Libretto istruzioni e di messa in servizio
Operating and commissioning instructions
Notice d'instructions et de mise en service
Bedienungs- und Inbetriebnahmeanleitung
Upute za uporabu i puštanje u rad
Návod k obsluze a uvedení do provozu
Návod na použitie a uvedenie do prevádzky

VORT NRG EC / EC EH
3000 - 4500 - 6000 - 8000

CE

COD. 5.471.084.290 09/02/2016

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Conservare sempre questo libretto istruzioni.

Before installing and using your product, read these instructions carefully. Vortice will not accept any responsibility for damage to property or personal harm resulting from failure to abide by conditions given in this booklet.
Following these instructions will ensure long service life and overall electrical and mechanical reliability.
Keep this instruction booklet in a safe place for reference purposes.

Avant d'utiliser l'appareil, lire attentivement les instructions données dans cette notice.
La société Vortice ne pourra être tenue pour responsable des dommages causés aux personnes ou aux biens si les consignes ci-dessous ne sont pas respectées car elles garantissent la durée de vie et la fiabilité électrique et mécanique de l'appareil.
Toujours conserver ce livret d'instructions.

Vor der Benutzung des Gerätes muss die vorliegende Anleitung aufmerksam durchgelesen werden.
Vortice haftet nicht für Personen- und/oder Sachschäden, die auf die Nichtbeachtung der in diesem Handbuch enthaltenen und für einen korrekten Betrieb, die mechanische und elektrische Sicherheit sowie eine lange Lebensdauer des Gerätes wichtigen Hinweise bzw. Anleitungen zurückzuführen sind.
Bewahren Sie diese Betriebsanleitung gewissenhaft auf.

Prije korištenja proizvoda, pažljivo pročitajte upute koje sadrži ovaj priručnik.
Tvrtka Vortice se ne može smatrati odgovornom za eventualnu štetu nanesenu osobama ili stvarima uslijed nepoštivanja uputa koje se u nastavku navode, a pridržavanjem kojih se osigurava trajnost te električna i mehanička pouzdanost uređaja.
Brižljivo čuvajte ove upute za uporabu.

Před použitím výrobku si pozorně přečtěte pokyny obsažené v této příručce.
Podnik Vortice neodpovídá za případná zranění osob nebo poškození věcí způsobené nedodržením dále uvedených pokynů; jejich dodržování naopak zajistí dlouhodobou životnost výrobku, jak elektrickou, tak i mechanickou.
Tento návod k obsluze si proto uschovejte.

Pred používaním spotrebiča si pozorne prečítajte všetky pokyny v tomto návode.
Vortice nebude zodpovedať za žiadne poranenia osôb ani škody na majetku spôsobené nedodržaním upozornení uvedených v nasledujúcom texte, ktorých dodržiavanie, naopak, zaručí dlhodobú elektrickú a mechanickú spoľahlivosť, spotrebiča.
Tento návod na používanie si starostlivo odložte.

ENGLISH

ENGLISH

In compliance with current regulations, the machine must be installed only by a technical person qualified for this type of work. During installation, ensure that:

- The machine is handled as specified in section II.1.
- The required personal protection devices are worn so as to avoid injuries caused by electrical and mechanical hazards (injuries by touching panels, sharp edges, etc.).
- Electrical connections are made after the power supply has been shut off, in compliance with the recommendations given in section VI.
- The unit is grounded in compliance with the regulations in force.
- The machine is powered up after completion of installation (ducting installed and inspection doors closed).

I RECEPTION OF THE EQUIPMENT

The units are delivered on stringers or pallets then wrapped in plastic film.

I.1 Checks on reception

When the appliance is received, the state of the packaging and the equipment must be checked. In the event of damage, make an accurate note of any problems on the carrier's delivery note.

I.2 Unpacking

When unpacking the appliance, check the following:

- That the total number of packs is present.
- All accessories are present (dampers, roof, electric switchgear, etc.). After unpacking the equipment, all waste must be disposed of in compliance with the applicable regulations. No packaging should be discarded into the environment).

I.3 Storing

The appliance must be stored in shade, in a dry place, at a temperature between -20°C and 40°C.

II INSTALLATION

II.1 Handling

The appliances must only be moved to their installation position.

If the appliance is handled using a fork-lift truck, ensure this supports the load-bearing structure and does not touch the panels enclosing the unit.

If the appliance is moved using a crane, use four cables of identical lengths. These must be at least as long as the greatest distance between two fastening points.

If L (length) + W (width) + H (height) > 5 m ⇨, then the case must be lifted using a lifting beam.

II.2 Space required

Generally speaking, it is desirable to provide access space of at least the width of the unit on the access side for maintenance. These units require a siphon and must be installed at a sufficient height to allow this to be fitted.

Note: for vertical units, allow at least 300 mm on the rear for connecting the condensate drain fittings.

II.3 Installation

The unit must be laid on a sufficiently rigid and flat surface (use vibration dampers if necessary). For the HVAC connection, select duct sections based on the dimensions of the pipes, which must be properly extended.

Install the unit in such a way that bad weather or room temperature cannot damage the internal items of the unit during installation or subsequent use (provide a protective cap if possible).

Installing the unit on the floor: the unit must be laid on a sufficiently rigid and flat surface (use vibration dampers if necessary). For these units, **provide a gradient of 2 to 3%** for the removal of condensate in the direction of the width. (connect the condensate drainpipes as per section II.4).

Installing the units outdoors: For raising the unit above the ground (protection from water), a set of feet can be supplied as an option (NRG EC EFC). A roof (NRG EC RRC) and rain cowls (NRG EC RRO) must also be provided if necessary and are available as options. For these units, **provide a gradient of 2 to 3%** for the removal of condensate in the direction of the width (connect the condensate drainpipes as per section II.4).

NRG EFC

NRG EC RRC

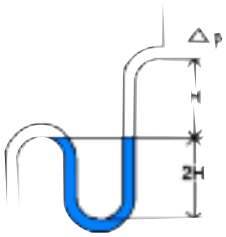
NRG EC RRC RRO

Installing the units on the ceiling: the units must be mounted preferably on a frame suspended from the structure of the building, taking care to comply with load limits (the frame is the installer's responsibility).

For these units, **provide a gradient of 2 to 3%** for the removal of condensate in the direction of the width. (connect the condensate drainpipes as per section II.4). The 3000 model can be suspended directly from the ceiling by means of M8 threaded rods connected to the attachment lugs on the lower part of the unit.

Before starting the unit, check the tightness of all bolts, particularly those of rotating components

II.4 Siphon



Provide a siphon on each condensate drainpipe. Each siphon can be used for one drainage system only. Note: the siphon must be connected in accordance with best practices in order that condensate is removed as efficiently as possible.
The height H must be at least equal to the maximum internal negative pressure of the unit (p in mm).
Example: Dp = 500 Pa □ 50 mm CE
⇨ H > 50 mm 2H > 100 mm

III COMPOSITION AND OPERATION

III.1 General

The VORT NRG EC models are high-efficiency heat recovery units equipped with advanced regulation systems designed for offices and industrial installations. Their heat-exchange efficiency is greater than 90%. The standard models are complemented by the versions summarised below:

VORT NRG EC FIRST: manage a non-integrated changeover coil (hot water or cold water) or a non-integrated electric coil.

VORT NRG EC PREMIUM BC: include a hot water coil and manage an additional non-integrated cold water coil.

VORT NRG EC PREMIUM BE: include an electric coil and manage an additional non-integrated cold water coil.

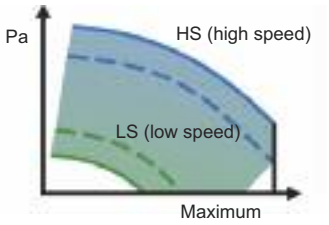
VORT NRG EC INFINITE BC: include a hot water coil and a defrost coil, and manage an additional non-integrated cold water coil.

VORT NRG EC INFINITE BE: include an electric coil and a defrost coil, and also manage an additional non-integrated cold water coil.

VORT NRG EC EH: include a defrost coil, and manage a non-integrated changeover coil or a non-integrated hot water coil and/or a non-integrated cold water coil.

- Supply air temperature management with outdoor compensation.

III.2 DIVA: proportional ventilation between two airflows (LS/HS) according to concentration of CO_2 «MODE AUTO CO_2»

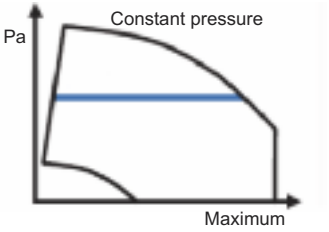


Available functions

- Adjustment of a minimum speed (L.S.) and a maximum speed (H.S.) in %; (the CO_2 set-point is factory-set to 1000 ppm)
- The variation between LS and HS will depend on the CO_2 level.
- Fitted with a factory tuned clock under permanent LS operation.
- Possibility of adding LS/HS remote forced operation (N.O. dry contact)
- Possibility of adding a remote forced stop (N.O. dry contact)
- Supply air temperature management with outdoor compensation.

Note: In order allow operation in DIVA mode, the installation must strictly adhere to the following constraints:
HS Clock at 0 (Normal speed timer)
LS Clock in operation (reduced speed timer)
No triggering of any forced operation (LS/HS) or forced stop.

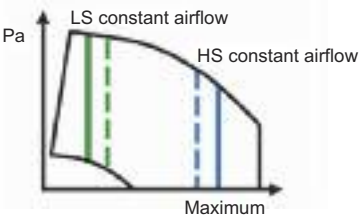
III.3 LOBBY: constant pressure ventilation. «MODE CONSTANT PA»



Available functions

- Constant pressure adjustment (Pa).
- Fitted with a factory tuned clock under permanent LS operation.
- Possibility of adding LS remote forced operation (N.O. dry contact)
- Possibility of adding a remote forced stop (N.O. dry contact)
- Supply air temperature management with outdoor compensation (air relationship).

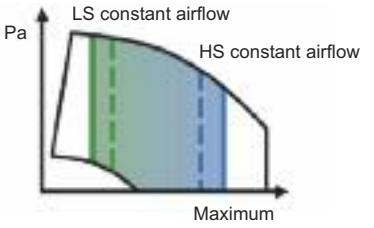
III.4 MAC2: Constant airflow ventilation. (m^3/h) «MODE CONSTANT m^3/h»



Available functions

- Adjustment of 1 or 2 constant airflows (LS/HS) (m^3/h).
- Fitted with a factory tuned clock under permanent HS operation (in LS from 8.00 p.m. to 6 a.m. for authorisation to operate in Night Cooling mode).
- Possibility of adding LS/HS remote forced operation (N.O. dry contact)
- Possibility of adding a remote forced stop (N.O. dry contact)
- Supply air temperature management with outdoor compensation (air relationship).

III.5 QUATTRO: Proportional ventilation between 2 CONSTANT airflows



according to concentration of CO2

Available functions

- Adjustment of a minimum airflow (LS) and a maximum airflow (HS) in m^3/h; (the CO_2 set-point is factory-set to 1000 ppm)
- The variation between LS and HS will depend on the CO_2 level.
- Fitted with a factory tuned clock under permanent LS operation.
- Possibility of adding LS/HS remote forced operation (N.O. dry contact)
- Possibility of adding a remote forced stop (N.O. dry contact)
- Supply air temperature management with outdoor compensation (air relationship).

Note: In order allow operation in QUATTRO mode, the installation must strictly adhere to the following constraints:
HS Clock at 0 (Normal speed timer)
LS Clock in operation (reduced speed timer)
No triggering of any forced operation (LS/HS) or forced stop.

III.6 NRG EC 2 speeds settable by POT controllers (not supplied as standard)

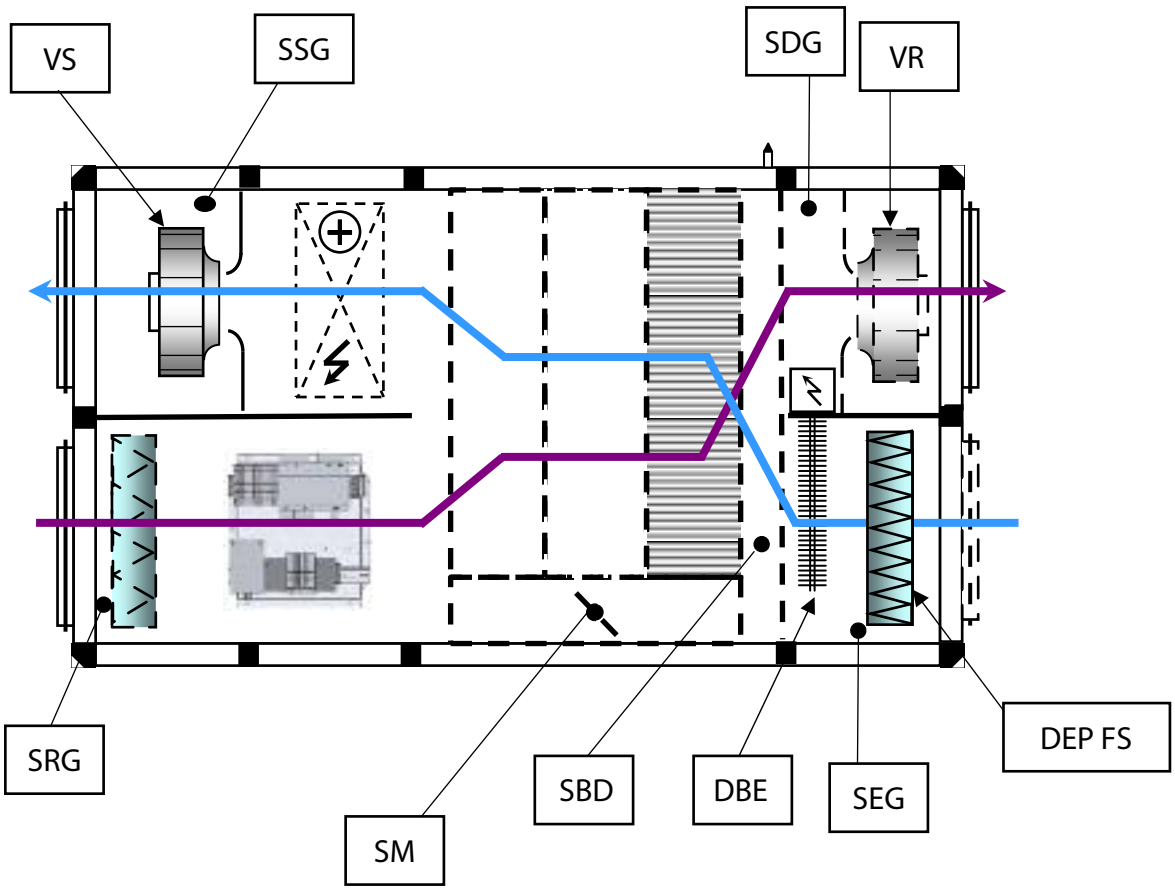
- The speed of each fan is settable by POT controllers integrated into the unit.
- Possibility of adding a remote forced stop (wired on the supply contactor, not supplied)
- Possibility of controlling the potentiometer remotely (POTI NRG accessory).

IV HVAC CONNECTION

Connect the unit with the help of the labels located on each port. The hoses must be heat-insulated.

This should be done in accordance with best practices (no elbow on fan outlet before a minimum distance of 5 times the port diameter, etc.).

V MARKING OF ITEMS IN THE UNIT



NEW AIR	RETURN AIR
VS = supply air fan	VR = return air fan
DEP FS = filter pressure switch (only for new air)	
PT1000 PROBES and servomotors	
SSG = supply air duct probe	SDG = duct defrost probe
SEG = external duct probe	SBD = defrost coil probe
	SRG = return air duct probe
SM1 and SM2 = bypass servomotor	

VI ELECTRIC WIRING

VI.1 Accessibility of the electric board

The electric board is located in the vicinity of the return air duct.

VI.2 Electric supply and wire section

The VORT NRG EC units are connected with either 230 V / 50 Hz single phase or with 400 V / 50 Hz three phase + neutral (see table below for power supply cable selection). The power supply is directly connected to the local circuit breaker (the labels show you where to connect the neutral on the circuit breaker). The earth wire is directly connected to the insert located on the door or on the band of the electronic control module.

⚠ The unit may malfunction due to wrong choice of wire section. The wire section must be selected according to the regulations in force in the country of destination of the appliance.

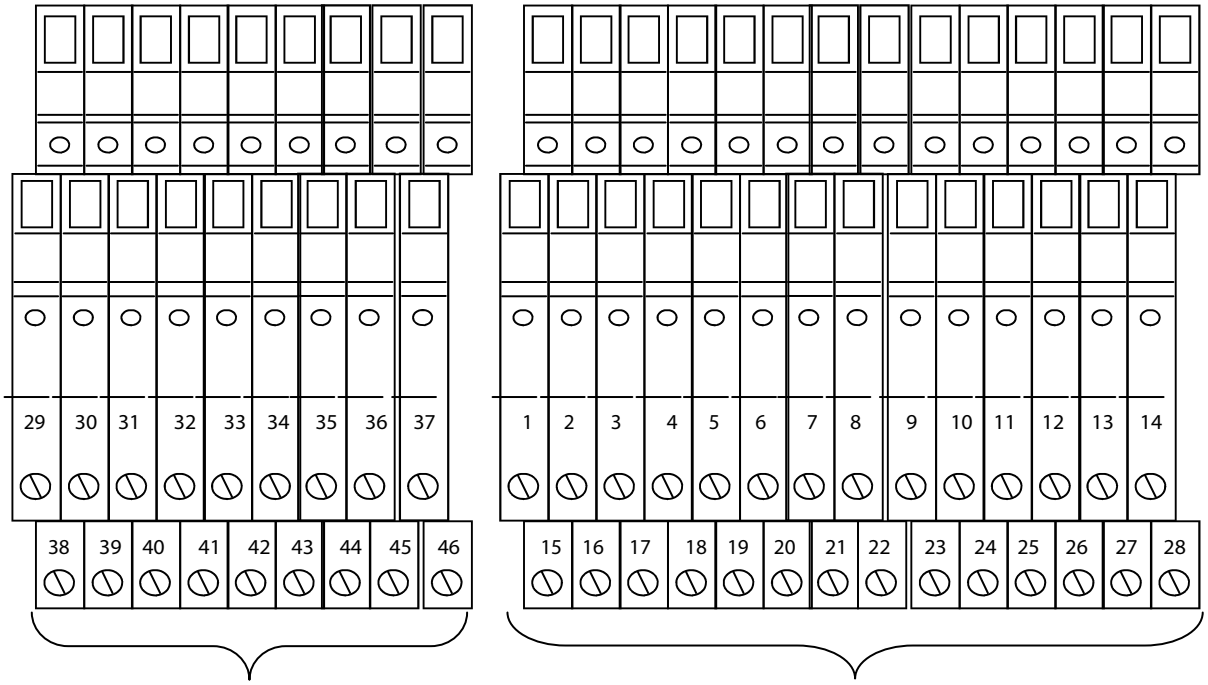
UNIT TYPE	Standard, FIRST and PREMIUM BC	PREMIUM BE	EH and INFINITE BC	INFINITE BE
VORT NRG EC 3000	6 A (230 V MONO)		15.7 A (400 V TRI + N)	
VORT NRG EC 3000 037		22.3 A (230 V MONO)		
VORT NRG EC 3000 067		15.7 A (400 V TRI + N)		25.4 A (400 V TRI + N)
VORT NRG EC 4500	7.7 A (400 V TRI + N)		19.6 A (400 V TRI + N)	
VORT NRG EC 4500 067		17.4 A (400 V TRI + N)		29.3 A (400 V TRI + N)
VORT NRG EC 4500 135		27.2 A (400 V TRI + N)		39.1 A (400 V TRI + N)
VORT NRG EC 6000	6.3 A (400 V TRI + N)		32.3 A (400 V TRI + N)	
VORT NRG EC 6000 067		16 A (400 V TRI + N)		42 A (400 V TRI + N)
VORT NRG EC 6000 135		25.8 A (400 V TRI + N)		51.8 A (400 V TRI + N)
VORT NRG EC 8000	8.4 A (400 V TRI + N)		44.1 A (400 V TRI + N)	
VORT NRG EC 8000 105		23.6 A (400 V TRI + N)		59.3 A (400 V TRI + N)
VORT NRG EC 8000 157		31.1 A (400 V TRI + N)		66.9 A (400 V TRI + N)

VI.3 Connection of the probes

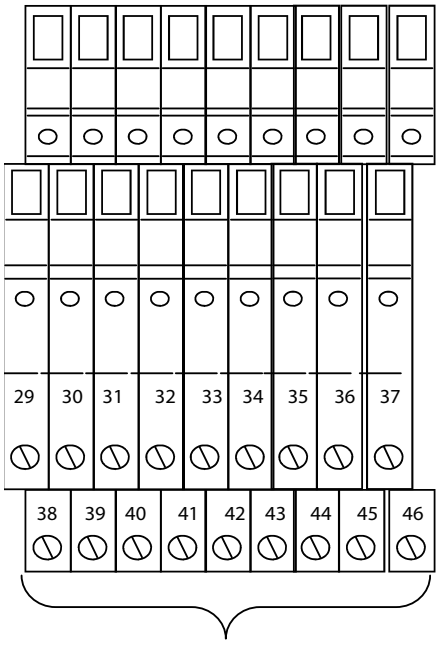
All the components are factory-connected to the power supply terminal board, except the temperature probes, which are connected directly to the CORRIGO regulator.

