CONTROL UNIT

DAMPER BOX DUALFLOW

SAFETY INSTRUCTIONS FOR USE AND MAINTENANCE

No W000375442

EDITION : EN
REVISION : B
DATE : 05-2021

Instructions for use

REF : **8695 8600**

Original instructions

LINCOLN ELECTRIC

Thank for the trust you have expressed by purchasing this equipment, which will give you full satisfaction if you follow its instructions for use and maintenance.

Its design, component specifications and workmanship comply with applicable European directives.

Please refer to the enclosed CE declaration to identify the directives applicable to it.

The manufacturer will not be held responsible where items not recommended by themselves are associated with this product.

For your safety,there follows a non-restrictive list of recommendations or requirements, many of which appear in the employment code.

Finally we would ask you kindly to inform your supplier of any error which you may find in this instruction manual.

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DESIGNATION	PAGE
Created in English	

LINCOLN ELECTRIC FRANCE SAS
Avenue Franklin Roosevelt
76120 – LE GRAND QUEVILLY

DAMPER BOX DUALFLOW UNIT

CE DECLARATION OF CONFORMITY

1) CE/EU DECLARATION OF CONFORMITY

Dear customer,

This CE/EU declaration of conformity certifies that the supplied equipment complies with applicable laws and regulations when used in accordance with the enclosed instructions. Any other assembly or modification would void our certification. That is why you are asked to call in the manufacturer for any modifications you wish to make. Failing that, the company responsible for the modification must repeat the certification process. In that case, we would not be liable for the new certificate in any way. Please hand this document over to your technical department or purchasing department for filing.

DESCRIPTION: DAMPER BOX DUALFLOW
TYPE: W000375442
NUMBER: See identification plate

2) This equipment complies with European Directives.

◙ N° 2006/42/CE ◙ N° 2011/65/UE ◙ N° 2014/30/UE

3) Based on the following harmonised standards:
EN ISO 12100:2010
EN ISO 13850:2008
EN ISO 13857:2008
EN ISO 12499
EN 60204-1:2006 / AC:2010

4) Air Treatment Products Manager, authorised to compile the technical manufacturing document.
M. Patrick DEGROOTE
LINCOLN ELECTRIC FRANCE SAS
Avenue Franklin Roosevelt
76120 – LE GRAND QUEVILLY

5) Manufacturer.
LINCOLN ELECTRIC FRANCE SAS
Avenue Franklin Roosevelt
76120 – LE GRAND QUEVILLY

CERGY, on 29/10/2019

A - INTRODUCTION

USING THE MANUAL

Please read this manual before you start handling, installing or using the machine. Keep the manual safe in a place known to the user of the machine and maintenance personnel until the machine is finally destroyed.
This manual explains how to transport, install, use and maintain the filter. It cannot in any event replace the experience of the user for operations of varying difficulty.
Before the filter is used by a new user, make sure that they have read this manual and understood all the explanations provided.
For any further information, please feel free to contact the technical departments of **LINCOLN ELECTRIC**.

MACHINE GUARANTEE

This machine is guaranteed for 12 months from the date of purchase.
During the first 12 months of use, defective parts shall be replaced free of charge providing the damage is not the result of improper use of the machine.
The machine guarantee shall cease automatically when the machine is no longer the property of the original buyer.
The terms of validity of the guarantee shall be subject to verification and acceptance by our sales department.
Any nonconforming use that could damage the machine shall not be covered by the guarantee.
For the guarantee to operate, the equipment must be inspected by our technical department.

ASSISTANCE

LINCOLN ELECTRIC is at your disposal for any work on your equipment.
Please send any requests to the technical department.

HOT LINE (+33) 825 132 132

DESCRIPTION OF PICTOGRAMS

To make this document easier to understand, it contains pictograms with the meanings given below:

DANGER: indication used when failure to follow the instructions could lead to a serious hazard for personnel.

WARNING: indication used when failure to follow the instructions could lead to damage to the machine, associated elements or the surroundings.

This symbol shows that the description is intended for specialised personnel.

