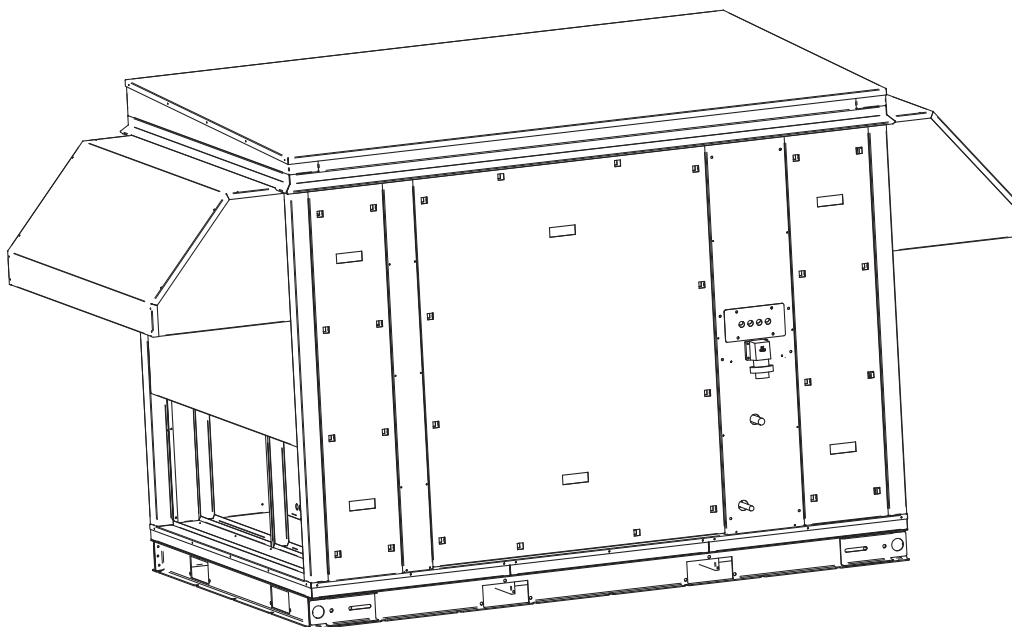


High efficiency heat recovery ventilation units Installation-Operation-Maintenance **Manual**

CLRC4



1.0 INTRODUCTION

GENERAL

This manual is part of the product and must be delivered with the ventilation unit.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge. Children must be supervised.

The manufacturer will not be liable for damages resulting from the failure to observe the safety instructions or improper use and or installation.

In the event of failure of the appliance and/or breakage of

any of its parts, deactivate it by disconnecting it from the electrical supply, and refrain from any attempt repairing the unit and call for a qualified technician and original spare parts.

It is responsibility of the installer to ensure that all of the equipment is installed in compliance with the manufacturers recommendations and with current local legislation and codes of practice.

If these guidelines are not followed, the unit may experience a shortened life or may present a risk of unsafety.

To guarantee efficiency and long working life, a unit inspection/maintenance should be carried out annually by an expert technician.

PRODUCT DESCRIPTION

The high efficient heat recovery unit is ideal for all requirements in residential houses, restaurants, offices meeting rooms, classrooms, shops and warehouses.

The layout shall take into account the space necessary for installation of the unit and maintenance/service purposes, consider the possible noise generation too.

The unit is for indoor installation, on request outdoor

execution can be supplied.

The energy-recovery technology uses the heat of the stale indoor air to be expelled in order to either heat the incoming fresh air to a temperature much closer to the existing indoor air.

SAFETY

Installation has to be carried on by a qualified technician.

Unit and accessories must be supplied by a dedicated power line and duly sized differential safety and thermal protection. Before proceeding with maintenance please unplug the system.

Unit and accessories must not be used as security ventilation systems. Do not install in potentially explosive atmosphere.

All control wires need not be placed within 50 mm or the

same trunking or where power cables or wires which can generate magnetic fields.

Use genuine spare parts only to be sure not to void warranty.

Obey the local fire regulations, as well as environmental law requirements. The manufacturer does not accept liability for this. Observe as well the safety regulations and wear protective gloves.

INSTALLATION

During installation leave a free space to maintenance and service. The access panels have to be opened for that purpose, we suggest this area to leave 1,5 m free space for the technician and the internal components to be

removed for cleaning or service (for ex. heat exchangers, fans, filters).

Take into account about 50 mm space around the casing to fix the unit to the ceiling/wall/floor.

OPERATING CONDITIONS AND FEATURES

The unit is designed to provide mechanical ventilation with heat recovery. The unit can operate with constant speed, constant air flow or constant pressure, depending on the configuration. The unit is equipped with high efficiency heat exchanger (up to 95% heat can be recovered) and with low consumption EC motors fan.

The unit is for indoor installation. Operation Temperature is 0-40°C (without ambient frosting). For external Temperature lower than -10°C preheater is recommended. Do not continuously use the unit in the presence of water vapor (both internal and external to the unit). For high humidity atmosphere inquiry the manufacturer.

The automatic frost protection is provided by flow

imbalancing. Optional integrated heating coil for lower temperatures is recommended.

Electronic controlled bypass damper is provided to supply filtered outside fresh air. Bypass opens and closes according to the setting available on touch screen (KTS) or can be driven by an external input. Min external temperature to close bypass and threshold internal temperature to open bypass can be set.