SSG: Supply air duct probe on Agnd (30) and AI1 (31)
SEG: External duct probe on Agnd (30) and AI2 (32)
SDG: Duct defrost probe on Agnd (33) and AI3 (34)
SRG: Return air duct probe on Agnd (33) and AI4 (35)
SBD: Defrost coil probe on Agnd (36) and AI4 (37) for INFINITE and EH or a 1000 Ohm resistor for FIRST and PREMIUM

VI.4 Electric board's terminal

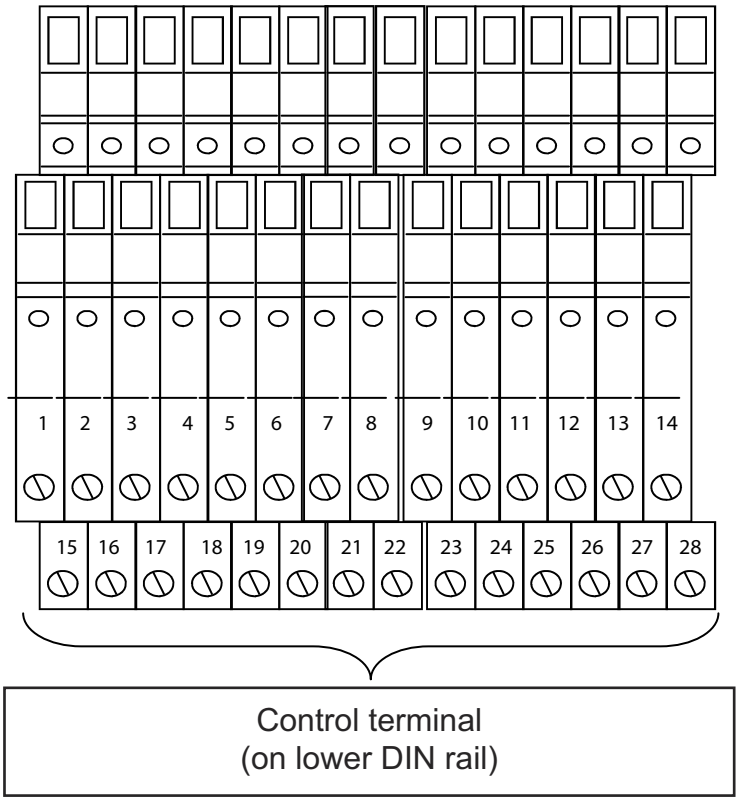


VI.4.1 Power terminal connection



Name	Terminals	Connection
DEP S	29-30	To be connected to terminals 1 and 3 of the **DEP** airflow control pressure switch on supply air fan set at 30Pa (note: the safety of the airflow shall be managed by the pressure transmitter if using the LOBBY, QUATTRO or MAC2 option. In this case do not connect anything to these terminals).
SUPPLY AND RETURN AIR MOTOR	31-32-33-34-35-36-40-41	According to VORT NRG EC size (see section VI.5)
DEP S	38-39	To be connected to terminals 1 and 3 of the **DEP** airflow control pressure switch on return air fan set at 30Pa (note: the safety of the airflow shall be managed by the pressure transmitter if using the LOBBY, QUATTRO or MAC2 option. In this case do not connect anything to these terminals).
BE regulator (PREMIUM and INFINITE BE only)	42-43	For **VORT NRG EC PREMIUM BE** and **VORT NRG EC INFINITE BE** only, connect to terminals 1 and 2 of the **BE regulator** (see section VI.15)
DEP FS	44-45	To be connected to terminals 1 and 3 of the **DEP** fouling pressure switch of the supply air filter (set at 200 Pa)
THS (PREMIUM and INFINITE BE only)	37-46	For **VORT NRG EC PREMIUM BE** and **VORT NRG EC INFINITE BE** only, connect to terminals C and 2 of the electric coil's safety thermostat (see section VI.15)

VI.4.2 Control terminal connection



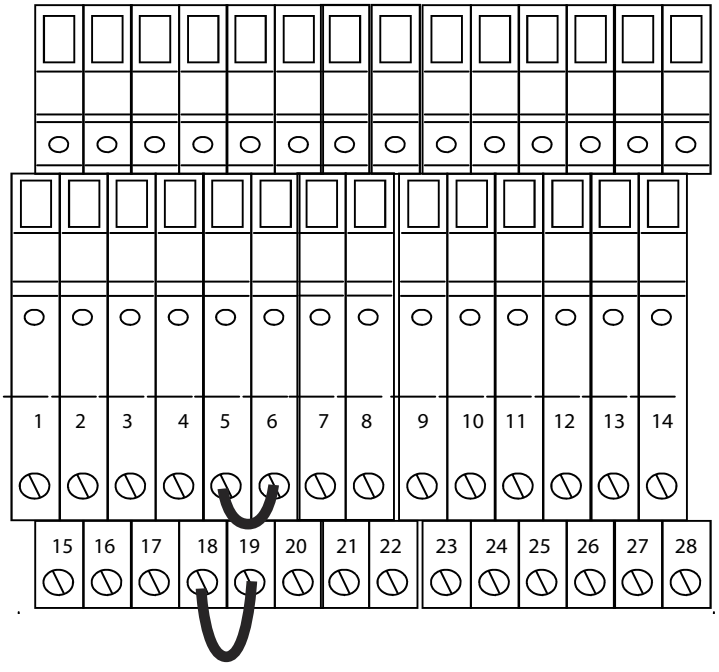
Name	Terminals	Connection
RMS	1 DO3*	To be connected to terminals 1 and 2 of the motorised supply air damper (GMA 121.1E)
RMR	2 DO4*	To be connected to terminals 1 and 2 of the motorised return air damper (GMA 121.1E)
AL	3 DO5*	To be connected to the terminals of a remote alarm indicator (2 A 24 VAC MAX)
DBE (INFINITE and SMART only)	4 DO6*	To be connected to the terminals of the defrost coil's static switch (detachable) (see section VI.16)
NC (night cooling) (LOBBY)	2 DO7*	24 V output available if the VORT NRG unit is associated with the LOBBY option for opening the dampers during the night cooling period. (see section VI.9)
DX	2 DO7*	24 V output available for starting a direct expansion module (should be specified in the order) (see section VI.13)
ADP	5 6	To be connected to the NC contact of the remote firefighter's stop button. As its name suggests, this contact should be used only in a firefighter's stop function since it directly stops the system and shunts all the safeties.
REPEATER	7 8 B-A-N*	To be connected on the repeater if you would like to shift the remote control more than 10 m away (see section VI.17)
MF HS	9-10	To be connected to the terminals of a NO contact provided for high-speed forced operation
MF LS	11-12	To be connected to the terminals of a NO contact provided for low-speed forced operation
AR EST	13-14	To be connected to the terminals of a NO contact provided for forced external stop (note: if contact closed, unit is at stop)

* direct connection to CORRIGO

Name	Terminals	Connection
TRPS (LOBBY MAC2 and QUATTRO)	15 Agnd* UI2*	Supply air pressure transmitter (see section VI.6)
TRPS (LOBBY MAC2 and QUATTRO)	16 Agnd* UI3*	Return air pressure transmitter (see section VI.6)
CO_2 (DIVA and QUATTRO)	17 Agnd* UI4*	**CO_2** transmitter (see section VI.7)
THS/THA or K1 auxiliary for PREMIUM and INFINITE BE only	18 19	**BC:** On the **VORT NRG EC PREMIUM BC** and **VORT NRG EC INFINITE BC** versions, the **THA** is factory-wired. On the **VORT NRG EC FIRST** versions, if you install a **BC** module in addition to the **VORT NRG EC** unit, it must be connected to terminals C and 2 of the anti-frost thermostat. **BE:** On the **VORT NRG EC PREMIUM BE** and **VORT NRG EC INFINITE BE** versions, the auxiliary contact K1 is factory-wired. **On the VORT NRG EC FIRST** version, if you install an additional **BE** module, it must be connected to terminals C and 2 of the coil safety thermostat.
BC/BE	20 21 22	**BC:** To be connected to the 3-way valve of the hot water coil (see section VI.11) Non-integrated **BE (VORT NRG EC FIRST):** (see section VI.14) **Integrated BE (VORT NRG EC PREMIUM BE, VORT NRG EC INFINITE BE):** (see section VI.15)
BIM	23 24 25	To be connected to the motorised bypass servomotor (see section VI.8)
BF	26 27 28	To be connected to the 3-way valve of the cold water coil (see section VI.11)

* direct connection to CORRIGO

VI.4.3 Bridging in case of unused option.



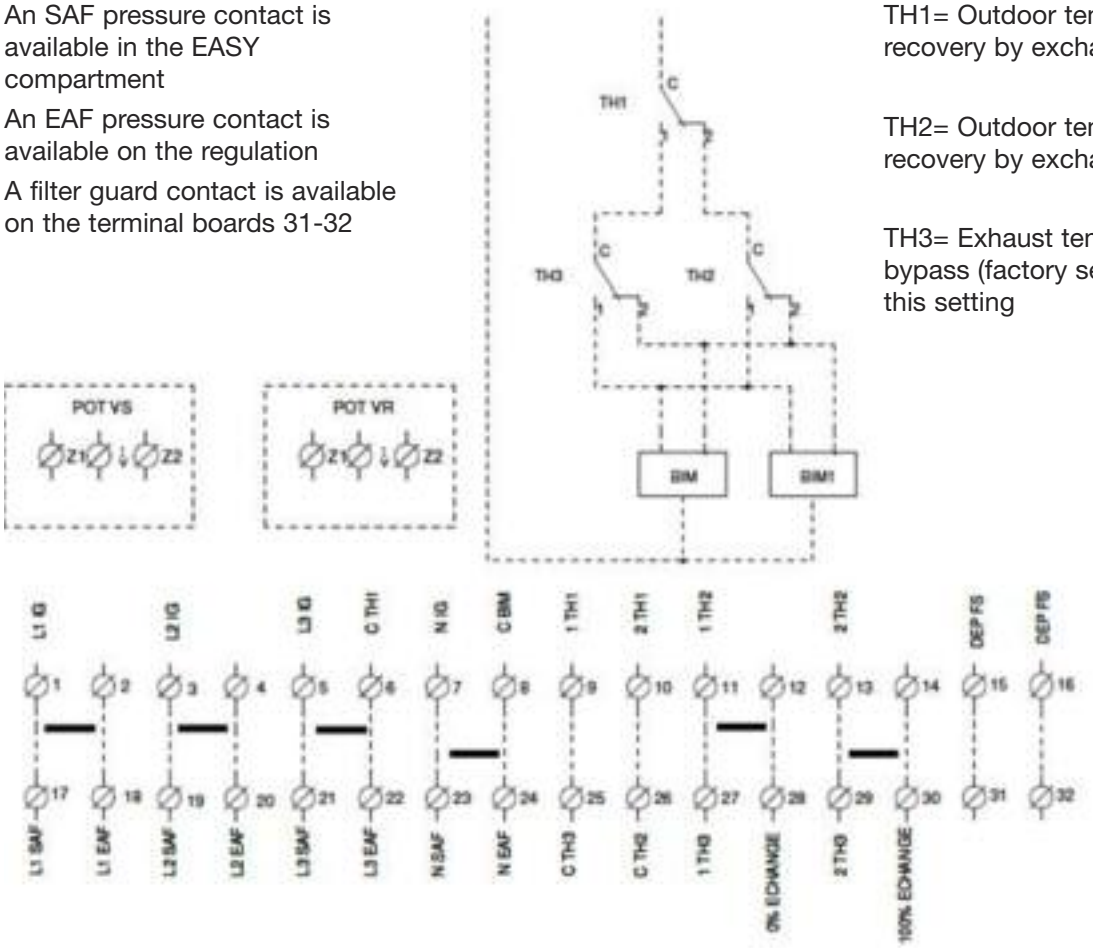
Name	Terminals	Connection
ADP	5-6	If you do not use the remote firefighter stop function, terminals 5 and 6 should be bridged. This is done in factory.
THS/THA	18-19	For **VORT NRG EC FIRST** only, terminals 18 and 9 should be bridged if you are not adding a coil in the duct. This is done in factory.

VI.4.4 Terminal boards

An SAF pressure contact is available in the EASY compartment

An EAF pressure contact is available on the regulation

A filter guard contact is available on the terminal boards 31-32



TH1= Outdoor temperature for heating recovery by exchanger (factory setting: 18°C)

TH2= Outdoor temperature for cooling recovery by exchanger (factory setting: 24°C)

TH3= Exhaust temperature for de-icing by bypass (factory setting 5°C) -> do not modify this setting

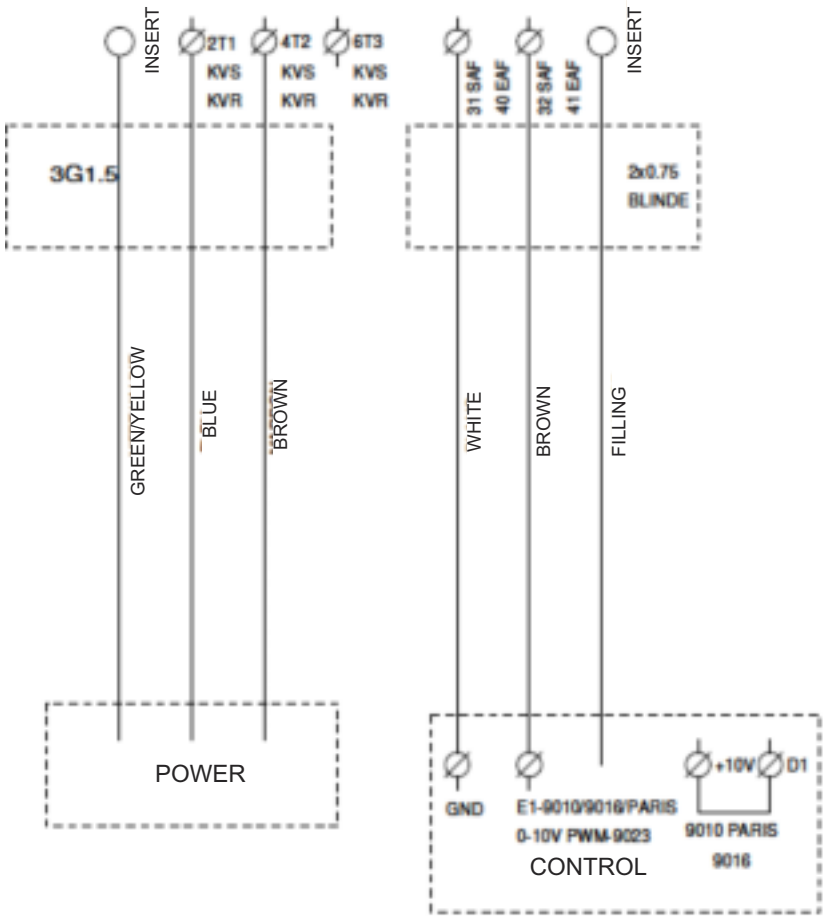
VI.5 Connection of the motors

The motors are factory-connected

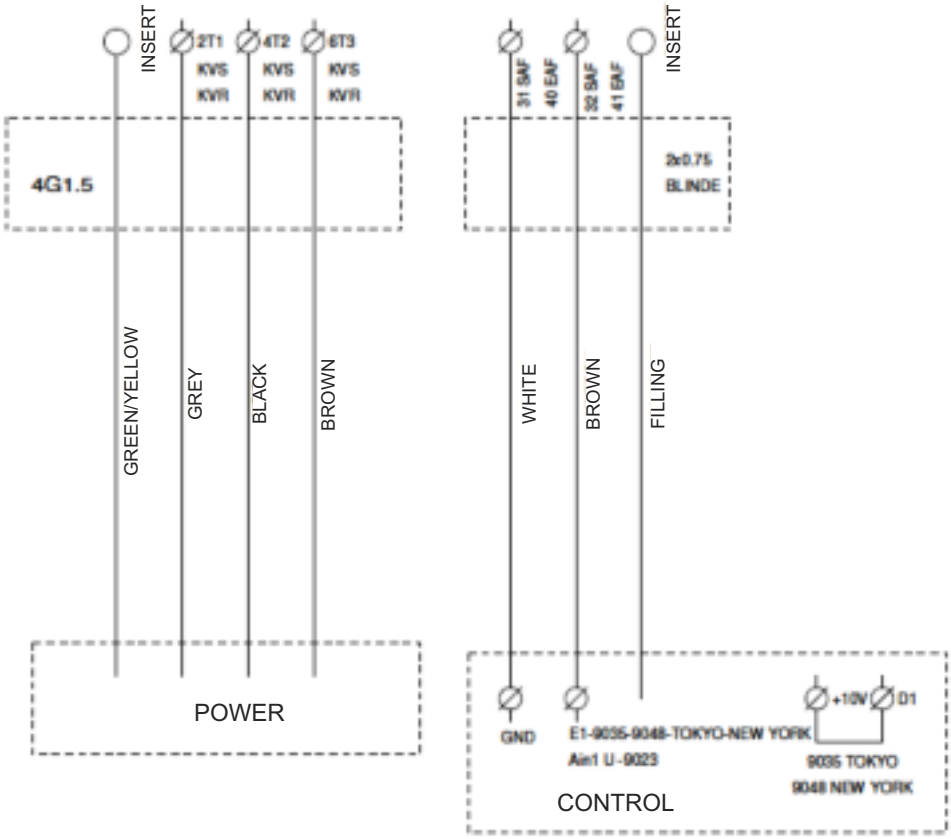
VI.5 Connection of the motors

The motors are factory-connected

VORT NRG EC 3000

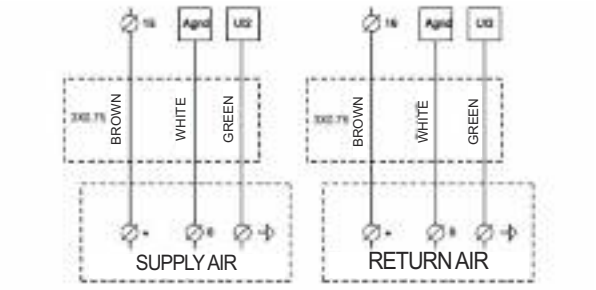


VORT NRG EC 4500, 6000, 8000



VI.6 Connection of pressure transmitters for MAC2 / LOBBY / QUATTRO

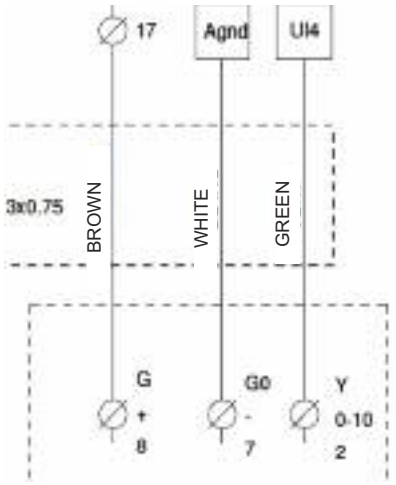
The pressure transmitters are factory-wired.



LOBBY / MAC2 AND QUATTRO EC
PRESSURE TRANSMITTER

VI.7 Connection of CO_2 transmitter for DIVA / QUATTRO

The CO_2 transmitter is factory-wired

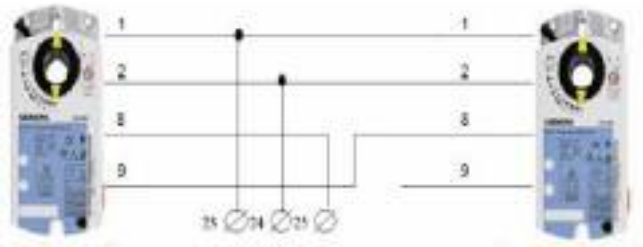


VI.8 Bypass

This function is automatically controlled using the CORRIGO regulator's programming and the probes installed as standard in our VORT NRG EC units.

In winter (FREE HEATING): When heat is required, the bypass closes to recover maximum calories through the plate exchanger. If this recovery is not adequate to reach the temperature set-point, the water coil valve (if available) will open or the electric coil (if available) will start.

In summer (FREE COOLING): The bypass closes when the outside temperature is higher than the inside temperature to prevent the outside heat from entering directly. If the outside temperature is lower than the inside temperature, the bypass opens to get the cool outside air.



