Smart EnerG+

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Building
A SUSTAINABLE FUTURE TODAY

MAKE IN INDIA

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Engelmann Ultrasonic Thermal Energy Meter SensoStar U (S3U)

- Inline Ultrasonic type
- Available in DN15 – DN40
- MID Certified
- Calculator with Integrated battery (10 years life)
- 8 digit display, power-off protection function
- PN16, Threaded ends
- Available communication protocols are wired M-Bus, wireless M-Bus, LoRa, Pulse Output, Modbus (RS485) and NBIoT

Engelmann BTU meter comprises of 3 parts as below

Flow Meter
with built-in Ultrasonic Flow sensors communicates the actual flow through the pipe to the calculator

Calculator
calculates the Energy Consumption by taking inputs from Flow sensor and Temperature sensors

Temperature Sensors
to measure temperatures in chilled water supply and return line and communicates it to the calculator

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Performance Description:

	Size	DN15	DN20	DN25	DN40
Nominal	Level of accuracy	Class 2			
	qp	0.6 m^3/h 1.5 m^3/h	0.6 m^3/h 1.5 m^3/h 2.5 m^3/h	2.5 m^3/h 3.5 m^3/h 6 m^3/h	10 m^3/h
	qi	0.012 m^3/h	0.012 m^3/h 0.012 m^3/h 0.025 m^3/h	0.025 m^3/h 0.028 m^3/h 0.06 m^3/h	0.1 m^3/h
	qs	1.2 m^3/h 3 m^3/h	1.2 m^3/h 3 m^3/h 5 m^3/h	5 m^3/h 7 m^3/h 12 m^3/h	20 m^3/h
	qp/qi	50:1 125:1	50:1 125:1 100:1	100:1 125:1 100:1	100:1
	Measuring medium temperature range	15-90°C (heat meter) 5-50°C (cooling meter)			
	Piping design	Ultrasonic reflection type			
	Reflector material	V2A / V4A			
	Pipe material	Brass			
	PN	PN16			
	Length of connecting cable	0.85m 2.85m(optional)			
	Flow field sensitivity	U0D0			
	Installation location requirements	Horizontal, vertical or overhead			
	Connection method	Threaded connection			
	Installation method	Horizontal, vertical or overhead			
Calculator	Product performance standards	EN1434-2014			
	Ambient temperature range	5-55°C, Class B			
	Protection level	IP65			
	Measuring initial temperature difference	＞0.05K (but >1K for DN32)			
	Temperature measurement resolution	0.01°C			
	Display	8-digit LCD numbers add with special characters			
	Display uint	MWh, kW, m^3, m^3/h (kWh, GJ, MMBTU, Gcal)			
	Reading method	a. Reading by button			
		b. Optical interface reading			
		c. M-bus, Modbus			
		d. Radio (wM-Bus, LoRaWAN)			
	data storage	15 months freeze values (monthly + half monthly values)			
	Power failure protection	With power-off protection function, data will not be lost even after power-off			
	Communication port	Standard built-in M-Bus port			
	Structural features	Detachable connection, the calculator can be wall-mounted			
	Power supply	3.0V Lithium Battery			
	Battery life	10 years			
Temperature Sensors	Product performance standards	EN1434-2014			
	Basic characteristics	Pt1000， 1.5m / 3m / 6m			
	Temperature measurement range	0-150°C			
	Temperature difference measurement range	3-100K			
	Enable temperature	＞0.05K			
	Temperature measurement resolution	0.01°C			
	Thermal coefficient	Smooth compensation			
	Temperature sensor cable	Silicone			
	Temperature sensor specifications	1.5m/3m/6m * 5mm/5.2mm/6mm			
	Installation method	Install with temperature measuring ball valve or tee connector			
Whole Table Characteristics	working life	10 years			
	Composite Structure	The Calculator can also be separated from the meter body, up to 0.6/0.85m in length, which is convenient for protecting the arithmetic unit and fixing installation and reading.			
	Environmental rating	Class B			
	Environmental humidity range	Humidity>95%, temperature (5-55)°C, Class B			
	Communication method	Standard: wired M-Bus communication port			

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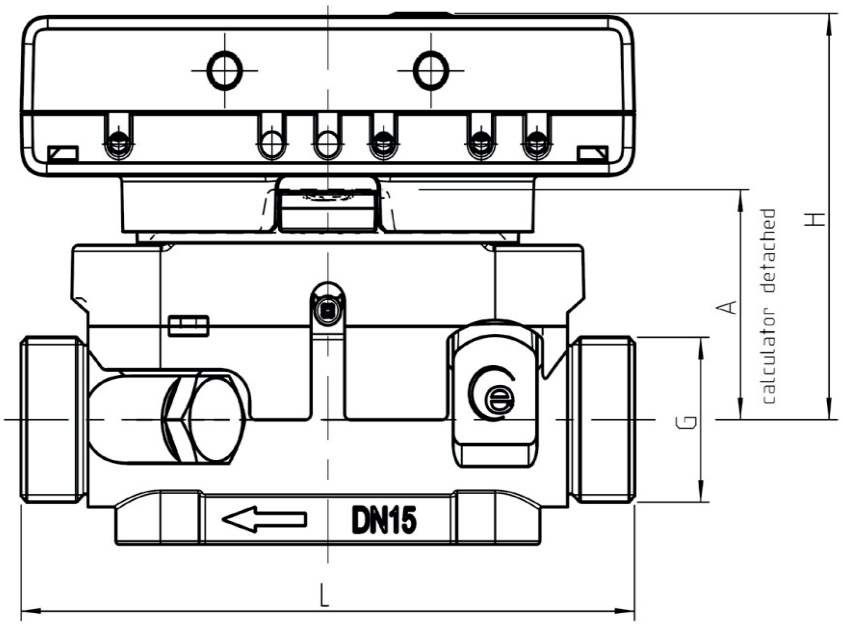
Dimensions (meter)

Qp (m³/h)	Nominal diameter	G (“)	L (mm)	H (mm)	A (mm)	Weight (basic version in kg)
0,6	DN 15	G3/4B	110	65	38,5	**0,600**
0,6	DN20	G1B	190	65	38,5	**0,770**
1,5	DN 15	G3/4B	110	65	38,5	**0,600**
1,5	DN 20	G1B	105	66	39,5	**0,650**
1,5	DN 20	G1B	130	66	339,5	**0,680**
1,5	DN 20	G1B	190	65	38,5	**0,770**
2,5	DN 20	G1B	105	66	39,5	**0,650**
2,5	DN 20	G1B	130	66	39,5	**0,680**
2,5	DN 20	G1B	190	66	39,5	**0,790**
2,5	DN 25	G1 1/4B	260	66	39,5	**1,080**
3,5	DN 20	G1B	130	66	39,5	**0,680**
3,5	DN 20	G1B	190	66	39,5	**0,790**
3,5	DN 25	G1 1/4B	150	66	339,5	**0,820**
3,5	DN 25	G1 1/4B	260	66	39,5	**1,080**
6,0	DN 25	G1 1/4B	150	68,5	42	**0,820**
6,0	DN 25	G1 1/4B	260	68,5	42	**1,080**
10,0	DN 40	G2B	200	73	46,5	**1,530**
10,0	DN 40	G2B	300	73	46,5	**1,970**



Dimensions calculator unit

Calculator housing (H x W x D) mm 75 x 110 x 34.5

Engelmann Ultrasonic Thermal Energy Meter

EM6200 (DN50-DN200)

- Inline Ultrasonic type
- Available in DN50 – DN200
- Integrated or External Calculator with battery
- 8 digit display, power-off protection function
- PN16, Flanged ends
- Available communication protocols are wired M-Bus and RS485

Engelmann BTU meter comprises of 3 parts as below

Flow Meter
with built-in Ultrasonic Flow sensors communicates the actual flow through the pipe to the calculator

Calculator
calculates the Energy Consumption by taking inputs from Flow sensor and Temperature sensors and can be either inbuilt or external with the flow part.

Temperature Sensors
to measure temperatures in chilled water supply and return line and communicates it to the calculator

Dimensions (meter)

Nominal Dia.	PN	L (mm)	W (mm)	H (mm)	Gross Weight (kg)	Temperature Sensor Length	Flow Sensor Length
DN50	PN16	240	190	240	7.5	3m	1.5m
DN65	PN16	240	190	240	8	3m	1.5m
DN80	PN16	260	210	280	9	3m	1.5m
DN100	PN16	290	220	290	12.5	3m	1.5m
DN125	PN16	435	380	580	23.3	3m	1.5m
DN150	PN16	665	500	750	33	3m	1.5m
DN200	PN16	665	500	750	39	3m	1.5m

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Performance Description:

	Size	DN50	DN65	DN80	DN100	DN125	DN150	DN200
Nominal	Level of accuracy	Class 2						
	qp	15 m^3/h	25 m^3/h	40 m^3/h	60 m^3/h	100 m^3/h	150 m^3/h	250 m^3/h
	qi	0.3 m^3/h	0.5 m^3/h	0.8 m^3/h	1.2 m^3/h	2 m^3/h	3 m^3/h	5 m^3/h
	qs	30 m^3/h	50 m^3/h	80 m^3/h	120 m^3/h	200 m^3/h	300 m^3/h	500 m^3/h
	qp/qi	50:1						
	Measuring medium temperature range	0~95°C						
	Piping design	Ultrasonic direct-injection type						
	Pipe material	Ductile Iron						
	PN	PN16						
	Length of connecting cable	0.5m						
	Flow field sensitivity	U0D0				U5D3		
	Installation location requirements	Horizontal or vertical						
	Connection method	Flanged connection						
	Protection level	IP65						
Calculator	Product performance standards	EN1434/GB/T32224-2020						
	Ambient temperature range	-25-55°C, Class B						
	Protection level	IP65						
	Measuring initial temperature difference	＞1K						
	Temperature measurement resolution	0.01℃						
	Display	8-digit LCD numbers add with special characters, under the maximum metered heating power, continuous operation for 3000h, not exceeding the maximum display value						
	Display unit	KWh, MWh, GJ,Gcal, m^3, gal,m^3/h, L/h, KW, MW,℃						
	Reading method	a. Reading by button						
		b. Optical interface reading						
		c. M-Bus						
	Data storage	24month freeze values						
	Power failure protection	With power-off protection function, data will not be lost after power-off						
	Communication port	Standard built-in M-Bus port						
	Structural features	Detachable connection, the calculator can be wall-mounted						
	Power supply	3.6V Lithium Thionamide Battery (flow meter)						
Temperature Sensors	Product performance standards	EN1434/GB/T32224-2020						
	Temperature measurement range	0-100°C						
	Temperature difference measurement range	3-100K						
	Enable temperature	1K						
	Temperature measurement resolution	0.05°C						
	Thermal coefficient	Smooth compensation						
	Temperature sensor cable	PVC						
	Temperature sensor specifications	Pt1000, 3m*6mm						
	Installation method	Flanged connection						
Whole Table Characteristics	Working life	10 years						
	Composite Structure	The Calculator can also be separated from the meter body, up to 0.5m in length, which is convenient for protecting the arithmetic unit and fixing installation and reading.						
	Environmental rating	Class B						
	Environmental humidity range	Humidity>93%, temperature (-25-55)℃, Class B alternating damp heat test standard						
	Communication method	Standard: wired M-Bus communication port						
	Communication Extension	RS485						

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Engelmann Ultrasonic Thermal Energy Meter

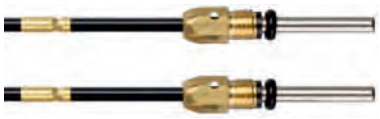
EM9200 (DN50-DN300)

- Inline Ultrasonic type
- Available in DN50 - DN300
- Integrated or External Calculator with battery
- 8 digit display, power-off protection function
- PN16/PN25, Flanged ends
- Available communication protocols are wired M-Bus and RS485

Engelmann BTU meter comprises of 3 parts as below

Flow Meter
with built-in Ultrasonic Flow sensors communicates the actual flow through the pipe to the calculator

Calculator
calculates the Energy Consumption by taking inputs from Flow sensor and Temperature sensors and can be either inbuilt or external with the flow part.



Temperature Sensors
to measure temperatures in chilled water supply and return line and communicates it to the calculator

Dimensions (meter)

Nominal Dia.	PN	L (mm)	W (mm)	H (mm)	Gross Weight (kg)	Temperature Sensor Length	Flow Sensor Length
DN50	PN16/25	240	190	240	7.5	3m	5m
DN65	PN16/25	240	190	240	8	3m	5m
DN80	PN16/25	260	210	280	9	3m	5m
DN100	PN16/25	290	220	290	12.5	3m	5m
DN125	PN16/25	435	380	580	23.3	10m	5m
DN150	PN16/25	665	500	750	33	10m	5m
DN200	PN16/25	665	500	750	39	10m	5m
DN250	PN16/25	665	500	750	65.3	10m	5m
DN300	PN16/25	665	500	750	80.4	10m	5m

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Performance Description:

	Size	DN50	DN65	DN80	DN100	DN125	DN150	DN200	DN250	DN300
Nominal	Level of accuracy	Class 2								
	qp	15 m^3/h	25 m^3/h	40 m^3/h	60 m^3/h	100 m^3/h	150 m^3/h	250 m^3/h	400 m^3/h	600 m^3/h
	qi	0.15 m^3/h	0.25 m^3/h	0.4 m^3/h	0.6 m^3/h	1 m^3/h	1.5 m^3/h	2.5 m^3/h	4 m^3/h	6 m^3/h
	qs	30 m^3/h	50 m^3/h	80 m^3/h	120 m^3/h	200 m^3/h	300 m^3/h	500 m^3/h	800 m^3/h	1200 m^3/h
	qp/qi	100:1								
	Measuring medium temperature range	0~120℃								
	Piping design	Ultrasonic reflection type								
	Pipe material	Carbon Steel								
	PN	PN16/PN25								
	Length of connecting cable	5m				10m				
	Flow field sensitivity	U0D0				U5D3				
	Installation location requirements	Horizontal or vertical								
	Connection method	Flanged connection								
	Installation Method	Horizontal or Vertical								
Calculator	Product performance standards	EN1434/GB/T32224-2020								
	Ambient temperature range	-25-55°C, Class B								
	Protection level	IP65								
	Measuring initial temperature difference	＞1K								
	Temperature measurement resolution	0.01℃								
	Display	8-digit LCD numbers add with special characters, under the maximum metered heating power, continuous operation for 3000h, not exceeding the maximum display value								
	Display unit	KWh, MWh, GJ,Gcal, m^3, gal,m^3/h, L/h, KW, MW,℃								
	Reading method	a. Reading by button								
		b. Optical interface reading								
		c. M-Bus								
	Data storage	24 months freeze values								
	Power failure protection	With power-off protection function, data will not be lost after power-off								
	Communication port	Standard built-in M-Bus port								
	Structural features	Detachable connection, the calculator can be wall-mounted								
	Power supply	3.6V Lithium Thionamide Battery/AC220V (Flow meter)								
Temperature Sensors	Product performance standards	EN1434/GB/T32224-2020								
	Temperature measurement range	0-150°C								
	Temperature difference measurement range	3-100K								
	Enable temperature	1K								
	Temperature measurement resolution	0.05k								
	Thermal coefficient	Smooth compensation								
	Temperature sensor cable	PVC								
	Temperature sensor specifications	Pt500, 3m*6mm				Pt500, 10m*6mm				
	Installation method	Flanged connection								
Whole Table Characteristics	Working life	10 years								
	Composite Structure	The Calculator can also be separated from the meter body, up to 0.5m in length, which is convenient for protecting the arithmetic unit and fixing installation and reading.								
	Environmental rating	Class B								
	Environmental humidity range	Humidity>93%, temperature (-25-55)℃, Class B alternating damp heat test standard								
	Communication method	Standard: wired M-Bus communication port								
	Communication Extension	RS485								