



ULTRAVIOLET DISINFECTION
EQUIPMENT FOR THE TREATMENT OF DRINKING WATER

SINGLE LAMP AL² SERIES

405C AL² - 405 AL² - 412 AL²



MANUAL OF INSTALLATION, USE AND SERVICING



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1. Introduction

This manual is for the following models of SINGLE LAMP AL SERIES:

UV 405C AL² - UV 405 AL² – 412 AL²

This Pressure UV Systems is manufactured by **S.I.T.A. s.r.l.**

Warning: This equipment requires regular maintenance to ensure the requirements of the drinking water treated and the maintenance of the improvements as stated by the manufacturer.

These operating instructions contain important information for the operation and maintenance of the equipment.

Please ensure that these operating instructions are carefully read by all relevant persons before putting into operation, to ensure the safe use of the UV system. The operating instructions are an integral part of the equipment supply.

Before putting into operation, all the conditions necessary for safe operation of the equipment must be fulfilled.

The installation, commissioning and maintenance of the equipment should only be carried out by qualified personnel.

The equipment should only be operated by authorized personnel who have been trained accordingly.

No modifications should be made to the equipment without consulting S.I.T.A., as this could effect the safe operation of the unit. S.I.T.A. shall not be held responsible for damage resulting from unapproved modifications.



INSTRUCTION:

The operating instructions are to be kept where they will be accessible for operating and maintenance personnel.

2. General Principles

Information about UV irradiation

The UV sterilizers of the SINGLE LAMP series have been planned specially for destroying harmful bacteria and viruses present in your water.

Their working is based on a physical principle which is a warranty of security: the output of ultra-violet irradiation.

The UV light given out by special mercury fumes lamps (UV-C rays $\lambda = 254\text{nm}$) is highly germicidal because it interacts with DNA and RNA, at a molecular level.

The deep bio-structural disorder caused by such irradiation interferes with the development and the ability of reproduction of every kind of micro-organism, making it harmless.

Generally it is better to mount a pre-filter before the UV sterilizer, in this way the impurities of every nature and consistence are kept.

This system comes to be necessary if we want to have a high degree of sterilization, in fact the non-filtration and removal of suspended particles in the water has, as a consequence, a decrease of the sterilizer's efficiency.

If the water to be treated contains sulphydric acid or more than 0.3 p.p.m. of iron or filtrable solids, once passed through the sterilizer,

it leaves a residual sediment on the quartz sleeve, which, therefore, must be periodically cleaned (the frequency depends on the quantity and quality of water treated).

General directions

According to the European rules EN 60204-1 (safety of the set-up of the electrical equipment-general rules) the low tension electrical instruments (rule 2006/95/CE) must be connected to a current-tap provided with grounding.

Safety direction



The light of ultra-violet lamps can cause serious burns to unprotected skin and eyes, therefore it is recommended not to connect it to the current tap without having before ensured the UV lamp in its housing and inserted the PVC cover.

Indications for the disposal

We remind that, according to what is fixed by D.L. 25 July 2005, № 151 "Accomplishment of directives 2002/CE, 2002/96/CE and 2003/108/CE, concerning the reduction of the use of dangerous substances in electric and electronic equipments, and the disposal of waste" both mercury vapours lamps and electrical panels, when no more used, must be considered as special waste, and in the same way disposed of.

To do that, it is possible to address to specialized centres for the recovery of dangerous materials, or to contact directly our technical department.



INFORMATION TO USERS pursuant to art. 14 of the 2012/19 / EU DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 on waste electrical and electronic equipment (WEEE)

The crossed bin symbol on the appliance or on its packaging indicates that the product at the end of its useful life must be collected separately and not disposed of together with other mixed urban waste.

Please contact your municipality, or local authority, for all information regarding the separate collection systems available in the area. The retailer is obliged to collect the old equipment free of

charge when buying new equipment of an equivalent type, for the purpose of starting the correct recycling / disposal.

Appropriate separate collection for the subsequent start-up of the disused equipment for recycling, treatment and environmentally compatible disposal helps to avoid possible negative effects on the environment and on health and favors the re-use and / or recycling of the materials it is composed of the equipment

3. Instruction for installation and setting at work

General premise: The installation of the SINGLE LAMP sterilization units must be carried out by specialized staff, scrupulously following the instructions hereby given. It has been moreover considered necessary to give some general information about the electrical and water connections.

Cautions: check that the UV panel is not connected to the power supply and that the tap of the water to be treated is turned off.

- Connect the delivery of the water to be treated to the special water connection
- Turn on water and check for possible leaks in any part of the unit
- Connect the plug to the current tap
- Check that the disinfected water comes out and that the LEDS on the panel of the control board, signal the correct working

Let the disinfected water flow down to outlet for at least 10 minutes before using it, in order to make the possible impurities present in the unit drain out.

NOTE: it is recommended to install a water filter directly before the UV sterilizer in order to remove the suspended particles, eventually present in the water to be treated, which could limit the efficiency of sterilization.

CHECKS

The SINGLE LAMP UV System is ready for producing disinfected water, once the connection to the water system and to the electrical grid is carried out. The unit works automatically, the electronical boards which control the signals reaching the control panel, allow the visualization (or the sonorization) of the correct working or of anomalies which may occur during the operating of the unit.

MAINTENANCE

The UV System of SINGLE LAMP series have been projected and realized by S.I.T.A. Srl with simple and functional principles which make the checking procedures and the periodical servicing particularly easy.

The main points which characterize the ordinary servicing are the following: check quarterly the quartz sleeves, which contain the UV lamps, in order to ensure the maximum disinfection, for the cleaning.

Maintenance work may only be carried out by personnel who have been trained and authorized for this work by the owner and/or user. The owner and/or user must ensure that the maintenance personnel are familiar with the safety measures and regulations, and that they also comply with them, in addition to having read and understood the operating instructions.

Only original replacement parts from the supplier must be used. The following are the recommended service intervals for replacement parts:

UV lamp change - once per 9000 hours.

UV quartz sleeve clean - frequency depends on the quality of the water.

O-ring for quartz sleeve-once per year.

Procedure for the UV lamp replacement (9000 h max.)