Bypass servomotor recovery unit side
SMALL SHUTTER

NRG EC terminal

Bypass servomotor recovery unit front
LARGE SHUTTER

On the VORT NRG 6000-8000 models, the single servomotor is wired in the same manner as the small shutter.

VI.9 NIGHT COOLING

This function is used during summer to cool buildings at night by using cool outdoor air, thus reducing the cooling power to be delivered during the day. The NIGHT COOLING function works only between midnight and 7 a.m..

During the Night Cooling period, the heating and cooling outlets are blocked. The bypass is also open to prevent air from

travelling through the exchanger. At the end of a NIGHT COOLING period, the heating is blocked for 60 minutes.

Operating conditions:

- The outdoor temperature was greater than 22°C during the day.
- The clocks are set either to LS or to stop between midnight and 7 a.m..
- The outdoor temperature is less than 18°C during the NIGHT COOLING period.
- The outdoor temperature is greater than 10°C during the NIGHT COOLING period.
- The room temperature is greater than 18°C.

During the NIGHT COOLING period, the fan runs at 85% capacity. This speed can be adjusted. See section VII.3.7

For the LOBBY version, a maximum 24 V 2A output is provided between the DO7 and 2 terminals to force the opening of the dampers during the Night Cooling period.

VI.10 Automatic defrost

This function is automatically controlled using the CORRIGO regulator's programming and the probes installed as standard in our double-flow VORT NRG EC units. Defrosting starts with the opening of the bypass (defrost temperature, SDG, less

than 5°C). If the bypass function is not adequate to defrost the exchanger (normally if the outside temperature is less than -10°C), the new air fan modulates its airflow until it stops, and then restarts as soon as the defrost temperature probe exceeds 5°C.

For the INFINITE and EH versions: a defrost coil is installed on the new air duct, to minimise the risk of frost with the bypass closed. The maximum efficiency of the system is thus maintained.

VI.11 Hot water and cold water coil (the valve must be connected in the OFF position)

On the **VORT PREMIUM BC** and **VORT INFINITE BC** versions, the hot water coil is already installed in the unit. The anti-frost thermostat is connected. However, you should wire the 3-way valve.

For all other versions, also connect the THA (anti-frost thermostat) and shift the supply air probe after the battery

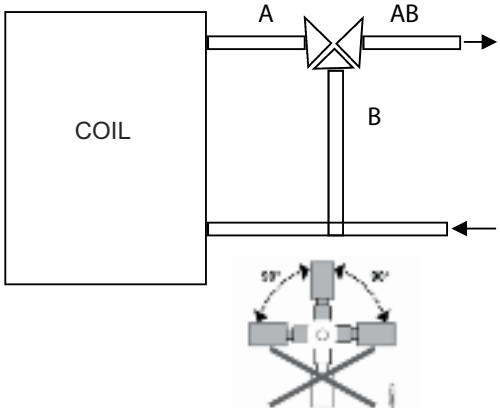
Connect the 3-way valve's servomotor as follows:

Hot coil:

Terminal **20** of the VORT NRG EC unit to the +24 V (G) of the valve's servomotor
Terminal **21** of the VORT NRG EC unit to the +0 V (G0) of the valve's servomotor
Terminal **22** of the VORT NRG EC unit to the +10 V (Y) of the valve's servomotor
Connect the NC contact (C and 2) of the **THA** (anti-frost thermostat) to 18 and 19

Cold coil:

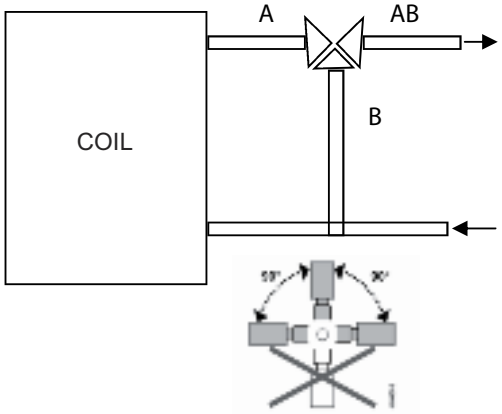
Terminal **26** of the VORT NRG EC unit to the +24 V (G) of the valve's servomotor
Terminal **27** of the VORT NRG EC unit to the +0 V (G0) of the valve's servomotor
Terminal **28** of the VORT NRG EC unit to the +10 V (Y) of the valve's servomotor
Connect the NC contact (C and 2) of the **THA** (anti-frost thermostat) to 18 and 19



VI.12 Changeover coil (EC FIRST versions only) (the valve must be connected in the OFF position)

A changeover coil can be installed on the **VORT NRG EC FIRST version.** In this case you will not be able to add another hot water or cold water coil. You should connect the 3-way valve, the changeover handle and the THA (anti-frost thermostat), and shift the supply air probe after the coil

Connect the appliance as described below:
Red wire of the handle (CO) to Y of the valve's servomotor
Terminal **20** of the NRG EC unit to the +24 V (G) of the valve's servomotor
Terminal **21** of the NRG EC unit to the +0 V (G0) of the valve's servomotor
Terminal **22** of the NRG EC unit to the brown wire of the handle at the hot signal
Terminal **28** of the NRG EC unit to the black wire of the handle at the cold signal
Connect the NC contact (C and 2) of the **THA** (anti-frost thermostat) to 18 and 19



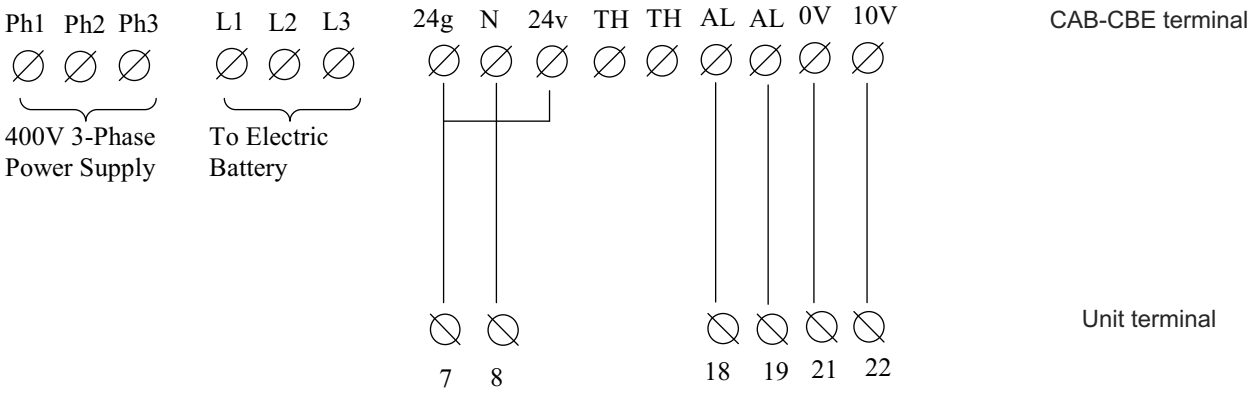
VI.13 Direct duct expansion coil (this function must be specified at the time of ordering)

A maximum 24 V 2A output is provided to control the start/stop of your cold unit, to be connected between terminals DO7 and 2 (provide a relay on the condensation unit).

You should also shift the supply air probe after the direct expansion coil.

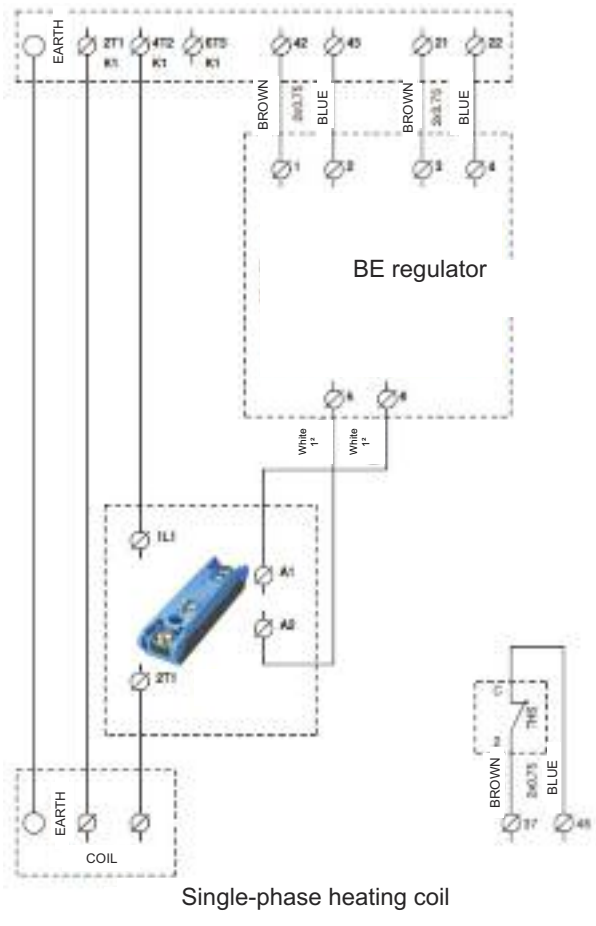
VI.14 Electric coil associated with VORT NRG EC FIRST (specified at the time of ordering)

It is possible to add an electric coil to the VORT NRG EC FIRST unit. In this case we provide you with a heating signal 0-10V (terminal 21-22) as well as the terminals 18-19 to bring your safety thermostat's NF contact (break contact by temperature rise). If the VORT NRG EC unit is linked to an electric coil provided with a CAB-CBE (electric coil housing), follow the diagram as given below.

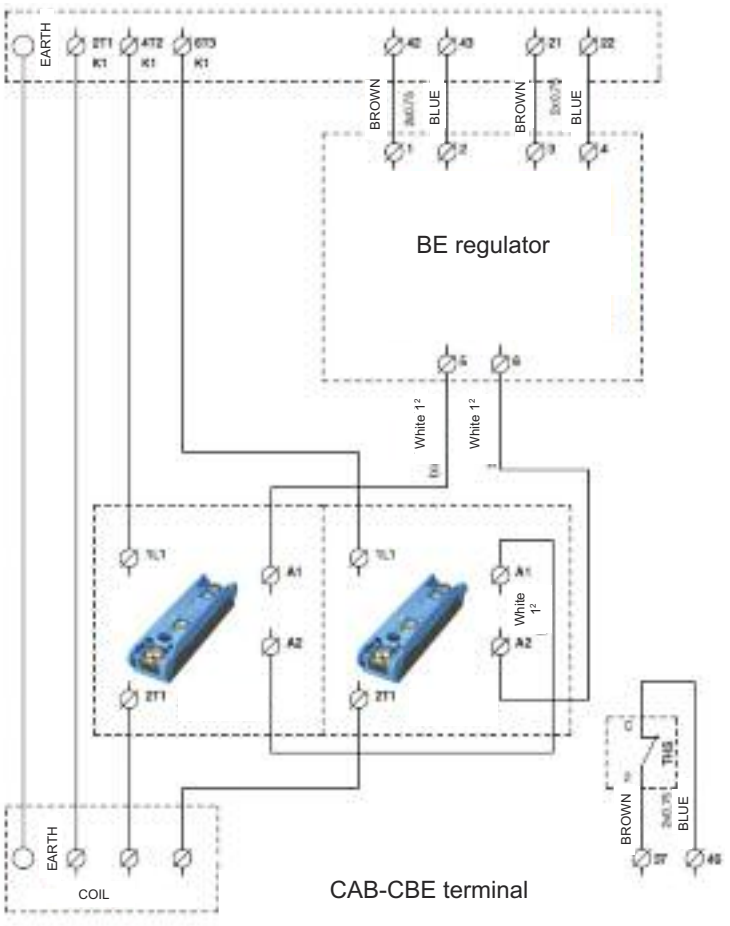


VI.15 VORT NRG EC PREMIUM BE and VORT NRG EC INFINITE BE electric heating coil

On the PREMIUM BE and INFINITE BE versions, the electric coil is already installed in the unit. The safety thermostat and the 0-10V control are connected.



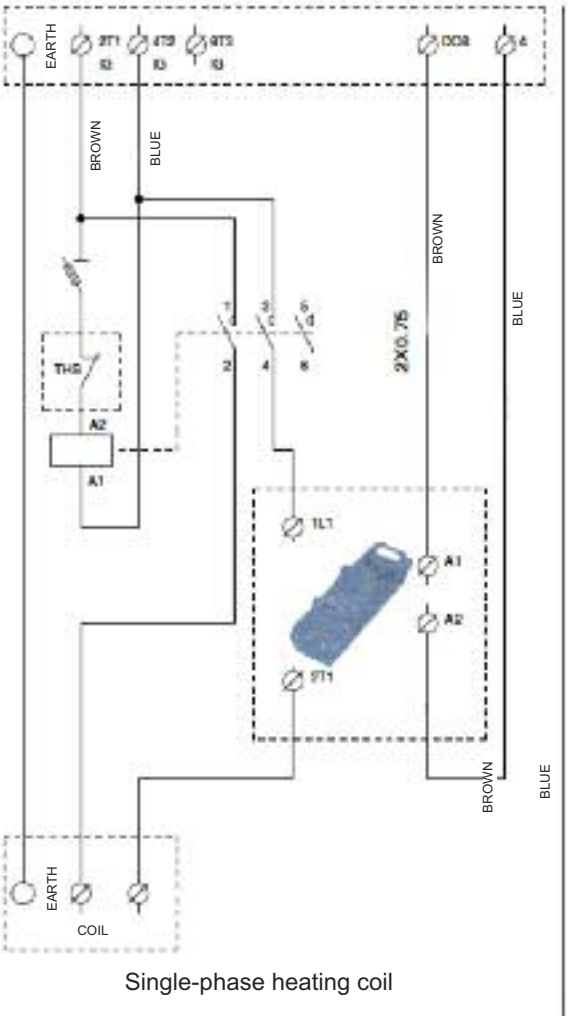
Single-phase heating coil



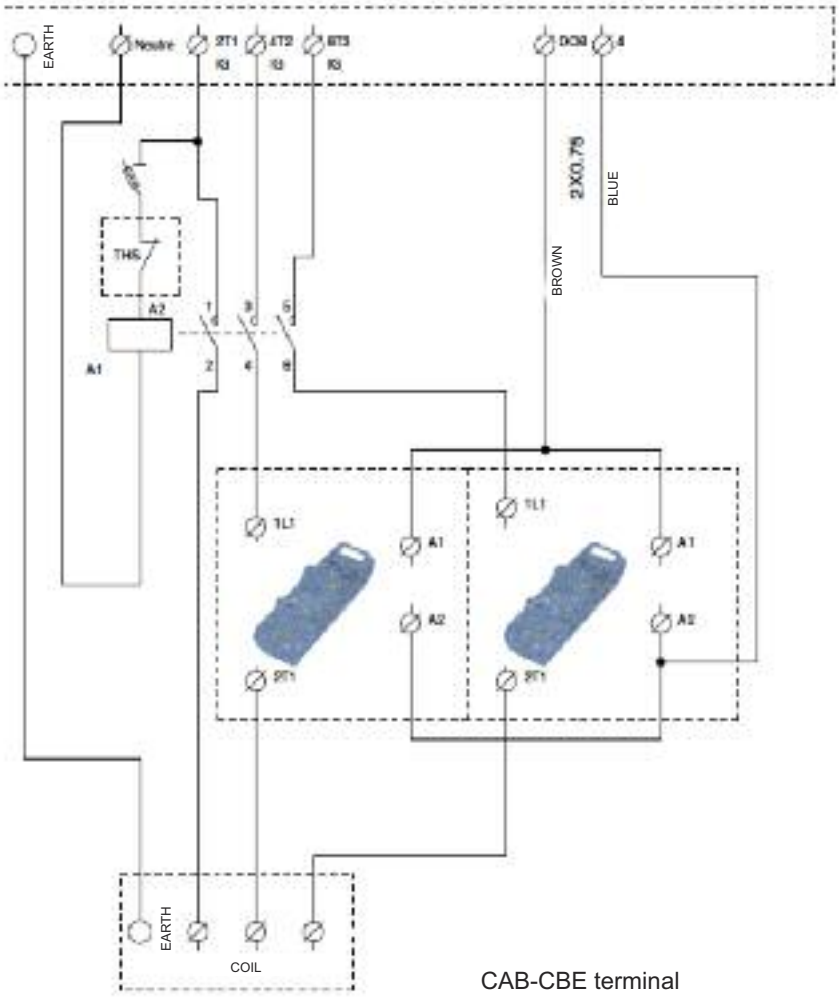
CAB-CBE terminal

VI.16 Electric defrosting coil (EH, INFINITE BE, INFINITE BC)

On the **EH, INFINITE BE** and **INFINITE BC** versions, the defrosting coil is already installed in the unit. The control is also connected.



Single-phase heating coil



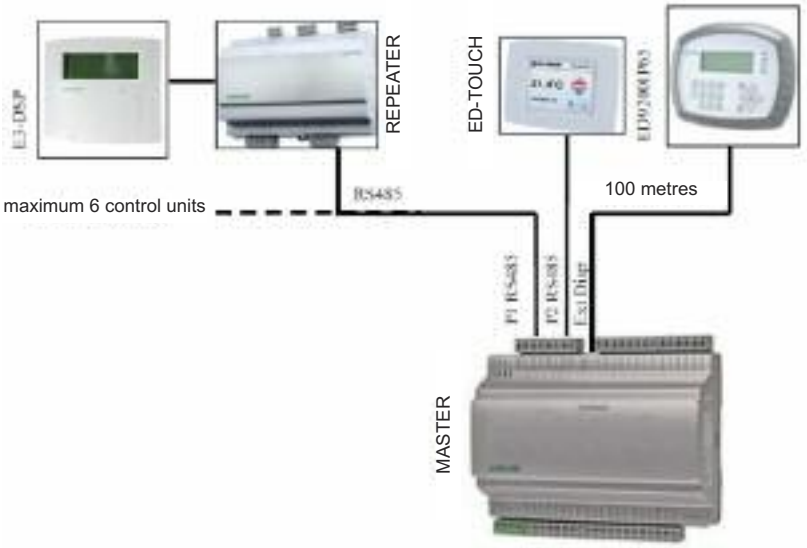
CAB-CBE terminal

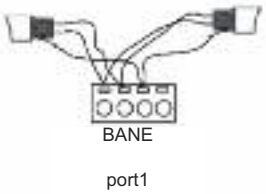
VI.17 Repeater (see section VII.3.8 for configuration)

You must have a repeater if you want to connect:
- More than one unit on the same display (maximum 6)
- A remote control at more than 100 metres

In this case you can move the remote control system up to 1 km away. Use a shielded twisted 2-pair cable of BELDEN 8723 type or equivalent to connect the repeater to the control housing. Use another cable to supply the repeater (230 V single phase).

Connect the wires as follows:
- B of the repeater to terminal B of the VORT NRG EC unit (wire of the shielded cable as shown in the diagram below)
- A of the repeater to terminal A of the VORT NRG EC unit (wire of the shielded cable as shown in the diagram below)
- N of the repeater to terminal N of the VORT NRG EC unit (shielding of the shielded cable as shown in the diagram below)
- The remote control is connected as shown below through the RJ12 port
- 230 V / 50 Hz single-phase supply





VII SETTINGS

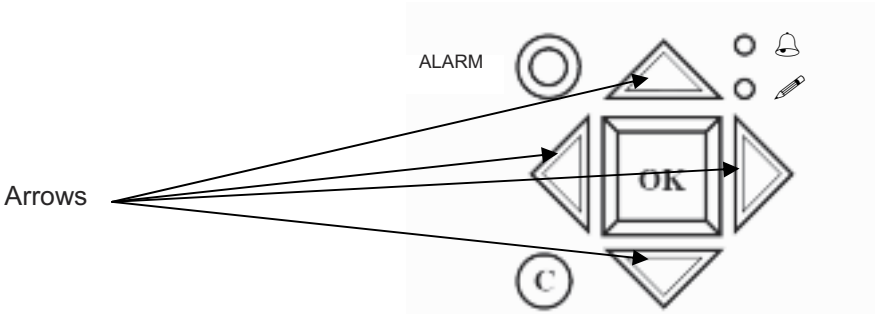
VII.1 / Control (on CORRIGO or remote control)

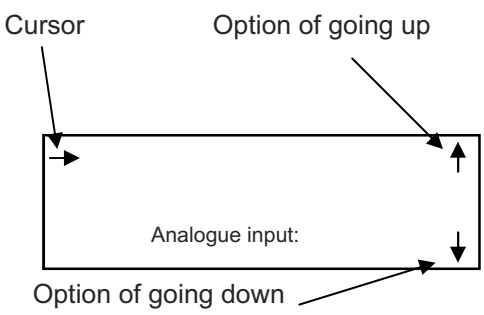
The monitor has four rows of 20 characters. It is back-lit. This lighting is not permanent but activates when a key is pressed. The lighting switches off after a period of inactivity.
There are two LEDs on the front panel:

Alarm LED represented by the bell symbol.

