Seabery
AUGMENTED TRAINING & PERFORMANCE

SOLDAMATIC
AUGMENTED TRAINING TECHNOLOGY FOR WELDING



SOLDAMATIC USER GUIDE

EUROPEAN UNION
European Regional Development Fund
Investing in your future

Seabery is partner of:
SPANISH WELDING ASSOCIATION
CESOL
worlddidac

Seabery Soluciones | +34 959 807 473 | info@seabery.es | www.seabery.es |

Manufacturer keeps the right of modifying his equipment without previous notice.

Pictures and draws, descriptions and technical characteristics are not contractual and do not compromise our responsibility.

Security warnings

Electrical discharges can cause death.

The device must only be connected to power supply and plugs connected to earth.

Risk of electrical accident: the equipment should only be manipulated and opened by authorized personnel and never when the device is still connected to power supply.

Maintenance and fixing activities must only be taken by technical team authorized personnel. Warranty will be lost in case of non-authorized device manipulations.

Instructions inform about the correct use of the device so you can take the best of it without any risk. So, we recommend reading carefully the instructions before using the device, those regarding security.

Environmental conditions for use

This welding training technology can operate without any risk in a place with enough room between +10°C and +40°C (+50ºF y +104ºF).

Table of Contents

0. INTRODUCTION 4
1. GENERAL FEATURES OF OUR WELDING TRAINING EDUCATIONAL TECHNOLOGY 6
2. E-LEARNING PLATFORM 8
3. TEACHER SOFTWARE 13
4. SOLDAMATIC 14
5. SOLDAMATIC INSTALLATION 15
6. STARTING UP WITH SOLDAMATIC 23
6.1 SOLDAMATIC AUGMENTED REALITY WELDING MASK 25
6.2 SOLDAMATIC FRONT PANEL 26
6.3 SWITCH ON YOUR SOLDAMATIC 28
6.4 SELECT A WELDING PRACTICE 30
6.5 HELP ICONS SYSTEM 37
6.6 SOME TIPS TO HAVE A BETTER WELDING EXPERIENCE WITH SOLDAMATIC 40
7. ANALYSIS MODULE 49
7.1 ANALYSIS MODULE SCORING 50
8. REMOTE MAINTENANCE & UPGRADES 51
9. CERTIFICATE OF CONFORMITY 52

0. INTRODUCTION

First, we would like to thank you very much for choosing our new SOLDAMATIC AUGMENTED TRAINING TECHNOLOGY to help you modernize and improve your welding training processes. AUGMENTED TRAINING has been designed and developed to introduce a competitive technological innovation to help the welding training institutions, attending current and future increasing government and market demands for competent welders in different sector. We support our clients to achieve their objectives of qualifying more welding professionals, locally, in less time safer, reducing the environmental impact, promoting women participation in a traditionally male profession and a cost-effective way, contributing to increase countries and companies' competitiveness for growth and employment generation.

This guide does not intend to be a welding guide, this is a guide to understand the use of none of the AUGMENTED TRAINING components. The Teacher Software enhances the instructor's labour letting him/her to do his/her best. This tool allows creating, organizing, and monitoring a welding course including theory and practice.

If you need welding training orientation e-mail us at partners@seabery.es and we could help you through our partnerships with welding experts worldwide.

We have also started to build a SOLDAMATIC community so that different users worldwide can share their experiences and take the best profit of our technology to accomplish their welding training objectives. We can help you train more qualified welders, in less time, safely, sustainably and reducing your welding training costs. For more information, follow us in:



AUGMENTED TRAINING is an innovative technological solution designed to help welding students of different levels to acquire the right welding knowledge, capacities, abilities, welding sensations and skills without physical risks, saving money and reducing the environmental impact, by reducing the welding booth training time. It is an educational solution to help both students and trainers to improve their learning experience and enhance results and qualifications.

To complete their welding training, the students should spend some time practicing the acquired skills by using AUGMENTED TRAINING in welding recognized workshops under qualified professional supervision and the right security measures.

AUGMENTED TRAINING is complementary to real welding equipment and workshops in welding learning process, contributing to enhance it, and make it much more attractive for the students and efficient for the training centers and welding trainers. That is the reason the use of AUGMENTED TRAINING is recommendable and applicable for the whole of welding training programs.

1. GENERAL FEATURES OF OUR WELDING TRAINING EDUCATIONAL TECHNOLOGY

Our educational technology SOLDAMATIC performs the most advanced computer-simulation techniques using the artificial vision technology, AUGMENTED REALITY, to create a real welding-like environment, so the user will get the same results as in real welding.

WHAT MAKES US DIFFERENT

- Augmented Reality: The more realistic and attractive TRAINING experience

- E-Soldamatic: this web-based platform allows the student to start the welding course from home.

- Teacher software: it helps the teacher easily adapt their training programs to SOLDAMATIC. It allows the teacher to manage and monitor as many students as he wants from his laptop, to recover the exercises and to make his time much more efficient.

- Analysis Module: all the welding practices performed in the simulator can be visualized through the Analysis Module that provides a detailed mark of all the welding parameters.

- Remote maintenance and updates (new materials, etc.)

- Adaptable to specific client needs, according to the different training requirements of clients worldwide (Latin, North America, Europe, Russian Federation; Africa and Asia Pacific).

- Price: The most competitive in the global marketplace.

SOLDAMATIC GENERAL ADVANTAGES

Adaptable to different welding training institutions requirements, helping them make a new welding training process:

- Attractive for young students (it highly improves their motivation)

- Efficient

- Suitable

- Scalable

- Safe

- Affordable

- Sustainable

- Different welding standards (EWF, AWS, etc.)

SOLDAMATIC includes real and simulated welding tools (welding torches and mask + work pieces + electrode stick + filler rod) for the different welding processes: stick welding (SMAW, MMA), MIG-MAG (GMAW, FCAW) or TIG (GTAW). These peripherals are connected to the

Soldamatic Central Unit in the same way as it is in real welding equipment, using real connectors, therefore the student will become familiar with its use, adjustments, and procedures.

In addition to the welding training experience performed in the student-simulator, the teacher software is oriented to help the teachers managing their courses: network, control over student-simulators in real time, upload of theory modules, design, analysis and evaluation of welding exercises, reports, upgrades for workpieces, gases, electrode sticks, base materials, etc., specialization in different economy sector's needs (automotive, naval, aeronautics, off-shore, mining, etc.).

This simulator works in a Virtual Classroom format in which the teacher monitors in real time all the students' performances of the welding exercises, which will be saved in their personal profile and can be reviewed later. Another feature that helps the teacher evaluating the welding exercises is the Analysis Module which represents graphically the performance made by the student and, at the same time, analyzes it from the point of view of physical skills and possible welding defects. This feature is very useful for the teacher to review and comment the exercises together with the students.

2. E-LEARNING PLATFORM

1. What is the E-Soldamatic platform?

E-Soldamatic is an e-learning platform included in your Soldamatic Classroom solution. It is the first step of the Soldamatic **Augmented Training** experience. It is a web-based e-learning platform for accesing welding content and multimedia and allows the teacher to synchronize a training program (theory, tests and Welding Procedure Specifications), so the student **can start the welding course from anywhere that has internet access!**

One of the main advantages of using e-Soldamatic platform is that a training center can accept as many applications as it wants when starting a welding course. **WHY?** Because all the students can start learning the theory content from home, a library, the bus, etc., and after passing qualification tests (up to the instructor), they will move progressively to the training center to start practicing with the simulators.

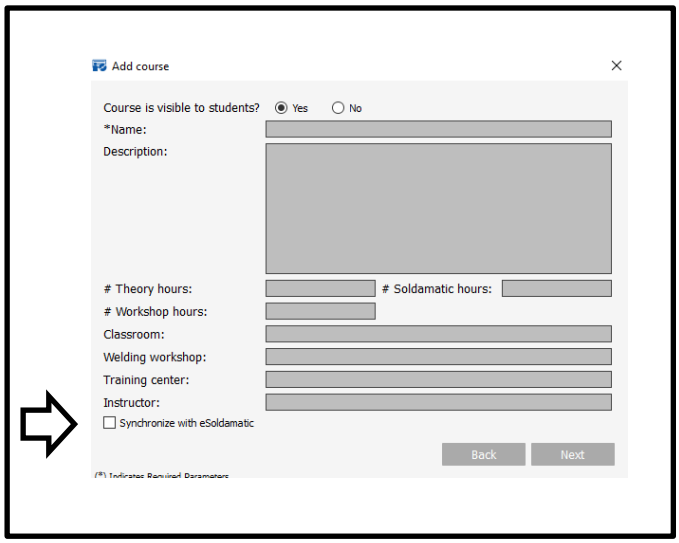
2. How can a training center access the E-Soldamatic platform?

Subscribing your training center and start using the E-Soldamatic platform, is as easy as following these instructions:

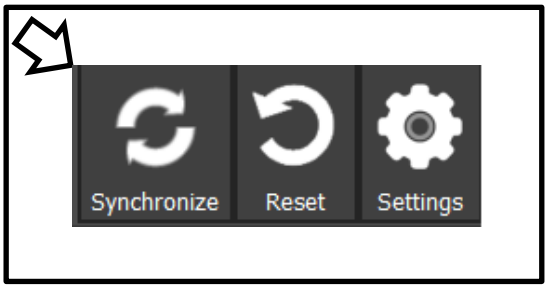
a. Send an email to partners@seabery.es with your training center name and country. The subject must be "E-Soldamatic".
   You will be sent a confirmation email with an user (the training center name) and a password.

3. How can a teacher synchronize a training program with the E-learning platform?

a. First, make sure that your training center is registered in the e-Soldamatic platform. If so, that means that you already have a user and a password. If not, please follow the instructions indicated in point 2 above.
b. Connect your unit to a local Internet network using an Ethernet cable. If you have a **classroom configuration,** you must connect the server to the Internet. (For more information about this, check the Soldamatic Networking Guide.
c. Open the Teacher Software and double click on an existing course, and check the "Synchronize with the E-Soldamatic platform" option. You can also find this option when creating a course.



d. Close the “Course” window and select the “Synchronize” button (see picture below):



e. Fill in the “Training Center” and “Password” fields.

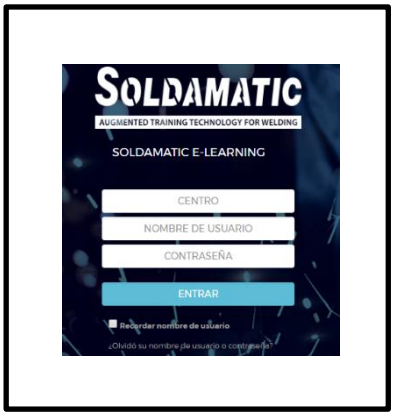
f. All the courses that have the “Synchronize with the e-Soldamatic platform” checked, will synchronize the contents with the e-Soldamatic platform.

IMPORTANT: if you change something in any of the synchronized courses, and you want those changes to appear in the E-Soldamatic platform too, please synchronize the course again. That means that you must follow the instructions indicated in the beginning of this point.

4. How can a student access to the E-Soldamatic platform?

a. Open your browser and go to the website http://e.soldamatic.com/login/index.php

b. Login information:

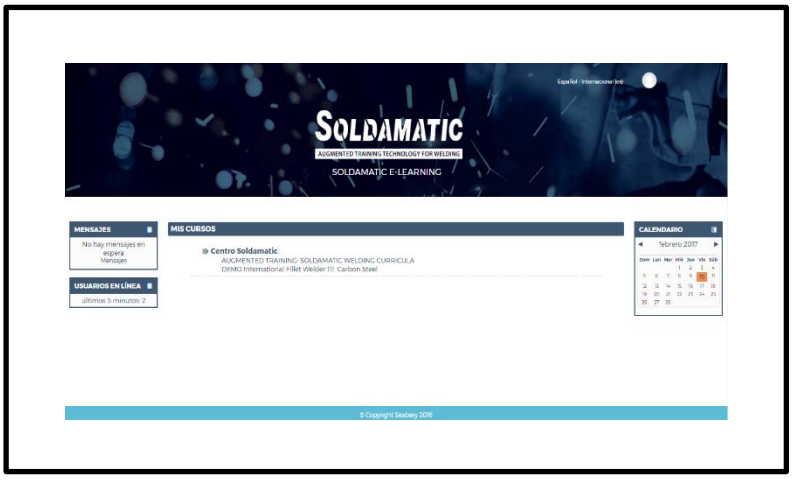


- **Training center:** training center name.
- **User:** Email
- **Password:** password given by the teacher to each student.

