CARD SORTING

BOX

USER'S GUIDE

Model
20011

DE LA ROSA
RESEARCH

DE LA ROSA
**RESEARCH**

INDEX

DETAILS

The Card Sorting box has been designed to measure a subject's total task execution time, single set reaction span, and attention span. It is a test originally developed to assess subjects' coordination and attention spans, as well as their working memory - which is not assessed on the original test- during the performance of a simple card sorting task similar to the one used in the postal service. The current test version does not only keep elements from the original test, but it also assesses short-term verbal memory – visual mode – and it includes a Stroop-like attention interference test. This test also corrects the wide of the visual array (inaccurate in the original test) to a 3 X 3 single digit matrix individually used per memory stimulus and a total side width of 7+- 2 items(in total 9 items).
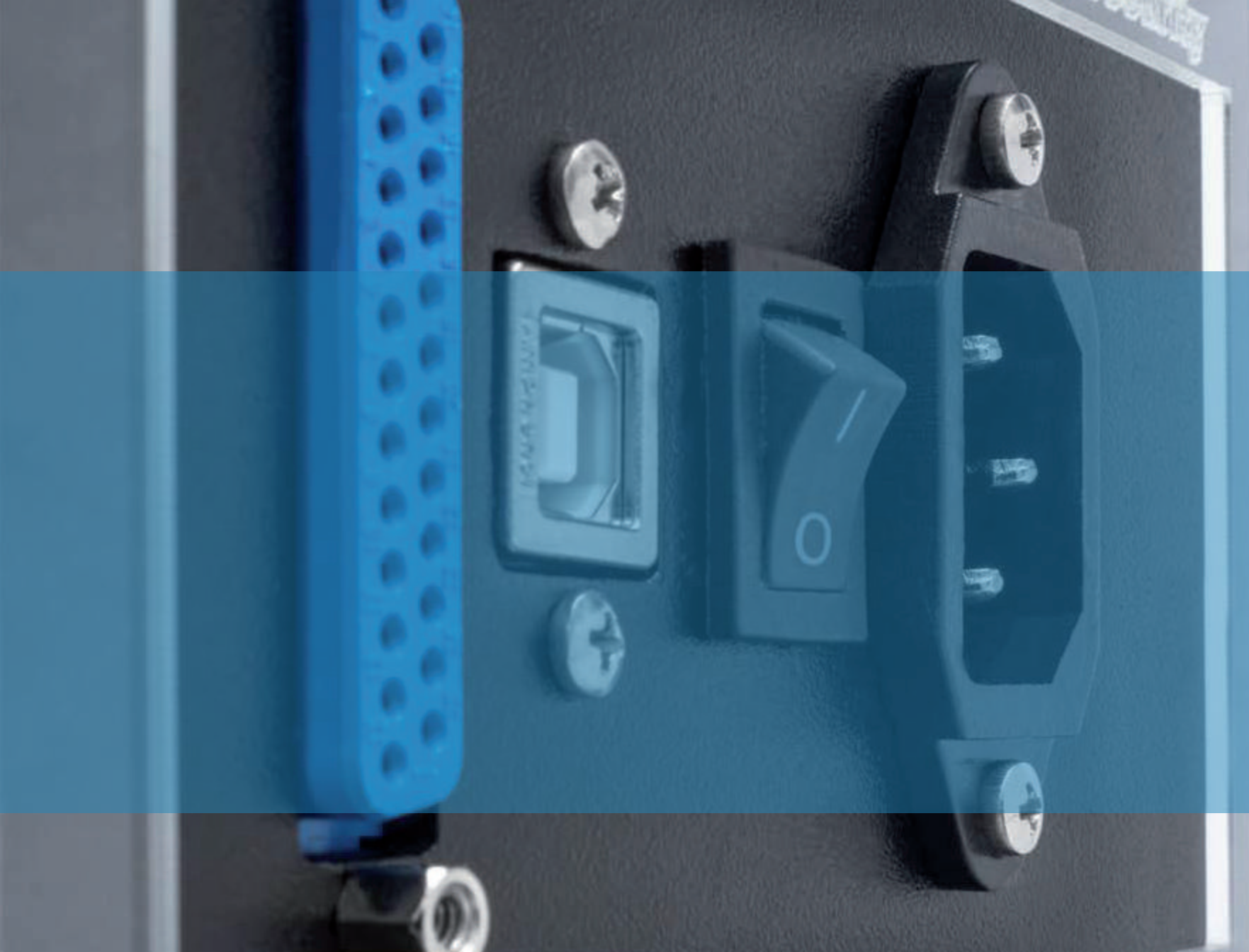
SPECIFICATIONS
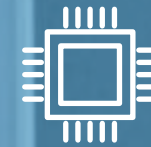
Processor: ATmega 2560

Voltage: 110/220 VAC - 50/60 Hz

Sensors: 1 Radio frecuency IDenꞮficacꞮon - RFID reader.
9 reflecꞮve sensors

81 Transponders Tags.

9 displays of 7 segments each. 4 digits.

APPLICATIONS

The Card Sorting Box has been used to follow up motor learning, which requires fast stimulus recognition, attention and memory maintenance and hand-eye coordination. This device may be used to assess simple attention, divided attention – when working with both arms simultaneously – and sustained attention – performance assessed through an 81 stimuli long-term task-. The device also assesses short-term memory in 9-digit sets that are shuffled in each presentation.
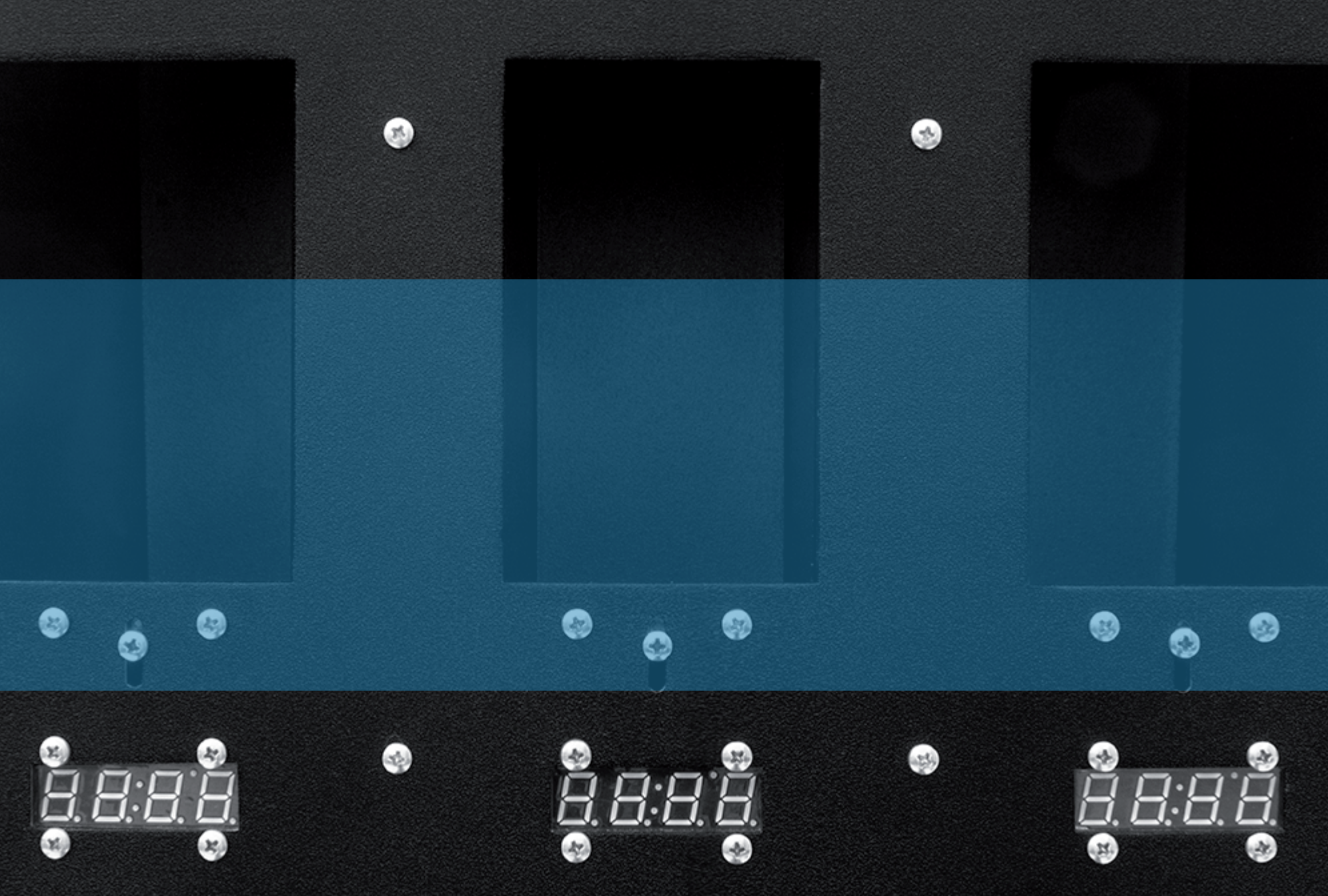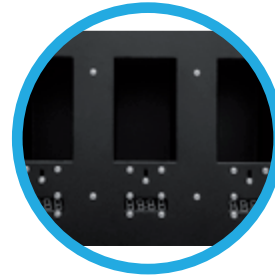
FEATURES

Quality   Durable   Recyclable materials   Accurate

FEATURES

FRONTAL PANEL
9 Independent boxes.
Card Input sensors for every box.
9 7-segment dynamic led screen.

BODY
Electrostatic black coating paint to avoid
reflections and distractions. High durability and
simple maintenance. Made with high quality
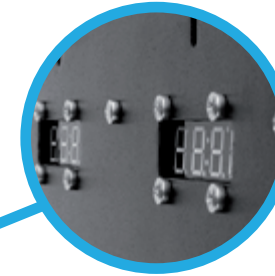components from USA, Japan, Germany and Italy.

