

DFM Precision FUEL FLOW METERS

Unlock efficiency and savings

Monitor fuel consumption in real-time and in various operating modes, driving significant cost savings.

Fuel consumption monitoring

Machine hours monitoring

Fuel optimization

Fuel misuse and theft detection

Why Rosco?

Seamless implementation and support

From product provision to training and installation, we've got you covered.

Direct manufacturer collaboration

Any issue? We liaise directly with the manufacturer ensuring a tailored solution for your fleet.

Trusted by the largest mines

Dozens of mines across the Americas trust our commitment to delivering promised outcomes.



TECHNOTON

Advanced Precision Monitoring

Insightful Diagnostics, Proactive Analysis Detect changing conditions and anomalies to make timely informed decisions and foresee potential issues.

Validation Tool

Gauge the effectiveness of fuel-saving strategies and solutions. Utilize raw data to pinpoint areas for potential improvements in your operations.

Embrace the Cleaner Future of Mining

Fuel is the lifeblood of your operations. With DFM, ensure you're using it wisely.

Slash your operating costs, decrease your carbon footprint, and step into the future of efficient fleet management.

Contact us 🔥 1-780-607-4272 🛛 🔤 info@roscomining.com 🌐 roscomining.com









Unmatched Precision

DFM BENEFITS

- Direct fuel consumption measurement unaffected by terrain or vibration.
- Accurately monitor fuel use for both mobile and stationary equipment with a flow rate range from 1 to 25,000 l/h.
- High accuracy, error margin is just 0.5–3%
- Precise fuel monitoring through the use of two DFM units connected in differential measurement

Built-in Autonomy

- Equipped with a built-in battery for autonomous operation, ideal for situations without an on-board power network.
- Enable predictive maintenance with remote engine and fuel system diagnostics.
- CanUp module connected with SIM card for seamless data retrieval.

Comprehensive Monitoring

- Record engine operation time, including load modes: "Idle," "Optimal," and "Overload."
- Track 35+ additional parameters and counters for in-depth analysis.
- Measure flow rates separately for "supply" and "return" fuel lines.

Seamless Integration

- MasterCan Digital Display and Control: For diagnostics, can be used only for maintenance.
- FMS Crocodile: Read other J1939 data available onboard the vehicle.
- Non-invasive, easy installation
- DAC Digital to Analog converter to add other Technoton sensors, switches and options.

Fraud Detection

 Detect and record fraud attempts, including magnet interference and data tampering. ensuring the integrity of your fuel data.











Monitoring Parameters

- Exact volume of fuel remaining in tank
- Fuel consumption and engine working time total and by operation modes: "Idling", "Optimal", "Overload"
- Position of attachments bucket, blade, drill
- Temperature and pressure of liquids and other operational parameters of engines
- GPS location. route

Online Notifications

- Fuel tank fill-up, draining from tank
- Exit from defined polygon (geofencing)
- Exceeding fuel consumption quota

Precise Flow Meter Configuration

- Consumption mode boundaries
- Temperature correction coefficient
- Adjustment coefficient
- Two-flowmeter operation mode
- Units of measurement selection













DFM SPECIFICATIONS



MODEL LINE UP DESIGNATIONS



Parameter	DFM Marine 1000	DFM Marine 2000	DFM Marine 4000		
Measuring fuel consumption	0.02 to 4 m3/hour				
Inaccuracy rate	±0.5*				
Maximum pressure (flange connection)	25 bar				
Maximum pressure (thread connection)	16 bar				
Nominal pressure	2 bar				
External connection thread type	G3/4-A G1-A		G1 1/4-A		
Thread sizes for hose fittings or adaptors	¾" BSPP 1" BSPP		1-¼" BSPP		
Flange holes distance	65 mm 75 mm		85 mm		
Weight	1.9	3.4	4.4		
Supply voltage range	from 10 to 45 V				
Current consumption at 12 V, not more than	50 mA				
Current consumption at 12 V, not more than	25 mA				
Ambient operation temperature range	from -20 to +60°C				
Vibration resistance	Max. acceleration to 100 m/s2 in the frequency range from 5 to 250 Hz				
Resistance to aggressive environments	Oil and petrol resistance				
Electromagnetic compatibility	 ESD Protection, severity level II; Electromagnetic interference protection, severity level IV. 				
Ingress protection rating	IP54				
'Indifferential/summarization measurement mode, inaccuracy is not higher than ±1.0 % (depending on the proportion of fuel consumption in chamber of each flow meter used)					

Reliable. Impactful. Innovative.







DFM SPECIFICATIONS



Dimensions

Model	Type of connection	L, inch	F, mm	R, mm	L, mm	B, mm	H, mm
DFM Marine 1000	thread	G3/4	-	-	172	102 117	117
	flange	-	Ø65	Ø14 (4 hole) 200		102	11/
DFM Marine 2000	thread	G1	-	-	194		122
	flange	-	Ø75	Ø14 (4 hole)	214	120	125
DFM Marine 4000	thread	G1 1/4	-	-	216		1.1.1
	flange	-	Ø85	Ø14 (4 hole)	232	140	141







DFM Marine overall dimensions

Mounting Plate



a) for DFM Marine 1000/2000 installation

Certifications





b) for DFM Marine 4000 installation

Mounting Holes Placement Scheme



a) for DFM Marine 1000



b) for DFM Marine 2000



c) for DFM Marine 4000











DFM SPECIFICATIONS

Showing and Resetting Data

- Switching between data displays
- Switching on metric/U.S. units system of measurements
- Resetting "Total fuel consumption" resettable Counter



Magnetic key application zone

Data on Screen

		DIGITAL C	CAPACITY	UNITS	
SCREEN NO.	DISPLAYED DATA	Metric System of Measures	American System of Measures	Metric System of Measures	American System of Measures
1	Total Fuel Consumption counter	10E-4	17060	m³	gal
2	Total Fuel Consumption counter with higher digit capacity	10E-6	34120	m³	gal
3	Engine Operation Time counter	0.1	51180	h	h
4	Engine Operation Time in Idle Mode counter	0.1	68240	h	h
5	Engine Operation Time in Optimal Mode counter	0.1	85300	h	h
6	Engine Operation Time in Overload Mode counter	0.1	102360	h	h
7	Engine Operation Time in Tampering Mode counter	0.1	25590	h	h
8	Engine Operation Time counter. Resettable	0.1	34120	h	h
9	Total Fuel Consumption counter. Resettable	10E-4	85300	m³	gal
10	Total Fuel Consumption counter. Tampering Mode	10E-4	102360	m³	gal
11	Interference Time counter	0.1	136400	h	h
12	Instant Fuel Consumption	10E-2	10E-1	m³/h	gal/h
13	Total Differential Fuel Consumption counter	10E-4	10E-2	m³	gal
14	Total Differential Fuel Consumption	10E-2	10E-1	m³/h	gal/h
15	Battery Charge in Percentage of the Maximum	1	1	%	%
16	Temperature in the Measuring Chamber	1	1	C°	F°
17	Firmware Version	-	-	-	-





CANUp Telematics Gateway

GPS tracking and remote monitoring.

TELEMATICS SOLUTIONS





- Integrates data from additional telematics sensors.
- Scans and parses J1939/71, ISOBUS, J1708, and Modbus RTU messages.

Position Tracking

Tracks object position using GPS and GLONASS.

Report Generation

• Sends operation reports via 2G, 3G, LTE (4G), or Wi-Fi.

FMSCrocodile Contactless FMS Gateway

Integrates data from multiple automotive buses into the CAN/S6 Telematics Interface, simplifying telematics unit configuration.

Non-Intrusive Reading

Reads CAN bus data without electrical contact.

Efficient Messaging

- Sends FMS and Telematics messages via CAN 2.0B (J1939 protocol).
- Combines FMS messages from two CAN buses into one CAN-port.

Simplified Configuration

- Filters out unnecessary data.
- Prevents active requests from telematics unit.
- Uses CANbus data for instant fuel rate.

MasterCAN Display 35

MasterCAN Display 35 visualizes CAN J1939 parameters for vehicle telematics and machinery monitoring.

Parameter Display

• Shows up to 402 parameters from the S6 database, 10.000+ SPNs

Flexible Configuration

• Add/delete screens, rename parameters, upload custom icons.

Pre-configured Models for Quick Set-up

• "Truck," "Tractor," and "Marine" models.

User Friendly

No programming or HEX value calculations needed.







IoT Burger Technology, which allows flexible configuring of CAN bus



CAN-based Technology of connecting telematics equipment into a wired network.











TELEMATICS SOLUTIONS

Telematics Solutions Specifications

Specification	CANUp	Up FMSCrocodile		
Wired Digital Interface	CAN J1939/S6	CAN (SAE J1939)	CAN J1939/S6	
Analog Inputs	Voltage, Frequency, Binary	N/A	2 analog (0.5-10V) / frequency (10-10,000 Hz), adjustable via SK S6	
Memory Size for Storing Reports	40,000 N/A		N/A	
Autonomous Operation from Built-in Battery	5 hours N/A		N/A	
GNSS Start Time (Hot)	10 seconds	N/	N/A	
Power Supply	9-45 Volts	10-45 Volts	9-36 Volts	
Max. Current Consumption (12V/24V)	100/50 mA	40 mA	N/A	
Ambient Temperature Range	-40°C to +60°C	-40°C to +85°C	-40°C to +85°C	
Input Interface	N/A	CAN (SAE J1939)	N/A	
Output Interface	N/A	CAN J1939/S6 (FMS/Telematics)	N/A	
Weight	0.5 kg	100 g	0.5 kg	
Dimensions	10.5 × 8 × 2.5 cm	8 × 3.5 × 1.5 cm	16 × 23 cm	
Level of Message Losses	N/A	1%	N/A	
Product Type	Telematics Gateway	Data Integration Device	CAN Data Converter	
Applications	Vehicle GPS tracking, remote monitoring	Vehicle telematics, fleet management	CANbus data conversion and visualization, J1939 data conversion	





GREEN





DFM MARINE PC2000





EET

Э

Komatsu PC200 Excavator



Mounting a pair of fuel flow meters on a a mining excavator







DFM MARINE PC1800 DUAL ENGINE





Installing fuel flow meters on front engine of Komatsu



Fuel supply system of Komatsu PC 1800



Fuel flow meters are installed in Komatsu fuel supply system Komatsu PC1800

Komatsu PC1800 Hydraulic Excavator



Fuel flow meters are installed on rear engine of excavator



Rear engine fuel system rear of Komatsu and installed flow meters







Easy Installation and Deployment

- 1. Find location for mounting and fabricate bracket.
- 2. Attach female BSPP swivel adaptors to male connectors.
- 3. Build a new hose that fits neatly and securely.
 - a. Record all hose lengths and fittings to build future kits.

GREEN

SOLUTIONS

FLEET





More fuel savings Cut more emissions



ThermaStart Idle Management System Eliminate idling and boosting.

EPURA Self-Cleaning Filters The last air filters you'll ever need.



SkelStart Engine Start Module Never boost a dead battery again.



FuelActive Floating Fuel Pickups Up to 5% fuel efficiency.

Reliable. Impactful. Innovative.