* All the login information must be provided by the teacher. The Username (Email) and the Password are the ones that appear when creating a student in the Teacher Software.

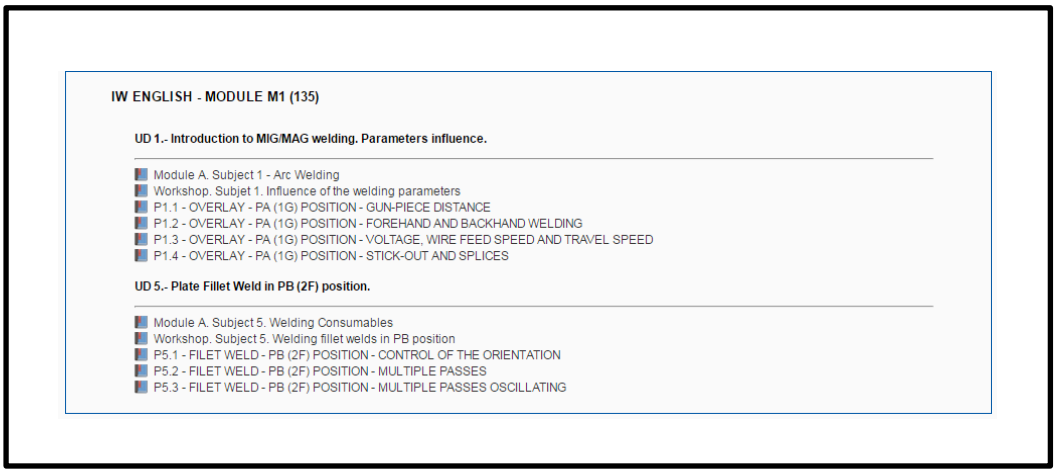
IMPORTANT: Remember that only the students can access to the E-Soldamatic platform.

5. What will the students find in the E-Soldamatic platform?



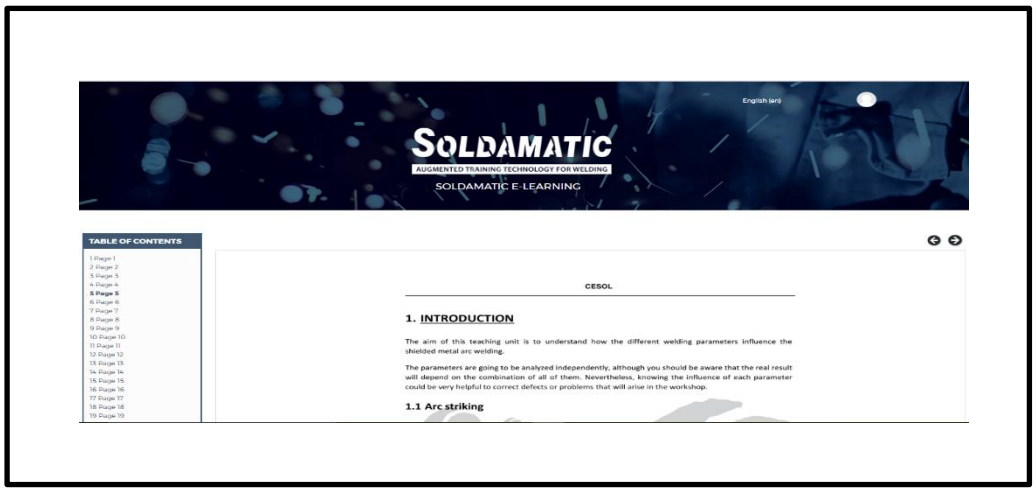
- **My courses:** all the training programs the teacher has previously synchronized with the Teacher Software.

If a student select a training program from the list, he/she will find all the **different modules and didactic units** that course is divided into.



The training programs can include:

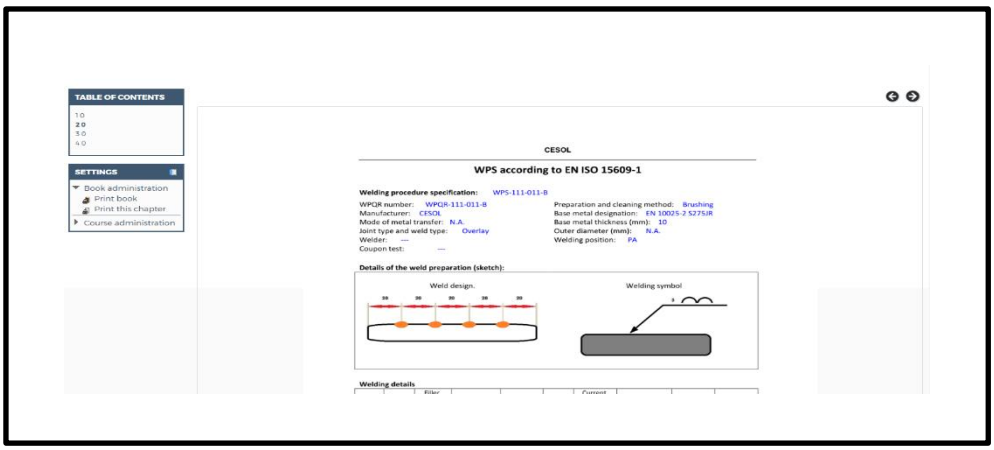
1. Theory



a. Table of contents: all the file pages.

b. Settings: the student has the possibility of printing out an specific page or the whole document.

2. Practices: Welding Procedure Specifications (in pdf files) to be reviewed by the students prior to perform the welding with the simulator.



3. Tests: the student can do tests through the E-Soldamatic platform that are sent to the Teacher Software, so the instructor can check the mark.

*To receive the tests in the Teacher Software application, the instructor must synchronize the training programcourse (see instructions in point 3).

3. TEACHER SOFTWARE

The Teacher-software allows managing the activity of the student simulator through the Virtual Classroom, and every matter regarding the training activities such as courses, students, theory, exercises, and exams management.

It is a specific software provided and licensed by Seabery Soluciones. It must be installed in a laptop or a PC with these minimum requirements:

- Operating System Windows Vista or 7.

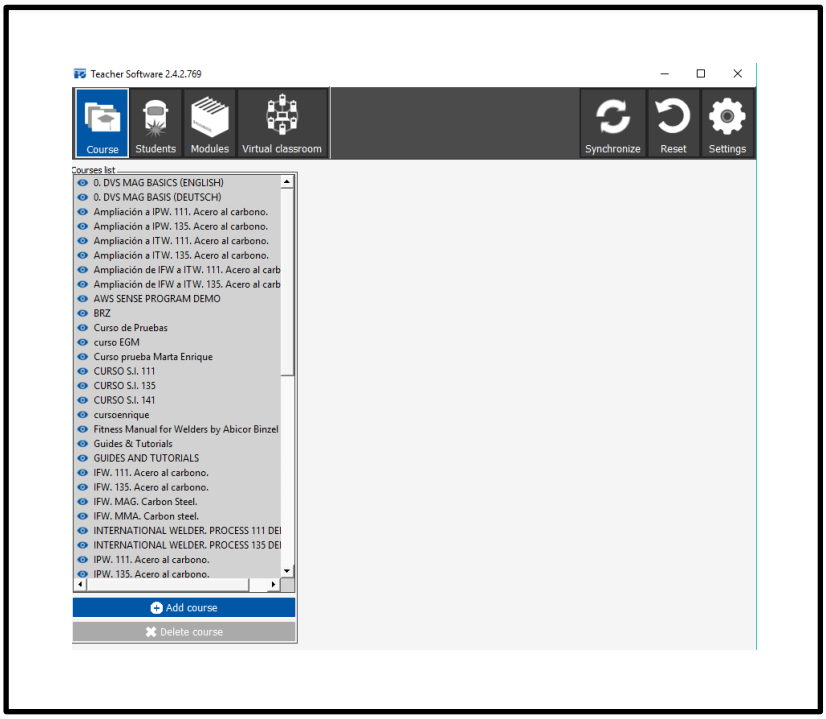
- Processor 32 bits (x86) 2.2GHz 3MB.

- RAM 2GB.

- Graphic board 512MB DirectX 9.0c compatible: NVidia GeForce GT440 o superior; ATI Radeon HD5000 o higher.

- Hard Disc 1 GB.

For further information: http://soldamatic.com/internal/Teacher_Software_Guide.pdf



4. SOLDAMATIC

SOLDAMATIC is the first educational technology which applies the Augmented Reality technology to this kind of trainings. The student can work in a real environment, with all the real elements used in workshops (welding torches, welding helmet, workpieces, etc.) and we use our augmented reality technology to make all those elements interact, to draw computer generated graphics welding effects, offering the most realistic welding training experience ever seen until the moment.



Soldamatic has **2 types** of **configurations**:

- **StandAlone** configuration includes an unit and a router. All the information is saved on the unit.
- **Classroom** configuration includes a server and more than one Soldamatic. All the information is saved on the server.

Depending on the configuration you have, the Teacher Software installation is going to be different.

5. SOLDAMATIC INSTALLATION

STANDALONE CONFIGURATION

1. What do you need?



ROUTER



ROUTER CABLE



SOLDAMATIC



SOLDAMATIC CABLE



WI-FI ANTENNA

2. Installation process

a. Connect one end of the router cable to the connector showcased in the picture.



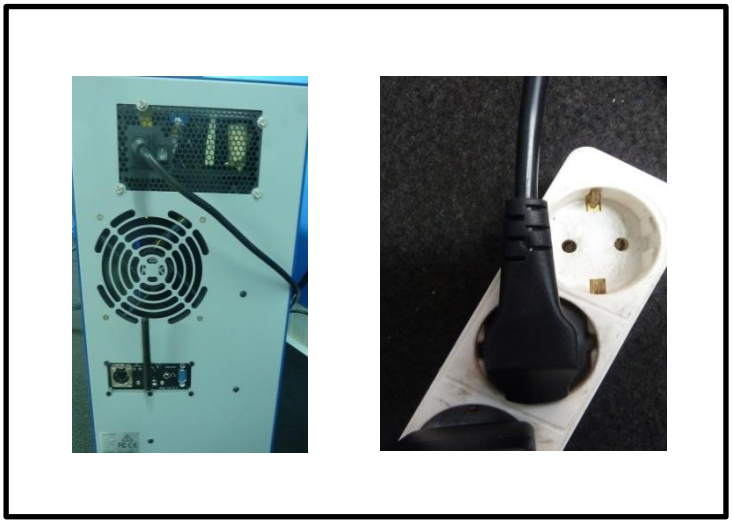
b. Connect the other end in the power source.



c. Connect the Wi-Fi antenna in the Wi-Fi antenna connector located in the rear panel of the simulator.



d. Connect Soldamatic to the power source:



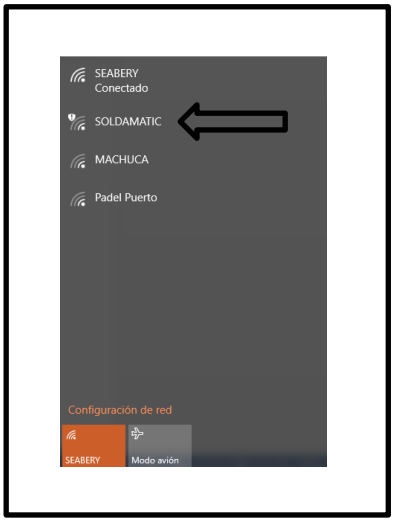
IMPORTANT: do not forget to switch on the power button.