CARD READER CONTROL
Card reader sensor with light
and sound indicator.
Indvidual card reader control.
Load capacity of 50 cards.

LCD CONTROL
Control with LDC and command buttons.
High contrast LCD screen to ease reading.
Allows time, succes and mistakes accurate measure.
Selects the multiple variables of the system.

FEATURES

POWER SUPPLY
Medical grade power supply.
Protected from short-circuiting through a
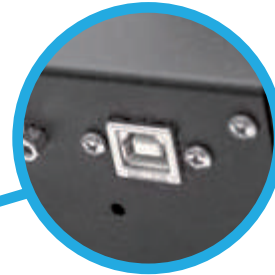resettable fusible.

MATERIALS
Body: Aluminum, Stainless steel, acrylic
to ensure durability and constant use.
Easy to clean, highly resistant —made
with 100% recyclable materials-.

USB PORT
UBS Port for desktop serial
communication.

COMFORT
Magnetic grip backdoor.
Compartment of
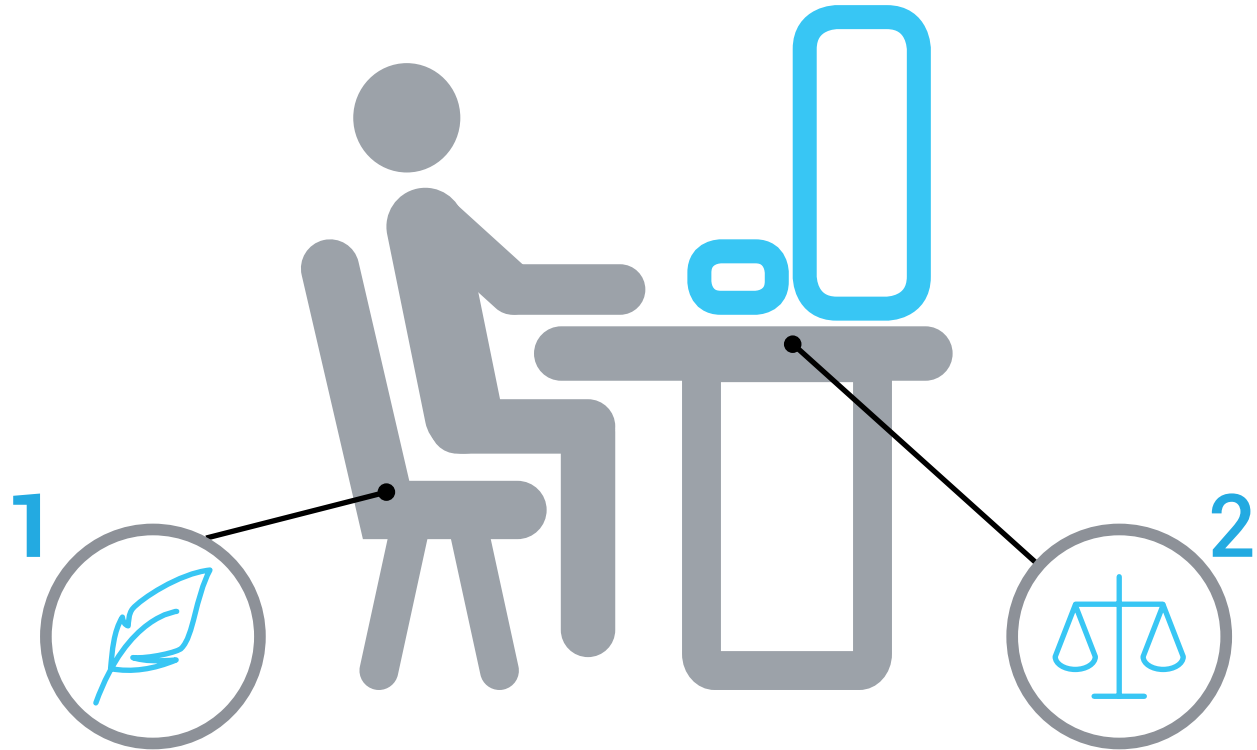compilation of the cards.

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PROCEDURE

General Guidelines

Initial settings

Test time

1

Subjects must sit on a comfortable chair facing the desk where the device is placed.

2

The device must be placed on a flat surface.

PROCEDURE
// GENERAL GUIDELINES

Avoid using sharp objects with the product.

Protect the product from rain and water.
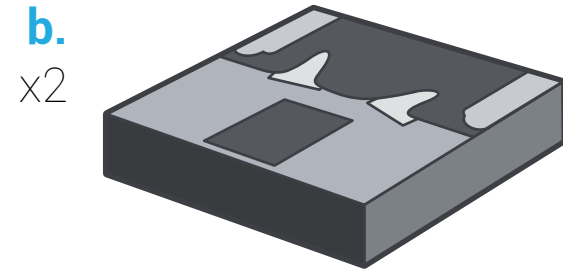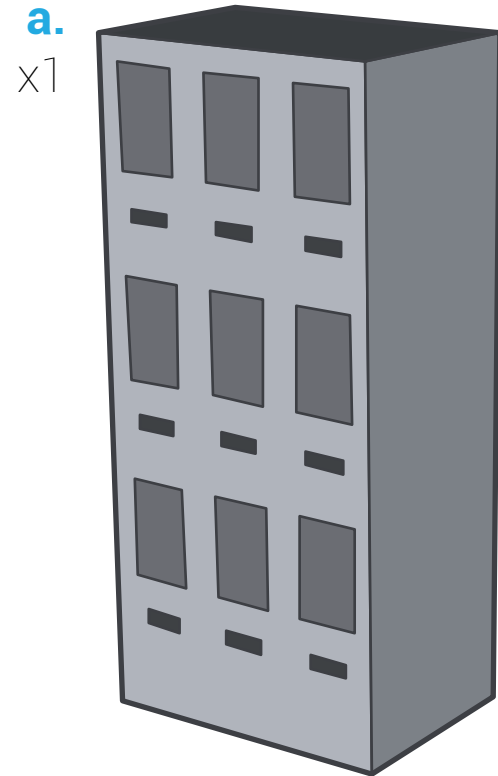
Always ensure the proper power input.

Do not try to fix or disassemble this product by yourself.

In case the product is not working properly, is damaged or needs maintenance, please contact us. We will gladly help you to solve any issue.

!

1 // WHAT SHOULD BE INCLUIDED IN THE PACKAGE?

a.
x1

b.
x2

c.
x1

a. Card Sorting box body x 1 // **b**. Card Reader Control x 1 // **c.** LCD Control x 1 // **d.** DB25 Cable serial x 1 // **e.** USB A-B Cable x1 // **f.** Power Cable x 1.
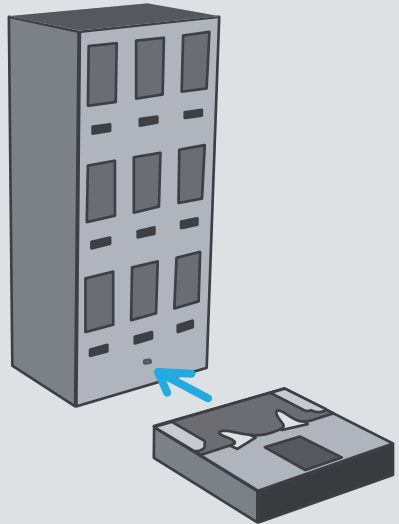
PROCEDURE
// INITIAL SETTINGS

d.
x2

e.
x1

f.
x1
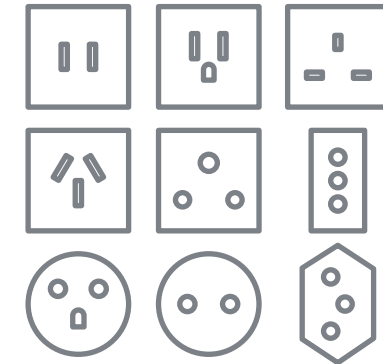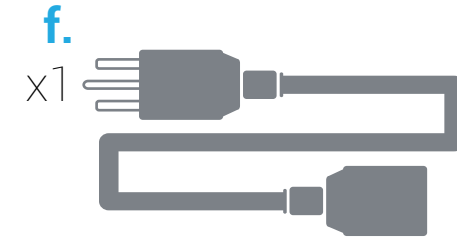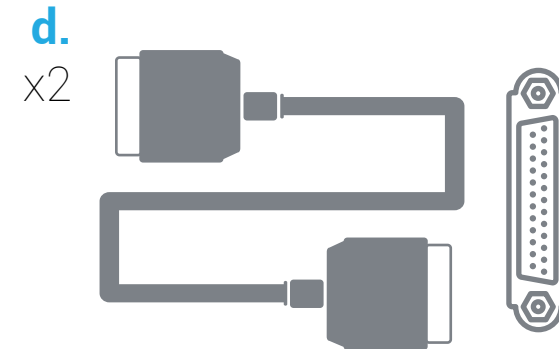
Depending on the geographical area, you will be given one of these AC cables (one per package).

