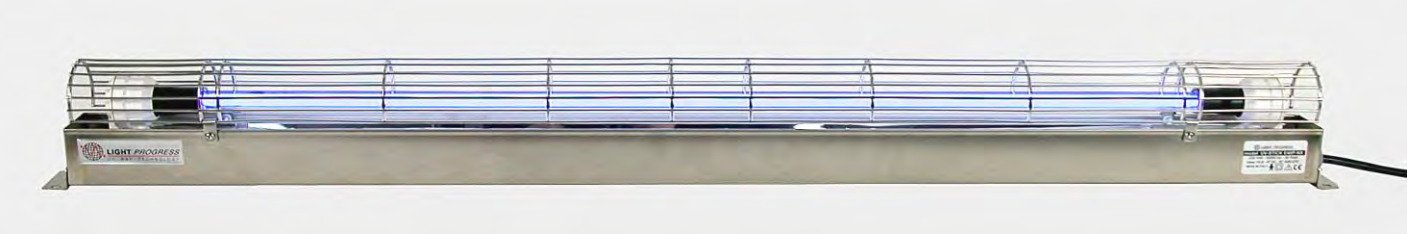
INSTRUCTIONS

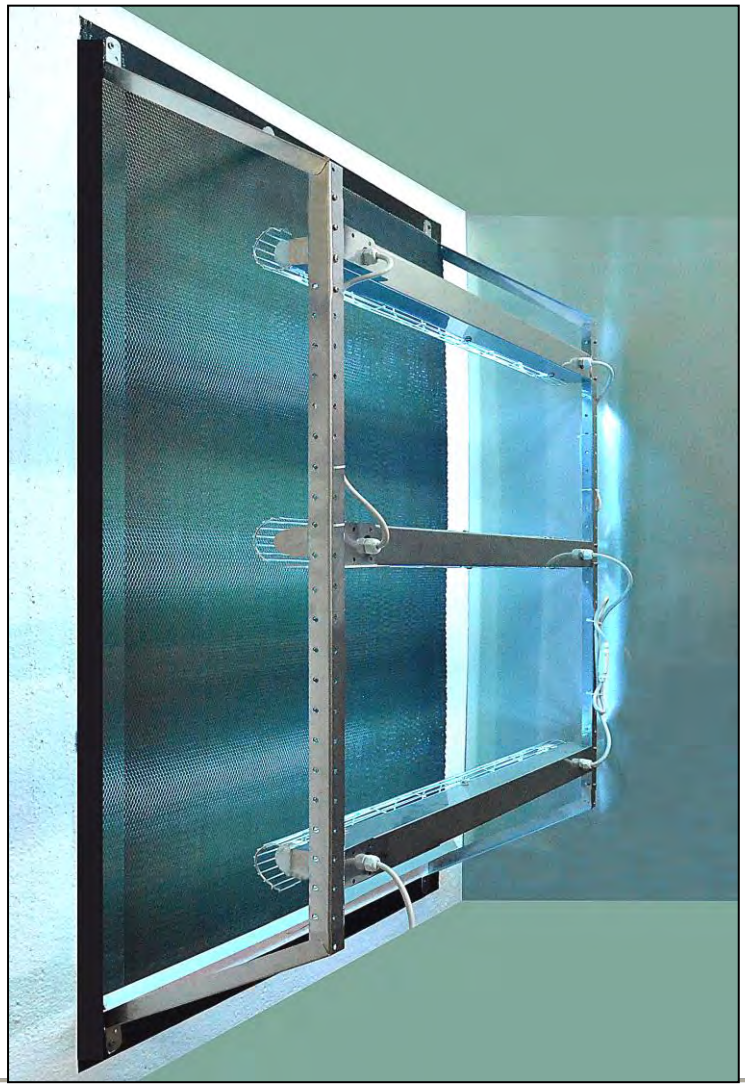
UV-STICK...NX-SCR

Germicidal UV-C Device with serial connection for AHU Disinfection

MODELS:

UV-STICK-E40H-NX-SCR
UV-STICK-E60H-NX-SCR
UV-STICK-E75H-NX-SCR
UV-STICK-E100H-NX-SCR
UV-STICK-E150-NX-SCR





SECURITY WARNINGS

Our Company has ensured that every care is taken in the design and production of its machinery. In order to guarantee as far as possible, that it is safe when used correctly. However, the laws on accident prevention require all users of the machinery to ensure that, whoever is responsible for installation, maintenance, use and sale of these products is shown the instruction provided by our company and is made aware of the precautions to be taken.
According to the circumstances, the appropriate recommendations made in these instructions must be made available, together with any other relative information, to any company or person involved in the installation of LIGHT PROGRESS products.

Only use this appliance for its intended purpose as described in this booklet.

If the appliance is wrongly operated for a purpose other than that for which it is intended, no liability can be accepted for any possible damage. The manufacturer and / or distributor cannot be responsible for any damage to people, animals and objects caused by use or operation of the appliance contrary to these instructions.

As with all electrical appliances the safety information and precautions contained in this booklet must be carefully observed, including following:

Before maintenance or cleaning ensure that the appliance is switched off and unplugged from the main supply.

Should the appliance become faulty please contact our authorized Service Centre direct and in case of repairs ask for genuine parts.

Improper repairs may damage the appliance and place the user at serious risk.

WARNING

Avoid exposure to UV-C rays emitted by germicidal lamps, even for a few seconds, it may cause severe conjunctivitis and erythema.
Plastic or painted surfaces exposed to direct UV-C rays may turn yellow with time similar to a long exposure to sunlight.
The intended use is as a germicidal lamp for sterilization, any other use is improper and dangerous.
The lamp as supplied, cannot be modified, or designed for use with accessories or tools.
Disclaimer: All responsibilities and warranty will be void due to tampering or lack of maintenance.

- **Carefully read the following instruction before use**
- **Before opening of the UV section, ensure the UVC device is OFF and unplugged in order to avoid exposure to UVC light emitted by the germicidal lamp; It may cause severe conjunctivitis and erythema.**
- **Remove the protection film from the device before turning on the UV-C lamp.**
- **This device cannot be operated by persons with reduced physical, sensory, or mental capacities.**
- **Ensure all users have the required knowledge and the related instructions about the safe use of the device and the related risks.**

Refer to ARPANSA Radiation Standard: Occupational Exposure to Ultraviolet Radiation for additional requirements: https://www.arpansa.gov.au/sites/default/files/legacy/pubs/rps/rps12.pdf

CONVENTIONAL SYMBOLS NOTICED ON DEVICES

SUBSTITUTED ITEMS MUST BE PERFORMED RESPECTING THE LOCAL LAWS.

RECYCLE THE STUFFS THAT COMPOSES THIS PRODUCT.

OBLIGATION TO CONSULT THESE INSTRUCTIONS BEFORE USE THIS PRODUCT

DANGER OF ELECTRICAL SHOCK; REMOVE TENSION TO THE SYSTEM BEFORE PERFORMING ANY OPERATION.

GENERIC DANGER.

DANGER OF EXPOSITION TO ULTRAVIOLET UV-C RAYS.

THIS DEVICE RESPECTS THE ROHS NORMS.

USE PROTECTIVE GLOVES

WEAR PROTECTIVE GLASSES

MANUAL

	***ATTENTION !***

This instruction manual must be preserved and must always be kept available for consultation; it must follow the device in case of transfer of ownership and accompany the device until its disposal.

