PHS PIV

WHOLE-HOUSE POSITIVE INPUT VENTILATION UNIT

INSTALLATION MANUAL

* Read this manual carefully before using the product and keep it in a safe place for reference.
This product was constructed up to standard and in compliance with regulations relating to electrical equipment and must be installed by technically qualified personnel. The manufacturer assumes no responsibility for damage to persons or property resulting from failure to observe the regulations contained in this booklet.

CONTENTS

1.0 WARNINGS AND PRECAUTIONS

Make sure that the mains supply to the unit is disconnected before performing any installation, service, maintenance or electrical work!

The installation and service of the unit and complete ventilation system must be performed by an authorized installer and in accordance with local rules and regulations.

If any abnormality in operation is detected, disconnect the device from the mains supply and contact a qualified technician immediately.

Transport and storage

• Do not leave the device exposed to atmospheric agents (rain, sun, snow, etc.). • Duct connections/duct ends must be covered during storage and installation.

Installation

•After removing the product from its packaging, verify its conditions. Do not leave packaging within the reach of children or people with disabilities.

•Beware of sharp edges. Use protective gloves.

•The device should not be used as an activator for water heaters, stoves, etc., nor should it discharge into hot air/fume vent ducts deriving from any type of combustion unit or tumble dryer.

•If the environment in which the product is installed also houses a fuel-operating device (water heater, methane stove etc., that is not a “sealed chamber” type), it is essential to ensure adequate air intake, to ensure good combustion and proper equipment operation.
•If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
•The electrical system to which the device is connected must comply with local regulations.
•Before connecting the product to the power supply or the power outlet, ensure that:
- the data plate (voltage and frequency) correspond to those of the electrical mains;
- the electrical power supply/socket is adequate for maximum device power.
•For installation an omnipolar switch should be incorporated in the fixed wiring, in accordance with the wiring rules, to provide afull disconnection under overvoltage category III conditions (contact opening distance equal to or greater than 3mm).
•Ensure adequate air return into the room in compliance with existing regulations in order to ensure proper device operation.
•Install the product so that the impeller is not accessible from the air outlet side as verified by contact with the Test Finger (test probe “B” of the norm EN61032) in compliance with the current safety regulations.

Use

•The device should not be used for applications other than those specified in this manual.
•This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and u derstand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
•Do not touch the appliance with wet or damp hands/feet.
•The device is designed to intake clean air only, i.e. without grease, soot, chemical or corrosive agents, or flammable or explosive mixtures.
•Do not use the product in the presence of inflammable vapours, such as alcohol, insecticides, gasoline, etc.
•The system should operate continuously, and only be stopped for maintenance/service.
•Do not obstruct ducts or grilles to ensure optimum air passage.
•Do not immerse the device or its parts in water or other liquids.
•Operating temperature: 0°C up to +40°C.

Service

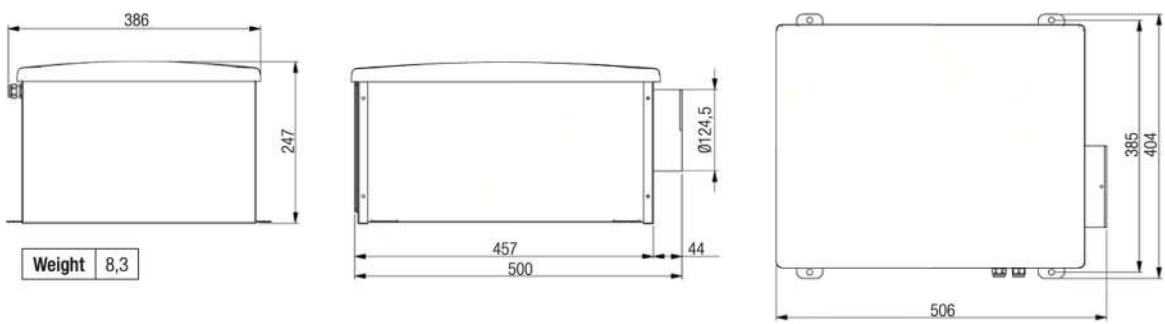
• Although the mains supply to the unit has been disconnected there is still risk for injury due to rotating parts that have not come to a complete standstill.
• Beware of sharp edges. Use protective gloves. • Use original spare parts only for repairs.

