- 8. WARNING SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY

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# 🔨 WARNING / AVERTISSEMENT

- SUBSTITUTION DE COMPOSANTS PEUT IMPAIR LA SÉCURITÉ INTRINSÈQUE.
- La résistance de la clôture à la terre doit être <109 Ω. Quand cela ne peut pas être accompli, on doit éviter toutes actions qui provoquent la génération de charge électrostatique, telle que le frottement par un tissu sec sur le produit.

#### 8.2.2 Nameplate



\* yyyy.mm is date of manufacture (e.g. 2016.10)

### 8.3 ATEX Certificate

#### 8.3.1 ATEX Documentation

This is only applicable to the countries in European Union.

All instruction manuals for ATEX Ex related products are available in English. German and French. Should you require Ex related instructions in your local language, you are to contact your nearest Yokogawa office or representative.



NL

SF

(GB)

Alle brugervejledninger for produkter relateret til ATEX Ex er tilgængelige på engelsk, tysk og fransk. Skulle De ønske yderligere oplysninger om håndtering af Ex produkter på eget sprog, kan De rette henvendelse herom til den nærmeste Yokogawa afdeling eller forhandler.

Tutti i manuali operativi di prodotti ATEX contrassegnati con Ex sono disponibili in inglese tedesco e francese. Se si desidera ricevere i manuali operativi di prodotti Ex in lingua locale. mettersi in contatto con l'ufficio Yokogawa più vicino o con un rappresentante

Todos los manuales de instrucciones para los productos antiexplosivos de ATEX están disponibles en inglés, alemán y francés. Si desea solicitar las instrucciones de estos artículos antiexplosivos en su idioma local, deberá ponerse en contacto con la oficina o el representante de Yokogawa más cercano.

Alle handleidingen voor producten die te maken hebben met ATEX explosiebeveiliging (Ex) zijn verkrijgbaar in het Engels, Duits en Frans, Neem, indien u aanwijzingen op het gebied van explosiebeveiliging nodig hebt in uw eigen taal, contact op met de dichtstbijzijnde vestiging van Yokogawa of met een vertegenwoordiger.

Kaikkien ATEX Ex -tyyppisten tuotteiden käyttöhjeet ovat saatavilla englannin-, saksan- ja ranskankielisinä. Mikäli tarvitsette Ex -tyyppisten tuotteiden ohjeita omalla paikallisella kielellännne, ottakaa yhteyttä lähimpään Yokogawa-toimistoon tai -edustajaan.

Todos os manuais de instruções referentes aos produtos Ex da ATEX estão disponíveis em Inglês, Alemão e Francês, Se necessitar de instruções na sua língua relacionadas com produtos Ex, deverá entrar em contacto com a delegação mais próxima ou com um representante da Yokogawa.

Tous les manuels d'instruction des produits ATEX Ex sont disponibles en langue anglaise, allemande et française. Si vous nécessitez des instructions relatives aux produits Ex dans votre langue, veuillez bien contacter votre représentant Yokogawa le plus proche.

Alle Betriebsanleitungen für ATEX Ex bezogene Produkte stehen in den Sprachen Englisch, Deutsch und Französisch zur Verfügung. Sollten Sie die Betriebsanleitungen für Ex-Produkte in Ihrer Landessprache benötigen, setzen Sie sich bitte mit Ihrem örtlichen Yokogawa-Vertreter in Verbindung.

Alla instruktionsböcker för ATEX Ex (explosionssäkra) produkter är tillgängliga på engelska, tyska och franska. Om Ni behöver instruktioner för dessa explosionssäkra produkter på annat språk, skall Ni kontakta närmaste Yokogawakontor eller representant.



Όλα τα εγχειρίδια λειτουργίας των προϊόντων με ΑΤΕΧ Εχ διατίθενται στα Αγγλικά, Γερμανικά και Γαλλικά. Σε περίπτωση που χρειάζεστε οδηγίες σχετικά με Εχ στην τοπική γλώσσα παρακαλούμε επικοινωνήστε με το πλησιέστερο γραφείο της Yokogawa ή αντιπρόσωπο της.



