

# ELECTRONIC DENSIMETER

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## “Quality with Trust”

### Alfa Mirage Electronic Densimeter supports quality control & new product development.

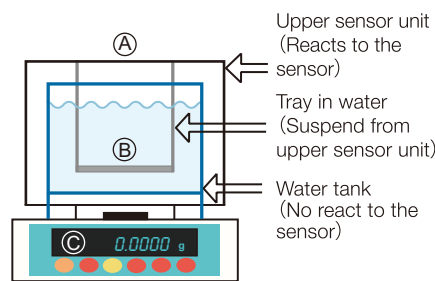
Alfa Mirage “Electronic Densimeter” series are used in Rubber, Plastic and various composite material industries, and supplied total of more than 17,000 units worldwide.

Density measurement can be done easily, highly accurately and speedily with original technology.

#### Density measurement

Every material has each different density / specific gravity. Density measurement is very effective for checking the types and mixing ratio of materials, evaluating quality, and comparing products etc. Electronic Densimeter adopts simple testing procedures, and measurement principle. Anyone can measure the density of sample in a short time without error.

#### Measurement procedures



The shortest time 10 seconds measurement



**Put the sample on**  
 (A) Measures weight in air



**Put the sample into water**  
 (B) Measures weight in water



**Result comes**  
 (C) Density shows  
 (Model EW-300SG)

#### Electronic Densimeter Feature 1



Anyone can measure highly accurately without error

##### Unique structures of Sensor unit kit

Densimeters are combined the high precision electronic balance installed original software and container of sensor unit. To realize highly accurate measurement, they were designed with attention to details, water tank shape, structures, and suspending wire to minimize the buoyancy etc.

##### Excellent repeatability

Measuring weight 8 times/second, and taking averaged value to minimize error. That realizes the excellent repeatability. It also minimizes the vibrations, influences of testing place, and the water current when putting sample in water.

##### Water temperature compensation

Liquid medium water density differs slightly depending on the temperature. By setting actual temperature and compensating temperature, result density value comes at target (compensated) temperature.

##### Relating world Standards

Adopting Hydrostatic method, and relate to various standard JIS, ISO, UL, and ASTM.

#### Electronic Densimeter Feature 2



Various testing samples can be measured

##### Changing liquid medium

Liquid medium other than water can be used for the sample which is difficult to remove air bubble, complex surface shapes like pellet etc. Just input the density of the liquid medium, then Densimeter calculates and shows result of the density value in water. If the density of the liquid medium is unknown, change to Liquid density mode and can be measured it.

##### Liquid density measurement

Liquid sample (low viscosity) density can be measured (except for model EW-300SG). Optional Liquid density kit is necessary.

##### Floating and Water absorption sample measurement

Floating sample like urethane, film, wood etc which are lighter than water can be measured with accessory stainless angle. Also, water absorption sample measurement can be done at intervals over time.



Solid

Liquid

Powder

# ELECTRONIC DENSIMETER SID-220W

0.1mg resolution  
Top precision, high-grade model

## Functions

### ● Solid measurement mode

- \* Density and volume resolution 0.0001 of high precision.
- \* Measuring time can be set from 3 seconds (instant measurement) to 30 seconds (average measurement).
- \* Addition to existing Manual-enter mode, new function of Auto-enter mode eliminates human error and brings high repeatability.
- \* Instant measurement function allows to show real time result value, so that the rapid change density against water sample can be measured.
- \* Floating sample, pellet can be measured easily.
- \* Water temperature compensation of 0.1°C increments can follow various international standards.
- \* Lyman (Starch) value criteria measurement, Backtrack function available.
- \* Customized-size Sensor Kit is available.
- \* Equipped with data output interface of RS232C and USB.

### ● Liquid measurement mode \* Optional Liquid Density kit is necessary.

- \* Easy mode change Solid mode ⇔ Liquid mode.
- \* Minimum density resolution 0.0001.
- \* Measuring time shortest 20 seconds.
- \* Liquid sample requires 50cc.
- \* Can change the liquid sample easily with beaker.

## Specification

Model	SID-220W
Density minimum resolution	0.0001
Capacity	0.0001 – 220 g
Feature	Solid, Liquid, Powder
Sample maximum size	45 (W) x 20 (D) x 15 (H) mm
Power supply	AC100-240V
Weight	7 kg
Dimensions	260 (W) x 360 (D) x 325 (H) mm
Accessories	Tweezers, Thermometer, Stainless angle, Calibration 200g weight (class E2), AC adaptor, RS232C interface, USB interface
Option	Liquid Density kit, Printer AD-8127, ISO Traceability Certificate, Customized-size sensor unit

## Option



Liquid Density kit for SID-220W

Minimum resolution  
0.0001

Measuring shortest time  
3 seconds

Floating, water absorption sample measurement

Auto-enter, Instant measurement function

Customized-size sensor unit available

Solid

Liquid

Powder

# ELECTRONIC DENSIMETER MDS-300

Various functions,  
new standard model



Minimum  
resolution  
0.001

Measuring  
shortest time  
5 seconds

Floating,  
water  
absorption  
sample

High  
precision,  
repeatability

Auto-enter,  
Instant  
measurement  
function

## Functions

### ● Solid measurement mode

- \* Density, volume, weight, error value with resolution 0.001. Reference value 0.0001 can be shown.
- \* Lid can be separated in half size. Easier operation and higher stability without opening/closing the lid each time.
- \* Floating sample, pellet can be measured easily.
- \* Density variation of absorbent sample can be measured with result renewal function.
- \* With only one-time key operation, measurement can be done at water weight auto-enter function.
- \* Powder density can be measured. (There are limitations of particle size or other.)
- \* Selectable measuring time from 5 options.
- \* Vacuum fluorescent display provides clear and wide-angle visibility.