2.0 PRODUCT INFORMATION

2.1 General

The PHS PIV-N and PHS PIV-H models are loft mounted whole-house Positive Input Ventilation unit, designed to introduce fresh, clean, filtered air into the central hallway or landing of a dwelling. No need of ducting system. Suitable for floor or ceiling installation, in any position. The PHS PIV-H model is equipped with an integrated heating element.

2.2 Dimensions (mm) and Weight (kg)



2.3 Space Required

Make sure that enough space is left around the unit to allow easy maintenance (access to filters, terminal box and inspection panel removal).

3.0 TRANSPORT AND STORAGE

The appliance is delivered in one carton box. The appliance should be stored and transported in such a way that it is protected against physical damage that can harm spigots, casing, display etc... It should be covered so that dust, rain and snow cannot enter and damage the unit and its components.

WARNING
Make sure that specific warnings and cautions in Chapter 1
"Precautions" are carefully read, understood and applied!

4.0 INSTALLATION

This section describes how to install the unit correctly. The unit must be installed according to these instructions.

WARNING
Make sure that specific warnings and cautions in Chapter 1
"Precautions" are carefully read, understood and applied!

4.1 Unpacking

Verify that the unit (and eventual accessories) delivered is according to order before starting the installation. Any discrepancies from the ordered equipment must be reported to the supplier.

4.2 Where/how to install

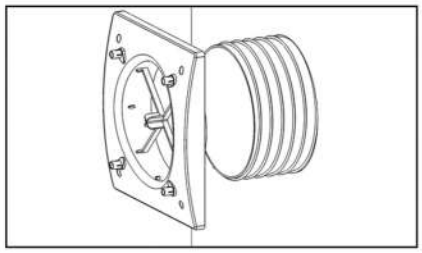
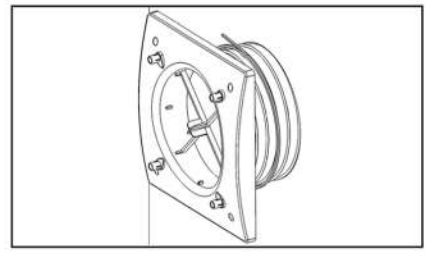
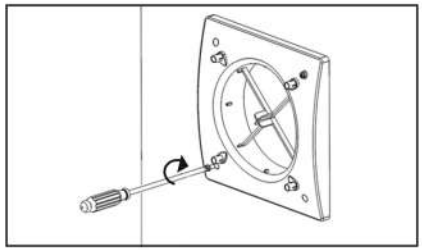
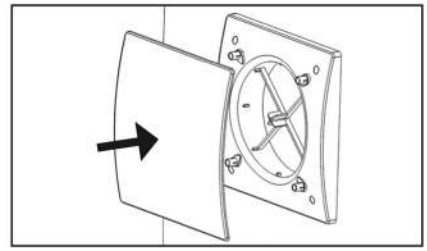
• PHS PIV unit are meant for indoor installation.
• The unit should be mounted horizontally.
• Mount the unit on flat surface (ceiling or floor).
• It's important that the unit is completely leveled before it is put into operation.
• When choosing the location it should be kept in mind that the unit requires maintenance regularly and that the inspection door should be easily accessible.
• Leave free space for opening the removable panel and for removal of the main components.