Write LED represented by the pencil symbol.
Rapid blinking = possible to change the value
Slow blinking = a password needs to be entered to change the value

The **Up**, **Down**, **Left**and **Right**arrow keys are used to navigate inside the menus.
The **Up** and **Down**arrow keys are also used to increase or decrease the value of a parameter when it is accessible, whereas the **Left** and **Right**keys are also used to navigate within the same parameter.
The **OK** key is used to enter the value and confirm a selection, and the **C** key is used to cancel.
The **Alarm** key (red) is used to access the fault list.
The left arrow is also used to exit the alarm menu to return to the main menu
The cursors show you the possible movements and on which arrows to press.

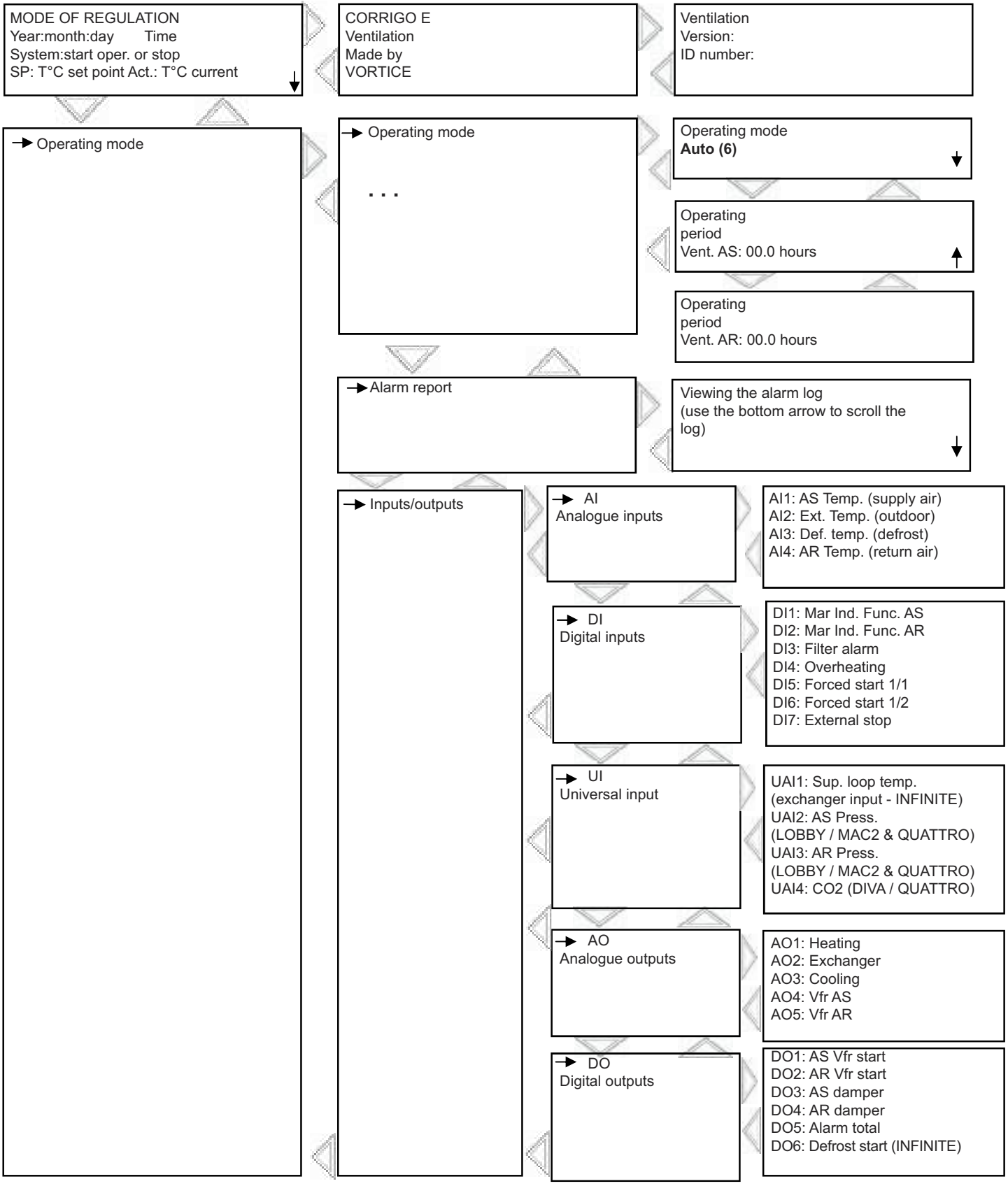




VII.2 Tree structure of menus

Words written normally = view only / **Words in bold** = Modification possible / **Words in bold underlined** = Modification possible with password 3333. = not used or not accessible.

NOTE: Do not change parameters other than those shown in bold, otherwise no After-Sales Service can be included.



→ Temperature regulation

Ext. temp.:
Supply air temp.
Actual:
Set point:

Set point →

Outdoor comp. set-point
-20°C = **25°C (7)**
-15°C = **24°C (7)**
-10°C = **23°C (7)**

Outdoor comp. set-point
-5°C = **23°C (7)**
0°C = **22°C (7)**
5°C = **20°C (7)**

Outdoor comp. set-point
10°C = **18°C (7)**
15°C = **18°C (7)**

Return air temperature
Actual:
...

Air control →

Frequency control
(VORT NRG EC o **DIVA)**
AS manual ventilation
Output: **70 (5)** %

or

VAS pressure control system
(VORT NRG EC LOBBY)
Actual: 183 Pa (example)
Set point: **180 Pa (5)**

or

VAS airflow control system
(VORT NRG EC MAC2 o **QUATTRO)**
Actual: 4178 m3/h (example)
Set point: **5000 m3/h (5)**

Frequency control
AS manual ventilation
Output 1/1: **70% (5)**
Output 1/2: **50% (5)**
...

VAS pressure control system
Set point 1/1: not used
Set point 1/2: **180 Pa (5)**
...

VAS airflow control system
Set point 1/1: **5000 m3/h (5)**
Set point 1/2: **2500 m3/h (5)**
...

Frequency control
(VORT NRG EC o **DIVA)**
AR manual ventilation
Output: **70 (5)** %

or

VAR pressure control system
(VORT NRG EC LOBBY)
Actual: 183 Pa (example)
Set point: **180 Pa (5)**

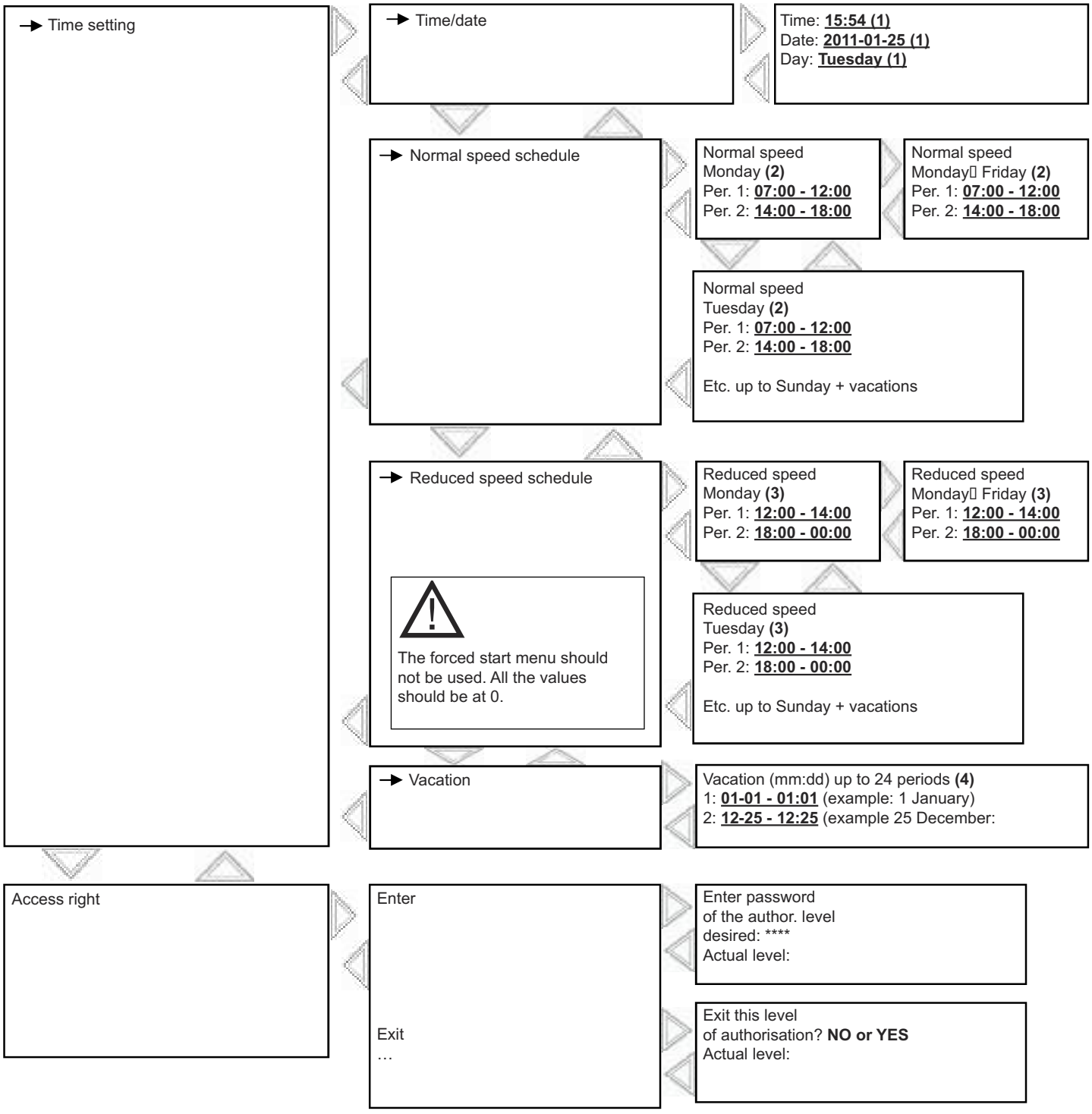
or

VAR airflow control system
(VORT NRG EC MAC2 o **QUATTRO)**
Actual: 4178 m3/h (example)
Set point: **5000 m3/h (5)**

Frequency control
AR manual ventilation
Output 1/1: **70% (5)**
Output 1/2: **50% (5)**
...

VAR pressure control system
Set point 1/1: not used
Set point 1/2: **180 Pa (5)**
...

VAR airflow control system
Set point 1/1: **5000 m3/h (5)**
Set point 1/2: **2500 m3/h (5)**
...



(1) Time/Date/Day Setting (see section VII.3.2.a)
(2) High Speed periods setting (see section VII.3.2.b)
(3) Low Speed periods setting (see section VII.3.2.b)
(4) Vacation dates setting (see section VII.3.2.c)
(5) Setting of speeds, pressures, airflows (see section VII.3.3)
(6) Unit On/Off operation setting (see section VII.3.5)
(7) Set-point setting (see section VII.3.4)

VII.3 Modification of parameters

VII.3.1 Access to blocked parameters

Some parameters are blocked by a password; in this case, when you would like to modify them by pressing the OK key, this screen will appear.

Enter password of the desired authorisation level
Password: ****
Level: Without

Enter the code 3333 using the arrow keys and then confirm with the OK key. Press twice on left arrow to access the menus. In case of an operating error, press twice on the C key and restart the operation.

VII.3.2 Setting different dates and times on the clocks (password required)

*VII.3.2.a Date and time of the **CORRIGO** regulator **(1)** section VII.22*

Date and time of the regulator are configured by default in the CORRIGO. Change to summer/winter time is managed automatically. If you need to modify this data, follow the procedure described below:

- Move the cursor to the Time/Date menu as described in section VII.2.
- Once in this menu, press the OK key.
- Enter the desired value.
- Validate by pressing the OK key to go to the next field.
- Once all the values are updated, press on the left arrow to return to the welcome screen.

Time: e.g.: **10:33**
Date: e.g.: **08/12/23** (year/month/day)
Day: e.g.: **Tuesday**

*VII.3.2.b Programming the system's operating timetable **(2) (3)** section VII.2*

The system is set to work at normal speed from 6.00 am to 10.00 pm and at reduced speed from 10.00 pm to 6.00 am., except in **VORT NRG EC DIVA** / **LOBBY** and **QUATTRO** , which is set at permanent reduced speed (night cooling function active). If you would like to modify the operating hours (stop between 12.00 and 2.00 pm etc.), follow the procedure set out below):

- Move the cursor to the prog. menu. Normal speed or reduced speed as specified in section VII.2.
- Once in this menu, press the OK key.
- Enter the desired value.
- Validate by pressing the OK key to go to the next field.
- Use the down arrow to go to the next day. (note: you will be able to set 2 periods each day for each day of the week and allow 2 periods for vacation days).
- As indicated in the table, you can also modify the periods from Monday to Friday by pressing on the right key when you are on the screen for Monday, see chapter VII.2.
- Once all the values are updated, press on the left arrow to return to the welcome screen.

Normal speed or reduced speed
Monday
Per1: e.g.: **07:00 - 12:15**
Per2: e.g.: **14:00 - 18:00**

Note: if reduced speed (LS) and normal speed (HS) are active in the same time slot, the unit will operate at HS

Operating exceptions:

VORT NRG EC DIVA and **QUATTRO**: In order for the CO_2 control to work, no normal speed time slot should be active.

LOBBY: Only the reduced speed clock is active

*VII.3.2.c Vacation period **(4)** section VII.2*

The system is set with no vacation period. If you would like to reduce the operating time during vacation periods, set the vacation operating times as described in section VII.3.2.b, then set your vacation days.

Follow the procedure set out below:

- Move the cursor to the Vacation menu as described in section VII.2.
- Once in this menu, press the OK key.
- Enter the desired value.
- Validate by pressing the OK key to go to the next field.
- Use the down cursor to go to subsequent periods. (note: you can set up to 24 vacation periods).
- Once all the values are updated, press on the left arrow to return to the welcome screen

Vacation (month/day)
1: e.g.: **12:20 - 12:27** (from 20 to 27 Dec.)
2: e.g.: **01:05 - 01:05** (1 May)

VII.3.3 Modification of speed / pressure / airflow in LS and HS (password required)

*VII.3.3.a **VORT NRG EC** and **DIVA (5)** section VII.2*

You can change the rotation speeds of your unit to LS (reduced speed) and HS (normal speed) for each fan in order to set your own customised airflows. To set your initial HS airflow, force the system into normal speed with the “Forced HS”

terminals (bridge between terminals 9 and 10). To set your initial LS airflow, force the system into reduced speed with the “Forced LS”

terminals (bridge between terminals 11 and 12).

Move the cursor to **the AS or AR manual vent. frequency control menu** as described in chapter VII.2.

Once in this menu, press the OK key (1/1 = GV)
(1/2 = PV)

- Enter the desired value using the graphs in the appendix at the end of the instructions.
- Validate by pressing the OK key to go to the next field.
- Once all the values are updated, press on the left arrow to return to the welcome screen.

Frequency control
AS or AR manual ventilation
Output 1/1: **70%**
Output 1/2: **50%**
...

VII.3.3.b VORT NRG EC LOBBY (5) section VII.2

You can change the constant pressure of your unit for each fan to set your own customised airflows. To set your initial HS airflow, force the system into normal speed with the “Forced LS”

terminals (bridge between terminals 11 and 12).

Move the cursor to the VAS pressure control menu as described in section VII.2.

Once in this menu, press the OK key

- Enter the desired value.
- Validate by pressing the OK key to go to the next field.
- Once all the values are updated, press on the left arrow to return to the welcome screen.

VAS or VAR pressure control system
Set point 1/1: not used
Set point 1/2: **180 Pa**
...

➤

*VII.3.3.c VORT NRG EC MAC2 and QUATTRO **(5)** section VII.2*

You can change the constant speeds of your unit to LS (reduced speed) and HS (normal speed) for each fan.

Move the cursor to the VAS airflow control menu as described in section VII.2.

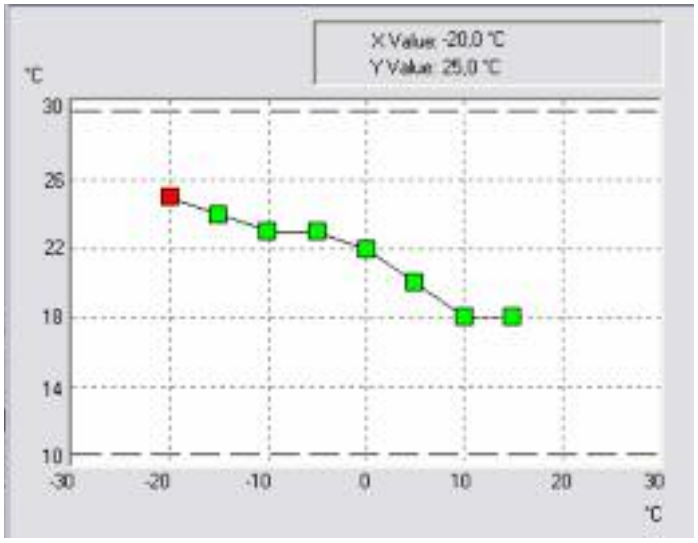
Once in this menu, press the OK key (1/1 = GV)
(1/2 = PV)

- Enter the desired value.
- Validate by pressing the OK key to go to the next field.
- Once all the values are updated, press on the left arrow to return to the welcome screen.

VAS or VAR airflow control system
Set point 1/1: **5000 m3/h**
Set point 1/2: **2500 m3/h**
...

VII.3.4 Temperature set-point modification (password required) (7) section VII.2

The control is based on the supply air temperature control with outdoor compensation. Normally, the supply air temperature set-point moves according to the outdoor temperature. (See graph below).



If you need to modify this data, follow the procedure described below:

- Move the cursor to the cons. menu as described in section VII.2.
- Once in this menu, press the OK key.
- Enter the desired value. The outdoor temperature values are not changeable. If you increase or decrease a value, all the others should be increased by the same value to comply with this air relationship principle.
- Validate by pressing the OK key to go to the next field.
- Once all the values are updated, press on the left arrow to return to the welcome screen.

Outdoor comp. set-point
-20.0° = **25.0°**
-15.0° = **24.0°**
-10.0° = **23.0°**
0.0° = **22.0°**
5.0° = **20.0°**
10.0° = **18°C**
15.0° = **18°C**

VII.3.5 Unit start/stop or forced LS/HS start by means of the CORRIGO or the remote control

You can stop **(6) (stop)** the unit with the CORRIGO control or do a forced LS **(6) (manual speed 1/2)** or HS **(6) (manual speed 1/1) start**. As standard, the unit operates in automatic mode at all hours **(6) (auto)**

Move the cursor to the menu below as described in section VII.2.

Once in this menu, press OK (AUTO = start by clock)
(Stop = stop the unit)
(manual speed 1/2 = MFPV)
(manual speed 1/ = MFGV)

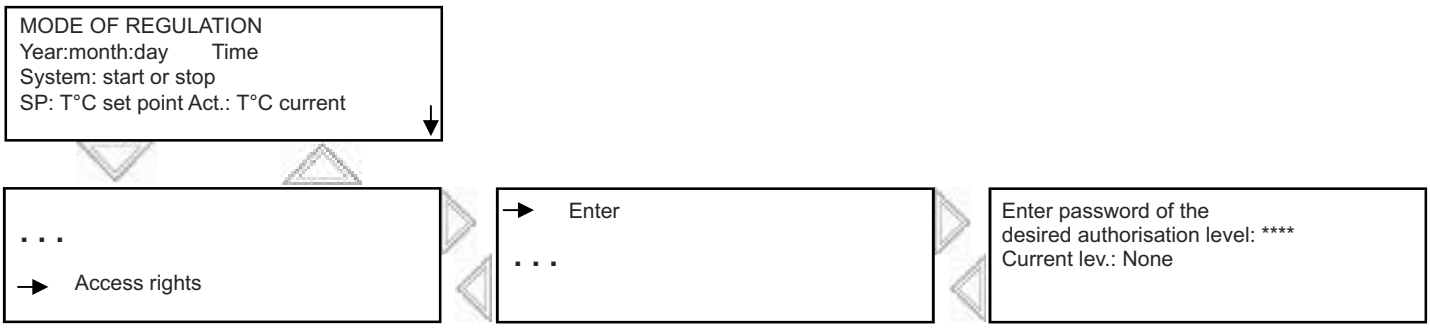
Operating mode
Auto

- Enter the desired mode.
- Validate by pressing the OK key to go to the next field.
- Once all the modes are updated, press on the left arrow to return to the welcome screen.

An alarm appears from the time that you are not in Auto mode. The manual Speed 1/1 and manual speed 1/2 modes should be used only for commissioning and repairs. Any setting would cause the unit to malfunction.