B - GENERAL SAFETY INSTRUCTIONS

ELECTRICAL SAFETY

Connection to the mains

Before you connect your machine, please make sure that:

— The meter, the overintensity protection system and the electrical installation are compatible with its maximum power rating and its supply voltage.

— It can be connected, in a single-phase or three-phase with earth system, to a socket compatible with the plug on its power cord (mobile equipment).

— If the cable is connected to a fixed point, the earth connection, if there is one, may never be cut off by the system offering protection from electric shocks.

— The switch, if there is one, is set to OFF.

Workstation

Arc welding and cutting requires strict compliance with safety requirements in respect of electrical currents (Order of 14 December 1988).

Working on the machine

Before any internal checking or repairs, make sure that the machine has been disconnected from the electrical installation by locking it out:

— Accidental connection of the cable of a fixed installation has been made impossible

— Cutting off by means of a fixed connection device relates to all poles (phase and neutral. It must be in the OFF position, with no possibility of being put into service by mistake

Some machines have an HV/HF arc ignition circuit (indicated by a plate). Never work inside such a box.

Any work on electrical installations must be carried out by persons qualified for that purpose (Decree 88-1056 of 14 November 1988, Section VI, Art 46).

Maintenance

From time to time, check that the machinery and its electrical accessories - connectors, flexible cables and extension cords - are correctly insulated and connected.
Work for maintaining and repairing insulating enclosures and ducts may not be carried out in a haphazard manner (Section VI, Art. 47 Decree 88-1056 of 14 November 1988).

— All repairs are to be carried out by specialists, or better yet, defective accessories should be replaced.

— Regularly check that the electrical connections are tight, with no heating.

Any fans placed in a circuit in which the air is laden with dust must be cleaned from time to time. That is because the turbine may be fouled and become unbalanced, leading to increased noise and premature wear and tear of bearings. Maintenance is required at least after every six months, depending on the type of dust treated.

The fan is an essential element of your extraction system.

Incorrect operating or inadequate maintenance could make the operating position less safe. That is why the fan must be maintained in perfect condition.

Your installation has been selected for a specific application. The turbine is characterised by a duty point based on extraction speed (speed of air in the piping) and head loss.

In accordance with the regulations of CARSAT and INRS, the installation must be inspected from time to time to make sure that it continues to comply with its reference values.

PERSONAL PROTECTION

Risks of external injury relating to welding operations

Whole body

— The operator must be clothed and protected to suit the requirements of the job.
— Make sure that no part of the bodies of operators and helpers can come in contact with metal pieces or parts that are live or are liable to become live accidentally.
— Do not wind electricity cables around the body.
— Keep safety guards and panels in place.
— The operator must always wear personal insulating protection (Order of 14 December 1988, Section III).
— The protection must be kept dry to prevent electric shocks if it is wet, or ignition in the presence of oil.

Personal protective equipment worn by operators and their helpers - gloves, aprons, safety shoes - offer the added benefit of protecting them from burns due to hot parts, splatter and slag.
Make sure the PPE is in good condition and replace it before it ceases to offer protection.

Face and eyes

It is indispensable to protect the following:
— Eyes, from arc injury (dazzling due to visible light from the arc, and infrared and ultraviolet radiation).
— Hair, face and eyes from welding splatter and projection of slag during weld cooling

The welding mask, when used under or without a helmet, must always be equipped with a protective filter, the shade of which depends on the intensity of the welding arc current (Standards NF S77-104 A 88-221 A88-222).

The coloured filter may be protected from impacts and splatter by a transparent glass located on the front of the mask.

If the filter is replaced, use another one with the same part number (shade number).

Persons in the vicinity of the operator, especially any helpers, must be protected by means of suitable screens, anti-UV goggles or, if needed, masks with suitable protective filters (EN 139).

Specific case of chlorine solvents in welding: (used for cleaning or degreasing).

— The fumes from these solvents can be changed into toxic gases when subjected to arc radiation, including from a distance.

— Such solvents may therefore not be used in locations where electric arcs occur, if the solvents are not in a sealed enclosure.

