

EHTLC 75/150
DIGITAL TEMPERATURE
CONTROLLER
INSTRUCTION BOOK



Please take your time to read this Instruction book to understand the safe and correct use of your new AWL product.

It is recommended the Responsible Body reads this instruction book and ensures that all users are suitably trained in its operation.

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1. INTRODUCTION

- 1.1 The AWL EHTLC Digital Controller provides a convenient means of temperature control using microprocessor technology to give ease of operation and accuracy. It can be used either in On / Off mode with the hysteresis loop controlling power switching or it may be used simply as a temperature measuring device.
- 1.2 Temperature sensing is performed by a plug-in 'K' Type thermocouple. The sample temperature is displayed on the LED display. This product has rubber feet to aid positioning on a flat surface or bench. Controllers can also be stacked to save space.
- 1.3 The EHTLC range has an external power supply with an IEC socket to connect to the main supply. UK, EU, and USA versions are available.
- 1.4 The EHTLC controller must be used in conjunction with an AWL heated transfer line or an alternative AWL heating product.

2. SYMBOLS AND USING THE INSTRUCTION BOOK

2.1 Throughout this instruction book the following symbols are shown to identify conditions which pose a hazard to the user or to identify actions that should be observed. These symbols are also shown on the product, or its packaging. When a symbol is shown next to a paragraph or statement it is recommended the user takes note of that instruction to prevent damage to the equipment or to prevent injury to themselves or other people.

The Responsible Body and the Operator should read and be familiar with this instruction book to preserve the protection afforded by the equipment.

To prevent injury or equipment damage the manufacturer recommends that all persons using this equipment are suitably trained before use.

2.2 Symbols Defined



Caution, risk of danger. See note or adjacent symbol.



Protective conductor terminal to be earthed.
(Do not loosen or disconnect).



Caution / Risk of electric shock.



Recyclable Packaging Material.



Do not dispose of products duct in normal domestic waste.



Biochemical Hazard. Caution Required. May require decontamination.



Refer to the Instruction book.



Decrease Setpoint.



Increase Setpoint.

S.ERR






Thermocouple disconnected or failure.

3 SAFETY INFORMATION







This product has been designed for safe operation when used as detailed by the manufacturer's instructions.








NOTE: Failure to use this equipment by this instruction book may compromise the basic safety protection afforded by the equipment and may invalidate the warranty/guard warranty/guarantee that does not cover damage caused by faulty installation or misuse of the equipment.

3.1. Prevention of Fire and Electric shock

	To prevent a risk of fire or electric shock, DO NOT open your product case without authorisation. Only qualified Service Personnel should attempt to repair this controller.
	Replace fuses only with the type as listed in Section 8, Technical Specifications and Section 11, Parts, and Accessories. (See fuse type and rating).
	Ensure the Mains Power Supply conforms to the rating found on the data plate located on the base of this product.
	Never operate this equipment without connection to the earth/ground. Ensure the mains supply voltage is correctly earthed/grounded in regional legislation.
	Do not install or remove any heating apparatus from the controller whilst power is applied.

