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1 SAFETY INSTRUCTIONS

- A) Keep these Operating Instructions in a place where they can always be easily consulted by the operator or by maintenance personnel.
- B) Before making an intervention or connection of any kind, make sure that the mains are disconnected both from the instrument and from any device connected to it.
- C) Caution, there may be hot components inside the plastic instrument container.
- D) No user-serviceable parts are inside the plastic instrument container.
- E) DTI products and any other device connected to them must be installed in compliance with the safety regulations in force.
- F) Make sure that, whenever a transformer for instrument power supply is required, it complies with the safety regulations in force.
- G) DTI products are designed and manufactured in compliance with the safety regulations in force. Nevertheless, if our products are not installed in accordance with the Safety Instructions, as well as the indications given in these Operating Instructions, then this may cause a reduction of the safety level of our products. Furthermore, the ambient operating conditions given in our technical data must be complied by, and in any case absolutely avoid: water condensation or excessive humidity; exposure to steam, corrosive - or toxic gases, contact with any type of liquid, and exposure to shocks or to extreme vibrations. Not respecting the above indications could cause malfunctioning and unpredictable consequences, e.g., in the worst cases malfunctions that could cause dangerous electrical discharges on probes or other parts.
- H) DTI products are guaranteed for a specific level of immunity against electromagnetic disturbances in compliance with EC regulations. We would like to call to mind that electromagnetic disturbances can be either irradiated and/or conducted. By irradiated electromagnetic disturbances we recommend to screen the instruments with a metallic screen connected to ground. To eliminate, or at least reduce conducted electromagnetic disturbances, that do not only propagate through the power supply, but also through probes or connected loads, we recommend to carry out the electrical wiring according to the indications given in these Operating Instructions. If necessary, use filters suitable for specific applications and for the type of disturbances detected.
- I) If probes are to be used in contact with foodstuffs, make sure that the employed type of probe is in compliance with the local sanitary / health regulations.
- J) DTI products do not provide any type of protection for the connected loads against: short-circuits, overcurrent or overvoltage, excessive temperature etc., that must therefore be protected by suitable means (such as fuses, thermo-magnetic circuit breakers, thermal protections, etc.). At any rate the electrical power lines that (directly or through a transformer) supply an DTI product and any other device connected to it, must be manufactured in compliance with the regulations in force.
- K) When incorporating an DTI product in other devices, where any malfunction whatsoever of the DTI product could cause a form of risk to persons, animals or things, it is **ABSOLUTELY MANDATORY** to provide a suitable safety device, other than the DTI product, that automatically starts operating in case of a failure.
- L) DTI products cannot be used as critical components in life support devices or systems without an expressly written approval of the Managing Director of DTI.

2 GENERAL DESCRIPTION

The control unit DCADD has been designed to easily manage and secure the services within the coffee machine. The device can operate autonomously and automatically 3 groups. It also has the ability to detect the presence of water in the boiler. The device continuously monitors all sensors at the coffee machine and can control three keyboards and a display. With various feeds, DCADD is small and therefore easy to install inside the machine. Connection is via the connector.

3. TECHNICAL FEATURES

TECHNICAL FEATURES	DETAILS
Power Supply	230 Vac \pm 10% 50/60 Hz
	115 Vac \pm 10% 50/60 Hz
High voltage Input	1 input, 230 Vac \pm 10% 50/60 Hz
High voltage Output	1 Principal single output - 7A / 250 VAC Resistive
	1 Secondary single output - 16A / 250 VAC Resistive
Low voltage input	Low voltage inputs 0-5V
	pulse input for flowmeter sensor
Low voltage output	2 Led output
	1 audible allarm
Box dimensions	73,5 mm x 45,4 mm x 75 mm
Operating Conditions	0 ... +50°C with relative ambient humidity: 30 ... 85 % (no condensing)
Storage Conditions	- 20 ... + 80 °C, with relative ambient humidity: 30 ... 85 % (no condensing)
Box material	PVC V0
Connection type	male faston connector 6,3
	male connector 2.54mm pitch
Assembly type	Panel fixing with a maximum diameter \varnothing 3,8mm