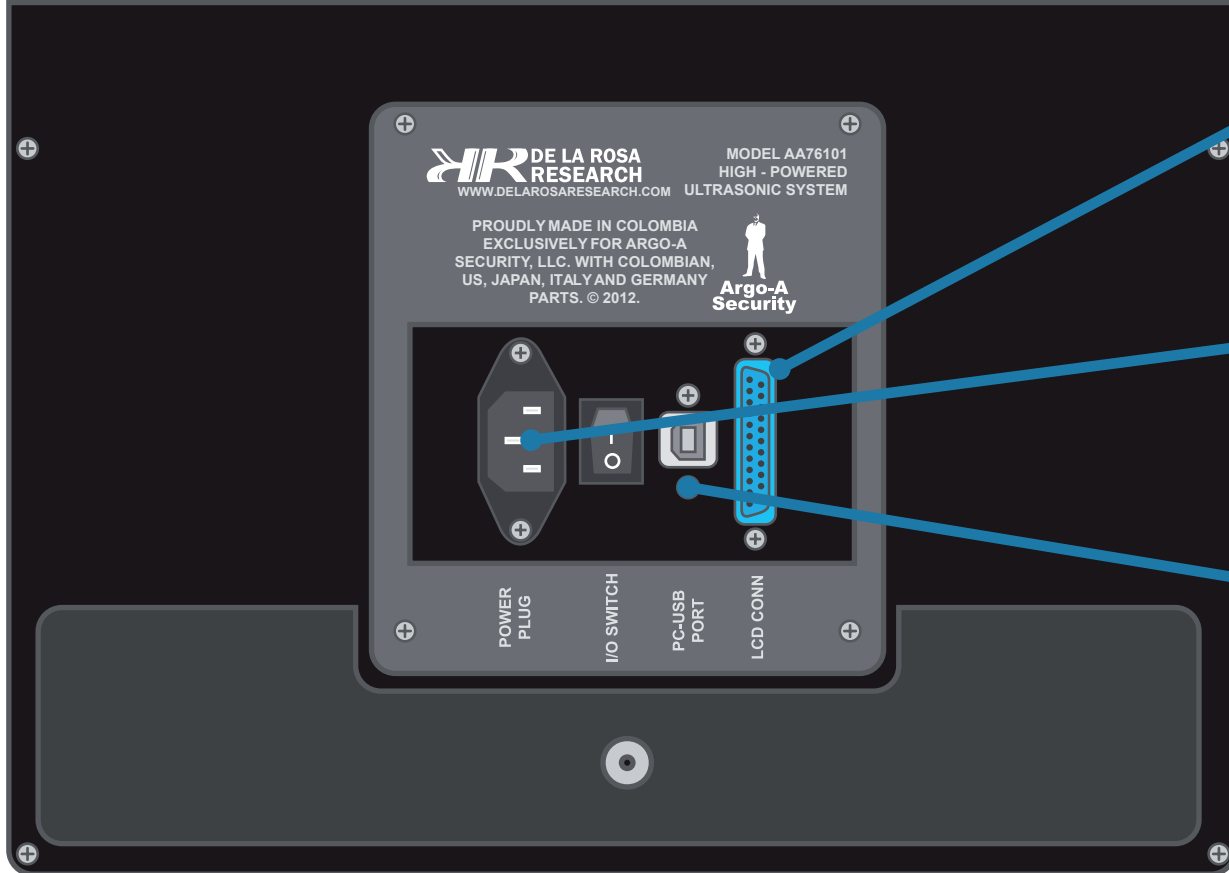**!**

2 // HOW TO CONNECT IT?

PROCEDURE
// INITIAL SETTINGS

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ASSAMBLE THE CONTROL WITH THE CARD SORTING BOX BODY.

To assamble both pieces, just slice the control making sure that the blue ports come together and firmly press until they have fully embedded.

MODEL AA76101
HIGH - POWERED
ULTRASONIC SYSTEM

DE LA ROSA RESEARCH
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POWER PLUG

I/O SWITCH

PC-USB PORT

LCD CONN

25
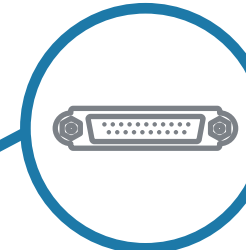
SERIAL DB25 CABLE
Connect the male end of the Serial DB 25 cable **(e)** to this port.
The female end of the cable should be connected to the LCD control **(c)**.
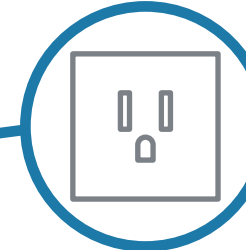
POWER CABLE.
Connect the AC cable **(g)** to this port.
The opposite end should be connected to a 110/220VAC - 50/60Hz power outlet.
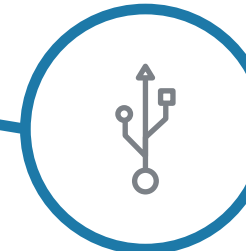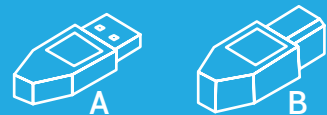
USB CABLE
USE ONLY IF USING CONTROL SOFTWARE.
The smallest end B of the USB cable **(f)** should be connected to this port.
The opposite end of cable A should be connected to a computer USB port.

! This USB cable has two differente ends:

A   B

1" CABLE CONNECTION SET UP

MAIN LCD CONTROL

Connect the main LCD control to the main unit using the corresponding (e) DB25 to USB 3.0 cable connector.
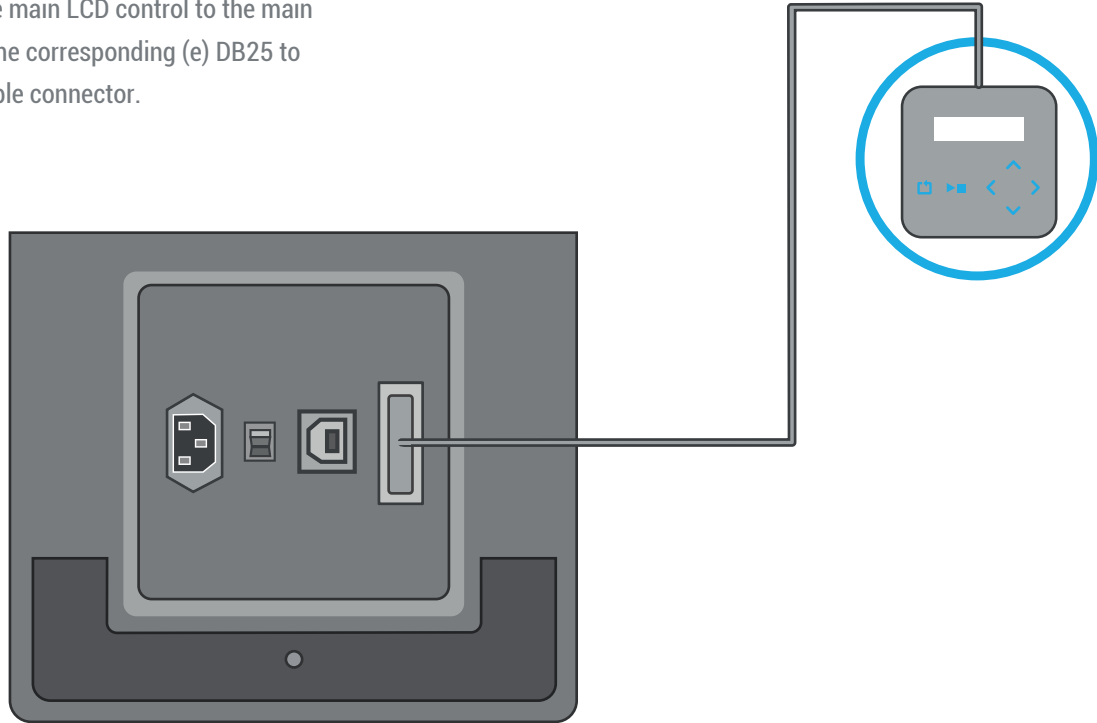
AC POWER CABLE

Connect the AC power cable (g)
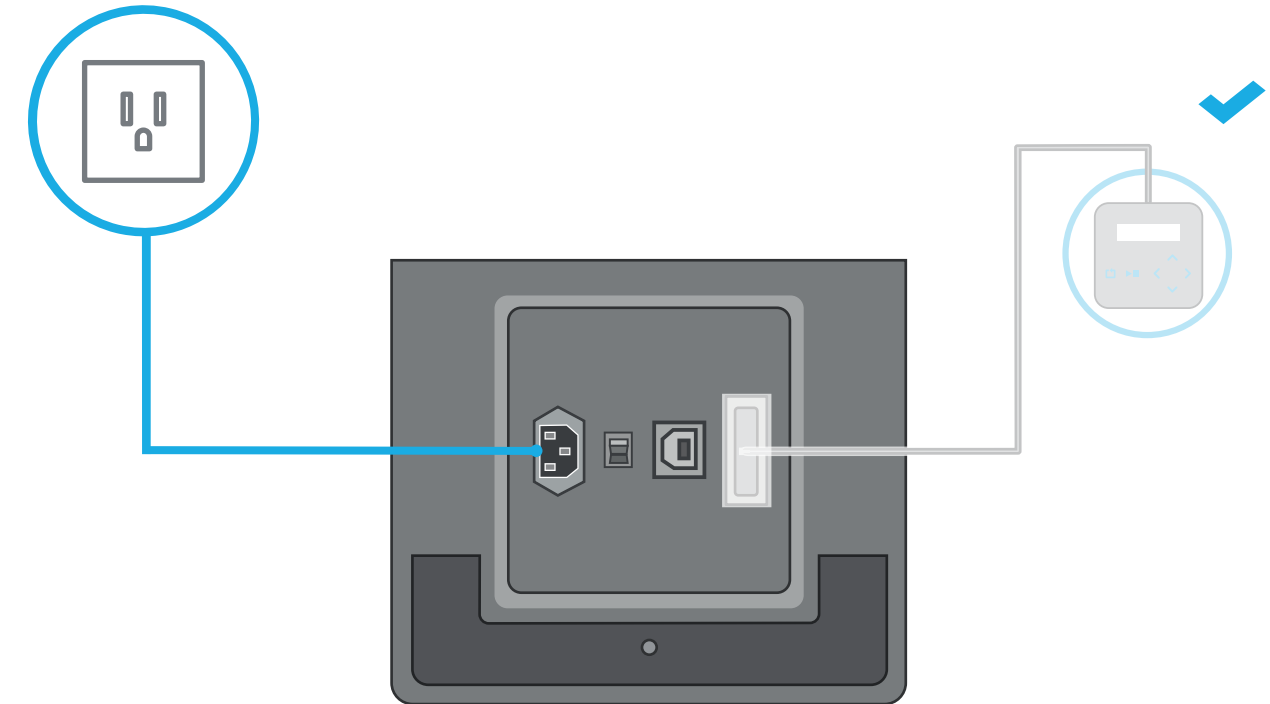
ATTENTION!