High surface area washable G4 filter are standard. F7 filters as option. Clogged filter alarm is settled by time.

Installing conditions and aerodynamic system if not adequate or properly planned can affect the nominal performances of the unit.

UNIT CONSIGNEE AND STORAGE

Do not disassemble the unit to transport. Before starting installation check that the unit has been supplied complete and undamaged. Visible loss or damage is apparent at the time of delivery must be noted. Noted loss or damage must be recorded in detail on the delivery receipt. When recording loss or damage, please use specific details and try to avoid general or generic terms such as "box damaged" or "torn".

Check also size, model and accessories.

The unit must be stored in a dry clean place protected from frosting and magnetic fields in its original packaging until installation.

In case of long-term storage, or inactivity the unit must be protected from dust and moisture, and run the test described in part 1 1995-11 DIN VDE 0702-1.

Don't run the unit prior to complete installation.

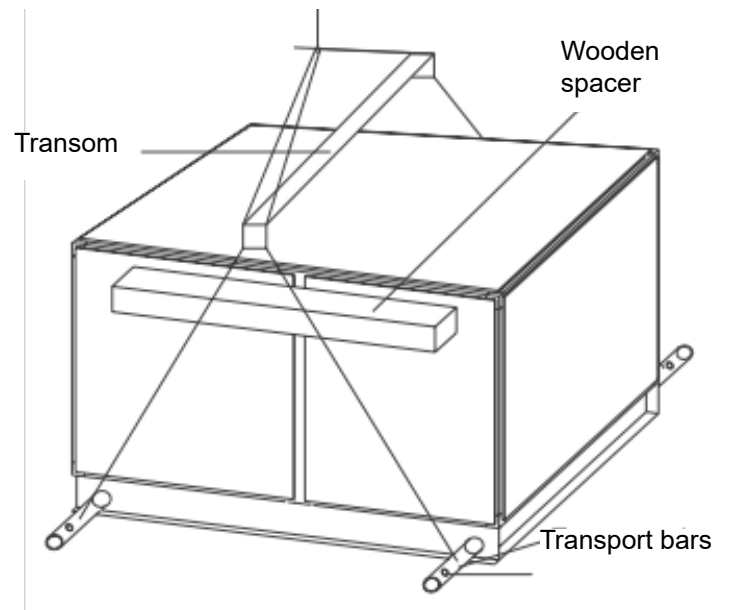
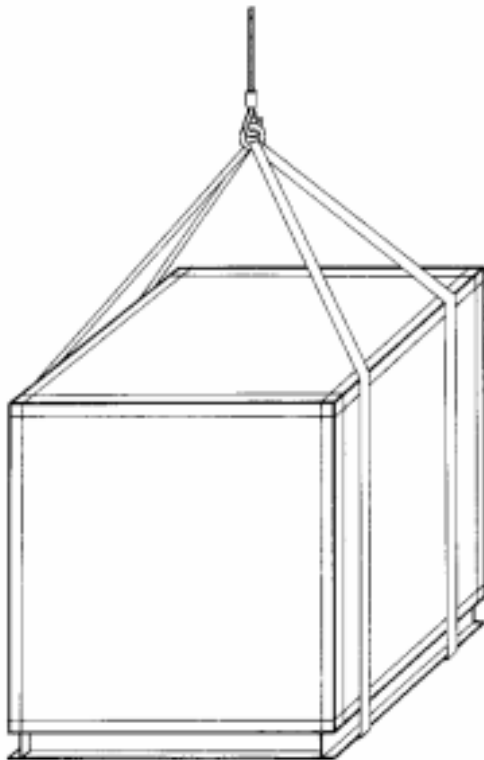
UNIT TRANSPORT

The unit is factory delivered on a non-returnable pallet to assure an easy and safe transport. Do not disassemble it. For crane transportation all applicable safety regulations must be respected.

- The unit must be lifted either with disposable pallet by crane.
- The device or the pallet edges are separated by a suitable base (or by transport bars, trusses, wooden spacers, etc.) to protect against damage.
- The same applies to any protruding Accessories (eg