VII.3.6 Special parameter settings (control type modification and NIGHT COOLING modification

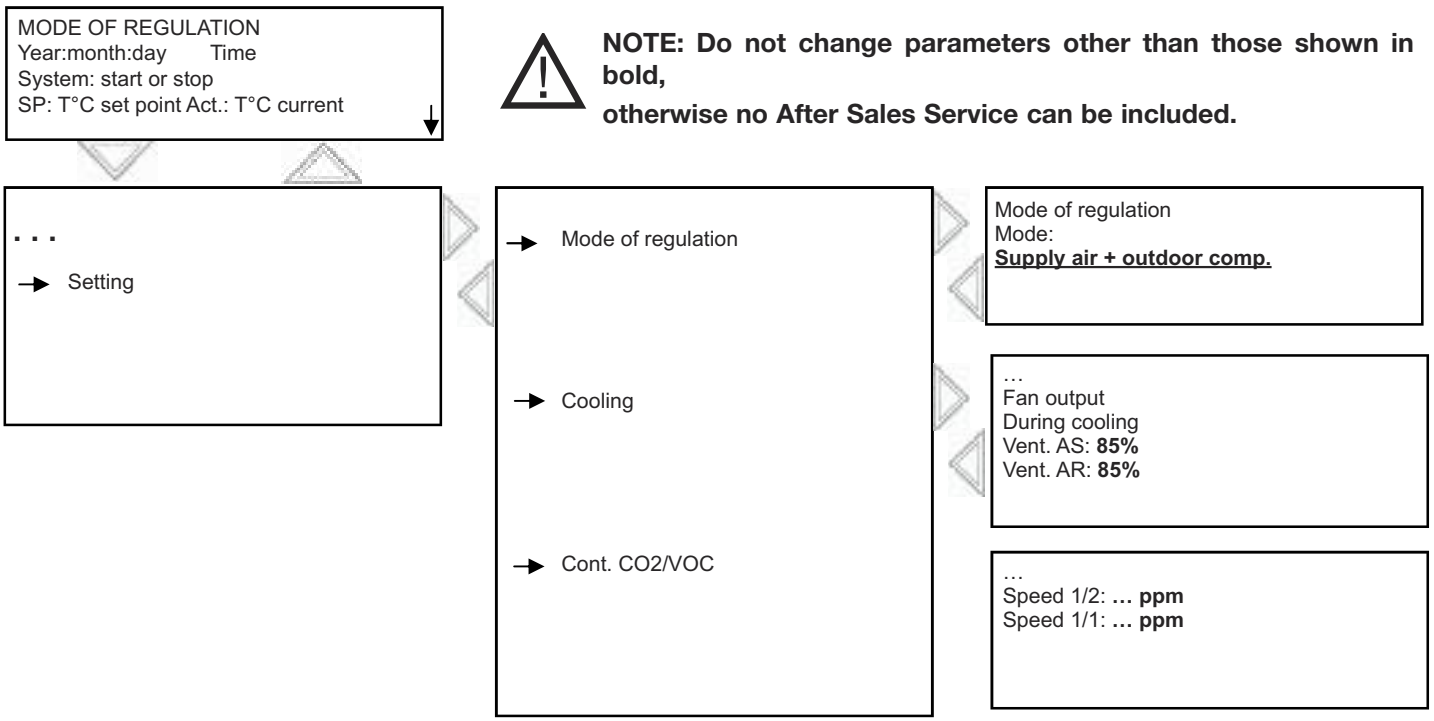
These parameter settings require access to the Configuration menu. For this you should get the “Service” level access rights. Follow the procedure set out below.



Enter the code **2222** with the help of the arrow arrow keys and then validate with the OK key. Press twice on left arrow to access the menus. In case of an operating error, press twice on the C key and restart the operation.

Once this step is completed, you will get access to the configuration menu where you will be able to modify the type of control **(NOTE: if you want to control the unit based on room temperature, selected the “Return air” control mode. All other choices will make the unit malfunction)** and the speed of the fan in % during the night cooling period.

Words written normally = view only / **Words in bold underlined** = Modification possible with password 3333. = not used or not accessible.



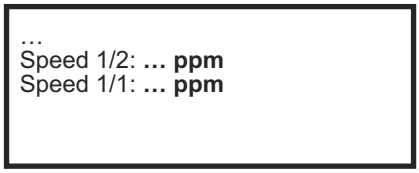
NOTE: Do not change parameters other than those shown in bold,

otherwise no After Sales Service can be included.

The CO2 set-points are pre-configured: Low speed = 500 ppm / High speed = 1000 ppm. The unit will increase to reach the highest set-point if the CO2 level is too high. If you want to change the set-point, move the cursor to the menu below.

Once in this menu, press the OK key

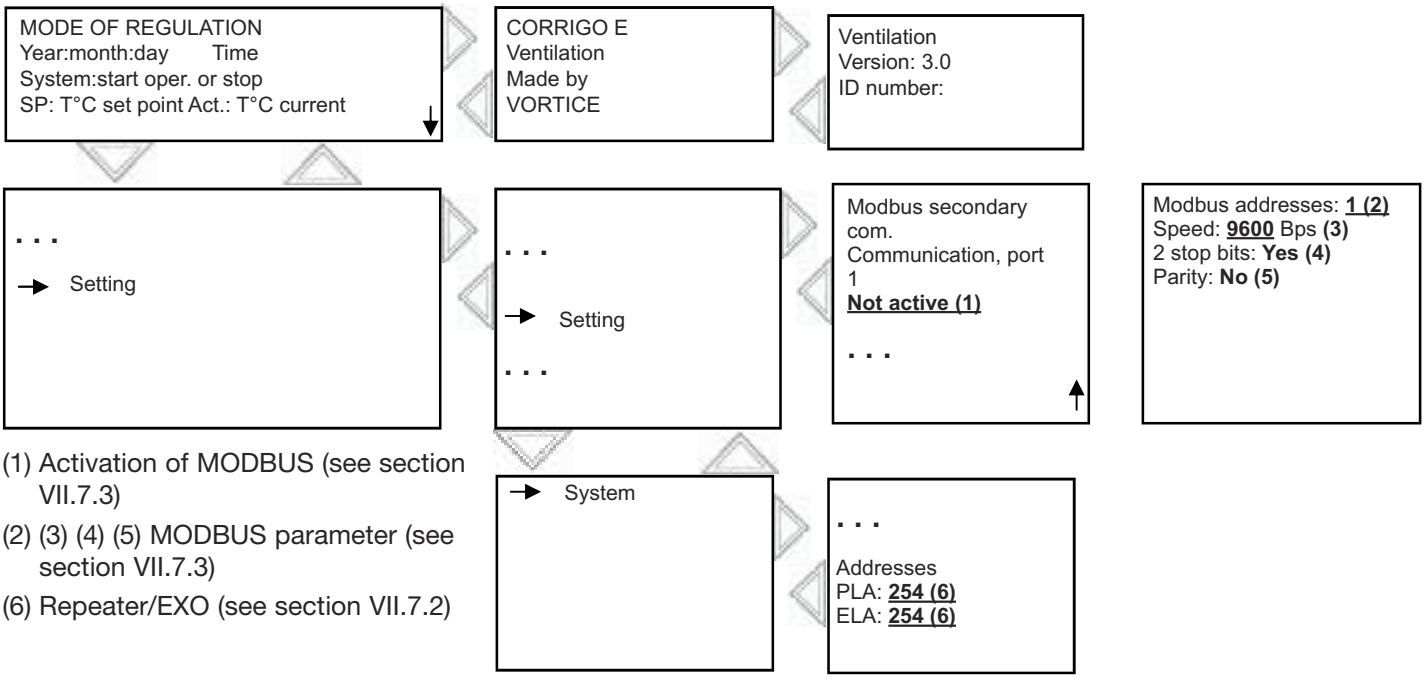
- Enter the desired value.
- Validate by pressing the OK key to go to the next field.
- Once all the modes are updated, press on the left arrow to return to the welcome screen.



VII.3.7 Tree structure of system menu

Words written normally = view only / **Words in bold** = Modification possible / **Words in bold underlined** = Modification possible with password 3333... = not used or not accessible.

NOTE: Do not change parameters other than those shown in bold, otherwise no After-Sales Service can be included.



(1) Activation of MODBUS (see section VII.7.3)

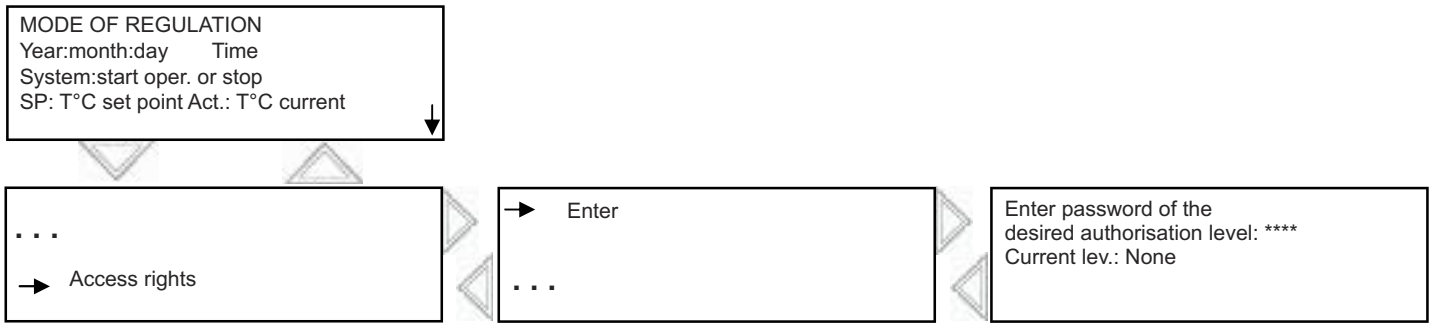
(2) (3) (4) (5) MODBUS parameter (see section VII.7.3)

(6) Repeater/EXO (see section VII.7.2)

VII.3.8 Modification of system parameters

VII.3.8.a Access to system level

These parameter settings require access to the Configuration menu. For this you should get the “System” level access rights. Follow the procedure set out below.



Enter the code **1111** with the help of the arrow arrow keys and then validate with the OK key. Press twice on left arrow to access the menus. In case of an operating error, press twice on the C key and restart the operation.

Once this step is completed, you will have access to the configuration menu where you will be able to enable the MODBUS and modify the PLA and ELA addresses

*VII.3.8.b Repeaters and EXO communication [**(6)** section VII.6] (**password 1111 required**)*

Access: Configuration/System

An instruction manual is delivered with each repeater. If you have several Corrigos connected to the same remote control (up to 6 CORRIGOS), you must change the PLA/ELA on each CORRIGO address. In this case, it will have a different address on each CORRIGO, and you need to enter the same address in the repeater. Follow the manual provided to set the addresses

in the CORRIGO.

*VII.3.8.c MODBUS communication via RS485 (CORRIGO standard) [**(1) (2) (3) (4) (5)** section VII.6] (**password 1111 required**)*

Access: Configuration/Communication

You need to activate MODBUS communication. You can change the address, parity, speed, etc. You will find the complete MODBUS variables list at the end of this document.

Select list ex 3.3 or higher depending your CORRIGO version

VII.3.8.d LON communication (in case of CORRIGO LON only) section VII.6

Activate LON communication as described below

In the menu Configuration/Communication/Function port 2 menu = activate port 2 in the extension unit.

Press the right arrow and activate it it in the CORRIGO E28 LON

To make a service PIN, press the back button on the controller

You will find the complete LON variables list at: http://www.regin.se.

Select list ex 3.3 or higher depending your CORRIGO version

VII.3.8.e WEB communication

It is possible to communicate via the WEB using TCP/IP. In this case the controller is delivered with the Internet page loaded and the controller is set to DHCP.

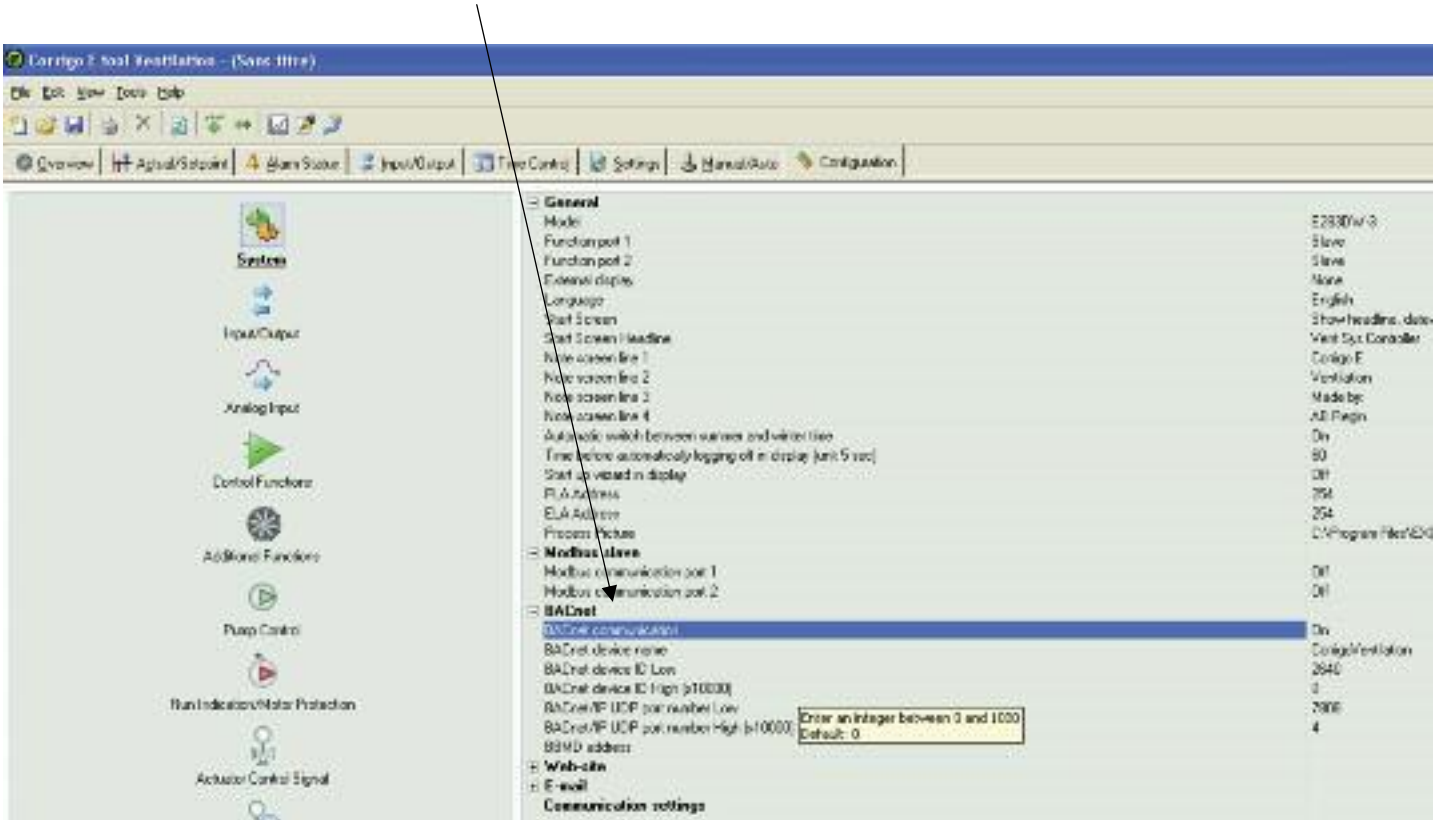
To set this parameter (fixed IP, name of controller…), download the appropriate E-tool software or the lightweight WEB configuration

software from: http://www.regin.se (download tab)

VII.3.8.f BACNET IP type B communication

To activate BACNET and change the parameters (fixed IP, name of controller…), download the appropriate E-tool software or the lightweight WEB configuration software from: http://www.regin.se (download tab)

You will find the complete WEB variables list at: http://www.regin.se.



VIII REPAIR

VIII.1 Various examples of faults

The EASY regulation of the VORT NRG EC units is equipped with alarms. When the red LED blinks, press on the alarm button (red) to display the fault.

Faults are classified into class A, B or C (see details below)

Type of fault:

A: The fault stops the ventilation system. The device does not start until the problem is solved and the fault is eliminated.

B: The fault does not stop the ventilation system. To clear the alarm, the fault must be eliminated. It remains in the the log but does not prevent the system from functioning.

C: The fault does not stop the ventilation system and disappears automatically as soon as the problem is resolved.

Description of fault	Cause
CORRIGO screen not lighting	Power supply to unit is incorrect (P/B LED of CORRIGO off) - To light screen, press on a key (back-lighting).
The fan(s) is/are not working	The clocks are at 0 or you have no external start order
Remote control is not working or is giving wrong values	Remote control wire not original (wire changed, shortened or extended) Repeater wrongly connected

Display	Description	Type	Time	Cause
Elec. coil overheat	The electric coil is overheating	A	0 sec	Safety thermostat triggered.
Battery weak	Internal battery error	A	0 sec	CORRIGO's internal battery is not working Quickly change the battery so as not to lose the schedule. See section VIII.2
High supply air temperature	The supply air temperature exceeded the temperature limit	B	10 sec	The supply air temperature exceeded 50°C The temperature set-point is too high
AN vent. fault	Supply air fan not working	A	30 sec (120sec for LOBBY MAC2 QUATTRO EC)	The pressure switch is wrongly connected (the pressure switch should be set to 30Pa). Motor not working The pressure read by the transmitter is less than 30Pa. (CARMA LOBBY, MAC2 and QUATTRO) (contact Vortice) The motor's thermal cut-out has triggered.
AR vent. fault	Return air fan not working	A	30 sec (120sec for LOBBY MAC2 QUATTRO)	The pressure switch is wrongly connected (the pressure switch should be set to 30Pa). Motor not working The pressure read by the transmitter is less than 30Pa. (LOBBY, MAC2 and QUATTRO) (contact Vortice) The motor's thermal cut-out has triggered.
External antifreeze protection	Antifreeze protection triggered	C	120 sec	Thermostat not set to 5°C Thermostat not working Circulation pump not working The 3-way valve is wrongly wired, wrongly connected hydraulically or is not working
Filter fouling	Filter fouling pressure switch	C	0 sec	The pressure switch is wrongly connected (the pressure switch is set to 200Pa). The filter is fouled.
VAS pressure error	Difference of more than 50Pa between the set-point and the pressure reading	C	30 min	The network does not match the fan selected or the pressure set-point. (LOBBY
VAR pressure error	Difference of more than 50Pa between the set-point and the pressure reading	C	30 min	The network does not match the fan selected or the pressure set-point. (LOBBY)

Display	Description	Type	Time	Cause
Outdoor temp. probe error	Outdoor temperature probe error	C	5 sec	The outdoor temperature probe SEG is not working or is wrongly wired (see section V)
AS temp. probe error	Supply air temperature probe error	C	5 sec	The supply air temperature probe SSG is not working or is wrongly wired (see section V)
AR temp. probe error	Return air temperature probe error	C	5 sec	The return air temperature probe SRG is not working or is wrongly wired (see section V)
Def. temp. probe error	Defrost temperature probe error	C	5 sec	The defrost temperature probe SDG is not working or is wrongly wired (see section V)
Supp. temp. regulator error	Defrost battery probe error	C	5 sec	The defrost battery probe SBD is not working or is wrongly wired (see section V) The resistor is not working or is wrongly wired
AS pressure probe error	AN pressure probe error	C	5 sec	The new air pressure transmitter is not working or wrongly wired
AR pressure probe error	AE pressure probe error	C	5 sec	The return air pressure transmitter is not working or wrongly wired
CO2 probe error	CO2 probe error	C	5 sec	The CO2 probe is not working or is wrongly wired
Manual mode	Ventilation in manual mode	C	0 sec	This is not a fault but an alert message, the unit is not in AUTO, see section VII.3.6
... Manual	Working in manual mode	C	0 sec	You have touched a wrong parameter in the MANUAL AUTO tab (everything should be in AUTO

NOTE: the first thing to check is that you do not have a “Manual” type fault

VIII.2 Changing the battery

This operation requires good knowledge of DES (electrostatic discharges and wearing a bracelet or any other earthing accessory)

When the “low battery” alarm appears and the red indicator lights up, this means that the emergency battery for memory and real-time clock back-up is too weak. The procedure for changing the battery is described below. The controller of the VORT NRG EC unit is fitted with a condenser to back-up the memory and to operate the clock for about 10 minutes after the current has been cut. If the battery change operation takes less than 10 minutes, there is no need to reload the schedule and the clock continues to function normally.

The spare battery is of CR2032 type.

Press on the clips on each side of the box with a small screwdriver to detach the base cover. Hold the base and remove the coverTake the battery and slowly pull upwards until the battery has left its housing.

Take a new battery and slide it into the housing. Take care to insert the battery in the correct direction to match with the polarity.

