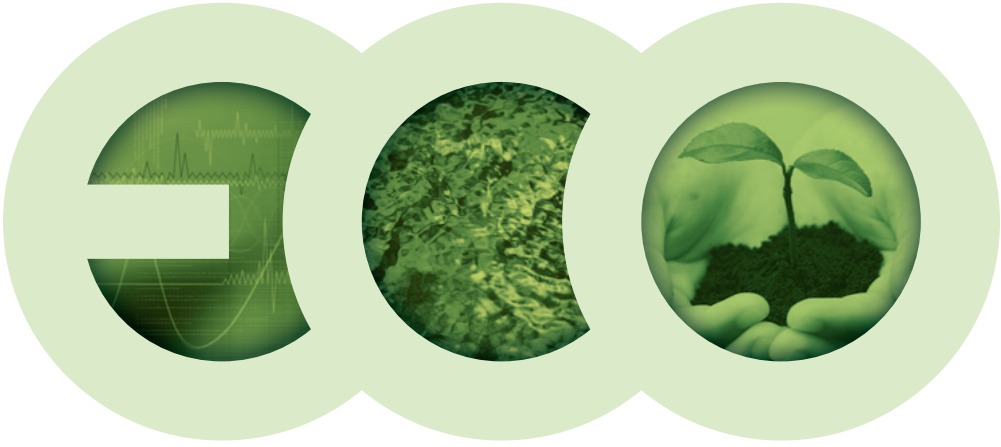
C10G-E032

SHIMADZU

Environmentally Friendly Analytical and Testing Instruments

Save the Energy Project



Shimadzu Is Implementing the Save the Energy Project

Striving Toward a Low-Carbon Society

Measures to prevent global warming are being taken on a worldwide scale. Throughout its history, Shimadzu has offered a variety of equipment, including water quality and emission gas analyzers and photovoltaic cell manufacturing equipment, designed to alleviate the burden on the environment. Now, we are implementing the Save the Energy project to develop energy-saving products that reduce the consumption of both electric power and gas. Our goal is to provide an enhanced product range that can directly contribute to a low-carbon society.

What is Shimadzu's Save the Energy Project?

It is Shimadzu's unique strategy to promote environmentally friendly designs during product development.

Aims

- Contribute to CO_2 reduction targets
- Save power, save gas, save solvent
- Less use of toxic substances
- Space savings
- Shorter analysis times

Shimadzu eco-label

eco

This is the unique mark for a product that conforms to Shimadzu's Environment-conscious Regulation.

Taking GC-MS to the Limit

GCMS-QP2010 Ultra

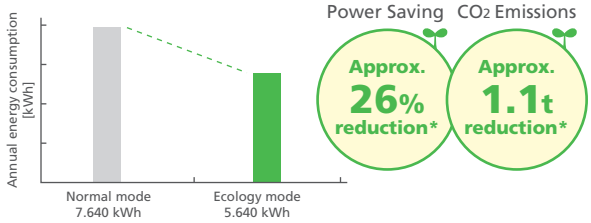
Gas Chromatograph Mass Spectrometer

High Speed
20,000 u/s maximum scan speed
ASSP function eliminates sensitivity drop at high scan speeds
Supports GC x GC 2-D gas chromatography

Improved Productivity
Cycle time reduced 50 %
Maintenance downtime reduced by approx. 3 hours
Doubled productivity, easier column replacement

Eco-Friendly
Power consumption reduced 37 % in analysis standby mode
30 % reduction in CO_2 factory emissions

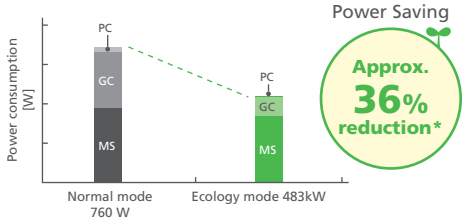
● Lower Annual Power Consumption



Using the Ecology mode over one year achieves a 26 % reduction in power consumption and 1.1 ton reduction in CO_2 emissions.

* Based on 6 hours' operation per day for 260 days per year, under standard Shimadzu analytical conditions.

● Reduced Power Consumption in Analysis Standby Mode



The Ecology mode automatically cuts unnecessary power consumption by the GC, MS, and PC. The consumption of carrier gas is also automatically reduced.

*The values are compared to those of previous model.

