

READ AND SAVE THESE INSTRUCTIONS

This manual must be read in conjunction with
Nortec ME Control installation manual and operation manual!

ADDENDUM MANUAL

Adiabatic air humidification/air cooling system
Submerged UV Option
for Nortec ME Control

Thank you for choosing Nortec

Installation date (MM/DD/YYYY):

Commissioning date (MM/DD/YYYY):

Location ref.:

Model:

Serial number:

Manufacturer

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Contents

1	Introduction	4
1.1	Notes on the addendum manual	4
2	For your safety	5
3	System Overview / Principle of Operation	7
4	Installation work	8
4.1	Installing the UV lamp(s)	8
4.2	Installing the power distribution box	10
4.3	Connecting the 3 core connecting cable to the terminals in the control unit	11
5	Test function / Reset UV lamp service interval counter	12
5.1	Test function of the submerged UV system	12
5.2	Reset UV bulb service interval counter	12
6	Submerged UV lamp replacement	13

1 Introduction

1.1 Notes on the addendum manual

This manual is an addendum for the installation of the optional submerged UV system for the Nortec ME Control and must be read in conjunction with the installation manual and operation manual for Nortec ME Control.

This addendum manual has been written to ensure the safe use, performance and longevity of the equipment and is intended for use by engineers and properly trained technical personnel. Please read this manual thoroughly before installing the optional submerged UV system.

If you have questions after reading this documentation, please contact your Nortec representative. They will be glad to assist you.

Symbols used in this manual



The catchword "CAUTION" used in conjunction with the caution symbol in the circle designates notes in this manual that, if neglected, may cause **damage and/or malfunction of the unit or other material assets**.



The catchword "WARNING" used in conjunction with the general caution symbol designates safety and danger notes in this manual that, if neglected, may cause **injury to persons**.



The catchword "DANGER" used in conjunction with the general caution symbol designates safety and danger notes in this manual that, if neglected, may lead to **severe injury or even death of persons**.

Safekeeping

Please safeguard this addendum manual in a safe place, where it can be immediately accessed. If the equipment changes hands, the documentation must be passed on to the new operator.

If the documentation gets misplaced, please contact your Nortec representative.

Language versions

This addendum manual is available in various languages. Please contact your Nortec representative for information.

2 For your safety

General

Every person working with the submerged UV system must have read and understood this addendum manual, and the Nortec ME Control installation manual and operation manual, before carrying out any work.

Knowing and understanding the contents of the manuals is a basic requirement for protecting the personnel against any kind of danger, to prevent faulty operation, and to operate the unit safely and correctly.

All ideograms, signs and markings applied to the unit must be observed and kept in readable state.

Qualification of personnel

All work described in this addendum manual **may only be carried out by specialists who are well trained and adequately qualified and are authorized by the customer.**

For safety and warranty reasons any action beyond the scope of this manual must only be carried out by personnel with appropriate industry recognised qualifications or training.

It is assumed that all persons working with the submerged UV system and the Nortec ME Control are familiar and comply with the appropriate local regulations on work safety and the prevention of accidents.

Intended use

The submerged UV system is intended exclusively for the operation in the evaporative module of the Nortec ME Control. Any other type of application, without the written consent of the manufacturer, is considered as not conforming with the intended purpose and may lead to the submerged UV system becoming dangerous.

Operation of the equipment in the intended manner requires **that all the information contained in this addendum manual as well as in the Nortec ME Control installation manual and operation manual are observed (in particular the safety instructions).**

Danger that may arise from the submerged UV system



DANGER!
Risk of electric shock!

The optional submerged UV system contains live mains voltage. Live parts may be exposed when the junction box and the Nortec ME control unit is open. Touching live parts may cause severe injury or danger to life.

Prevention: Before commencing any work on the optional submerged UV system disconnect the mains supply voltage to the Nortec ME control unit via the electrical isolator in the mains supply line, and secure electrical isolator in "Off" position against inadvertent switching on.



WARNING!

The UV lamps used in the submerged UV system emit harmful UV-C rays that can cause lasting damage to eyes and skin.