3.2 General Safe Operating Practice

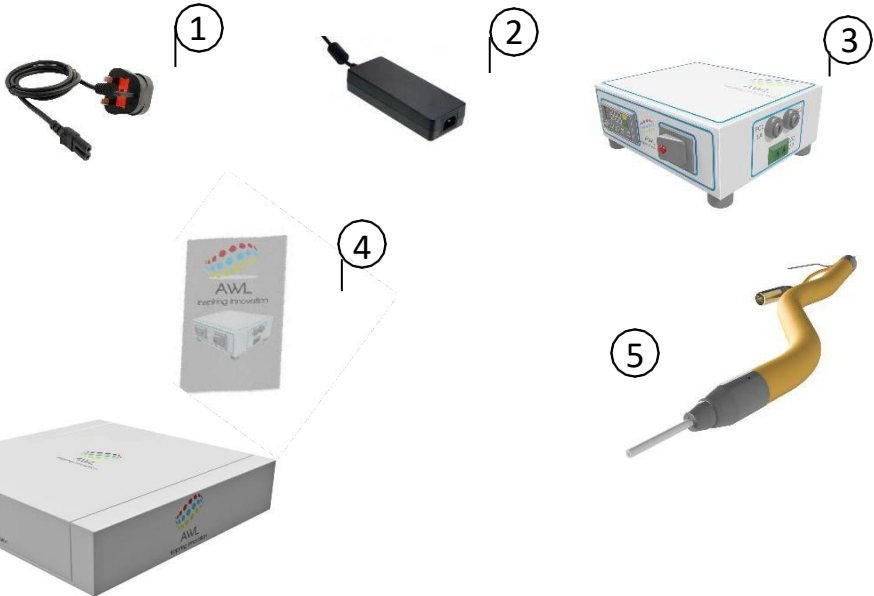
	<p>Always follow good laboratory practices when using this equipment. Give due recognition to your company's safety and legislative health & safety procedures and all associated legislation applicable to your area of operation. Check laboratory procedures for substances being heated and ensure all hazards (e.g., explosion, implosion, or the release of toxic or flammable gases) that might arise have been suitably addressed before proceeding. When heating certain substances, the liberation of hazardous gases may require the use of a fume cupboard or other means of extraction.</p>
	<p>Ensure equipment is used on a clean, dry, non-combustible, solid work surface with at least 300mm suitable clearance all around from other equipment.</p>
	<p><u>Do not</u> position the product so that it is difficult to disconnect from the main supply.</p>
	<p><u>Do not</u> immerse the unit in water or fluids.</p>
	<p><u>Do not</u> spill substances onto this unit. If spillage does occur, disconnect the unit from the rom mains supply and follow instructions as detailed in Section 9, Maintenance.</p>
	<p>To prevent overheating and potential fire <u>do not</u> cover this product when connected to the power supply.</p>

	<p>It is not recommended to leave any heating apparatus unattended during operation.</p>
	<p>Only use Original Equipment Manufacture's spares and accessories. Ref Section 11.</p>
	<p>The equipment is not spark, flame or explosion-proof and has not been designed for use in hazardous areas in terms of BSEN 60079-14:2014 and ATEX. Keep flammable, low flash point substances away from the heating apparatus.</p>
	<p>Do not operate or handle any part of this product with wet hands.</p>
	<p>Keep the Mains Plug and Lead away from the heating apparatus being controlled.</p>
	<p>Refer to the instruction book/product data label for the resistive load of equipment to ensure the controller is suitable for the application.</p>
	<p>Always observe the manufacturer's operating and safety instructions for the equipment to be connected to the controller.</p>

NOTE: *if this product is not used by the Manufacturer's Instructions, then the basic safety protection afforded by the equipment may not be preserved and the guarantee invalidated.*

4 UNPACKING AND CONTENTS

Item No.	Description	Qty
1	Mains lead and moulded IEC plug and lead set. (Variation from the illustration depending on UK, EU, and US outlets).	1
2	Power Adapter	1
3	EHTLC 75 or 150 Digital Controller	1
4	Instruction Book	1
5	Heated Transfer Line (if ordered with controller).	1




For future reference, please record your product's serial and model numbers	Serial Number	Model Number
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5 INSTALLATION

5.1 This equipment is designed for safe operation under the following conditions: -

- Indoor use.
- Temperatures between -10°C and +50°C.
- Maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C.
- Mains supply voltage fluctuations up to $\pm 10\%$ of the nominal voltage.

5.2  This equipment must be earthed/grounded to a fixed earth / grounded main socket outlet. The main supply is to be earthed/grounded by current legislation.

5.3 Ensure only the correct rated mains input fuses are fitted. (Where applicable, ensure the correct mains cable fuse is fitted). See Section 8, Technical Specification, of this instruction book.

5.4 Check the voltage on the product data label of this unit. Ensure the rating conforms to your local supply. Only connect to AWL heated transfer/sample lines. Refer to Technical Specification, Section 8 of this instruction book.

5.5 This product must be connected to the mains supply source which incorporates an RCD or GFCI device.

5.6 The unit is supplied with a moulded mains cord and plug set wired as follows: -

Live - Brown Neutral -

Blue

Earth - Green / Yellow

6 ENVIRONMENTAL PROTECTION

6.1 Maximum consideration has been given to environmental issues within the design and manufacturing process without compromising product performance and value.