Environmentally Friendly

GC-2025

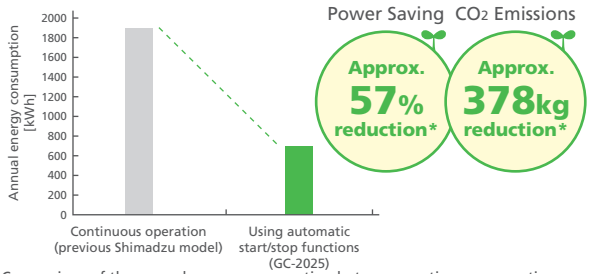
Energy Saving Capillary Gas Chromatograph

Unique, Eco-friendly Technology for High Energy Savings
Energy-saving heater and efficient insulating materials result in a 30 % reduction in electric power consumption compared to Shimadzu's standard model and a 64 % reduction compared to the previous model.

Compact, All-in-One Design Can Be Installed Anywhere
Requires only a standard 100 V, 15 A power socket
World's smallest footprint for a capillary GC in its class

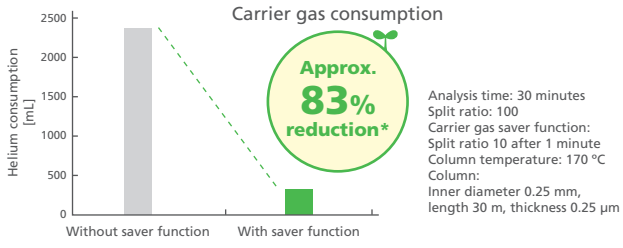
High Reproducibility and Sensitivity
The sample vaporization chamber and detector are identical to high-end models.
Electronic control of carrier and detector gases achieves high setting repeatability.

● Reduced Running Costs



Comparison of the annual power consumption between continuous operation of a previous Shimadzu model and the GC-2025 using automatic start/stop functions.

● Carrier Gas Saver Function

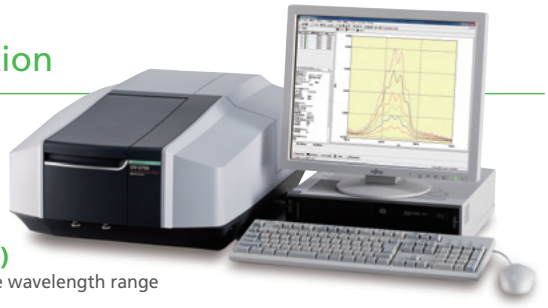


Analysis time: 30 minutes
Split ratio: 100
Carrier gas saver function:
Split ratio 10 after 1 minute
Column temperature: 170 °C
Column:
Inner diameter 0.25 mm,
length 30 m, thickness 0.25 µm

Comparison of helium carrier gas consumption per analysis with and without the carrier gas saver function.

*The values are compared to those of previous model.

Experience the Precision Desired, in Any Situation



UV-2600/2700

UV-VIS Spectrophotometer

Capable of a Measurement Wavelength up to 1400 nm (UV-2600)
Equipped with a single monochromator, providing low noise performance across a wide wavelength range
Enables near-infrared measurements (up to 1400 nm)*
* When the optional ISR-2600Plus integrating sphere is used

Performance with a Minimum 8-Abs Photometric Range (UV-2700)
Equipped with an ultra-low stray light double monochromator, capable of 8-Abs measurements
Uses Shimadzu's proprietary Lo-Ray-Ligh grade diffraction grating

With a Wealth of Accessories, Accommodates Every Application
Freely expandable to suit the measurement objective
Existing system accessories can also be used
Automated data processing

Energy-saving and Space-saving design

Realizes 10 % energy savings and requires 28 % less installation space as compared to previous Shimadzu models.

Power Saving

Approx. 10% reduction*

Space Saving

Approx. 28% reduction*

*The values are compared to those of previous model.

Global Standard for TOC Analyzers

TOC-L

TOTAL ORGANIC CARBON ANALYZER

Combustion Catalytic Oxidation/NDIR Detection Method TOC Analyzers with a User-Friendly Design
Select from PC models, convenient for processing measurement data, and user-friendly standalone models
Add options to measure everything from solid samples to gas samples TN measurement is also possible with the addition of the TN unit

Energy-saving and Space-saving design

The width of the instrument is 20% less in comparison with previous Shimadzu models, enabling more effective use of laboratory space.
The instrument width is unchanged even when the TN unit is added.