DISPOSAL

Do not dispose of these products as unsorted municipal waste. Collect them separately as special waste and entrust them to specialized waste disposal companies. Disposal should be in accordance with Legislative Decree No. 151/2005 (WEEE - Italy), or the law of the country where disposal will occur (WEEE - EC). In case of failure to comply with laws or illegal disposal, heavy penalties are provided. The apparatus consists of plastic parts, electronic components, metal, UV lamps containing mercury (substances dangerous for the environment and human health). The dealer is available to the withdrawal the apparatus used.

DEVICE DESCRIPTION

UV-STICK...NX-SCR device includes a series of UV-C reglette of reduced size, fixed in a stainless steel frame, to irradiate thermal batteries and internal filter sections of an AHU - Air Handling Unit – in central air conditioning systems; **their purpose is to eliminate the microbial load**. The reglette is a lamp contained in a channel, entirely in AISI 304 stainless steel, and fitted with a reflecting screen in mirror bright aluminum, to increase the power of radiation, through the reflection.
Inside the stainless steel body, a watertight plastic channel is inserted, with a high degree of protection (IP 55) and double insulation containing special electronic ballasts to maximize yield and duration of UV-C lamp. A grid, also in stainless steel AISI 304, can be provided upon request, to protect the UV-C lamp from accidental mechanical shocks. To avoid flying splinters of glass after the collapse of the UV lamp, a protection of the UV lamp by means of the special thermo-retracted sheath UVLON®-PIPE (Tetrafluoroethylene), with UV-C transparency >85%. can be provided, always as an option UVLON®-PIPE is a patented system to withstand the wear and tear; it has low adhesion to any product or substance, is resistant to any aggressive chemical at high or low temperatures. It is a polymer conforms to F.D.A. tests for use with foodstuffs. The constituent materials of UV-STICK...NX allow its use even in harsh operating conditions (high humidity, low temperatures, etc..), or where conditions require a high resistance to chemicals and weathering.
UV-STICK...NX-SCR devices can be connected in series (series SCR - serial connector); a single power cable is enough to turn on up to 10 devices. Inside a AHU you will normally install several UV-STICK…NX devices, to ensure a homogeneous irradiation of thermal batteries or filters; for this reason, Light Progress supplies on request a set of adjustable anchor brackets, made of stainless steel, which allows to fix lines of devices connected in series to the frame of batteries and filters. The set is provided with supports to stabilize the system.

APPLICATIONS AND RESULTS

The UV-STICK...NX-SCR devices radiate directly, continuously, by UV-C rays, air filters and air cooling/humidifying batteries inside AHU ducts, to prevent the formation and growth of microorganisms potentially harmful to human health. The correct arrangement of the lamps inside the air conditioning system allows UV-C rays to penetrate the gaps and to avoid the presence of micro-shaded areas. In these micro-areas of shadow, between the metal wings of the thermal batteries, colonies of fungi, algae, and bacteria are established, due to the high levels of humidity; they compromise the proper functioning of the heat exchangers and their energy efficiency, and spread into the air-conditioned rooms pathogenic bacteria such as Escherichia Coli, Legionella Pneumophila, Tuberculosis and viruses (Flu, Avian Flu, Sars). The use of a UV-STICK...NX-SCR device is a reliable and economical solution to stop the access of microbes to social rooms or to controlled-contamination rooms, through a simple installation that is safe for personnel, since all irradiation is confined inside the AHU ducts, allowing significant savings in operating costs and safeguarding people's health from infectious diseases such as:

- **Sick Building Syndrome**, characterized by disturbances in the eyes and upper respiratory tracts (hyperactivity of the mucous membranes) as well as nervous disorders (numbness, headache).
- **Legionellosis** (Legionella Pneumophila - Legionnaires' typhoid). This pathology is frequently observed in environments with air conditioning systems. The Legionella infection can result in two distinct clinical pictures: Pontiac fever and Legionnaires' disease, it can also lead to the death of the infected person.
- **Tuberculosis** (Mycobacterium Tub.) which is transmitted by air and enters the body through the respiratory route.
- **Humidifier disease** or "**Monday Fever"**, characterized by an influenza-like symptoms that occur at the start-up of humidification systems, and seem triggered by microorganisms able to proliferate in the ducts of air conditioning systems during the weekend shutdown of air.

OPERATION

The device works by direct irradiation of UV-C rays. When the lamp is turned on, it reduces the microbial load in the air and on the surfaces enlightened by the UV lamp. For example, in 2-3 seconds at a distance of 10 cm from the device, you will achieve a 99% reduction of the bacteria: Bacillus, Coli, Clostridium, Legionella, Vibrio, Salmonella, Pseudomonas, Staphylococcus, Streptococcus, etc. The use of this device is allowed only in absence of personnel inside the AHU environment. In case of opening a section of the AHU, the main unit must be switched to the OFF position first to avoid personnel's affections at eyes (conjunctivitis) and skin (rash). The programming of the switching-on of the device can be made using specially designed electronic control units (MASTER-ST series), which, above all in case of installation of various equipment, can manage various operations such as:

- **Timing**. It is possible to program the duration of irradiation by means of a timer.
- **Turning-off**. A safety system switches off the lamps when people start entering the AHU duct.
- **Failure alarm**. In case of failure of one or more lamps, it will trigger a warning light on the framework clean contact.
- **Hour Counter.** To control the duration of a lamp and substitute it at the end of its lifetime.

BENEFITS AND ADVANTAGES

BETTER CLEANING OF BATTERIES AND FILTERS
UVGI rays prevent mold growth and the growth of bacterial colonies which obstruct the thermal batteries fins, impairing its proper functioning.

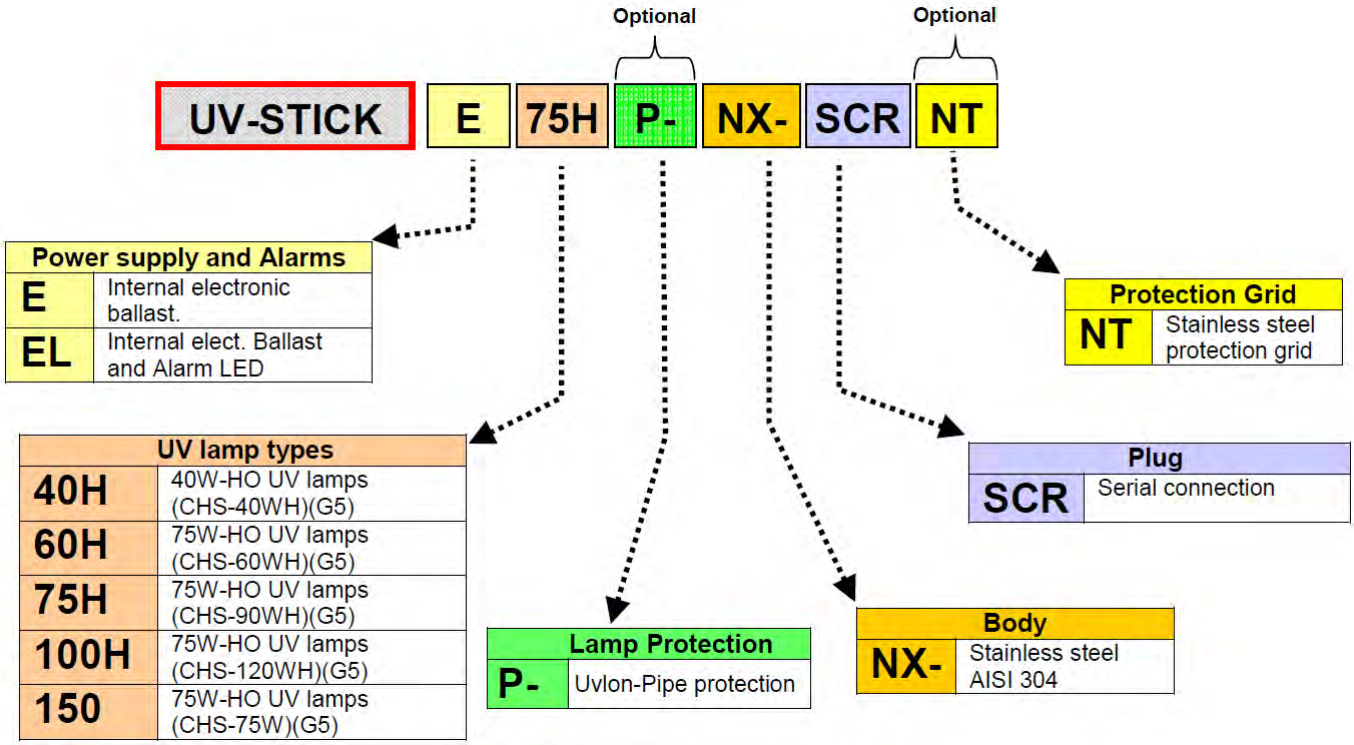
REDUCTION OF LOSSES AND SIGNIFICANT ENERGY SAVINGS
The increased cleaning of the batteries and filters, which otherwise would be prematurely clogged, results in a better power humidification and cooling and in a lower loss in the system, and so ensures less consumption for maintaining the desired climate conditions and in a more energetic efficiency.