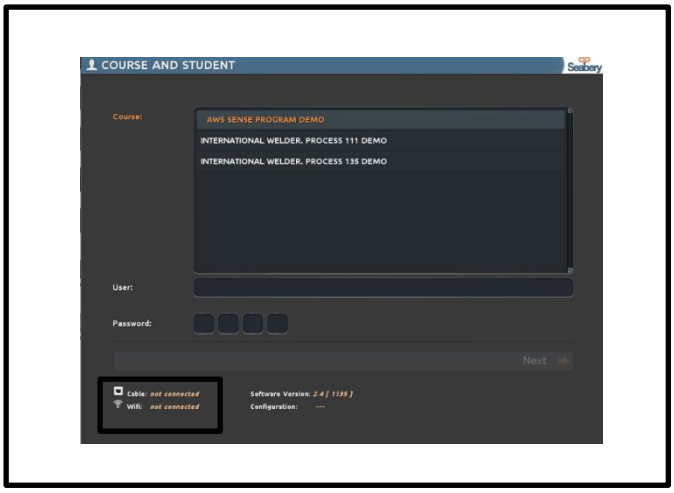
e. Now it’s time to switch on your Soldamatic!

If you want to use the **Teacher Software** program in a StandAlone or Distributor configuration, follow these steps:

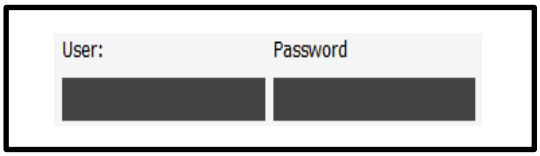
a. Connect your laptop or PC to the Soldamatic network provided by the Soldamatic router.



b. Open the Teacher Software program. The required IP adress is located in the bottom left corner of your Soldamatic screen.



c. Introduce the user and the password



User: Teacher

Password: Soldamatic

d. You can start using your Teacher Software!

CLASSROOM CONFIGURATION

1. What do you need?



ROUTER



SOLDAMATIC



POWER CABLE



SERVER



WI-FI ANTENNA



ROUTER CABLE

2. Installation process

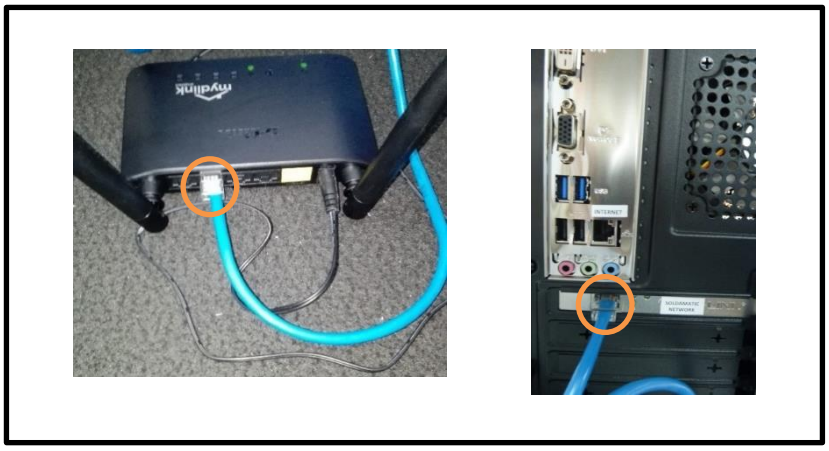
a. Connect one end of the router cable to the connector showcased in the picture.



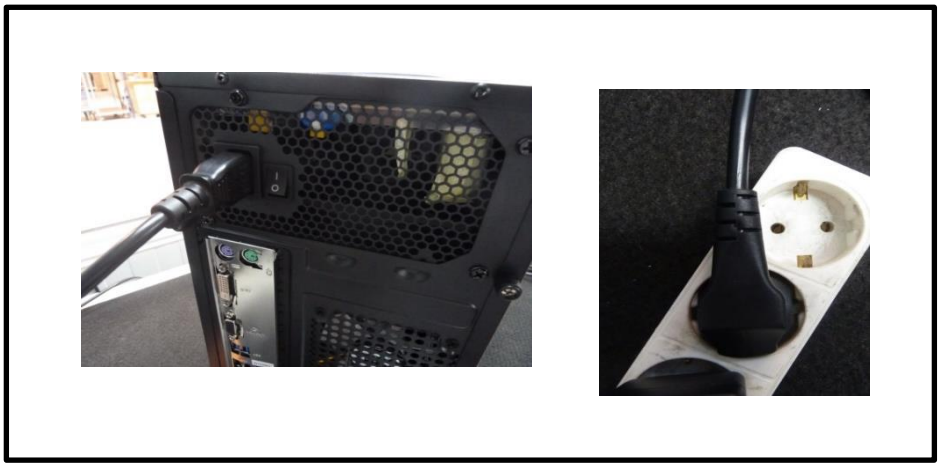
b. Connect the other end in the power source.



c. Connect the router to the server using the network cable. **Please make sure** that the cable is connect in the port showcased in the picture below.



d. Connect the server to the power using the power cable.

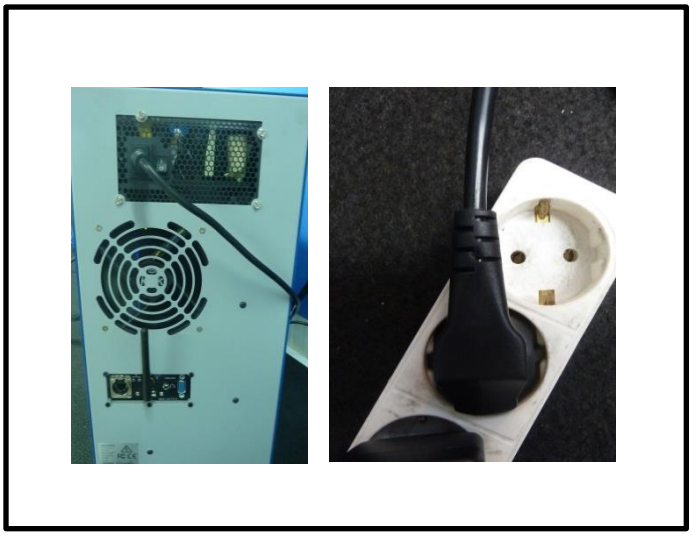


IMPORTANT: do not forget to switch on the power button.

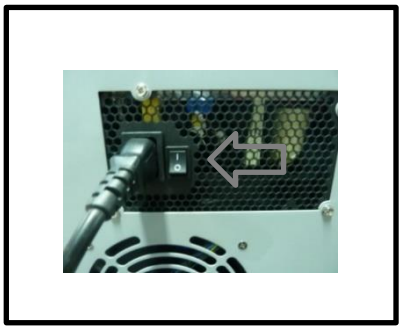
e. Connect the Wi-Fi antenna in the Wi-Fi antenna connector located in the rear panel of the simulator.



f. Connect Soldamatic to the power source:



IMPORTANT: do not forget to switch on the power button.



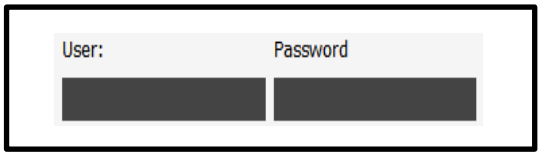
If you want to use the **Teacher Software** program in Classroom configuration, follow these steps:

a. Connect your laptop or PC to the Soldamatic network provided by the Soldamatic router.



b. Open the Teacher Software program. The required IP adress will be **ALWAYS 10.0.0.1**

c. Introduce the user and the password



User: Teacher

Password: Soldamatic

d. You can start using your Teacher Software!

6. STARTING UP WITH SOLDAMATIC

6.1 SOLDAMATIC TORCHES AND COUPONS

Once the installation is ready, is time to start using your Soldamatic, but first you need to know all the welding torches and coupons this simulator includes:

Electrode clamp and stick: simulated coated electrode that works with the work pieces the same as in real welding, and incorporates some led light markers needed to work with the Augmented Reality system. This electrode stick can be used with a regular commercial torch connected to the welding equipment/central unit through a real welding connector. The electrode stick has been designed with a shape, weight, and size like a real electrode and it is also prepared to be consumed (like in reality) as it is a retractile electrode. All this makes the student work as if he/she were in a real workshop.

Markers for SMAW improving AR detection and user experience. This great improvement will solve the electrode detection issues: Augmented Reality markers are also included in the electrode, but you will have the possibility of choosing between this electrode and the LEDs light one.





MIG-MAG (GMAW, FCAW) welding torch: real welding torch from **Abicor Binzel**, a worldwide leader in welding consumables, with markers ready to work with the Augmented Reality system. The torch is connected to a real welding connector in the welding equipment/central unit. MIG-MAG (GMAW, FCAW) welding is a semi-automatic or automatic process that uses a continuous wire feed as an electrode and an inert (MIG) or semi-inert (MAG) gas mixture to protect the weld from contamination. The wire can be solid (GMAW) or cored consisting on a steel electrode surrounding a powder fill material (FCAW). With SOLDAMATIC, the student selects first the shielding gas and the

wire's type and diameter, and once he is welding he could manage the wire speed with the control in the welding equipment.



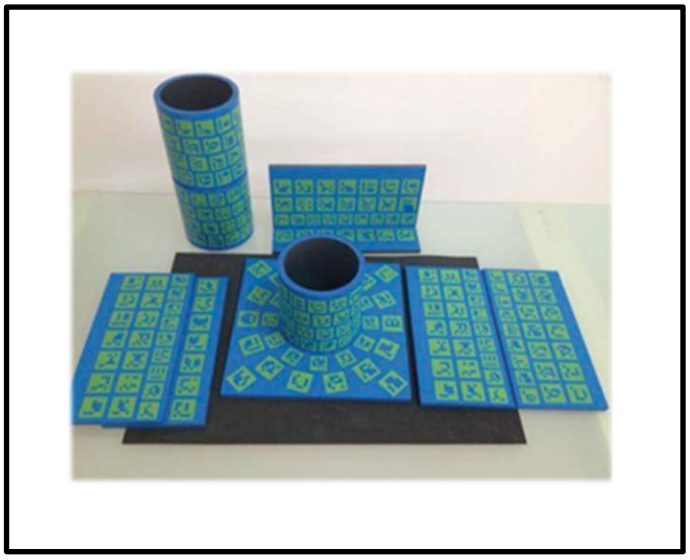
TIG (GTAW) torch and simulated filler rod: real TIG (GTAW) from **Abicor Binzel**, a worldwide leader in welding consumables, torch with markers ready to work with the Augmented Reality system. The torch is connected to a real welding connector in the welding equipment/central unit. The filler material is made by a simulated filler rod that works the same as in real welding, which incorporates 3 led markers to be identified by the Augmented Reality system. The student can manage the filling material by touching slightly with the rod in the welding joint, exactly as it happens in real welding. The filler rod has been designed with a shape, weight, and size like a real filler rod to get the student used to it.

As it happens with the electrode, AR markers are also included in the GTAW rod improving the Augmented Reality detection. This improvement is completely optional, so you can decide whether to use markers or the LEDs rod. To do so, access to the Soldamatic internal menu.





Work Pieces: Standard welding training work pieces prepared to work with the SOLDAMATIC Augmented Reality system.