6.2 Packaging materials have been selected such that they may be sorted for recycling.

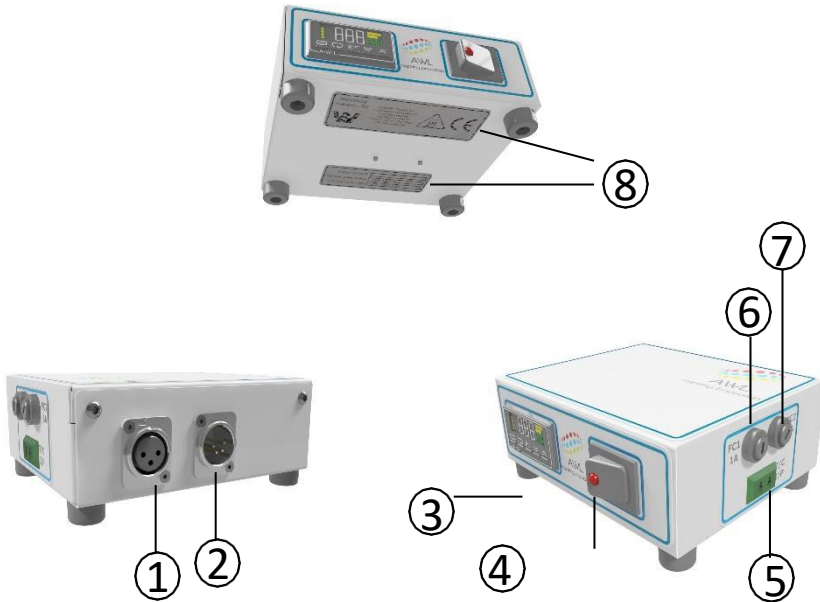


6.3 At the end of your product and accessory's life, it must not be discarded as domestic waste.

6.4 This product should only be dismantled for recycling by an authorised recycling company.

7 PRODUCT OPERATION

7.1 The EHTLC controller has been designed for easy operation. The illustrations below show detailed layouts of this control unit.



- 1- 24V Power Supply Input Socket
- 2- 24V Power Outlet Socket to the heating device.
- 3- Temperature Display and Setpoint Control Buttons
- 4- Power ON / OFF
- 5- Thermocouple Input Socket
- 6- Fuse TC1 (1A)
- 7- Fuse FC2 (6A HTLC 75 or 10A HTLC 150)
- 8- Serial Number / Warning Label and Data Plate Label

Check the data plate label and ensure your mains electrical supply voltage is compatible with this product.

7.2 Connecting the instrument

- 7.2.1 Connect the AC to the DC power adaptor to the controller power input socket 1.
Refer to section 7.1 for further details.
- 7.2.2 Connect the heating device to the controller power output socket 2.
- 7.2.3 Connect a K-Type thermocouple to the controller socket 5 and position the sensor such that it is measuring the temperature of the medium which you wish to control.
- 7.2.4 Switch the power onto the controller by pressing a switch 4 to the ON position. The switch lamp will illuminate confirming the power is on.

Note: *Should the temperature probe become disconnected or fail an 'open' circuit, the display will indicate "S.ERR". Reconnect or replace the thermocouple to read the temperature.*

7.3 Using the Controller in Display mode

Plug in any 'K' Type thermocouple with a mini thermocouple plug into the controller socket 5 to display temperature. Refer to section 7.1 for further details.

Note: Ensure that there is no heating device connected to the EHTLC controller socket 2. Failure to remove any heating device when using an external thermocouple may result in the heating device overheating.

Note: Should the temperature probe become disconnected or fail an 'open n' circuit, the display will indicate "S.ERR". Reconnect or replace the thermocouple to read the temperature.

7.4 Control Modes Explained

7.4.1 Display mode.

As a temperature meter. Plug in any 'K' Type thermocouple with a mini thermocouple plug into the controller socket to display temperature.
Refer to section 7 for further details.

Note: *Ensure that there is no heating device connected to the EHTLC controller socket. Refer to section 7 for further details. Failure to remove any heating device when using an external thermocouple may cause the heating device to overheat.*

7.4.2 On-Off Control plus Hysteresis

The On / Off controller output has only two states. Fully on and fully off. Fully on is when the temperature is anywhere below the set point, and fully off, is when the temperature is anywhere above the desired set point.

