



Electromagnetic flowmeter field intelligent device



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Field Intelligent De

TOSHIBA Introduction

Electromagnetic F own of the ligent Device Series Electromagnetic Flowmeter

1/10"

The electromagnetic flowmeter uses Faraday's Law of

electrom preticing using the measure the process flow.

The device consists of two units: a detector, through the electromagnetic flowmeter uses Faraday's Law of which the fluid to be measured flows and in which electromagnetic induction to measure the process flow. low-level signals proportional to flow rates afficebtainediector, through and a converter, which supplies excitation swerent toutheand in which detector, and amplifies that signed of the detector and are obtained; then processes and conventation signalization to the mA dc curdentection admithentiful 7 flies alternaily melter fisize the detector and detector the signed cosme as not sometisar the uniquial side to the 4-20 mA dc current signal. The LF470 is a small meter size



The wetted materials for the LF470 are corrosion

resistant ceramic and platinum Field Intelligent Device Series applicable to almost any kind of the chromosometic Flower Electromagnetic Flowmeter

1/10"

lightweight . palm-sized

multi-fun**th to ducatio** (separate type) and

The electromagnetic flowmeter uses Faraday's Law of electromagnetic induction to measure the process flow. (separatertype) equipped with its patented its: a detector, through Noise-Senthy original maise-supposessions are differed and in which advancedcatgobritchrsigmals trisoportionally or elastrantes are obtained; noise and updovides vertable bichuruppliesoexicitation current to the containing etactors and amplifies the crigorals from the detector and parameter setting of the converte the signals into the 4–20 mA dc current signal. The LF470 is a small meter size cover. Flow direction can be set in either way, and its detector designed to measure a small amount of fluids unique 128 x 128 dot matrix LCD display allows the containing substances such as chemicals.

LCD to be rated effect ronically to be cortained to 1904780 are corrosion and 270 degrees without anening the prathum electrodes and are *1: Please and rite able documents to lange 433 and of fluids. The LF470 is a *2: HART protocol (Highway Addressable Remotector. Combined Transducer is a communication or protected for inclusive (separate type) and sensors reformed and control of the sensors reformed with its patented Foundationoise-Sentry original noise-suppression circuit and ** DevComm2000 Smart Device Communicator available is highly resistant to through TIC for performing HART device configurations on PC noise and provides a stable output even for fluids or laptop. *3: PROFIBUS is the communication protocol for factory switches enable and process automation that the converter without removing the recommends instead of all of control of the set in either way, and its conventional analog signal (4-20 mA), matrix fielding display allows the which digitizes along the rotated electropically to be rotated to 90, 180 PROFIBUGAND 270 degrees without opening the cover

*4։ Modbus»iq the լեզորությեր եր բերել եր հետ այն եր բերաբան արև 1941 թվական հետ այն հետաարար արև 1941 թվական ա developed. ₽ручігак тургої 8848 Highway Addressable Remote

Transducer) is a communication protocol for industrial Modbus is the communication protocolither Modicories (HART Communication developed. Physical layer is R\$485.

Fluid to be measured Signal cable Excitation cable

** DevComm2000 Smart Device Communicator available through TIC for performing HART device configurations on PC

or laptop.

LF470 *3: PROFIBUS is the communication protocol for factory Detector and process automation that the PROFIBUS Organization

Figure 1. Configuration of analog control with a

detector. conventional analog signal (4-20mA), it is the fieldbus

which digitizes all signals. Flowmeters support Combined

PROFIBUS-PA. with

Power supply *4: Modbus is the communication protocol that Modicon Inc. 4-20mA dc outputdeveloped. Physical layer is RS485.

and pulse output

Modbus is the communication protocol that Modicon Inc. LF622 or LF232

developed. Physical layer is RS485. Converter



LF470 Figure 2. Electi LF4



Certifica

Specifications

■ Overall Specification

Measurement range in 0-1.0ft/s to 0-32.8ft/s

Accuracy: The overall : LF622 or LF232 con following table.

Flow rate as a percent of range	1.0
50~100%	$\pm 0.$
0~50%	$\pm 0.$

Note: The accuracy is r operating conditions at

Fluid conductivity: 50µ

Fluid temperature:

Pipe connection mate
Stainless steel and other met
Polyvinyl chloride
(shock-resistant)

Ambient temperature

LF470

LF470/LF622

Figure 2. Electros Filowmeter Intelligent Device Series Electromagnetic Flowmeter

1/10"

Certification numl

APOCUEtion

The electromagnetic flowmeter uses Faraday's Law of Overall Signification induction to measure the process flow. Measurement range in terms of flow velocity: a detector, through which the fluid to be measured flows and in which low-level signals proportional to flow rates are obtained; Accuracy: The overall accuracy combined with the LEG22 or LE232 converter is shown in the LF622 or Let 2 toon year and amphines the signals from the detector and following the leprocesses and converts the signals into the 4-20 Flow rate and dc current signal. The LF470 is a small meter size percent offerer designed to measure a small amount of fluids 1.0-3.3ft/containing substances such as chemicals.