ONGOING AND DEEP DISINFECTION
This system can always be turned on with no contraindications for people who have access to air-conditioned rooms. It therefore remains constantly below the level of the microbial environment and improve indoor air quality (IAQ), as prescribed in the DL 81/2008 legislative act, and recommended by the WHO (World Health Organization.

PHYSICAL ACTION AND ENVIRONMENTAL PROTECTION.
Treatment by UV-C rays is purely physical, and always achieves the same effect; also, there are no problems with overdose and rooms are always safe and practicable (when devices are off). Rather, many methods of chemical treatment involve the use of dangerous products for the environment, are difficult to biodegrade, as well as the risk of contamination of foodstuffs. Also, the prolonged use of chemicals is likely to develop resistant microbial forms with consequent danger to human health.

PRACTICABILITY AND SAVINGS.
The treatment is immediate and ready for use. The maintenance is minimal with low costs of both energy consumption and repairs.

DEVICE CODES



RECEPTION

Handle with care as you would fragile material. Verify the integrity of the packaging, and please be careful not to damage the contents when using sharp blades or cutters to open the box. Remove the unit from the box, then inspect it immediately to ensure that no damage has occurred during transport. Before installation and using the device please READ CAREFULLY THE SECURITY WARNINGS and all other instructions that follow.

KIT ASSEMBLING INSTRUCTIONS

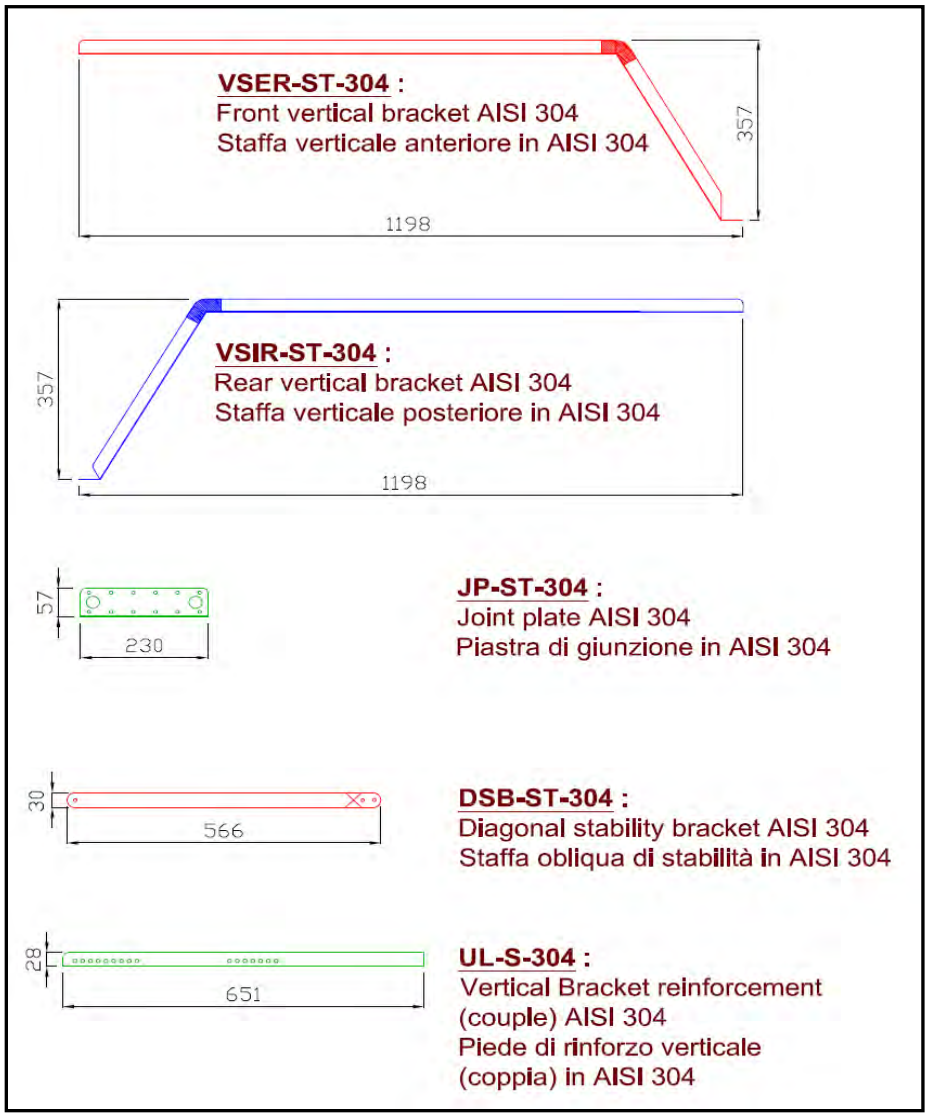
PACKAGES CONTENTS

Every box contains an assembling kit for one coil section and includes.