- 1) disconnect the electrical box from the electrical grid
- 2) lift the cover slightly turning, carefully loosen the electrical 4-pins connection, and extract the lamp from the quartz sleeve
- 3) remove the lamp from the packing, handling it carefully by its ends
- 4) insert the new lamp into the quartz sleeve of the UV System
- 5) connect the lamp to the electrical connection and put again the cover
- 6) connect again the equipment.

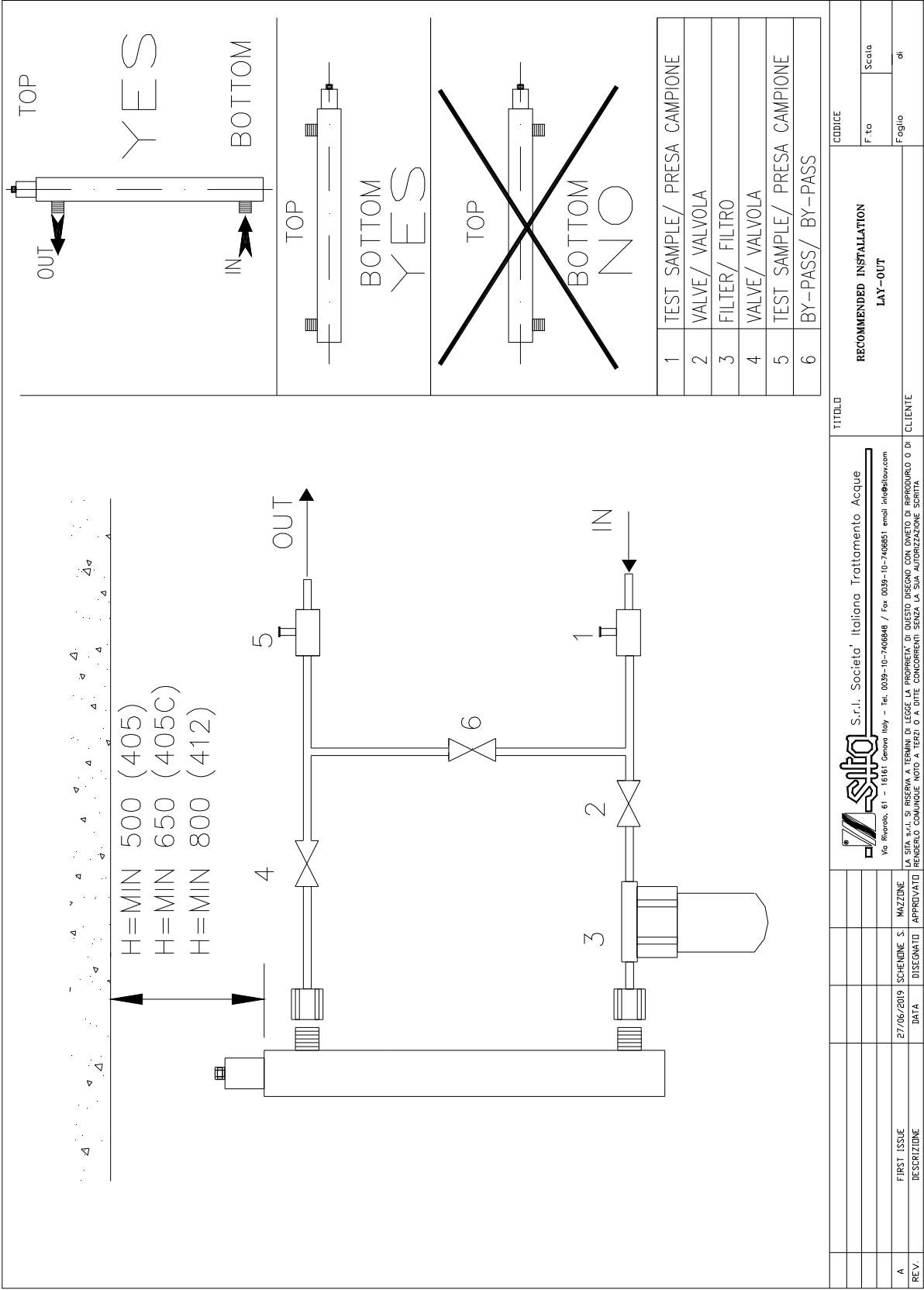
Note: for the replacement of the lamp it is not necessary to turn water off

Procedure for the quartz sleeve cleaning

- 1) disconnect the electrical box from the electrical grid and turn off water
- 2) remove the lamp, as for the replacement
- 3) unscrew the sleeve-bolt and extract the quartz sleeve with care
- 4) clean the quartz sleeve by wiping it with a cloth soaked with an acid solution such as vinegar or lemon
- 5) reassemble the sleeve being sure to center the guide-spring fixed on the bottom, put the o-ring on the quartz sleeve, then tighten the sleeve-bolt; place the o-ring in the seat of the sleeve-bolt, insert the sleeve inside it, till it leans, then screw on the S/S chamber.
- 6) turn on water checking for eventual leaks
- 7) remount the lamp, its electrical connection and cover
- 8) turn on the sterilizer.

3.1.