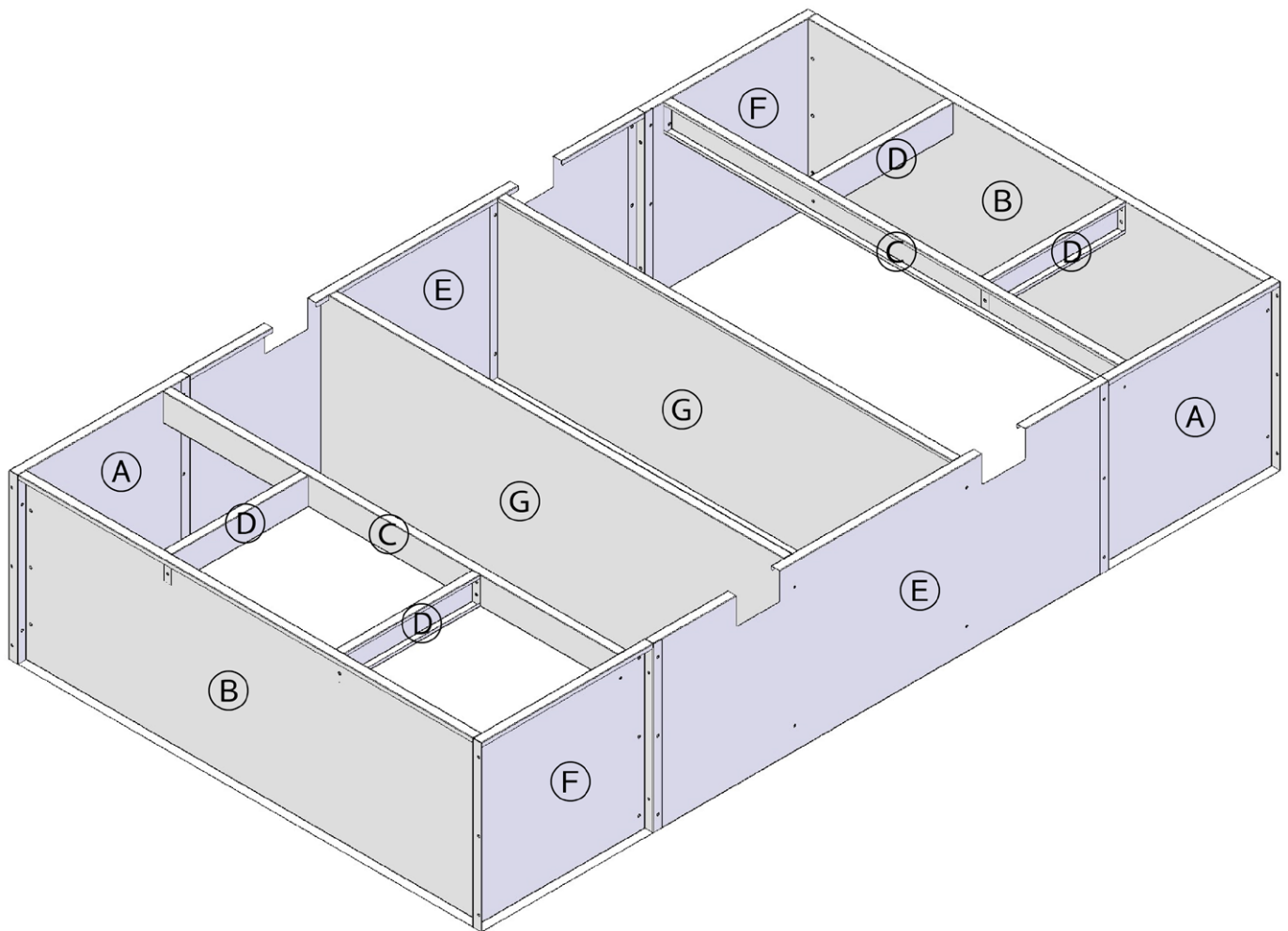
equipment roof)

- transport bars, trusses, wooden spacers, cable loops, pull ropes, lifting gear and other accessories required for the crane transport are not included and therefore be provided on site.
- Access panels and electronics controls must be always closed and protected during transport.