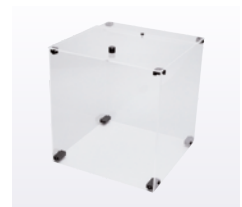
### ● Liquid measurement mode \* Optional Liquid Density kit is necessary.

- \* Minimum density resolution 0.001.
- \* Selectable measuring time from 5 options.
- \* Sample amount needs only 50cc.
- \* Can change the liquid sample easily with beaker.

## Specification

Model	MDS-300
Density minimum resolution	0.001 (0.0001 reference)
Capacity	0.001 – 300 g
Feature	Solid, Liquid, Powder
Sample maximum size	100 (W) x 70 (D) x 25 (H) mm
Power supply	AC100-240V
Weight	2.8 kg
Dimensions	190 (W) x 260 (D) x 200 (H) mm
Accessories	Airtight windshield, Tweezers, Thermometer, Stainless angle, Calibration 200g weight, AC adaptor, RS232C interface
Option	Liquid Density kit, Printer AD-8127, Printer BL2-58, ISO Traceability Certificate

## Accessories



Airtight windshield

## Option



Liquid Density kit for MDS-300



Solid

Liquid

Powder

# ELECTRONIC DENSIMETER

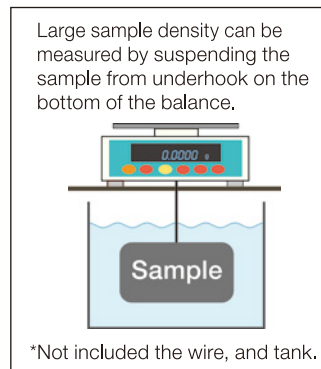
# MDS-3000

Measuring capacity up to 3 kg

## Functions

### ● Solid measurement mode

- \* Large sample which could not fit in previous models, with weight up to 3kg can be measured.
- \* Density, weight minimum resolution 0.01. With reference value 0.001.
- \* Lid can be fold in half size, and it is easy to operate depends on size of the sample.
- \* Customized-size Sensor and Water tank can be made.
- \* Floating sample, pellet can be measured easily.
- \* Density variation of absorbent sample can be measured with result renewal function.
- \* With only one-time key operation, measurement can be done at water weight auto-enter function.
- \* Powder density can be measured. (There are limitations of particle size or other.)
- \* Selectable measurement time from 5 options.



### ● Liquid measurement mode \* Optional Liquid Density kit is necessary.

- \*Minimum density resolution 0.01.
- \*Selectable measurement time from 5 options.

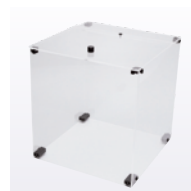
## Specification

Model	MDS-3000
Density minimum resolution	0,01 (0,001 reference)
Capacity	0,01 – 3000 g
Feature	Solid, Liquid, Powder
Sample maximum size	120 (W) x 100 (D) x 35 (H) mm
Power supply	AC100-240V
Weight	4,2 kg
Dimensions	240 (W) x 260 (D) x 240 (H) mm
Accessories	Tweezers, Thermometer, Stainless angle, AC adaptor, RS232C interface
Option	Liquid Density kit, Windshield, Calibration 2kg weight, Printer AD-8127, Printer BL2-58, ISO Traceability Certificate

## Option



Calibration  
2kg weight



Airtight windshield



Liquid Density kit for MDS-3000

Minimum  
resolution  
0.01

Up to  
3 kg sample  
measurement

Measuring  
shortest time  
5 seconds

Floating,  
water  
absorption  
sample

Customized-  
size sensor  
unit available

Solid

Liquid

# ELECTRONIC DENSIMETER MD-300S

Compact body, Basic model



Minimum  
resolution  
0.001

Compact  
body

Floating,  
water  
absorption  
sample

User  
friendly  
operation

High  
precision,  
repeatability

## Functions

### ● Solid measurement mode

- \* Density and volume with resolution 0.001, and weighing resolution 0.01g precision.
- \* Lid can be separated in half size, and no need to open and close the lid, that helps easy operation and higher stability.
- \* Floating sample, pellet can be measured easily.
- \* Density variation of absorbent sample can be measured with result renewal function.
- \* Result judgment with Comparator Mode is available.
- \* Easy connection to PC from equipped RS232C.

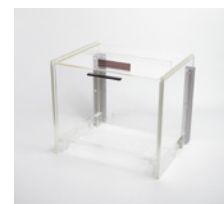
### ● Liquid measurement mode \* Optional Liquid Density kit is necessary.