3.1 Installation scheme recommended

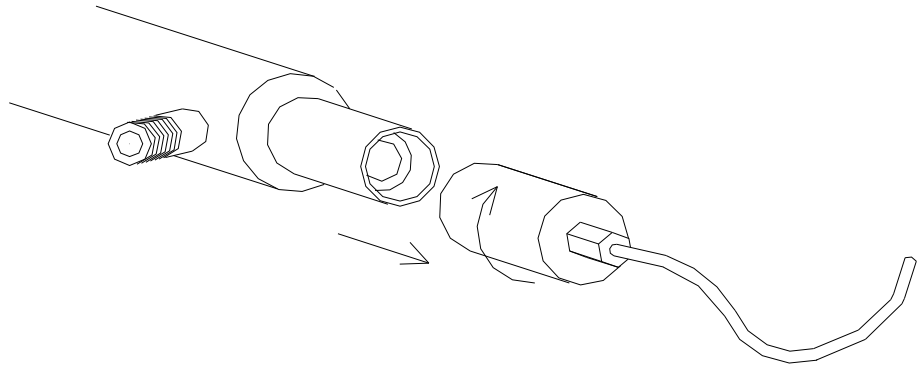


4. UV Chamber Installation

4.1. 4.1 Assembling of the UV chamber

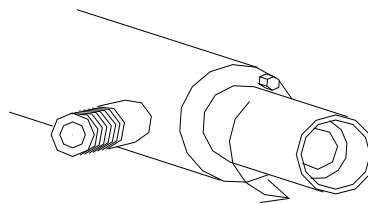
- Extract the PVC contact cover

4.2

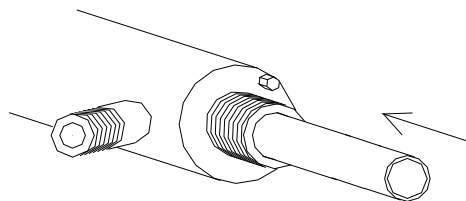


- Unscrew the nylon sleeve bolt

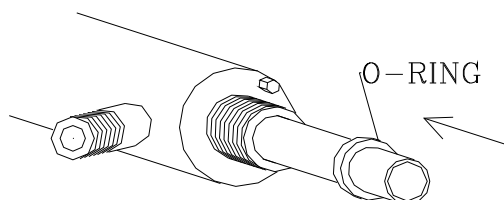
5.



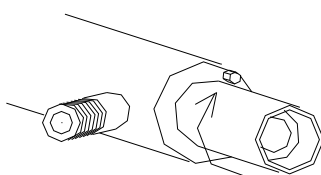
- Insert the quartz sleeve paying attention in centering the guide spring placed on the bottom of the chamber



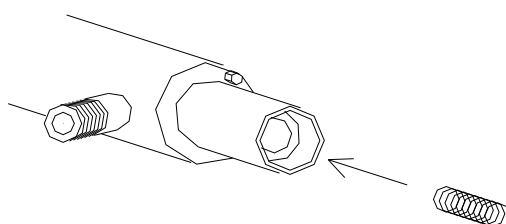
- Insert the O-RING on the sleeve



- Screw nylon sleeve bolt

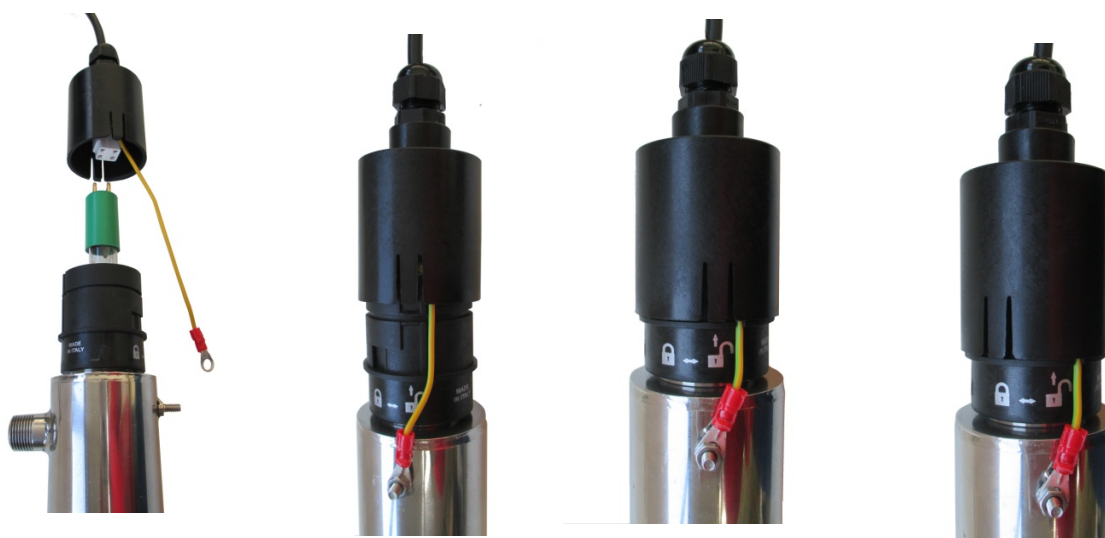


- Insert the spring



Perform hydraulic test and check there is no leaks.

Connect the lamp to quadripin socket place the earth cable in the slot along the cable gland block and connect its terminal to the M4 bolt welded onto the manifold, insert the contact cover plug until it stops, and then turn it to the closed position.



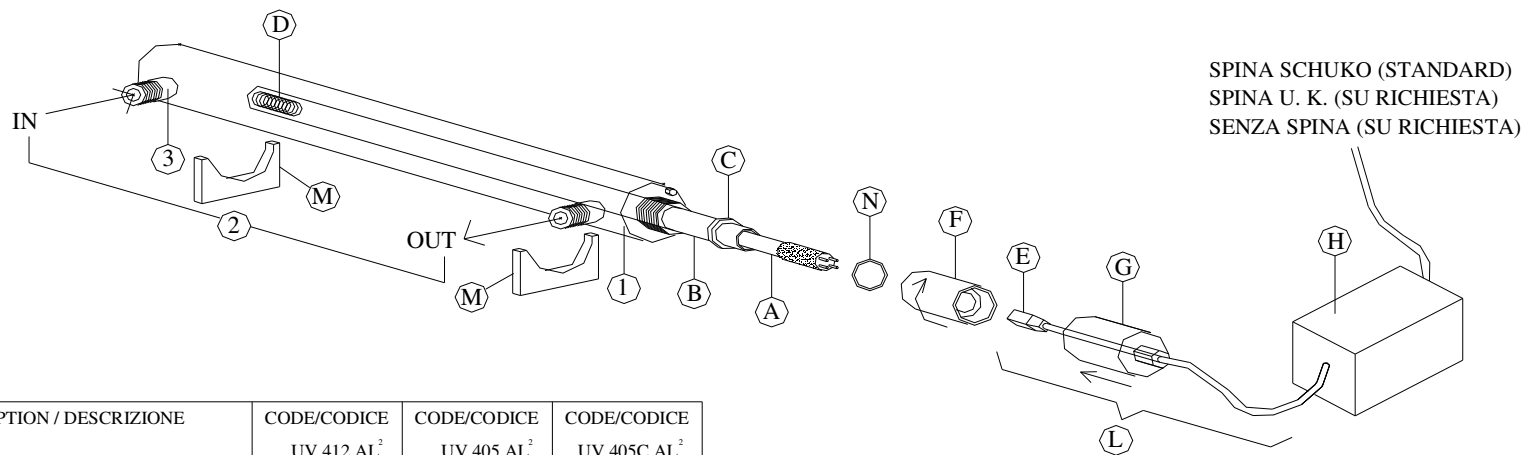
Finally connect the power cable to the socket.