Please verify that the neither (f) USB B connector is connected to the equipment or the USB A connector is connected to the PC when you start the equipment.

TURNING ON

Before turning the equipment On. Please verify that all the cables are connected correctly. Please, double check that the AC power cable is safely and securely plugged to both the main unit and the AC wall outlet. Also, check that all the cables are set accordingly to the previous steps.

TURN ON
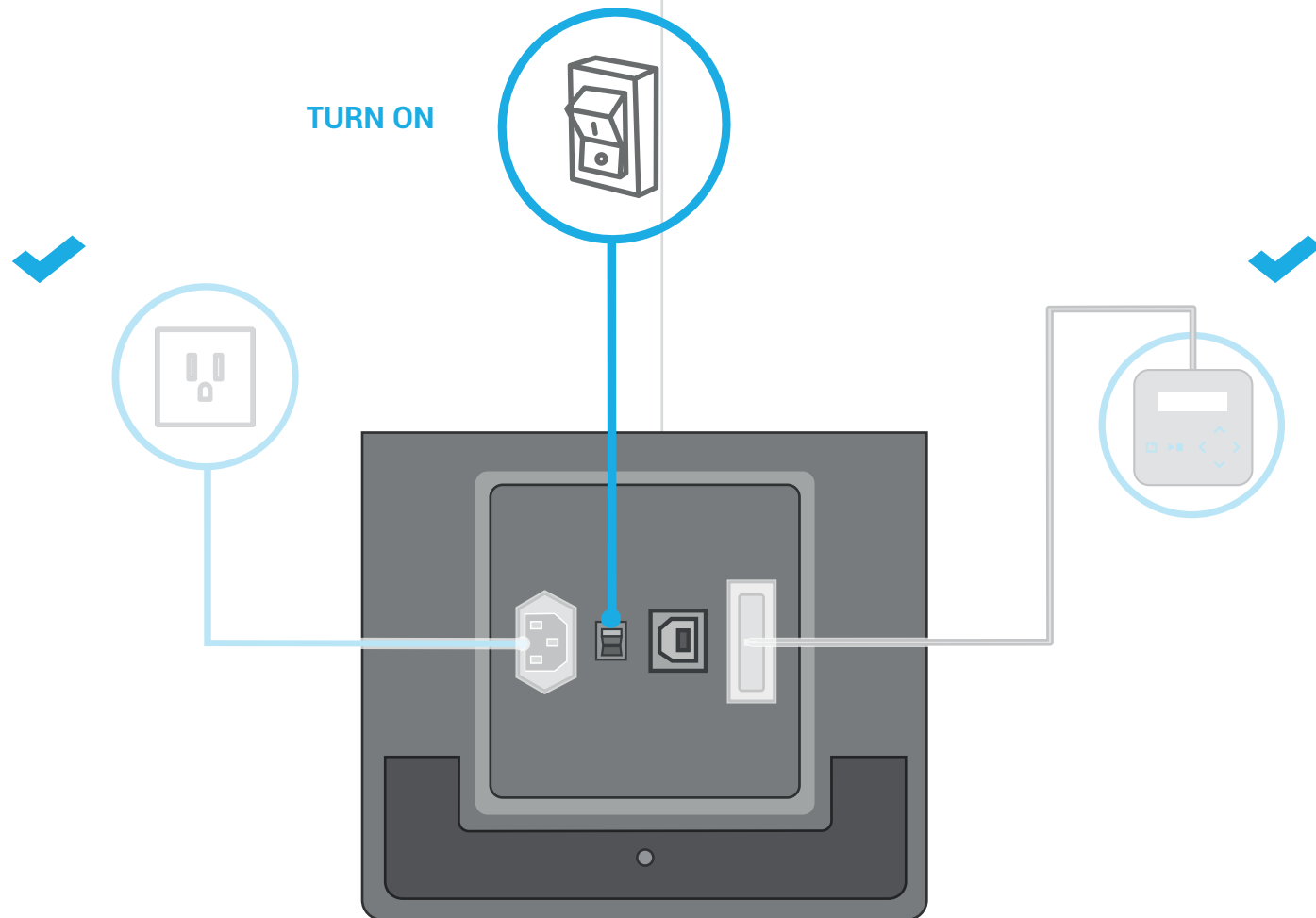
If you wish to use this equipment with the controlling software please follow the steps on page 41, else, please continue to follow the next steps, but without plugging the USB cable connector.

3 // WHAT DOES THE CONTROL SHOW?

B

B means BOX: It indicates the card was placed in the box. Available on the "CLASSIC" test.

C

B means BOX: It indicates the card was placed in the box. Available on the "CLASSIC" test.

Start / Stop

Up — Right

Reset

Left — Down

C:0   B:0   R:0   W:0
T:0   G:0

R

R means RIGHT: It indicates the number of right scores.

W

W means WRONG: It indicates the number of errors.

G

G means GLOBAL TIME: It shows the sum of total reaction times.

T

T means TIME: It shows reaction time from the moment the card is read until the card is placed on a box. Time is measured in milliseconds.

1000 = **1**
miliseconds   second

!

1 // SELECT A TEST.

a. After turning on the device, follow these steps on the LCD screen:

Up

Down

```
1.CLASSIC
2.RANDOM
```

Use Up and DOWN keys to look for the desired test.

The first option on the top is the one to be selected.

b. Use START/STOP button to select the test.

Start / Stop

```
3.MEMORY
4.STROOB
```
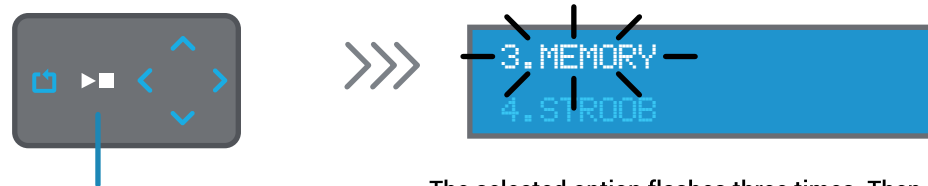
The selected option flashes three times. Then, the test screen is displayed.
Test 3. MEMORY was selected for this manual.

Light and sound, activated by default, are incorporated to indicate subjects the sensors have read the cards correctly. To deactivate any on the indicators, select option 5. SETUP before starting the test. (Details pg. 54).
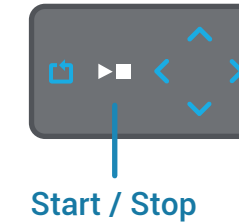
2 // "CLASSIC" TEST

PROCEDURE
// TEST TIME

a. When the "Classic" test has been selected, follow these steps on the LCD screen:

```
C:0  B:0   R:0   W:0
T:0        G:0
```

b. To start the test press START/STOP.
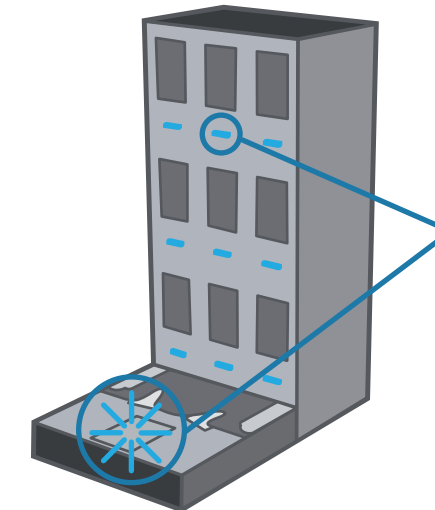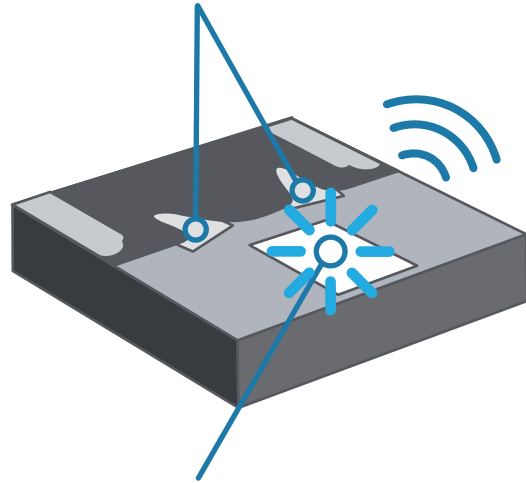
Start / Stop

Objective

In this test, numbers appear sequentially on the frontal panel screens. 81 cards must be placed in their corresponding boxes in the shortest time possible from the moment every card is read.

c.

The control light flashes three times, the screens on the frontal panel turns on, and the device is set to read cards. The control light must be off.