CONFIGURATION

DCAD D 5 1 0 0 0

MOUNTING
 G - panel mounting
 D - DTI Box 73,5x45,4x75 mm

TYPE OF POWER SUPPLY
 1= 230 Vac 50/60Hz
 2= 115 Vac 50/60Hz

OUTPUTS:
 1. 1 relay output
 2. 2 relay outputs
 3. 3 relay outputs
 4. 4 relay outputs
 5. 5 relay outputs

VERSION:
 0. dispenser + level regulator + resistance safety
 1. only dispenser
 2. dispenser pump + solenoid valve separated
 3. dispenser pump + solenoid valve separated + level regulator

OUTPUTS CONFIGURATIONS:
 0. 2 dispensers + auxiliar output
 1. 1 dispenser + auxiliar output
 2. 3 dispensers + auxiliar output
 3. 4 dispensers + auxiliar output
 4. 1 dispenser
 5. 2 dispensers
 6. 3 dispensers
 7. 4 dispensers

USER INTERFACE CONNECTION:
 0. keypad connection with flat (0-5v contacts)
 1. Connection for serial communication, suitable for capacitive keypads.

4. FUNCTIONS

KEYBOARDS AND KEYS



key1, key dose 1



key3, key dose 3



key2, key dose 2



key4, key dose 4



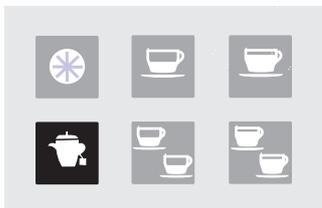
key5, tprogramming key + manual



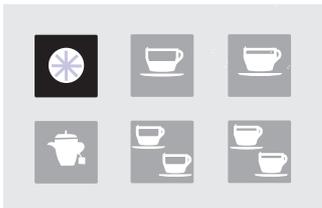
key6, key dose tea / ausiliar output



Pushing one of these buttons (key1, key2, key3, key4), if the keyboard is connected with group 1(KEYBOARD1) the output of the group 1 (EV1/PL) is activated for the volume of the programmed dose or if the keyboard is connected with group 2(KEYBOARD2) the output of the group 2 (EV2/PL) is activated for the volume of the programmed dose.



Pushing the tea/ausiliar output (key6), if the keyboard is connected with th group 1 (KEYBOARD1) or if the the keyboard is connected with th group 2 (KEYBOARD2) the tea output (EVA/PL) is activated for the programmed timing dose.

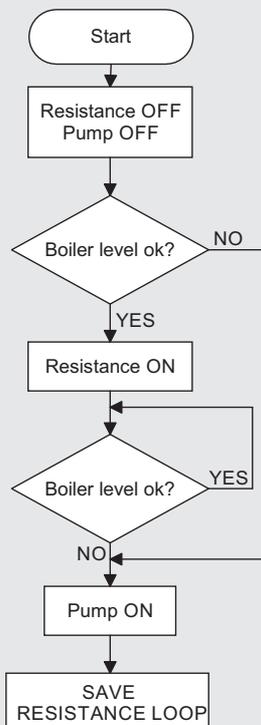


premendo il tasto (key5) si attiva l'uscita gruppo 1(EV1/PL) se la tastiera è collegata al gruppo 1 (KEYBOARD1), oppure l'uscita gruppo 2 (EV2/PL) se la tastiera è collegata al gruppo 2 (KEYBOARD2). Tale funzione viene interrotta ripremendo lo stesso pulsante oppure dopo un tempo di sicurezza.

LOAD WATER CYCLE

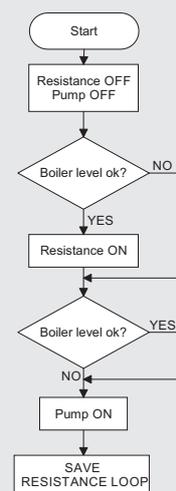
Loading cycle of a boiler with one level probe:

The loading function regulates and controls the correct level of water in the boiler. If the level probe is not covered by water, then the pump and solenoid valve output are simultaneously activated. When the probe is reached by water, the pump and solenoid valve output are deactivated and remain switched off until the status of the probe changes again.