IX MAINTENANCE

- Outside of the unit:

  check the ducts, flexible bands and vibration dampers; replace if needed. Check that all the items linked to the unit are in

place so that no vibration can be transmitted to the external items.

- Unit and regulation:

  check the electrical connections every year.

- Filtration

  * do not damage the filtering media.

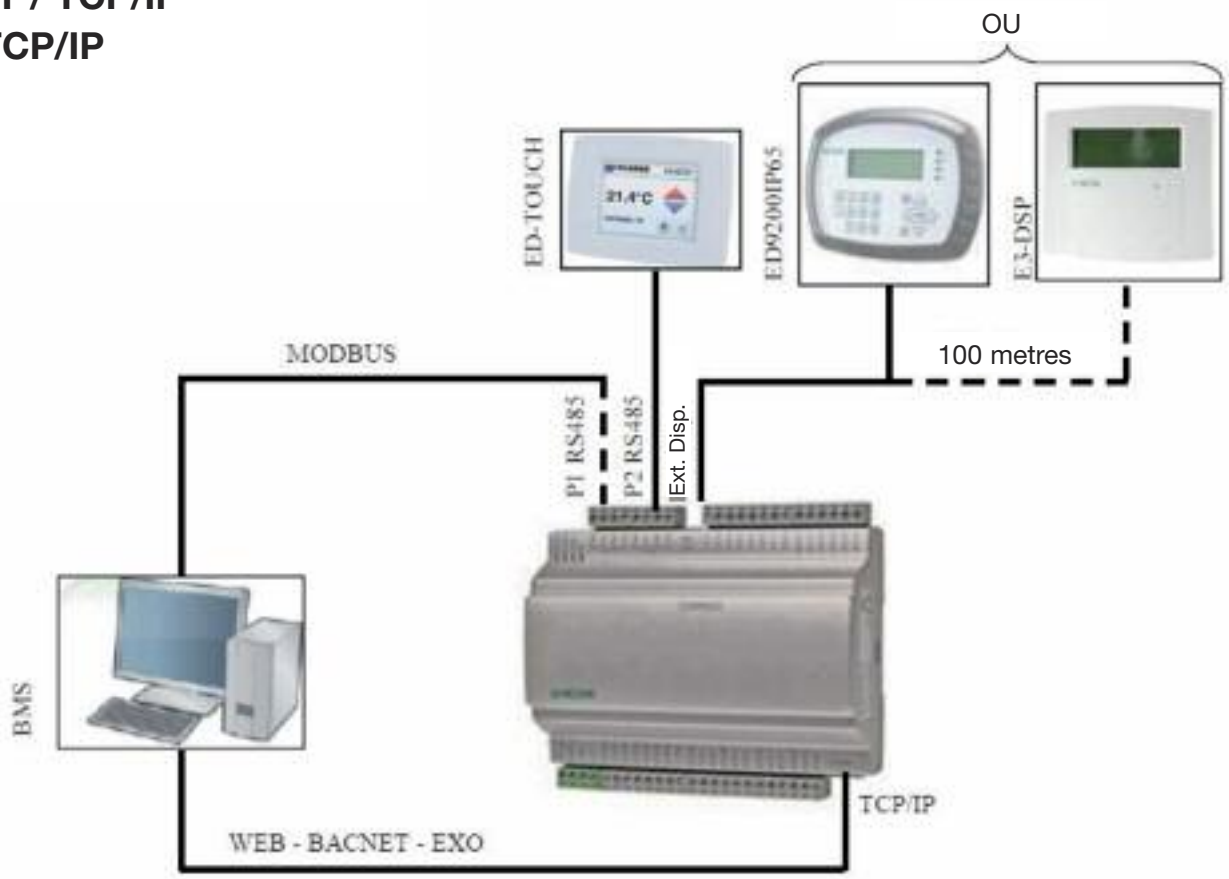
Classification	Filtration efficiency EUROVENT	Reference	Washing* (water + light detergent)	Suction* Blowing
Gravimetric	EU4	G4	Restricted (1 to 4 times)	YES
Opacimetric	EU7	F7	NO	

	Frequency of maintenance			
Display	**1 MONTH**	**3 MONTHS**	**6 MONTHS**	**12 MONTHS**
Filtration	Blowing (for G4 filters)	Cleaning (for G4 filters)	Cleaning (for G4 filters)	Replace filters if necessary

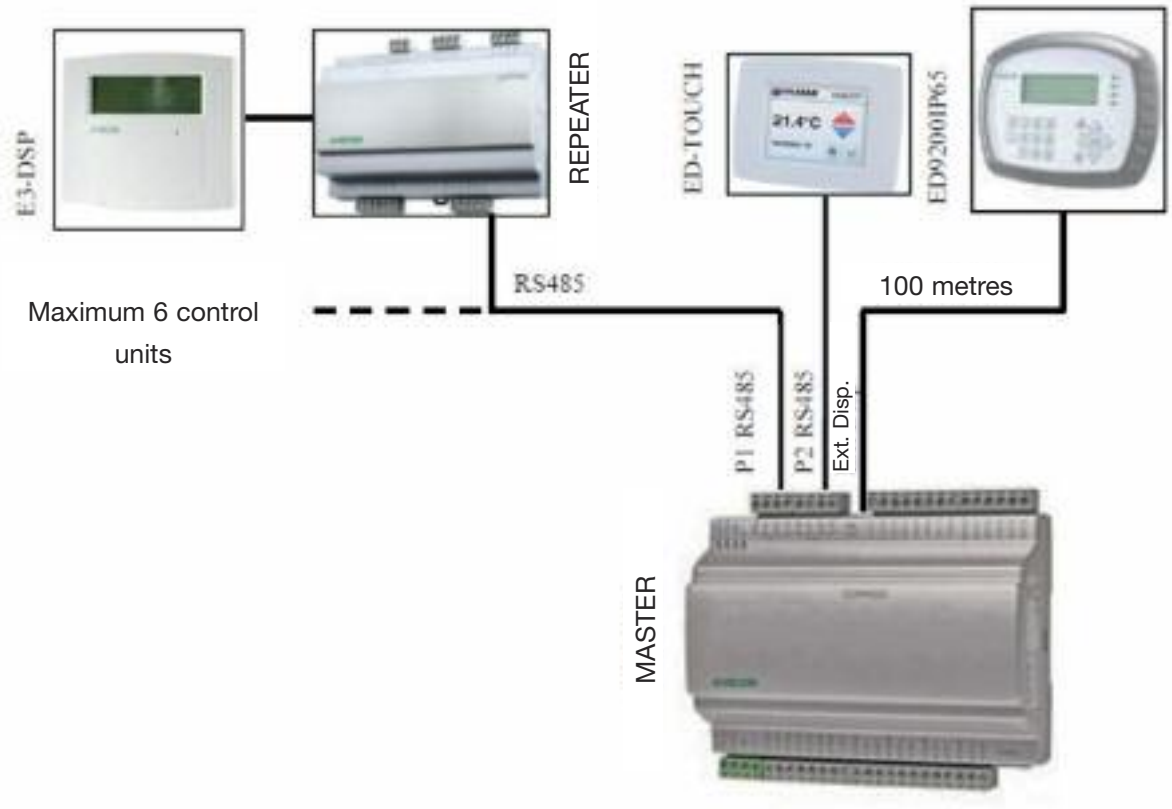
X NOTES, GRAPHS AND COMMUNICATION DIAGRAMS

Date	Observations

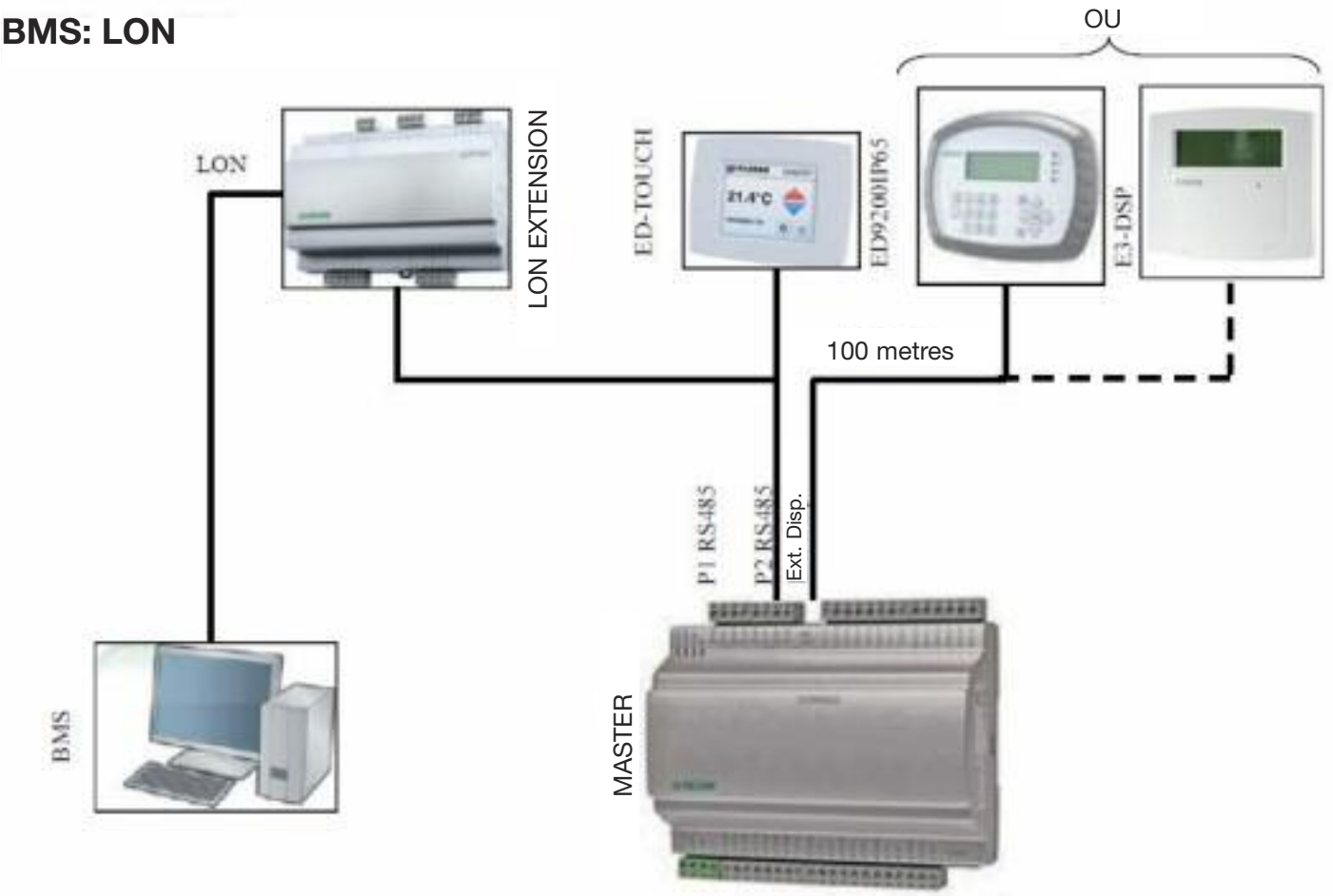
BMS: standard
- MODBUS / RS485
- WEB / TCP/IP
- BACNET / TCP/IP
- EXO / TCP/IP