Once connected to the power supply the UV lamp will light on.

Do the following at the first start up and on every lamp replacement:

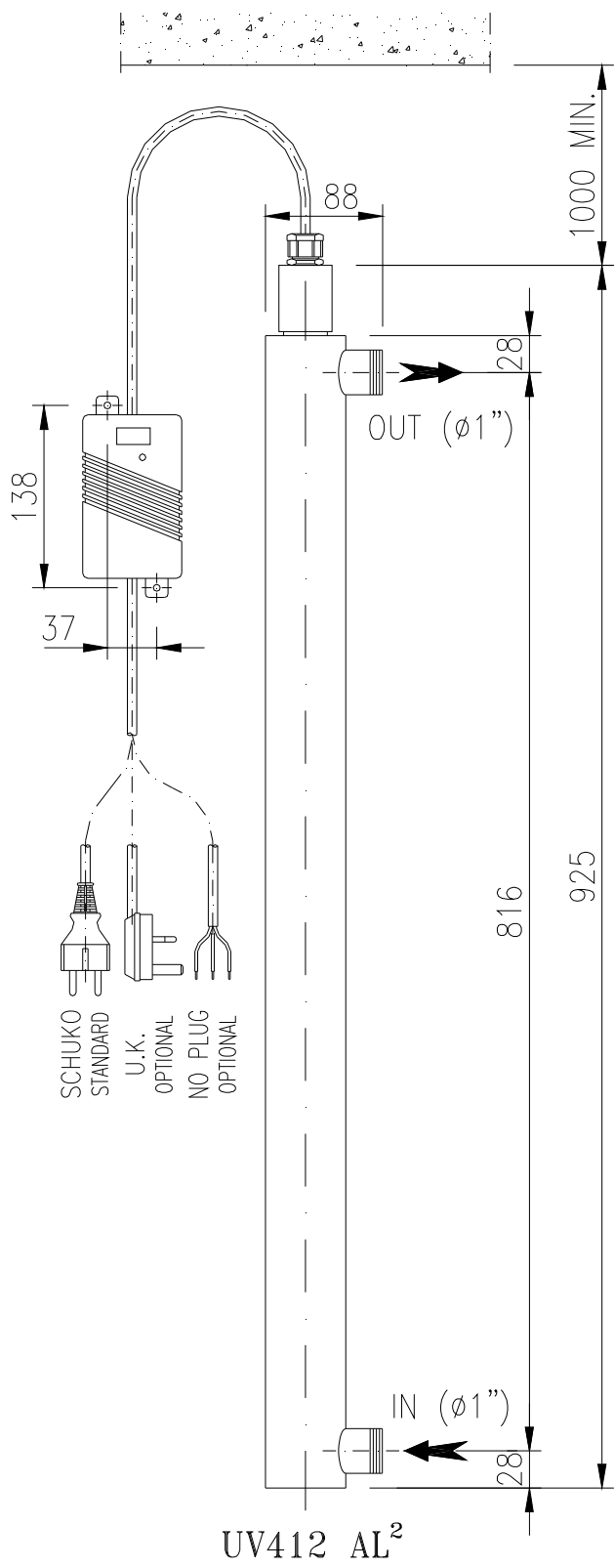
-) Activate the lamp life count down hour meter (see display description)
-) In case of LCD PLUS system with UV sensor then operate the sensor calibration. This operation must be done after at least 5 minutes from lamp start, with quartz sleeve clean, with sensor measuring window clean and with steady water flow.

UV 405 AL² - UV 405 C AL² - UV 412 AL²



RIF.	DESCRIPTION / DESCRIZIONE	CODE/CODICE UV 412 AL ²	CODE/CODICE UV 405 AL ²	CODE/CODICE UV 405C AL ²
A	UV LAMP/ LAMPADA UV	028104	028102	028102C
B	QUARTZ SLEEVE/ QUARZO	028105	028103	028103C
C	O-RING 23x4/ O-RING 23x4	028061	028061	028061
D	SPRING/ MOLLA	028036	028036	028036
E	FOUR-PIN HOLDER / QUADRIPI	028088	028088	028088
F	SLEEVE BOLT/ BLOCCAGUAINA	028060D	028060D	028060D
G	CONTACT COVER/ COPRICONTATTO	028034D	028034D	028034D
H	BALLAST (SCHUKO - U.K.)	2755	2753	2753
H	BALLAST (NO PLUG)	2755/YZ	2753/YZ	2753/YZ
L	CONTACT COVER KIT E + G + 1 m LAMP CABLE	028034/K	028034/K	028034/K
M	CLIP/ CLIP	026427/B	026427/B	026427/B
N	O-RING/ O-RING	V141	V141	V141

5. Models drawing



NOTA:

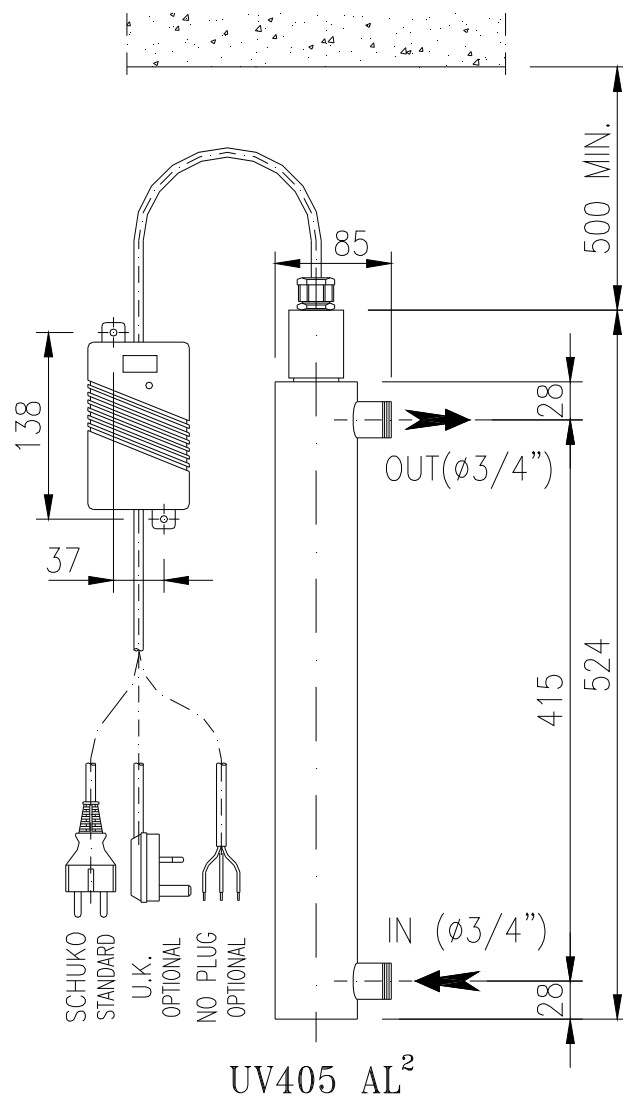
LE DIMENSIONI DI INGOMBRO INDICATE SONO SUSCETTIBILI DI MINIME VARIAZIONI DOVUTE ALLE TOLLERANZE COSTRUTTIVE E DI ASSEMBLAGGIO DEI COMPONENTI MECCANICI IMPIEGATI

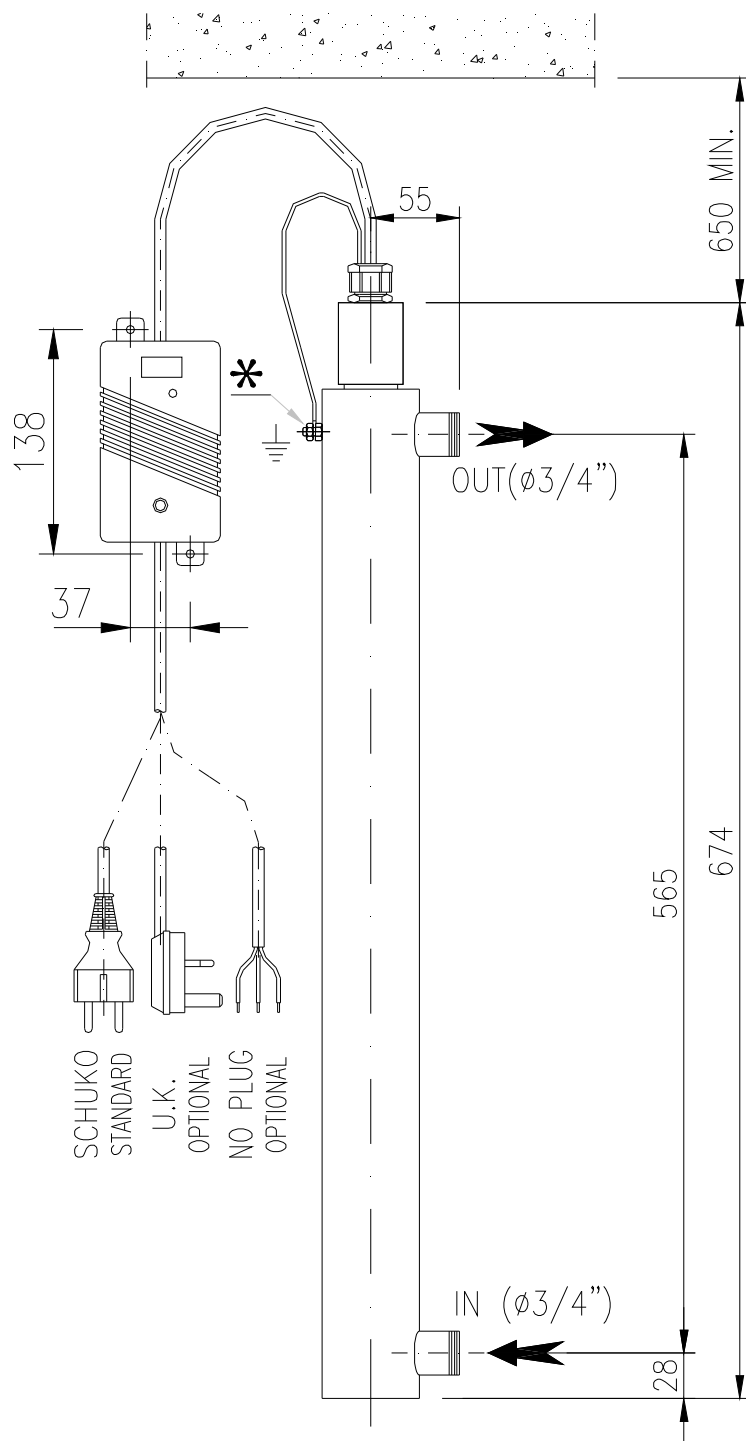
NOTE:

THESE OVERALL DIMENSIONS CAN CHANGE A LITTLE BECAUSE OF THE CONSTRUCTIVE TOLERANCES AND THE ASSEMBLING OF MECHANICAL COMPONENTS YOU USED.

NOTE:

CES TOTALES DIMENSIONS PEUVENT SUBIR DES MOINDRES MODIFICATIONS POUR LES CONSTRUCTIVES TOLERANCES ET L'ASSEMBLAGE DES MECANQUES ELEMENTS UTILISES.