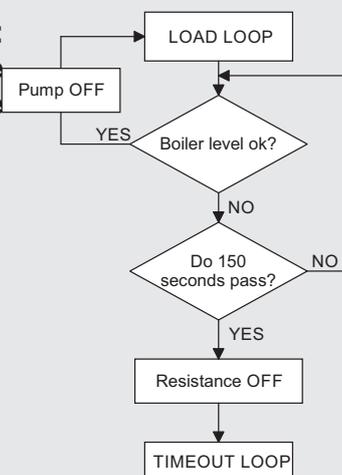
Loading time-out:

The loading function remains activated for a maximum of 150 seconds (so called time-out). After this period of time the pump and solenoid valve output are deactivated in order to protect the machine from eventual breaks or malfunctioning.



Resistance safety:

As soon as the time out is expired or the level of the water is under the limit, the device deactivate the resistance.



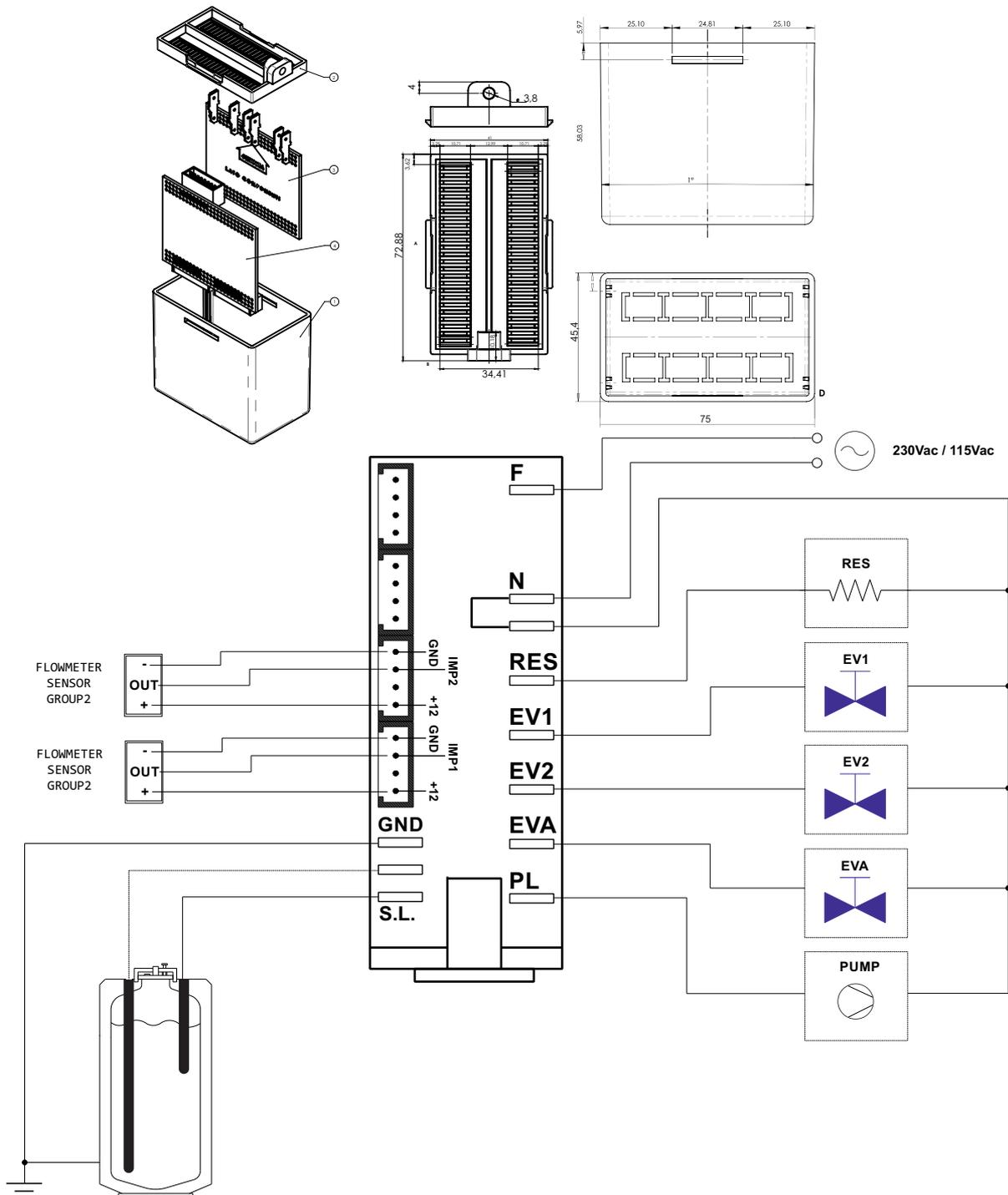


Loading cycle of a boiler with time-out and one level probe:

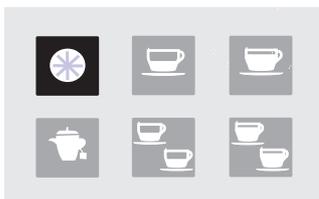
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5. INSTALLATION AND SCHEMES



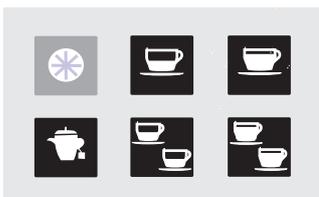
PROGRAMMING



Tenere premuto il tasto programmazione per 5 secondi. Una volta che i led della tastiera lampeggiano, rilasciare il tasto e siete entrati in modalità programmazione.

Se il tasto nel gruppo 1 rimane premuto per 7 secondi, cioè finché i led della tastiera si spengono, si reimpostano automaticamente le dosi di default.

Se il tasto nel gruppo 2 rimane premuto per 7 secondi, cioè finché i led della tastiera si spengono, i valori delle dosi del gruppo 1 vengono copiati nel gruppo 2.



in fase di programmazione premere uno dei qualsiasi tasti per l'erogazione (key1, key2, key3, key4, key6). Il led relativo al tasto inizierà a lampeggiare e vengono abilitati le uscite per l'erogazione (Ev1 o Ev2 o EVA /PL). Una volta raggiunta la dose desiderata, premere il pulsante programmazione (Key5) per interrompere l'erogazione del prodotto, con la conseguente disattivazione delle uscite erogazione (Ev1 o Ev2 o EVA /PL). Il valore della dose erogata verrà quindi memorizzato. Contemporaneamente si verifica lo spegnimento del led della dose programmata e l'accensione degli altri led. E' quindi possibile procedere alla programmazione delle restanti dosi.

6 MAINTENANCE

6.1 Cleaning

Clean the front panel of the instrument with a soft cloth, dampened with soapy water. We recommend to not use abrasive detergents or detergents that contain solvents, since they could damage the instrument; also, do not splash water or any other liquid directly on the instrument.

6.2 Repairs

All repairs must be carried out by authorized personnel. Opening the instrument container or tampering with the controller automatically annuls the warranty. If necessary, consult the nearest DTI customer assistance.

7 CALIBRATION

All controllers are automatically computer calibrated at the DTI production facilities. If the indicated temperature value is not correct, check the connections, as well as the probe cables, especially when different cables are connected to each other. If it is not possible to eliminate the failure, then set the value to be added or subtracted in parameter #19, in order to reach a correct indication of the process variable.

8 ABOUT THE OPERATING INSTRUCTIONS

These operating instructions are to be considered part of our product and are therefore to be kept with proper care until the product itself is disposed of. The user can directly request new operating instructions from DTI, should those supplied have been damaged or lost. These operating instructions include the technical state-of-the-art at the moment the product was sold and, as such, cannot be considered inadequate only because they were successively up-dated on the basis of new experiences. DTI reserves itself the right to modify product features and/or to up-date the operating instructions at any time, without giving prior notice and without the obligation to up-date previously issued versions. The user can request possible up-dates or integrations directly from DTI; he/she may also request further information about the product and in turn make proposals on how to improve these operating instructions. The information included in these operating instructions shall serve to illustrate the use of the product as foreseen in the project, to list its technical features,

to supply information about instrument installation and regulation, to prescribe maintenance procedures, to list residual risks, etc. Hence DTI assumes no responsibility deriving from the improper use of its products or use by incompetent personnel, incorrect installation, faulty power supply, serious lack of prescribed maintenance, non-authorized modifications or interventions, the use of spare parts that are either not original or not specific for this series of models, not fully complying with the operating instructions, force majeure, etc.