



Toshiba Electromagnetic Flowmeter Converter TIC-LF232A Product Manual

Electromagnetic flowmeter converter

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TOSHIBA Electromagnetic Flowmeter Converter

Sanitary Electromagnetic Flowmeter

Introduction

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



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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 4–20 mA dc current signal.

The LF232 offers various outputs such as totalization output and multi-range selection outputs. With its patented Noise-Sentry original noise-suppression circuit and advanced algorithms. The LF232 is highly resistant to noise and provides a stable output even when measuring fluids contain slurries. The LF232 can be used with a separately mounted detector such as the LF150 or LF470. The LF232 can also be used with conventional models of detectors.

The AF900 hand-held terminal (HART* communicator) can be used to communicate with the flowmeter from a remote place. See the Communications signal specification for details about HART protocol.

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

Specifications

Overall Specifications

Measurement range in terms of flow velocity:

Combination LF150, LF470

0 –1.0 ft/s to 0 – 32.8 ft/s (0 – 0.3 m/s to 0 –10 m/s)

Fluid conductivity: 5µS/cm or more

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

(Storage temperature: -13 to 149 °F (-25 to 65 °C))

Structure: IP67 and NEMA 4X Watertight

Accuracy: the accuracy is dependent on the type of
1

detector combined with the LF232. See the following tables for accuracy when combined with specified detectors.

□Detector combined

LF470 (Meter size 1/10", 1/6", 1/4"

□Detector combined

LF150 (Meter size 28" to 120" (700 to 3000 mm))

Figure 1. LF232 Converter



Flow rate as a
percent of range

0.3-1.0m/s

0-50

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±0.8%FS

50-100

±0.8%FS

Accuracy: ±0.5 % of Rate*

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

* Individual meter's measurement error may vary up to ± 0.8 % of Rate at 3.28 ft/s (1.0 m/s) or more and ± 0.4% of Rate ±0.157 inch/s (4mm/s) at 3.28 ft/s (1.0 m/s) or less.

* Current output: plus ± 8μA (0.05% of span).

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

LF232

(

2.5 to 6 mm))

Accuracy

1.0-10m/s

±0.4%FS

±0.8% of rate

TIC-LF232A

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

Magmeter (13 pages)

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

Field intelligent device series sanitary electromagnetic flowmeter (17 pages)

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

Electromagnetic flowmeter (8 pages)

[Measuring Instruments Toshiba LF620F Instruction Manual](#)

Electromagnetic flowmeter converter (162 pages)

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

Electromagnetic flowmeter converter (167 pages)

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

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

Electromagnetic flowmeter (12 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 GF642 Manual](#)

Electromagnetic flowmeter (11 pages)

[Measuring Instruments Toshiba LF410 Manual](#)

Field intelligent device - mount-anywhere series - wafer electromagnetic flowmeter (15 pages)

[Measuring Instruments Toshiba LQ500 Installation Manual](#)

Density (consistency) meter (13 pages)

[Measuring Instruments Toshiba LQ500B Operation Manual](#)

Density meter (124 pages)

[Measuring Instruments Toshiba RemotEye 4 Procedure For Installing](#)

On g9000 series ups (pre-installed brackets) (8 pages)

[Measuring Instruments Toshiba LQ300A00 Series Operation Manual](#)

The insertion type density meter (110 pages)

[Measuring Instruments Toshiba G3 Workbook](#)

Applications workbook (86 pages)

Summary of Contents for Toshiba Electromagnetic Flowmeter Converter TIC-LF232A

[Page 1: Specifications](#)

LF150 (Meter size 28" to 120" (700 to 3000 mm)) Accuracy: ± 0.5 % of Rate* * This pulse output error result is established under standard operating conditions at Toshiba's flow calibration

facility, Fuchu Japan. * Individual meter's measurement error may vary up to \pm ...

[Page 2: Converter Specifications](#)

Power supply: One of the following can be selected □100 to 240 Vac (Allowable voltage 80 to 264 Vac, 50/60Hz)* □24 Vdc (Allowable voltage 21 to 27 Vdc)* *1 When the 7 digit of specification code is "B", power supply is 100 to 120Vac (Allowable voltage range is 80 to 132VAC, 50/60Hz) *2 When the 7 digit of specification code is "B",...

[Page 3](#) Mag-Prover "Field re-verification" Zero span calibration tool allows unit to be re-calibrated and verified using internal software program. (For more information contact Toshiba International Corp.) Conditions when power fails: Parameter setting values are stored in non-volatile memory and the values will be restored when the power returns to normal condition.

[Page 4: Installation](#)

TIC-LF232A Installation Dimensions 9.33 (237) 8.74 (222) 2.91 (74) Signal cable ground Output cable ground Grounding terminal 2.99 (76) 2.99 (76) 2.99 (76) Excitation cable ground 4-φ12 hole 6.10 (155) Power supply cable ground I/O cable ground Weight : Approximately 18 lb (8 kg) (including a mounting bracket) Figure 2.

[Page 5: External Connections](#)

External Connections Terminal box IV wire 5.5mm or more Grounded with 100Ω or less ground resistance Thick walled steel conduit Detector Signal cable (2-wire shielded hard-rubber sheathed cable) (3-wire hard-rubber sheathed cable) Excitation cable Output cable (CVV-S) Digital I/O cable Figure 3.

[Page 6: Ordering Information](#)

2. Measuring range 3. I/O function specifications. 4. Ordering scope: Actual flow calibration data: (required or not) 50 100 200 5. Specification of combined detector 6. Other scope: Specification other than standard items. Consult a Toshiba representative before ordering.

[Page 7](#) L F 2 3 2 Note 1: For applicable detector code, select one from the following table. To combine with an existing detector, select one depending on the type of replaceable converters. For combination with detectors not listed below, contact Toshiba. Applicable detector code Note 2: When the 7th digit is "B"...

[Page 8](#) Specifications are subject to change without notice. ISO9001 and ISO14001 are certified. Printed in Japan 2008-5 (TDOC) © TOSHIBA Corporation 2008 Misuse of this product can result in damages to property or human injury. All Rights Reserved. Read related manuals carefully before using this product.

This manual is also suitable for:

Lf232