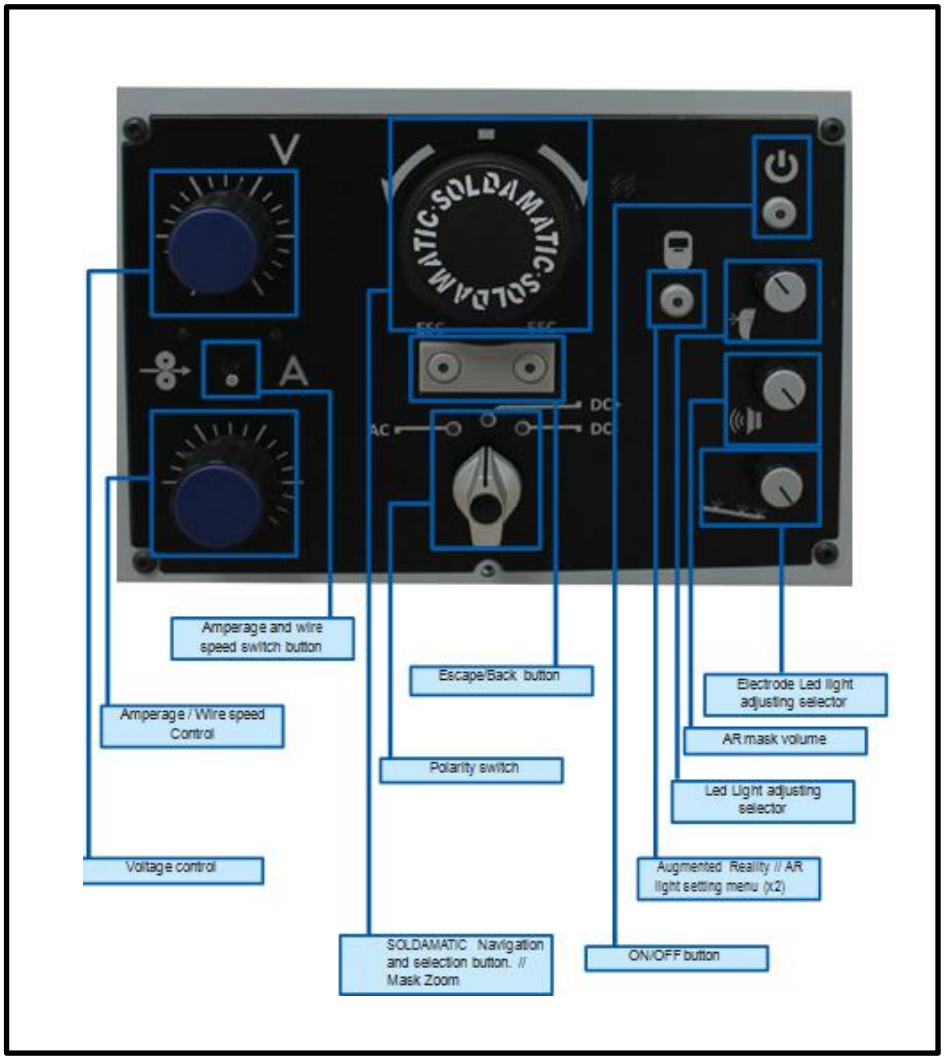


6.1 SOLDAMATIC AUGMENTED REALITY WELDING MASK

Real welding mask which has two high resolution micro-cameras and 5" screen that will make you enjoy the Augmented Reality sensations much better. This set lets you enjoy the incredibly innovative experience of the Augmented Reality. Both the SOLDAMATIC accessories (work pieces, torches, electrode, and filler rod) and the real environment are shown to the user through mask screen and they interact to create a real-time augmented reality where the most realistic simulated welding experience is possible. The welding mask also have led lights with a power selector in the front panel of Soldamatic, that are used to maintain environmental light conditions stable, as Augmented Reality is an artificial vision technology, light is very important for the system to work properly. The mask has also built in audio.



6.2 SOLDAMATIC FRONT PANEL



ON- OFF BUTTON: Switch on and off SOLDAMATIC.

ESCAPE/BACK BUTTON: Turn back in menu navigation. It is also used during the exercises execution to access to the practices options menu.

SOLDAMATIC NAVIGATION AND SELECTION KNOB. MASK ZOOM AND 2T-4T SELECTOR: This button is used to navigate through the menus and to select different options (turn it left and right to navigate and push it to enter selection).

If you want to zoom in or out the image that appears on your mask, you must press this button for 2 seconds (approximately), then turn it to the right (zoom in) or to the left (zoom out) until reaching a perfect vision of your execution.

Finally, press this button again and all the changes will be saved. Remember that the zoom option is only available during the exercise execution.

In the MIG/MAG welding process you can weld in 2 or 4 times. If you weld in 2 times, you cannot release the torch button, however, if you weld in 4 times, you can release it. Soldamatic also offers this possibility: when you are choosing the exercise parameters, you have to select if you want to weld in 2 or 4 times. Nevertheless, you can also change that option during the exercise execution. Just stop welding and press the navigation button and continue welding the same bead. An icon that appears in the upper left corner of the screen will indicate you that change.

VOLTAGE CONTROL: Voltage selection button to change the voltage before and during the exercises execution.

AMPERAGE/WIRE SPEED CONTROL: Amperage selection button to change the amperage before and during the exercises execution.

AMPERAGE AND WIRE SPEED SELECTION BUTTON: Switch between amperage (electrode) and wire speed (MIG/MAG) depending on the type of welding selected for the exercise.

Besides, this button (in the wire speed position) together with the voltage is used to select the transfer methods for the MIG/MAG welding process like:

- Short circuit: 18,2 V/9 m/s
- Globular: 22,5 V/12,6 m/s
- Spray: 25 V/4,0 m/s

LED LIGHT ADJUSTING SELECTOR: the Augmented reality is an artificial vision innovative technology that works with the environmental light. Led light selector is used in environmental poor light conditions to supply the best light for the system to work properly. It is recommended to start calibrating the system without using the led light, with the selector turned totally to the left. If after calibrating the work piece, the welding torches or sticks show interferences or problems to be detected by the system, adjust the light turning the led light selector to the right and try to recalibrate it again.

IMPORTANT: keep out of direct exposing sun light areas and direct focus lights.

AUGMENTED REALITY CALIBRATION BUTTON: Once the student has made the selection of the welding parameters through the navigation menu, the system must be calibrated to start executing the welding practices with SOLDAMATIC. Put on the AR mask, adjust it properly and look at the work piece on the black carpet, push the calibration button to initiate the SOLDAMATIC AUGMENTED REALITY system... KEEP looking at the work piece during all the calibration process. Next time you only must push the button 1 second and the adjustment will be much faster, as the system has already recognized the environment you are working in.

Another way to start the Augmented Reality is by pressing the torches' triggers when looking at the workpiece.

Press this button to access to the Soldamatic lightning menu.

AR MASK CONNECTOR

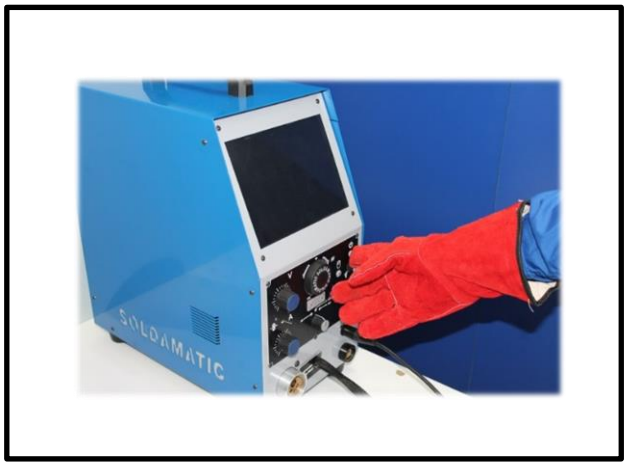
MIG/MAG and TIG TORCHES REAL CONNECTOR

ELECTRODECLAMP CONNECTOR

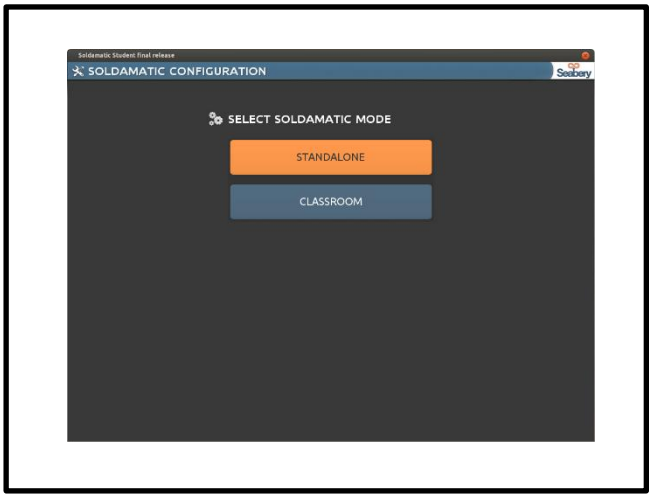
REAL TORCH CONNECTOR.

6.3 SWITCH ON YOUR SOLDAMATIC

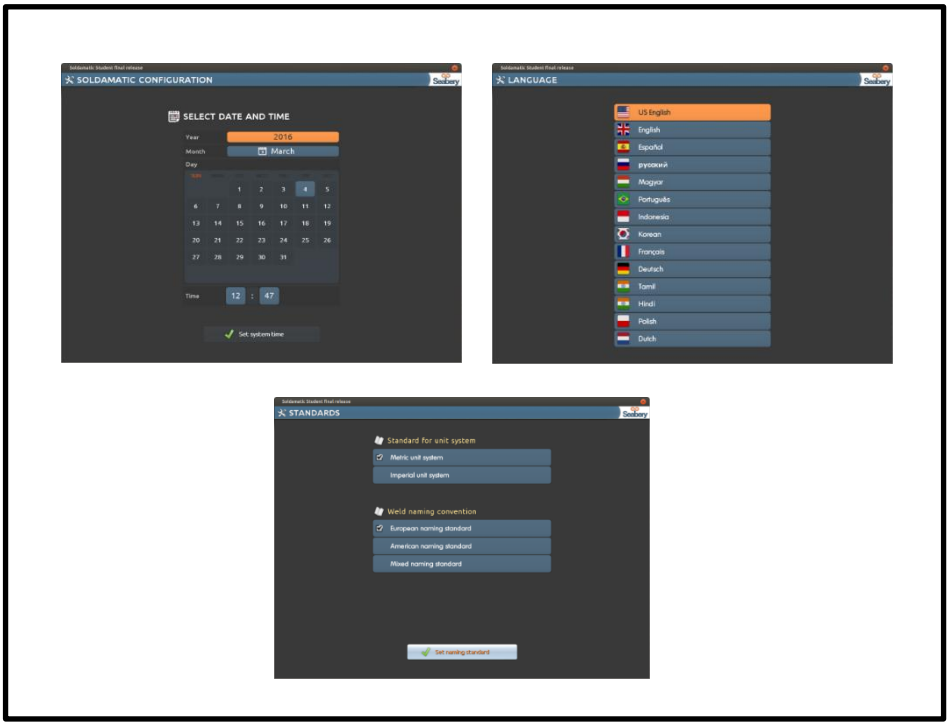
Press the power button:



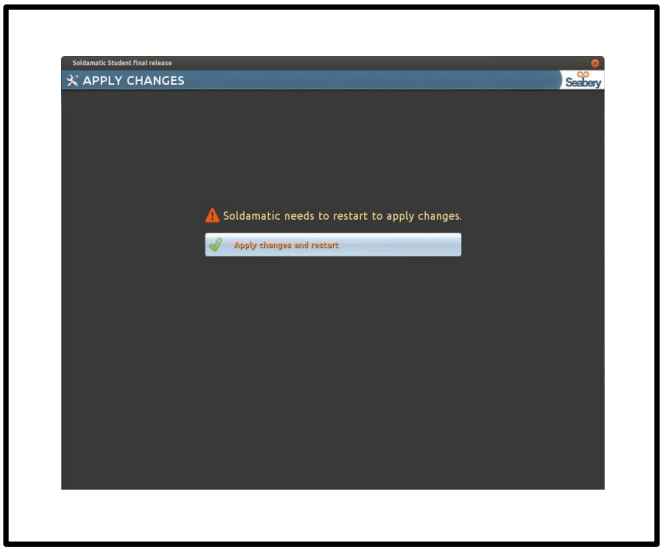
The first time you start using your Soldamatic, you will have the possibility of choosing your configuration (see point 4).



