

# F96 Plus

## Ultrasonic energy meter

Very short sample rate by optimized energy management



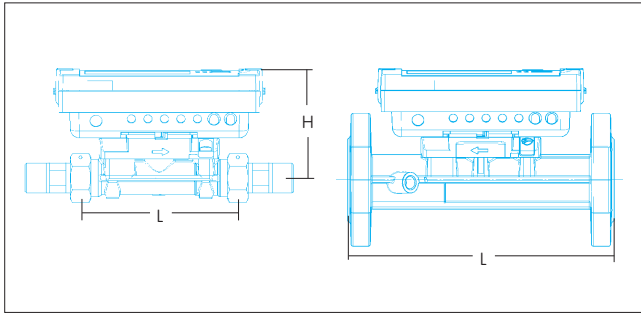
MID type examination certificate  
DE-10-MI004-PTB013

- Available for heating, cooling constructions and combined applications
- MID type examination certificate
- PTB K7.2 approval as cooling meter
- Nominal flow rate  $q_p$  0.6 ... 60 m<sup>3</sup>/h (DN 15 ... 100)
- Removeable calculator
- Optical interface
- Additional option cards



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ICM Energiemesstechnik



Option cards (retrofitable on-site)	Ordering number
M-Bus with 2 primary addresses	EN1434-3 <b>0002968</b>
RS232	M-Bus data record, 300 and 2400 Baud special data cable necessary, 3 wire, 3m <b>0002969</b> <b>8024066</b>
RS485	M-Bus data record 12 V ± 5, 2400 Baud <b>0002970</b>
2 pulse outputs	4 Hz, 125 ms/100 Hz ≥ 5 ms, Type Open Collector <b>0002971</b>
2 pulse inputs	max. 20 Hz, potential free, configurable <b>0002972</b>
Combination 2 pulse inputs and 1 pulse output	<b>0002973</b>
2 analogue outputs	passive, 4 - 20 mA <b>0002974</b>

Meter size	qp	m³/h	0.6	0.6	0.6	1.5	1.5	1.5	2.5	2.5
Nominal size	DN	mm	15	20	20	15	20	20	20	20
	DN	inches	R1/2	R3/4	R3/4	R1/2	R3/4	R3/4	R3/4	R3/4
Connection	Thread	inches	G3/4B	G1B	G1B	G3/4B	G1B	G1B	G1B	G1B
	Flange	DN	—	—	20	—	—	20	—	20
L Length		mm	110	130	190	110	130	190	130	190
H Centerline height		mm	82	84	84	82	84	84	84	84
B Width		mm	100	100	100	100	100	100	100	100
Weight	Thread	kg	0.76	0.85	0.96	0.76	0.85	0.96	0.85	0.96
	Flange	kg	—	—	2.75	—	—	2.75	—	2.75
<b>Performance characteristics</b>										
Maximum flow rate	qs	m³/h	1.2	1.2	1.2	3	3	3	5	5
Minimum flow rate	qi	m³/h	6	6	6	6	6	6	10	10
Starting flow		l/h	1	1	1	2.5	2.5	2.5	4	4
Overload value		m³/h	2.5	2.5	2.5	4.6	4.6	4.6	6.7	6.7
Pressure rate	PN	bar	16*	16*	16*	16*	16*	16*	16*	16*
Pressure loss at qp	Δp	mbar	85	85	85	75	75	75	100	100

Meter size	qp	3.5	3.5	6	6	10	10	15	25	40	60
Nominal size	DN	mm	25	32	25	32	40	50	65	80	100
	DN	inches	R1	—	R1	—	R1 1/2	—	—	—	—
Connection	Thread	inches	G1 1/4B	—	G1 1/4B	—	G2B	G2B	—	—	—
	Flange	DN	25	32	25	32	—	40	50	65	80
L Length		mm	260	260	260	260	200	300	270	300	360
H Centerline height		mm	88.5	88.5	88.5	88.5	94	94	99	106.5	114
B Width		mm	100	100	100	100	100	100	100	100	100
Weight	Thread	kg	1.5	—	1.5	—	2.4	3	—	—	—
	Flange	kg	3.5	4.8	3.5	4.8	—	6.8	7.6	9.6	12
<b>Performance characteristics</b>											
Maximum flow rate	qs	m³/h	7	7	12	12	20	20	30	50	80
Minimum flow rate	qi	m³/h	35	35	24	24	40/100***	40/100***	60/150***	100/250***	160
Starting flow		l/h	7	7	7	7	20	20	40	50	80
Overload value		m³/h	18.4	18.4	18.4	18.4	24	24	36	60	90
Pressure rate	PN	bar	16*	16*	16*	16*	16*	16*	25**	25**	25**
Pressure loss at qp	Δp	mbar	44	44	128	128	95	95	80	75	80

\* PN25 on request; \*\* PN40 on request; \*\*\* horizontal/vertical; <sup>3</sup>MID certificate on request

#### Temperature sensor (2-wire system), Pt100 standard (Pt500 optional)

**qp 0.6 ... 2.5** incl. CST Temperature sensor; 5,2 mm; M10x1; 2 wire; direct immersion type; 2 m cable, 1 piece integrated in housing

**qp 3.5... 60** incl. CST Temperature sensor; 5,2 mm; M10x1; 2 wire; direct immersion type; both sensors external

**qp 10... 60** look at data sheet 'Temperature sensors'

Cable	Length / cross-section	m / mm²	≤ 3 / 0.75
Sensor current	for Pt 100	μA	8 (RMS < 0.015)
	for Pt 500	μA	2 (RMS < 0.012)

Flow rate sensor	qp	0.6 ... 2.5	3.5 ... 60
Temperature measuring range	t °C	5 ... 130	5 ... 150
		5 ... 50	5 ... 50
		5 ... 105	5 ... 105
			heating/cooling

#### Register (removeable, ca. 1.5 m cable, fixed connection, option 3 m, 5 m)

Temperature measuring range	t °C	1 ... 180
Temp.-difference measuring range	Δt K	3 ... 177
Starting flow temp.-difference	Δt K	0.125
Ambient temperature	°C	5 ... 55
Sample rate		Volume
	mains	s 1/8
	Standard battery A	s 2
	battery D	s 1
		Temperature
		2
		16
		4

Power supply	lithium battery	V	3.6 (max. 11 years) A-cell (Standard)
	lithium battery	V	3.6 (max. 20 years) D-cell (Option)
	mains	V	230 VAC
	mains	V	24 VDC

Protection class	DIN 40050	IP54 (IP68 cooling)
Environment	EN1434	Class E1 and M1

2 slots for option cards  
(e.g. double M-Bus with 2 primary addresses; analogue output)

#### Display (8-digit)

With the display key, you can call different information:

- Accumulated energy
- Volume
- Flow rate
- Power output
- Flow temperature
- Return temperature
- Temperatur difference
- Operating hours
- Error code
- Display test
- Reading of the energy counter for the respective target dates
- Monthly maximum of power and flow (with the date)
- Important device data (M-Bus addresses etc.)
- Meter reading of the two additional pulse outputs
- Actual tariff values
- Tariff value as per the target date
- Consumption values, tariff values, maximum values of the respective months

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