

## HVAC BTU Sub Meter

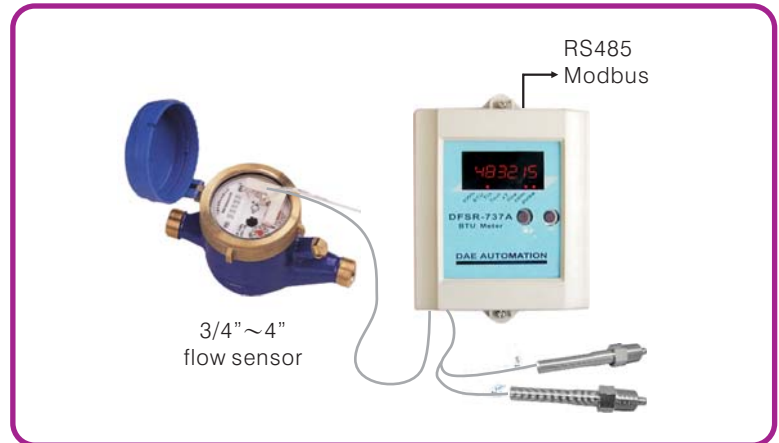
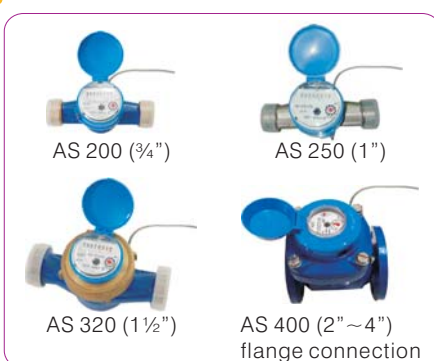
### FEATURES

- **Power Supply:**  
- AC 12-18V or DC 12-24V, 200 mA
- **Display:**  
- 6 digit LED with indicators
- **Units of Measure:**
  - 1) Energy Total - 6 digits BTU display
  - 2) Energy Rate - User selectable as BTU or kWh
  - 3) Flow Totalizer
- **Communication:**  
RS485  
Modbus/RTU  
Address: 0-255 (can be set from front panel)
- **Accuracy:**  
3% full scale (BTU resolution)

### APPLICATIONS

- Apartment Buildings
- Condominiums
- Shopping Centers
- Industrial Locations
- District Heating Systems
- Product Efficiency Verifications
- Food Markets
- Central Plant Monitoring
- Performance/Efficiency Evaluations
- Performance Contracting Energy Monitoring
- Commercial Offices
- University Campus Monitoring
- Institute Energy Cost Allocation

### FLOW SENSORS



### INTRODUCTION

The DFSR737A is a full featured BTU meter developed specifically for use in a tenant pays HVAC sub metering system. It is a state of the art BTU meter developed by combining the latest in microprocessor technology and using innovative measuring techniques that has resulted in a system with accuracy, measurement stability and functionality that is unprecedented in the history of heat calculators.

It provides a wall mounted display showing energy units, flow and temperature readings all on a 6 digit display with indicators. It can also send the same displayed information to a central monitoring station using its built in RS485 communication bus using the Modbus protocol.

### CONSTRUCTION

It offers a wide selection for all types of billing and monitoring purposes; and is suitable for small, medium or even large sized systems.

The DFSR737A consists of 4 parts:

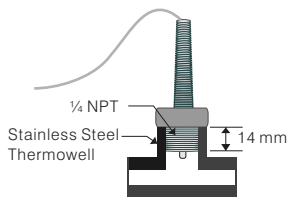
- A standard single-jet wing wheel flow meter with pulse output.
- A wall mounted BTU calculator with a bright LED display.
- A matched pair of Pt100 temperature sensors.
- An RS485 interface using Modbus/RTU protocol and also pulse output for data monitoring.