- **VSER-ST-304** Front vertical brackets
- **VSIR-ST-304** Rear vertical brackets
- **JP-ST-304** Joint plates
- **DSB-ST-304** Diagonal stability brackets
- **UL-S-304** Vertical bracket reinforcement (couple)
- **UV-STICK E75H NX SCR** devices (or **UV-STICK E40H NX SCR**)
- **INPUT POWER LINE** Power supply cable
- **CLOSURE PLUG** Terminal plug
- Fixing screw

We suggest assembling the kit on the ground and then lift the assembled chassis to attach to the COIL by following these assembly operations:

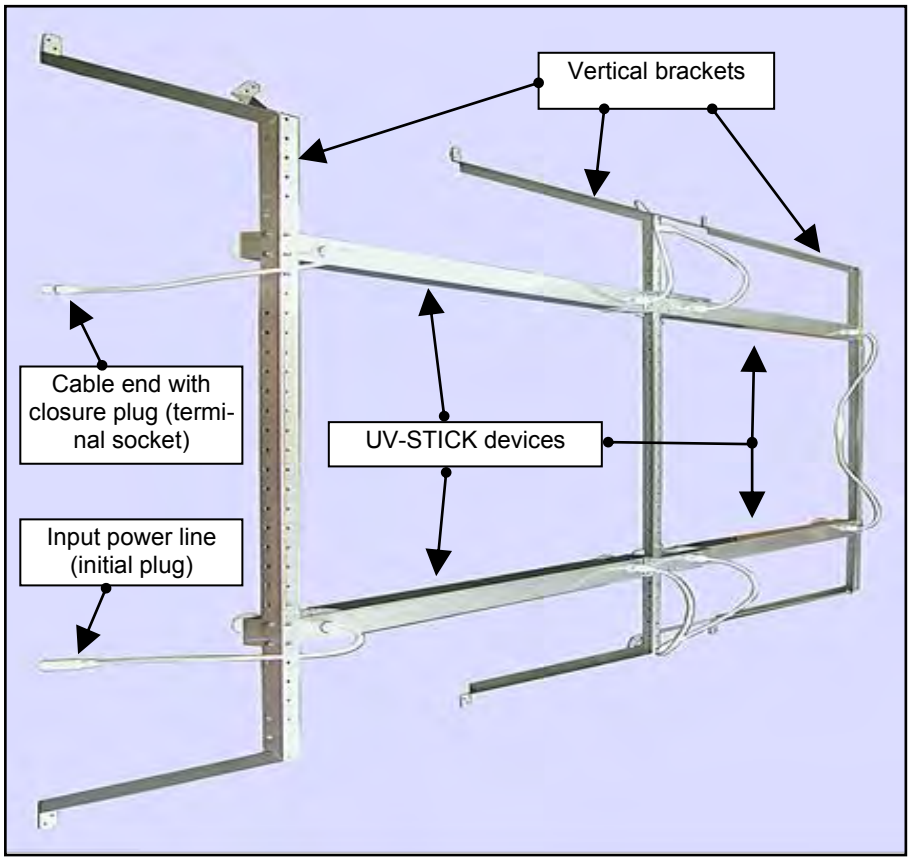
a) Extract all components from the box, verifying all components
b) For the mechanical installation, please follow the steps represented in the pictures above, paying attention to position of the lamps so that plugs are close to sockets.
c) Connect lamps between themselves using plug / socket.
d) In case of multiple rows, connect the last lamp of the upper row to the first lamp of the lower row, so as to determine the continuity of the electrical connection
e) Once all lamps by plugs/sockets are connected in series, put the final cap at the end of the line.
f) Connect the supply cable to the first lamp and, before being assured that lamps are correctly shielded (ex. AHU door is closed), give power (230Vac 50/60Hz) to the lamps.
g) Please pay attention! **Do not connect more than 10 devices in series (3.8A)**. If necessary, use more power supply cables than one (each one will belong to an independent power line).



CAUTION: For electrical connection, see below also the "ELECTRICAL CONNECTIONS".

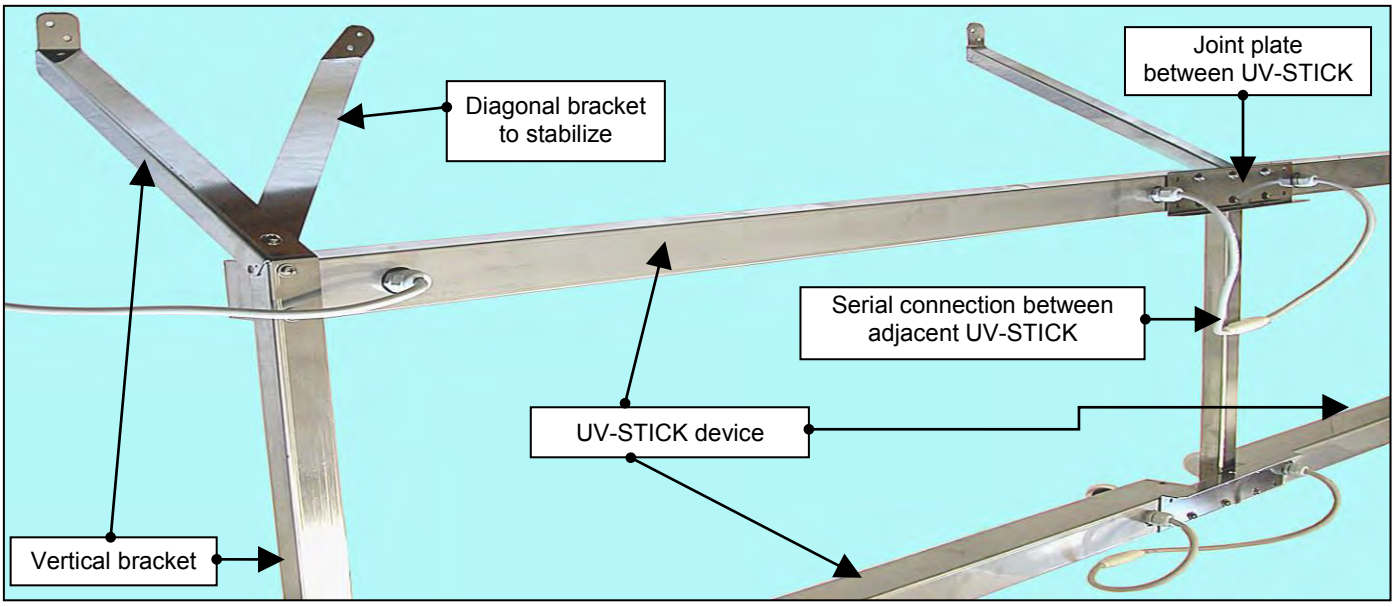
Code	weight (grams)
VSER-ST-304	560
VSIR-ST-304	560
JP-ST304	120
DSB-ST-304	135
UL-S-304	280
IN-CABLE-0.6	85