- \* Minimum density resolution 0.001.
- \* Sample amount needs only 50cc
- \* Can change the liquid sample easily with beaker.

## Specification

Model	MD-300S
Density minimum resolution	0.001
Capacity	0.01 – 300 g
Feature	Solid, Liquid
Sample maximum size	100 (W) x 70 (D) x 25 (H) mm
Power supply	AC100-240V
Weight	1.6 kg
Dimensions	190 (W) x 218 (D) x 170 (H) mm
Accessories	Airtight windshield, Tweezers, Thermometer, Stainless angle, Calibration 200g weight, AC adaptor, RS232C interface
Option	Liquid Density kit, Printer AD-8127, Printer BL2-58, ISO Traceability Certificate

## Accessories



Airtight windshield

## Option



Liquid Density kit for MD-300S

Solid



## ELECTRONIC DENSIMETER EW-300SG

Only 10 seconds to measure

### Functions

#### ● Solid measurement mode

- \* Density and volume with resolution 0.01, and weighing resolution 0.01g precision.
- \* Lid can be separated in half size, and no need to open and close the lid, that helps easy operation and higher stability.
- \* Floating sample, pellet can be measured easily.
- \* Can test in 10 seconds. Ideal machine for interval testing of production line.
- \* Result judgment with Comparator Mode is available.
- \* Easy connection to PC from equipped RS232C.

### Specification

Model	EW-300SG
Density minimum resolution	0.01
Capacity	0.01 – 300 g
Feature	Solid
Sample maximum size	100 (W) x 70 (D) x 25 (H) mm
Power supply	AC100-240V
Weight	1.6 kg
Dimensions	190 (W) x 218 (D) x 170 (H) mm
Accessories	Tweezers, Thermometer, Stainless angle, Calibration 200g weight, AC adaptor, RS232C interface
Option	Airtight windshield, Printer AD-8127, Printer BL2-58, ISO Traceability Certificate

### Option



Airtight windshield

Minimum  
resolution  
0.01

Quick  
result

Compact  
body

Floating  
sample

User  
friendly  
operation

Comparison Chart	 SID-220W	 MDS-300	 MDS-3000	 MD-300S	 EW-300SG
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### Functions

Density minimum resolution	0.0001	0.001 (0.0001)	0.01 (0.001)	0.001	0.01
Volume display	0.0001	0.001	0.01	0.001	0.01
Capacity	0.0001 – 220 g	0.001 (0.0001) – 300 g	0.01 (0.001) – 3000 g	0.01 – 300 g	0.01 – 300 g
Measurable density	0.0001 ~	0.001 ~	0.01 ~	0.001 ~	0.01 ~
Sample maximum size	45 x 20 x 15 mm	100 x 70 x 25 mm	120 x 100 x 35 mm	100 x 70 x 25 mm	100 x 70 x 25 mm
Liquid amount *1	50 cc	50 cc	50 cc	50 cc	–
Measuring method	Hydrostatic method				
Relating standard	JIS K6268A, JIS K6350 (rubber), JIS K7112 (plastic), USA ASTM D297-93-16 (rubber), D797-00 (plastic)				
Power supply	AC100-240V 50/60Hz				
Weight / Dimensions	7 kg / 260 x 360 x 325 mm	2,8 kg / 190 x 260 x 200 mm	4,2 kg / 240 x 260 x 240 mm	1,6 kg / 190 x 218 x 170 mm	1,6 kg / 190 x 218 x 170 mm

### Samples

Solid	○	○	○	○	○
Floating	○	○	○	○	○
Absorbent	○	○	○	○	○
Pellet	○	○	○	○	○
Liquid	○	○	○	○	–
Powder(Large particle)	○	△	△	–	–

### Solid density mode

Density variation	○	○	○	○	○
Volume variation	○	○	○	○	×
Comparator mode	○	○	○	○	○
Compensation of water temperature	Density, Specific gravity	Density	Density	Density	Density
Other medium adaptable	○	○	○	○	○
Auto-weighing function	○	△	△	–	–
Measuring time	Selectable	Selectable	Selectable	Selectable	10sec.

### Liquid density mode

Room temperature mode	○	○	○	○	–
Compensation temperature mode	○	○	○	–	–
Repeat measurement	○	○	○	–	–
Measuring time	Selectable	Selectable	Selectable	20sec.	–

○ ... Available    △ ... Limited    – ... None

\*1 Necessary liquid amount at Liquid density measurement

### Option (For all models)

#### Documents



\* ISO calibration certificate  
(Calibration certificate, Inspection result,  
Traceability system flow chart)

\* Test report



Printer AD-8127



Printer BL2-58  
(Except for SID-220W)



PC connection serial  
converter

### Densimeter data output software SpGrav

- \* Measurement result can be output to PC.  
Example of data: Density, weight in air, weight in water,  
volume, set water temperature, date etc.
- \* Report form is available.

#### Free software download registration

[https://www.alfamirage.com/english/support/electronic\\_denismeter/index.html](https://www.alfamirage.com/english/support/electronic_denismeter/index.html)



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