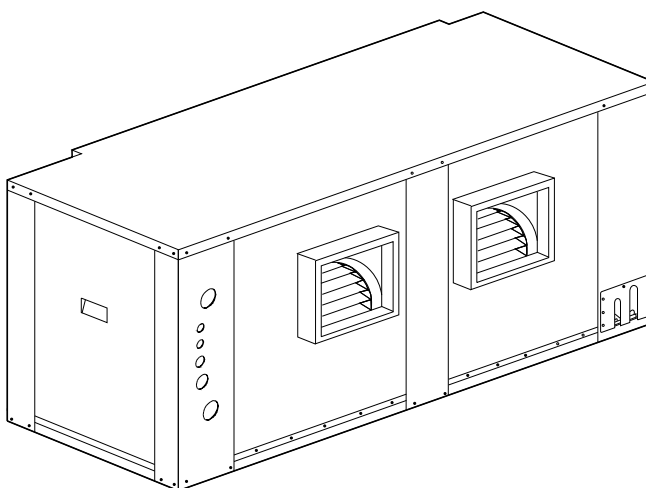




BY JOHNSON CONTROLS

Economiser for VIR - 25A to 90A



Accessory, Installation manual

Ref.: N-40306_EN 0411



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1

Economiser for VIR - 25A to 90A

1.1 General information

These instructions provide all the necessary information for correct on-site installation of the economiser dampers.

The economiser is located in the return section of the VIR indoor unit.

The control board, the cables and all the material for the installation are supplied with this accessory.

