CONTECA™ heat energy meter

7504 series

Submittal Data 03651 NA — Issue Date 03/2022

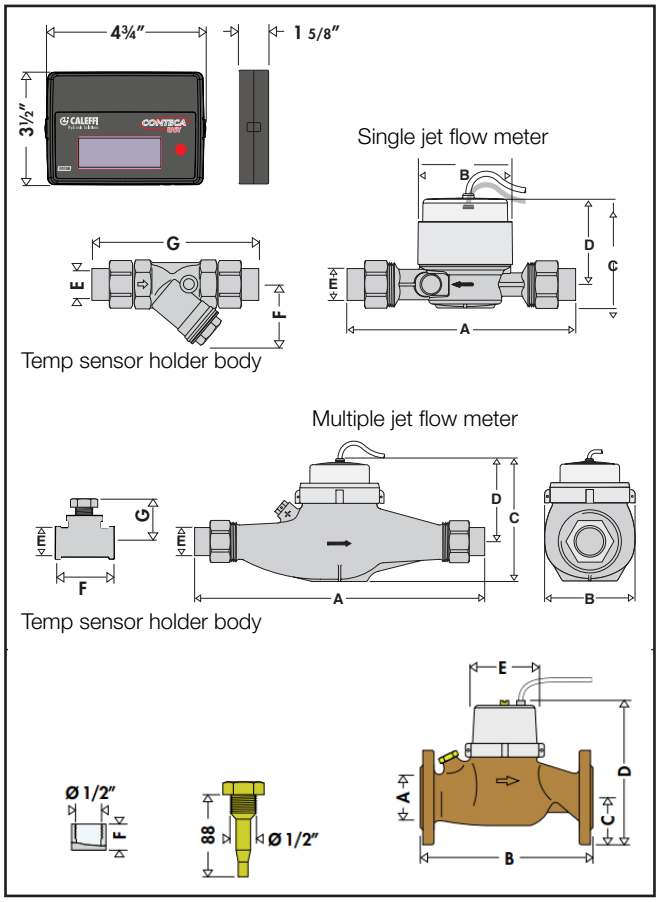
Application

CONTECA™ is a direct heat energy meter designed to measure and record thermal energy usage in residential and commercial buildings, for heating only, cooling only, or both heating and cooling. It features an 8-digit liquid crystal display that enables easy reading of BTU consumed as well as a range of technical data indicating equipment operating status and logged data. Each CONTECA includes a heat meter with an electronic calculator and user interface, two temperature sensors, and sensor holder bodies, fittings included. The rotary pulse flow meter comes with the CONTECA meter kit. In addition to the two temperature inputs and flow meter input, 4 additional pulse inputs are available for optional equipment monitoring. Data logging is available using the CONTECA datalogger via RS-485 connection. The CONTECA is easy to install and commission, and is certified to ASTM E3137/E3137M-17 Standard Specification for Heat Meter Instruments by ICC-ES, and Directive 2014/32/EU EN 1434 (MI 004). Approved for thermal energy measurement by the authority of the Minister of Industry (styled Innovation, Science and Economic Development) of Canada, Approval number AV-2474C. The CONTECA heat meter has integral RS485 protocol 2-wire communication for remote access and configuration. M-bus protocol is used with the CONTECA Datalogger (default). The protocol can be changed to Modbus when using the CONTECA heat meter directly with a Modbus BAS or when using the Modbus-to-BACnet gateway for communication to a BACnet BAS. Up to 250 CONTECA meters can connect to one CONTECA data logger.