To prevent detrimental control chattering as the temperature crosses the set point, an on / Off differential or 'hysteresis' has been added to the controller function.


The hysteresis value is set at 1°C, the controller will switch off once the set point temperature has been reached and will not switch back on again until the measured temperature falls 1°C below the set point.


For example, in a heating application, with a 150°C set point and a 1°C hysteresis value entered, the controller will switch off at 150°C and will not come back on again until the temperature falls to 149°C.

On / Off functions are only accurate when the heating mass is large, Temperature overshoot may occur when the line is empty or during low flow conditions.

7.5 *Front Panel Controls*

The EHTLC controllers have 5 front panel keys. From left to right the first three buttons are disabled and only used during the factory setup.

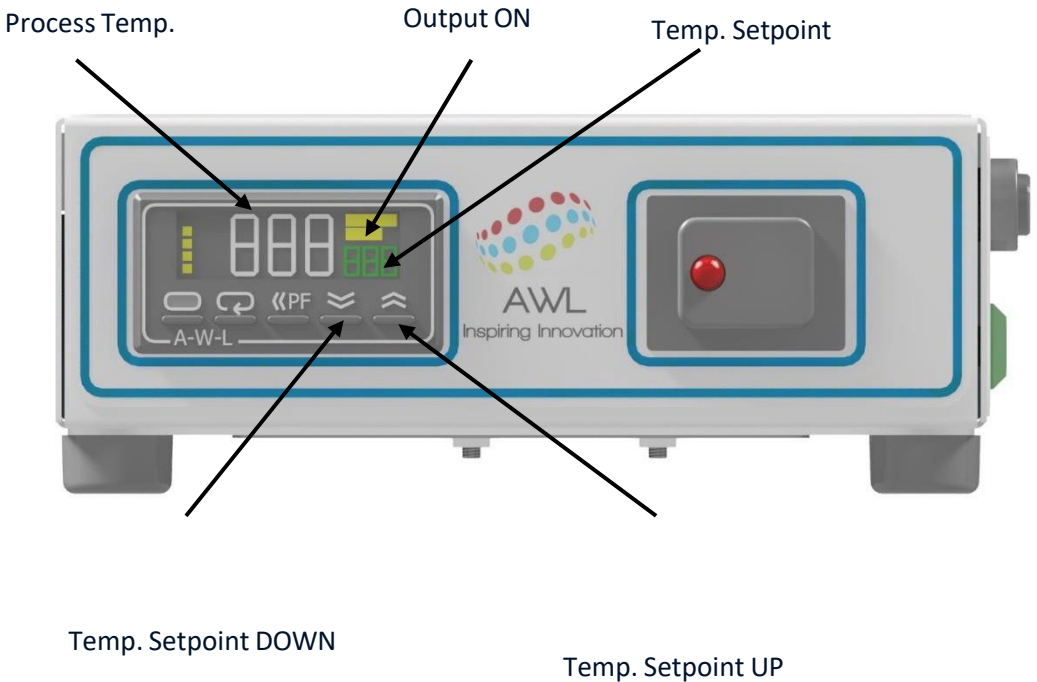
7.5.1 The  key is used to increase the value of the parameter shown on the display or to scroll through the parameter menu.

7.5.2 The  key is used to decrease the value of the parameter shown on the display or to scroll through the parameter menu.

7.6 Entering the Setpoint

7.6.1 The temperature setpoint is displayed in green on the lower right-hand side of the screen.

Press the setpoint UP or DOWN button to adjust the temperature setpoint. When the setpoint buttons are released and the process temperature is less than the setpoint the controller output will be switched ON. The heat output is ON when the 'OUT' symbol is illuminated on the top right of the screen.