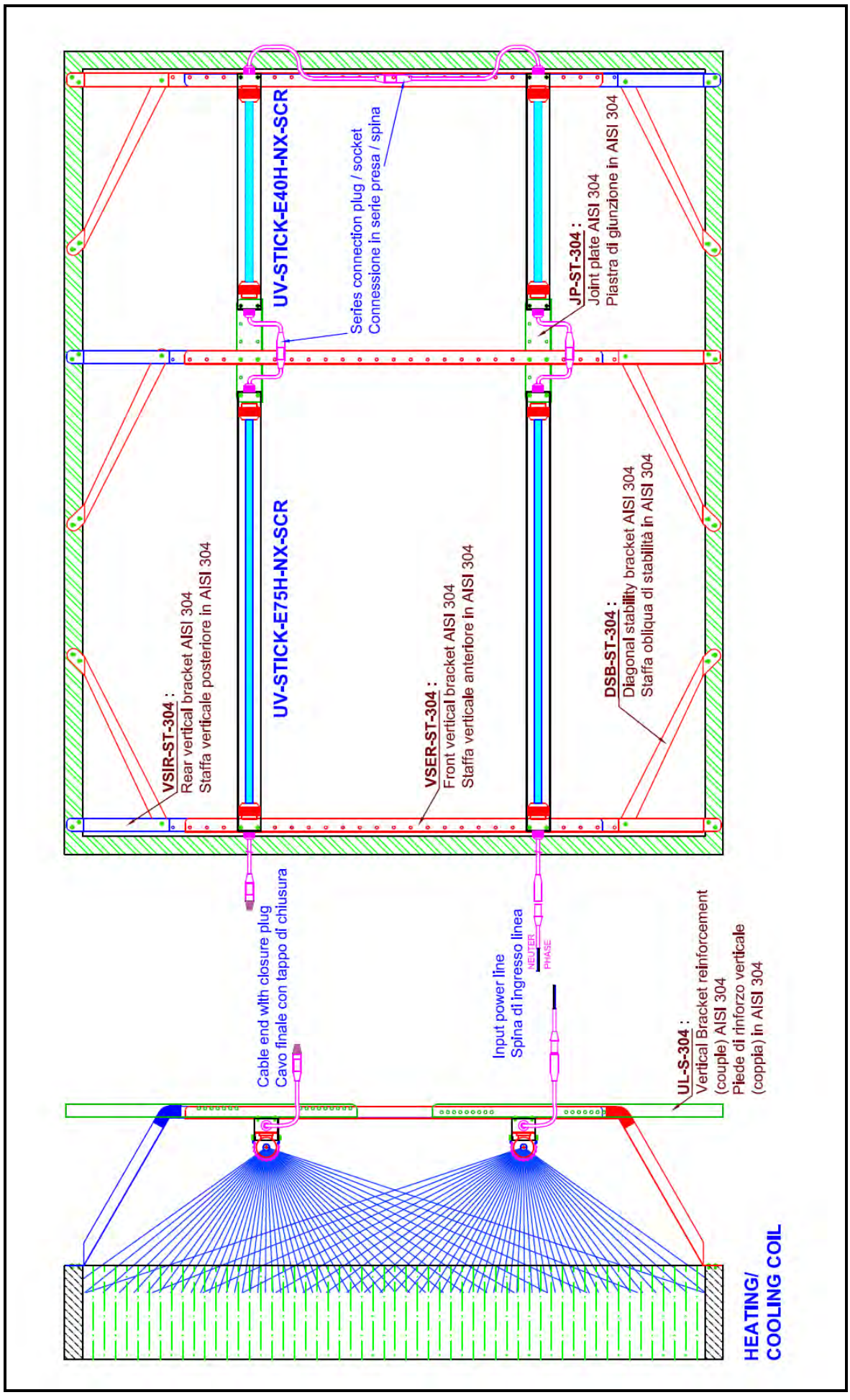
INSTALLATION

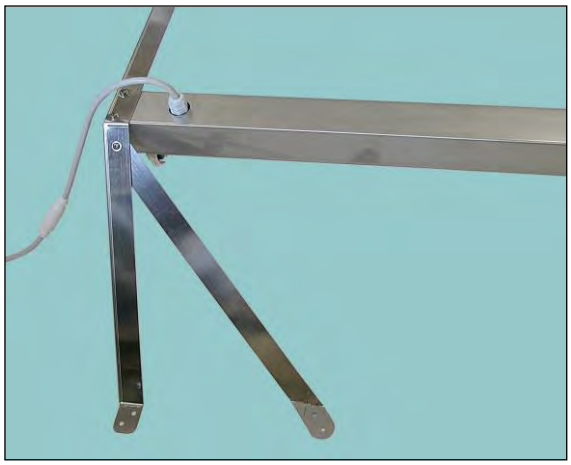


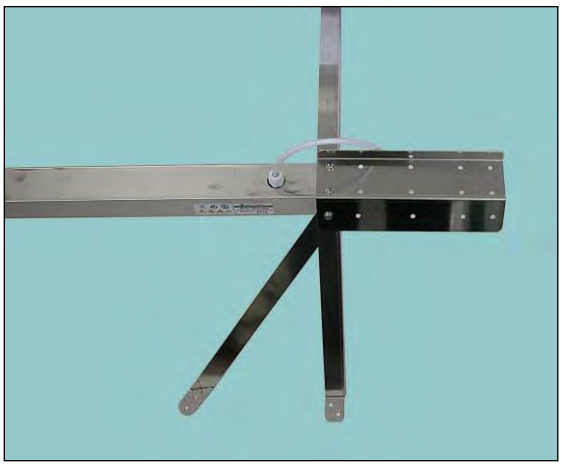
UV-STICK...NX-SCR device is composed of 2 or more units of the UV-STICK-E75H-NX series (or of the UV-STICK-E40H-NX series), bound together by a **serial electrical connection**. Upstream, this series of devices must be connected to the power supply line capable of supplying power to a **maximum of 10 UV-STICK devices**. Each UV-STICK lamp is connected to a plug by an input electric cable, and to an outlet via an output electric cable. The plug of the UV-STICK lamp is grafted onto the outlet of the UV-STICK lamp that precedes it (upstream), while the outlet is connected to the spine of the UV-STICK lamp that follows it (downstream), along the serial link. The outlet of the last UV-STICK lamp, downstream of the whole series, is closed by a cap, while the plug of the first UV-STICK lamp, upstream of the whole series, is connected to the power line. The UV-STICK units are mounted on stainless steel AISI 304 vertical supports, anchored to the wall. The wall anchor can be reinforced by diagonal brackets, generally located at the ends of the structure. The vertical supports are obtained by partially overlapping two types of vertical brackets, a front vertical bracket and a rear vertical bracket, fastened by M4x14 screws, nuts and Grower washers, supplied by the vendor. Between two consecutive vertical supports, two or more horizontal UV-STICK lamps are placed, straight-adjustable in height, to form a vertical succession of lamps.
The lamps are attached at the ends by M4 x14 screws, nuts and Grower washers.

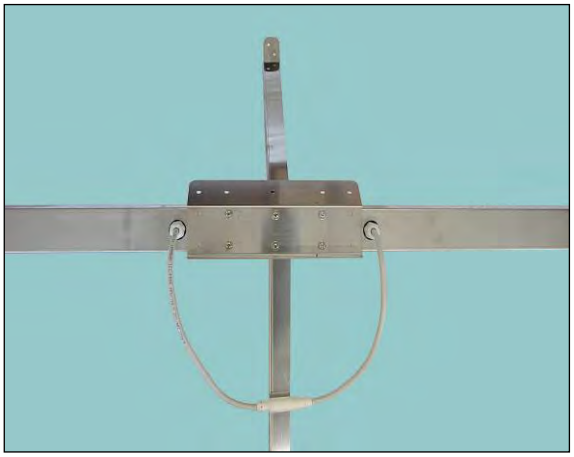
Where possible, the lamp is bound directly to the vertical support. Where this is not possible, due to the profile of the support, the lamp is connected to a horizontal joint bracket, in turn connected to the vertical support (see figure). On the joint bracket, the end of a lamp adjacent to the first is also screwed, having the same height quota.