Prevention: The lamps must be installed underneath the banks of the evaporative cassettes out of direct line of sight. Never operate the UV lamp outside the evaporative module.



Warning!
Risk from mercury contaminated glass!

The lamps used on the submerged UV system are constructed and operated with technology similar to that of domestic, fluorescent lamps. The lamp is filled with gas and mercury vapour at low pressure and will not explode. However, if broken there will be a risk from mercury contaminated glass.

Prevention: Dispose broken lamps separately in accordance with your local recycling/waste disposal laws and regulations.

Safety reporting

All persons working with the submerged UV system are obliged to report any alterations to the submerged UV system that may affect safety to the owner without delay and to **secure such systems against accidental power-up**.

Prohibited modifications to the unit

No modifications must be undertaken on the submerged UV system without the express written consent of the manufacturer.

For the replacement of defective components use exclusively **original accessories and spare parts** available from your Nortec representative.

3 System Overview / Principle of Operation

Submerged UV System consists of the following components:

- Power distribution box
- 1, 2, 3 or 4 UV lamps in waterproof sleeves (depending on size of the evaporative module)
- 2 mounting brackets per lamp

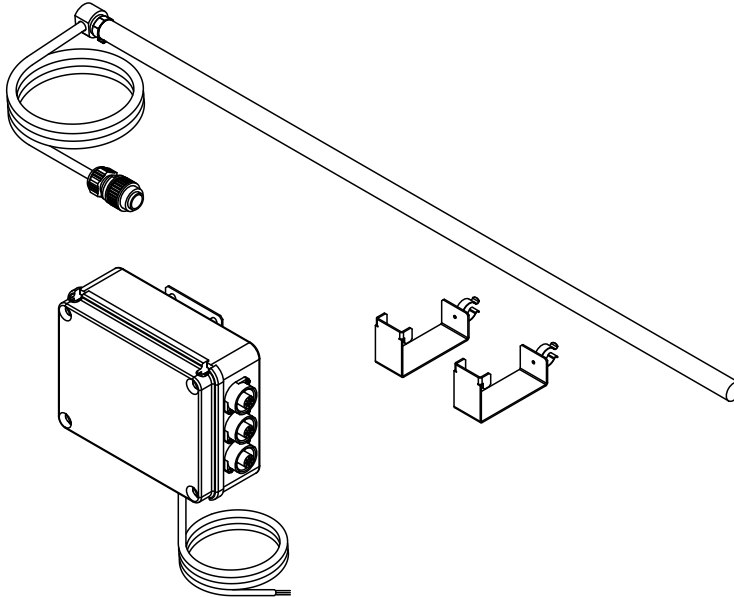


Fig. 1: Scope of delivery

Principle of Operation

The UV lamps are positioned in the tank underneath the banks of the evaporative cassettes.

When the water level in the tank reaches the lower operating level the lamps switch on. UV light is effective in killing bacteria in water systems. However the Nortec ME system should always be supplied with a clean water supply (refer to installation manual and operation manual).

4 Installation work

4.1 Installing the UV lamp(s)

The installation procedure is dependant on whether the submerged UV system is retrofitted on an existing Nortec ME Control system or on a new Nortec ME Control system.

Note: Steps 1 to 4 must be performed only, if the submerged UV system is retrofitted on an existing Nortec ME Control system. If the submerged UV system is installed on a new system proceed with step 5.

1. Isolate the water supply (close shut-off valve in the water supply line).
2. Drain the tank fully.
3. Isolate power supply to the Nortec ME control unit, and secure electrical isolator in "Off" position against inadvertent switching on.
4. Remove droplet separator banks (if applicable).
5. Attach mounting brackets into corresponding slots of the cross bar.