Work in confined spaces

Examples:

— Mine roads
— Piping and pipelines
— Ship docks, pits, manholes, cellars
— Tanks
— Ballast tanks
— Silos
— Reactors

Special precautions must be taken before undertaking welding operations in such enclosures, where suffocating and poisoning and fire and explosion risks are very great.

A work permit procedure setting out all the safety measures must systematically be set up.

Make sure that ventilation is appropriate, paying special attention to:

— under-oxygenation
— over-oxygenation
— excess fuel gas

FILTRATION OF FUMES AND DUST

Important

Mechanical or electrostatic filtration systems are effective for the filtration of solid but not gaseous particles (exterior discharge).

If recycling is effective (not recommended), make sure the workplace where the machine or machines are placed is properly ventilated, so as to not reach the OELV (occupational exposure limit values) of gaseous pollutants relating to the specific pollution generated by the process (welding, cutting).

Field of use

Filtration of solid particles and dry dust, non-flammable gas, with no risk of explosion.

— Zinc, paper, flour, plant leaves, graphite, aluminium and other such dust is to be excluded, because electrostatic discharge or welding splatter would present a risk for those using the filter.
— The air flow through the filter medium must not be at a temperature above 80 °C.
— This machine is not designed for extracting chemicals.
— The choice of machine is made to suit the pollutants to treat. Extraction at source of the pollutant is only effective if the machine is operating at its nominal power (air flow at the nozzle).

Take particular care to:

— Not obstruct the air outlet of the machine.
— Not introduce external elements into the filter (paper, cloths, cigarette butts etc.)
— Replace the filter medium with new original Lincoln Electric medium, which alone can guarantee the filtration characteristics.
— Replace the hoses if they are pierced.
— Regularly clean the metal pre-filter on those machines that have one

C - OVERALL DESCRIPTION

For your safety and optimum performance, please read this manual carefully before using the filter.

The **DAMPER BOX DUALFLOW** box manages two high-vacuum pneumatic dampers. It must be used along with our range of **LINC GUN FX DUAL FLOW** fume extraction torches

It allows the welder to change the extraction power to suit the type of weld being made by just pressing a micro switch located on the torch handle, during the welding process. The welder is protected from fumes at all times and has the assurance of making high-quality welds thanks to close control over the work.

When used along with **LINC GUN FX DUALFLOW** fume extraction torches, the **DAMPER BOX DUALFLOW** box provides a nominal extraction rate throughout the welding process, and using a signal from the torch micro switch, reduces the extraction rate for welding in confined areas.
It is CE compliant and has a padlockable switch for isolation from the electrical system.

- It can be used to automatically or manually control the dampers with which it is used.
- It also controls the extraction rate reduction damper in momentary or maintained mode, by means of a pushbutton on the **LINC GUN FX DUALFLOW** fume extraction torch with which it is used.

BENEFITS

- Simple connections.
- Extraction controlled on the basis of actual needs during welding.
- Extraction flow variation for welding in confined areas controlled by the operator by pressing the micro switch.

DELIVERY

- The box is supplied wired, with no other accessories or options

TECHNICAL SPECIFICATIONS

Power supply 230/400 V - 1 Ph - 50 Hz
24 VAC power supply for power-operated or pneumatic dampers.
Dimensions: 350 x 225 x 120 mm

D - TECHNICAL DESCRIPTION

DESCRIPTION OF CONTROLS OF THE DAMPER BOX DUALFLOW UNIT

1 – Padlockable starting up switch
2 – White power indicator
3 – Damper opening indicator
4 – Auto/manual switch
5 – Momentary or maintained mode selection switch
6 – Green low extraction rate indicator

OPERATING PRINCIPLE

- The box is powered up using the padlockable switch located on the front; it has a power indicator.
- Manual/Auto mode selection switch, and damper opening indicator
  NB: the two dampers open at the same time, only the second one shuts up to the stop to reduce the torch extraction rate in momentary or maintained mode.

WITH IR CURRENT SENSOR

- Automatic starting up is controlled by the current sensor placed on the welding cable or by a normally-open external contact (contact type torch rest), connected to the box via the 3.5 mm jack.
- In automatic mode, damper closing is delayed in relation to the disappearance of the command signal, thus avoiding excessively frequent damper operation, for instance during tack welding.
- The delay is factory set to 5 seconds and is adjustable on the PLC of the box.

