

# Automatic Reference Fuel Blending System for Octane & Cetane Number Determination



### Shanghai Sinpar Scientific Instrument Co., Ltd

Professional Manufacturer of Octane Engines

www.sh-sinpar.com

## **Automatic Reference Fuel Blending System**

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

### How to Accurately and Efficiently Prepare a Reference Fuel Blend?

In the traditional volumetric blending procedures, human error is unavoidable, and it is difficult to achieve both accuracy and speed.

Now, SINPAR FTC-AD1 Automatic Reference Fuel Blending System has solved this problem for you! With the automatic gravimetric measurement control system, it makes fuel blending *more accurate, faster* and *without human error*, and saves you a lot of time.

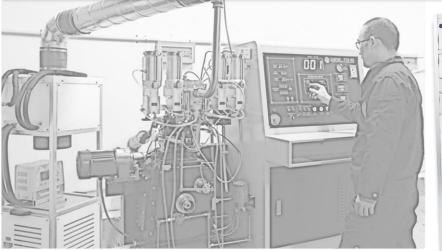
### Why Choose FTC-AD1 Automatic Reference Fuel Blending Unit?

As is known to all, the accuracy of the reference fuel blend directly affects the result of the cetane/octane rating. A device that can prepare the fuel blend *accurately* and *efficiently* is very important to ensure the accuracy of octane/cetane number determination.

SINPAR is a professional manufacturer of fuel rating equipment. FTC-AD1 was developed based on SINPAR's many years of experience in fuel rating.

Over the years, it has been used not only in our own testing centers, but also in many laboratories around the world.

Its good and stable working performance has been well received by users. It is increasingly becoming a *must-have* in octane/cetane LABS.





### **Features & Benefits**

#### Standards

ASTM D2699, ASTM D2700, ASTM D2885, and ASTM D613 standard methods.

#### 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 whole blending process to *eliminate human error* and improve the efficiency of octane/cetane testing.

### Safety and Real-Time Monitoring

The unit is equipped with electrical protection & temperature monitoring system to meet labs safety requirements.

Fuel temperature and level in the tanks are monitored in real time, with *low fuel level* & *overfilling* warnings.

### Reliability and Durability

The whole system is installed in a *movable and stable* industrial cabinet, which can connect to the laboratory's ventilation system.

The structure design ensures its reliability, safety, durability and usability.

### **Key Points**

- ✓ high accuracy
- ✓ easy-to-use
- ✓ automatic control
- ✓ automated documentation
- $\checkmark$  save time
- ✓ economic
- ✓ safety
- ✓ durability



## **Automatic Reference Fuel Blending System**

### **Automatic Blending By Weight**

The blending unit prepares the reference fuel blends by weight (using a precision electronic balance) based on the ASTM test methods.

With the automatic calculation and control program, it delivers the accurate and reliable fuel blend value with the precision of 0.01 ON/CN.



N: 2101101
BLENDING
RECORD
ALIBRATION
SETUP
LOGOUT

#### **Professional Blending Software**

The software was developed by SINPAR specifically for fuel blending. It is simple, clear, easy to use and requires no training.

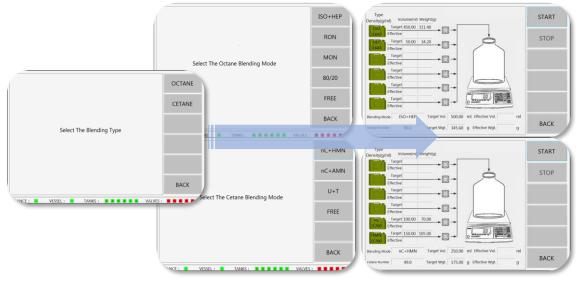
From the main screen can access octane or cetane "BLENDING" operation, view blending "RECORD", perform pumps "CALIBRATION" and necessary "SETUP".

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

### **Octane/Cetane Blending Operation**

The operator just needs to select the blending mode, enter the target blending parameters, and press "START" to begin the blending.

The automatic computational control system controls the whole blending process. An accurate blend is delivered to the vessel automatically.



Free Blending mode is provided for special fuels blending.

### **Blending Record/Certificate**

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:

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

		TANKS SETUP				ACCEPT	
No.	Name	Туре	ŀ	Reference No.	Density	Ex. Pump /valve	DECET
1	Isooctane	ISO	•	100	0.692	ON ·	RESET
2	nHeptane	HEP	•	0	0.684	ON ·	
3	Toluene	TOL	•	113	0.866	ON ·	
4	80/20 blend	80/20	•	80	0.688	OFF ·	
5	N-Cetane	nC	•	100	0.700	OFF ·	
6	HMN	HMN	•	15	0.700	OFF ·	
							BACK