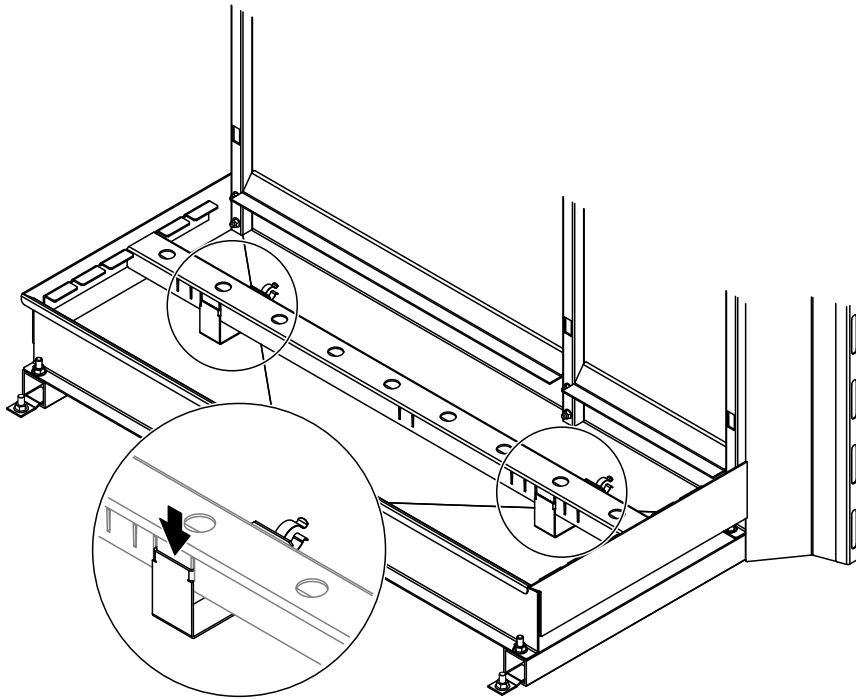


Fig. 2: Attaching mounting brackets

- Carefully push the UV lamp assembly into the circular clips of the two corresponding brackets. Repeat for all UV lamps.

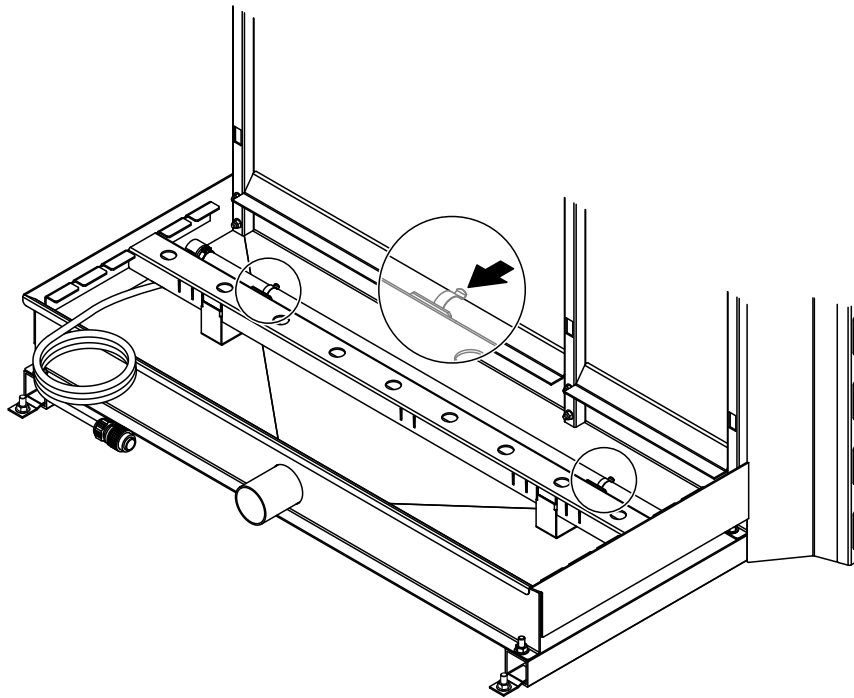


Fig. 3: Attaching mounting brackets

- Affix the supplied yellow UV light caution label to the tank in a clearly visible position.



Fig. 4: UV light Caution label

4.2 Installing the power distribution box

The power distribution box is supplied with a flying lead already connected to the corresponding terminals inside the power distribution box. The power distribution box can supply up to four separate lamps and is to be installed on the air-off face of the tank using the bracket provided. Placement of the box will depend on what space is available and the direction of the inlet and drain pipe runs.