NOTA:

- LE DIMENSIONI DI INGOMBRO INDICATE SONO SUSCETTIBILI DI MINIME VARIAZIONI DOVUTE ALLE TOLLERANZE COSTRUTTIVE E DI ASSEMBLAGGIO DEI COMPONENTI MECCANICI IMPIEGATI

NOTE:

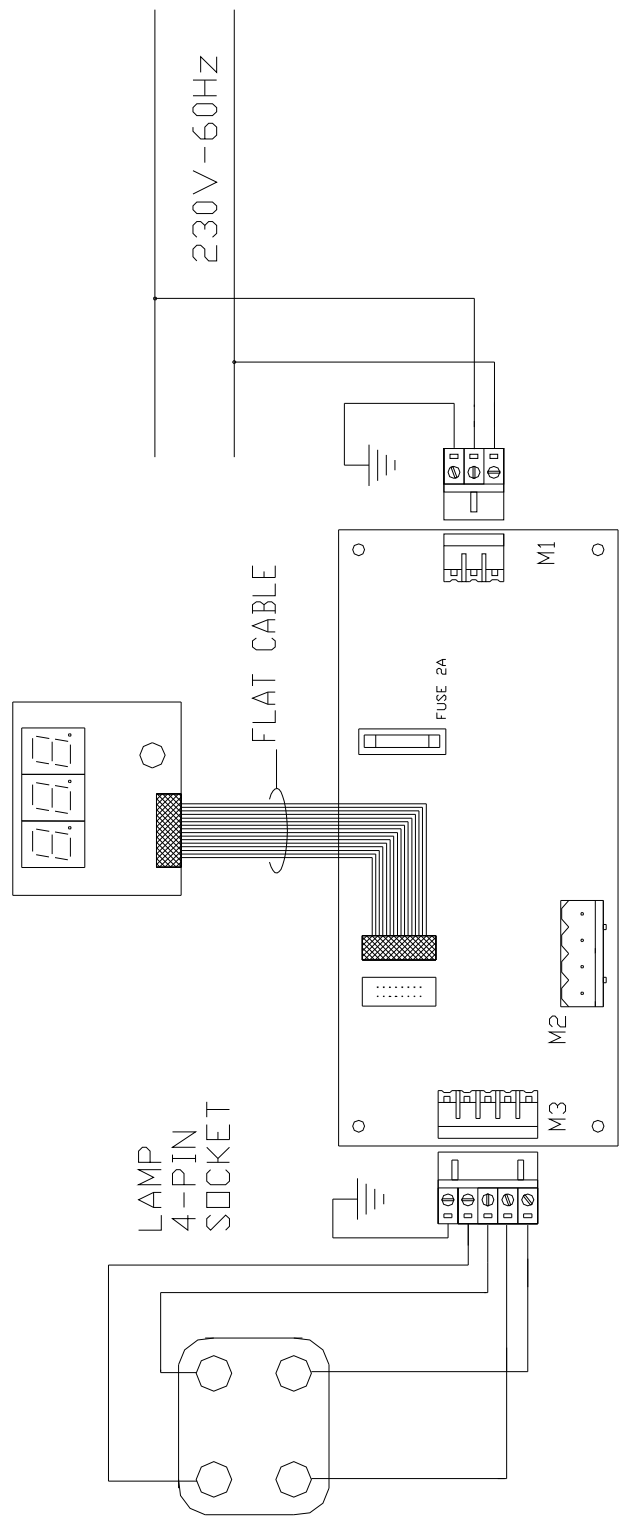
- THESE OVERALL DIMENSIONS CAN CHANGE A LITTLE BECAUSE OF THE CONSTRUCTIVE TOLERANCES AND THE ASSEMBLING OF MECHANICAL COMPONENTS YOU USED.

NOTE:

- CES TOTALES DIMENSIONS PEUVENT SUBIR DES MOINDRES MODIFICATIONS POUR LES CONSTRUCTIVES TOLERANCES ET L'ASSEMBLAGE DES MECANQUES ELEMENTS UTILISES.

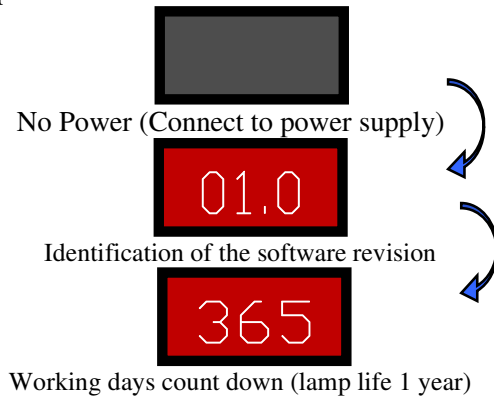
* _BULLONE M4 PER
_MESSA A TERRA
_EARTHING BOLT

6. Electrical scheme



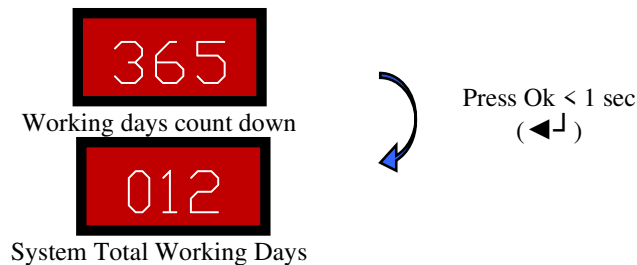
7. Display Information (Troubleshooting)

DISPLAY MESSAGES – Start up:



DISPLAY INFORMATION – Working days:

Press (◀↵) for less than 1 sec to show the lamp working days:



DISPLAY ALARMS – Troubleshooting:

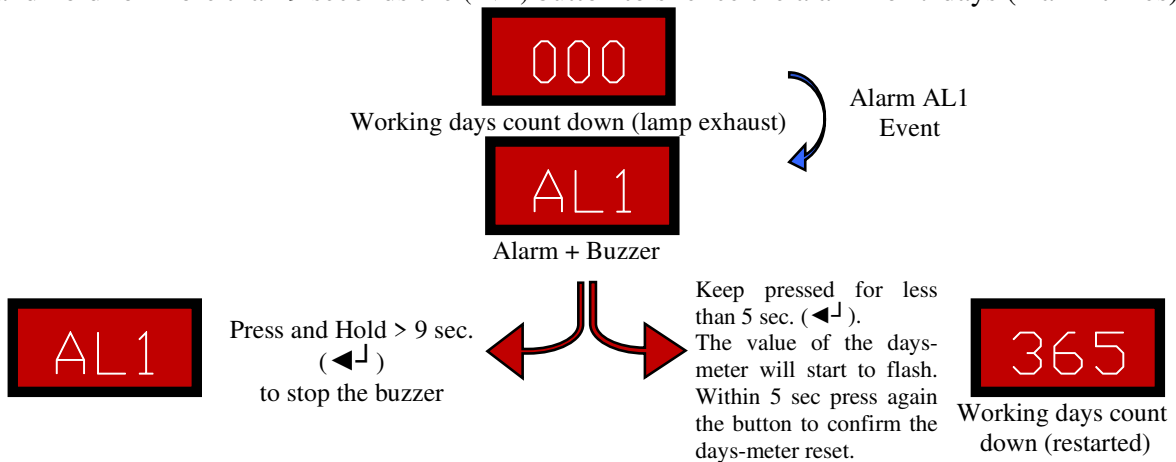
AL1: Indicates the end of lamp life(count-down timer shows 0 days). In such case replace the lamp and restart the working days count down.

To restart the working days count down replace the lamp and press and hold for less than 5 seconds the (◀↵) button. The value of the days-meter will start to flash. Within 5 sec press again the button to confirm the days-meter reset.



ATTENTION: Do not replace the lamp with powered panel!!!

Press and hold for more than 9 seconds the (◀↵) button to silence the alarm for 7 days (max 4 times).



Note: if within 5 sec it is not "confirmed", the days-meter comes back to the current counting value

AL2: Indicates lamp failure. Check:

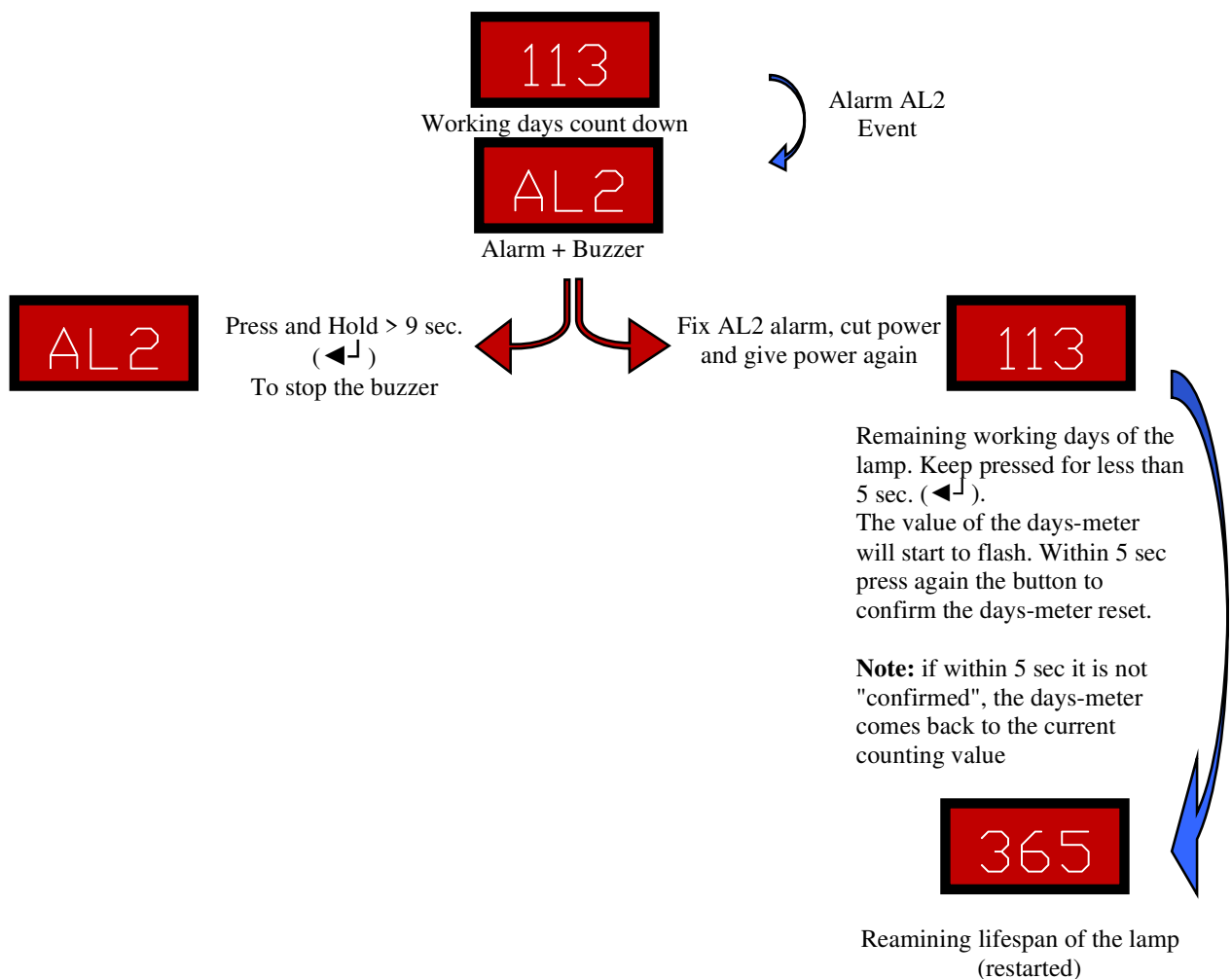
- o Lamp connection.
- o If lamp is burned by testing another lamp.
- o If lamp starter has failed by testing a new lamp.

In case of lamp replacement press and hold for less than 5 seconds the (◀↵) button. The value of the days-meter will start to flash. Within 5 sec press again the button to confirm the days-meter reset.



ATTENTION: Do not replace the lamp with powered panel!

Press and hold for more than 9 seconds the (◀↵) button to silence the alarm for 7 days (max 4 times).