(Assuming 8 hours operation/day x 5 days/week)

Power Saving

Approx. 36% (100V) 43% (200V) reduction*

Space Saving

Approx. 20% reduction*

*The values are compared to those of previous model.

Best UHPLC for the Next Era

Nexera

Ultra High Performance Liquid Chromatograph

130 MPa withstand pressure further increases speed and resolution.
Minimized system volume reduces the analysis cycle.

General-purpose LC column + general-purpose LC

CO_2 emissions
24.0 tons per year

Nexera Ultra High Performance Liquid Chromatograph + UHPLC column

CO_2 emissions
1.9 tons per year

CO_2 emissions
Approx. 92% reduction*

* Indicated CO_2 emission values are calculated supposing that conventional analysis uses a 150 mmL. × 4.6 mmI.D., 5 µm column, 1 mL/minute flow rate, 50 % solvent (acetonitrile) ratio, 60-minute analysis time, 10 analyses per day, with 10 LC instruments operating 240 days per year, while UHPLC analysis uses a 50 mmL. × 2.0 mmI.D., 2.2/2.6 µm column, 0.5 mL/minute flow rate, 8-minute analysis time. However, these differ due to operating environments and analysis details. In addition, CO_2 emission values are calculated from the power consumption using a conversion coefficient.

Designed to Ensure Scale-up Efficiency and Productivity for Preparative HPLC

Prominence LC-20AP

Preparative Liquid Chromatograph

Energy-saving and Space-saving design

LC-20AP size matches Prominence series. The 350 mm width of the older LC-8A has been reduced to 260 mm for an approximate 25 % reduction in installation footprint.
Reduced power consumption achieves an energy savings of 41 %. *
This analysis system delivers space and energy savings in addition to high basic performance and operating efficiency.

Power Saving
Approx. 41% reduction*

Space Saving
Approx. 25% reduction*

* Comparison of LC20AP and LC-8A at 5 MPa and 40 mL/minute flow rate.

*The values are compared to those of previous model.

More Precise Analysis Achieved with a High-Resolution Spectrometer

PDA-8000

Optical Emission Spectrometer

- **New Monochromator Spectrometer Design Enhances Stability**
  Leading-edge optical design achieves highly accurate and stable measurements.
- **Novel Excitation Unit**
  With real-time energy monitoring
- **Sophisticated Software**
  Intuitive interface fully supports control and management of the instrument

Energy Efficient Design

Power Saving

Approx. 43% reduction*

Based on analyzing 15 samples/hour

Argon gas consumption

Approx. 45% reduction*

Based on analyzing
150 samples/day over 8 hours/day

*The values are compared to those of previous model.

Speedy and Accurate Measurement

MOC63u

Moisture Analyzer

- **Easy operation**
  Starts measurement immediately after closing the lid with easy-to-operate software.
  It will save time in repeated measurement.
- **Large sample pan: ø95mm diameter**
  The measurement accuracy improves by setting the sample widely, thinly, and uniformly.
  Redesigned reflector (patent pending) provides uniform heating.
- **Improvement of PC connection function**
  USB connection for PC is available as standard. WindowsDirect communication function can be used as well.

Power Saving

Approx. 32% reduction*

Easy maintenance

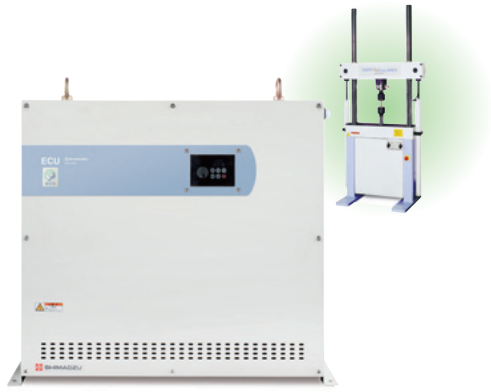
*The values are compared to those of previous model.

