MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

SIEMENS

7ME3480-3AB00-2BD1

SITRANS FUE950 ENERGY CALCULATOR

Used with the applicable SITRANS FUE950 configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Siemens FUE950 operating instructions A5E03424739-007, common calculator specifications and connection instructions. Configuration-specific options require the supplied nameplate.

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SITRANS F

Ultrasonic Flowmeters

SITRANS FUE950 Energy Calculator

Operating Instructions

Edition 09/2014

Answers for industry.

Introduction

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1.1 Preface

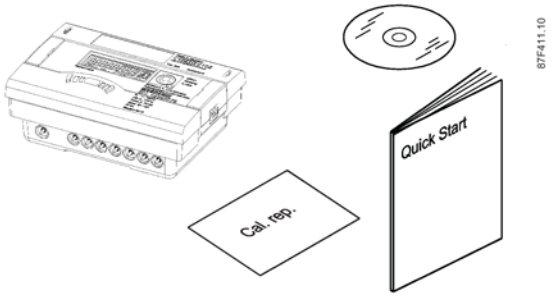
These instructions contain all the information you need for using the device.

The instructions are aimed at persons mechanically installing the device, connecting it electronically, configuring the parameters and commissioning it as well as service and maintenance engineers.

Note

It is the responsibility of the customer that the instructions and directions provided in the operating instructions are read, understood and followed by the relevant personnel before installing the device.

1.2 Items supplied



- Energy calculator type SITRANS FUE950 [1)]
- Temperature sensors (1 pair including the test report), typically Pt500 [1)]
- Temperature sensor pockets (2 pieces) [1)]
- Wall mounting bracket
- SITRANS F US documentation disk
- Quick start guide
- Calibration report

[1)]: Scope of delivery may vary depending on selections at ordering.

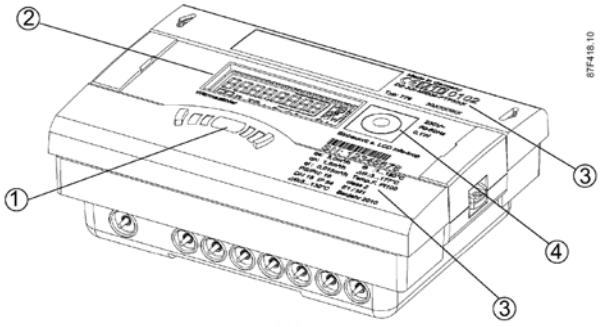
The hot pipe is the pipe with the higher media temperature. In heating systems called forward line and in cooling systems the return line..

The cold pipe is the pipe with the lower media temperature. In heating systems called return line and in cooling systems the forward line.

3.4 Design

Display and push button

The SITRANS FUE950 has an easy-read 8-digit LCD display with associated pictograms for various functions.



1 Optical IrDA interface
2 LCD display
3 Area with laser markings on nameplate
4 Push button

Figure 3-4 SITRANS FUE950

The energy calculator has a SIMPLE OPERATION push button and provides user-friendly control of the various display menu loops.

The display and the menu loops will always be configured for a specific application, and for the selected display settings. In the normal operation menu loop, the display will show accumulated energy and volume as well as the actual flow and temperature values.

The energy calculator has an IP54 polyamide housing designed for wall or panel mounting. The housing comes with prepared rubber gaskets cable entries for fast and easy installation.

Temperature sensor set

The temperature sensor set is designed according to international standards of temperature sensor pairs and for use with the Siemens energy calculator type SITRANS FUE950 for measurement of energy consumption in heating or cooling applications.

To ensure accurate measurement of temperature difference according to MID (EN 1434) and PTB K7.2, the sensors are delivered as 4-wire matched pairs.

The 4-wire sensor set can always be delivered with MID (EN 1434) heating and PTB K7.2 cooling approvals for multiple-purpose applications in heating or cooling applications.

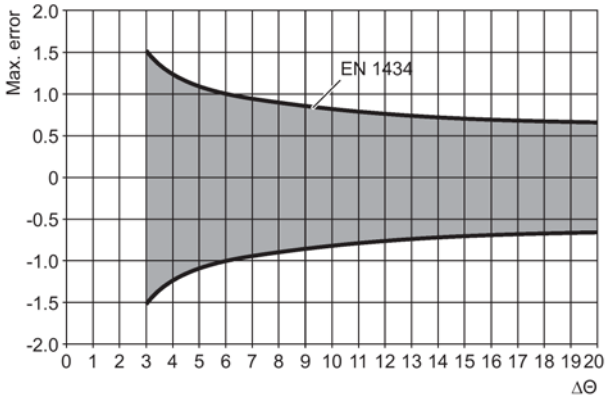
Technical data

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9.1 Energy calculator

Parameter	Data
Approval	MID-approved (international heating approval) PTB-approved (K7.2; national German cooling approval) The approvals only apply to heating or cooling water according to the German AGFW standard FW510
Temperature range	Heating approval: 0 to 180 °C (32 to 356 °F) Cooling approval: 0 to 105 °C (32 to 221 °F)
Absolute temperature range	-20 to +190 °C (-4 to +374 °F)
Temperature difference	Heating: 3 to 177 K, cooling: 3 to 102 K (starting at 0.125 K)
Measuring accuracy	Meets requirements of EN 1434 Typically max. ±(0.5 + 3 K/Δθ[%] of measured value
Flow range	Q_n (Q_p) ≤ 360 000 m^3/h (600 000 GPM) (depending on selection of pulse input and display resolution)
Power range value	0 to 15 000 000 kW