1. Select the position for the power distribution box to be placed, the attached bracket is designed to fit over the folded edge of the air-off face of the tank. The box must not be placed at the ends of the tank and should be positioned away from the power and water connections of the hydraulic module.

Note: if required the power distribution box can be positioned away from the tank, although the length of cable from the UV lamp to the box must be taken into consideration. The standard length of this cable is 2 metres, alternative positioning may not be possible on systems with more than one lamp.

2. Connect UV lamp cable(s) to one of the available plugs on the side of the power distribution box (which one does not matter).

Note: number of plugs depends on the number of lamps on system

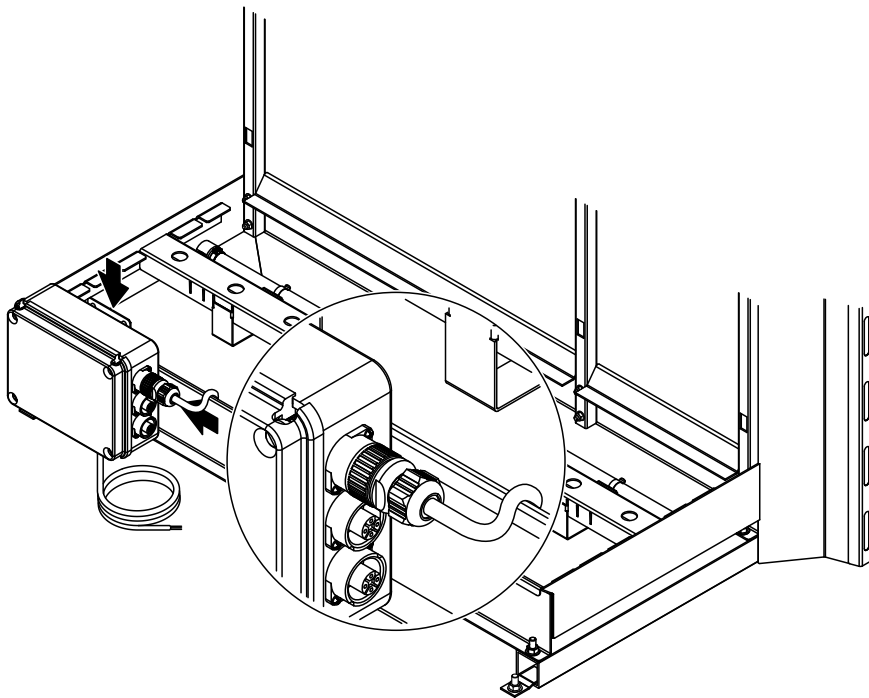


Fig. 5: Fixing power distribution box to the tank and connecting UV lamp cable

3. Run the 3 core connecting cable out of the AHU to the Nortec ME control unit.
Note: The cable can be fed through one of the spare ports on the duct wall feed through that was provided with the Nortec ME Control humidifier (if the duct wall feed through was installed), otherwise a suitable cable feed through must be installed (and sealed) by the customer.

4. Secure 3 core connecting cable with cable ties at suitable intervals along the cable run to the Nortec ME control unit.

Note: ensure 3 core connecting cable is placed in such a way that the insulation is not damaged by sharp edges and so that it does not create a trip hazard or hinder correct maintenance of the components.

4.3 Connecting the 3 core connecting cable to the terminals in the control unit

1. Isolate power supply to the Nortec ME control unit, and secure electrical isolator in "Off" position against inadvertent switching on.
2. Remove the front cover of the control unit.



CAUTION!

Electronic components are very sensitive to electrostatic discharge. Before proceeding with the next step, appropriate measures (ESD-protection) must be taken to prevent damage to electronic components.

3. Open the control unit inner door.
4. Lead 3 core connecting cable across the rectangular cable lead-through into the control unit and cut cable to length required.
5. Connect earth, live and neutral wires of the 3 core connecting cable to terminals "U.V." according to the wiring diagram below and the applicable local regulations. Ensure the cable between the AHU and control unit is secured and tidy.