The BTU Meter measures the temperature on the supply side and the return side with platinum sensors. The single-wing wheel flow meter measures the flow and sends this information to the calculating unit. The accumulated BTUs are then shown on the LED display along with the other measured and calculated parameters, including the:

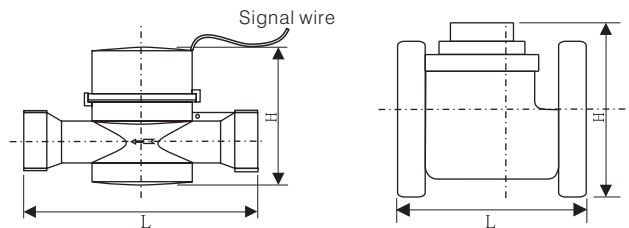
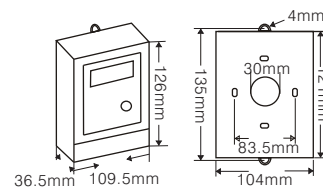
- energy value (kWh or BTU)
- Total flow
- Temperature on both the hot and cold side
- Temperature difference
- Communication status
- Pulse output

- LED displayed items
  - Energy value (kWh or BTU)
  - Total flow (l)
  - Temperature (°C) on the supply (Tin) and return (Tout) pipes
  - Temperature difference (°C)
  - Communication status
- LED display
  - 6 characters
  - 7 indicators (kWh/BTU/Tin/Tout/ T/Total flow/pulse)
  - Key button operation
- Temperature sensor
  - Dual PT100 ohm water temperature pipe sensors
  - Differential temperature accuracy:  $\pm 0.2^{\circ}\text{C}$  over calibrated range
  - Range: 0- 25°C
  - 3 meter Teflon extension cable
  - Resolution: 0.1°C
- Flow sensor
  - 1/4 NPT stainless steel thermowell
  - Single-jet wing wheel flow meter
  - Class A accuracy (2% typical)
  - 8 digit mechanical counter
  - Max pressure: 1MPa
  - Water temperature: 0-40°C
  - The upper register and turbine blade parts are separated to maintain reliability and for servicing convenience
- Resolution: 10 liters for flow sensors smaller than 2 inches  
100 liters for flow sensors equal to or larger than 2 inches
- RS485 port
  - Modbus RTU protocol
  - 2400 baud rate
  - 8/n/1
  - address set by front panel
- Environment
  - Operating Temperature: 0 - 50°C
  - Storage Temperature: 0 - 60°C
  - Wall Mounted
  - Power supply: AC 18 V or DC 12-24 V 200 mA (max)

Temperature sensor



Dimensions

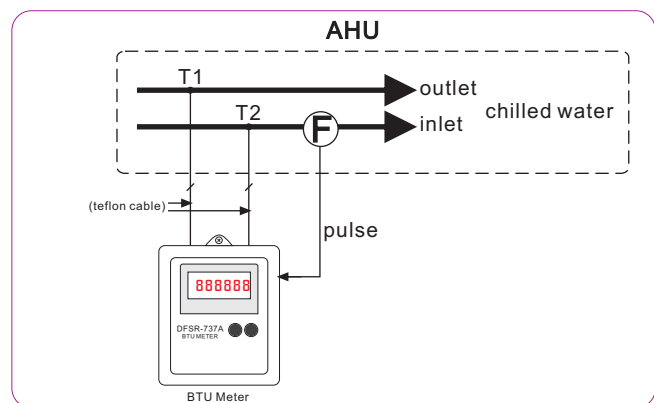


Model	DN( $\phi$ ) in mm	Inlet	Flow rate (m <sup>3</sup> /hr)			Dimensions (mm)		Weight (kg)	L/ Pulse
			Nominal	Min	Peak	L	H		
AS 200	20	3/4"	2.5	0.1	4	130	88	1	10
AS 250	25	1"	3.5	0.14	5	160	96	1.6	10
AS 320	32	1 1/2"	6	0.24	10	160	123	2.9	10
AS 400	50	2"	15	1.2	24	200	380	12	100
	65	2 1/2"	25	2.0	38	200	380	13	100
	80	3"	40	3.2	60	225	380	16	100
	100	4"	60	4.8	100	250	380	18	100

\*Hot water version also available

**ORDERING INFORMATION**

MODEL	Rating
DFSR-737A	3/4"
	1" 1 1/2"
	2" 2 1/2"
	3"
	4"



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