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ETT-D2 Electric Heating Element

Installation and Operation Manual **EN**

Heating Element with Thermostatic Head,

single-phase, fixed wiring

ETT-D2 Electric Heating Element

1 - General

1.1 - Application

This electric heating element is designed to heat domestic hot water in a hot water storage tank or heating fluid in a heating system thermal store.

1.2 - Installation

Screw the el. heating element into the respective threaded connection (G 6/4” F) so that the cable gland points downwards. Sealing cord, hemp, Teflon tape or semi-permanent thread sealant should be used to avoid leaks.

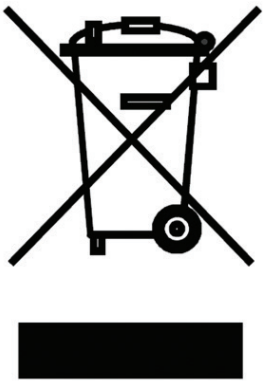
1.3 - Maintenance

Clean the exterior of the heating element with a soft cloth and a suitable detergent. Never use abrasive cleaners or solvents.
If the element is used in hard water, it is recommended to remove sediments at least once a year. Unplug the element before cleaning. Then drain water from the tank and dismount the heating element. Scratch the hard deposits on the heating rod with a plastic or wooden spatula and flush with water. Be careful not to damage the protective nickel layer on the heating rod. Then reinstall the element according to this instruction manual, fill the tank with water, air-bleed and pressurize it. Check the threaded connection for leaks. Finally, reconnect the heating element to the mains.

1.4 - Disposal

IMPORTANT INFORMATION ON DISPOSAL IN COMPLIANCE WITH THE EUROPEAN DIRECTIVE 2002/96/EC

Do not dispose of this product as unsorted municipal waste. Please dispose of this product by returning it to the point of sale or to your local municipal collection point for recycling.
Respecting these rules will help to preserve, protect and improve the quality of the environment, protect human health and utilize natural resources prudently and rationally.
The crossed out wheeled bin with marking bar, printed ether in the Manual or on the product itself, identifies that the product must be disposed of at a recycling collection site.



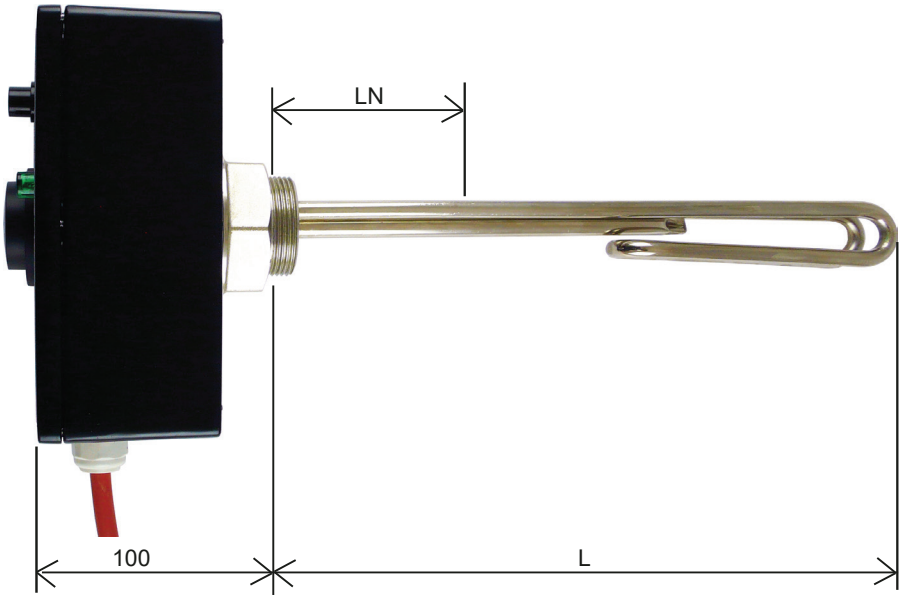
WEEE registration number: 02771/07-ECZ

2 - Nickel-plated heating element with thermostatic head, single-phase, fixed connection

2.1 - Technical description

The electric heating element consists of a nickel-plated heating element with G 6/4“ male thread, a capillary thermostat adjustable between 0±5 °C and 90±3 °C (the lower limit is factory set to 15 °C as a frost protection and the upper limit is set to 60 °C for use in hot water storage tanks) with 5±1 °C switching difference, a two-pole capillary safety thermostat with manual reset set to 99 °C and +0 °C, -10 °C tolerance, a 5×1.5 mm² power cable, LED lights to indicate the status of the heating element. The power cable is 2 m long.