After that, select “Date & Time”, “Language” and “Welding Standards”.



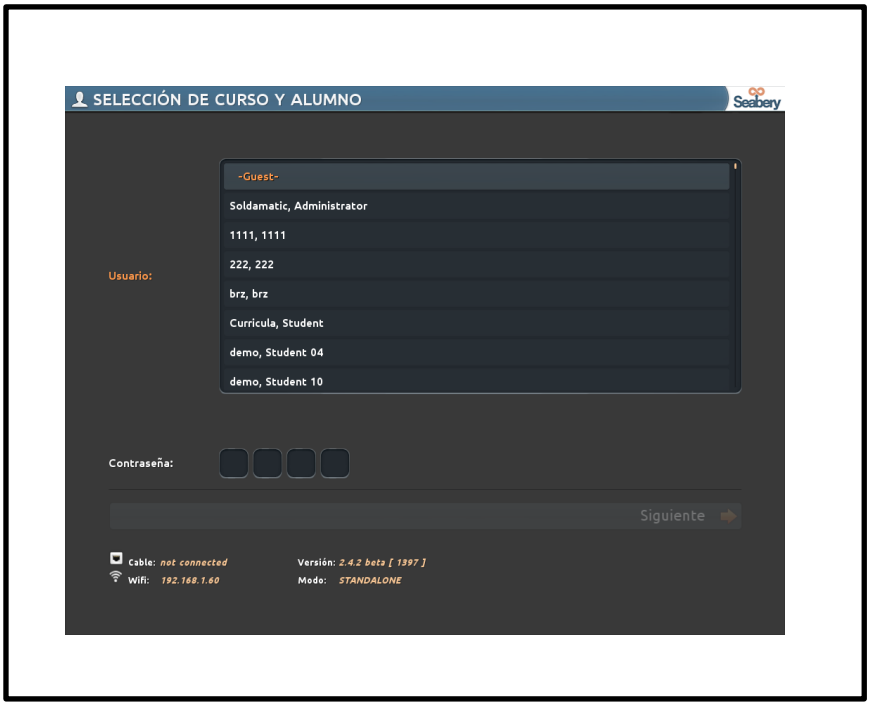
The last step is to save your changes:



Your Soldamatic will be restarted to apply all the changes.

6.4 SELECT A WELDING PRACTICE

Your login screen will show a courses' list that are included in your Soldamatic by default (you can delete them or make them invisible through the Teacher Software).



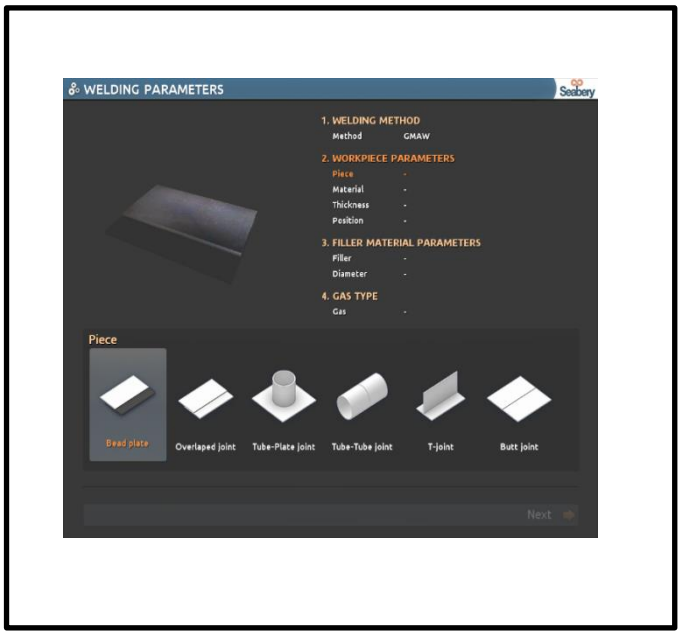
IMPORTANT: remember that you can add as many courses as you want through the Teacher Software.

If you want to start using your Soldamatic choosing your own parameters, select the “Open Demo” using the central knob. The following screens will appear:

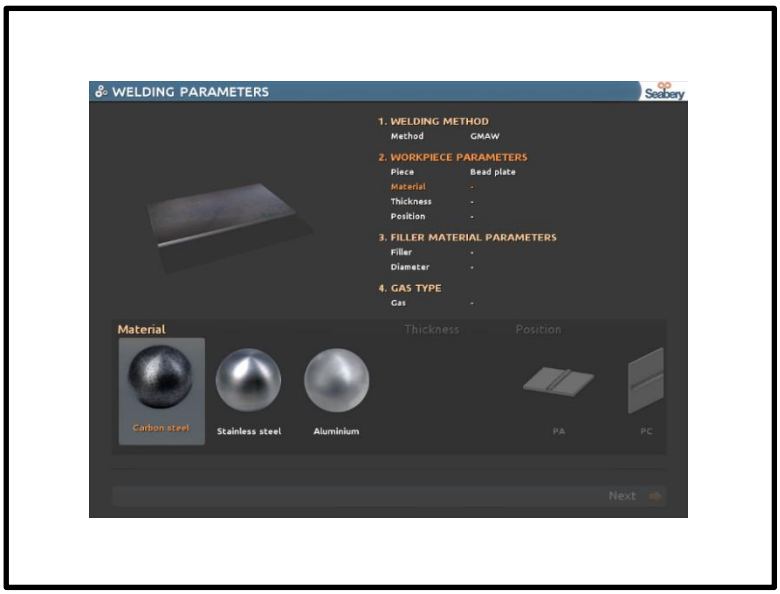
SELECT A WELDING PROCESS



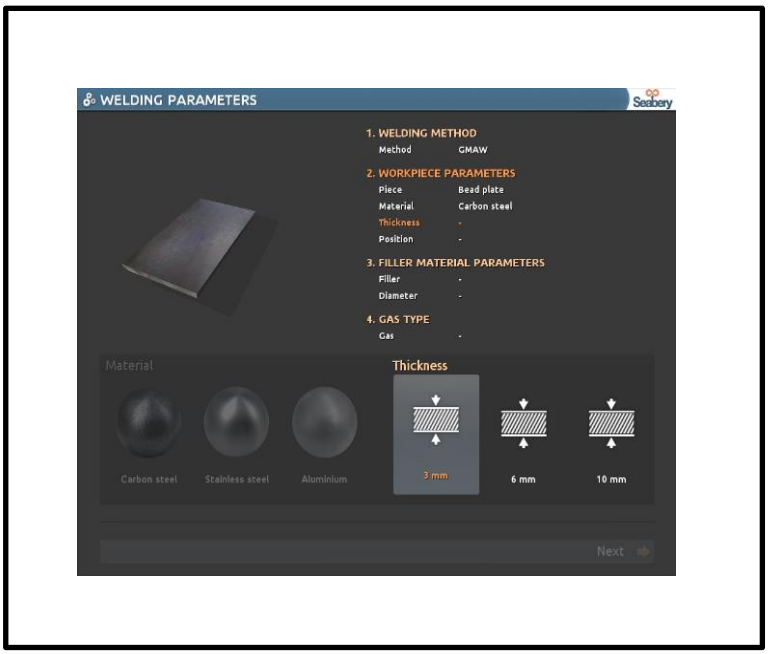
SELECT A WELDING COUPON



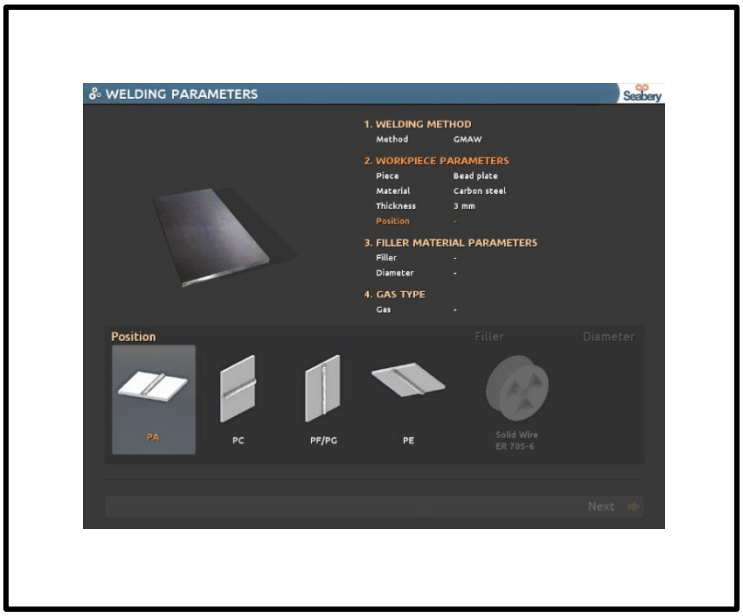
SELECT BASE MATERIAL (End User configuration ONLY has “Carbon Steel”, if you want more materials, please contact your distributor).



SELECT THE COUPON THICKNESS



SELECT A WELDING POSITION



SELECT FILLER MATERIAL OR ELECTRODE TYPE



SELECT GAS TYPE (IF NEEDED)



Just to make sure that you have chosen the right welding parameters, an on-screen summary will appear. If the student makes a wrong parameter selection SOLDAMATIC does not let him/her go through the exercise. He must go back and select the welding parameters again.

REMEMBER… The teacher can decide (through the Teacher Software program) if he prefers to assign an open exercise to the students so that they can choose the different parameters or deactivate some options, depending on their learning level and the teacher criteria.

Welding parameters supported by the Soldamatic simulator standard version

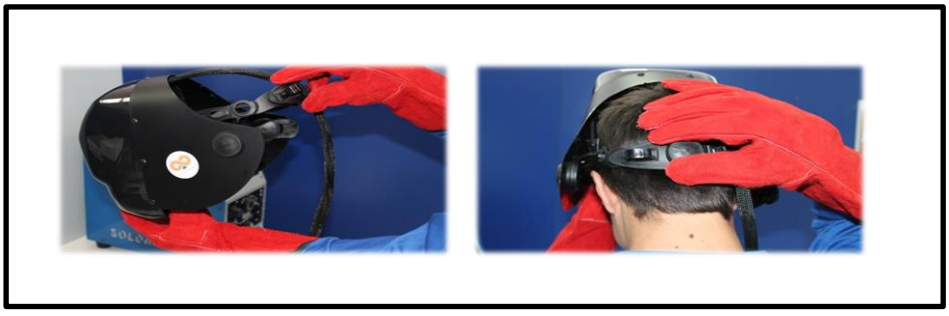
MIG-MAG (GMAW, FCAW) WELDING:	TIG (GTAW) WELDING:	STICK (SMAW, MMA) WELDING:
Shielding gas: **-C15 (15% de CO2)** **-EN 439-M2 (4)** **-CO2** **-EN 439-C1 (1)** **Base material:** **-Carbon steel** **Filler material (wire):** **-Carbon steel** **Wire type** **-Solid** **-Tubular** **Wire diameter (mm):** **-0,8 mm** **-1 mm** **-1,2 mm**	**Shielding gas:** **-Argon** **EN 439-I (1)** **Base material:** **-Carbon steel** **Filler material (rod):** **-Carbon steel** **Rod diameter (mm):** **-2,0 mm** **-2,4 mm**	**Base material:** **-Carbon steel** **Filler material (electrode stick):** **-Carbon steel** **Electrode stick type:** **-Basic** **-Rutile** **Electrode diameter:** **-2,5 mm** **-3,2 mm**

SOLDAMATIC has been designed to be easily upgraded with new features by software downloads connecting to our SOLDAMATIC SERVICE CENTER. To know all the available options please contact your local distributor or visit **www.soldamatic.com**

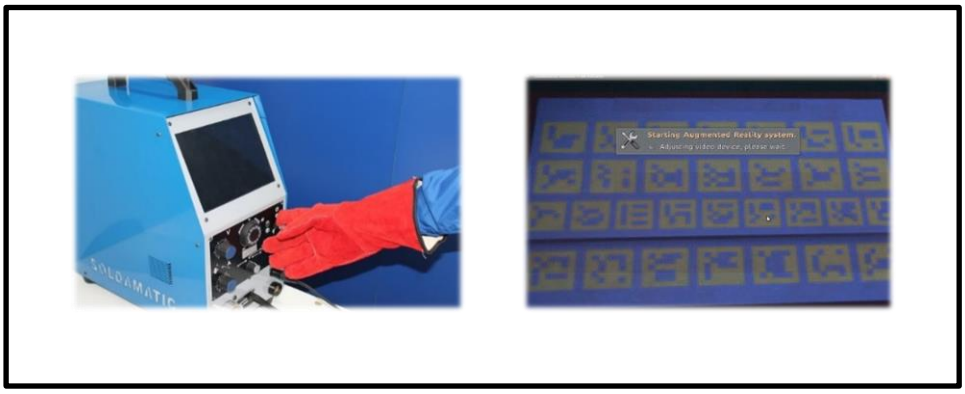
6.6 START WELDING

Now it's time to start welding!