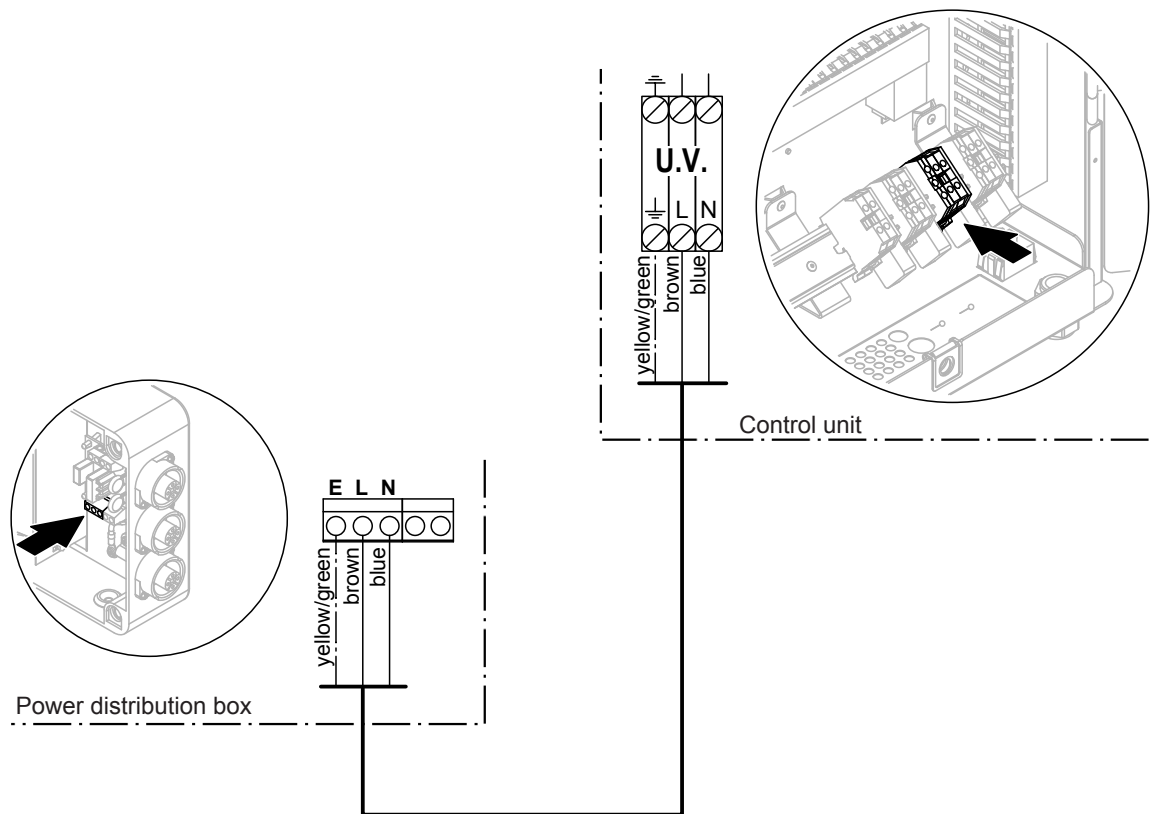


Fig. 6: Wiring diagram submerged UV option

6. Close control unit inner door. Replace front cover and secure it with retaining screw.

5 Test function / Reset UV lamp service interval counter

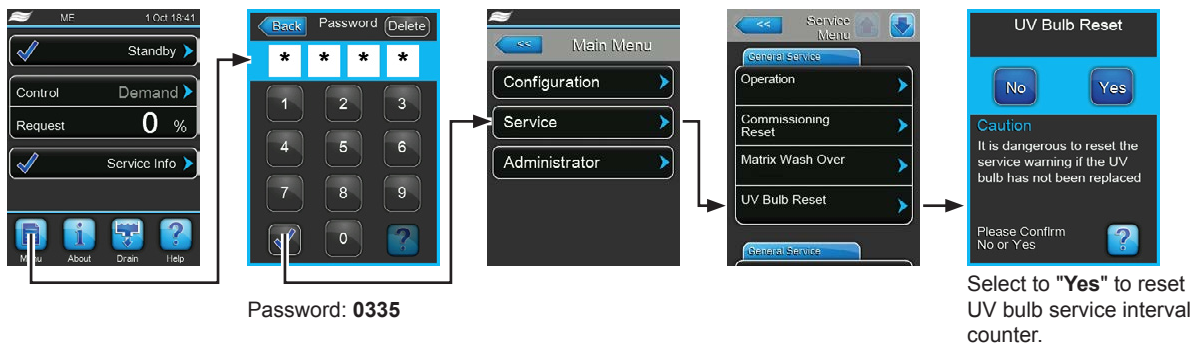
5.1 Test function of the submerged UV system