2.2 - Dimensions



	model	output [kW]	el. connection	material	LN-non-heating end [mm]	L-heating rod length [mm]	code
230 V	ETT-D2-2.0	2	1/N/PE AC 230V	nickel-plated copper	100	315	**19703**
	ETT-D2-3.0	3	1/N/PE AC 230V	nickel-plated copper	100	370	**19710**

2.3 - Connection to power supply

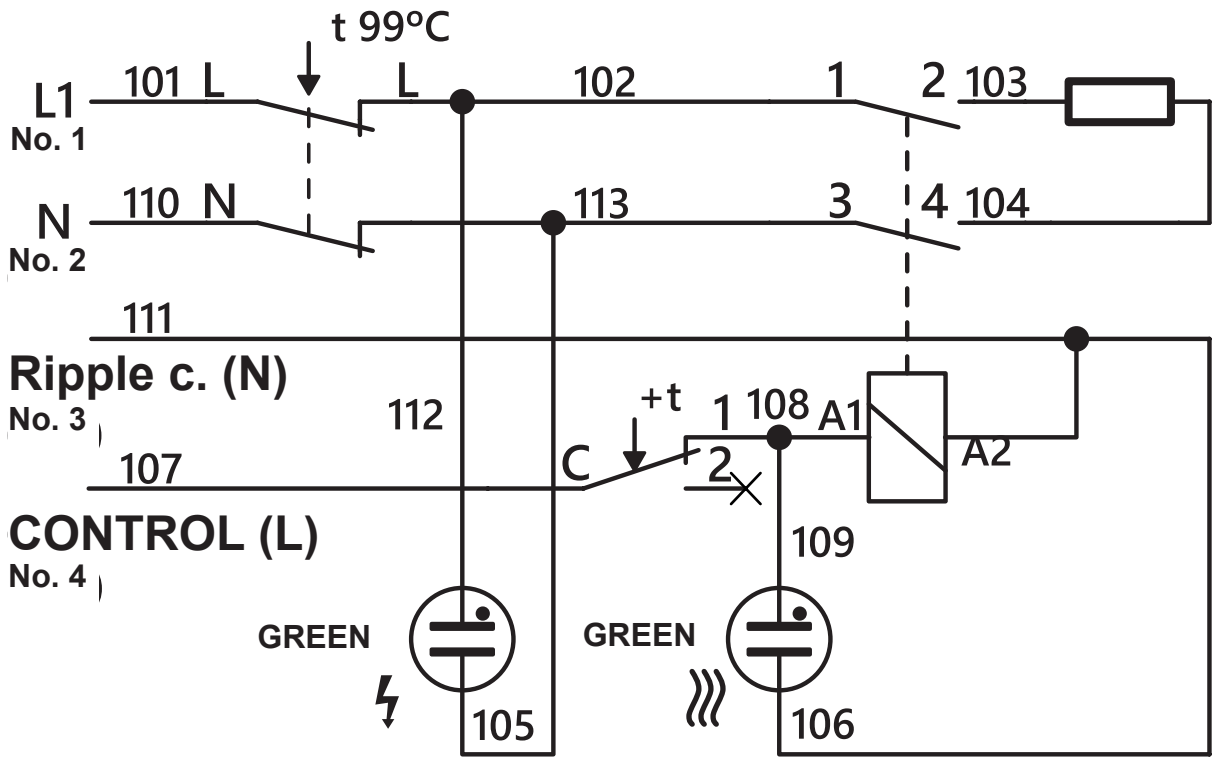
The electric heating element connects to the terminal box or to the 1/N/PE AC 230V mains switchboard by a fixed connection. The installation shall be carried out in accordance with valid regulations and standards by a specialized company or trained staff.