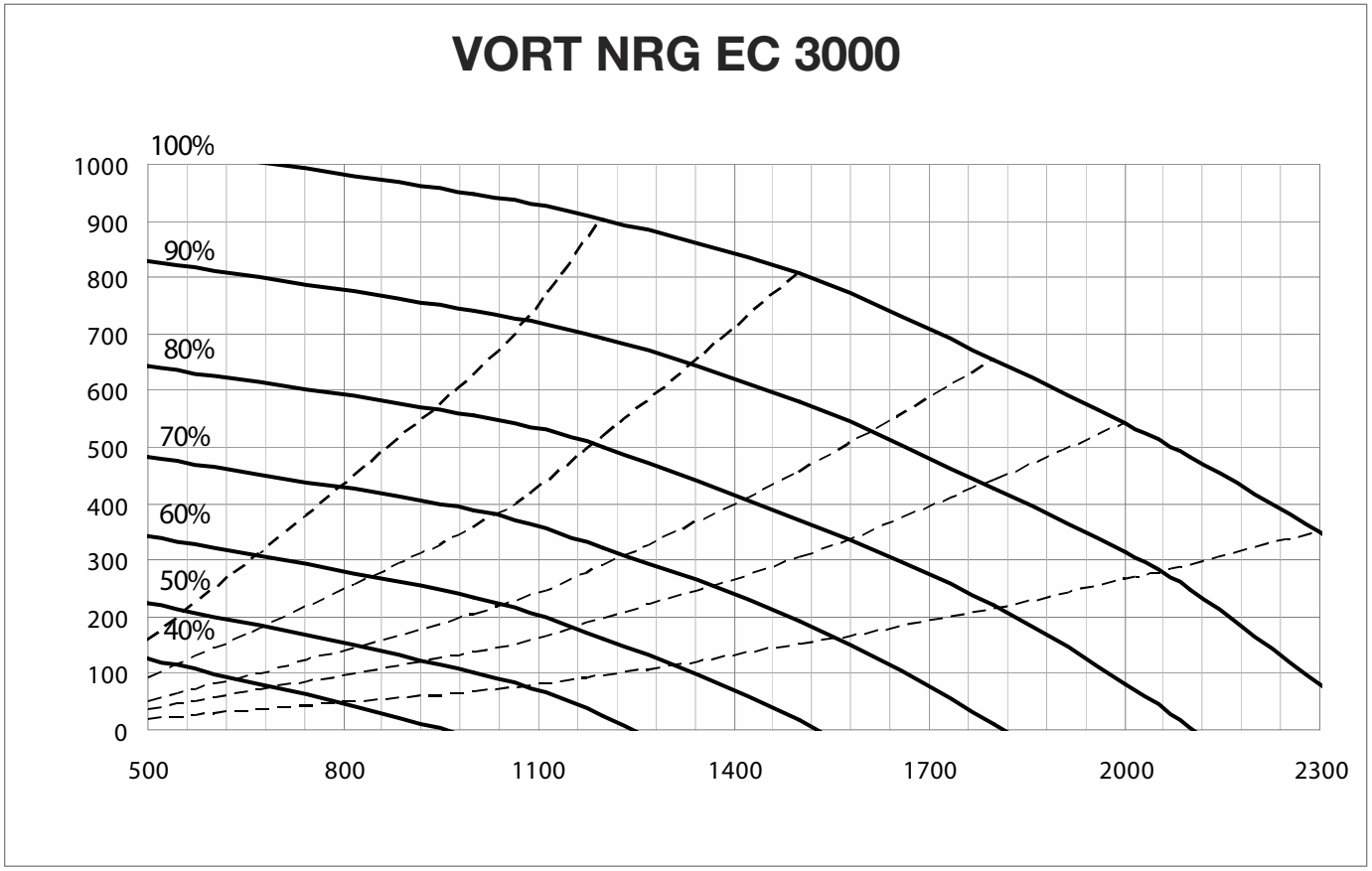


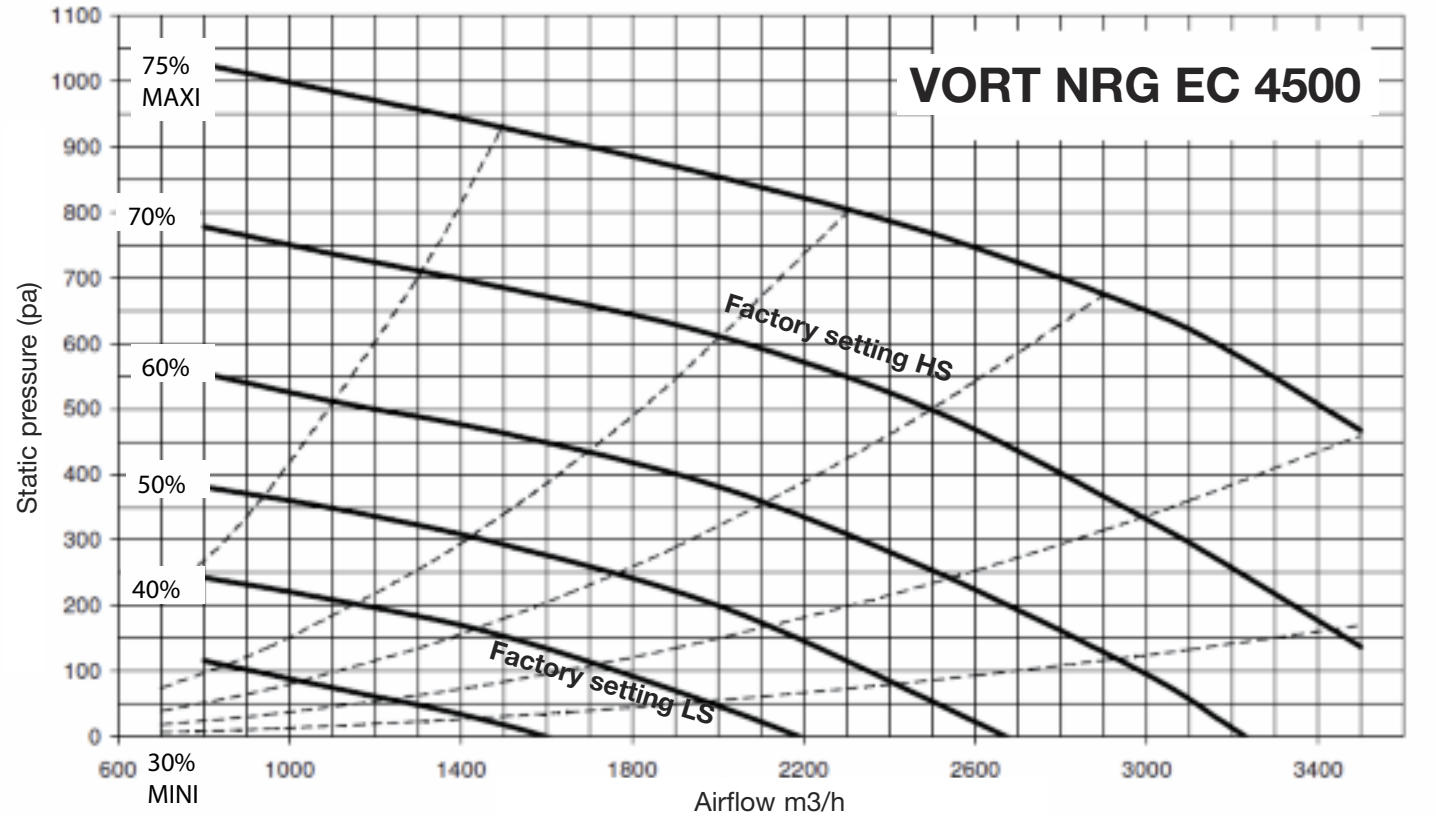
REPEATER / RS485



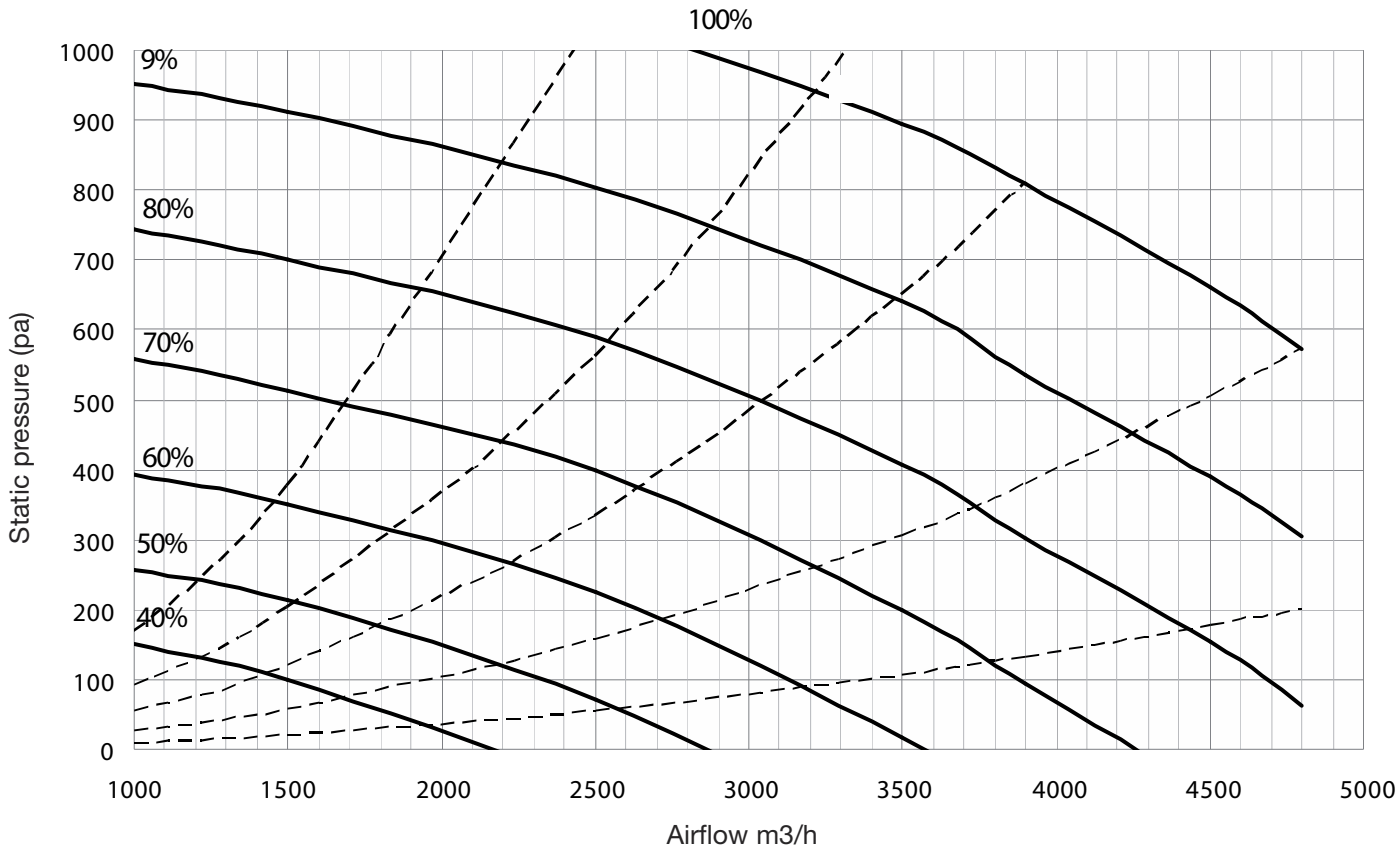
BMS: LON

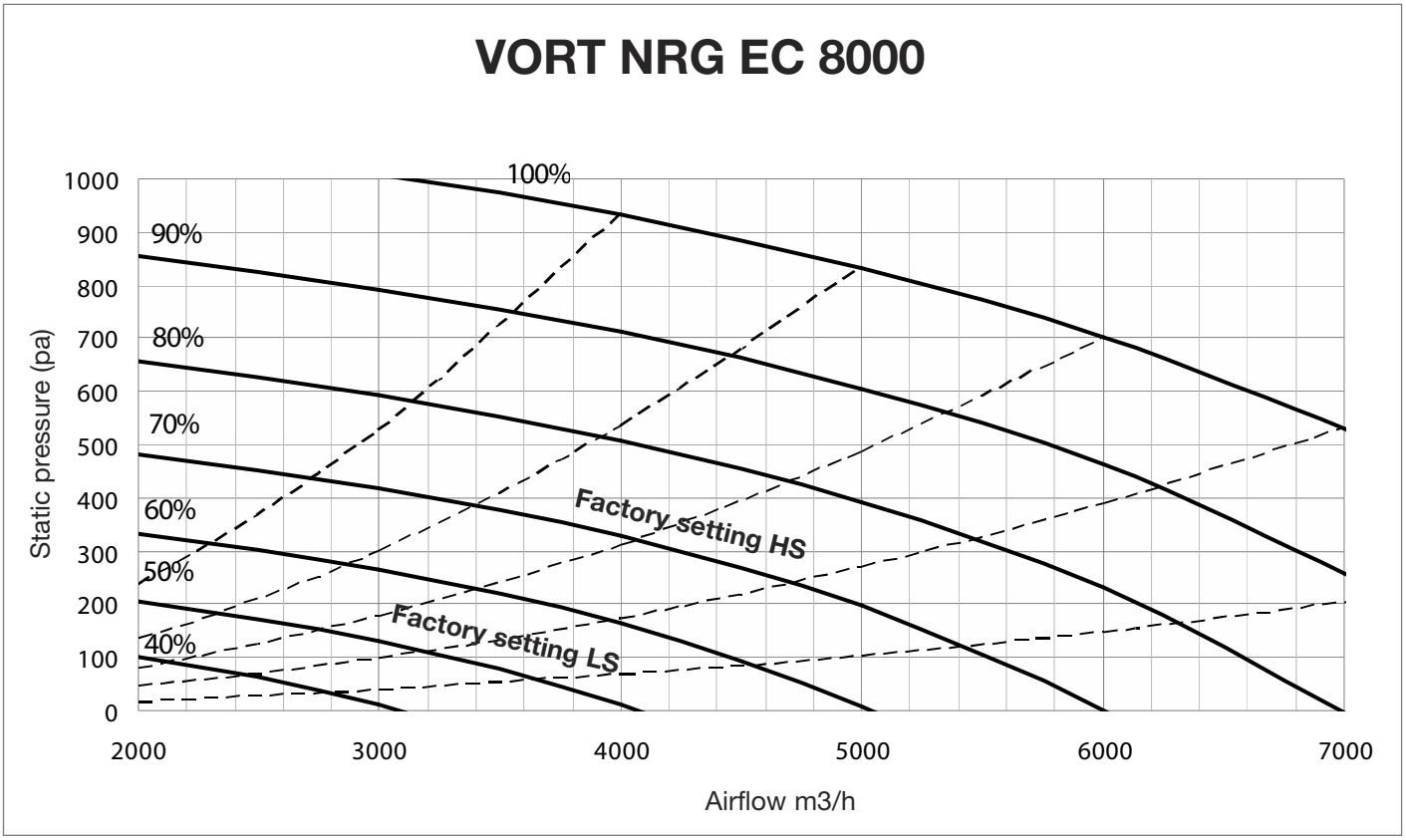

OU
LON
LON EXTENSION
ED-TOUCH
ED92001P65
E3-DSP
100 metres
P1 RS485
P2 RS485
Ext. Disp.
BMS
MASTER


VORT NRG EC 3000
100%
90%
80%
70%
60%
50%
40%
1000
900
800
700
600
500
400
300
200
100
0
500
800
1100
1400
1700
2000
2300


VORT NRG EC 4500
75%
MAXI
70%
60%
50%
40%
30%
MINI
Factory setting HS
Factory setting LS
Static pressure (pa)
Airflow m3/h
1100
1000
900
800
700
600
500
400
300
200
100
0
600
1000
1400
1800
2200
2600
3000
3400

VORT NRG EC 6000




VORT NRG EC 8000
100%
90%
80%
70%
60%
50%
40%
Factory setting HS
Factory setting LS
Static pressure (pa)
1000
900
800
700
600
500
400
300
200
100
0
2000
3000
4000
5000
6000
7000
Airflow m3/h

ENGLISH

Introduction

Corrigo E ventilation is a pre-programmed application for control of an air handling unit (CTA). The Corrigo E controller can be used either stand-alone or integrated in a EXO system. In both cases, it is configured via the display or by using the configuration tool E tool on a PC. This document describes all signals that are accessible via EXOline or Modbus. It does not describe how to create an EXO system.

Signal types

All signals accessible from a SCADA system are described in this document. Signals with a default value are settings that can be changed via a SCADA system. Signals without a default value are actual values which cannot be changed using a SCADA system.

EXOL type

EXOL type signals:
R = Real number with decimal digit (Real) (-3.3E3S - 3.3E38)
I = Integer number (Integer) (-32768 - 32767)
X = Index (0 - 255)
L = Boolean (Logic) (0/1)

Modbus type

Modbus type signals:
1 = Coil Status Register (Modbus function = 1.5 and 15)
2 = Coil Status Register (Modbus function = 2 and 15)
3 = Holding Register (Modbus function = 3, 6 and 16)
4 = Input Register (Modbus function = 4)

Supported Modbus functions :
1 = Read Coils
2 = Read Discrete Input
3 = Read Holding Register
4 = Read Input Register
5 = Write Single Coil
6 = Write Single Register
15= Write Multiple Colls
16= Write Multiple Registers

Max. 47 registers

A maximum of 47 registers can be read in one message.

Communication limitations

The Modbus master must wait for a minimum of 3.5 character times (4 ms at 9600 bps) between two messages. When the Modbus master is communicating with multiple Corrigo E controllers on the same communication line (RS485), it must wait at least 14 character times (16 ms at 9,600 bps) between the answer and the first query to the next controller.

The CORRIGO E controller has a limit of 10 rapid communications every 30 seconds, while the other communications have an answer delay of about 1 second.

Modbus Scale factor

Real number (decimal) signals have scale factor 10, except for the time setting signals which have scale factor 100, and air flow signals which have scale factor 1 for Modbus communication. Integer, Index and Logic signals always have scale factor 1.

Modbus activation

The Corrigo controller uses the same port for Modbus communication and EXOline communication. If communication with a device activated through Modbus is tried using the E tool or another type of EXOline communication, the port is automatically adjusted in about one second. The port remains in EXO mode until the line is idle for 10 seconds, then it returns to the Modbus mode.

Modbus connection

The Modbus protocol consists of several layers (OSI-model). The bottom layer is always the physical layer and includes the number of wires and signal layers. The next layer describes the communication digits (number of data bits, stop bits, parity bits, etc). Then there are the layers describing the Modbus-specific functions (number of digits per message, meaning of different messages, etc.).

For Modbus, the bottom layer can be RS485, RS422 or RS232.

RS485 against RS422

RS485 and RS422 are both the electric element and the physical support of the protocol.

The RS485 protocol is equipped with two connections, A and B. Very often, there is also a ground connection (N on EXO devices). The RS485 connection is as follows A -> A and B -> B. The RS485 protocol is called “half-duplex connection”: in fact the communication can take place only in one direction at a time, i.e. the master device sends a query and then waits for an answer. A and B are used both for transmission and for reception.

RS422 is a communication called “full-duplex connection” that requires the use of four wires, two for transmitting (Tx+ and Tx-) and two for receiving (Rx+ and Rx-). “Tx” means transmission and “Rx” reception, therefore the Tx of a machine must be connected to the Rx of the other machine and vice versa. In terms of signal layers RS422 and RS485 are identical.

To combine RS422 and RS485: On the RS422 unit, connect Tx+ with Rx+ and Tx- with Rx-, at this point it is necessary to convert a four-wire system into a two-wire system, in order to be able to connect them on A and B of the device with RS485. Often it takes several tries before finding the exact final connection. A polarity reversal results in the system not working, but it cannot damage the device.

```
Tx+ ---------1 ----------------------------------A (or B)
             |
Rx ----------|
Tx-----------1 ----------------------------------B (or A)
             |
Rx ----------|
```

Transmission speed, two stop bits and parity constitute the next layer.

These settings must match those of the master device. Review the master device settings and configure the controller in the same way.

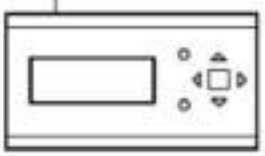
The parity can be set to odd, even (RU) or no parity. In the latter case, it is usually set on two stop bits, but it is not compulsory. If parity is set to “odd” or “even”, only one stop bit will be used to limit the total number of bits: 1 start bit, 8 data bits, 1 parity bit and a stop bit representing a total of 11 bits, which is the maximum.

Example

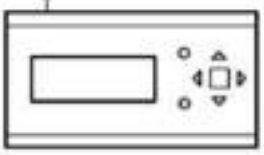
The following simplified example illustrates the master-slave relationship. In addition, a control sum used to validate the message is transmitted with the query and the answer.

Query:
“Reading from point x address on slave 2 address”

Answer:
“The slave 1 address contains the z value on the address of the required point”



Corrigo E
Slave Address: 1
Modbus/RTU 9600 baud
Parity: none 2 stop bit

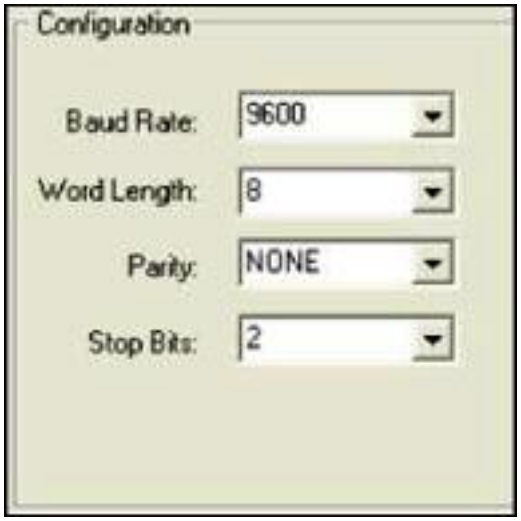


Corrigo E
Slave Address: 2
Modbus/RTU 9600 baud
Parity: none 2 stop bit

Configuration

The communication parameters for the Modbus line are the most important thing to configure first. As described earlier, these parameters must be identical in both the master unit and slave units, since they define the structure of messages and the transmission speed.

The default configuration values of a Corrigo E controller are shown in the figure below.



Corrigo E is set to Slave 1 address by default. If more devices are added, a new address can be set for each device using the Corrigo E display or E tool.

Transmission mode

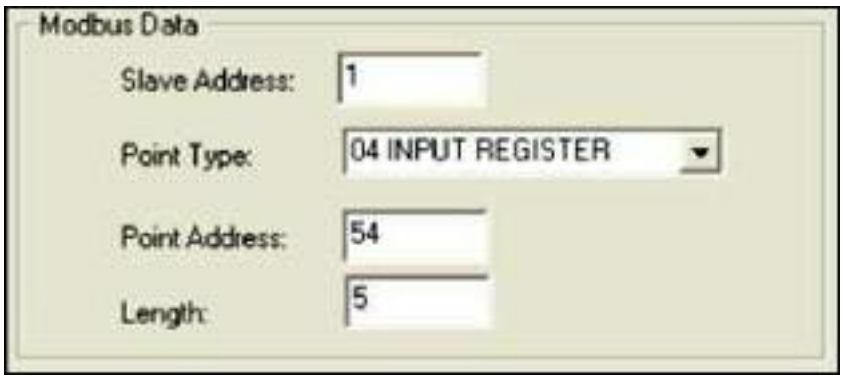
Corrigo E uses the RTU transmission mode; not to be confused with the ASCII mode. The settings for the transmission mode must be the same in the master unit and the slave units, since Modbus/RTU cannot understand Modbus/ASCII messages. The Word length configuration parameter is always 8 for Modbus/RTU.

Writing values

To override the Corrigo E output values, set the output to manual mode using a Modbus signal. Then set the ..._ManSet signal to the desired layer. These signals are listed in Chapter 5: Holding Registers Remember that only values with a default value are adjustable. The are described in the chapters Coil Status Register and Holding Register.

Reading values

An effective way to read values is to display multiple variables simultaneously. For example, to read all analogue outputs, set the Modbus query to the values shown in the figure below. The first analogue output variable starts at address 54 (QAnaOut.AQ1). To read address 54 to 58, set the length to 5. The Modbus answer will then communicate the 5 values in a single message, making the communication more effective.



XI INPUT REGISTER

Signal name	Exo type	Modbus address	Default value	Function	Description
VentActual. Cor_RunMode	X	3		Actual/Setpoint	0=stopped 1=starting up 2= reduced speed starting 3= full speed starting 4= normal speed starting 5= running 6= heating restart 7= cooling restart 8= C02 running 9= night cooling 10= full speed mode 11= stopping
VentActual. Cor_OutDoorAirTemp	R	1		Supply, Extraction, ambient	Outdoor temperature
V entActual. Cor_SAFRunTime	R	4		Actual/Setpoint	Blowing fan running time
VentActual. Cor_EAFRunTime	R	5		Actual/Setpoint	Recovery fan running time
V entActual. Cor_SupplyAirTemp	R	7		Supply, Extraction, ambient	Supply temperature
V entActual. Cor_ExhaustAirTemp	R	9		Supply, Extraction, ambient	Extraction temperature
VentActual. Cor_SAFPressure	R	13		SAF/EAF pressure and flow	New air pressure (LOBBY EC)
VentActual. Cor_EAFPressure	R	14		SAF/EAF pressure and flow	Recovery air pressure (LOBBY EC)
VentActual. Cor_SAFAirFlow	R	15		SAF/EAF pressure and flow	New air pressure (MAC2 QUATTRO EC)
VentActual. Cor_EAFAirFlow	R	16		SAF/EAF pressure and flow	Recovery air pressure (MAC2 QUATTRO EC)
V entActual. Cor_CO2 Sensor	R	17		CO2	CO2(ppm)
VentActual. Cor_DeIcingTemp	R	21		Emission, Defrost	Defrost temperature
VentActual. Cor_ExtraSensor	R	25		Additional probe	Defrost temperature (INFINITE)
QAnaOut.AQl	R	54		Analogue output	0-10 V Heating
QAnaOut.AQ2	R	55		Analogue output	0-10 V Exchanger
QAnaOut.AQ3	R	56		Analogue output	0-10 V Exchanger
QAnaOut.AQ4	R	57		Analogue output	0-10 V Supply
QAnaOut.AQ5	R	58		Analogue output	0-10V Recovery

XII HOLDING REGISTER

Signal name	Exo type	Modbus address	Default value	Function	Description
VentSetting.Cor_Curve1_Y 1	R	10	25°C	Supply, extract and room temperature	Supply setpoint for -20°C outdoor T°C
V entSetting. Cor_Curve 1 _Y 2	R	11	24°C	Supply, extract and room temperature	Supply setpoint for -15°C outdoor T°C
V entSetting. Cor_Curve 1 _Y 3	R	12	23°C	Supply, extract and room temperature	Supply setpoint for -10°C outdoor T°C
VentSetting.Cor_Curve1_Y 4	R	13	23°C	Supply, extract and room temperature	Supply setpoint for -5°C outdoor T°C
VentSetting.Cor_Curve1_Y 5	R	14	22°C	Supply, extract and room temperature	Supply setpoint for -0°C outdoor T°C
VentSetting.Cor_Curve1_Y 6	R	15	20°C	Supply, extract and room temperature	Supply setpoint for +5°C outdoor T°C
V entSetting. Cor_Curve 1 _Y 7	R	16	18°C	Supply, extract and room temperature	Supply setpoint for +10°C outdoor T°C
VentSetting.Cor_Curve1_Y 8	R	17	18°C	Supply, extract and room temperature	Supply setpoint for +15°C outdoor T°C
VentSetting.Cor_ExhaustSetpoint	R	18	21°C	Supply, extract and room temperature	Recovery reference value (if configured in recovery mode)
VentSetting.Cor_SAFFullspeedOutput	R	424	70%	SAF/EAF pressure and flow	GV supply speed setting
VentSetting.Cor_SAFHalfspeedOutput	R	425	50%	SAF/EAF pressure and flow	PV supply speed setting
VentSetting.Cor_EAFFullspeedOutput	R	426	70%	SAF/EAF pressure and flow	GV recovery speed setting
V entSetting. Cor_EAFHalfspeedOutput	R	427	50%	SAF/EAF pressure and flow	PV recovery speed setting
VentSetting.Cor_SAFHalfspeedPressure	R	25	180 Pa	SAF/EAF pressure and flow	Supply pressure setting (LOBBY EC)
VentSetting.Cor_EAFHalfspeedPressure	R	27	180 Pa	SAF/EAF pressure and flow	Recovery pressure setting (LOBBY EC)
VentSetting.Cor_SAFFullspeedAirFlow	R	28	2000m3/h	SAF/EAF pressure and flow	GV supply speed setting (MAC2 QUATTRO EC)
VentSetting.Cor_SAFHalfspeedAirFlow	R	29	1000m3/h	SAF/EAF pressure and flow	PV supply speed setting (MAC2 QUATTRO EC)
VentSetting.Cor_EAFFullspeedAirFlow	R	30	2000m3/h	SAF/EAF pressure and flow	GV recovery speed setting (MAC2 QUATTRO EC)
V entSetting. Cor_EAFHalfspeedAirFlow	R	31	1000m3/h	SAF/EAF pressure and flow	PV recovery speed setting (MAC2 QUATTRO EC)
V entSetting. Cor_CO2 setpoint	R	32	1000pp^{m}	CO2	CO2 reference value setting (DIVA QUATTRO EC)