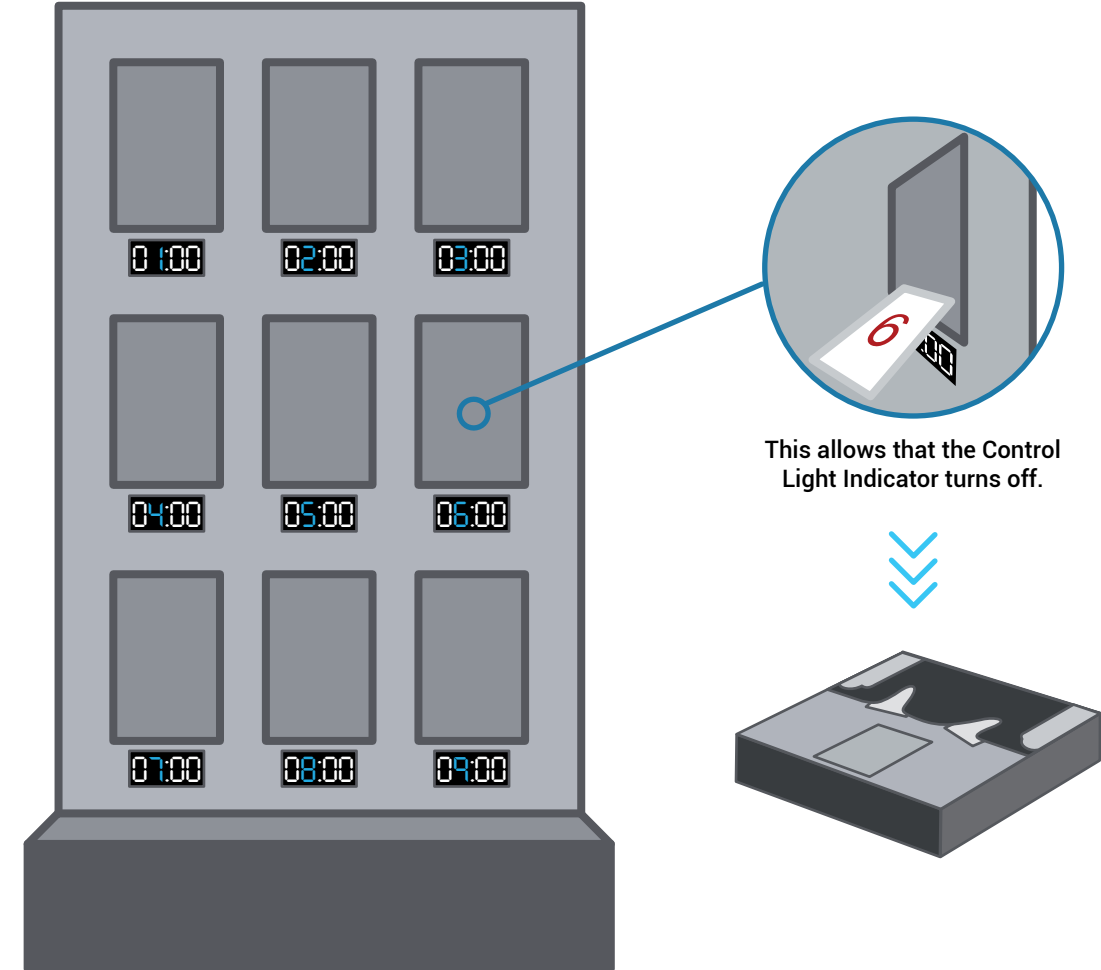**d.** The subject selects a card from any of the two card dispensers.

e. Before the subject sees the card, it must be placed over the sensor until the light is on, and a beep is heard, indicating the card was read correctly -if these options were set up-.

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f. Then, the subject turns around the card to see the printed number on it.

6

PROCEDURE
// TEST TIME

g. The subject must slip the card over the corresponding box, regardless of its color in the shortest time possible.

01:00 02:00 03:00

04:00 05:00 06:00

07:00 08:00 09:00

6

This allows that the Control Light Indicator turns off.

35

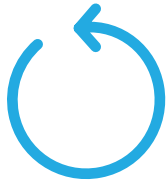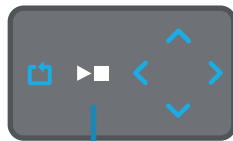**h.** The subject repeats Steps **d** to **g** until the cards loaded on the control are finished.

i. To leave the Test, press the START/STOP button when the Control Light Indicator is off - if it is on, there is no effect - until the image on the screen is displayed.
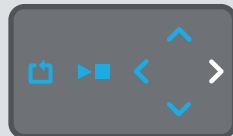
Start / Stop

RETURN TO MENU

PROCEDURE
// TEST TIME

Before starting the test, ask the subject to slide the cards over the card ramp to make sure the sensors read the cards. If a card is not read, the Control Light Indicator does not turn off, and the evaluator will have to press the RIGHT button.
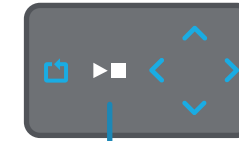
The Control Light Indicator is off, and the test will continue disregarding the unread card.

3// "RANDOM" TEST

a. When the "Random" test has been selected, follow these steps on the LCD screen:

```
C:0      R:0      W:0
T:0           G:0
```

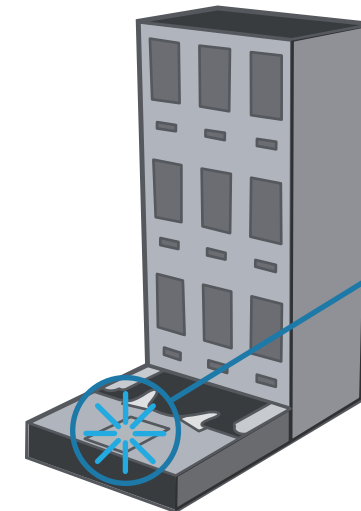**b.** To start the test press START/STOP.

Start / Stop

Objective

In this test, numbers appear randomly on the frontal panel screens. 81 cards must be placed in their corresponding boxes in the shortest time possible from the moment every card is read.

c.

The control light flashes three times, then the device will be set to read cards. The control light must be off.

**d.** The subject selects a card from any of the two card dispensers.
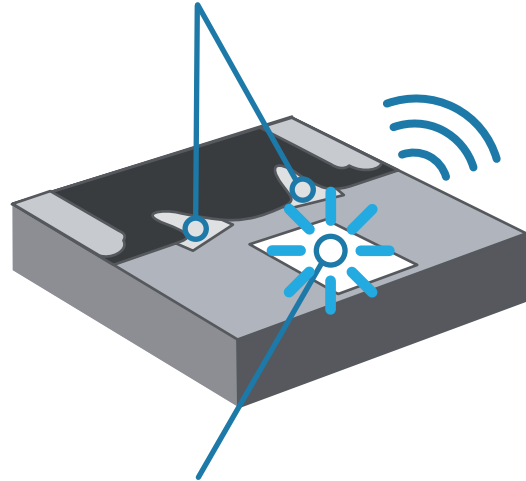
e. Before the subject sees the card, it must be placed over the sensor until the light is on, and a beep is heard, indicating the card was read correctly -if these options were set up-.

> The frontal panel displays will turn on showing randomly numbers from 1 to 9. **!**

f. Then, the subject turns around the card to see the printed number on it.
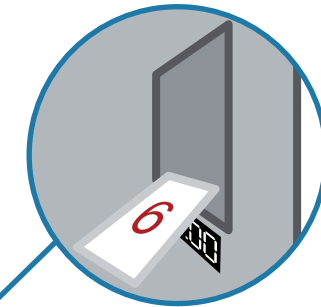

6

g. The subject must slip the card over the corresponding box, regardless of the color, in the shortest time possible.
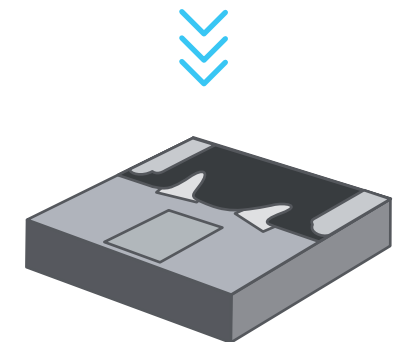
PROCEDURE
// TEST TIME

03:00 09:00 08:00
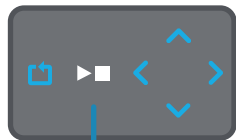01:00 02:00 04:00
07:00 05:00 06:00
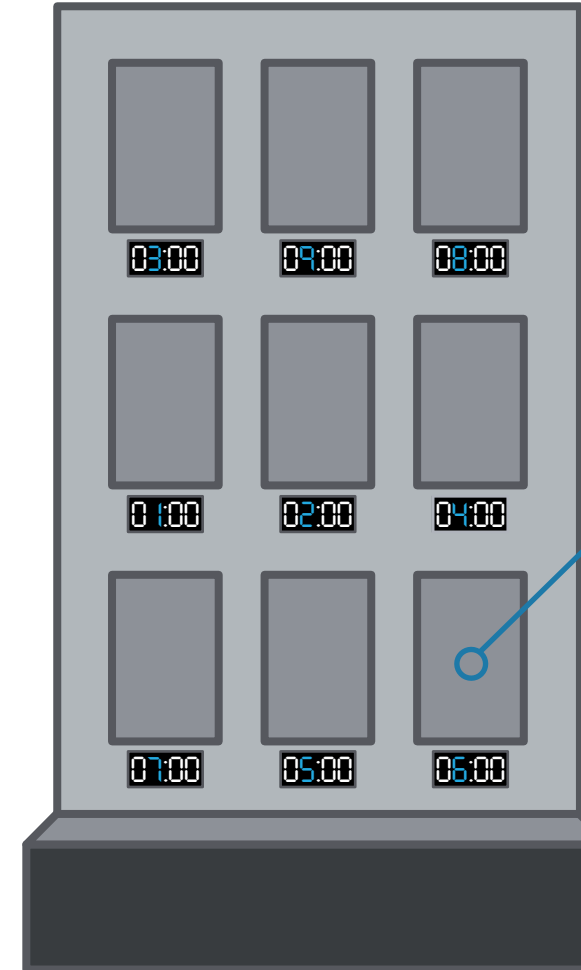
This allows that the Control Light Indicator turns off.

h. The subject repeats Steps **d** to **g** until the cards loaded on the control are finished.

i. To leave the Test, press the START/STOP button when the Control Light Indicator is off - if it is on, there is no effect - until the image on the screen is displayed.