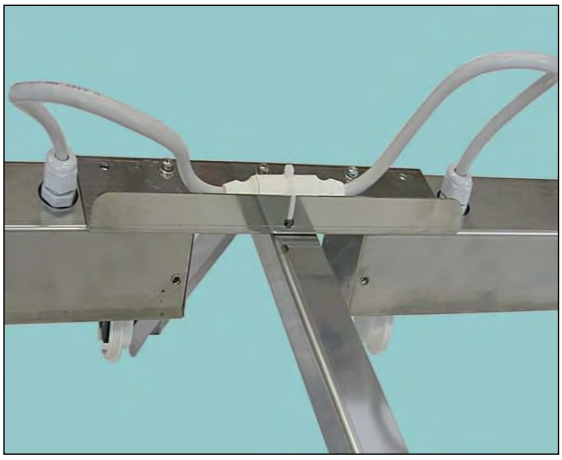


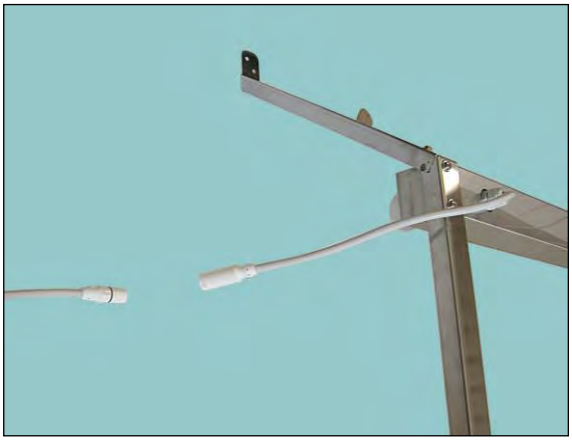

UV-STICK-E40H-NX-SCR
UV-STICK-E75H-NX-SCR
Series connection plug / socket
Connessione in serie presa / spina
JP-ST-304 :
Joint plate AISI 304
Piastra di giunzione in AISI 304
VSIR-ST-304 :
Rear vertical bracket AISI 304
Staffa verticale posteriore in AISI 304
VSER-ST-304 :
Front vertical bracket AISI 304
Staffa verticale anteriore in AISI 304
DSB-ST-304 :
Diagonal stability bracket AISI 304
Staffa obliqua di stabilità in AISI 304
Cable end with closure plug
Cavo finale con tappo di chiusura
Input power line
Spina di ingresso linea
NEUTER
PHASE
UL-S-304 :
Vertical Bracket reinforcement (couple) AISI 304
Piede di rinforzo verticale (coppia) in AISI 304
HEATING/
COOLING COIL

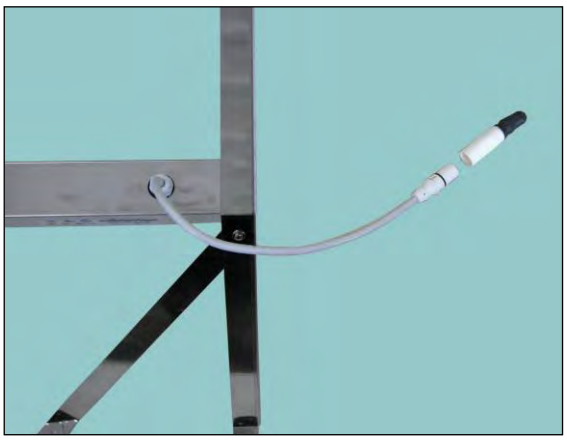


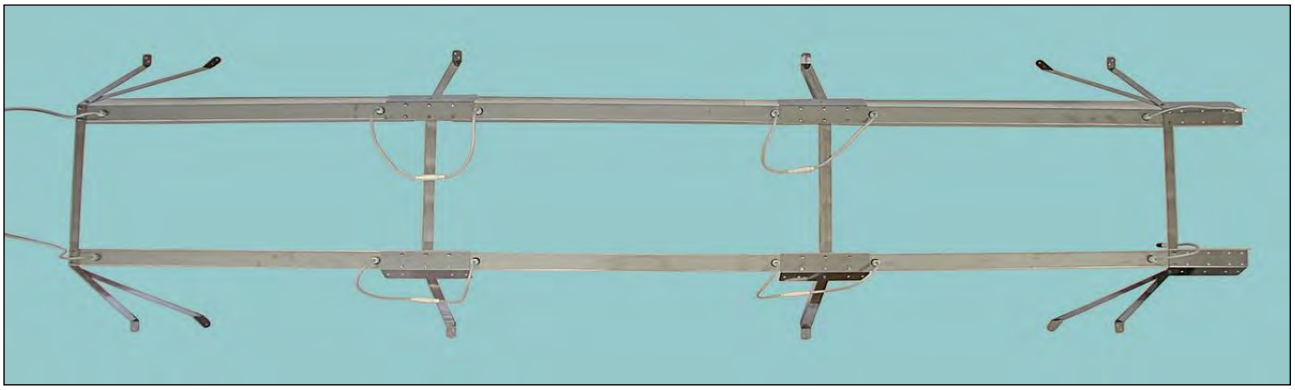












WARNING!!!

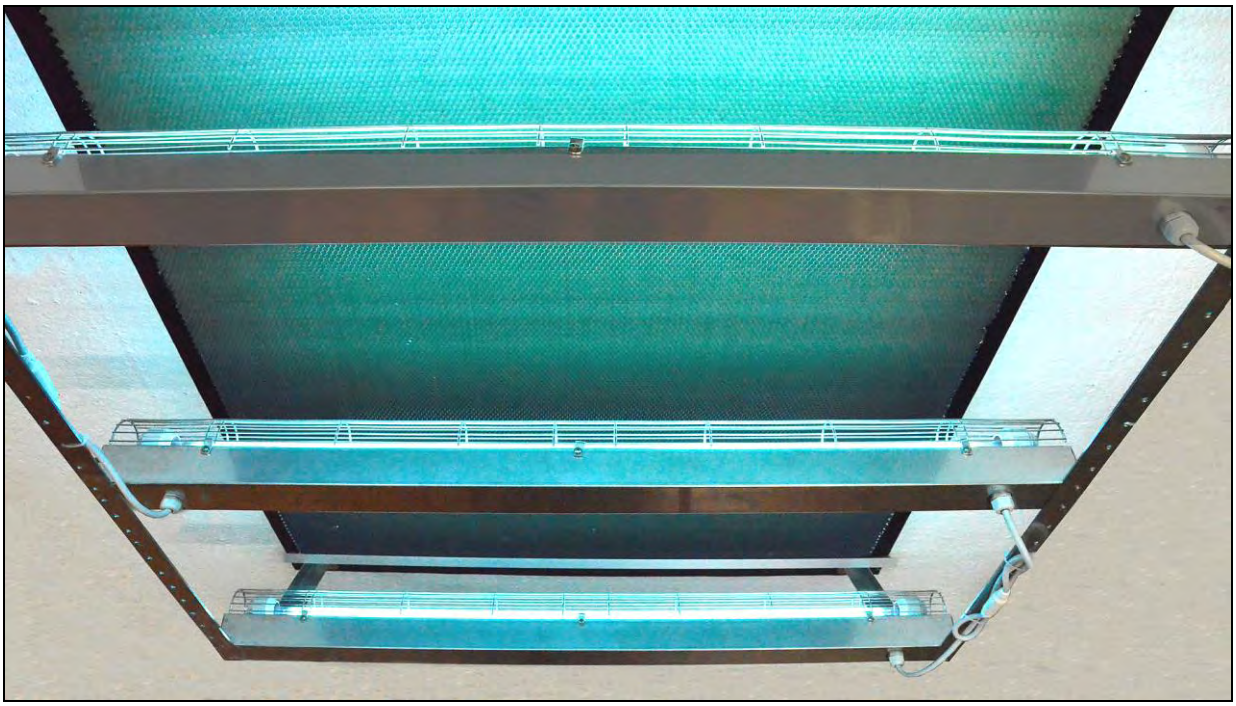
Remember to switch on the device ONLY IF there is adequate shielding and no accidental exposure to rays by the personnel.