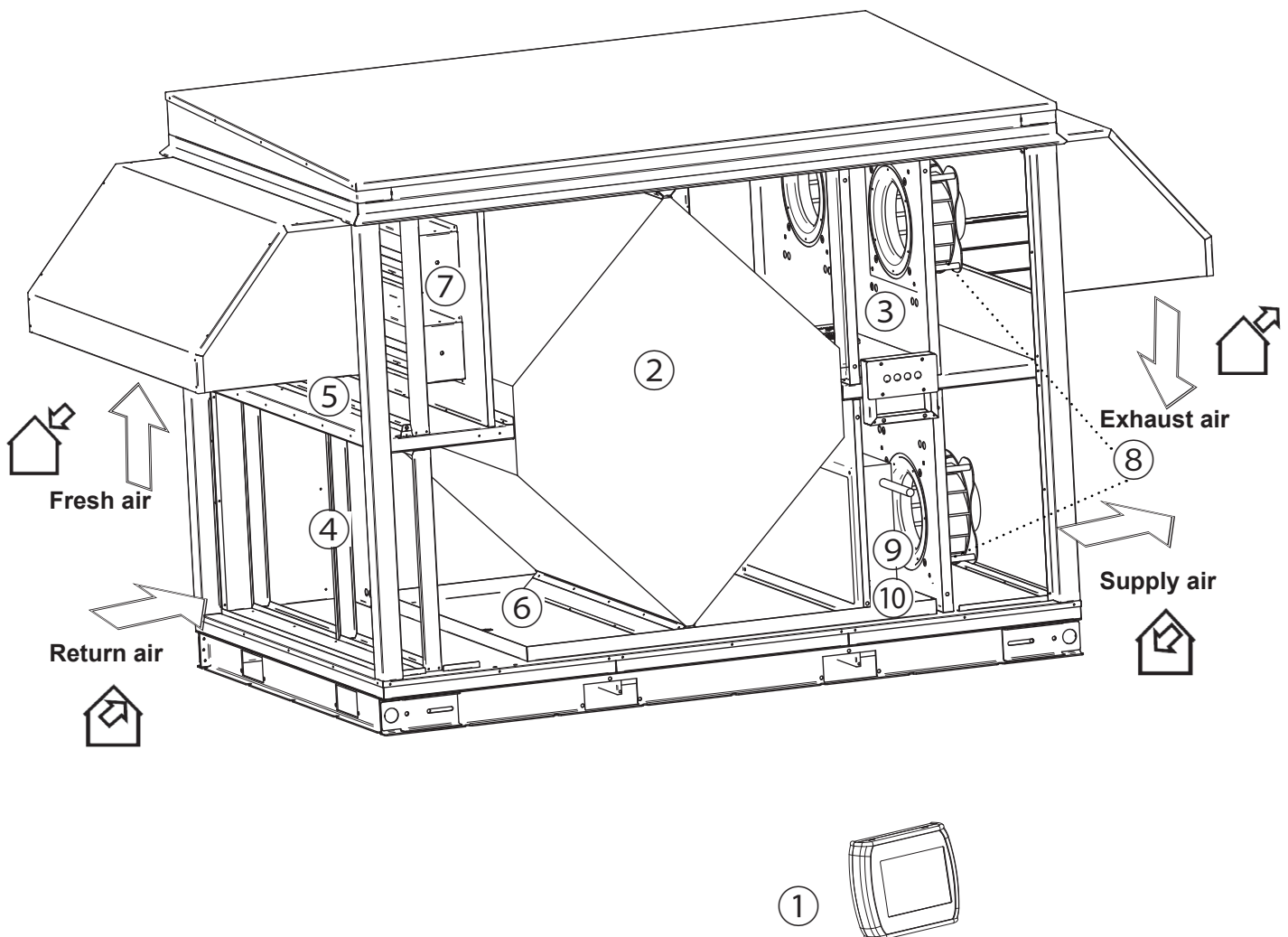


FRAME INSTALLATION

Follow the instruction diagram below for mounting the frame, using the supplied M6 screws.



2.0 MAIN COMPONENTS AND AIR FLOW LAYOUT



1	Touch screen control (removable)
2	High efficiency counterflow heat exchanger
3	Electronic box with connections
4	Air Filter
5	Air filter
6	Condensate discharge (connection on bottom side)
7	Bypass valve for free cooling
8	Extract and supply fans
9	Coil (DXD or HWD/CWD coil)
10	Coil (DXD or CWD) Condensate discharge (bottom side)

4.0 AVAILABLE ACCESSORIES AND CONTROLS

A wide range of accessories is available. Ask for single technical sheet for further details.

ACCESSORY	CODE
Detection and regulation	
• CO ₂ ambient probe (APC)	■
• CO ₂ duct probe (DPC)	◆
• VOC - volatile organic compound- ambient probe (APV)	■
• VOC - volatile organic compound- duct probe (DPV)	◆
• Humidity ambient probe (APH)	■
• Humidity duct probe (DPH)	◆
• Defrost system by flow imbalancing (DES)	●
• Bypass 100% (BPD)	●
• Electronically controlled electric pre heater (PEHD) (self contained)	■
• Electronically controlled pre hot water coil (PHWD) (self contained)	■
• Electronically controlled post hot water coil (HWD) (self contained)	■
• Electronically controlled chilled water coil (CWD) (self contained)	■
• Electronically controlled electric post heater (EHD) (self contained)	■
• Occupancy infra red sensor (IRS)	■
• Clogged filter alarm (timer) (DPS)	●
Control	
• KTS control touch screen BASIC	●
• KTS control touch screen EXTRA	◆
• Sensorless constant air flow operation (CAF)	■
• Constant air pressure operation (CAP)	■
Mechanical	
• F7 Filter (F7F)	■
• Shelf kit for vertical installation (SHK)	■
• Support brackets for horizontal installation (SSK)	■
Communication	
• MODBUS module (MOD)	■
• Network module for TCP/IP (NET)	■
• Radio frequency module (RFM)	■
■ outside the unit (option) ◆ inside the unit (option) ● factory fitted (inside the unit)	

4.0 CONDENSATE DRAIN

It is important that the air handling unit is installed horizontally. The condensate drain under the unit must be connected to a site drain / siphon with water trap or an on-site condensate pump.

During operation there may be a negative pressure up to 500 Pa (equivalent to a 50mm water column) enter in the flow. In this case, the difference in height must be 50mm minimum in the siphon.

Follow the indication on illustration to choose the height. The condensate drain must be airtight from the unit until the siphon so that the condensation water can be freely discharged from the device.

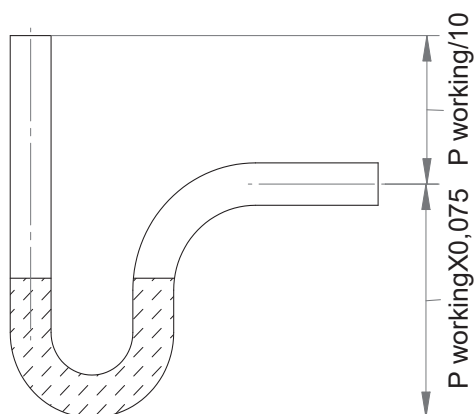
If not airtight the condensate drain, false air is sucked into the condensate drain, and the condensed water can

be derived from the device.