The wire marked N-HDO is designed for controlling the heating element by Ripple control. If this connection is not used, the two blue center wires (N and N-HDO (Ripple c.)) must be joined together in the terminal box or in the mains switchboard.

The wire marked OVLÁDÁNÍ (CONTROL) (L) is intended to control the heating element via the heating system controller. This wire is connected to the phase switched by the controller. In this case, the thermostat knob must be set to a higher temperature than that set in the controller. If this connection is not used, this wire must be joined together with the live wire L in the terminal box or in the mains switchboard.

2.4 - Wiring diagram

2.4.1 - Wiring diagram of the heating element



2.5 - Commissioning, operation and possible faults

WARNING!

THE HOT WATER OUTLET MUST NOT BE MADE IN COMMON PLASTIC PIPING. THE PIPING USED SHALL BE RESISTANT TO TEMPERATURES OF 100 °C AT LEAST.

IF PLAIN COMMON PLASTIC PIPING IS USED, ITS SERVICE LIFE IS SIGNIFICANTLY REDUCED UNDER TEMPERATURES OVER 60 °C. WHEN COMBINED WITH IMPROPER PIPE FIXING THAT PREVENTS/RESTRICTS ITS DILATATION, THE PIPE SERVICE LIFE MIGHT BE JUST SEVERAL HOURS!

Prior to commissioning, please make sure TDS of water in direct contact with the heating element does not exceed the values shown in the chart below. The manufacturer bears no responsibility for defects (e.g. limescale deposits on the heating element) caused by unsuitable operating conditions.

Table of limit values for total dissolved solids in hot water

Description	pH	Total dissolved solids (TDS)	Ca	Chlorides	Mg	Na	Fe
Max. value	6,5-9,5	600 mg/l	40 mg/l	100 mg/l	20 mg/l	200 mg/l	0,2 mg/l

2.5.1 - DHW heating in a hot water storage tank

In order to heat water in the hot water storage tank, open the cold water inlet valve, fill the tank with water and airbleed it by opening the hot water tap. Set the thermostat knob to the desired temperature. The two green lights on the heating element will light up. When the water is heated to the desired temperature, the green light marked will go out. The green lights will be on to indicate that the heater is connected to the mains and is switched on. If the green light marked is not lit, the heating element is switched off by the adjustable thermostat.

It is recommended to set the thermostat knob to 60 °C. This temperature guarantees the best operation of the heating element and at the same time, it offers:

- protection against Legionella
- cost reduction
- slower deposit formation

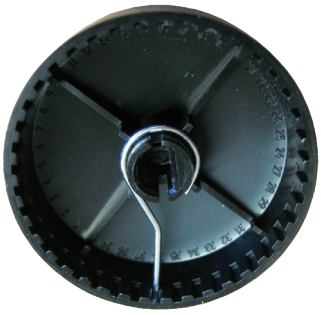
2.5.2 - Heating fluid heating in a heating system thermal store

Fill the heating system with heat-transfer fluid, air-bleed it and pressurize to the working pressure. Set the thermostat knob to the desired temperature.
If a temperature above 60 °C is to be set, the limiting spring under the knob shall be removed.

Steps:

- Pull the knob off the shaft.

- There are two limiting springs inside the knob. Remove the upper spring. It is fitted in the groove 17 and limits the adjustable temperature to 60 °C. *(Just one spring will remain in the knob, fitted in the groove 37, it limits the min. adjustable temperature to 15 °C.)*



- Re-fit the knob on the thermostat shaft

This modification will increase the thermostat adjustment range to 15-90 °C.

The two green lights on the heating element will be on. When the water is heated to the desired temperature, the green light marked will go out. The lit green indicator LEDs indicate that the heating element is connected to the mains and switched on.
If the green LED light marked is not lit, the heating element is switched off by the adjustable thermostat.

2.5.3 - Heating element state during operation

During operation, the status of the heating element is indicated by indicator lights with the following meaning:

Colour	Indication	Description
Green		The heating element is in order, connected to the mains and ready for use
Green		Heating element is heating

When the safety temperature limit is reached, the safety thermostat will cut off the power supply. In this state, no indicator light is lit. The safety thermostat features no automatic reset. After the tank has cooled down, the heating element shall be switched on again by pressing the button after unscrewing the cap on the heating element cover. The green LED indicator marked will light up and the heating element is ready for operation again. Repeated occurrence of this condition indicates a failure of the heating element. In this case, disconnect the heating element from the power supply and call a service technician.