No.	Date&	Ti	Blendin	Tem	p. Ta	arget	Targe	
00000064	2021/03/06	19:	ISO+HEP	20°C / 0	58'F	92.0	54	PREVIEW
0000063	2021/03/06	19:	RON	19°C/0	56°F	89.3	34	
0000062	2021/03/06	19:	ISO+HEP	19°C/0	56°F	88.0	3(	
0000061	2021/03/06	17:	ISO+HEP	20°C / 0	58°F	88.0	3()	DELETE
00000060	2021/03/06	17:	ISO+HEP	20°C/0	58'F	94.0	2(	
00000059	2021/03/06	16:	ISO+HEP	20°C / 0	58°F	92.0	54	
0000058	2021/03/06	16:	RON	20°C/0	58'F	93.4	54	
0000057	2021/03/06	16:	ISO+HEP	20°C / 0	58°F	94.0	34 *	
0000056	2021/03/06	16:	ISO+HEP	20°C/0	58°F	92.0	3(	
0000055	2021/03/06	14:	ISO+HEP	20°C / 0	58'F	88.0	54	
00000054	2021/02/23	15:	FREE BLENDING	19°C / 0	56'F		28	
0000053	2021/02/23	15:	RON	19°C / 0	56'F	113.0	3(	
00000052	2021/02/23	14:	MON	19°C / (	56°F	96.6	21	
00000051	2021/02/23	14:	RON	19°C / (	56°F	103.3	5(	BACK
0000050	2021/02/22	19	RON	22°C / 1	72°F	65.1	54	BACK
	2021002022							LAST
		_						LAST
	Unit Model		Octane Blendi	Date	202	-34		LAST
		_	Octane Blendi			-3-6 cooccos3		
	Unit Model Bionding Mode Terget Talue:		Octane Blendi     GADI (2191101)     Temp.(t)	Date 19.0	202 Serial Manber	00000063		LAST
	Unit Model Biending Mode Terget Talue : Dotase Raber	FT	Octane Blendi	Date	202 Serial Manber			
	Unit Model Biending Mode Terget Talue ; Octaas Raber Terget Skeding D Volume	FT ROI	Octane Blendi C-ADI (2141161)  Temp/(1)  49.3 Dens8	Date 19.0 Volume(mi) r(gimi)	202 Serial Masher	60006063		
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	Unit Model Biending Mode Terget Talue ; Octaas Raber Terget Skeding D Volume	FT ROI		Date 19.0 Volume(mi) r(gimi)	202 Serial Masher	60006063		
	Unit Model Blonding Mode Torget Taltos Dotane Rador Torget Elending D Volume TOL NEP	FT ROI 844: (ml) 2104 90.0		Date 19.0 Volume(mi) r(gimi) 0.866	202 Serial Number 300 Neig TOL	00000063		NEXT
	Unit Model Bionding Mode Terget Ralos: Octass Raber Tot, NEP Effective Bleelin Volume	FT RO (ml) 2104 90.0 g Data: (ml)	=	Date 19.0 Volume(mi) 0.866 0.664	202 Serial Mader 300 Tot. HEP Weig	20030043 100 181.86 61.56 01.56		NEXT
	Unit Model Diending Mode Target Talue: Octase Raber Torget Electing D Volume TOL AEP	FT ROI 2104 90.0 g Data:		Date 19.0 Volume(mi) 0.866 0.684	202 Serial Nater 300 Teld TOL NEP	20080063 1.00 181.86 01.56		NEXT
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	Unit Model Bionding Mode Target Talue: Detais Bader Terget Handing Volume Mfrective Bloedin Volume Volume Too.	FT ROI 2104 90.0 g Data: (ml) 2104		Date 19.0 Volume(mi) 0.866 0.684	202 Serial Maser 300 TOL 2022 2022 2022 2022 2022 2022 2022 20	20030043 1 00 181,05 41,55 41,55 181,05		NEXT

### **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*.

When the fuel level of the tank is low, the external refueling will automatically start, and stop once the tank is full.

## **Technical Specifications**

Applicable 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			
Operating Mode	Built-in Touch Screen Computer			
Tank Quantity	Optional Quantity(3/4/5/6) of Tanks with 10 L. Each			
Blend Accuracy	±0.01 ON/CN			
Blending Speed	1~2 min/500 ml			
External Refilling System	Automatic Refilling Internal Tanks from External Tanks under Nitrogen Pressure (option)			
Monitoring System	Real-Time Monitoring Fuel Temperature and Level; Low Fuel Level & Overfilling Warnings			
Calibration Function	Precision Electronic Balance and Dosing Pumps			
Blend Data	Auto-Saved Blending Certificate			
Power Supply	100~240VAC 50Hz/60Hz with Single Phase			
Safety System	Electrical Protection System & Temperature Monitoring			
Ventilation System	Available to Connect with Aspirator or Ventilation Duct			
Weight	200.00 kg (with six empty tanks)			
Dimension	85.0x65.0x168.0 cm			

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



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