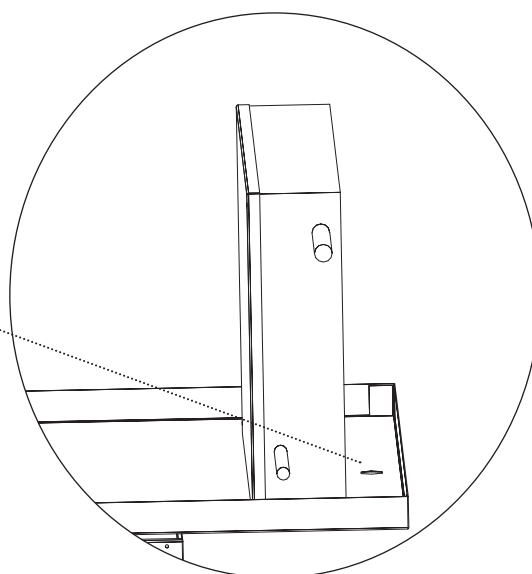
For consequential damages of any warranty claim lapses on the part of the manufacturer.

The siphon must be established in connection with the condensate drain. The procedure is performed with a constant slope of at least 1cm / m, frost-free to the next discharge. Protect against freezing until the end of the air is over. The installer is responsible for ensuring that the condensate drain is free from frost.

Important! Check one day before winter start-up, whether water has accumulated in the condensate hose.



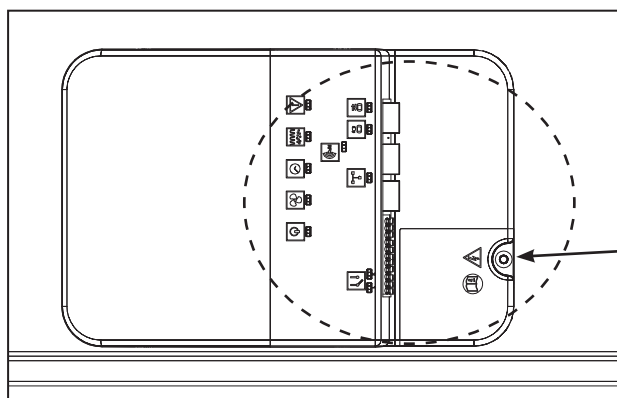
In case of presence of DXD coil or CWD coil connect the condensate drain of the coil too:



5.0 ELECTRIC CONNECTIONS

Warning! Always unplug the unit during the installation.
The unit must be earthed, a fuse is available.
We recommend to check if the supply system is already in accordance to your regional safety regulations.
Connect the wiring to the electrical box on the top unit.
Touch screen control has to be connected to the board with a RJ45 8-pole Ethernet straight cable Cat.5.
The unit can be equipped with two external control (Input

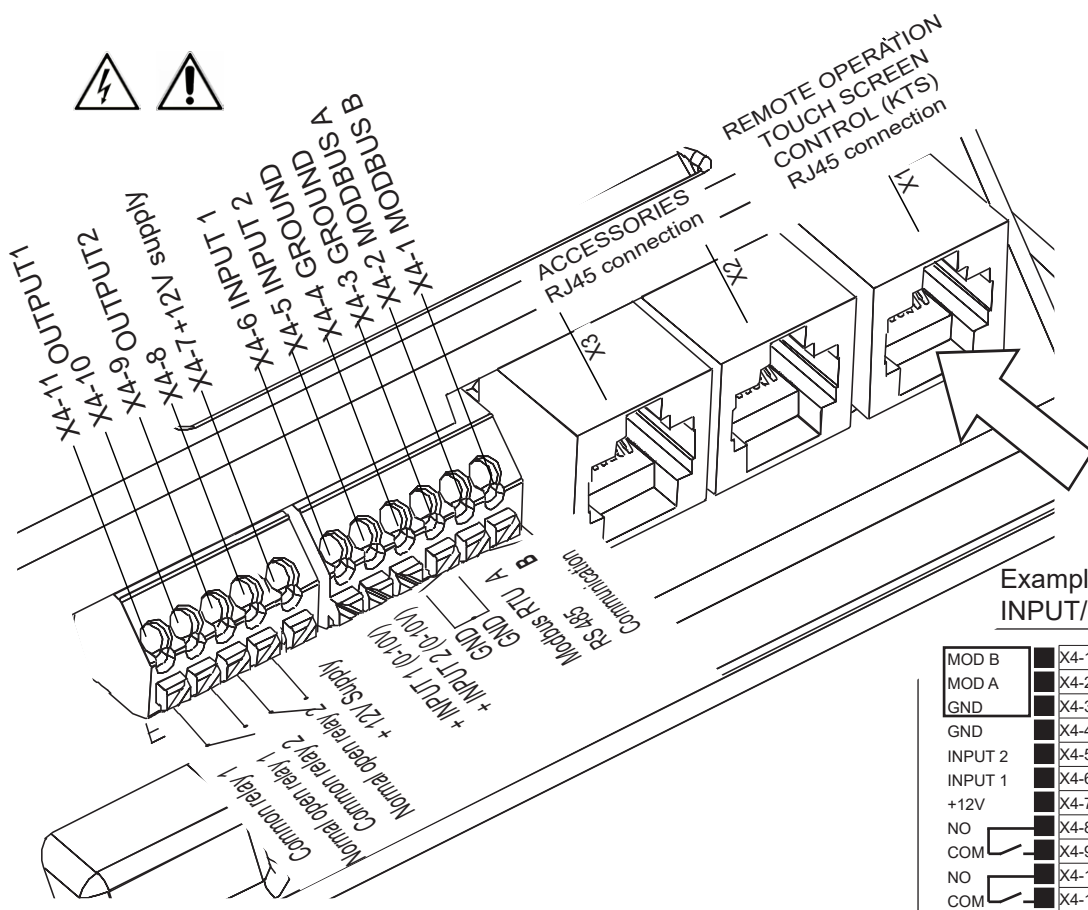
0-10 V) to set unit on-off, bypass on-off or proportional air flow control; it can also give two output signals configurable on unit run-bypass open-unit fault.
Important: Input and output configuration is to be set in the touch screen control - service menu -.
Priority: when the unit receives an off command, whatever the input has given it, this has always the priority.