First, connect the torch you are going to use and put on the **AR welding mask** as highlighted in the following picture:



Look direct to the work piece. You must see the whole piece in the screen. While looking at the work piece push the button with the mask icon in the middle of the SOLDAMATIC front panel. Remain looking at the work piece while the augmented reality system is calibrating the cameras and adjusting them to the environmental light conditions.



When it finishes you will see the work piece with the real aspect of a carbon steel work piece and you can start welding!

If you notice that you cannot perform the weld instead of having the right parameters selected, probably you are not seeing properly the markers through the Augmented Reality welding mask. Then, you must move slightly the torch/electrode/rod to each side until you get the right elements signal and can weld.

IMPORTANT: starting the Augmented Reality system can take a few seconds and it is very important that the student watches the work piece at all time because the simulation software is provided with an intelligent auto-calibration system which detects the surrounding light and adapts itself to it to obtain the best performance results. Because of this the welding mask is equipped with a led light focus which creates a stable light environment in the working area to let the artificial vision system identify rightly and let all the peripherals interact using our Augmented Reality technology.

Once the system is auto-calibrated the student will see the carbon steel (in the standard version of SOLDAMATIC) work piece. The student is still watching and working with a real physical work piece, but this reality has been augmented with a virtual image that turns the work pierce into an almost real metal work piece used in a real workshop.

From here on the student must perform the welding with the selected parameters exactly as in real life, using some of the welding torches connected to the welding equipment/central unit as showed before.

IMPORTANT: for a correct recognition of the welding torches the student must see the markers at all time. These markers are placed in the arrow of the guns and have been designed to make its recognition easier when the student has a right welding position. If during the welding the student does not see any of the torch's markers it is possible that the system does not identify the torch and the welding practice will be interrupted.

The welding must be performed by the student always according to the teacher explanations.

SOLDAMATIC welding training simulator **does not substitute the teacher work** but it is complementary to real welding equipment during the practice and training first steps. So, the student must have previous welding knowledge given by the teacher before using the SOLDAMATIC simulator.

6.5 HELP ICONS SYSTEM

While the exercise execution, different help icons and warning system are displayed to help the student knows how is he/she executing the exercise and correct and train the main welding skills to become a good welder:

-Head (welding mask) position: Different arrows indicate the student to move closer to the work piece, further, to the right or to the left. They are always focused on the WELDING MASK position. The student head position is one of the most important skills to learn in welding training. The system is designed to make the student get used to the right welding position.

-Voltage: You must work in the right ranges depending on the parameters selection.

-Amperage: You must work in the right ranges depending on the parameters selection.

-Wire Speed: You must work in the right ranges depending on the parameters selection.

-Gas flow: Protective gas liters per minute.

-Stick Out: Distance of the welding torch to the work piece

-Welding Speed

-Travel angle: Horizontal angle of the welding torch against the work piece

- Work angle: Vertical angles of the welding torch against the work piece

- Help icon for the TIG filler rod.

- Help icon for the electrode inclusion. It only works in SMAW and GTAW.

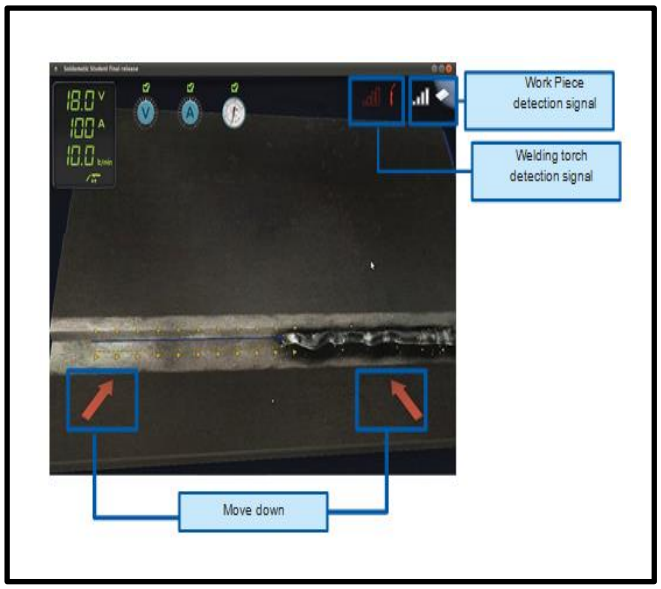
- Indicator for the arc type (short-circuit, globular and spray). It only works in GMAW and FCAW and it appears in the upper left part of the screen together with the voltage and the wire speed help icons.

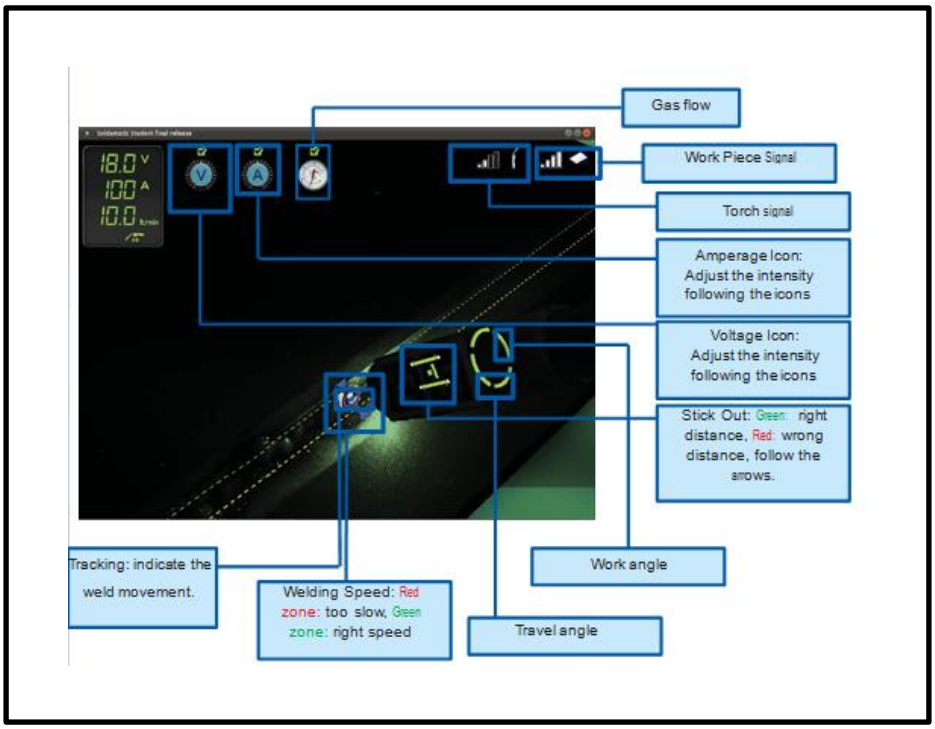
- The movement help icon is defined by three parameters: the wave amplitude, the bead width, and the stop time.

- The wire speed/intensity help icon depends on the voltage to avoid crackling noises in GMAW and FCAW.

- In the 'Advanced' level no help icons are shown.

IMPORTANT: the teacher can enable/disable all the help icons through the Teacher Software

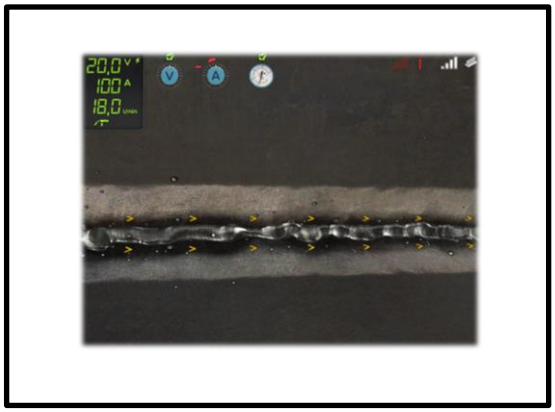




- Slag in FCAW and SMAW: once you finish the welding bead in SMAW and FCAW, you will see the slag over the bead that you can clean by pressing twice the central knob. Select the 'Clean Slag' option.



The weld will be automatically cleaned as highlighted in the following picture.



- Slag inclusions: if you contaminate the weld because of slag inclusions, the system will show a warning about this defect.



6.6 SOME TIPS TO HAVE A BETTER WELDING EXPERIENCE WITH SOLDAMATIC

Before we start working on an exercise we need to adjust the helmet light. Our recommendation is to set it as it is shown in the following picture:



However, this adjustment will depend on the light environment of your work station.

If you are going to use the SMAW process, adjust the LED lights by using the stick button in the front panel:



Once you have finished, it is time to start the Augmented Reality: look at the workpiece and press the AR button once.

As it has been said before, sometimes you can have some detection problems due to the light environment.

How would my workpiece look if I have this kind of detection problem?





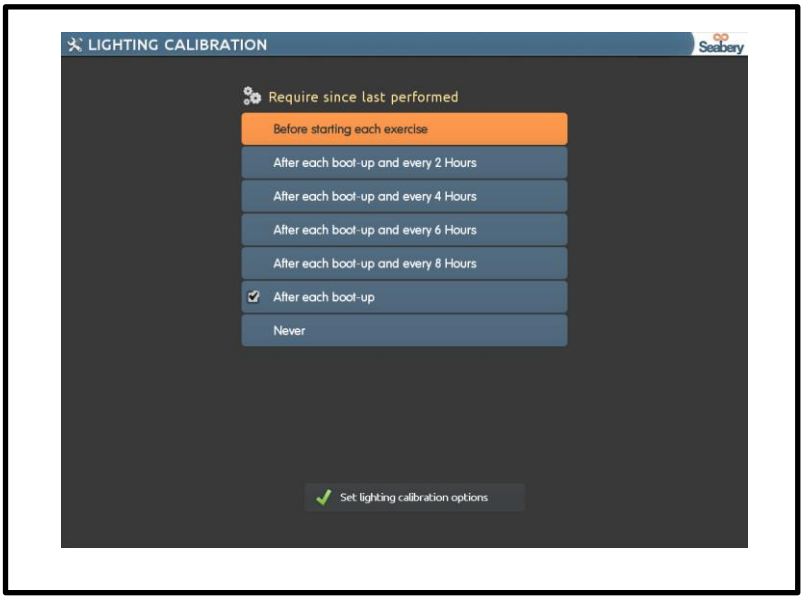
To solve the light detection problem, please access to our Light Setting menu by pressing the AR button twice.