Signal name	Exo type	Modbus address	Default value	Function	Description
TimeDp.Posts(0).T1	R	40	7	Timer Normal Speed	Start time period 1 MONDAY normal speed (HH.MM)
TimeDp.Posts(0).T2	R	41	16	Timer Normal Speed	Stop time period 1 MONDAY normal speed (HH.MM)
TimeDp.Posts(0).T3	R	42	0	Timer Normal Speed	Start time period 2 MONDAY normal speed (HH.MM)
TimeDp.Posts(0).T4	R	43	0	Timer Normal Speed	Stop time period 2 MONDAY normal speed (HH.MM)
TimeDp.Posts(1).T1	R	44	7	Timer Normal Speed	Start time period 1 TUESDAY normal speed (HH.MM)
TimeDp.Posts(1).T2	R	45	16	Timer Normal Speed	Stop time period 1 TUESDAY normal speed (HH.MM)
TimeDp.Posts(1).T3	R	46	0	Timer Normal Speed	Start time period 2 TUESDAY normal speed (HH.MM)
TimeDp.Posts(1).T4	R	47	0	Timer Normal Speed	Stop time period 2 TUESDAY normal speed (HH.MM)
TimeDp.Posts(2).T1	R	48	7	Timer Normal Speed	Start time period 1 WEDNESDAY normal speed (HH.MM)
TimeDp.Posts(2).T2	R	49	16	Timer Normal Speed	Stop time period 1 WEDNESDAY normal speed (HH.MM)
TimeDp.Posts(2).T3	R	50	0	Timer Normal Speed	Start time period 2 WEDNESDAY normal speed (HH.MM)
TimeDp.Posts(2).T4	R	51	0	Timer Normal Speed	Stop time period 2 WEDNESDAY normal speed (HH.MM)
TimeDp.Posts(3).T1	R	52	7	Timer Normal Speed	Start time period 1 THURSDAY normal speed (HH.MM)
TimeDp.Posts(3).T2	R	53	16	Timer Normal Speed	Stop time period 1 THURSDAY normal speed (HH.MM)
TimeDp.Posts(3).T3	R	54	0	Timer Normal Speed	Start time period 2 THURSDAY normal speed (HH.MM)
TimeDp.Posts(3).T4	R	55	0	Timer Normal Speed	Stop time period 2 THURSDAY normal speed (HH.MM)
TimeDp.Posts(4).T1	R	56	7	Timer Normal Speed	Start time period 1 FRIDAY normal speed (HH.MM)
TimeDp.Posts(4).T2	R	57	16	Timer Normal Speed	Stop time period 1 FRIDAY normal speed (HH.MM)
TimeDp.Posts(4).T3	R	58	0	Timer Normal Speed	Start time period 2 FRIDAY normal speed (HH.MM)
TimeDp.Posts(4).T4	R	59	0	Timer Normal Speed	Stop time period 2 FRIDAY normal speed (HH.MM)
TimeDp.Posts(5).T1	R	60	7	Timer Normal Speed	Start time period 1 SATURDAY normal speed (HH.MM)
TimeDp.Posts(5).T2	R	61	16	Timer Normal Speed	Stop time period 1 SATURDAY normal speed (HH.MM)

Signal name	Exo type	Modbus address	Default value	Function	Description
TimeDp.Posts(5).T3	R	62	0	Timer Normal Speed	Start time period 1 SATURDAY normal speed (HH.MM)
TimeDp.Posts(5).T4	R	63	0	Timer Normal Speed	Stop time period 1 SATURDAY normal speed (HH.MM)
TimeDp.Posts(6).T1	R	64	7	Timer Normal Speed	Start time period 1 SUNDAY normal speed (HH.MM)
TimeDp.Posts(6).T2	R	65	16	Timer Normal Speed	Stop time period 1 SUNDAY normal speed (HH.MM)
TimeDp.Posts(6).T3	R	66	0	Timer Normal Speed	Start time period 2 SUNDAY normal speed (HH.MM)
TimeDp.Posts(6).T4	R	67	0	Timer Normal Speed	Stop time period 2 SUNDAY normal speed (HH.MM)
TimeDp.Posts(7).T1	R	68	7	Timer Normal Speed	Start time period 1 HOLIDAY normal speed (HH.MM)
TimeDp.Posts(7).T2	R	69	16	Timer Normal Speed	Stop time period 1 HOLIDAY normal speed (HH.MM)
TimeDp.Posts(7).T3	R	70	0	Timer Normal Speed	Start time period 2 HOLIDAY normal speed (HH.MM)
TimeDp.Posts(7).T4	R	71	0	Timer Normal Speed	Stop time period 2 HOLIDAY normal speed (HH.MM)
TimeDp.Posts(8).T1	R	72	7	Timer Reduced Speed	Start time period 1 MONDAY reduced speed (HH.MM)
TimeDp.Posts(8).T2	R	73	16	Timer Reduced Speed	Stop time period 1 MONDAY reduced speed (HH.MM)
TimeDp.Posts(8).T3	R	74	0	Timer Reduced Speed	Start time period 2 MONDAY reduced speed (HH.MM)
TimeDp.Posts(8).T4	R	75	0	Timer Reduced Speed	Stop time period 2 MONDAY reduced speed (HH.MM)
TimeDp.Posts(9).T1	R	76	7	Timer Reduced Speed	Start time period 1 TUESDAY reduced speed (HH.MM)
TimeDp.Posts(9).T2	R	77	16	Timer Reduced Speed	Stop time period 1 TUESDAY reduced speed (HH.MM)
TimeDp.Posts(9).T3	R	78	0	Timer Reduced Speed	Start time period 2 TUESDAY reduced speed (HH.MM)
TimeDp.Posts(9).T4	R	79	0	Timer Reduced Speed	Stop time period 2 TUESDAY reduced speed (HH.MM)
TimeDp.Posts(10).T1	R	80	7	Timer Reduced Speed	Start time period 1 WEDNESDAY reduced speed (HH.MM)
TimeDp.Posts(10).T2	R	81	16	Timer Reduced Speed	Stop time period 1 WEDNESDAY reduced speed (HH.MM)
TimeDp.Posts(10).T3	R	82	0	Timer Reduced Speed	Start time period 2 WEDNESDAY reduced speed (HH.MM)
TimeDp.Posts(10).T4	R	83	0	Timer Reduced Speed	Stop time period 2 WEDNESDAY reduced speed (HH.MM)

XIII INPUT STATUS REGISTER

Signal name	Exo type	Modbus address	Default value	Function	Description
QDig.DI1	L	14		Digital input	Si 1 = The supply pressure switch indicates the fan operation
QDig.DI2	L	15		Digital input	Si 1 = The recovery pressure switch indicates the fan operation
QDig.DI3	L	16		Digital input	Si 1 = dirty filter
QDig.DI4	L	17		Digital input	Si 0 = electric battery overheating or antifreeze failure
QDig.DI5	L	18		Digital input	Si 1 = GV forced running with dry contact
QDig.DI6	L	18		Digital input	Si 1 = GV forced running with dry contact
QDig.Dq1	L	26		Digital output	Si 1 = Supply running mode
QDig.Dq2	L	27		Digital output	Si 1 = Recovery running mode
QDig.Dq3	L	28		Digital output	Si 1 = Fresh air register running mode
QDig.Dq4	L	29		Digital output	Si 1 = Recovery air register running mode
QDig.Dq5	L	30		Digital output	Si 1 = Alarm Indication
QDig.Dq6	L	31		Digital output	Si 1 = Defrost battery running mode
QDig.Dq7	L	32		Digital output	Si 1 = Night cooling running mode (LOBBY EC)
V entAtcual. Cor_AlaPt(1)	L	33		Alarm point	Supply fan error 0 = No alarm
VentAtcual. Cor_AlaPt(2)	L	34		Alarm point	Recovery fan error 0 = No alarm
VentAtcual. Cor_AlaPt(6)	L	38		Alarm point	Filter fouling 0 = No alarm
VentAtcual. Cor_AlaPt(8)	L	40		Alarm point	Antifreeze failure 0 = No alarm
VentAtcual. Cor_AlaPt(23)	L	55		Alarm point	Electric battery overheating failure 0 = No alarm
VentAtcual. Cor_AlaPt(35)	L	67		Alarm point	Ventilation in manual mode 0 = No alarm
VentAtcual. Cor_AlaPt(3 6)	L	68		Alarm point	Supply control in manual mode 0 = No alarm
VentAtcual. Cor_AlaPt(3 8)	L	70		Alarm point	Supply fan control in manual mode 0 = No alarm
VentAtcual. Cor_AlaPt(40)	L	72		Alarm point	Recovery fan control in manual mode 0 = No alarm

Signal name	Exo type	Modbus address	Default value	Function	Description
VentAtcual. Cor_AlaPt(41)	L	73		Alarm point	Heating control in manual mode 0 = No alarm
VentAtcual. Cor_AlaPt(42)	L	74		Alarm point	Cooling control in manual mode 0 = No alarm
VentAtcual. Cor_AlaPt(43)	L	75		Alarm point	Exchanger control in manual mode 0 = No alarm
VentAtcual. Cor_AlaPt(48)	L	80		Alarm point	Internal battery error 0 = No alarm
VentAtcual. Cor_AlaPt(49)	L	90		Alarm point	Supply probe error 0 = No alarm
VentAtcual. Cor_AlaPt(5 0)	L	91		Alarm point	Recovery probe error 0 = No alarm
VentAtcual. Cor_AlaPt(5 4)	L	95		Alarm point	Defrost probe error (INFINITE) 0 = No alarm
VentAtcual. Cor_AlaPt(5 5)	L	96		Alarm point	Supply pressure transmitter error (LOBBY MAC2 QUATTRO)0= No alarm
VentAtcual. Cor_AlaPt(5 6)	L	97		Alarm point	Recovery pressure transmitter error (LOBBY MAC2 QUATTRO)0= No alarm
VentAtcual. Cor_AlaPt(5 7)	L	98		Alarm point	Defrost probe error 0 = No alarm
entAtcual. Cor_AlaPt(5 9)	L	100		Alarm point	CO2 probe error (DIVA QUATTRO EC) 0 = No alarm
VentAtcual. Cor_AlaPt(62)	L	103		Alarm point	CO2 probe error (DIVA QUATTRO EC) 0 = No alarm

A

TAGLIANDO INTERVENTO IN GARANZIA
CERTIFICATE OF WORK PERFORMED UNDER GUARANTEE
COUPON INTERVENTION SOUS GARANTIE

DATA INTERVENTO
DATE OF WORK - DATE INTERVENTION

TIMBRO CENTRO ASSISTENZA
STAMP OF TECHNICAL ASSISTANCE CENTRE - CACHET SERVICE APRES-VENTE

B

TAGLIANDO INTERVENTO IN GARANZIA
CERTIFICATE OF WORK PERFORMED UNDER GUARANTEE
COUPON INTERVENTION SOUS GARANTIE

DATA INTERVENTO
DATE OF WORK - DATE INTERVENTION

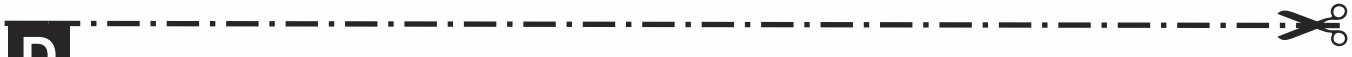
TIMBRO CENTRO ASSISTENZA
STAMP OF TECHNICAL ASSISTANCE CENTRE - CACHET SERVICE APRES-VENTE

C

TAGLIANDO INTERVENTO IN GARANZIA
CERTIFICATE OF WORK PERFORMED UNDER GUARANTEE
COUPON INTERVENTION SOUS GARANTIE

DATA INTERVENTO
DATE OF WORK - DATE INTERVENTION

TIMBRO CENTRO ASSISTENZA
STAMP OF TECHNICAL ASSISTANCE CENTRE - CACHET SERVICE APRES-VENTE



D

TAGLIANDO INTERVENTO IN GARANZIA
CERTIFICATE OF WORK PERFORMED UNDER GUARANTEE
COUPON INTERVENTION SOUS GARANTIE

DATA INTERVENTO
DATE OF WORK - DATE INTERVENTION

TIMBRO CENTRO ASSISTENZA
STAMP OF TECHNICAL ASSISTANCE CENTRE - CACHET SERVICE APRES-VENTE

ITALIA
CONDIZIONI DI GARANZIA

VORTICE SPA garantisce i suoi prodotti per 24 mesi dalla data dell'acquisto che deve essere comprovata da idoneo documento fiscale (scontrino o fattura) rilasciato dal venditore. Nel suddetto periodo di garanzia VORTICE SPA si
impegna, dopo aver effettuato le opportune valutazioni tecniche, a riparare o a sostituire, gratuitamente, le parti dell'apparecchio che risultassero affette da difetti di fabbricazione. La presente garanzia, da attivare nei modi e nei termini di seguito indicati, lascia impregiudicati i diritti derivanti al consumatore dalla applicazione del D. lgs. 24/2002.Tali diritti, conformemente alla legge, potranno essere fatti valere esclusivamente nei confronti del proprio venditore. La presente garanzia è valida su tutto il territorio italiano.

Modalità e condizioni di attivazione della garanzia

Gli interventi in garanzia (riparazioni o sostituzioni del prodotto ovvero delle parti difettose) saranno eseguiti presso uno dei Centri di Assistenza Tecnica autorizzati da VORTICE il cui indirizzo è disponibile sull'elenco telefonico alfabetico o contattando il **numero verde 800.555.777**. La prestazione eseguita in garanzia non prolunga il periodo della garanzia. Pertanto, incaso di sostituzione del prodotto o di un suo componente, sul bene o sul singolo componente fornito in sostituzione non decorre un nuovo periodo di garanzia ma si deve tener conto della data di acquisto del prodotto originario.

UK AND IRELAND
CONDITIONS OF WARRANTY

This guarantee is offered as an extra benefit and does not affect your legal rights. All electrical appliances produced by Vortice are guaranteed by the Company for **two years** against faulty material or workmanship.
If any part is found to be defective in this way within the first twenty months four from the date of purchase or hire purchase agreement, we or our authorised service agents, will replace or at our option repair that part without any charge for materials or labour or transportation, provided that the
appliance has been used only in accordance with the instructions provided with each appliance and has been not connected to an unsuitable electricity supply, or subjected to misuse, neglect or damage or modified or repaired by any person not authorised by us.The correct electricity supply voltage is shown on the rating plate attached to the appliance.
This guarantee is normally available only to the original purchaser of the appliance, but the Company will consider written applications for transfer.
Should any defect arise in any Vortice product anda claim under guarantee become necessary, the appliance should be carefully packed and returned to your approved Vortice stockist.This portion of the guarantee should be attached to the appliance.

FRANCE
CONDITIONS DE GARANTIE

Votre appareil est couvert par notre garantie à condition qu'il ne soit pas utilisé à des fins autres que celles définies dans nos fiches techniques.
Il est garanti pendant deux ans pour l'ensemble des pièces qui le compose, contre tout vice de fabrication ou défaut de matiére,
et ce, dès la date de la première mise en service Cette garantie s'applique au remplacement gratuit ou à la réparation sans frais des pièces reconnues défectueuses par nos services; elle ne peut, en aucun cas, donner lieu à des dommages et intèréts.
Les frais de transport restant à la charge de l'utilisateur, et le material voyage à ses risques et perils.

La garantie sera sans effet si:

- L'appareil a subi un démontage, un remplacement, de piéce ou une réparation hors de nos ateliers.
- S'il a été survolté.
- S'il a été utilisé dans une atmosphére corrosive.
- S'il a été deterioré ou brisé par accident (choc ou chute....) ou même pendant le transport (le transporteur est seul responsable).
- La garantie ne s'applique pas sur les pieces à durée de vie limitée, (filtre charbon, charbon pour collecteur etc....)

En cas de panne. N'écrivez pas, mais retournez directement l'appareil soigneusement emballé à notre service après vente voir coordonnées sur www.vortice-france.com ou au 01.55.1250.00.
Joindre à l'envoi: le présent certificat de garantie validé par le vendeur, accompagné d'une note explicative succinte.

ITALIA

Spedire la garanzia in busta chiusa a:
Vortice Elettrosociali S.p.A.
Strada Cerca 2
Frazione di Zoate
20067 Tribiano Milano

☐ Autorizzo la Vortice Elettrosociali S.p.A. adinserire i miei dati nelle sue liste e a comunicarli a terzi per l'invio di materiale pubblicitario ed informativo. In ogni momento, a norma dell'art. 13 legge 675/96, potrò avere accesso ai miei dati, chiederne la modifica o la cancellazione oppure oppormi al loro utilizzo scrivendo a Vortice Elettrosociali S.p.A. Responsabile trattamento dati - Strada Cerca, 2 - Frazione di Zoate - 20067 Tribiano (MI).

☐ Non autorizzo (barrare se interessa).

UK-IRELAND

Send the guarantee
in sealed envelope to:
Vortice Limited
Beeches House
Eastern Avenue
Burton on Trent
DE13 0BB United Kingdom

☐ I authorize Vortice Ltd. to include my personal details within their database, which they use, via a third party for the despatch of advertising material, at any time, in accordance with the regulations in force within my country.
I can have access to my details and can request changes, or prohibit the usage of my details.This will be done by addressing my request directly to Vortice Limited Beeches House Eastern Avenue Burton on Trent DE13 0BB United Kingdom.

☐ I do not authorize (please tick if required).

FRANCE

Expédier la garantie sous enveloppe cachetée a:
Vortice France
15-33, Rue Le Corbusier Europarc - CS 30007
90046 CRETEIL CEDEX

☐ Conformément à la loi informatique et liberté art. 27 du 27/01/78, vous disposez d'un droit d'accés et de rectification des donné es vous concernant auprès de Vortice France - 72, Rue Baratte - Cholet-94106 Saint Maur Cedex.
Par notre intermédiaire, votre adresse pourra être transmise à des tiers.

☐ Sauf opposition de votre part (auquel cas cochez la case ci dessus).

OTHER COUNTRIES

Please send the guarantee to the retailer's address in the country where the appliance has been purchased.

☐ I authorize Vortice Elettrosociali S.p.A. and its local distributors to include my personal details within their database and they can use it through a third party for the despatch of advertising material. At any time, in accordance with the regulations in force within my country. I can have access to details and can ask to make changes, or prohibit the usage of my details.This will be done by addressing my request directly to the headquarters of the local distributor where the appliance has been bought.

☐ I do not authorize (please tick if required).

1 **GARANZIA - GUARANTEE - GARANTIE**

DA CONSERVARE

TO BE RETAINED
A CONSERVER

Per poter usufruire della garanzia il cliente deve compilare e rispedire alla VORTICE SPA, entro 8 giorni dall'acquisto, la "**Parte 2**" del tagliando di garanzia, all'indirizzo e con le modalità in tale parte riportate.
La "**Parte 1**" del tagliando di garanzia deve essere conservata e presentata, unitamente al documento fiscale (scontrino o fattura) rilasciato dal venditore al momento dell'acquisto, al Centro di Assistenza autorizzato VORTICE che dovrà eseguire l'intervento in garanzia.

This warranty must be attached to the appliance should it need to be returned for servicing.
N.B. Guarantee is only valid if all details are completed correctly.

ATTENTION: pour bénéficier de la garantie, le présent certificat doit obligatoirement accompagner l'appareil présumé défectueux. Le certificat doit porter le cachet du revendeur et la date d'achat.
A defaut, la garantie sera comptée à partir de la date de sortie d'usine.

VORTICE 2 ANNI YEARS

DATA
DATA - DATE

Esclusioni
La presente garanzia non copre:
• Le rotture provocate dal trasporto.
• I difetti o guasti derivanti da uso non corretto o improprio da parte del cliente.
• I difetti derivanti dal mancato rispetto delle avvertenze e condizioni d'uso indicate nel libretto di istruzioni ed uso allegato al prodotto.
• I difetti derivanti da non corretta installazione ovvero da una installazione effettuata senza rispettare quanto previsto nel relativo capitolo del libretto di istruzioni ed uso.
• I guasti derivanti da un errato allacciamento alla rete di alimentazione elettrica o per tensione di alimentazione diversa da quella prevista per l'apparecchio, ovvero diversa dal limite stabilito dalle norme CEI (+/- 10% del valore nominale).
La presente garanzia non copre, inoltre, gli eventuali difetti derivanti da una cattiva manutenzione ovvero da interventi effettuati da personale non qualificato o da terzi non autorizzati.

TIMBRO RIVENDITORE
stamp of supplier
cacher du vendeur

SPEDITO IL
MAILING DATE - ENVOYÉ PAR LA POSTE LE

CONF.

COLL.

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2 **GARANZIA - GUARANTEE - GARANTIE**

DA SPEDIRE (entro 8 giorni dall'acquisto)

TO SEND (within 8 days from date of purchase)
A RETOURNER (dans les 8 jours après l'achat)

TIMBRO RIVENDITORE
stamp of supplier
cacher du vendeur

VORTICE 2 ANNI YEARS

DATA
DATA - DATE

DATI UTENTE / CUSTOMER DATA / COORDONNÉES DE L'UTILISATEUR

nome / name / nom _____
cognome / surname / prenom _____
via / street / rue _____
cap / post code / code postal _____
città / town _____

Dichiaro di aver preso atto delle condizioni di garanzia specificate sul certificato in mio possesso e autorizzo la gestione dei miei dati personali (v. retro).
I have read and understood the terms and conditions of this guarantee and I authorise the processing of my personal details (see overleaf).
Suivant les conditions de garantie définies par le certificat en ma possession j'autorise l'utilisation de mes coordonnées (voir au verso).

firma / signature / signature _____

SPEDITO IL
MAILING DATE - ENVOYÉ PAR LA POSTE LE

ACQUISTATO IL
DATE OF PURCHESE - DATE DE L'ACHAT