1. Restart system in accordance with restart section in the Nortec ME Control operation manual.
2. Wait until tank is filled to operating level.
3. Check whether the UV lamp(s) is/are illuminated.
4. Drain tank and check whether the UV lamp(s) switch(es) off when the water is drained.

5.2 Reset UV bulb service interval counter

Important: if replacing UV lamps, do not reset the UV lamp service interval counter unless all the UV lamps are replaced at the same time.

Resetting UV lamp service interval counter



6 Submerged UV lamp replacement

In order to ensure continued disinfection, it is important that the **UV lamp is replaced every 12 months**. Although the lamp may still be emitting UV light, the performance may have deteriorated to less effective levels.

To avoid risk of leaks at the sealing grommets from incorrect assembly, Nortec Plc only offer complete lamp assemblies. These include the cabling and plug for quick and easy replacement.

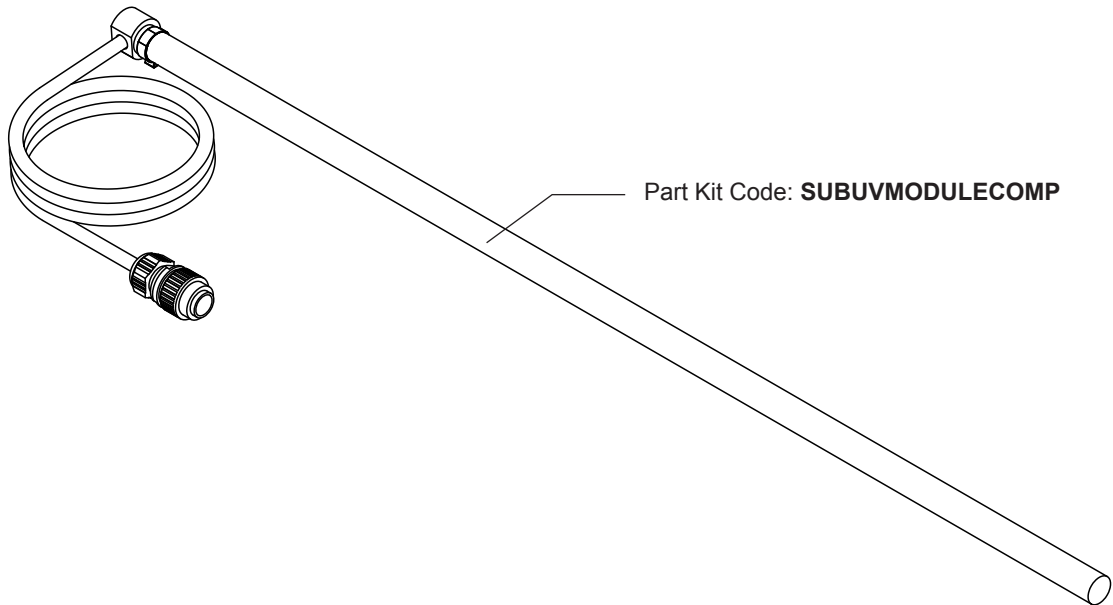