Contributes to Reduced CO_2 Emissions and Lower Running Costs

Energy-Conservation Unit for Shimadzu Servopulser Hydraulic Power Supply Unit

ECU1/ECU2 Series

ECO UNIT



Up to 50 % energy savings

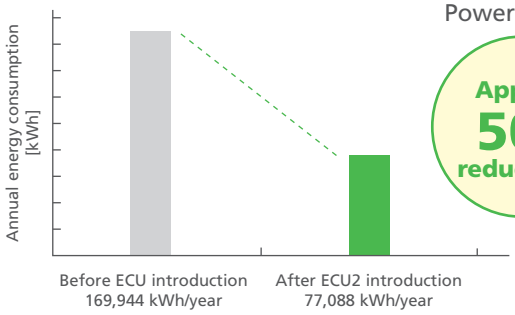
The Eco Unit saves energy by reducing the power from the hydraulic power supply unit according to the test conditions and circumstances. In addition, the hydraulic power supply unit runs at reduced power in standby status.

Optimal energy-saving operation performed automatically

If Windows software is used with the Eco Unit, the optimal energy-saving operation can be performed automatically according to the test conditions and circumstances. It ensures effective energy-saving operation while performing the target testing.

Retrofit to existing hydraulic power supply units

● Lower Annual Power Consumption



Power Saving

Approx. 50% reduction*

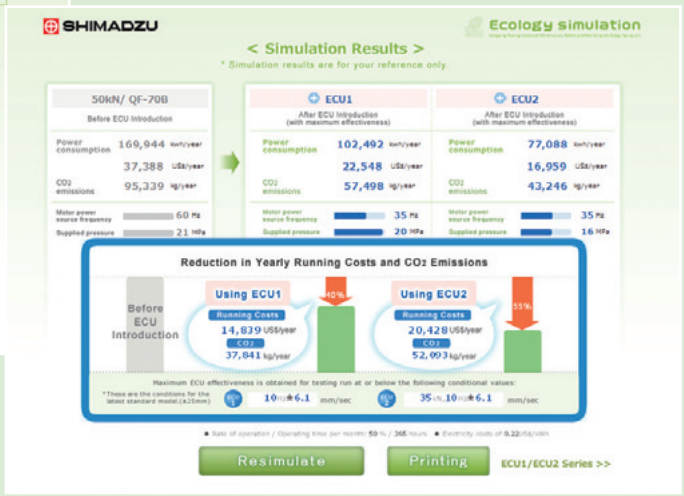
CO_2 Emissions

Approx. 5.5t reduction*

- **System**
  Fatigue testing machine:
  Maximum machine capacity: 200kN
  Hydraulic unit: QF-70B (70 L/min)
  ECO unit: ECU2
- **Test conditions**
  Test force: 140 kN
  Vibration frequency: 10 Hz ± 1.1 mm/sec
  (Assuming operation 365 hours/month in 60 Hz area.)

*The values are for ECU2 in 60 Hz area compared to those of previous model.

ECO simulations for ECU available on our website



Our website shows a simulation of the reduction in CO_2 emissions and the reduction in power consumption and other running costs between your current instrument and the ECU1/ECU2.

http://www.shimadzu.com/eco_sim/ecu/eco.html

Superior performance and operability

Autograph AG-Xplus Series

Universal Testing Instruments

Power Saving	Space Saving	Waiting Time
Approx. 25% reduction*	Approx. 30% reduction*	Approx. 50% reduction*
Approx. 10-25% reduction in standby power consumption by frame capacity.*	Horizontal direction space-saving by SC type	Improvement of return speed with high-speed model Approx. 40-50% reduction in waiting time*

*The values are compared to those of previous model.

High-speed and high-precision testing in a clean environment

Servopulser EMT Series

Electromagnetic Force Fatigue and Endurance Testing Systems

ECO Operation

Quiet

No Waste Oil

- ECO operation uses power efficiently according to the test force.
- Power consumption minimized according to the test force.
- No waste oil minimizes the burden on the environment.
- Clean instrument does not contaminate the environment where it is installed.

Reliable, durable testing machine with air

Air-Servo ADT-A Series

Air Servo Fatigue and Endurance Testing Systems

Environmentally Friendly
The servo valve controls the compressed air that drives the actuator and does not contaminate the surrounding environment.

Easy Maintenance
Unlike a hydraulic system, there is no need to replace or dispose of hydraulic fluid.

Testing in Low-Force Range
The Air Servo testing machine features a seal-less construction using air bearings that minimizes resistance due to friction. This results in outstanding waveform reproducibility in the low test-force region.

SHIMADZU

Shimadzu Corporation

www.shimadzu.com/an/

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