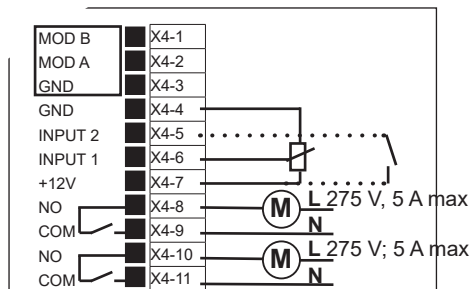
Black box on unit side

Unscrew the small black cover to access the power connection

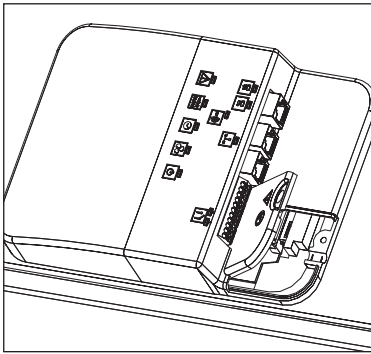
ELECTRIC CONTROL BOARD CONNECTION:



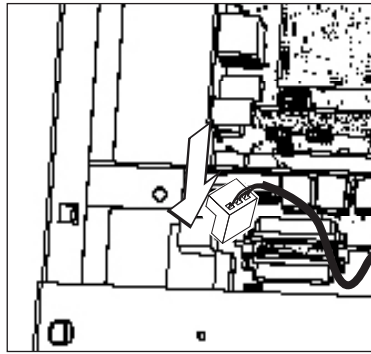
Example of connection:
INPUT/OUTPUT:



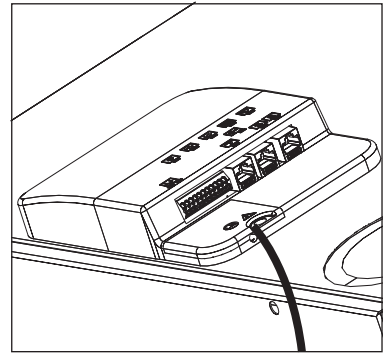
5.1 POWER CONNECTION:



1. Unscrew the electric box

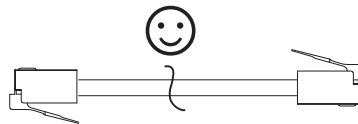
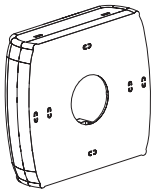


2. Remove the cover to reach the power plug and pull it out, Connect the power cable in conformity with the labels located on the board