Typical Specification

Furnish and install on the plans and described herein, a Caleffi 7504 series CONTECA heat energy meter as manufactured by Caleffi. The heat meter must be designed with 8-digit liquid crystal display. The meter must have two temperature inputs, one flow meter input, and 4 additional inputs. Heat meter is certified to ASTM E3137/E3137M-17 Standard Specification for Heat Meter Instruments by ICC-ES, and Directive 2014/32/EU EN 1434 (MI 004). Approved for thermal energy measurement by the authority of the Minister of Industry (styled Innovation, Science and Economic Development) of Canada, Approval number AV-2474C.
Power supply is 24 VAC 50/60 HZ, power consumption 1 W with data transmission 2-wire RS485. Selectable Modbus or M-bus (fuw Datalogger). Pulse inputs Class 1B per EN 1434-2. Ambient temperature range 40°F to 113°F (4°C to 45°C). Environmental rating (protection class) NEMA 3X (IP54). The temperature sensors must be 100 kOhm NTC matched sensors with <0.1°F (0.05°C) sensitivity. Stainless steel thermowell and brass sensor holder body. Maximum working pressure 150 psi (10 bar). The rotary pulse meter must be designed with brass body with sweat, press or NPT male connections, ½", ¾", or 1" single jet turbine flow meter, flow rate 0.25 gpm to 10 gpm; NPT female 1" 1¼" and 1½" multiple jet turbine flow meter, flow rate 0.3 gpm to 45 gpm; or powder coated cast iron body with ANSI Class 150 flanges, 2½ to 8" woltman flow meter, flow rates 11 gpm to 1000 gpm. Maximum working pressure 235 psi (16 bar), maximum fluid temperature 265°F (130°C). Pulse output class OA-OC in accordance with EN 1434-2. Equipped with lead seals to prevent tampering. Provide with optional Datalogger, code 750450 and, if needed, code 755052 Modbus-to-BACnet gateway. Each heat energy meter shall be Caleffi model 7504 series or approved equal. (See product instructions for specific installation information.)
Datalogger, Caleffi code NA750450, for BTU usage data acquisition and logging. Communication via RS-485 physical layer in M-Bus protocol. Power supply 24 V (dc) - 3 W or 24 V (ac) - 3 W. Integrated web interface. Daily data logging: 10 years. Mounting on a 35 mm DIN rail (EN 60715). 2 Ethernet ports. Reports in .XLS or .CSV format. Maximum number of heat meters connected 250. Ambient temperature range 2°F to 122°F (4 to 50°C). Modbus-to-BACnet gateway, Caleffi code 755052, Modbus RS-485 serial output to BACnet IP or MSTP communications.

Dimensions



Code	A	B	C	D	ends*	E	F	G	Wt (lb)
750449A	6 7/8"	3 1/8"	4 ¼"	3 ½"	sweat	½"	7 ¼"	2"	6.2
750440A	8 3/8"				mnpt		8 ¾"		
750446A	7 ½"				press		4 7/8"		
750459A	7 3/8"				sweat	¾"	7 ¾"		7.1
750450A	7 5/8"				mnpt		8"		
750456A	7 7/8"				press		8 ¼"		
750469A	8 5/8"				sweat	1"	9"		7.9
750460A	8 3/8"				mnpt		8 ¾"		
750466A	8 5/8"				press		8 ½"		
750405A	5 1/8"				male	1"	5 1/8"		6.0
750463A	12 ¼"	4"	5 3/8"	3 ¾"	fnpt	1"	5 1/8"	2 1/16"	11.5
750473A	12 ¼"	4"	5 3/8"	3 ¾"		1 ¼"	5 7/8"	2 3/8"	12.1
750483A	17 ¼"	5 ¼"	6 7/16"	4 5/8"		1 ½"	5 5/8"	2 5/16"	18.7
750410A	2 ½"	7 7/8"	3 3/8"	8 7/8"	flange	6"	1 5/16"		27
750411A	3"	8 7/8"	3 ¾"	9 ¼"		6"	1 5/16"		29
750412A	4"	9 7/8"	4 5/16"	12 ¼"		8 5/8"	1"		44
750413A	5"	9 7/8"	5"	12 ¾"		9 7/8"	¾"		51
750414A	6"	11 13/16"	5 5/16"	15"		11 ¼"	¾"		88
750415A	8"	13 13/16"	6 ½"	16 1/8"		13 3/8"	¾"		110

*end connections are the same for the flowmeter and sensor holder bodies for each code.
ex: code 750449A has union sweat ends on both the flow meter and the sensor holder.

Technical specifications

Heat meter:

Materials: -Housing & cover: ABS, RAL 9004
Power supply: 24 VAC, 50/60 Hz, 1W
Data transmission: 2-wire RS485; selectable Modbus or M-bus (for use with datalogger)
Ambient temperature: 40 — 113°F (4— 45°C)
Environmental rating (protection class): NEMA 3S (IP 54)
Pulse inputs: Class 1B per EN 1434-2
Certification: ASTM E3137/E3137M-17 by ICC-ES
Directive 2014/32/EU EN 1434 (MI 004)
Approved for thermal energy measurement for Canada, Approval # AV-2474C

Temperature sensors:

Cable length*: 26¼ ft. (8 m)
Sensor type: 100 kOhm NTC matched
Temperature sensitivity: < 0.1°F (0.05°C)
Temperature sensor thermowell: Stainless steel
Sensor holder body: Brass
Max. working pressure: 150 psi (10 bar)

*Extra length of the 26¼ ft. cable must be carefully coiled and mounted in a

Flow rates

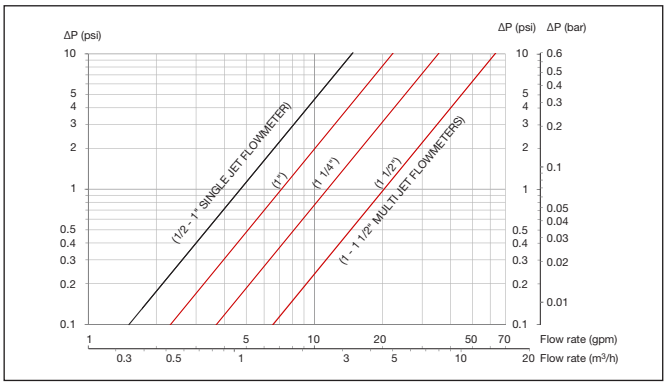
Code	Size	Flow meter type & code	Liters per pulse	Minimum Flow rate (gpm)	Maximum flow rate (gpm)
		Single jet			
75044xA	½"	750405	1	0.25	10
75045xA	¾"				
75046xA	1"				
		Multiple jet			
750463A	1"	750406	2.5	0.3	15
750473A	1¼"	750407	10	0.5	25
750483A	1½"	750408		1	45
		Woltman			
750410A	2½"	750410	100	11	110
750411A	3"	750411		14	140
750412A	4"	750412		22	220
750413A	5"	750413		35	350
750414A	6"	750414	1,000	88	880
750415A	8"	750415		100	1000

Flow rate range for combined flow meter and 2 sensor holder bodies.

Flow meters:

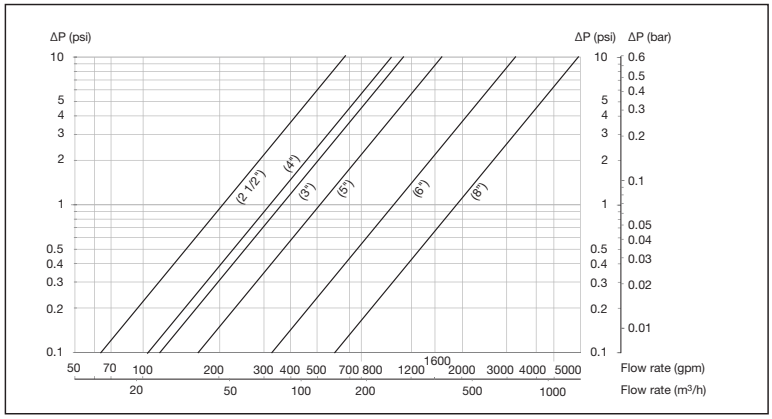
Flow meter type:
Single jet (½" - 1" to 10 gpm); Multiple jet (1" to 1½" to 45 gpm); Woltman (2½" - 8" to 1000 gpm)
Body material: Brass (½" - 1½"); Powder-coated cast iron (2½" - 8")
Pulse output: class OA-OC in accordance with EN 1434-2
Body threads (brass bodies): ISO 228 male straight
Piping connections: Brass: Dual unions, tailpieces NPT, sweat, press
Cast iron: ANSI Class 150 RF flanged
Max. working pressure:
Brass & Cast Iron: 235 psi (16 bar)
Maximum fluid temperature: 265°F (130°C)

Hydraulic characteristics



	Single jet flow meter			Multiple jet flow meter		
	½"	¾"	1"	1"	1 ¼"	1 ½"
Cv	5.0			6.8	11.7	19.6

Flow rate range for combined flow meter and 2 sensor holder bodies.



	Woltman meter					
	2½"	3"	4"	5"	6"	8"
Cv	208	370	330	522	1,030	1,970

Flow rate range for combined flow meter and 2 sensor holder bodies. Note, the 4" meter flow capacity is lower than the 3" meter.

Job name _____ Size _____
Job location _____ Quantity _____
Engineer _____ Approval _____
Mechanical contractor _____ Service _____
Contractor's P.O. No. _____ Tag No. _____
Representative _____ Notes _____

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