Automatic Reference Fuel Blending System for Octane & Cetane Number Determination

Automatic Reference Fuel Blending System

SINPAR FTC-AD1 Automatic Reference Fuel Blending Unit equipped with a modern computerized automatic control system, is used for automated blending of reference and standardization fuels for octane and cetane number determination according to ASTM D2699, ASTM D2700 and ASTM D613 standard test methods.

SINPAR is a professional manufacturer of fuel rating equipment. The FTC-AD1 system was developed based on SINPAR's many years of technical expertise and practical experience in the field of fuel rating technology, with the aim to design an automated blending system with optimal accuracy, efficiency and economy to serve fuel rating operations.

Automatic Reference Fuel Blending System is an Essential Device for Octane/Cetane Testing

During conventional volumetric blending operations, human error is unavoidable, and it is difficult to achieve both accuracy and efficiency.

The accuracy of the reference fuel blend directly affects the cetane/octane rating results, because the rating error is proportional to the blending error. Therefore, a device that can **accurately** make fuel blends is **effective** in ensuring and improving fuel rating accuracy.

The FTC-AD1 Automatic Reference Fuel Blending System makes fuel blending **more accurate, faster, free of human error, and saves you a lot of time**.

It is increasingly becoming a **must-have** for fuel test laboratories.

Features & Benefits

■ Standards
ASTM D2699, ASTM D2700, ASTM D2885, and ASTM D613

■ High Precision
An electronic balance with the high precision of *0.01g* is used for gravimetric measurement to ensure the accuracy of blending.

■ Simple Operation
A built-in touch-screen computer panel with *easy-to-use* installed software simplifies the blending operation.

■ Accuracy and Efficiency
The automatic calculation program controls the entire blending process, thus *eliminating human error* and improving the efficiency of fuel rating.

■ Reliable and Durable Design
The entire system is installed in a *removable and sturdy* industrial cabinet that can be connected to the laboratory's ventilation system. The design with an independent and wide-range power supply control system ensures its wide availability and durability.

■ Safety and Real-Time Monitoring
The unit is equipped with electrical protection & real-time monitoring systems to meet labs safety requirements. *Real-time Monitoring* for full-system operating status and ambient temperature. And *fuel low and overfill warnings* are issued*.

■ Cost Savings with Automation and Efficiency
*Saving money* by saving time and eliminating materials wastage caused by manual errors.

✓ **high accuracy**

✓ **easy-to-use**

✓ **automation**

Key Points

✓ **safety**

✓ **durability**

✓ **cost-saving**

Reliable Design & Automated Functions

Automatic Blending By Weight

The blending unit blends reference fuels by weight (using a precision electronic balance) according to ASTM test methods. With the automatic calculation & control program, it provides precise and reliable fuel blends with the fuel rating accuracy of 0.01 ON/CN.
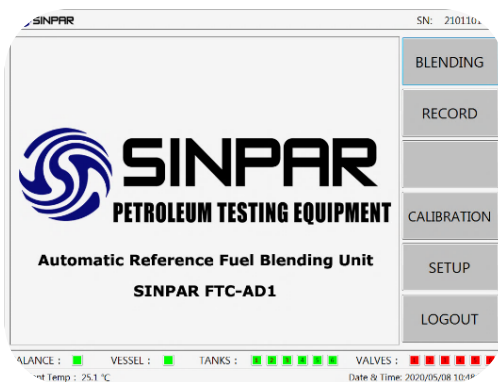
Specialized Operating Software

The software was developed by SINPAR R&D team specifically for fuel blending. It is simple, clear, easy to use and requires no training. From the main screen can access octane or cetane "BLENDING" operation, view blending "RECORD", perform pumps "CALIBRATION" and necessary "SETUP".

Status indicators for balance, vessel, tanks and valves are displayed in real time.

Octane/Cetane Blending Operation

The operator only needs to select the Blending Mode, enter the target blending parameters, and then press the "START" button to begin blending.

The automatic calculation control system controls the entire blending process.

An accurate blend is automatically delivered to the vessel.