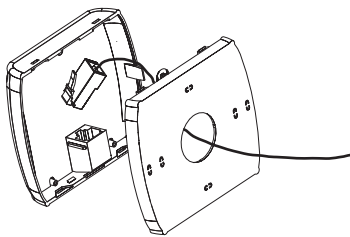


3. Close the box and lay the cable under the cover recess

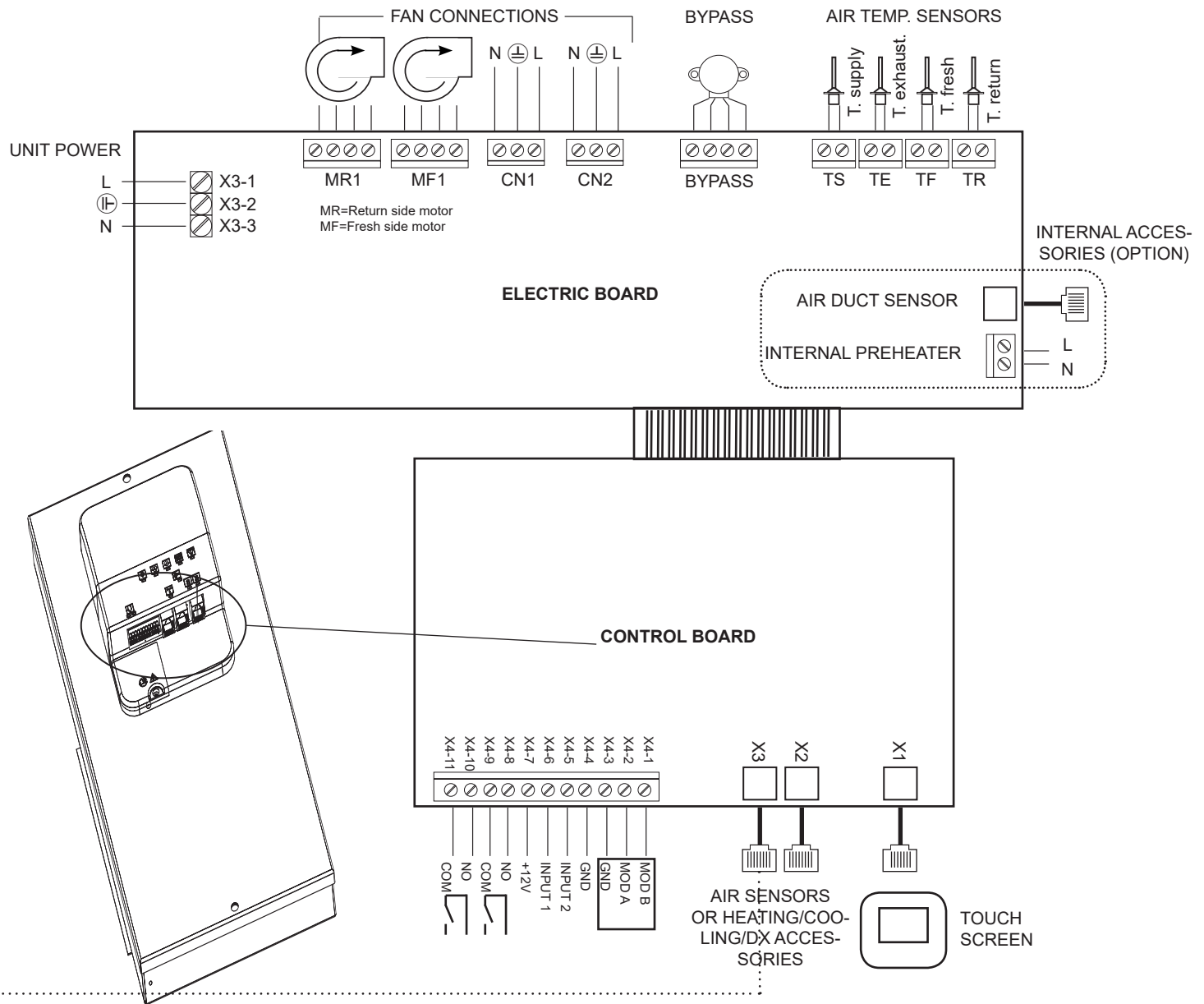
7.5 HOW TO CONNECT THE TOUCH SCREEN



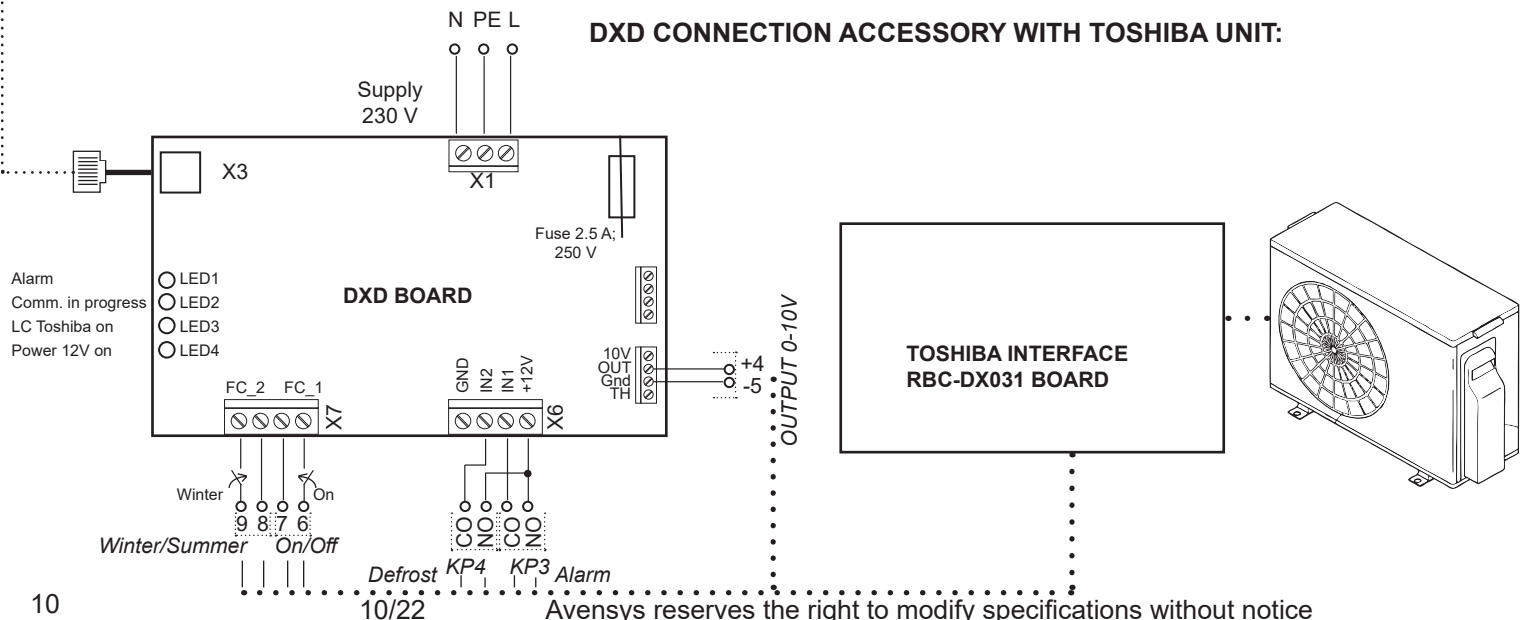
Max lenght 100 m



5.2 ELECTRICAL BASIC SCHEMA:



DXD CONNECTION ACCESSORY WITH TOSHIBA UNIT:



6.0 UNIT OPERATION SIGNALS

On the electric box light are positioned to signal operation screen or unit and accessories.
mode or communication status between unit and touch-

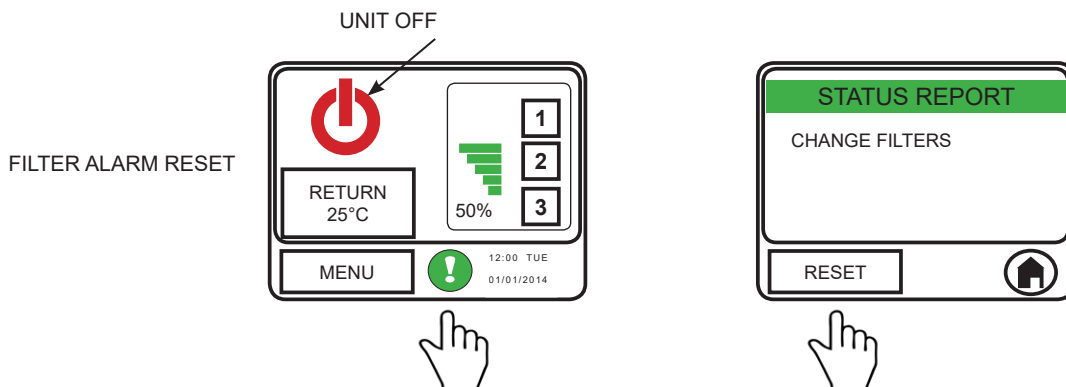
ICON	NAME	Description (when light is on)
	FREE CONTACT 1	Free contact 1 is activated
	FREE CONTACT 2	Free contact 2 is activated
	COMM Accessories	The connected accessories are communicating with the unit
	TOUCH SCREEN-PLUG	The touch screen is powered
	TOUCH SCREEN-ARROWS	The touch screen is communicating with the unit
	MAIN POWER	The unit is powered
 + 	FAN	Weekly program is set and fans are operating
	WEEKLY	Weekly program is set
	FILTER	Clogged filter see Maintenance and Troubleshooting
	ALARM	See Troubleshooting

7.0 TROUBLE SHOOTING

When the unit detects a fault in the home screen an exclamation mark in a red or green spot is shown. An error report is shown on the status screen with error

number helps to understand the possible cause. Call the service technician for red alarms.

	Description	Status code	Action
	Green mark: clogged filter alarm	10-6	Switch the unit off and change or clean the filters. Then turn on, press the alarm to access the report screen, reset the alarm.
	Red mark: service alarm	08-6	Fault on extraction fan: the unit shall not be operating until the fan problem is solved
		09-6	Fault on supply fan: the unit shall not be operating until the fan problem is solved
		11-1	Fault on fresh air temperature probe: The unit restricts bypass operation.
		11-2	Fault on return air temperature probe: The unit restricts bypass operation.



Alarm symbol on unit electric box	Description	Action
	clogged filter alarm	Switch the unit off and change or clean the filters. Then turn on, press the alarm to access the report screen, reset the alarm.
	flashing Fan : Fan failure	Switch the unit off and call your service
	flashing: failure on electronics (communication RD/Ctrl Fan Board)	Switch the unit off and call your service
	not flashing : generic alarm	See remote controller for more details

CE DECLARATION



DECLARATION OF CONFORMITY

Manufacturer : Avensys Srl
Address : V. Primo Maggio 10/12 26858 Sordio LO - Italia
Description of the product : CLRC4 size 164, 224, 324, 474, 674 ventilation unit complete with heat recovery

We declare that mentioned product above comply with following EC-directives and EN-standards:

93/37/EC , 2006/42/EC EC
Machinery Directive

2004/108/EC
EC EMC Directive , Electro Magnetic Compatibility

2006/95/EC
EC Low Voltage Directive

EN 60204-1 Safety Of Machinery - Electrical Equipment Of Machines - Part
1: General Requirements

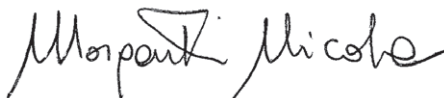
EN 12100:2010 Safety of machinery ; basic concepts; general principles for
design

EN 60034-5 Rotating electric machinery ; part 5 : Protection classification for
electrical machinery

EN 60335-1 Electric domestic products and similar - safety general require-
ments

EN 60335-2-80 Electric domestic products and similar - safety general part 2:
special requirements for fans

Place and date : Merlino 01.04.14



Signature :

Nicola Morganti
(Technical Manager)
Avensys