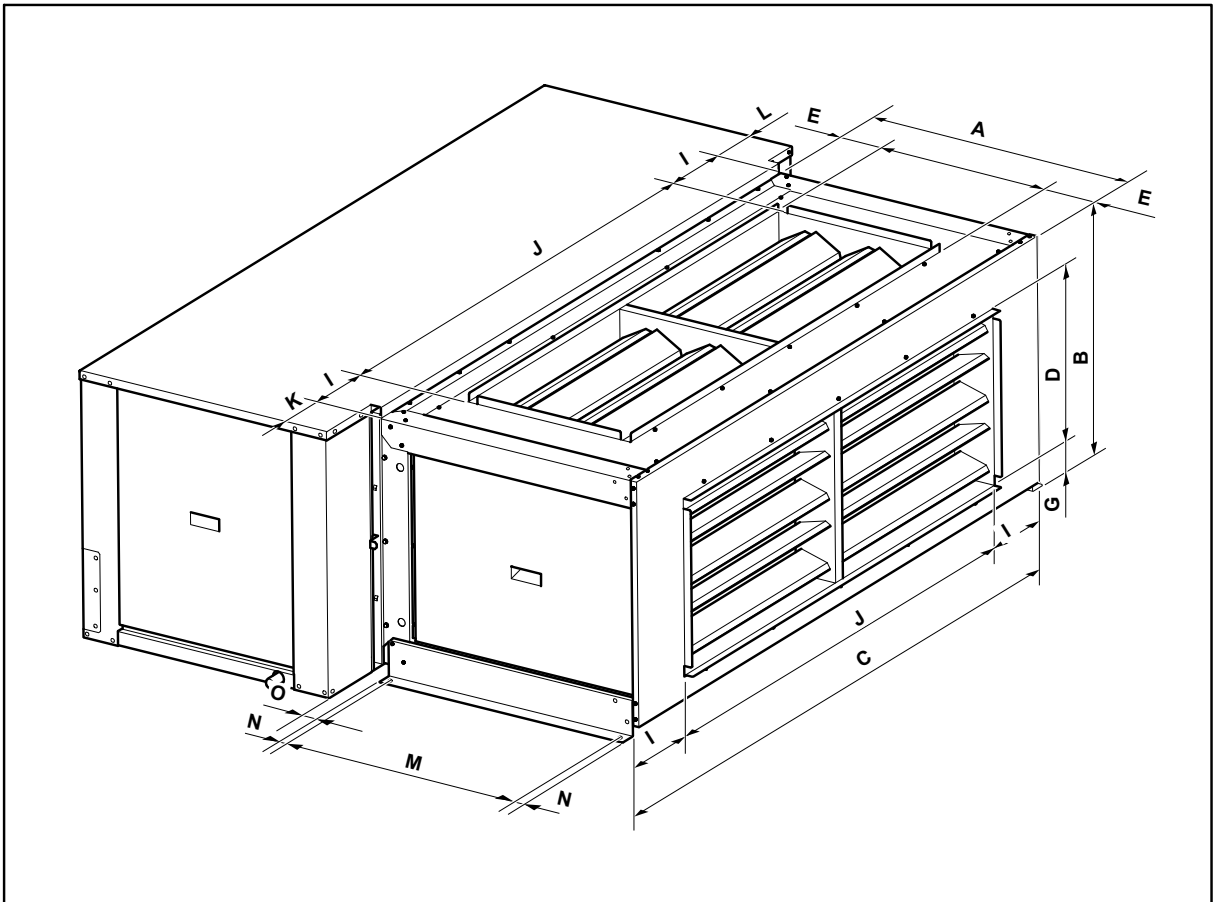
1.2 Technical specifications

This accessory includes the return and fresh air dampers, the actuator motor with modulating return spring for temperature control.

The accessory is formed by:

- Damper assembly, with motor for fresh air.
- Damper assembly, with motor for return air.
- Control board, plastic separators and protective cover.
- Temperature sensors for return, fresh and supply air.
- Cable assembly prepared to connect the unit wiring.
- Panel and support assembly.
- Nuts and bolts and bushing for assembly.

1.3 General dimensions



Model	Weight [kg]	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
VIR 25A	54	729	566	1109	408	159	162	95	63	205	699	140	130	605	40	55
VIR 40A	69	729	639	1352	408	159	162	131	100	227	898	212	196	605	40	55
VIR 45A / 60A	78	809	739	1935	508	164	137	101	130	218	1499	213	112	685	40	55
VIR 75A / 90A	90	729	812	2205	508	79	142	138	166	228	1724	260	202	605	40	55



NOTA
Measurements in mm.