The light calculation can be scheduled, so any change you make in the light presets (brightness & white balance) could be saved:

1. Access the Soldamatic Internal menu.
2. Select the option “Change Light Adjust Options”.

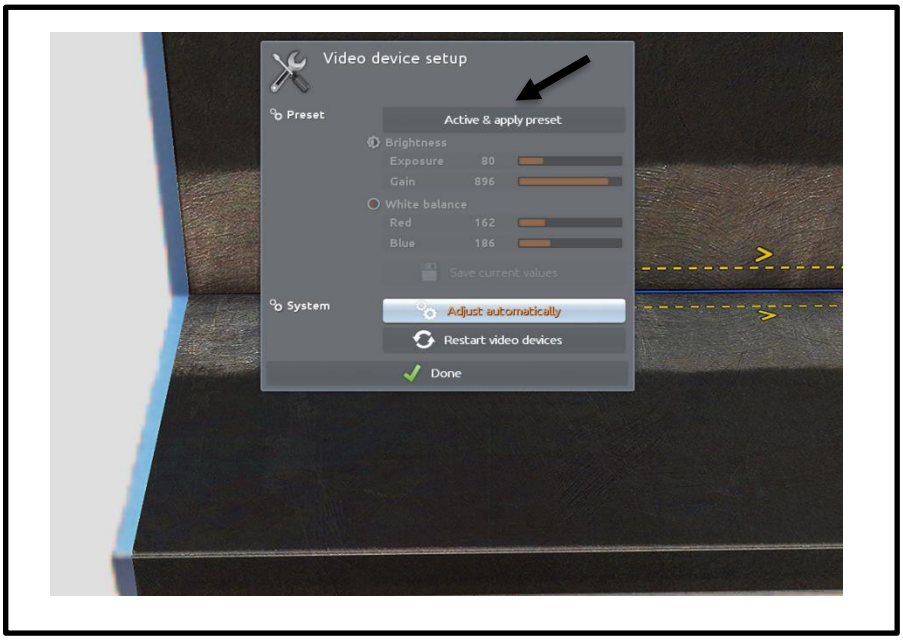


3. Select the desired option.
4. Select the option “Set lighting calibration options” to save changes.

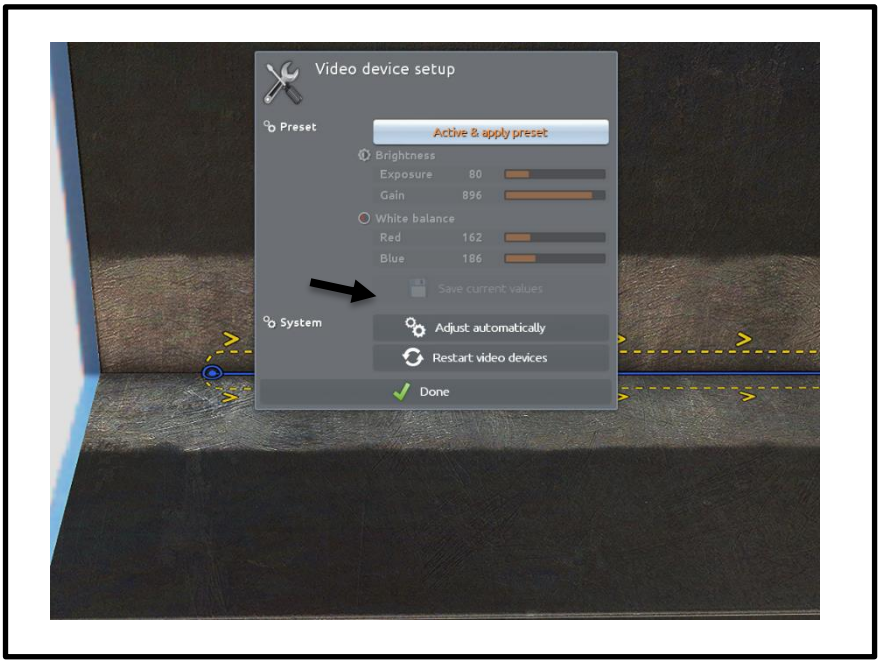


Furthermore, you can do the same process while performing an exercise following the next steps:

1. Start the Lighting menu by pressing twice the Augmented Reality button.
2. Using the central button, select the option “Activate & Apply Preset”.



3. Configure Brightness and White Balance presets according to your lighting conditions.
4. Select the option “Save current values” using the central button.



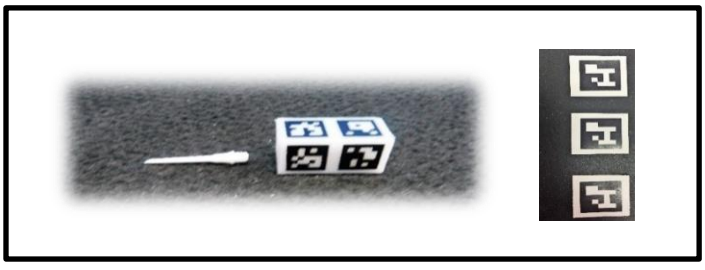
If your workpiece appears to have a red, blue, or green color while performing a welding practice, please access to this menu by pressing twice the AR button. Then, change manually the white balance until you can see your workpiece in perfect conditions.

6.9 HOW TO USE THE NEW ELECTRODE WITH AR MARKERS

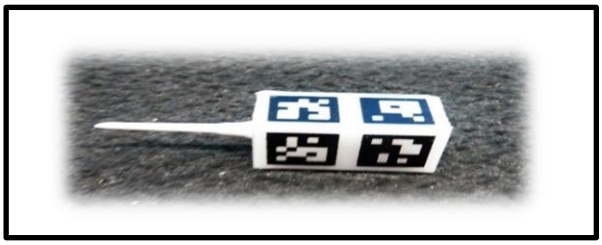
When can I use this new electrode type?

- When having electrode detection problems because it has a better performance.
- When your Electrode LEDs do not work: this does not mean that you cannot ask your distributor for a replacement.

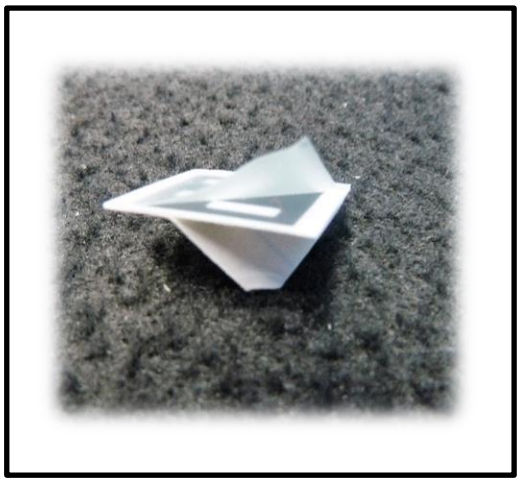
Electrode with AR Markers setup



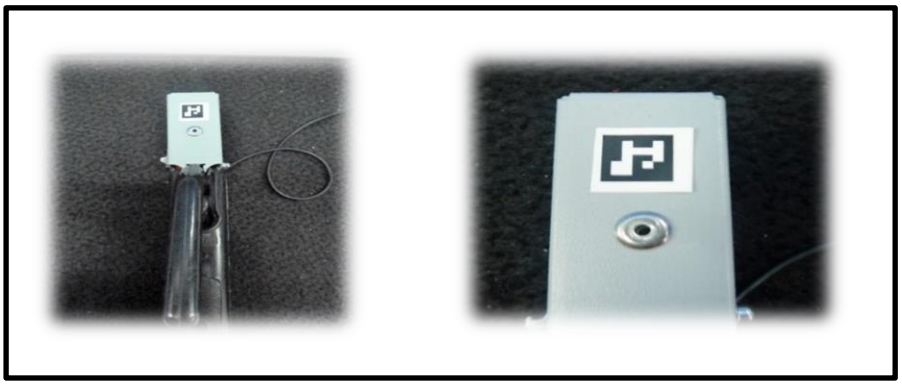
1. Screw the white tip together with the markers piece.

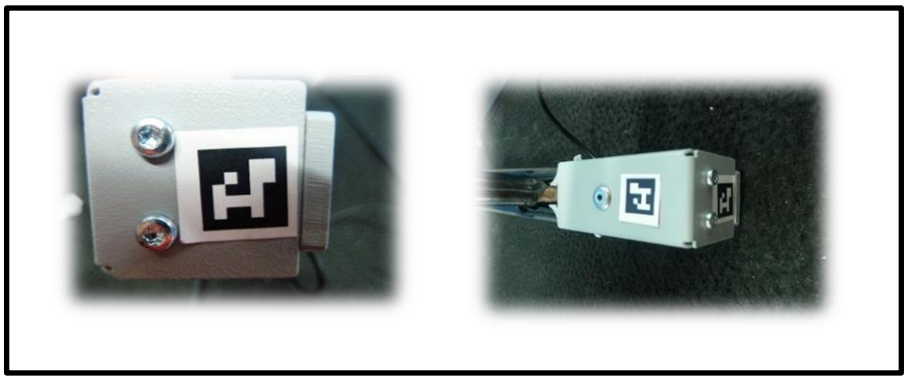


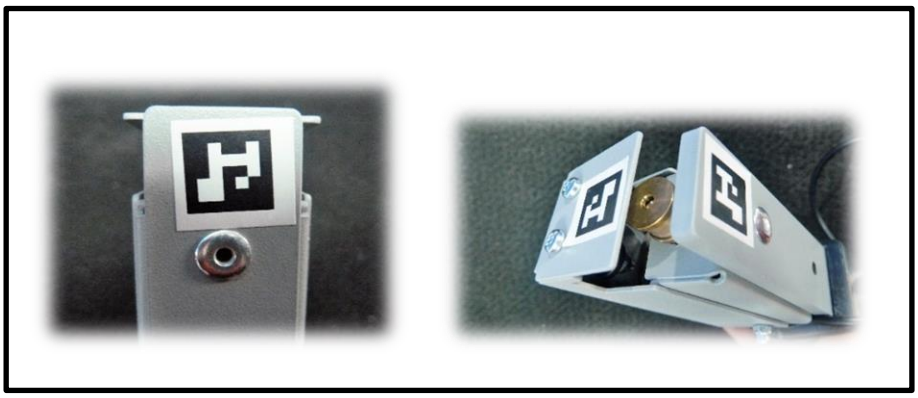
2. Remove the plastic films from the stickers (x3).



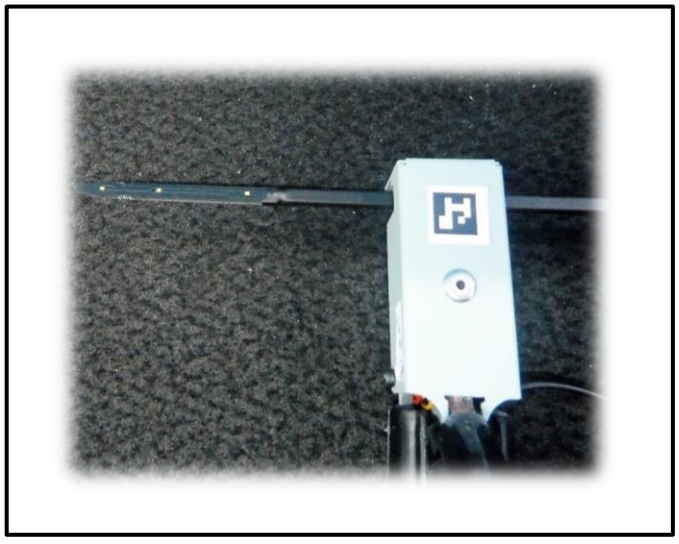
3. Place the stickers in the electrode clamp in the following positions to let the system recognize the Augmented Reality:



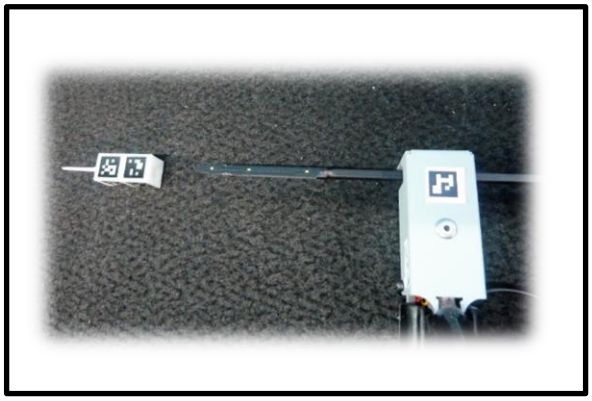




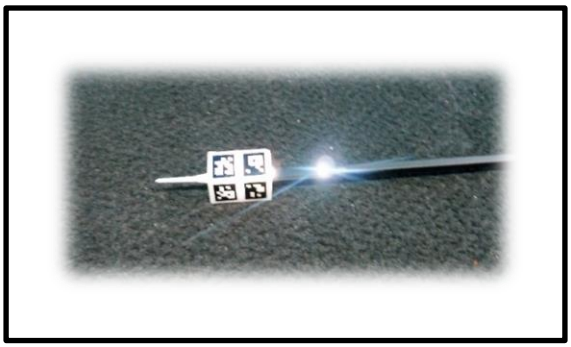
4. Place the electrode stick in the clamp.



