



Toshiba LF410 Manual

Field intelligent device - mount-anywhere series - wafer electromagnetic flowmeter

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

--

•

Bookmarks

--

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Field Intelligent Device – Mount-Anywhere Series - Wafer

Electromagnetic Flowmeter

Introduction

TOSHIBA

The electromagnetic flowmeter uses Faraday's Law of electromagnetic induction to measure the process flow.

The device consists of two units: a detector, through which the fluid to be measured flows and in which low-level signals proportional to flow rates are obtained; and a converter, which supplies excitation current to the detector, and amplifies the signals from the detector and then processes and converts the signals into the 4–20mA dc current signal or communication



signal. The meter features a Mount- Anywhere magnetic field distribution technology, the meter is highly immune to upstream flow disturbances. Combined with a multi-functional converter LF620 (combined type) or LF622 (separate type) equipped with its patented Noise-Sentry original noise-suppression circuit and advanced algorithms. The LF410 has a very high tolerance to noise, giving the unit a very stable output even for slurry fluid measurement. IR (Infrared) switches enable parameter setting of the converter without removing the cover. Flow direction can be set in either way, and its unique 128 x 128 dot matrix LCD display allows the LCD to be rotated electronically to 90, 180 and 270 degrees without opening the cover.

*1: HART protocol (Highway Addressable Remote Transducer) is a communication protocol for industrial sensors recommended by the HCF (HART Communication Foundation).

** DevComm2000 Smart Device Communicator available for performing HART device configurations on PC or laptop is available through the supplier .

*2: PROFIBUS is the communication protocol for factory and process automation that the PROFIBUS Organization recommends. Instead of analog control with a conventional analog signal (4-20mA), it is fieldbus which digitizes all signals. Flowmeters support PROFIBUS-PA.

*

Modbus is the communication protocol that Modicon Inc. developed. Physical layer is RS485.

Converter

I/O

Terminal box

Power

Detector

supply

Combined type

LF410/LF620

LF414/LF620F

Figure1. Configuration

Converter

Signal cable

Power

supply

I/O

Detector

Separate type

LF410/LF622



LF414/LF622F

1/2" to 4" (15 to 100 mm)

LF410/LF620

LF414/LF620F

Figure 2. LF410 Mount Anywhere series

Flowmeters

Specifications

Overall Specifications

Measurement range in terms of flow velocity:

1.0 ft/s to 32.8 ft/s (0.3 m/s to 10 m/s).

0.3 ft/s to 1.0 ft/s (0.1 m/s to 0.3 m/s)

range is available optionally.

$\pm \pm \pm 0.2$ % of Rate

Accuracy:

* This pulse output error result is established under standard operating conditions at Toshiba's flow calibration facility, Fuchu Japan. (NIST Traceable).

* Individual meter measurement error may vary up to $\pm 0.5\%$ of Rate at 1.64 ft/s (0.5 m/s) or more and $\pm 0.3\%$ of rate ± 0.039 inch/s (1 mm/s) at 1.64 ft/s (0.5 m/s) or less.

* Current output: plus $\pm 8\mu\text{A}$ (0.05% of span.)

* Refer to individual calibration data for each individual meter's measurement error.

Fluid conductivity: 5 $\mu\text{S/cm}$ minimum

Fluid temperature:

14 to 356 °F (-10 to +180°C): Separate type for ceramic tube.

14 to 248°F (-10 to +120°C): Combine type for ceramic tube

Ambient temperature: - 4 to 140 °F (- 20 to + 60 °C)

LF410 /LF620

LF410 /LF622

LF410

LF622

LF414

LF622F

Certification number

Z01207

*

EJL-136F



[Next Page](#)

1
2
3
4
5

Related Manuals for Toshiba LF410

[Measuring Instruments Toshiba LF620F Instruction Manual](#)

Electromagnetic flowmeter converter (162 pages)

[Media Converter Toshiba LF620 Instruction Manual](#)

Electromagnetic flowmeter converter (160 pages)

[Plumbing Product Toshiba LF414 Instruction Manual](#)

Electromagnetic flowmeter detector (58 pages)

[Measuring Instruments Toshiba LF654 Instruction Manual](#)

Lf654 series electromagnetic flowmeter detector (51 pages)

[Measuring Instruments Toshiba GF630 Manual](#)

Electromagnetic flowmeter (18 pages)

[Measuring Instruments Toshiba LF622 Quick Start Manual](#)

Magmeter (13 pages)

[Measuring Instruments Toshiba GF642 Manual](#)

Electromagnetic flowmeter (11 pages)

[Measuring Instruments Toshiba LF470 Quick Start Manual](#)

Electromagnetic flowmeter field intelligent device (8 pages)

[Media Converter Toshiba LF620 Manual](#)

Electromagnetic flowmeter converter (8 pages)

[Measuring Instruments Toshiba Electromagnetic Flowmeter LF470/LF612 Specification Sheet](#)

Electromagnetic flowmeter (8 pages)

[Measuring Instruments Toshiba LF434 /LF620 Manual](#)

Electromagnetic flowmeter (12 pages)

[Measuring Instruments Toshiba Sanitary Electromagnetic Flowmeter TIC-LF494B User Manual](#)

Field intelligent device series sanitary electromagnetic flowmeter (17 pages)

[Measuring Instruments Toshiba LF516 Instruction Manual](#)

Electromagnetic flowmeter capacitance type (157 pages)

[Measuring Instruments Toshiba LF232*F Series Instruction Manual](#)

Electromagnetic flowmeter for partially-filled pipes 6" to 24" (150 to 600 mm) (8 pages)

[Measuring Instruments Toshiba LF620 B Series Instruction Manual](#)

Electromagnetic flowmeter converter (167 pages)

[Measuring Instruments Toshiba RD-97DTKB Owner's Manual](#)

Hdd & dvd video recorder (96 pages)

Summary of Contents for Toshiba LF410

[Page 1](#) (combined type) or LF622 (separate type) equipped with its patented Noise-Sentry original noise- suppression circuit and advanced algorithms. The LF410 has a very high tolerance to noise, giving the unit a very stable output even for slurry fluid measurement. IR (Infrared) switches enable parameter setting of the converter without removing the cover.