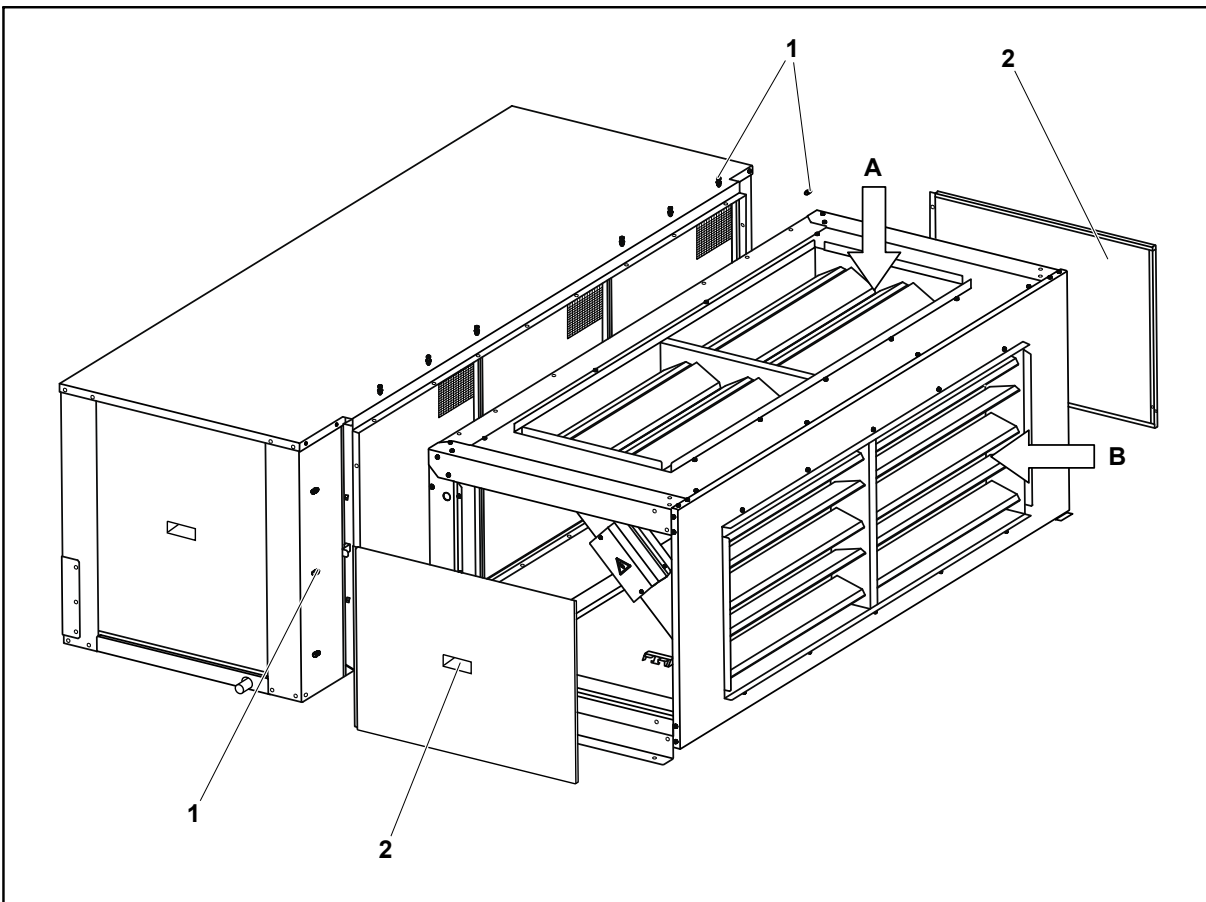
1.4 Assembly

There are two ways of assembling the economiser, depending on the fresh air duct:

- Upper duct (standard configuration)
- Lower duct

Upper duct (standard configuration)

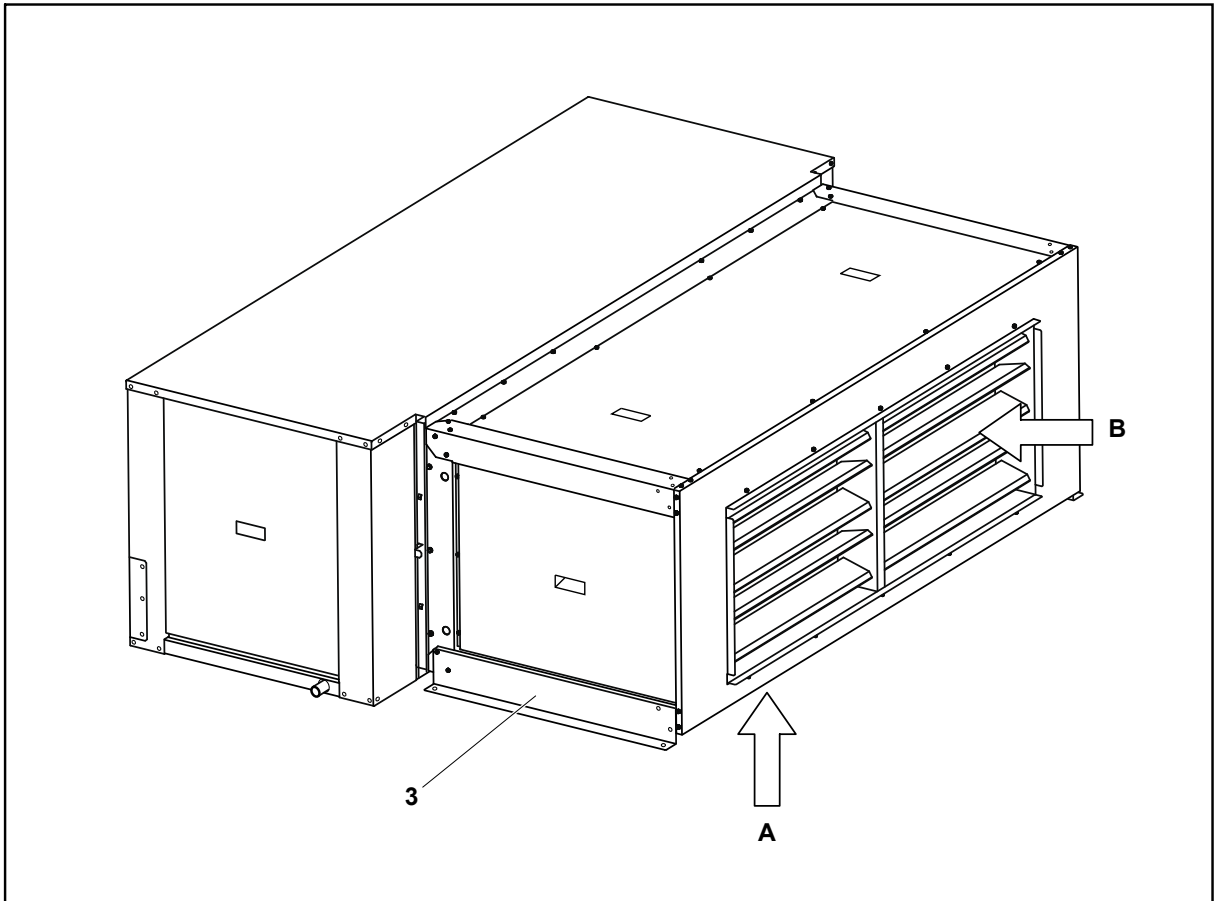
1. Place the fresh air damper at the top.
2. The economiser unit should face the frame of the filter on the corresponding VIR unit.
3. Remove the side panels -2-.
4. Use the bolts -1-, nuts and washers supplied for fixture.
5. Refit the side panels -2-.



