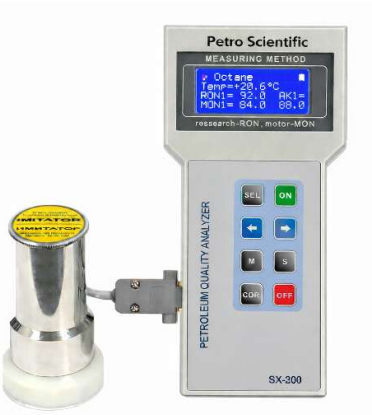

Petro Scientific SX-300

SX-300 is a multi-purpose new oil products grade analyzer, which is manufactured based on advanced high-precision microprocessor.

SX-300 analyzer has a distinctive characteristic: an additional sensor, which measures oil products volume resistivity with high precision. Therefore, fuel analysis can be based on two values, which allows measuring octane number of gasoline with ferriferous (ferrocene), nickel and manganese additives, and determining other substances content.

By using this measurement principle, SX-300 can determine:

- **contamination content in oil products;**
- **motor oil base number;**
- **oil products volume resistivity.**

When determining gasoline breakdown time, the gasoline brand is selected in the instrument. The instrument switches to the corresponding operating mode.

The device can be used together with a PC or a laptop through a USB interface. SX-300 supports the automatic computer-based calibration. Measurement results are presented on the computer screen in a convenient form and can be saved in the instrument memory and transferred to the PC (in .xlsx or .txt format), including the analysis date and time.

Measurement results are reflected on the computer screen in a convenient form.

SX-300 has an 8-key antiglare keyboard, which is easy for operation, wear-proof and resistant to aggressive environments.

The device is powered from four elements of AA type (R6) or from a computer USB port.

Delivery package:

- **Electronic computing module**
- **Sensor #1**
- **Sensor #2**
- **Sample imitator for sensor #1**
- **Mini-USB cable**
- **User manual**
- **Warranty certificate**
- **Quick start guide**
- **Tool canvas bag**

The instrument can determine the following parameters:

- Gasoline octane level in compliance with ASTM D 2699-86, ASTM D 2700-86.
- Diesel fuel cetane level in compliance with ASTM D 4737-03, ASTM D 613, EN ISO 5165.

Reference parameters:

- Diesel fuel type and cold filter plugging point (CFPP).
- Content of antiknock compounds boosting the octane number of gasoline.
- Kerosene and water percentage in diesel fuel.
- Gasoline breakdown time (oxidation stability).
- Loss-angle tangent of motor and transformer oil.
- Purity level of motor and transformer oil.
- Motor oil manufacturer (brand).
- Motor oil base number.
- Dielectric permeability of oil products (Eps).
- Oil products volume resistivity.
- Mechanical impurities content in oil products.

Main technical specifications

Range of measured gasoline octane level	40-135 ON
Max. permissible error in octane number measurement	± 0.5 ON
Max. permissible discrepancy between parallel octane number measurements	± 0.2 ON
Range of measured antiknock compounds content in gasoline	0.1-15
Range of measured gasoline breakdown time	50-2400 min
Volume resistivity measurement mode	10^{6}-10^{14} Ohm
Range of measured cetane level	20-100 CN
Max. permissible error in cetane number measurement	±1.0 CN
Max. permissible discrepancy between parallel cetane number measurements	± 0.5 CN
Max. permissible error in diesel CFPP measurement	± 5 °C
Range of measured kerosene percentage in diesel	0-95 %
Range of measured motor and transformer oil purity	95-100%
Range of measured dielectric permeability of oil products	1-5 units
Range of measured water percentage in diesel	0-4%
Measurement time	1–5 sec
Threshold value for insufficient power supply alarm	5.4 V
Instrument useful life	MIN 6 years

Overall dimensions of:

- **electronic module - 211x100x45 mm**
- **sensor #1 and #2 - 60x100 mm**
- **Instrument weight with one sensor/two sensors – 680 / 850 g**