8 TECHNICAL SPECIFICATION

Mains supply voltage	110-240V~AC 50/60 Hz – (EHTLC 75/150)
Maximum Input Current	1.85A 115 VAC, 1.0A 230 VAC - (EHTLC 75)
Maximum Input Current	3.0A 115 VAC, 1.5A 230 VAC - (EHTLC 150)
Fuse rating at	230V / 3A (HTLC75) 230V / 5A (EHTLC150)
Relay output	EHTLC 75 10A EHTLC 150 2 x 10A
Mains Input	Detachable 3-core mains cable with moulded IEC socket
Temperature Probe Input	2-pin mini thermocouple socket
Case Construction	Powder Coated Steel
Power On / Off control	Rocker Switch

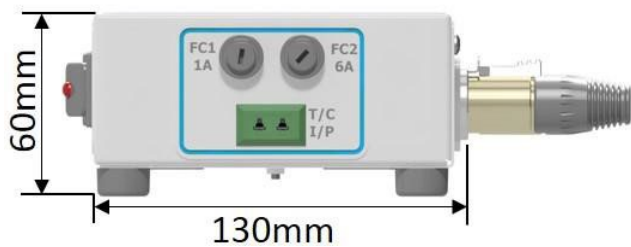
Output Fuse 24VDC Rated:

EHTLC 75	FC1 (1A Fuse) FC2 (6A Fuse)
EHTLC 150	FC1 (1A Fuse) FC2 (10A Fuse)
Net Weight, including power supply	EHTLC 75 1.75kg EHTLC 150 2.55kg



Do not allow this product to encounter liquid. The Ingress protection rating for this product is classified as IPX0.

8.1. Dimensions



9.1 General Information



Unplug the unit from the mains voltage supply before undertaking any maintenance tasks.



Maintenance should only be carried out by a competent electrician under the direction of the Responsible Body. Failure to do so may result in damage to the product and in extreme cases be a danger to the end user.

With proper care in operation, this equipment has been designed to give many years of reliable service. Contamination or general misuse will reduce the effective life of this product and may cause a hazard.

Maintenance for the unit should include:

- Periodic electrical safety testing (an annual test is recommended as the minimum requirement).
- Regular inspection for damage with particular attention to the mains lead and plug set.
- Routine cleaning of the equipment should be undertaken using a clean cloth.

DO NOT USE SOLVENTS FOR CLEANING ANY PART OF THIS EQUIPMENT.

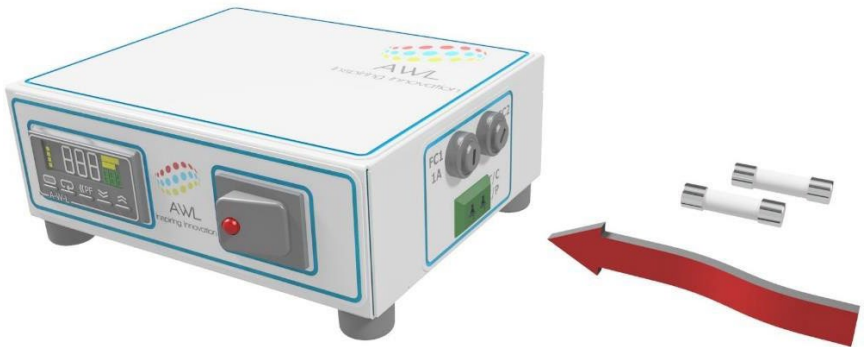
9.2 Fuse Replacement

The main fuse holder is located at the side of this product. Refer to Section 8, Technical Specification, 'Fuse Rating' for the correct fuse type and rating.

To replace the fuse:

- Turn your product off and remove it from the main supply.
- Remove the fuse holder by unscrewing it in a counterclockwise direction using a screwdriver and fit the replacement fuse.
- After the replacement fuse has been fitted, replace the fuse holder, and tighten it in a clockwise direction using a screwdriver.

See Section 11 for further details on fuse specifications and ordering replacements.



9.3 Servicing

This product should be serviced by an AWL Engineer or by an agent on behalf of AWL. If in doubt, contact AWL. See Section 10.

9.4 Spillage and Decontamination

In the event of spillage switch off and unplug this product from the main electrical supply. Wipe off all excess liquid from the unit and surrounding area using an absorbent soft cloth.

If in doubt, please consult Customer Support. Refer to Section 10.



If the equipment has been exposed to contamination, the Responsible Body is responsible for carrying out appropriate decontamination. If hazardous material has been

spilt on or inside the equipment, decontamination should only be undertaken under the control of the Responsible Body with due recognition of possible hazards. Before using any cleaning or decontamination method, the Responsible Body should check with the manufacturer that the proposed method will not damage the equipment.