- | | |
|----------------------------|---------------|
| 1. Bolts, nuts and washers | A. Fresh air |
| 2. Side panels | B. Return air |

Lower duct

1. Remove the supports -3- from the economiser and fit them on the opposite part.
2. Turn the unit around fully.
3. The economiser unit should face the frame of the filter on the corresponding VIR unit.
4. Remove the side panels -2-.
5. Use the bolts -1-, nuts and washers supplied for fixture.
6. Refit the side panels -2-.



3. Support

A. Fresh air

B. Return air

1.5 Installation

Disconnect the power supply to the unit using the main switch -Q1-.

Before installing the economiser, you must know how the fresh air duct will be connected on site.

Install the economiser as described below:

Fit the fresh air inlet

Fit the fresh air inlet according to Section [Assembly](#), ver pág. 4.

Damper position

The position of the damper on standby is:

Check the position of the dampers.

- Fresh air inlet damper, closed.
- Return air inlet damper, open.

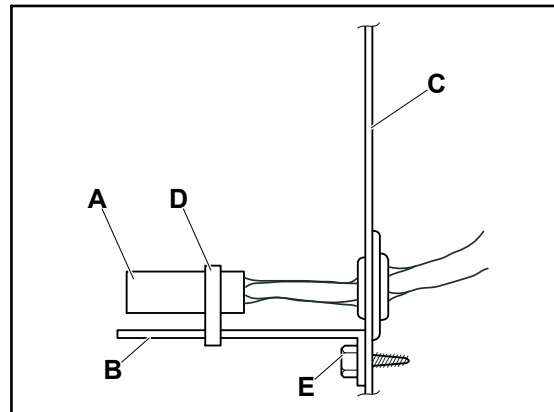
Connection of the economiser control board wires.

Connect the economiser cable wires as indicated in [Wiring diagram](#), ver pág. 9:

- Power wires (J17, 580 and 581)
- Accessory communication wire (J16 and 700)
- Motor wire (R-red, C-black, 0-10 V-grey)
- Return air probe (J13-black)
- Fresh air probe (J3-white)
- Discharge probe (J16-yellow)

Installation of the return, fresh and discharge air temperature sensors 1 m. from the mouth of the duct connected to the machine

Pass the return, fresh and discharge air temperature sensors -A- through the plastic bushing and fit the supports -B- for the sensors to the return/fresh air separating panel -C-, one on each side with its corresponding probe, using the screws -E- and the ties -D-.



Installation of the enthalpy probe, Ref. C7400A (Option not applicable)

The enthalpy probes cannot be installed with the economiser of VIR units.

Position selection of the Jumper J19, J20 and ENTHALP

- Jumper J19, open by default: economiser operating. if closed, motorised damper operating.
- Jumper J20, open by default: outside damper closed with high temperature-smoke alarm. If closed, selection of the fresh air damper open with high temperature-smoke alarm.
- Jumper ENTHALP, S2, open by default: selection of operating without enthalpy probes.

Configuration of the economiser control board and minimum opening adjustment

Once the accessory and all necessary parts are installed, connect the electricity power supply to the unit.