Control of the DUALFLOW box by the micro switch of the DUALFLOW torch

Control over the closing of the register may be disabled if the mode selection switch is set to 0

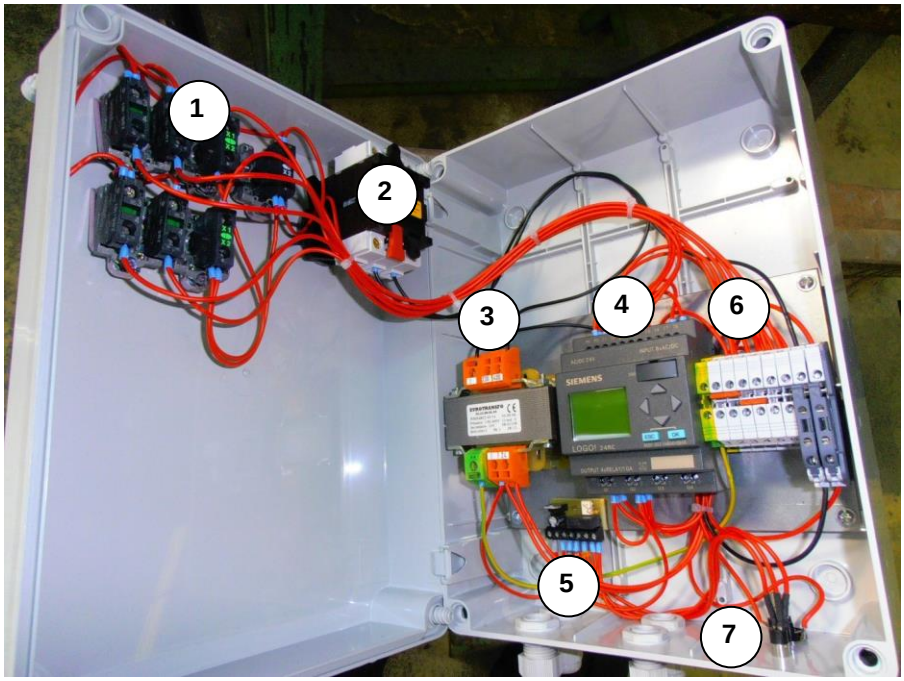
Control is either in momentary mode or in maintained mode. The torch micro switch is connected to the **DUALFLOW** box by a 6.3 mm jack that connects to the underside

In momentary mode, the flow reduction damper is closed as long as the torch pushbutton is activated. Upon release, the damper opens and extraction returns to nominal.

In maintained mode, the damper closes when the pushbutton on the torch is pressed, remains closed when the button is released, and the button must be pressed again for the damper to open once again.
In that way, the welder can put their hand back on the torch handle, when the weld makes it necessary to rotate the torch.
Even if the extraction rate is low when the arc is shut down, the extraction rate of the torch is maximum when a new arc is struck, i.e. both dampers will be fully open.

NB: if operating is not selected automatically using current sensing but is selected manually, the box will operate independently from effective welding, and only the momentary and maintained mode function will continue to remain. In that case, as extraction is continuous, if the rate has been reduced by selecting the maintained mode when the arc is shut down, the rate will be low when the arc is struck once again.

DAMPER BOX DUALFLOW COMPOSITION



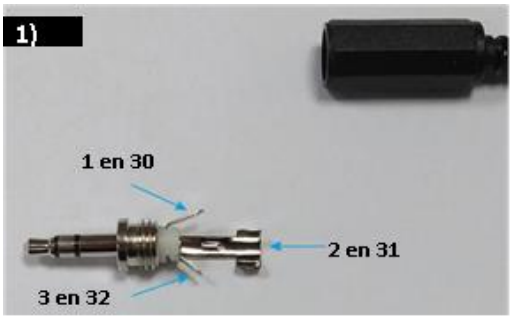
1	Indicators and controls
2	Padlockable starting up switch
3	PRI 230/400V – SEC 24V transformer to wire according to the supply system voltage
4	PLC that carries out the different functions of the **DAMPER BOX DUALFLOW**,
5	Current sensor supply board
6	24VAC power supply for damper coils
7	Current sensor connected by 3.5 mm jack Torch connected by 6.3 mm jack

IMPORTANT:
All operations relating to installation, such as assembly, installation, starting up and maintenance, must be carried out by qualified personnel.