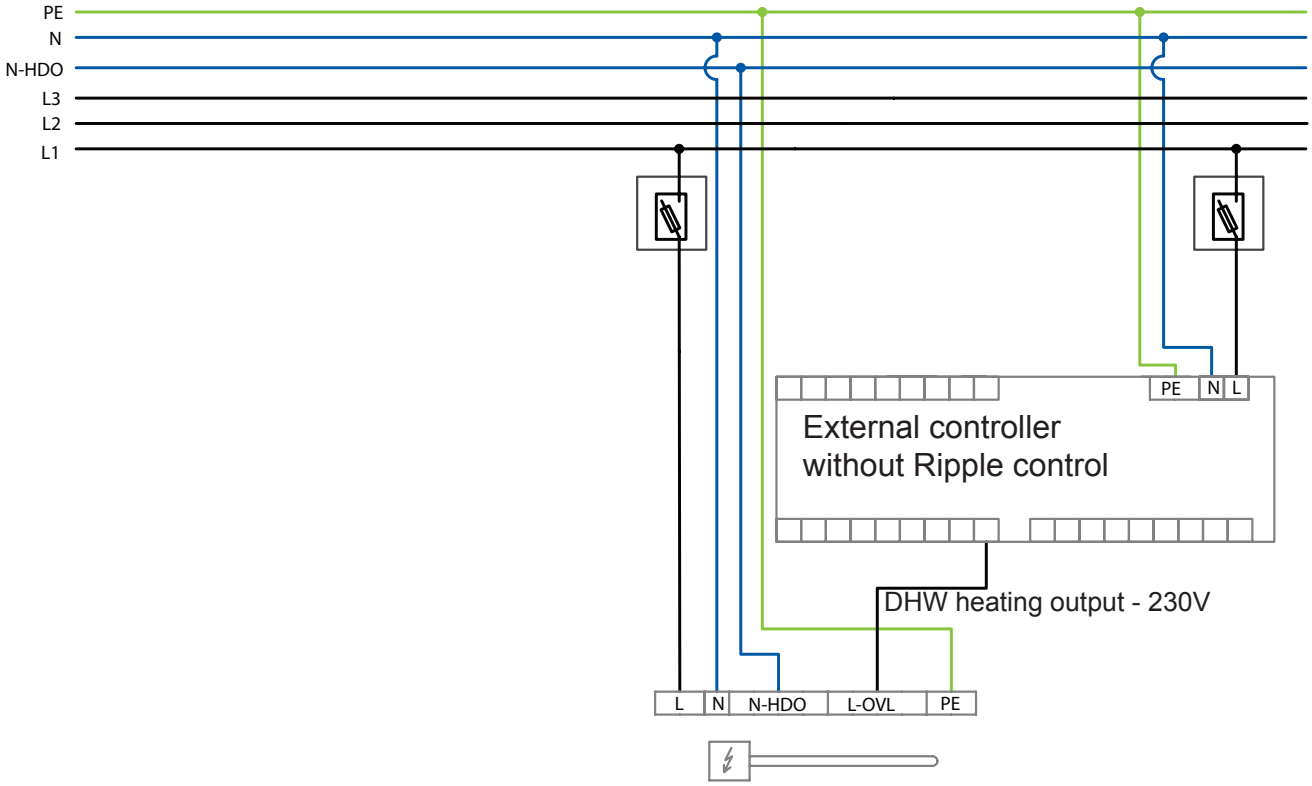
2.5.4 - Possible faults of the heating element

If the heating element is controlled by a heating system controller and after the controller switches on, the other green LED light does not light up when the green LED light marked is lit, the adjustable thermostat knob is probably set to a lower desired temperature than at the controller. Set the thermostat knob to a higher desired temperature. If even then the other green light does not light up, call a service technician.
If the tank overheats without using another heat source (the adjustable thermostat probably does not turn off the heating element when the set temperature is reached - the green LED light marked remains on until both lights go out), call a service technician.
If the heating element shows signs of another malfunction, immediately disconnect the heating element from power supply and call a service technician.