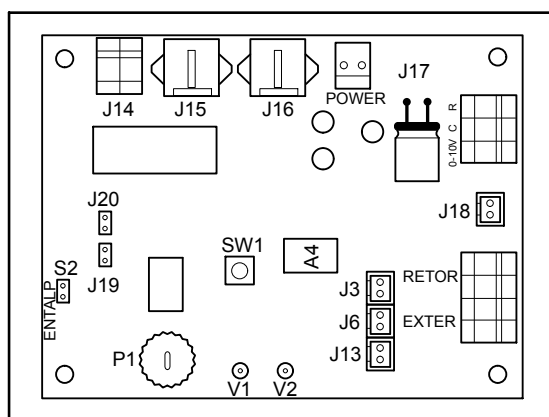
Check that the green LED (V1) on the economiser control board (A4) remains lit.

To search and configure accessories, press the test button on the YKN2open board (A1) located in the outdoor unit VCH for more than three seconds until the red LED lights up. When the search and configuration process starts, the red LED on the board will light up and will remain on until the operation is completed. Once it has switched off, check that the green LED (V1) on the economiser board is flashing to indicate that the accessory has been configured.

The potentiometer P1 on the economiser board allows for the damper to be modulated by hand to check its correct working order. The damper will return to its operating position after 30 seconds.

Whenever the indoor fan is activated, the damper will be open by a certain percentage to renew the air in the room. The factory-set default value is 10%. This minimum percentage can be set using potentiometer P1 or via the communications network. To set it using the potentiometer, set it until the minimum opening required is obtained and then press configuration button SW1 for three seconds to save the value.

LED	Status	Indication
V1	Off	The board is not connected
V1	On	The board is not operational
V1	Flashing	Normal operations
V2	On	Favourable condition



Air quality probe (optional)



PRECAUCIÓN

Loose wires can cause overheating of terminals or incorrect operation of the unit. Fire hazards may also exist. Therefore, make sure all cables are connected firmly.

The air quality probe has a VOC (volatile organic compounds) sensor that compares their concentrations in the air with the setting selected on the probe. Where the value is higher than the setting, the probe triggers output Y1 using a relay.

The 230 Vac output signal between Y1 and N is connected to the 230 Vac to 5 Vdc conversion board. This board is fitted alongside the economiser control board. The 5 Vdc signal wire must be connected when J18 is connected on the economiser board.

Where the temperature in the room is the same as the set temperature and there is an air quality request signal, the damper is opened to the programmed renewal minimum and the indoor fan starts up. The damper then opens further, bearing in mind the maximum (30 °C) and minimum (12 °C) supply temperatures.

If the air quality request signals disappears or the thermostat requests cold or heat, the damper returns to the renewal minimum.

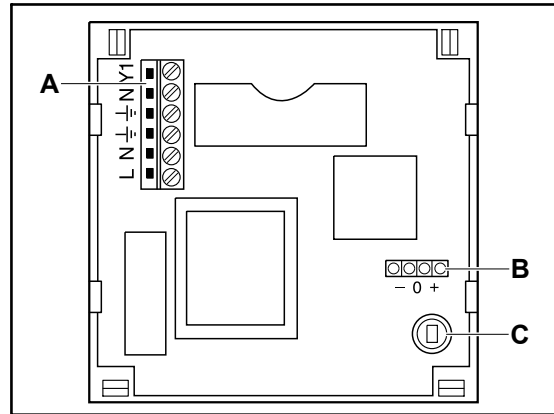
Where there is no request from the thermostat and the indoor fan is in automatic mode, the fan will stop and the dampers will close.

1.6 Operation

- A. Connection terminals
- B. Air quality level selection
- C. VOC sensor

Three air quality levels can be selected on the probe according to the bridge positions:

- 0: Normal, default position.
- : Acceptable.
- +: Very good.



1.6 Operation

Allows for cold to be generated by modulating the outdoor air inlet damper.

If the conditions are favourable, the yellow LED V2 will be lit up and the damper will be modulated to ensure the supply temperature is 12 °C.

Favourable conditions.