5. Place the Markers piece in the electrode tip. The LEDs lights can be switched on and off.

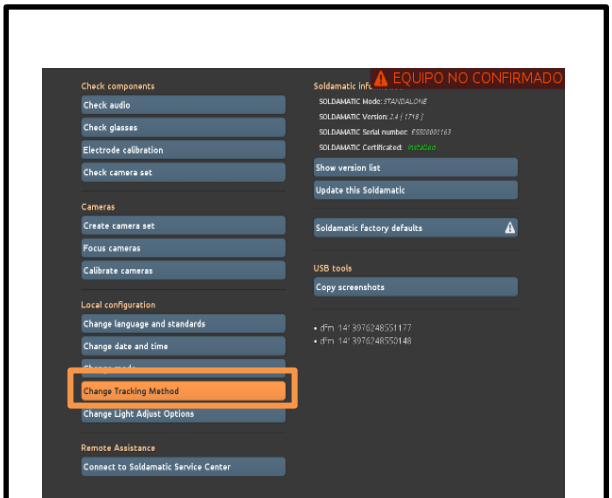


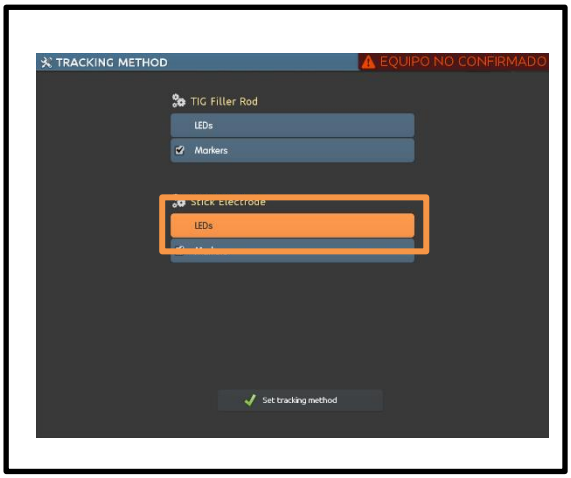


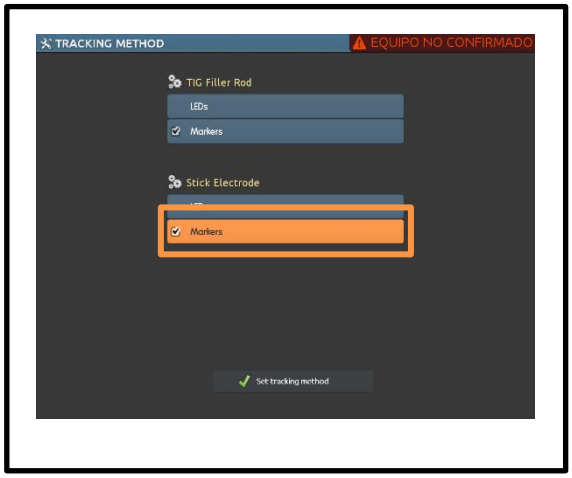


Start using your Electrode with AR Markers

1. Access to the Soldamatic internal menu and select the “Tracking Method” option.







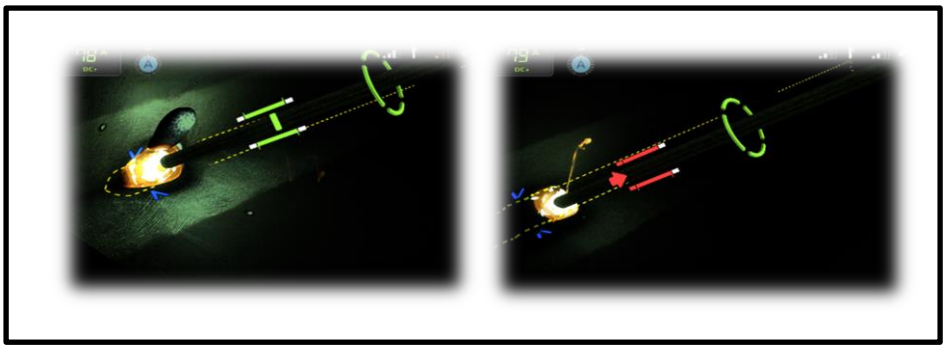
*** If you want to use just the Electrode with LEDs, repeat the above process and the "Detection Mode" will change:**

***Important: if you want to use the LEDs electrode, do not forget to remove the AR markers piece.**

2. Press the option "Set tracking method" and the change will be saved.

3. Select your SMAW practice and start welding!

4. To take advantage of the electrode with markers and to weld in a good way, you always must look at the markers like you do with the MIG torch.



5. To get the best detection, try always to look at four AR Markers as highlighted in the following picture:



7. ANALYSIS MODULE

Once you have finished a welding execution, press the “Escape” button and the following options will be proposed:

Continue exercise: The student restarts the exercise in the point she/he paused it.

Restart exercise: The student can start again the same exercise from the beginning without selecting all the parameters again. The work piece will be cleaned to execute a new weld.

Confirm exercise: The student has finished the exercise and wants to tape it and see the diagnostic analysis of her/his performance

Cancel exercise: The student wants to go back to the parameters definition initial screen without saving the exercise.

Both the teacher and the student can restore the video of the exercise and see her/his performance regarding the following welding training skills and parameters:

- CTWD
- Speed
-Arc Length
-Stick Out
-Voltage
-Intensity
-Travel Angle

-Work angle

-Straightness

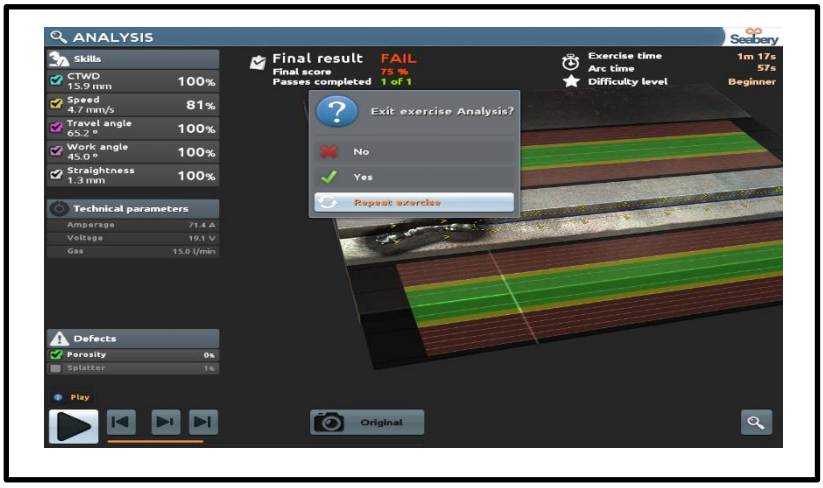
Pressing the play button, the video of the exercise will start playing and the graphics in the above half of the screen for each welding training skills and parameters will start drawing. There is a line for each one.

The student and the teacher can select and deselect skills and defects to focus on those they are more interested in, depending on each student performance.

In the below half of the screen, more typical welding defects are measured:

-Porosity

-Splatters



Once you have reviewed and evaluated your exercise in the Analysis Module, the system will show a new “Repeat exercise” option, allowing you to repeat your exercise from the beginning in the same conditions, so you do not have to select all the parameters again.

7.1 ANALYSIS MODULE SCORING

The Analysis module offers a **PASS & FAIL** score. To pass any welding practice you must have an 80% (or more) in all the parameters. If so, your final score will be the average of all the welding parameters. In case you get less than an 80% in, at least, one of the welding parameters, your

final score will be the percentage of the lowest. If you get less than 80% in more than one welding parameter, your final score will be the average of those scores.

This scoring will be applied in the three different levels Soldamatic supports. The only difference between them is the tolerance range:

1. Beginner level tolerance range: 40%

2. Intermediate level tolerance range: 20%

3. Advanced level: 20%

8. REMOTE MAINTENANCE & UPGRADES

Seabery SOLDAMATIC SERVICE CENTER team will notice all the authorized distributors and registered customers via email, when a new software upgrade is available, proposing to upgrade and explaining the new functionalities and improvements of the new version.

To activate the remote assistance, please follow these steps:

1. Login as an “Admin” user.

2. Select the option “Configure your Soldamatic”

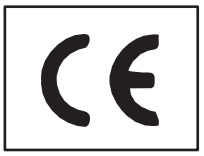
3. Using the navigation keys or the central knob, select the option “Connect to Soldamatic Service Center”.

The remote assistance is also used to help our customers solving any problem they can have with the simulator.

9. CERTIFICATE OF CONFORMITY

Name and Address of the manufacturer	Seabery Soluciones S.L Calle Almadraba nº4 Polígono Pesquero Norte. C.P 21002 Huelva, Spain
Product	SOLDAMATIC AUGMENTED TRAINING TECH
Brand	SEABERY AUGMENTED TRAINING&PERFORMANCE
Model Number	Soldamatic 2014
Machine Type	Augmented Reality Welding Simulator
Sku Number	Soldamatic 2015.2.0.xxxxx (x is for 0-9)
Name and Address of the Responsible Party	Seabery Soluciones S.L Calle Almadraba nº 4 Polígono Pesquero Norte, P.C. 21002 Huelva, Spain
Contact person	Quality and Customer Care Department
Phone Number	+34 959807473
Complies with the requirements of the Directives	Low Voltage Directive 2006/95/CE, as attested by Conformity with the following harmonized Standard: • EN60950-1 EMC Directive 2004/108/CE, as attested by conformity with the following harmonized Standard: • EN55022, AS/NZS CISPR22, Class B • EN55024 • EN61003-2 Class D • EN61000-3-3 R & TTE Directive 1999/5/CE, as attested by conformity with the following harmonized Standard: • Article 3.1 (A) Health and Safery - EN60950-1 - EN62311 • Article 3.1 (B) EMC - EN301 489-1 - EN301 489-3

-EN301 489-17



- Article 3.1 (B) Spectrum usages

- EN300 440-2
- EN300 328
- EN301 893

Harmonized standards applied

IEC 60950:1991
EN 60950: 1992
CISPR 24: 1997/ EN 55024:1998
IEC 61000-3-2: 1995 / EN61000-3-2:1995
IEC 61000-3-3:1994 / EN61000-3-3:1995
FCC Title 47 CFR
TBR 21:1998, EG201 121:1998

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The following local Manufacturer is responsible for this declaration



Product	SOLDAMATIC AUGMENTED TRAINING TECH
Brand	SEABERY AUGMENTED TRAINING&PERFORMANCE
Model Number	Soldamatic 2017
Machine Type	Augmented Reality Welding Simulator
Sku Number	Soldamatic 2017.2.0.xxxxx. (x is for 0-9)
Name and Address of the Responsible Party	Seabery Soluciones S.L Calle Almadraba nº4 / Polígono Pesquero Norte P.C 21002 Huelva, Spain
Contact person	Quality and Customer Care Department
Phone Number	+34 959807473

April 1st 2017 Quality Control Manager

SEABERY SOLUCIONES, S.L

info@seabery.es

www.seabery.es