4.3 What is in the box

1. Ventilation unit	4. Manual	7. 2x Metal clamps
2. Pre-Filter	5. Diffuser	8. 2x Mylar flap
3. Duct	6. Screws + wall plugs	

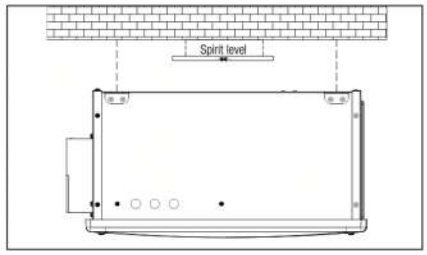
4.4 Diffuser installation

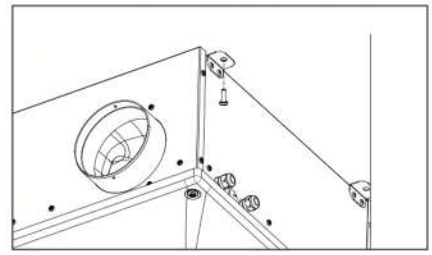
When fitting the diffuser near a smoke alarm the blanking plates provided must be fitted to avoid blowing air over the smoke alarm and affecting its operation. If the unit is installed in a dwelling 3 storeys or above, it should be linked to a smoke alarm in such a way that power is removed from the unit if the smoke alarm is activated. Our standard diffuser is not suitable for installation in 3 storey or above homes or fire protected areas.
In case of installation of the PHS PIV-H model (with heating element) the flexible duct should be the shortest possible. Alternatively use a thermal insulated duct (accessory on request).

4.5 Ceiling installation

The unit must be installed in the following position.

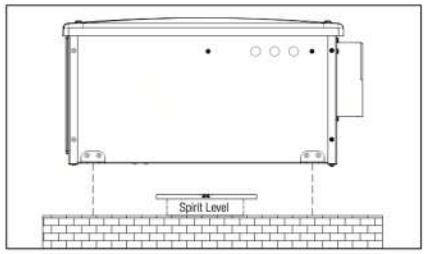


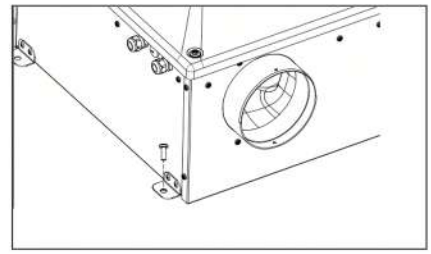


- Prepare the surface where the unit is to be mounted. Make sure that the surface is flat, leveled and that it supports the weight of the unit. Perform the installation in accordance with local rules and regulations.
- Use appropriate screws (not supplied) to fix the unit to the ceiling. It is recommended to fit the unit with anti-vibration mounts (not supplied).

4.6 Floor installation

The unit must be installed in the following position.





- Prepare the surface where the unit is to be mounted. Make sure that the surface is flat, leveled and that it supports the weight of the unit. Perform the installation in accordance with local rules and regulations.
- Use appropriate screws (not supplied) to fix the unit to the ceiling. It is recommended to fit the unit with anti-vibration mounts (not supplied).

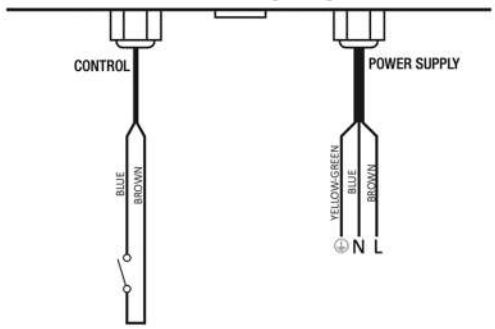
4.7 Precabled electric connections

ATTENTION
Make sure that the mains supply to the unit is disconnected before performing any installation, service, maintenance or electrical work!

The installation and service of the unit and complete ventilation system must be performed by an authorized installer and in accordance with local rules and regulations.

The unit must be earthed. The PHS PIV is wired internally from factory.
Unit comes pre-wired with:
- mains supply cable (3-core: brown, blue, yellow/green).
- wiring cable to remote switch (2-core: blue, brown) / or wiring cable to remote switch (4-core: green, white, yellow, brown).