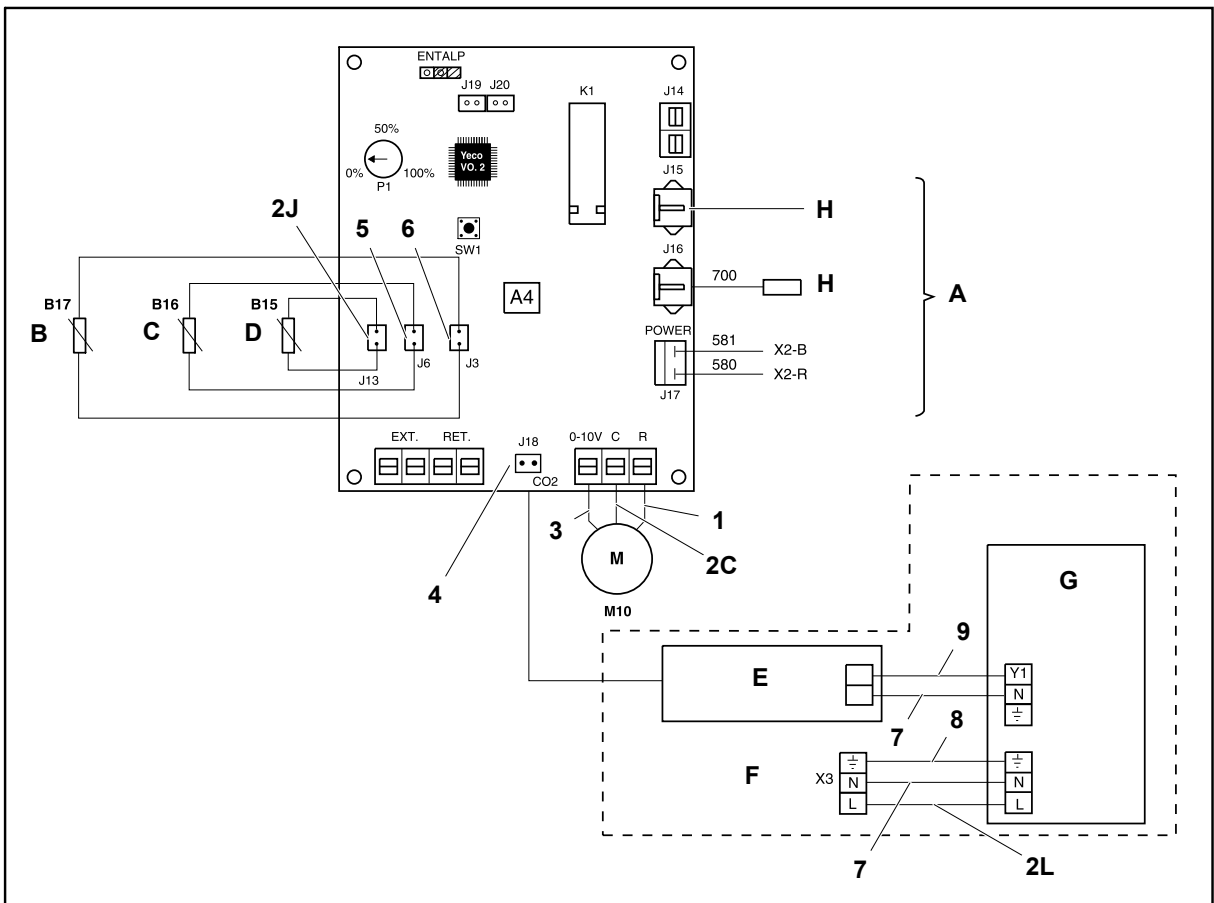
- Temperature mode. Favourable conditions in temperature mode are when the outside temperature is below 20 °C and, in turn, below the return temperature.

The yellow LED on the board will be switched off when conditions are not favourable. Whenever the inside fan is activated, the outside damper will be open by a certain percentage to renew the air in the room (10% by default, adjustable value).

In the winter cycle, if the thermostat requests heat and no heat stage can be enabled, e.g. due to a fault, the damper will remain closed with the inside fan activated.

Where a fault is detected on the indoor fan by the YKN2 Open board, the fresh air damper is fully closed.

1.7 Wiring diagram



1	Red	A	Outdoor Unit Connection
2C	Black	B	Outdoor probe (B17)
2J	Black	C	Discharge probe (B16)
2L	Black	D	Return probe (B15)
3	Grey	E	Air quality board
4	Green	F	Cables to be installed on site (not supplied)
5	Yellow	G	Air quality probe
6	White	H	Accessories
7	Blue		
8	A. Green		
9	Brown		

Data and dimensions subject to changes without prior notice.