Fig. 7: UV lamp spare part

Safe disposal and risk through damage to lamps



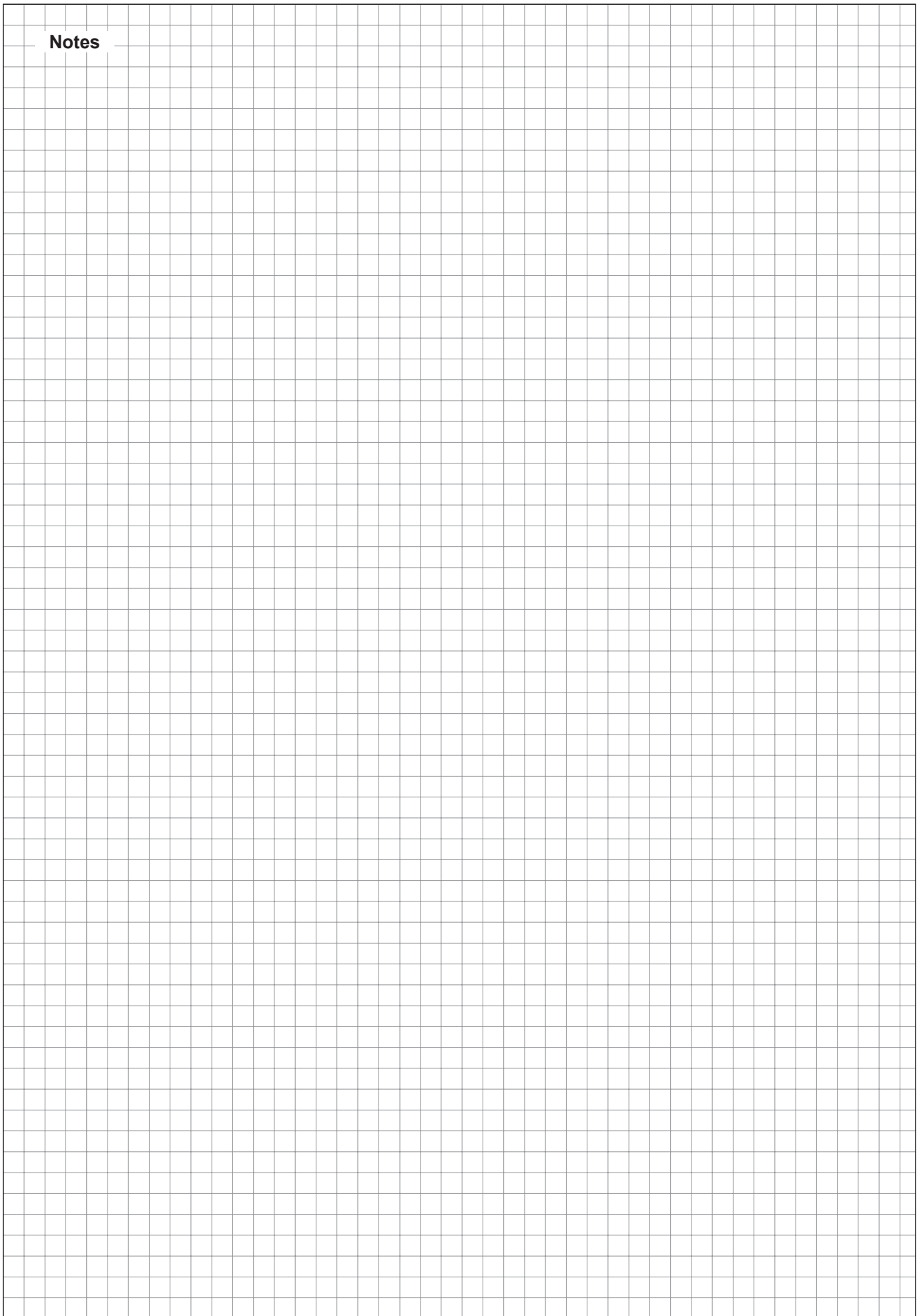
Please dispose of used lamps separately in accordance with your local recycling laws and regulations. Waste electrical and electronic equipment may contain hazardous substances, which, if not treated properly, can be harmful to the environment and human health. Specific treatment of waste electrical and electronic equipment is therefore essential.



Warning!
Risk from mercury contaminated glass!

The lamps used on the described system are constructed and operated with technology similar to that of domestic, fluorescent lamps. The lamp is filled with gas and mercury vapour at low pressure and will not explode. However, if broken there will be a risk from mercury contaminated glass. Dispose broken lamps separately in accordance with your local recycling/waste disposal laws and regulations.

Notes



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