

DFM Marine fuel flow meters

Main specifications



- built-in programmable LCD display (17 informational screens)
- data output: Parameters (up to 56), Counters (up to 51), Events (up to 30), malfunctions (up to 30)
- recording real fuel consumption and operation time of fuel consumer – total and in different consumption modes: "Idle", "Optimal", "Overload", "Tampering" and "Interference"
- connection in single network using S6 Technology up to 8 pcs. of flow meters with CAN j1939/S6 interface
- built-in flow computer for operation of a pair of any flow meters in the "Differential" / "Summation" mode without using additional external devices
- configuration through PC:
 - boundaries of fuel rate modes "Idle" and "Optimal"
 - temperature coefficient of volume expansion
 - consumption correction factor
 - smoothing buffer (for fuel systems with uneven flow)
- operability in fuel systems with high (up to +150 °C) temperature of measured liquid
- embedded battery allows data (Counters, Events) registration in the internal non-volatile memory of flow meter when external power is off
- full set of high-quality installation accessories (mounting kits, mud filters, flanges)
- conformity to:
 - Rules of American Bureau of Shipping
 - Russian River Register
 - E-Mark Certificate (EMC compliance to ECE / UN Regulation No.10)
 - European RoHS Directive (Restriction of Hazardous Substances)
 - European 2014/30/EU Directive (Electromagnetic Compatibility)

Parameter, measurement units		Model		
		DFM Marine 1000	DFM Marine 2000	DFM Marine 4000
1) General specifications				
Nominal diameter (DN)	mm	15	20	25
	inch	1/2	3/4	1
Maximum flow rate (Q _{max})	m ³ /h	1	2	4
Minimum flow rate (Q _{min})	m ³ /h	0.02	0.04	0.08
Starting flow rate*	m ³ /h	0.01	0.02	0.04
Maximum inaccuracy rate**	%	±0.5		
Nominal volume of the measuring chamber	ml	30	75	150
Measurement chamber material	brass			
Body and connection materials	duralumin (A models) brass (L models)			
Type of connection to fuel line	flange type of connection (F models) thread type of connection (T models)			
Ingress protection rating	IP54			
Maximum pressure of working fluid	flange type of connection	25		
	thread type of connection	16		
Maximum temperature of working fluid	°C	+95 +150***		
Fluid kinematic viscosity	mm ² /s (cSt)	1.5...6.0		
Installation length	flange type of connection	200	214	232
	thread type of connection	172	194	216
Distance of flange holes	flange type of connection	65	75	85
Type of connection thread (BSP)	thread type of connection	3/4	1	1 1/4
Maximum width of rough filter	mm	0.25	0.40	0.40
Maximum weight	kg	1.9 (TA models) 2.5 (FA models) 3.3 (TL models) 4.9 (FL models)	2.8 (TA models) 3.4 (FA models) 4.5 (TL models) 6.6 (FL models)	4.4 (TA models) 5.1 (FA models) 7.3 (TL models) 9.6 (FL models)

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2) Electronic module specifications					
Supply voltage range (only for models with interface cable DFM Marine CK/CCAN)	V	10...45			
Maximum current consumption at 12/24 V (only for models with interface cable DFM Marine CK/CCAN)	mA	50/25			
Estimated autonomous operation time until full battery discharge	month	36			
Temperature range of LCD display	°C	-20...+80			
System of units on LCD display		metric (m ³)/US (gallon)/metric (l)			
Output digital interfaces		CAN j1939/S6 (SAE J1939 and NMEA 2000 protocols)			
		RS 232/RS 485 (DFM COM and Modbus RTU protocols) ****			
Normalized pulse output	U _{LOW} (min amplitude)	V	U _{HIGH} = U _{BATT} (not more than 36 V), U _{BATT} - voltage of on-board electrical system		
	U _{HIGH} (max amplitude)	V	U _{LOW} ≤ 0.7 V		
	T _{pulse} (period)	ms	100...5400	135...6750	135...6750
	t _{LOW} (interval)	ms	0.5 T _{pulse} (then T _{pulse} < 1 s) and 500 ms (then T _{pulse} > 1 s)		
	Pulse value	m ³ /puls	0.000030	0.000075	0.000150
Service digital interface		K-Line (ISO 14230)			
<p>* The value is indicated for reference only. Inaccuracy is not standardized for operation on the starting flow rate.</p> <p>** If fuel consumption in the range from Q_{min} to 3·Q_{min} and in "Differential" / "Summarization" measurement mode, inaccuracy is not higher than ±1.0 %.</p> <p>*** Under the order.</p> <p>**** MasterCAN C 232/485 converter is additionally needed.</p>					