Accuracy

Parameter	Data
Typical accuracy	

User interface

Parameter	Data
Display	8-digit LCD display with associated pictograms/symbols
Units	MWh, GJ, Gcal, MBtu, m^3, gal, m^3/h, GPM, ºC, °F, kW, MBtu/h
Totalizer value range	99 999 999 or 9 999 999.9
Values	Power, energy, volume, flow rate, temperatures
Push button	Single push button for the menu controlling
Optical IrDA interface	ZVEI optical interface with M-Bus protocol as per EN 1434 and EN 13757, connection via separate IrDA-adapter

Rated operation conditions

Parameter	Data
Temperature	
• Ambient	5 to 55 °C (41 to 131 °F)
• Storage	-25 to +70 °C (-13 to +158 °F)
Environment class	EN 1434 class E2 / M2

Design

Data	
IP54 in accordance with IEC 529 (93 % rel. humidity)	
Material	
• Top	Polyamide
• Pipe/wall fitting	PA 6.6 GF25
• Gaskets	Neoprene/EPDM

Temperature input

Parameter	Data
Sensor types	Pt100 or Pt500 with 2 or 4-wire leads, cable length < 10 m (33 ft), standard setting: Pt500, selection by order code and shown at the nameplate (only Pt500 types are available)
Sensor connection	4-wire or 2-wire; auto-detection of connected type
Temperature range (Absolute measuring range)	-20 to 190°C (-4 to +374°F)
Temperature difference	3 to 177 K (starting at 0.125 K)

Parameter	Data
Measurement cut-off	0.125 K Temperature measurement resolution: Displayed temperature (hot "ht", cold "ct" and delta "dt"): 0.1 K 16-bit digital resolution AD converter
Sensor current	Pt500 peak < 2 mA, rms < 0.012 mA or Pt100 peak < 8 mA, rms < 0.015 mA (rms = root mean square)

Flow input (In0)

Parameter	Data
Volume input from an external flowmeter	
Pulse value	1 to 1000 l/pulse (1 to 100 gal/pulse), selection by order code and shown on the nameplate
Pulse frequency	≤ 100/200 Hz
Flow range	Q_{max} ≤ 360 000 m^3/h (600 000 GPM) (depending on selection of pulse input and display resolution)
Pulse ON-time	≥ 3 ms
Pulse OFF-time	≥ 2 ms
Type	Active pulse input
Flowmeter installation place	Hot pipe or cold pipe ("forward or return line"), selection by order code. The installation place is shown on the nameplate
Connected cable	Max. 10 m (33 ft) (shielded cables recommended)

9.2 Option modules

Ports

Parameter	Data
Number of ports	2 ports for optional plug-in modules, one port for a function module and the other for a communication module.
Function modules	Pulse input module, 2 inputs (In1, In2) Pulse output module, 2 outputs (Out1, Out2) Combination module of 2 inputs (In1, In2) and 1 output (Out1) Current output module, 2 outputs (Out1, Out2)
Communication modules	M-Bus, RS 232 or RS 485 (M-Bus protocol according to EN 1434-3 and EN 13757)

Dimension drawings

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FUE950 energy meter

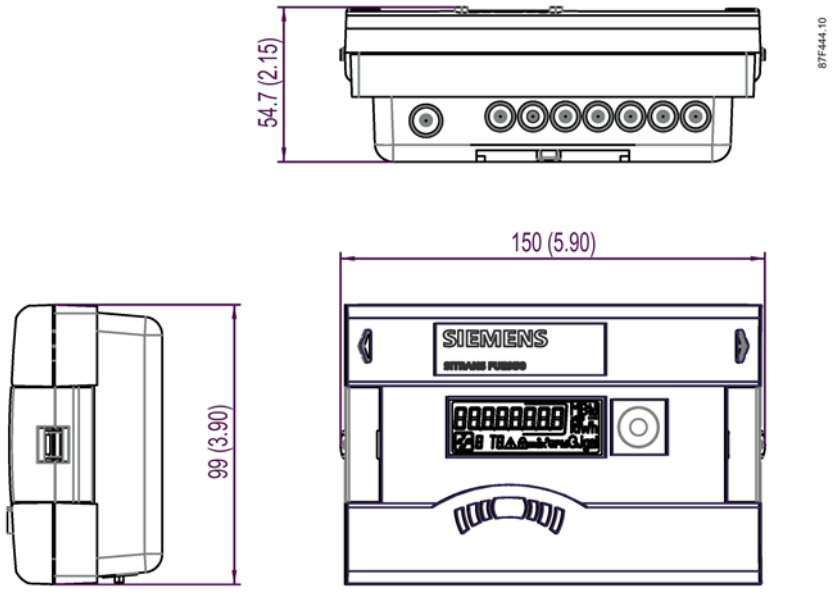


Figure 10-1 FUE950, dimensions in mm (in)

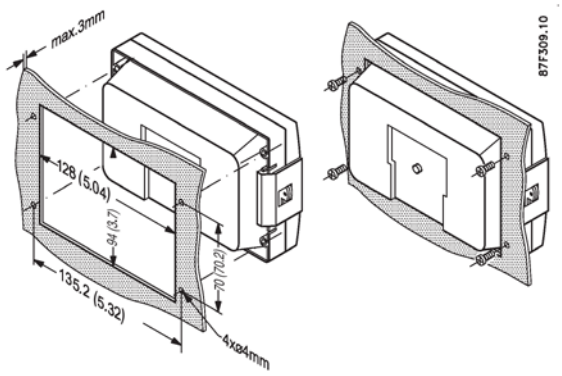


Figure 10-2 Panel mounting, dimensions in mm (in)