[Page 2](#) Note: See Table 5 for optional materials and other Class I, II, III, Division 2, Groups A-G related information. Detector and converter combination: LF410/LF620: Combined type for

standard Coating — specification. 1" to 4" (25 to 100mm): LF410/LF622: Separate type for standard No coating (stainless steel body).

[Page 3](#) EJL-136F Note: The same and simultaneous pulse is not available between DO1 and DO2.) Model LF620 and LF622 converters • Multi-range selection outputs (Note 1) Input signals • High, High high, Low, and/or Low low alarm Analog signal — the voltage signal from detector, outputs (Note 2) proportional to process flow rate (for LF622 •...

[Page 4](#) See Figure 9 (for Separate type) software program (For more information contact MTBF: Toshiba International Corp.) Converter: 220,000 hours (25 years) at 77 °F (25 °C) Conditions when power fails: based on strict military specification Parameter setting values are stored in non-volatile...

[Page 5: Installation](#)

9 3.15 8.90 2.60 approx. 9 Note: 1 inch = 25.4mm Figure 3. LF410/LF620 and LF414/LF620F flowmeters Figure 4. LF410/LF620 and LF414/LF620F Meter size 1/2"(15mm) flowmeters Meter size 1"(25mm) The dimension of L1 changes when Pt-Ir or Ta material is chosen from the grounding ring.

[Page 6](#) Pt-Ir or Ta Meter size 1/2"(15mm) 3.03 inch(77mm) 1"(25mm) 3.74 inch(95mm) 1 1/2"(40mm) 4.53 inch(115mm) 2"(50mm) 4.96 inch(126mm) Note1: 1 inch = 25.4mm 3"(80mm) 4.96 inch(126mm) 4"(100mm) 5.35 inch(136mm) Figure 5. LF410/LF620 and LF414/LF620F flowmeters Meter sizes 1 1/2"(40mm) to 4"(100mm)

[Page 7](#) Note1: Cable glands are not provided for LF414 of FM and 3"(80mm) 4.96 inch(126mm) CSA approved type. 4"(100mm) 5.35 inch(136mm) Refer to the part of Cable connection port at detector. Note2: 1 inch = 25.4mm Figure 6. Separate type detectors LF410/LF414 Meter sizes 1/2" (15mm)

[Page 8](#) 1 1/2"(40mm) 4.53 inch(115mm) CSA approved type. 2"(50mm) 4.96 inch(126mm) Refer to the part Cable connection port at detector. 3"(80mm) 4.96 inch(126mm) Note2: 1 inch = 25.4mm 4"(100mm) 5.35 inch(136mm) Figure 7. Separate type detectors LF410/LF414 Meter sizes 1" (25mm)

[Page 9](#) 4.53 inch(115mm) CSA approved type. 2"(50mm) 4.96 inch(126mm) Refer to the part of Cable connection port at 3"(80mm) 4.96 inch(126mm) detector. 4"(100mm) 5.35 inch(136mm) Note2: 1 inch = 25.4mm Figure 8. Separate type detectors LF410/LF414 Meter sizes 1 1/2"(40mm) to 4"(100mm)

[Page 10](#) *1 Locate an external double-pole power switch on the power line near the flowmeter within easy reach of operation. Use the appropriate switch rating as shown below: Switch rating: 250Vac, 6A or more In rush current: 15A or more Figure 10. Combined type LF410/LF620 and LF414/LF620F flowmeters Wiring Diagram...

[Page 11: Profibus-Pa](#)

Digital output 1 Grounding with 100Ω or less Power cable Connected detector I/O cable ground resistance Figure 11. Separate type LF410/LF622 and LF414/LF622F flowmeters wiring Diagram Table 2. LF620, LF620F, LF622 and LF622F Converters Signal Table Symbol Description Cable L1 (□)

[Page 12](#) EJL-136F (7) Only one PROFIBUS-PA cable goes through a Wiring Precautions cable gland of the Electromagnetic Flowmeter. (1) Explosion proof type flowmeters are not provided Please use the junction box at system cable glands. configuration Refer to the part Cable connection port at detector (8) Install a terminator to flowmeter that connected and converter.

[Page 13](#) (2) Where smoke and steam may occur. (3) Where exposed to direct snow, ice or mud. Ordering Information 1. When ordering the LF410 series flowmeters, refer to Tables 5 and 6 (Type Specification Codes). An entry must be made for each of the columns in each of these tables.

[Page 14](#) Note5: Phthalic acid resin coating is standard for the flowmeter with meter size 1/2"(15mm). Note6: Consult Toshiba before ordering when choose materials at the wetting parts. Note7: Check the Table 1 whether your chosen meter size meets this directive or not

when the meter is shipped to EU. If yes, need to choose this code.

[Page 15](#) Specifications are subject to change without notice. Printed in Japan 2017-7 (TBLS)
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product. 2017...

This manual is also suitable for:

Lf620Lf622F414Lf620fLf414Lf622f ... [Show all](#)