Start / Stop

RETURN TO MENU

Before starting the test, ask the subject to slide the cards over the card ramp to make sure the sensors read the cards. If a card is not read, the Control Light Indicator does not turn off, and the evaluator will have to press the RIGHT button.

The Control Light Indicator is off, and the test will continue disregarding the unread card.

4 // "MEMORY" TEST

PROCEDURE
// TEST TIME

a. When the "MEMORY" test has been selected, follow these steps on the LCD screen:

C:0   R:0   W:0
T:0   G:0

b. To start the test press START/STOP.

Start / Stop

Objective

In this test, numbers appear randomly on the frontal panel screens. The subject memorizes the arrangement of the nine digits and takes a card. When a card is taken, the numbers are rearranged; the subject slides the card that has the number of the box corresponding to the original arrangement of numbers on the screens.
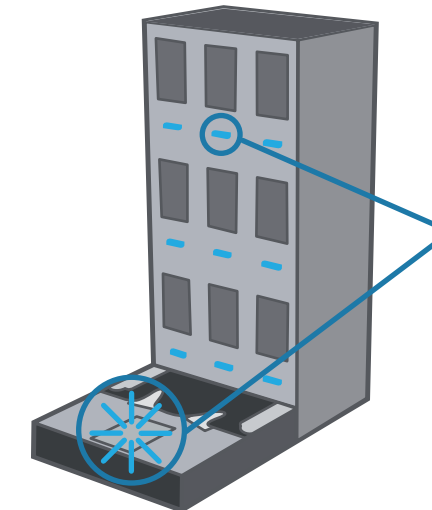
c.

The control light flashes three times, the screens on the frontal panel will turn on, and the device will be set to read cards. The control light must be off.

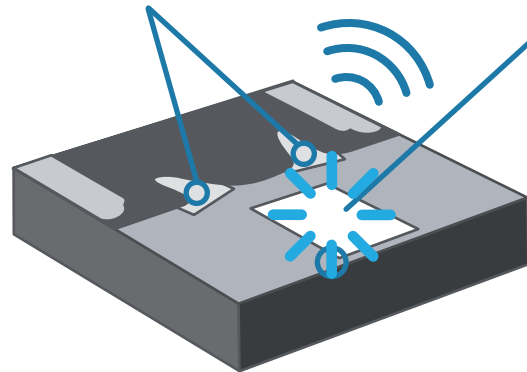**d.** The subject memorizes the arrangement of the numbers on the frontal panel.

e. Once they have been memorized, the subject selects a card from any of the two card dispensers.

f. Before the subject sees the card, it must be placed over the sensor until the light is on, and a beep is heard, indicating the card was read correctly -if these options were set up-.

When the card is taken, the numbers on the frontal display change. **!**

g. Then, the subject turns around the card to see the printed number on it.
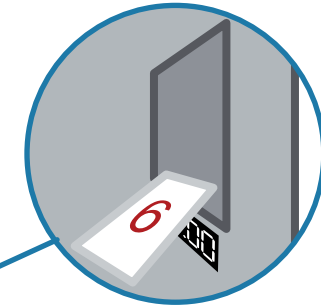

PROCEDURE
// TEST TIME

h. The subject must slip the card over the box corresponding to the number that was previously memorized in the shortest time possible.
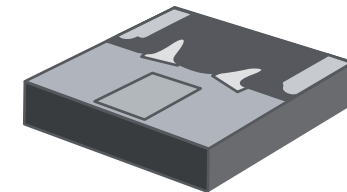

03:00 07:00 01:00
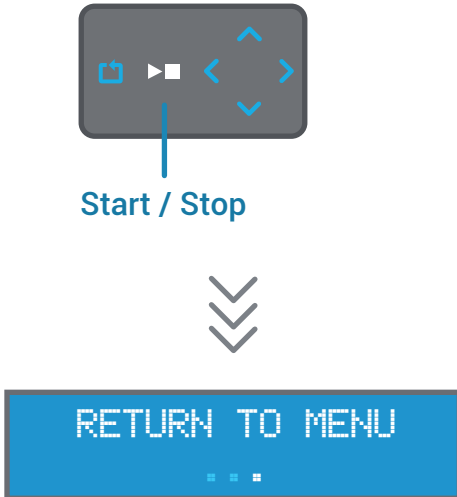
02:00 05:00 04:00

06:00 08:00 04:00
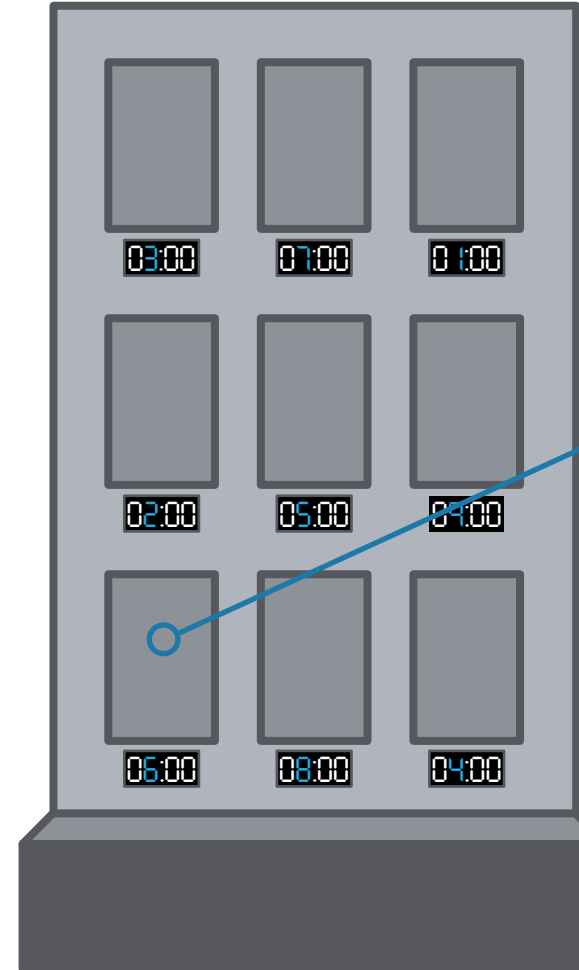
This allows that the Control Light Indicator turns off.

i. The subject repeats Steps **d** to **h** until the cards loaded on the control are finished.

j. To leave the Test, press the START/STOP button when the Control Light Indicator is off - if it is on, there is no effect - until the image on the screen is displayed.

Start / Stop

`RETURN TO MENU`

Before starting the test, ask the subject to slide the cards over the card ramp to make sure the sensors read the cards. If a card is not read, the Control Light Indicator does not turn off, and the evaluator will have to press the RIGHT button.

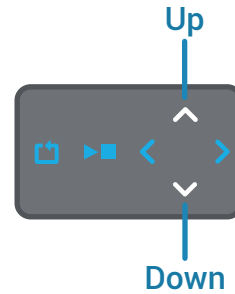The Control Light Indicator is off, and the test will continue disregarding the unread card.

5 // "STROOP" TEST

Stroop option includes two possible tests: Color, and Number & Color.
Follow these steps to select the desired test:

!

a.

Up

Down

Use Up and DOWN keys to look for the desired test.

`1.COLOR`
`2.NUMBER & COLOR`

The first option on top is the one to be selected.

b. To start the test press START/STOP.

Start / Stop
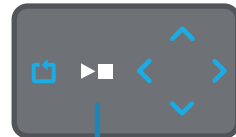
`1.COLOR`
`2.NUMBER & COLOR`
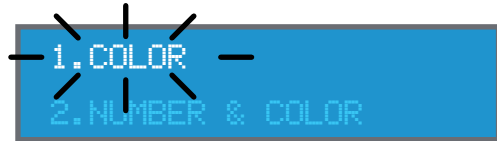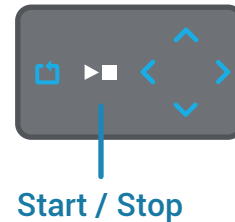
The selected option will flash three times, and the screen will display the corresponding test.

"COLOR" Test.

a. When the "COLOR" test has been selected, follow these steps on the LCD screen:
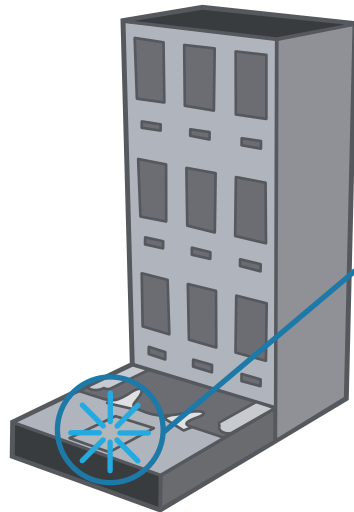
C:0   R:0   W:0
T:0   G:0
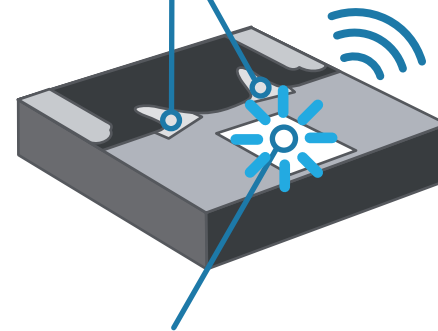
b. To start the test press START/STOP.

Start / Stop

**c.**

The control light flashes three times, the screens on the frontal panel will turn on, and the device will be set to read cards.

Objective

In this test, the name of the color is displayed randomly in any of the first six boxes. The card that matches the color printed on it must be slipped over the box. This set uses three card sets -a set includes same colored cards from 1 to 9-.