CONNECTING THE OPTIONAL CURRENT CLAMPS AND SENSORS

The current clamp or inductive current sensor are supplied unwired.
In order to connect them to the **DAMPER BOX DUALFLOW** box, you must either :

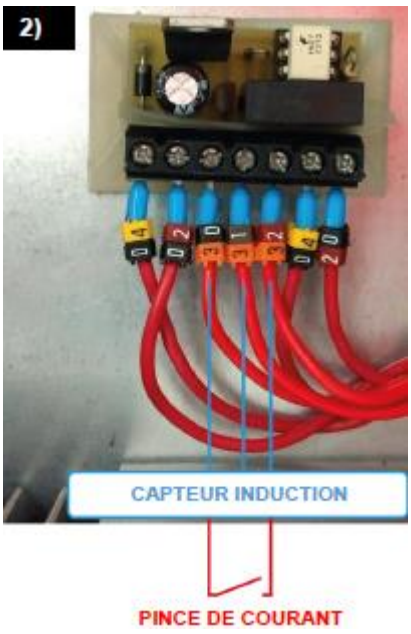
1) weld the male 3.5 mm jack to the wires of the current sensor,



Unscrew the jack sleeve
Route the cable through the sleeve and then weld the current clamp cables to 30 & 32

(Option)
Weld the wires of the inductive sensor :
- At 30, left-hand pin for the cable marked 1
- At 31, central pin for the cable marked 2
- At 32, right-hand pin for the cable marked 3

2) Directly wire the current sensor to the IR board terminal



Remove the wires 30/31/32 from the 3.5 mm jack
Route the sensor cable in the electrical cabinet via a cable glands
Wire the two cables of the current clamp at 30 & 32
(Optional)
Wire the wires of the inductive sensor:
- Cable marked 1 at 30
- Cable marked 2 at 31
- Cable marked 3 at 32

The cable of the micro switch connecting jack of the **DUALFLOW** torch is prewired and connected to the female connector of the dedicated micro switch at the bottom right of the box. See photograph on previous page.

SETTING THE DAMPER CLOSING DELAY

Modification of the stopping time parameter in relation to current detection :