To avoid exposure to UV-C rays please provide a total shielding of the modules or enable the automatic OFF devices at the entry doors in the environment treated. There must be no direct irradiation of the personnel.
To shield the devices, materials with opaque surfaces such as stainless steel or aluminium can be used, but also transparent materials such as glass or Lexan®; to have further information please contact us.
To improve safety, we suggest you to add light signs or signboards to report the potential danger.

ELECTRICAL CONNECTIONS

We suggest that a qualified electrician installs this device, following these instructions and electrical scheme, and following the CE norms.
Before connecting the device to the electrical line, be sure that the label data are the same as the one on the supply line; we remind you that the electrical supply of this device is 220-240V, 50/60Hz.
The connection required an interruption through a multipolar switch
Be sure that the electrical system fits the supply required by the device (please see the label).
The connection to the electrical line must be made by a 3 x 1 mm^2 supplied cable.
Be sure that the device will be installed where it will fit with the existing environmental conditions
To avoid accidental exposition to UV-C rays, please ensure automatic lamps switch off in case of personnel access. In any case provide warning lights and signals at the entry.
We suggest the use of hour-counters to know exactly the life of UV lamps and to remember when replace them**.**
Protect the power supply cable from high temperature, sharp corners, water, oils
The INPUT POWER LINE can support up a maximum of 10 UV-STICK connected in series (3.8A). If you exceed this number will need to provide more input plugs power line to create more serial lines.

INPUT POWER LINE / PRESA DI INGRESSO LINEA	
Colour / Colore	**Connection / Connessione**
Brown / Marrone	Phase / Fase
Blue / Blu	Neutral / Neutro
Green/Yellow Giallo/Verde	Ground terminal Terminale di messa a terra



SCHEDULING

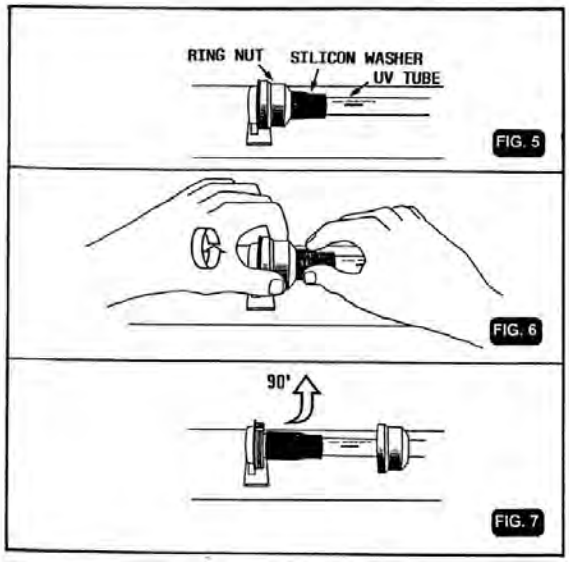
Provide electric power to the devices. The light lamp will turn on. Remember not to expose people to UV-C rays.

MAINTENANCE

UV LAMP

Lamp maintenance is very important because UV-C light emitted by the source is not visible to the naked eye, so although you see the lamp ON, its germicidal effect may not be sufficient to performs disinfection treatment.
Before reaching the lamp, **ALWAYS** switch off power supply
If the UV-C lamp gets dirty (or gets dusty) clean it with a lint free cloth and alcohol and avoid touching the glass part with hands. To check UVC lamp life number of hours and to check the correct product code of the spare UV lamp please refer to table 1. The lamp, once reached the timing for replacement, **must be replaced**, this operation is carried out as follows:

- Loosen the nuts on the lamp housing and let them slide along the lamp; grab the lamp at the 2 ends and pull it in a direction parallel to the lamp.
- Repeat the steps in reverse to insert the new lamp.



TROUBLESHOOTING

UV LAMP

See MAINTENANCE.

BALLAST

All UV-FLOW models are supplied with electronic ballasts which guarantees an emission of 15% more if compared with traditional ballasts. Furthermore, lamps are not influenced by environment temperature that can goes until -20°C. Finally, the turning on is immediate with no starter, and for this reason lamps last longer.
To preserve the original features of original IP protection and isolation class, and to maintain all the characteristics that guarantee the long lasting life of this product, the ballast replacement must be done by qualified technicians verified by Light Progress. In case of necessity, please, send the device back to our facility for any kind of repairs.
If this is not possible you can order the entire supply channel for replacement (for code, see Table 1).

TECHNICAL FEATURES

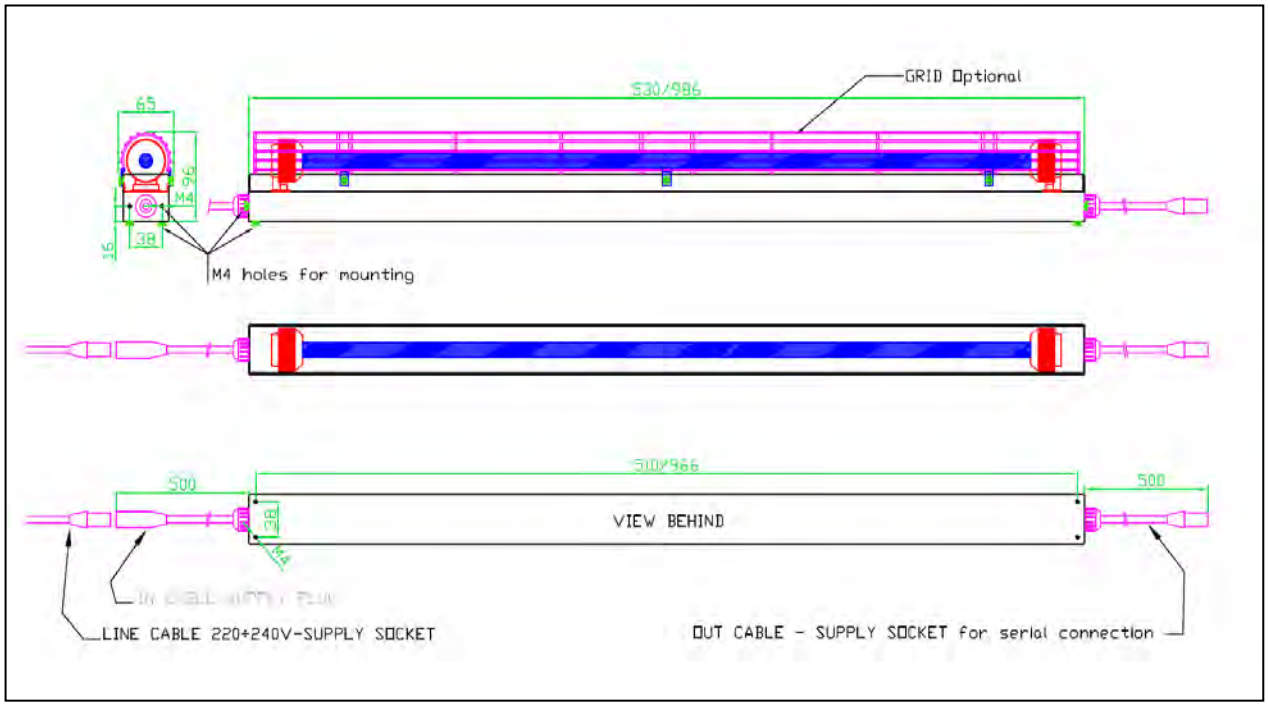
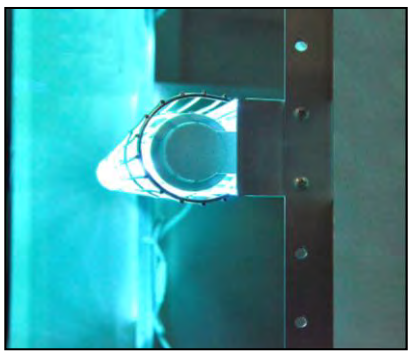