The Free Blending Mode is provided for special fuels blending.
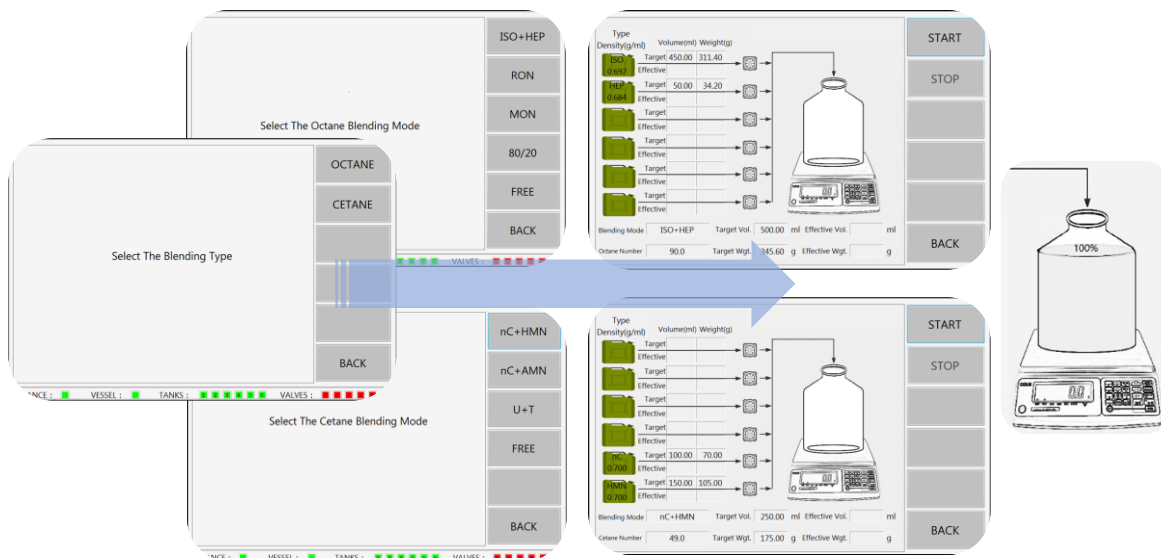
Blending Records/Certificates

After the blending process is complete, the blending record is automatically saved in the computer.

The blending certificate can be printed or saved to a mobile storage device, containing all necessary data as below:

- *Blend serial number*
- *Blending mode*
- *Date & time*
- *Ambient Temperature*
- *Target blending data*
- *Effective blending data*
- *Consumption of blending components*

Blending System Settings

The necessary settings include the tanks, blending components parameters, pumps parameters, etc., which can be modified and set according to laboratory conditions.

The system can be flexibly applied to various laboratory conditions to meet the different requirements.

Optional Quantity of Tanks Available

The unit is available supply with *3/4/5/6* fuel tanks options to ensure availability for multiple octane/cetane test requirements.

Automatic Refueling System (*option*)

The fuel refilling from external tank into internal tank is automatically controlled by the system under *nitrogen pressure*. External refueling will start automatically when the fuel level of the tank is low and stop automatically when the tank is filled.

System Standard Configuration:

- FTC-AD1 System integrated cabinet containing:
  - Built-in touch screen PC
  - 6 reference fuel tanks (6×10 L)
  - 6 independent fuel transfer pipeline systems
  - 6 dosing pumps and control modules
  - 6 fuel level sensors
  - 6 solenoid valves and control modules
  - 6 drain taps
  - 2 built-in exhaust fans system
  - 4 leveling casters mounted under cabinet base
  - USB data transfer system
  - Input and output power sockets
  - Power control system
  - Drive and control systems for electronic parts
- SARTORIUS electronic balance with built-in serial interface
- Balance slab (stainless steel plate)
- Buffer pad for balance slab
- Balance pan with vessel position device assembly
- Specialized vessel for blend
- Funnel for filling tanks
- Rear and tank door keys
- Power switch keys
- Power cord

Options:
- Automatic refueling system
  (under nitrogen pressure)
- Optional quantity of fuel tanks
  (3/4/5/6 tanks)
- External printer
- Operation language customization
  (default English version)

Power Supply:
100~240VAC 50Hz/60Hz with Single Phase

Weight & Dimension:
200.00 kg (with six empty tanks);
85.0x65.0x168.0 cm

Due to continuing products development, all the illustrations used may differ from actual products, and specifications are subject to change.

Technical Specifications:

System Model	FTC-AD1 Automatic Reference Fuel Blending Unit
Standards	ASTM D2699, ASTM D2700, ASTM D613
Application	For Octane and Cetane Number Determination
Measurement Mode	Gravimetric Measurement by Precision Balance
Fuel Blending Mode	Automatic Fuel Blending System with Software
Fuel Dosing System	Integrated Dosing Pump & Pump Controller
Operating Mode	Built-in Touch Screen Panel PC
Tank Quantity	Standard with 6 Tanks with 10 L. Each (Quantity Optional)
Blend Accuracy	±0.01 ON/CN
Blending Speed	1~2 min/500 ml
Refilling System	Automatic Refueling System under Nitrogen Pressure (Option)
Monitoring System	Real-time Monitoring for Full-System Operating Status and Ambient Temperature; Fuel Low & Overfilling Warnings
Calibration Function	Precision Electronic Balance and Dosing Pumps
Blend Data	Auto-Saved Blending Certificate
Safety System	Electrical Protection & System Status Monitoring
Ventilation System	Available to Connect with Aspirator or Ventilation Duct

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