(0.3-1.0m/The wetted materials for the LF470 are corrosion ±0.8% of Esistant ceramic and platinum electrodes and are 50 \(100 \) applicable to almost any kind of fluids. The LF470 is a ±0.8% of lightweight palm-sized detector. Combined multi-functional converter LF622 (separate type) and Note: The Late 222 is hear are tenned by the late of t operating Notice Septryshippig ballbrattons a suppression circuit and Fluid conad tanged 50g9 rithman Than LF470 is highly resistant to Fluid tempoise a provides a stable output even for fluids Pipe connection material lurries. IR (Infrared) switches enable Stainless steeparameter setting of the converter without removing the Polyvinyl chloroeer. Flow direction can be set in either way, and its (shock-resistant) que 128 x 128 dot matrix LCD display allows the Ambient temperature: rotated 40 e Etro Hatally 6 to 60 rotated to 90, 180 Structure and 162770 degrees without opening the cover

Power consumption:
1: Please refer to the document "TIC-LF232". When combinate with the FREE CONNECTED Stable Remote

Standard:10W(144)(A)cer) is a communication protocol for industrial at AC100V and Exerter on energy by the HCF (HART Communication MAX:15W (22VAndation).

MAX:17W(24VA) with PROFIBIS MAX:17W(24VA) with PROFIBIS MAX:17W(24VA) with PROFIBIS LF470/LF6222P

*3: PROFIBUS is the communication protocol for factory LF622 and process automation that the PROFIBUS Organization Z01207

recommends. Instead of analog control with a Accuracy conventional analog signal (4-20mA), it is the fieldbus

3.3-32.8ft/s which digitizes all signals. Flowmeters support

(1.0-10m/s) PROFIBUS-PA.

±0.8% of *ate Modbus is the communication protocol that Modicon Inc. ±0.4% of FS developed. Physical layer is RS485.

Fluid temperal Modicon Inc. 14 to 248 °F developed. Physical layer is RS485. (□10°C□□120°C)



LF470 Figure 2. Electi LF4



Certifica

Specifications

■ Overall Specification

Measurement range in 0-1.0ft/s to 0-32.8ft/s

Accuracy: The overall : LF622 or LF232 con following table.

Flow rate as a	
percent of range	1.0 (0.3
50~100%	±0.
0~50%	± 0

Note: The accuracy is r operating conditions at

Fluid conductivity: 50µ

Fluid temperature:

Pipe connection mate
Stainless steel and other met
Polyvinyl chloride
(shock-resistant)

Ambient temperature

14 to 140 °F
TIC-LF470H Field Intelligent Device Series
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Related Manuals for Toshiba LF470

Plumbing Product Toshiba LF470 Instruction Manual

Electromagnetic flowmeter detector (40 pages)

Measuring Instruments Toshiba Electromagnetic Flowmeter

LF470/LF612 Specification Sheet

Electromagnetic flowmeter (8 pages)

Media Converter Toshiba LF620 Instruction Manual

Electromagnetic flowmeter converter (160 pages)

Measuring Instruments Toshiba GF630 Manual

Electromagnetic flowmeter (18 pages)

Measuring Instruments Toshiba LF410 Manual

Field intelligent device - mount-anywhere series - wafer electromagnetic

flowmeter (15 pages)

Measuring Instruments Toshiba LF622 Quick Start Manual

Magmeter (13 pages)

Measuring Instruments Toshiba GF642 Manual

Electromagnetic flowmeter (11 pages)

Media Converter Toshiba LF620 Manual

Electromagnetic flowmeter converter (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 LF654 Instruction Manual

Lf654 series electromagnetic flowmeter detector (51 pages)

Measuring Instruments Toshiba RD-97DTKB Owner's Manual

Hdd & dvd video recorder (96 pages)

Measuring Instruments Toshiba LF620F Instruction Manual

Electromagnetic flowmeter converter (162 pages)

Summary of Contents for Toshiba LF470

<u>Page 1</u> 4–20 mA dc current signal. The LF470 is a small meter size detector designed to measure a small amount of fluids LF622 LF470 containing substances such as chemicals.

Page 2 Output signals Approximately 14W (25VA) Current output: ☐ Model LF470 Detectors 4–20mAdc (load resistance 0 to 750☐) Fluid pressure: - 15 to 150 psi, or - 1.0 to 10 bar Note:

The current output cannot be used with the (-0.1 to 1 MPa) PROFIBUS-PA communication.

<u>Page 3</u> Zero span calibration tool allows unit to be See Figure 5 re-calibrated and verified using an internal software MTBF: program. (For more information contact Toshiba Converter: 220,000 hours (25 years) at 77 °F (25 °C) International Corp.) based on strict military specification MIL-HDBK-217F Detector: 350,000 hours (40 years) at 77 °F (25 °C)

Page 4: Installation

Th is le n g th b ec o me s 78 m m if th e pip e If a mounting plate is needed for the LF470, fix the plate (a) c o nn e c tio n p o r t t hr e ad is Rc (PT) 1/2 above to the bottom of the LF470.

Page 5: Profibus-Pa

Signal common for DI and DO Digital output 1 Grounding with 100Ω or less Power cable Connected detector I/O cable ground resistance Figure 6. Separate type LF470/LF622 flowmeters wiring Diagram Table 1. LF622 Converters Signal Table Symbol Description Cable L1 (\square) Power supply Power cable L2 (\square)

Page 6: Ordering Information

(3) The fluid to be measured must be held still in the In areas like the following, there may be the case that pipe when the LF470 is being adjusted. If the fluid infrared switches do not function correctly. (If these are can not be stopped after the LF470 installation, unavoidable, use an appropriate cover.)

Page 7 TIC-LF470H Table 4. Specification Code (LF470 Detector) Model Specification Code Description 1 2 3 4 5 6 7 8 9 10 11 12 13 14 L F 4 7 0 LF470 Flowmeter Meter size 1/10" (2.5 mm) 1/6"...

<u>Page 8</u> Specifications are subject to change without notice. Printed in Japan 2011-6 (TDOC) Misuse of this product can result in damage to property or human injury. © TOSHIBA Corporation 2011 Read related manuals carefully before using this product. All Rights Reserved.

This manual is also suitable for:

Lf622