8. Technical data sheet

8.1. 8.1 UV 405 AL²

GENERAL INFORMATION	
Max flow rate	19 l/m
UVC transmittance	99%- 1 cm
UVC dose	300 J/m ²
Water Temperature range	5-50° C
Total consumption	33 W
Mounting	Vertical or horizontal

UV REACTOR	
Material	Stainless Steel 304 (optional 316L)
Connections	Thread ¾" M
Total Volume	1 l
Total weight	1.5 kg
Max working pressure	10 bars g
Protection class	IP 54
Shape	U
Flow direction	From bottom to top

UV LAMP	
Number	1
Lifespan	9000 hr
Lamp power	30 W
Type	Low pressure type 028102

CONTROL PANEL	
AL ²	
Material	Thermoplastic
Dimensions	118 x 60 x 64 mm
Protection class	IP 54
Ambient temperature range	5 – 45 °C
Power supply	230 V - 50/60 Hz
Lamp cable length	1 m
Power supply cable	1 m
Feed plug	SCHUKO, UK or passing wires
Monitor display	Digital SITA
Days meter	Yes for total system life
Resettable days meter	Yes for lamp life control
Audio alarm	With silence options

Rev. 01-2015

8.2. UV 405C AL²

GENERAL INFORMATION	
Max flow rate	30 l/m
UVC transmittance	99%- 1 cm
UVC dose	300 J/m ²
Water Temperature range	5-50° C
Total consumption	33 W
Mounting	Vertical or horizontal

UV REACTOR	
Material	Stainless Steel 304 (optional 316L)
Connections	Thread ¾" M
Total Volume	1.6 l
Total weight	1.8 kg
Max working pressure	10 bars g
Protection class	IP 54
Shape	U
Flow direction	From bottom to top

UV LAMP	
Number	1
Lifespan	9000 hr
Lamp power	30 W
Type	Low pressure type 028102C

CONTROL PANEL	
Material	Thermoplastic
Dimensions	118 x 60 x 64 mm
Protection class	IP 54
Ambient temperature range	5 – 45 °C
Power supply	230 V - 50/60 Hz
Lamp cable length	1 m
Power supply cable	1 m
Feed plug	SCHUKO, UK or passing wires
Monitor display	Digital SITA
Days meter	Yes for total system life
Resettable days meter	Yes for lamp life control
Audio alarm	With silence options

Rev. 08-2019

8.3. UV 412 AL²

GENERAL INFORMATION	
Max flow rate	45 l/m
UVC transmittance	99%- 1 cm
UVC dose	300 J/m ²
Water Temperature range	5-50° C
Total consumption	44 W
Mounting	Vertical or horizontal

UV REACTOR	
Material	Stainless Steel 304 (optional 316L)
Connections	Thread 1" M
Total Volume	1,8 l
Total weight	2.5 kg
Max working pressure	10 bars g
Protection class	IP 55
Shape	U
Flow direction	From bottom to top

UV LAMP	
Number	1
Lifespan	9000 hr
Lamp power	40 W
Type	Low pressure type 028104

CONTROL PANEL	
AL ²	
Material	Thermoplastic
Dimensions	118 x 60 x 64 mm
Protection class	IP 54
Ambient temperature range	5 – 45 °C
Power supply	230 V - 50/60 Hz
Lamp cable length	1 m
Power supply cable	1 m
Feed plug	SCHUKO, UK or passing wires
Monitor display	Digital SITA
Days meter	Yes for total system life
Resettable days meter	Yes for lamp life control
Audio alarm	With silence options

Rev. 01-2015

9. Warranty Conditions

WARRANTY CONDITIONS

SITA works in compliance with ISO 9001-2015 quality procedures and subjects all equipments to accurate checks and tests.

The SITA supplies and progressing are anyway guaranteed only in the limits of technical specifications and request and/or of the certificates and/or of the specific checks as agreed, for 24 months from the delivery date or 30 days from the purchase date, provided that eventual defects are stated as fixed by art. No. 1495 of the civil code.

The stainless steel chamber is covered by warranty of 5 years only if used for compatible liquids and correctly installed.

In no case the integral replacement of the product is foreseen and any responsibility of sita is excluded for delays in the delivery of the goods to the customer, for claims of third parties towards the customer, for losses of goods, costs (installation, servicing and maintenance, transports, and so on) and damages of the customer due to the defect.

Moreover the product repaired or tampered by non-authorized third parties, and the product on which an intervention has been made for defect or for convenience tests, is excluded from the warranty.

Repairs are normally carried out in SITA warehouse or in authorized after-sales service centers signalled by SITA.

The warranty does not cover:

1. Accidental breakages due to the transport.
2. Breakages due to the use of equipments not in compliance with what is indicated on the use and maintenance manual or to carelessness.
3. Breakages to the connection to a power grid feeded with a tension different than the foreseen one ($\pm 10\%$ of the nominal value as fixed by CEI rules)

DO NOT TAMPER THE ADHESIVE LABELS OF IDENTIFICATION

The adhesive label with the QC (Quality Control) number must be intact and readable; such number allows to enter the data bank of tests and to find the values obtained in the electrical test of the equipment.

The adhesive label with the S/N (Serial Number) number must be intact and readable; such number allows to enter the data bank of tests and to find the values obtained in the hydraulic test of the equipment.

In case of dispute the court of Genova will be competent.

10. Declaration of Conformity EC

Unit produced in the factory of:

S.I.T.A.
Italian Company for Water Treatment

<h1>EC DECLARATION OF CONFORMITY</h1>
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The undersigned hereby declares, under full responsibility, that the unit:

UV STERILIZER

SINGLE-MULTILAMP SERIES

AL² MODELS

IS IN COMPLIANCE WITH

- 2014/35/UE (low voltage directive)
- 2014/30/UE (electromagnetic compatibility)
- 2015/863/UE (RoHS3)
- 2012/19/UE (WEEE)
- IEC -EN 60204-1 norms (safety of machinery-electrical equipment of machinery)
- IEC -EN 55022 norms (characteristics of radio interference)
- D.M. 14 June 2017 (Implementation of Directive 2015/1787/UE on the quality of water intended for human consumption)
- 2014/68/UE (art.4 comm.3) (PED)

The validity of CE marking is subordinated to the equipment integrity. Any modification, if not authorized, will cancel the use of the CE marking. This will occur in case the relevant risks have not been previously analyzed by our company, and a new EC Declaration of Conformity has been issued.