3 - Examples of heating element connection

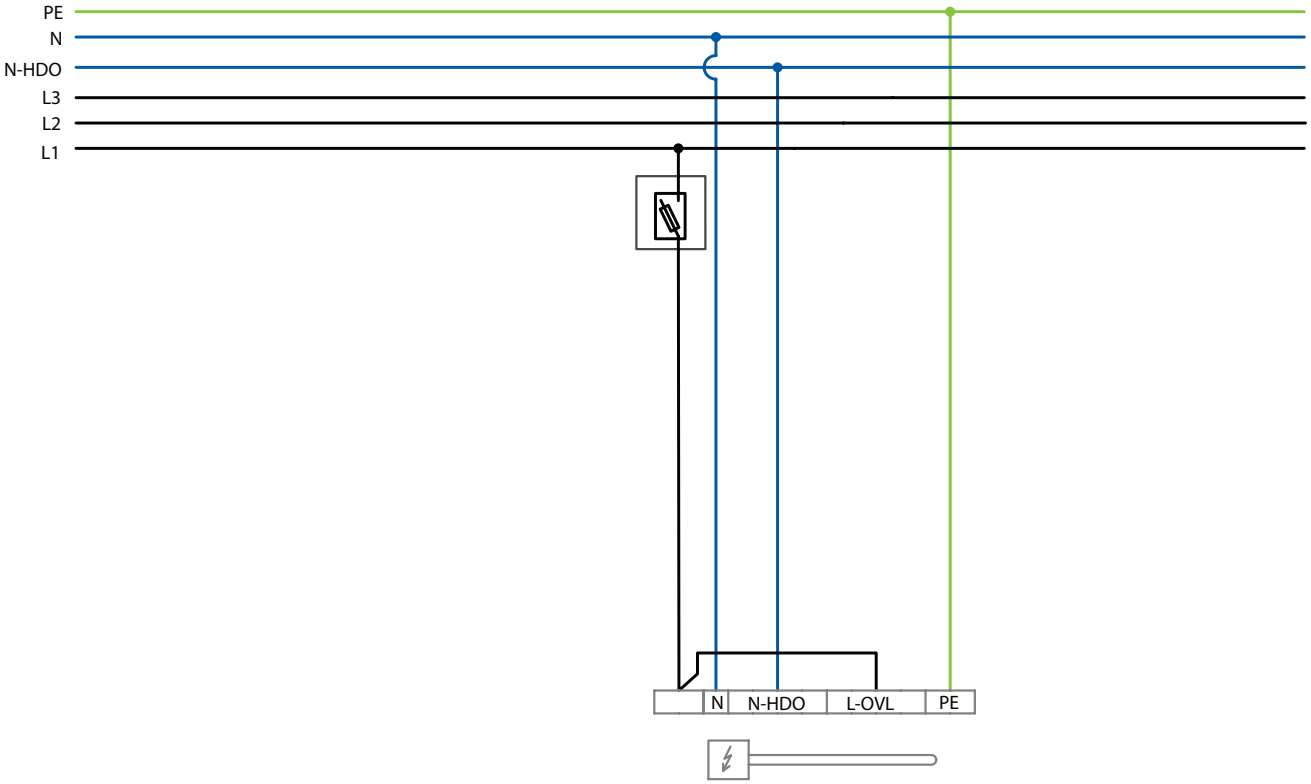
Controlled by a master controller or a thermostat