Package size 25x19x13 cm

Package weight net – 1.2 kg

Petro Scientific SX Series
Capability Comparison Table

Capability	SX-150	SX-250	SX-300
Determining octane numbers for motor gasoline. Complies with ASTM D 2699-86, ASTM D 2700-86.	v	v	v
Determining cetane numbers for diesel fuel. Complies with ASTM D 4737-03, ASTM D 613, EN ISO 5165.	v	v	v
Cold filter plugging point and diesel type.	v	v	v
Content of kerosine in diesel fuel.	v	v	v
Petrol breakdown time (oxidative stability). Complies with ASTM D 525.	v	v	v
Content of water in diesel fuel.		v	v
Level of engine and machine oils clarity.		v	v
Dielectric permeability of oil products. (Eps)		v	v
Determining cetane numbers for biodiesel.			v
Content of oil in gasoline.			v
Content of antiknock compounds boosting the octane number of petrols.			v
Transformer oil dielectric dissipation.			v
Transformer oil fission voltage.			v
Fuel oil conductivity.			v
Engine oil grade.			v
Engine oil base number.			v
Oil products volume resistivity.			v
Determining the mechanical impurities content in oil products.			v

Petro Scientific SX Series
Technical Parameters Comparison Table

Technical Parameters	SX-150	SX-250	SX-300
Measured petrols octane numbers range	40–135 ON	40–135 ON	40–135 ON
Acceptable limit of octane number measurement basic error, max	±0.5 ON	±0.5 ON	±0.5 ON
Limit of acceptable difference between parallel octane number measurements, max.	±0.2 ON	±0.2 ON	±0.2 ON
Petrol oxidation breakdown time measurement range.	50-2400 min.	50-2400 min.	50-2400 min.
Acceptable basic error limit of petrol oxidation breakdown time.	10 min.	10 min.	10 min.
Cetane numbers measurement range.	20-100 CN	20-100 CN	20-100 CN
Acceptable basic error limit of cetane numbers, max.	±1.0 CN	±1.0 CN	±1.0 CN
Acceptable difference limit between cetane numbers parallel measurements, max.	±0.5 CN	±0.5 CN	±0.5 CN
Acceptable error limit when determining diesel-fuel pour point.	±5°C	±5°C	±5°C
Kerosine content determination range in diesel fuels.	0-95%	0-95%	0-95%
Acceptable basic error limit when determining kerosene content in diesel fuels.	3%	3%	3%
Measurement time.	1-5s	1-5s	1-5s
Insufficient power supply indication operation threshold.	5.4V	5.4V	5.4V
Instrument useful life.	6 Years	6 Years	6 Years
Motor oils clarity level measurement range.		95-100%	95-100%
Acceptable difference limit between motor oils clarity parallel measurements.		0.01%	0.01%
Water-in-oil content determination range for oil products.		0-4%	0-4%
Acceptable basic error limit when determining water-in-oil content of oil products.		0.01%	0.01%
Fuel and lubricants dielectric permeability measurement range.		1-5 Units	1-5 Units

Petro Scientific SX Series
Technical Parameters Comparison Table

The determination range of antiknock additives content in petrols.			0.1-15%
Acceptable basic error limit of antiknock additives content determination in petrols.			0.1%
Petrol quality determination mode basing on volume resistivity.			10^5-10^{14} Om
Acceptable basic error limit of volume resistivity measurements .			3%
Acceptable error limit of motor oils clarity level measurement.			0.1%
Acceptable error limit of dielectric permeability measurement, max.			0.001 Units
Acceptable difference limit between Fuel and lubricants dielectric permeability parallel measurements, max.			0.001 Units
Oils base number determination range.			0-24 Units
Acceptable basic error limit when determining oils basic number.			1 BN Unit
Motor oils manufacturer and brand determination.			Manufacturer
Circuit-breaker oils (dielectrics) breakdown voltage measurement range			5-100kV
Acceptable error limit of circuit-breaker oils breakdown voltage measurement, max.			1kV
Acceptable difference limit between circuit-breaker oils breakdown time parallel measurements, max.			0.2kV
Measurement range of circuit-breaker oils loss angle tangen.			0.01-5%
Acceptable error limit of circuit-breaker oils loss angle tangent, max.			0.01%
Acceptable difference limit between circuit-breaker oils loss angle tangent parallel measurements, max.			0.001 Units
Determination range for mechanical impurities content in oil products.			97-100%
Acceptable basic error limit when determining mechanical impurities content in oil products.			0.01%

Petro Scientific LLC
74-S, Virginia Ave, Penns Grove, NJ
08069 USA
856-285-1758
info@petro-scientific.com
www.petro-scientific.com