CZ

LT

LV

EST

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(SLO)

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(BG)

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Μ

Všetky návody na obsluhu pre prístroje s ATEX Ex sú k dispozícii v jazyku anglickom, nemeckom a francúzskom. V prípade potreby návodu pre Exprístroje vo Vašom národnom jazyku, skontaktujte prosím miestnu kanceláriu firmy Yokogawa.

Všechny uživatelské příručky pro výrobky, na něž se vztahuje nevýbušné schválení ATEX Ex, jsou dostupné v angličtině, němčině a francouzštině. Požadujete-li pokyny týkající se výrobků s nevýbušným schválením ve vašem lokálním jazvku. kontaktujte prosím vaši nejbližší reprezentační kancelář Yokogawa.

Visos gaminiø ATEX Ex kategorijos Eksploatavimo instrukcijos teikiami anglø, vokieèiø ir prancûzø kalbomis. Norëdami gauti prietaisø Ex dokumentacijà kitomis kalbomis susisiekite su artimiausiu bendrovës "Yokogawa" biuru arba atstovu.

Visas ATEX Ex kategorijas izstrâdâjumu Lietoðanas instrukcijas tiek piegâdâtas angïu, vâcu un franèu valodâs. Ja vçlaties saòemt Ex ierîèu dokumentâciju citâ valodâ. Jums ir jâsazinâs ar firmas Jokogava (Yokogawa) tuvâko ofisu vai pârstâvi.

Kõik ATEX Ex toodete kasutamisjuhendid on esitatud inglise, saksa ja prantsuse keeles. Ex seadmete muukeelse dokumentatsiooni saamiseks pöörduge lähima lokagava (Yokogawa) kontori või esindaja poole.

Wszystkie instrukcje obsługi dla urządzeń w wykonaniu przeciwwybuchowym Ex, zgodnych z wymaganiami ATEX, dostępne są w języku angielskim, niemieckim i francuskim. Jeżeli wymagana jest instrukcja. obsługi w Państwa lokalnym ję zyku, prosimy o kontakt z najbliższym biurem Yokogawy.

Vsi predpisi in navodila za ATEX Ex sorodni pridelki so pri roki v anglišèini, nemšèini ter francošèini. Èe so Ex sorodna navodila potrebna v vašem tukejnjem jeziku, kontaktirajte vaš najbliši Yokogawa office ili predstaunika.

Az ATEX Ex műszerek gépkönyveit angol, német és francia nyelven adjuk ki. Amennyiben helyi nyelven kérik az Ex eszközök leírásait. kériük keressék fel a legközelebbi Yokogawa irodát, vagy képviseletet.

Всички упътвания за продукти от серията ATEX Ех се предлагат на английски, немски и френски език. Ако се нужлаете от упътвания за продукти от серията Ех на родния ви език, се свържете с най-близкия офис или представителство на фирма Yokogawa.



Toate manualele de instructiuni pentru produsele ATEX Ex sunt in limba engleza, germana si franceza. In cazul in care doriti instructiunile in limba locala, trebuie sa contactati cel mai apropiat birou sau reprezentant Yokogawa.

II-manwali kollha ta' I-istruzzionijiet ghal prodotti marbuta ma' ATEX Ex huma disponibbli bl-Ingliż, bil-Germaniż u bil-Franciż. Jekk tkun teñtieg struzzjonijiet marbuta ma' Ex fil-lingwa lokali tiegħek, ghandek tikkuntattja lill-eqreb rappreżentan jew uffiċċju ta' Yokogawa.