Before further use, the Responsible Body shall check the electrical safety of the unit. Only if all safety requirements are met can the unit be used again. The above procedure is intended as a guide. Should spillage occur with a toxic or hazardous fluid then special precautions may be necessary.

Decontamination Certificate

Note: In the event of this equipment or any part of the unit becoming damaged, or requiring service, the item(s) should be returned to the manufacturer for repair accompanied by a decontamination certificate. **Copies of the Certificate are available from any authorised distributor or directly from the manufacturer. Appendix A of this instructions book may be copied and enlarged. At the end of life, this product must be accompanied by a Decontamination Certificate. See sections 6.3 and 6.4.**

If in doubt, please consult Customer Support. Refer to section 10.

10 CUSTOMER SUPPORT

WHO WE ARE

Alconbury Weston Ltd (AWL) are at the forefront of the design, manufacture & supply of Continuous Processing Technologies & Systems.

We truly live and breathe inspiring innovation. In the past 8 years, we have taken the much-talked-about and highly anticipated continuous processing theories and turned them into a reality for use in the Chemical, Food and Pharmaceutical Industries today.

“The advance in technology is based on making it fit in so that you don't even really notice it”.

Bill Gates

CONTACT US

Alconbury Weston Ltd
Oldfield House
Galveston Grove
Fenton
Stoke on Trent
Staffordshire, ST4 3PE.

Phone: (+44) 1782 413427

Email: enquires@a-w-l.co.uk

Web: www.a-w-l.co.uk






11 PARTS AND ACCESSORIES



Replacement Fuses:

EHTLC 75 / 150	FC1 (1A Fuse)	PN 668-5966
EHTLC 75	FC2 (6A Fuse)	PN 911-3427
EHTLC 150	FC2 (10A Fuse)	PN 668-6017

Mains Leads:

UK Mains Lead –5A UK Plug 2m. Part Number 0890959	
EU Mains Lead 2m. Part Number 0890960	
USA/Canada Mains Lead 2m. Part Number 0890961	

Power Adapters:

Power Adapter 160W 24V 6.67A for EHTLC-75 Part Number 0890791	
Power Adapter 280.08W 24V 11.67A for EHTLC-150 Part Number 0890923	

APPENDIX 'A' - DECONTAMINATION CERTIFICATE

Alconbury Weston Ltd.

Oldfield House, Galveston Grove, Fenton, Staffordshire ST4
3PE UK

Tel: +44(0)1782 413427 E-mail: support@a-w-l.co.uk

DECONTAMINATION CLEARANCE CERTIFICATE

For the Inspection, Repair or Return of Medical, Laboratory or Industrial
Equipment.

Before a Service Engineer working on equipment that has been in an
environment where substances hazardous to health may have been
used, you are requested to provide the following information:

Company: _____

Address: _____

Contact Name: _____ Dept. _____

Email: _____ Tel. _____

PRODUCT INFORMATION

Model: _____ **Serial No.** _____

1. Has the equipment been exposed to any of the following? Please
answer all questions by deleting YES/NO as applicable and by
providing details in section 2 below.

A	Blood, body fluids, pathological specimen	YES / NO	Provide details if YES
B	Biodegradable material that could become a hazard	YES / NO	Provide details if YES
C	Another biohazard	YES / NO	Provide details if YES
D	Chemicals or substances hazardous to health	YES / NO	Provide details if YES
E	Radioactive substances. State name(s) and quantities of isotopes and checks made for residual activity	YES / NO	Provide details if YES

<p>2. Please provide details of any hazard present as indicated above. Include details of names and quantities of agents as appropriate.</p>	
<p>3. Your method of decontamination (please describe):</p>	
<p>4. Are there likely to be any areas of residual contamination (please specify):</p>	
<p>I declare that the above information is true and complete to the best of my knowledge and belief.</p>	
<p>Authorised Signature</p>	
<p>Print Name</p>	
<p>For and on behalf of</p>	
<p>Date</p>	

12 NOTES

13 EC DECLARATION OF CONFORMITY

CE-marked products and associated accessories covered by this Instruction book conform to the essential requirements of the following directives:

EMC Directive.

Low Voltage Directive.

A full copy of the EC Declaration / Conformity document can be obtained from the manufacturer at the email address. enquiries@a-w-l.co.uk