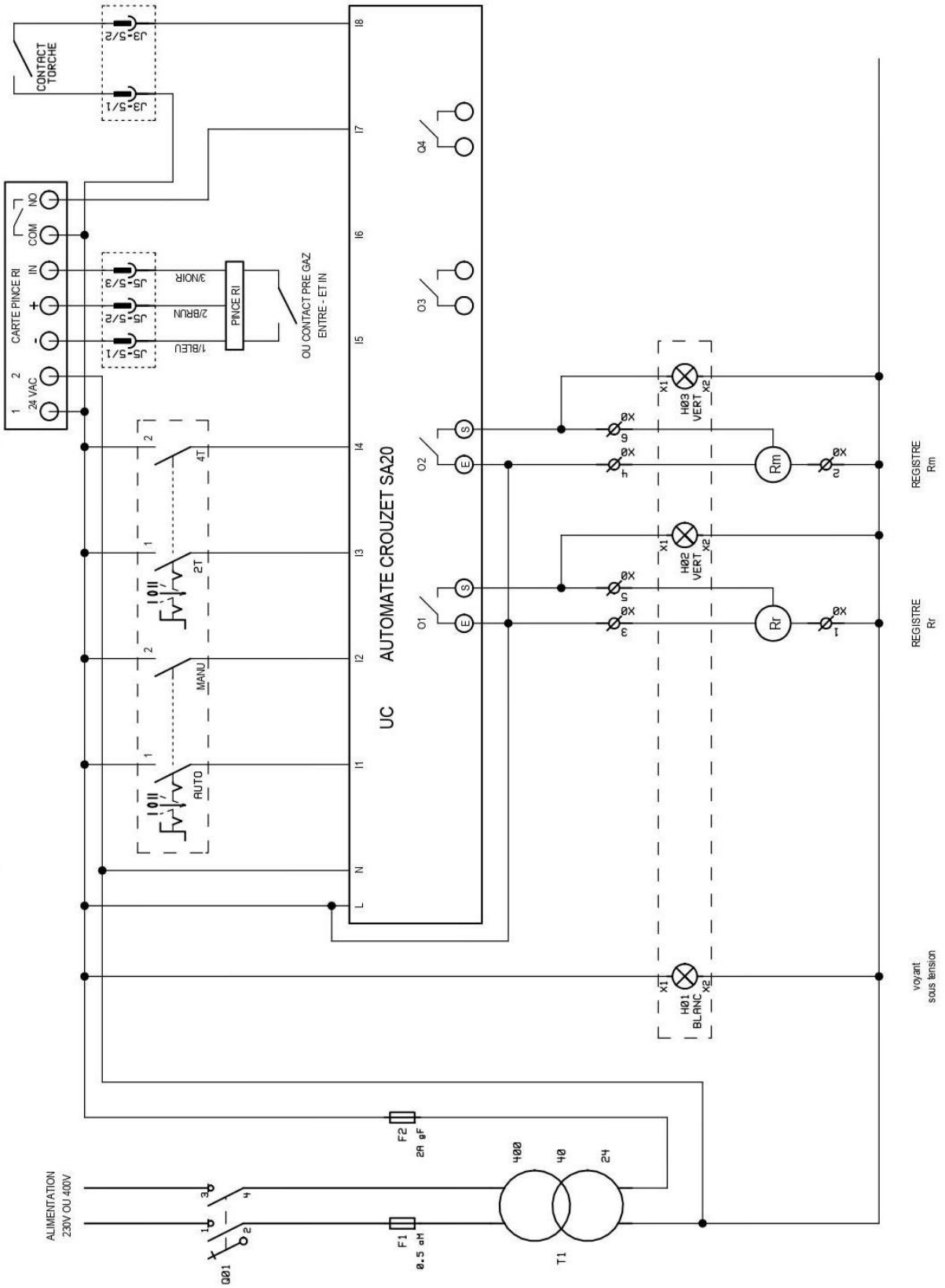
<u>NB:</u> The box is supplied with power, no controlled operation.

The first two digits indicate the minutes, while the other two digits indicate the seconds.
By default, the factory setting is 5 seconds