Controlled via an external controller without Ripple control



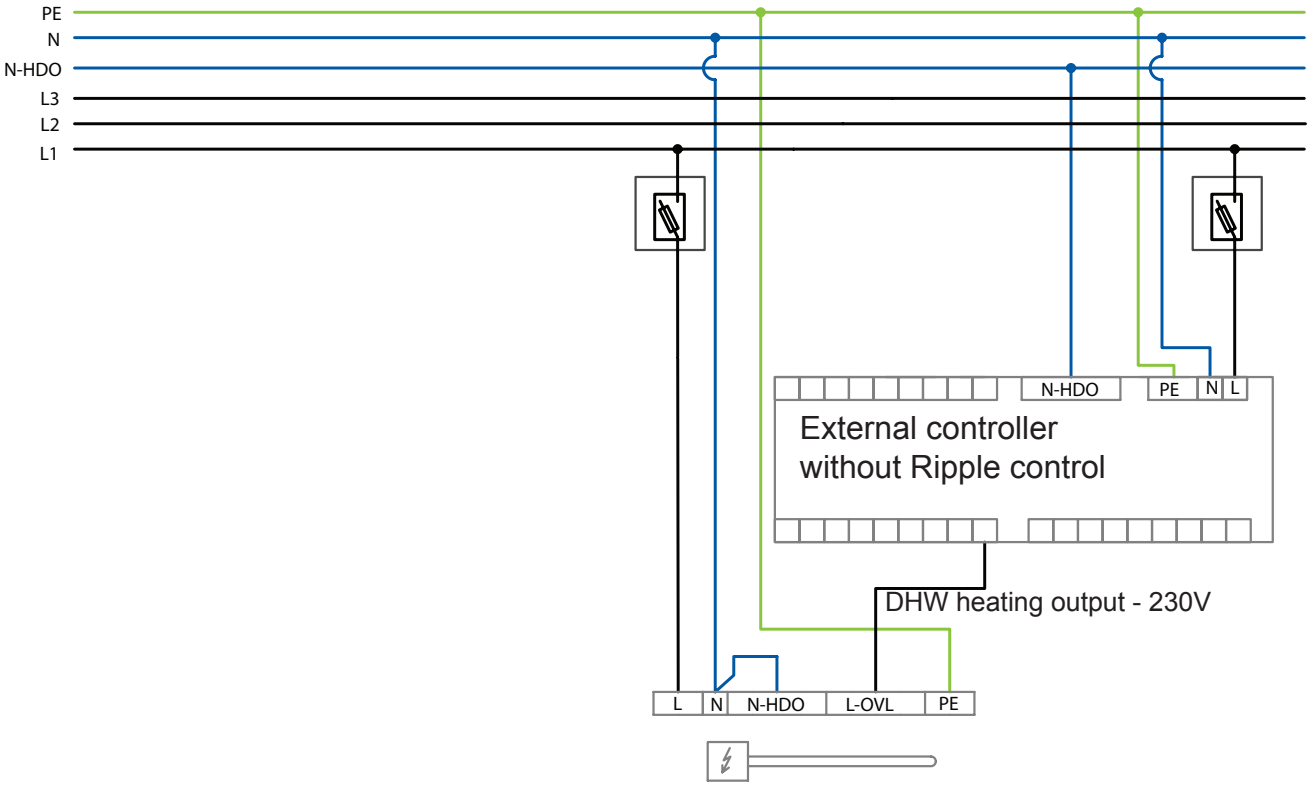
El. heating element - hot water tank
Regulus codes - 19703, 19710

Controlled via the integrated thermostat



El. heating element - hot water tank
Regulus codes - 19703, 19710

Controlled via an external controller with Ripple control



El. heating element - hot water tank
Regulus codes - 19703, 19710

WARRANTY CERTIFICATE

Heating Element with Thermostatic Head, single-phase, fixed wiring

Model: .....

Serial number: .....

Seller: ..... Date of purchase: .....

WARRANTY CONDITIONS

1. The warranty period is 24 months from the date of purchase
2. The product shall be installed and commissioned by a competent company or a person trained by the Manufacturer.
3. When claiming warranty, this Warranty Certificate must be submitted together with the purchase receipt.
4. The warranty is valid only when the technical conditions set by the Manufacturer, installation manual and instructions in the documentation and on the product itself are respected.
5. The warranty does not cover defects caused by external conditions or improper working conditions, defects caused by normal wear and tear, further when the product is not used in compliance with its purpose and when the defect was caused by mechanical damage to the product, improper handling, tampering by a third person, improper installation, improper stocking, natural disaster etc.

COMMISSIONING

Company: ……..……..

Date: ……..……..

Rubber stamp print and signature of the technician:

v1.0-09/2022

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