PROCEDURE
// TEST TIME

d. The subject selects a card from any of the two card dispensers.

e. Before the subject sees the card, it must be placed over the sensor until the light is on and a beep is heard, indicating the card was read correctly -if these options were set up-.

Only two box arrows are used in this test.

RED   1   BLUE

GRAY   2   6
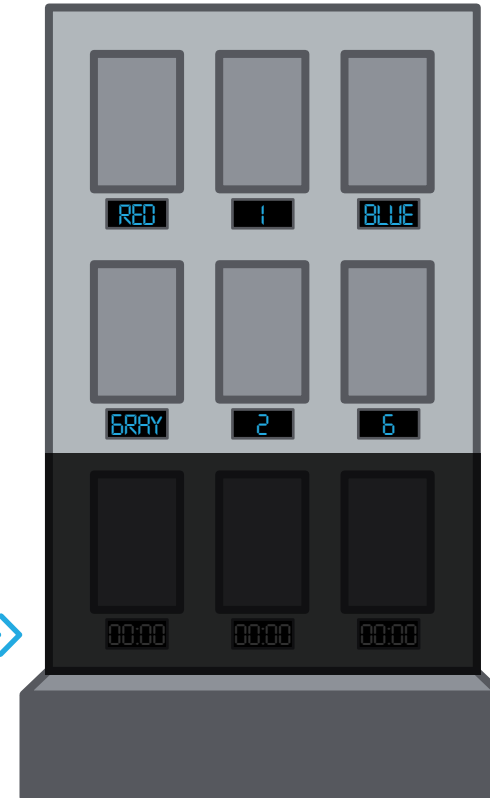
Only two box arrows are used in this test. Cards labeled from 1 to 9 and colored in Blue, Red and Gray are displayed randomly on the frontal panel screens.

f. Then, the subject turns around the card to see the printed number on it.

g. The subject must slip the card over the box that matches the color of the card in the shortest time possible; regardless of the number.
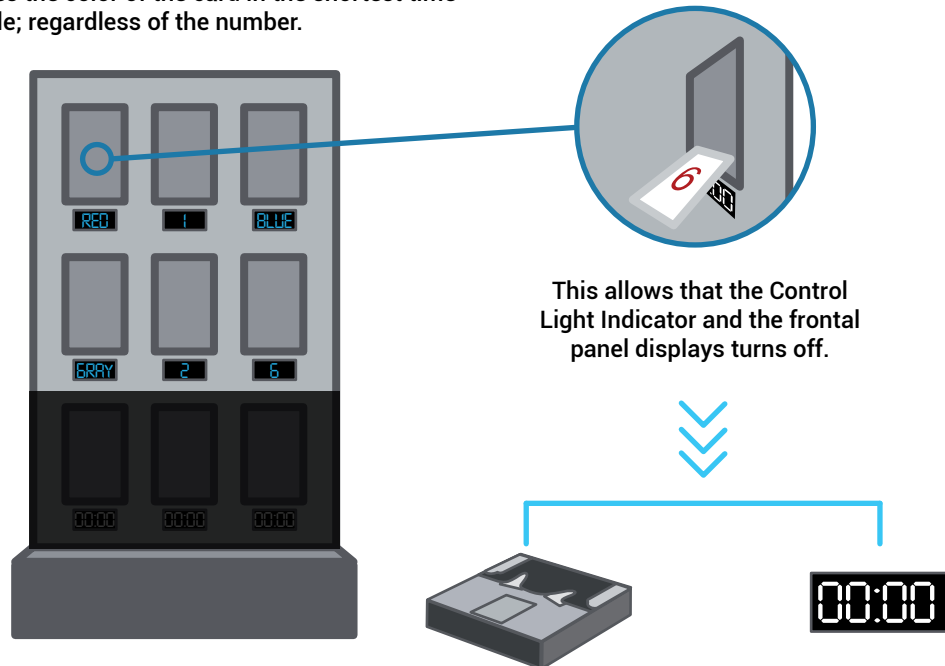
This allows that the Control Light Indicator and the frontal panel displays turns off.

PROCEDURE
// TEST TIME

h. The subject repeats Steps **d** to **g** until the cards loaded on the control are finished.

i. To leave the Test, press the START/STOP button when the Control Light Indicator is off - if it is on, there is no effect- until the image on the screen is displayed.

Start / Stop

RETURN TO MENU
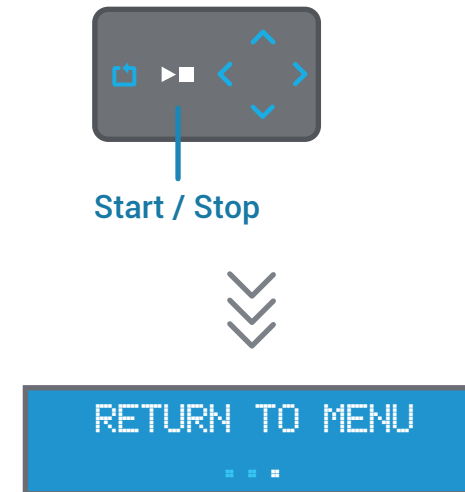
Before starting the test, ask the subject to slide the cards over the card ramp to make sure the sensors read the cards. If a card is not read, the Control Light Indicator does not turn off, and the evaluator will have to press the RIGHT button.

The Control Light Indicator is off, and the test will continue disregarding the unread card.

"NUMBER & COLOR" test.

a. When the "NUMBER & COLOR" test has been selected, follow these steps on the LCD screen:
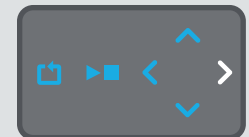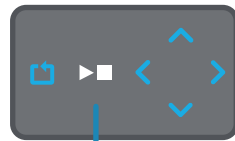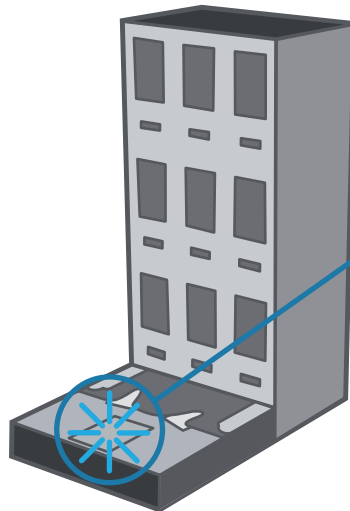
```
C:0        R:0   W:0
T:0        G:0
```

Objective

In this test, the name and number are aligned and randomly displayed on any of the first boxes. The card that matches the corresponding color and number must be slipped over the box. This set uses three card sets -a set includes same colored cards from 1 to 9-.
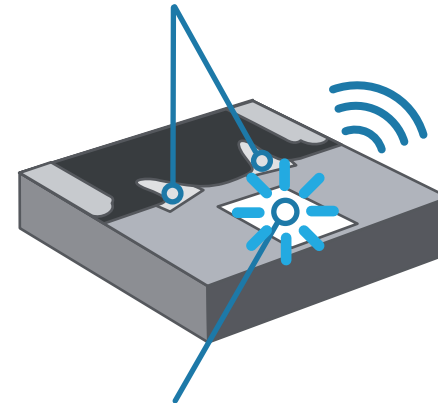
b. To start the test press START/STOP.

Start / Stop

c. The control light flashes three times, the screens on the frontal panel will turn on, and the device will be set to read cards.

d. The subject selects a card from any of the two card dispensers.

e. Before the subject sees the card, it must be placed over the sensor until the light is on, and a beep is heard, indicating the card was read correctly -if these options were set up-.
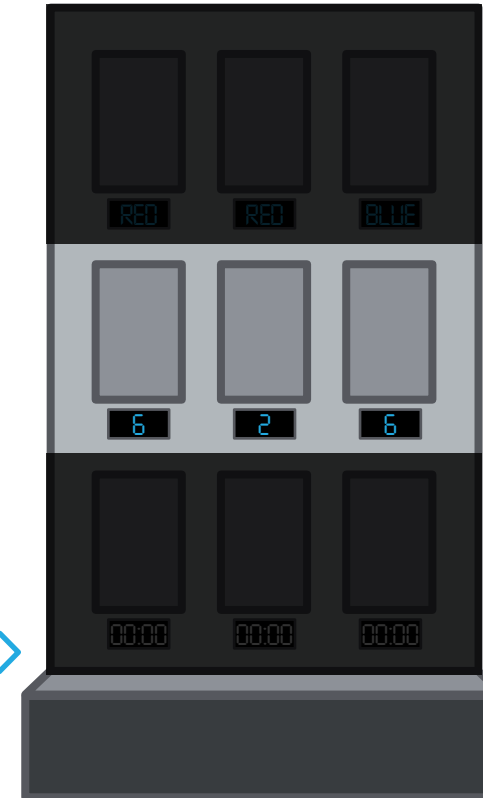
Only two box arrows are used in this test.