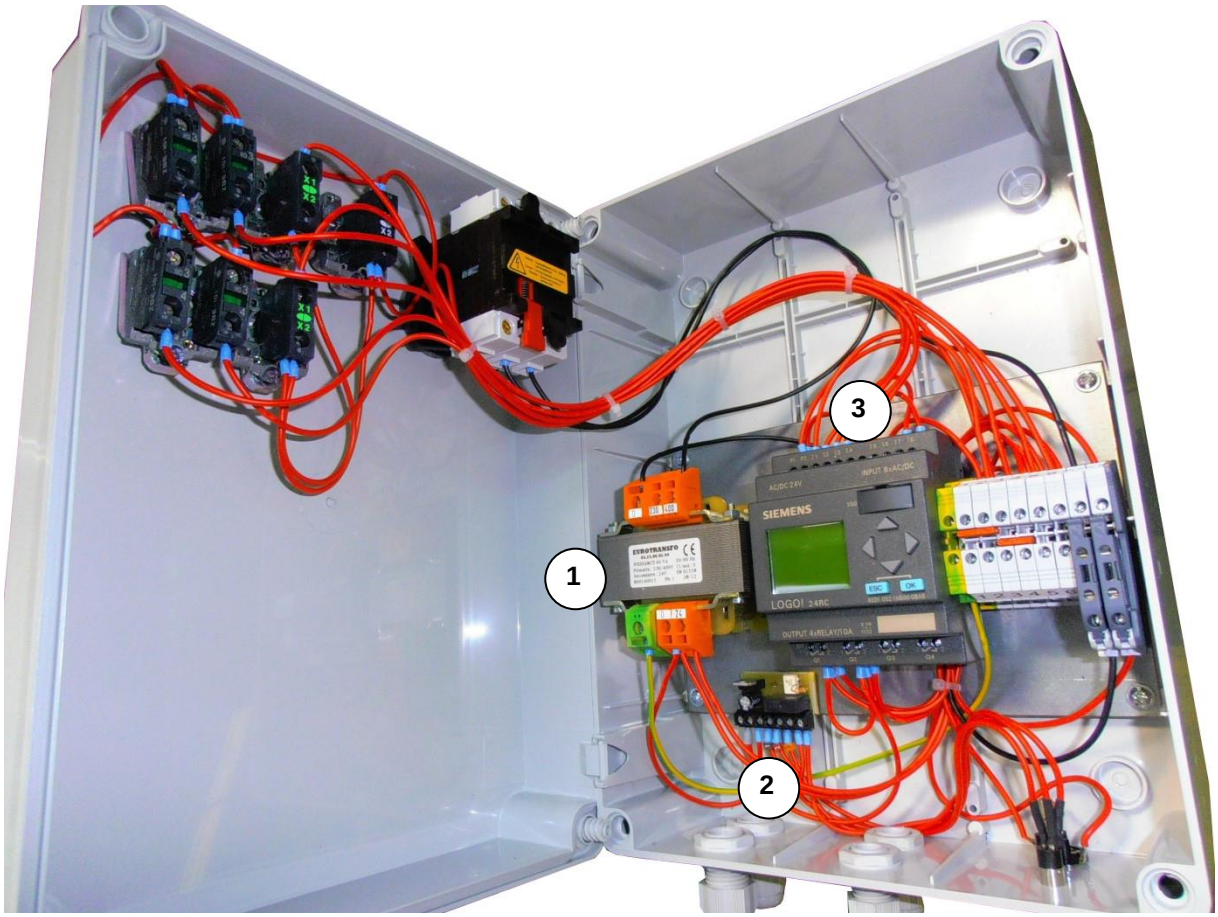
- Press ESC for 1 sec
- A flashing bar is displayed under the first digit.
- Press OK
- The digit flashes
- Move the flashing to the digit to modify with the right and left arrows
- Modify the figure with the up and down arrows
- Approve by pressing OK and then ESC

E - MAINTENANCE

ELECTRICAL DIAGRAM



SPARE PARTS



REF	Description	Manufacturer part no
1	Transformer 230V/400V - 24V	W000403084
2	RI board	W000384776
3	PLC - **DAMPER BOX DUAL FLOW**	EM61000444

ACCESSORIES AND OPTIONS

As described in the *OPERATING PRINCIPLE* section, the Automatic Mode is only available if you connect either :

- **A current clamp** part no. W000380662,
  (not supplied with the **DAMPER BOX DUALFLOW** box).
  ->**Detection of continuous currents (DC) > 80A**

  The ground cable must pass through the current sensor, and the sensor clamp must be correctly closed as shown in the photograph above.

- **An inductive current sensor**, part no W000379696
  (not supplied with the **DAMPER BOX DUALFL**OW box).
  ->**Detection of continuous currents (DC) < 50A**
  & alternating currents (AC) < 50A

  The inductive sensor must be attached firmly along the ground cable.

The current clamp or sensor must be connected to the ground cable of the welding power source and connected to the ***DAMPER BOX DUAL FLOW*** *box*

For controlling the extraction rate using the micro switch on the torch and as described in the section on the momentary or maintained operating principle, two pneumatic dampers are required :

Depending on the diameter of the duct going down to the torch, 2 dampers must be used according to this list of part numbers :

W000372349	**DAMPER HD DIAM 50 MM**
W000372364	**DAMPER HD DIAM 63 MM**
W000372363	**DAMPER HD DIAM 76 MM**
W000385366	**SET OF 20 LOCK RINGS 10MM**

For connecting the dampers electrically, see electrical diagram of the box.

PERSONAL NOTES

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