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#### 8.3.2 Instruction

- (1) Technical Data

  - This chapter includes a control drawing of IIE031-A73. Model LN01 with optional code /KS27 for potentially explosive atmospheres:
- Applicable Standard:
- EN 60079-0:2012+A11:2013, EN 60079-11:2012 · Type of Protection and Marking Code: Ex ia IIC T4 Ga
- Group: II
- Category: 1 G
- Ambient Temperature: -40 to 100°C (-40 to 212°F)
- Enclosure: IP66/IP67 according to EN 60529:1991+A1:2000+A2:2013
- (2) Electrical Parameters
- Refer to (5) Control Drawing (ATEX).
- (3) Installation
- Installation shall be in accordance with relevant national and local installation codes. Refer to (5) Control Drawing (ATEX).
- Integral Cable may be cut and shortened, or Extension Cable may be added, as long as the conditions of Note 2 are satisfied.
- In order to maintain IP66/IP67 or Type 4X, the other end of Integral Cable also must be protected from ingress of dust and water
- Note2. IS Apparatus (or Associated Apparatus) must be a linear source which meets the following conditions.
  - $Uo \le Ui$ ,  $Io \le Ii$ ,  $Po \le Pi$ ,  $Co \ge Ci + Ccable$ ,  $Lo \ge Li + Lcable$
- Ccable: capacitance of Extension Cable
- Lcable: inductance of Extension Cable

Note3. Screen of Integral Cable is not connected to the circuit or the enclosure of LN01. (4) Maintenance and Repair



The instrument modification or parts replacement by other than authorized representative of Yokogawa Electric Corporation is prohibited and will void the certification



Note. The internal circuitry of LN01 provides insulation withstanding at least 500 V a.c. r.m.s. from the enclosure

#### Special Condition of Use

In order to avoid a build-up of electrostatic charges, the equipment should be installed so that the resistance from the enclosure to the ground is <  $10^9 \Omega$ . When this cannot be achieved, any actions that cause the generation of electrostatic charge, such as rubbing with a dry cloth on the product, must be avoided.

#### 8.3.3 Nameplate



\* yyyy.mm is date of manufacture (e.g. 2016.10)

# 8.4 IECEx Certificate

#### 8.4.1 Instruction

- (1) Technical Data
- This chapter includes a control drawing of IIE031-A73.

Model LN01 with optional code /SS27 for potentially explosive atmospheres:

- Applicable Standard;
- IEC 60079-0:2011, IEC 60079-11:2011 Type of Protection and Marking Code: Ex ia IIC T4 Ga
- Ambient Temperature: -40 to 100°C (-40 to 212°F)
- Enclosure: IP66/IP67 according to IEC 60529:2013
- (2) Electrical Parameters
- Refer to (5) Control Drawing (IECEx).
- (3) Installation
- · Installation shall be in accordance with relevant national and local installation codes.
- · Integral Cable may be cut and shortened, or Extension Cable may be added, as long as the conditions of Note 2 are satisfied.
- · In order to maintain IP66/IP67 or Type 4X, the other end of Integral Cable also must be protected from ingress of dust and water.
- Note2. IS Apparatus (or Associated Apparatus) must be a linear source which meets the following conditions
  - $Uo \le Ui$ ,  $Io \le Ii$ ,  $Po \le Pi$ ,  $Co \ge Ci + Ccable$ ,  $Lo \ge Li + Lcable$
  - Ccable: capacitance of Extension Cable
  - Lcable: inductance of Extension Cable

Note3. Screen of Integral Cable is not connected to the circuit or the enclosure of LN01. (4) Maintenance and Repair

# WARNING

The instrument modification or parts replacement by other than authorized representative of Yokogawa Electric Corporation is prohibited and will void the certification



Note. The internal circuitry of LN01 provides insulation withstanding at least 500 V a.c. r.m.s. from the enclosure

#### Special Condition of Use

In order to avoid a build-up of electrostatic charges, the equipment should be installed so that the resistance from the enclosure to the ground is <  $10^9 \Omega$ . When this cannot be achieved, any actions that cause the generation of electrostatic charge, such as rubbing with a dry cloth on the product, must be avoided.

#### 8.4.2 Nameplate



\* yyyy.mm is date of manufacture (e.g. 2016.10)