TABELLA n°1

UV-STICK	*E40H-NX-SCR*	*E60H-NX-SCR*	*E75H-NX-SCR*	*E100H-NX-SCR*	*E150-NX-SCR*
LAMP AVERAGE LIFETIME (hour)*	≤ 18,000	≤ 18,000	≤ 18,000	≤ 18,000	≤ 18,000
POWER (W)	40	60	75	80	76
DIMENSIONS LxSxH (mm)	530 x 65 x 96	693 x 65 x 96	986 x 65 x 96	1267 x 65 x 96	1646 x 65 x 96
AVERAGE COVERED SURFACE OF COIL / FILTER (m^2)	0.25 to 0.50	0.35 to 0.70	0.50 to 1.00	0.65 to 1.30	0.80 to 1.60
WEIGHT (Kg)	1.5	1.7	2	2.4	3
SPARE PARTS					
UV LAMP Code	n°1 **CHS-40WH**	n°1 **CHS-60WH**	n°1 **CHS-90WH**	n°1 **CHS-120WH**	n°1 **CHS-75WH**
BALLAST Code (complete duct)	n°1 **Ca40H-SCR**	n°1 **Ca60H-SCR**	n°1 **Ca75H-SCR**	n°1 **Ca100H-SCR**	n°1 **Ca150-SCR**
BALLAST Code (only ballast)	n°1 **EB-55P**	n°1 **EB-50H**	n°1 **EB-55P**	n°1 **EB-108-277V**	n°1 **EB-55P**

* continuous operation

- Selective UV-C lamp (at 253.7 nm) with high efficiency lighting.
- Body in Stainless Steel AISI 304.
- All the used materials are tested for resistance to intense UV-C rays.
- Waterproof and dust-proof (IP 55).
- Powered by electronic ballasts specific for UV-C rays lamps.
- Reflector in extremely pure mirror bright aluminium.
- Direct protection of the lamp with a stainless-steel grid (option).
- CE mark (LVD - EMC - MD - RoHS).
- Complies with the noise standards of Directive 2006/42/EC.
- Values measured according to UNI EN ISO 3746.
- Non-detectable and non-transmissible vibration values.
- Suitable for class 1 installations - protected areas.



LABEL AND SYMBOLS

SYMBOL	⚠	⏚	CE
MEANING	Warning! Check the attached documentation	**GROUND TERMINAL** (The unit must always be connected to the ground)	Device with **CE** certification.

WARRANTY

All products made by LIGHT PROGRESS are manufactured with the highest quality materials only, they are subjected to rigorous testing, and are guaranteed to be free of factory faults according to current law and regulations.
Minimum requirements for warranty validity:
Warranty will be considered valid only in case of possession of the purchase document.
Warranty limits:
Warranty excludes:

- Damages caused by not following the instructions that accompany the product at purchase.
- Periodical controls, maintenance, repairs or replacements of parts due to normal wear.
- Consumable parts.
- Use of incompatible spare parts or consumables; Compatibility is ensured only by use of products purchased from or recommended by **Light Progress**.
- Damages caused by modification of device / system without **Light Progress'** previous consent.
- Improper use of the product, falling or crashes.
- Modifications or repairs made by unauthorized personnel.

For defective materials return, you must request the return merchandise authorization (RMA) sending an email to info@lightprogress.it or calling the number +39.0575.749255.
Once you receive the module, it has to be filled up in every part and sent via email to info@lightprogress.it or via fax to +39.0575 789929 to obtain the RMA number that will authorize the shipments of the goods to Light Progress warehouse. Only authorized goods will be accepted, otherwise it will be refused and sent back to the sender on ex- works conditions. The packages must be sent on DDP (Delivery Duty Paid) with packaging suitable for transport. RMA number is valid up to 10 working days from release date.

Europe:
Loc. San Lorenzo, 40 - 52031 ANGHIARI (AR) - ITALIA
TEL. 0575 / 74.92.55 - FAX 0575 / 78.99.29
Http: www.lightprogress.it
E-mail: info@lightprogress.it

Australia / NZ:
LAF Technologies Pty Ltd
12 Royan Place
Bayswater North VIC 3132
E: sales@laftech.com.au
T: 1300 306 002
W: www.laftech.com.au

MANUFACTURER RESPONSABILITY AND COMMITMENTS

Light Progress do not take any responsibility for any damage to persons or property, due to failure to follow these instructions. We recommend you carefully read all the given instructions before usage.
The manufacturer agrees with the buyer to provide, upon request, schemes of circuits, component parts lists, instructions for calibration of lamps and other information, which are useful to repair those parts that the manufacturer considers repairable.
The company reserves itself the right to make changes without prior notification or public notice.

CE

DECLARATION OF COMPLIANCE

We, LIGHT PROGRESS S.r.l., hereby declare under our own responsibility that the following units of own production:

UV-STICK-E40H-NX-SCR
UV-STICK-E60H-NX-SCR
UV-STICK-E75H-NX-SCR
UV-STICK-E100H-NX-SCR
UV-STICK-E150-NX-SCR

- are in accordance with EEC directive 2014/30/EU (Electromagnetic Compatibility)
- are in accordance with EEC Machinery Directive dispositions 2006/42/EU
- are in accordance with EEC Low Voltage Directive 2014/35/EU
- are in accordance with EEC (RoHS) 2011/65/EU (D.Lgs 4 Marzo 2014, n.27)

TECHNICAL STANDARDS APPLIED

UNI EN ISO 12100:2010	Safety of Machinery - Basic Concepts, General Principles for Design - Risk assessment and risk reduction
UNI EN ISO 13857:2008	Safety of Machinery - Safety Distances to prevent danger zones being reached by the upper and lower limbs (2008)
ISO 14120:2015	Safety of Machinery - Guards - General Requirements for the Design and construction of fixed and movable guards
UNI EN ISO 13849-1:2016	Safety of Machinery - Parts of the Control System related to the Safety – Part 1: General Design Principles
UNI EN ISO 14119:2013	Safety of Machinery - Interlocking devices associated with guards - Principles for design and selection
CEI EN 60204-1/2016	Safety of Machinery - Electrical Equipment of Machines. Part 1: General Rules (2010)
EN 61439-1:2011	Low-voltage Switchgear and Control Gear Assemblies. Part 1: General rules

FURTHER TECHNICAL STANDARDS APPLIED:

IEC EN 60335-1 "Safety of household electrical appliances and similar"
Electronic Ballasts for the control of the lamps in accordance with the standard EN 60928.
Germicidal UV-C Lamps in accordance with EN 61199.
Electrical Protective Measures in accordance with IEC 70-1, EN 60229.

Anghiari, 10.15.2020

LIGHT PROGRESS
UltraViolet Germicidal Irradiation

Responsible for Standards: Dr. Aldo Santi

Notes: