



Mechatronics

222417 Vilejka, 1-May, 80
Tel/Fax: +375(1771)71300
E-mail: office@mechatronics.by
www.mechatronics.by



JSC “Mechatronics” is a manufacturer of innovative solutions in the field of automotive electronics, sensors and remote monitoring systems.

Since our company was founded we follow our policy:

- **Reliability is more important than production costs.**
- **Technical support is more important than flyers and other marketing stuff.**
- **Style, simplicity of use.**
- **Customer complains is a positive feedback – it helps us to improve products.**

Our staff has rich experience in fuel level sensors and fuel flow sensor design and manufacturing that resulted in new line of Eurosens sensors.



1. Fuel level sensors

Eurosens Dominator

Model	Dominator AF	Dominator RS
Supply voltage, V	9 – 32	
Electronic circuit protection	Reversal supply voltage, all outputs are protected from supply voltage and short-circuit, supply voltage protection up to 170 V	
Measurement error	$\pm 1\%$ of fuel level, in operation temperature range	
Temperature range, °C	-40 - +85	
Output signal voltage, V	0,5 – 9,5 (customizable)	RS232 / RS485 interface (customizable)
Output signal frequency, Hz	500 – 1500 (customizable)	
Protection class	IP 54	



Advantages:

- High-precision measurement
- Output signal type can be adjusted
- Built-in temperature compensation
- Modular build
- Sealed automobile connector on sensor body
- Efficient packaging, installation and sealing
- Strong electronic circuit protection
- Long-time warranty (5 years)



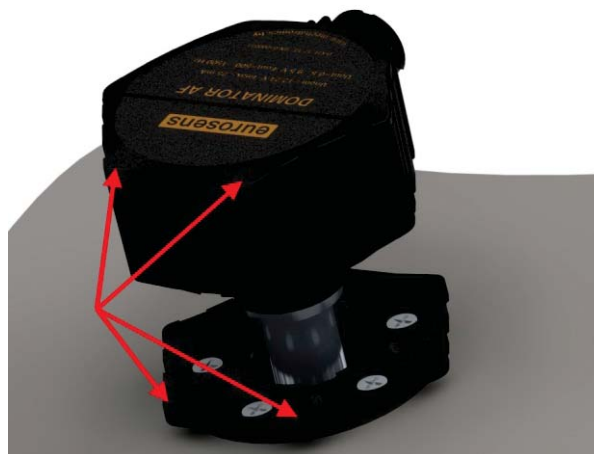
What we can say about Eurosens Dominator:

- Measuring **DOMINATOR ELECTRODES** can be ordered separately.
- The length of measuring electrodes can be increased.
- Both analog voltage and frequency output in one unit, customized by user (type, range).
- It takes 30 seconds to replace a sensor and this job can be done by any person nearby (It is very important when object is 500 km away from your specialist).
- Easy sealing (only one seal for sensor-tank – connector).
- Supply voltage overload up to 170 V.
- Pulse voltage protection up to 250 V.
- RS232/RS485 interface - Dominator RS.
- EUROSENS sensor – looks like expensive thing, easy to sell.

Mounting kit for installation is provided



Sensor can be protected from disconnection from tank and cable by single sealing



Eurosens Dominator sensor with built-in display



**Eurosens Dominator sensors are compatible with:
Any kind of AVL GPS/GLONASS trackers worldwide and other telematics devices.**



2. Eurosens fuel flow sensors Direct and Delta

Eurosens fuel flow meters Direct and Delta are based on rotary-piston technology, which suits the best for precise measurement of small fuel rates (from 1 to 500 liters per hour). It can measure real fuel consumption on vehicles, diesel-generators, ships, boilers etc together with AVL tracking devices or as standalone unit. Usually flow meters are used for:

- Measuring real fuel consumption.
- Definition of fuel limits for given tasks.
- Engine test stands.
- Motor-hours detection.
- Economy-assistant systems

Some engines have return fuel line from engine to tank, that's why in most cases you can't measure real fuel consumption easily by single-channel flow meter. We develop and manufacture 2 lines of fuel flow meters: single-channel Direct and differential flow meters Delta. Delta flow meters have 2 measuring chambers that measure real fuel consumption in supply and return fuel lines and calculate difference as real engine fuel consumption.

FLOW METERS SERIES

Direct



Direct I
with display



Delta



Delta I
with display



Eurosens flow meters can measure:

- Diesel fuel
- Heating oil
- Motor oil
- Other liquids with viscosity from 1.5 to 6 mm²/sec

Technical data

Filtering particles, mm	0,08
Connection thread	M14x1.5
Nominal pressure, Mpa	0,2
Maximum pressure, MPa	2,5
Supply voltage, V	10-50
Max fuel consumption, mA	25



EUROSENS FLOW METER MODIFICATIONS

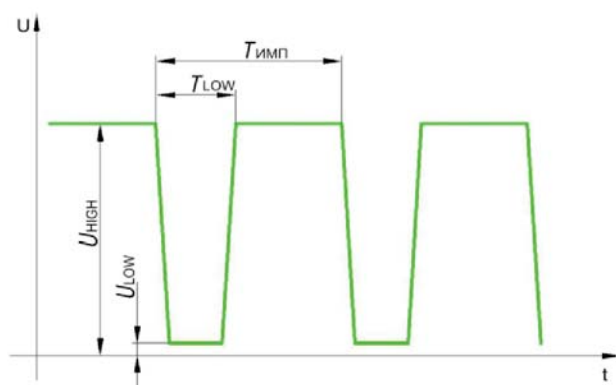
Flow meter eurosens	Q start, liters/hour	Q min, liters/hour	Q nom, liters/hour	Q max, liters/hour	Amount pulses/liter	Max Error
Direct P 100	0,5	1	50	100	196...204	± 2%
Direct P 250	0,5	5	125	250	98...102	± 2%
Direct P 500	1,0	10	250	500	48...52	± 2%
Direct PN 100	0,5	1	50	100	200	± 1%
Direct PN 250	0,5	2	125	250	100	± 1%
Direct PN 500	0,5	5	250	500	50	± 1%
Direct PN 100 I	0,5	1	50	100	200	± 1%
Direct PN 250 I	0,5	2	125	250	100	± 1%
Direct PN 500 I	1,0	5	250	500	50	± 1%
Delta PN 100 *	0,5	1	50	100	200	± 1%
Delta PN 250 *	0,5	2	125	250	100	± 1%
Delta PN 500 *	1,0	5	250	500	50	± 1%
Delta PN 100 I *	0,5	1	50	100	200	± 1%
Delta PN 250 I *	0,5	2	125	250	100	± 1%
Delta PN 500 I *	1,0	5	250	500	50	± 1%

* in every measuring chamber

I – built-in LCD

Eurosens flow meters have pulse output. Weight of pulse is shown in passport to device.

For easy flow meter installation we provide special mounting sets, different for Direct and Delta series.





3. Axle load sensors

Axle load measurement is an important task in AVL tracking business. We produce sensors than measure axle load of vehicles with air suspension or leaf-spring suspension.

Working with leaf spring suspension: Difference 02 sensor.

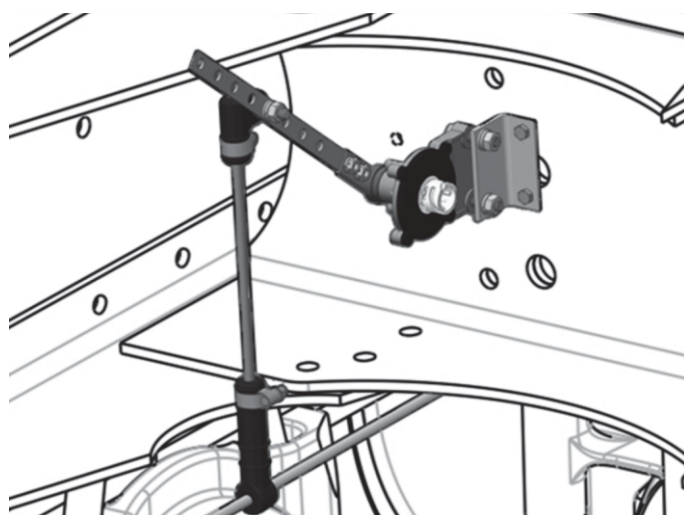
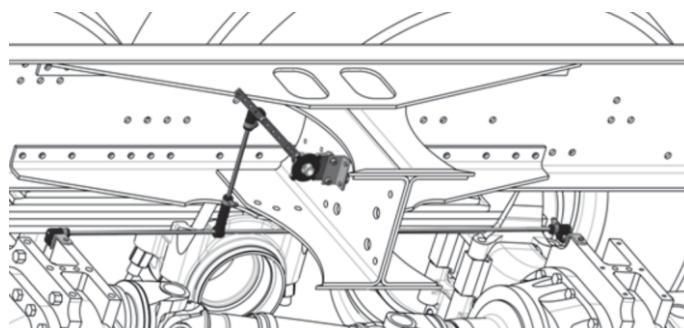


The Difference 02 axle load sensor is designed to measure current axle load of the vehicle with leaf-spring suspension and send these data to terminals. The sensor has an input shaft turning of which changes an output analog signal of the sensor. The sensor can be connected to any terminal with analog input.

Lever angle, degrees	Output voltage, V
0	1,54
10	1,78
20	2,02
30	2,26
40	2,50
50	2,74
60	2,98
70	3,22
80	3,46

We provide universal mounting kit for axle load sensor. Length of levels and rods can be changed during installation.

7-m cable is include.





Working with leaf spring suspension: Difference 01 sensor.

Difference 01 axle load sensor is designed to measure current axle load of the vehicle with pneumatic suspension and send data to terminals.

Pneumatic axle load sensor is installed in pneumatic suspension system and measures current pressure in suspension balloon. This pressure is proportional to axle load. The sensor sends analog signal (voltage) to AVL tracker or other measuring unit. After installation you should make a calibration process.

Technical data

Output:

- Type of output signal	analog, V
- Supply voltage, V	8-32
- Pressure, MPa	0-0,8

Thread for pressure connector **M16 x 1,5**

Weight, kg **0,15**

Life time **no restriction**

Accuracy:

Pressure measuring accuracy **no more than 2,5%**

Service conditions:

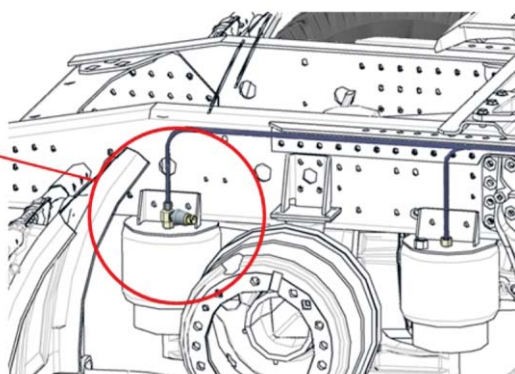
Ambient temperature, °C **from -40 to +80**

Output sensor signal:

Power supply voltage, V	Pressure, KPa	Output voltage, V (± 115 mV)
24,5 \pm 0,5	0	0,205
	100	0,635
	200	1,087
	300	1,542
	400	1,99
	500	2,432
	600	2,910
	700	3,367
	800	3,817

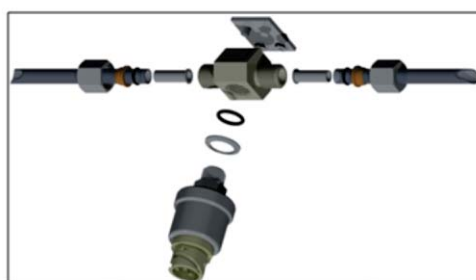


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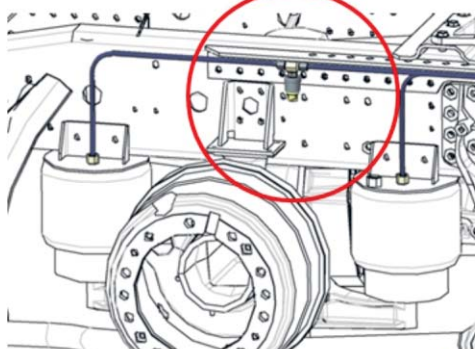


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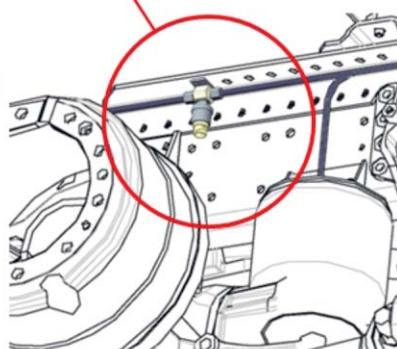
Universal mounting sets for
Difference 01



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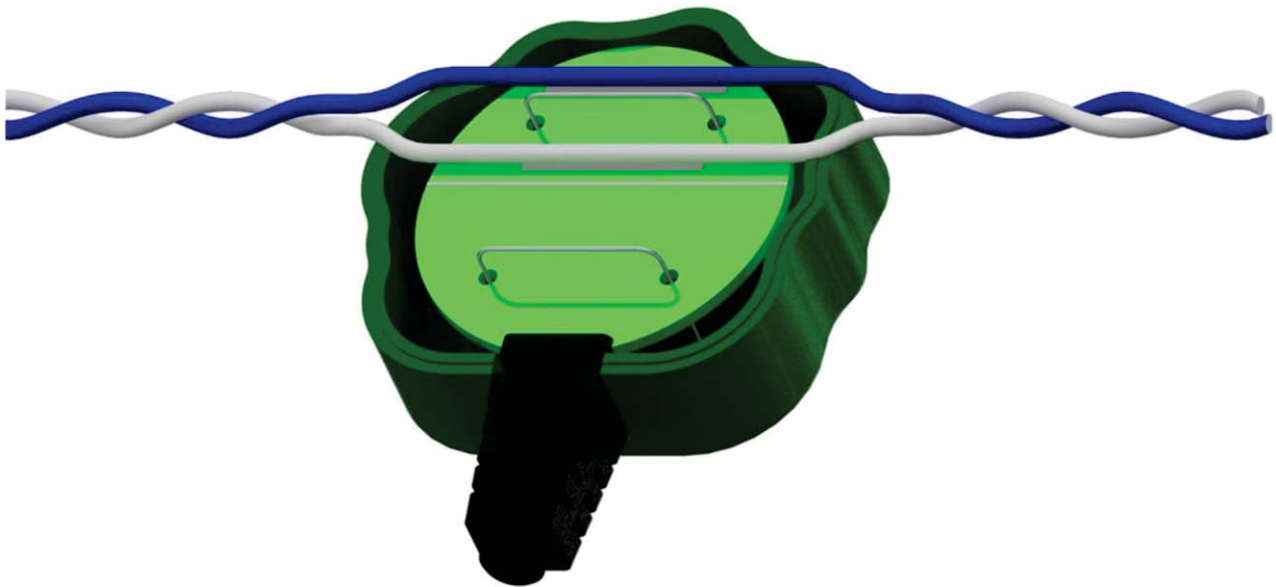
Compatibility of axle load sensors – all AVL trackers with analog (voltage) measuring input.



4. CAN-Line

CAN bus data reading is an important part of AVL GPS tracking. Our CAN-Line device is non-contact CAN bus reader with transfer of CAN messages to AVL cable. You can only read messages from CAN bus, without any interference to vehicle CAN bus network and intervention to wiring.

So, you can use CAN-line as safety gate between vehicle CAN bus network and AVL tracker.



CAN-Line RS - CAN Line with bonus interfaces.

You can receive parameters from J1939 CAN bus via RS232 or RS485 interface.

It can be used when your AVL tracker have no CAN bus interface.

You can receive many important parameters such as:

- RPM
- Instant fuel consumption
- Axle load
- Coolant temperature
- And many others

Flexible configuration settings allow CAN-Line RS work even with non-standardized CAN bus messages.



5. Automated calibration stand Eurosens Detector 01

It is used for calibration during manufacturing and service of fuel flow meters from Mechatronics and other manufacturers, in range of 1-500 liters per hour:

- Flow meters with pulse signal output
- Flow meters with RS232 signal output
- Flow meters with RS485 signal output
- Flow meters with display.

Technical data

Working fluid	Diesel fuel
Max measurement error (volume), %	±0,3
Flow rated, liters/hour	1-500
Max error of flow rate setting, %	±2
Max pressure, MPa	0,5
My quantity of flow meters calibrated simultaneously	10
Connection thread	M14x1,5
Supply voltage, V/Hz	~220/50
Dimensions, m	1,3x0,7x2,0
Weight, kg	100



6. Eurosens Destination Service kit

Eurosens fuel flow meters and fuel sensors are based on modern and powerful 32-bit microprocessor. With Eurosens Destination-01 you can configure outputs of sensors and make advanced settings or update firmware.

Technical data

Supply voltage	From USB-port
Reverse polarity protection	Yes
Interface	ISO 9141 (K-Line)
Temperature range, °C	-40 — +85
Protection class	IP 40





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JSC «Mechatronica»

222417 Vilejka, 1-May, 80

Tel: +375(1771)71300

Mobile: +375(29)616-32-48

Fax: +375(1771)71300

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