RED   RED   BLUE

6   2   6

00:00   00:00   00:00

Numbers from 1 to 9 labeled Blue, Red,and Gray,are randomly displayed on the frontal panel screens.

f. Then, the subject turns around the card to see the printed number on it.

g. The subject must slip the card over the box in the middle corresponding to the number and color printed on the card in the shortest time possible.
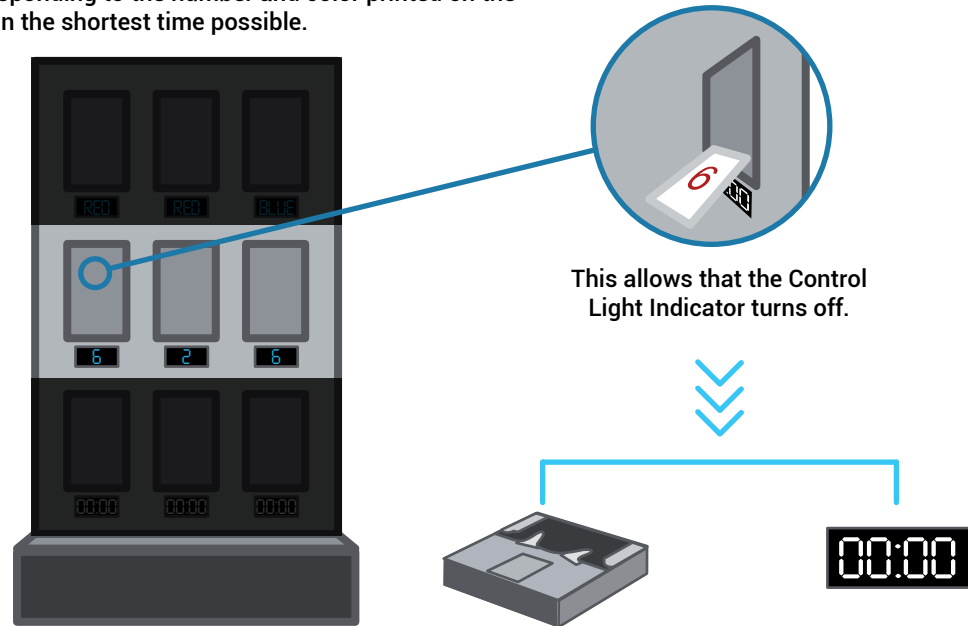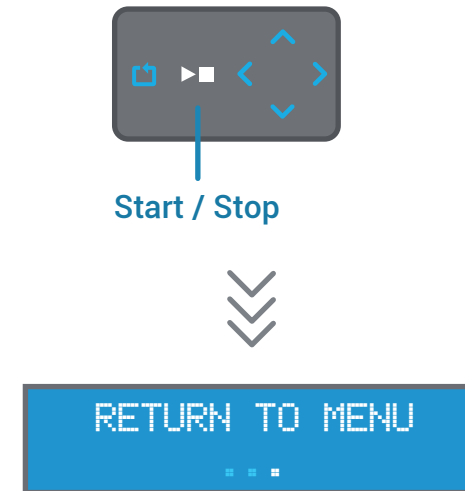

This allows that the Control Light Indicator turns off.

PROCEDURE
// TEST TIME

h. The subject repeats Steps **d** to **g** until the cards loaded on the control are finished.

i. To leave the Test, press START/STOP button when the Control Light Indicator is off - if it is on, there is no effect- until the image on the screen is displayed.

Start / Stop

RETURN TO MENU

Before starting the test, ask the subject to slide the cards over the card ramp to make sure the sensors read the cards. If a card is not read, the Control Light Indicator does not turn off, and the evaluator will have to press the RIGHT button.
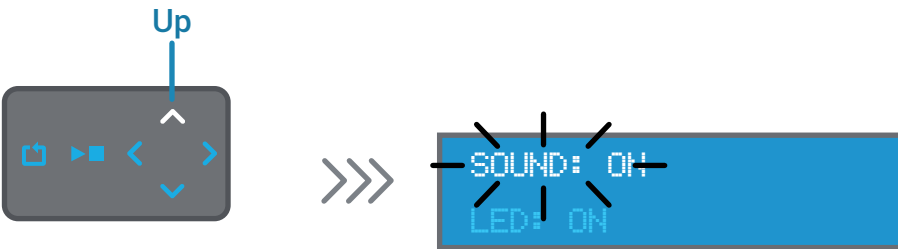

The Control Light Indicator is off, and the test will continue disregarding the unread card.

6 // SETUP

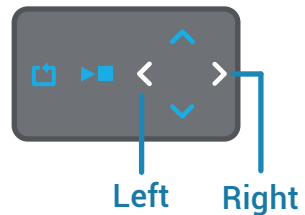This option activates the sound and light control for test. All features are activated by default.
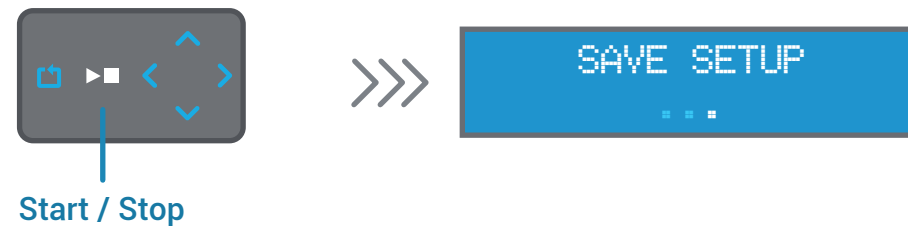
a.

Up

To select SOUND option, press UP key.

SOUND: ON
LED: ON

SOUND option flashes three times to indicate it was selected.

b. To activate sounds, press RIGHT button.
To deactivate sounds, press LEFT button.

Left   Right

c. When finished setting up, press START/STOP to save changes.
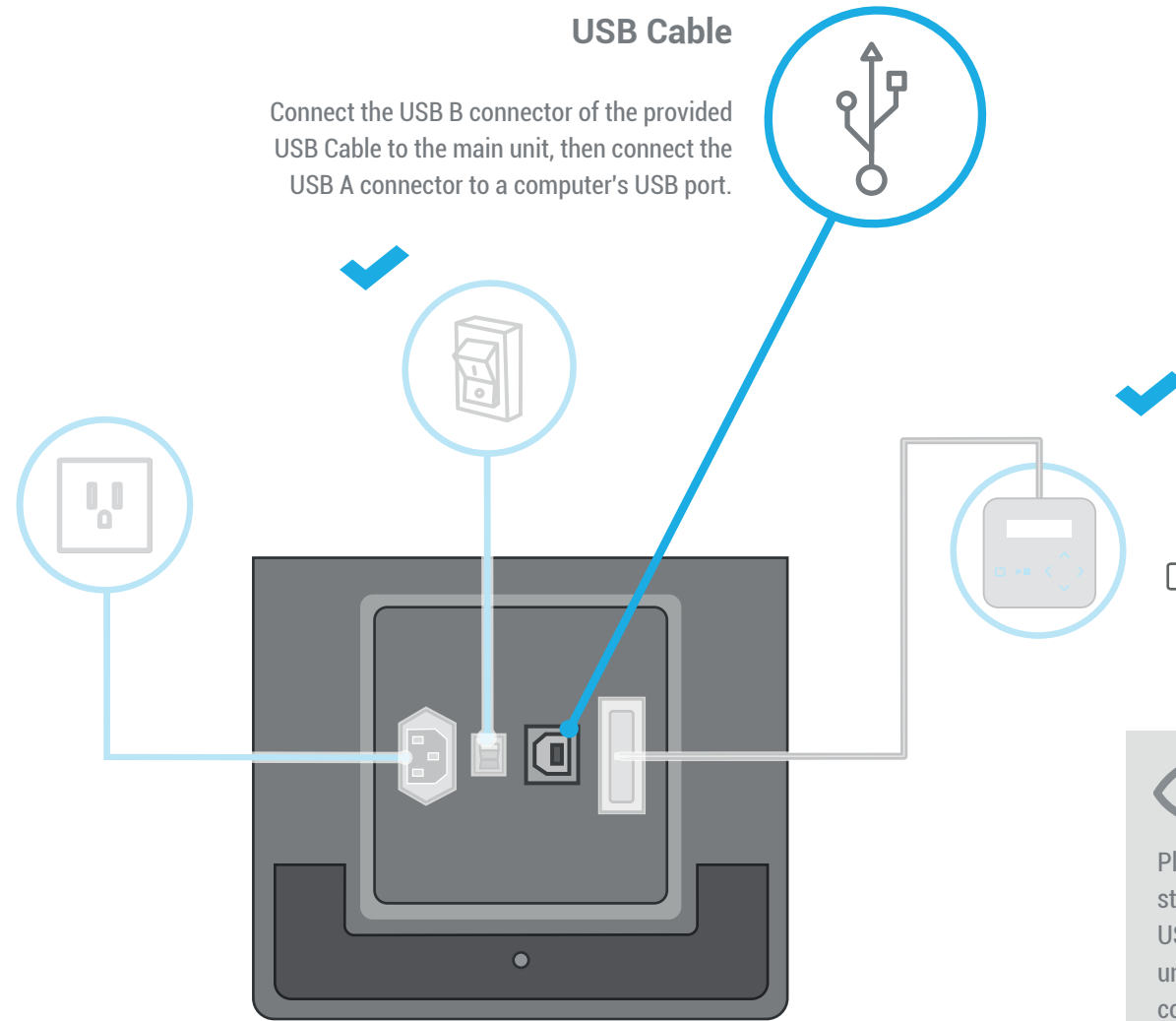
SAVE SETUP

Start / Stop

Note

At this point the connection and execution steps have been followed without the software;
If you want to deploy the device with this, you can go to:

www.delarosaresearch.com/downloads.php?t=delarosa

Then follow the steps below to connect your device to your computer.

USB Cable

Connect the USB B connector of the provided USB Cable to the main unit, then connect the USB A connector to a computer's USB port.

Running the Controlling Software

While the computer is on and OS is running, execute the Controlling software by double-clicking on its icon. Follow up the instructions presented therein.

TURN ON

Please keep in mind that the equipment will start the communication protocol once the USB is plugged into the computer. The main unit will re-start automatically and the LCD control will display the re-start sequence. That means the unit has been reset by the computer to initiate the communication protocol.

If you wish to acquire the controlling software please follow this link:

http://www.delarosaresearch.com/downloads.php?t=delarosa

THIS IS THE END OF THIS USER GUIDE.

This is all the basic information you will need for using the CARD SORTING BOX; but this is just the beginning of the fun.

If there is something that is not clear to you, or if you have any questions, please feel free to contact us at any time.

We will be very happy to hear from you.

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