PHS PIV-N Wiring Diagram



PHS PIV-H Wiring Diagram

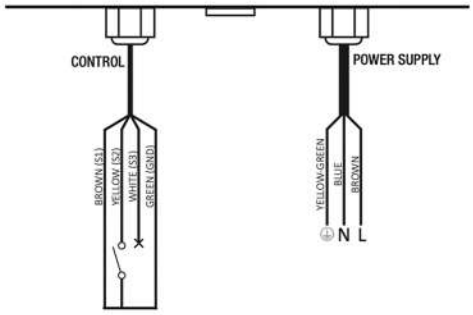


Fig.4.j Wiring diagram with a remote dedicated switch (not supplied).
Attention: the heating element cannot be deactivated, it remains in AUTO mode.

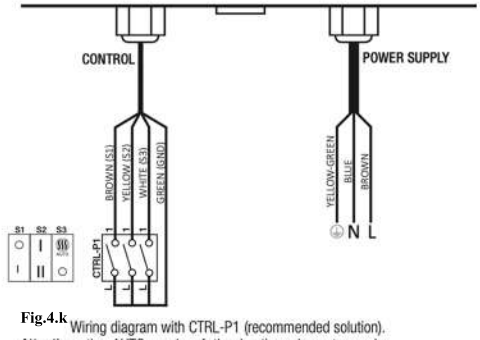


Fig.4.k Wiring diagram with CTRL-P1 (recommended solution).
Attention: the AUTO mode of the heating element can be deactivated.

Fig.4.l CTRL-P1 (on request)

5.0 COMMISSIONING AND OPERATION

5.1 PHS PIV-N

The unit runs at the set continuous running speed (low). The maximum speed can be activated by means a remote dedicated switch.
The speeds can be set during the commissioning according to the ventilation rate needed, by means of the trimmer V1 and V2 (**Fig.5.a**).
Factory setting (default):
V1 (min speed) 104m3/h (29l/s). V2 (max speed) 216m3/h (60l/s).

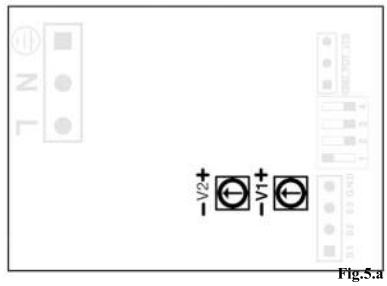
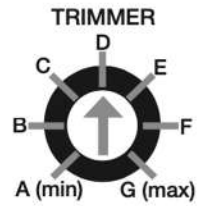


Fig.5.a

Trimmer position	m³/h	l/s	W
A (min)	61	17	3,7
B	76	21	4,3
C	104	29	7,5
D	144	40	12,0
E	180	50	17,3
F	198	55	21,0
G (max)	216	60	24,2

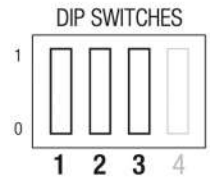


5.2 PHS PIV-H

5.2.1 Setting of the continuous running (low) speed

To set the continuous running (low) speed use the dip switches 1-2-3.

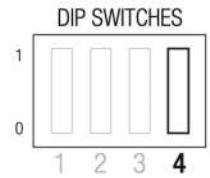
DIP1	DIP2	DIP3	Low speed	
			m³/h	l/s
0	0	0	104	29 (default)
0	0	1	61	17
0	1	0	76	21
0	1	1	90	25
1	0	0	119	33
1	0	1	133	37
1	1	0	148	41
1	1	1	162	45



5.2.2 Setting of the maximum speed

To set the maximum speed use the dip switch 4.

DIP4	Maximum speed	
	m³/h	l/s
0	216	60 (default)
1	180	50

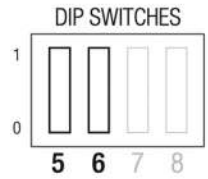


5.2.3 Setting of the intermediate speed (Heat Recovery Mode)

To set the intermediate speed use the dip switch 5-6.

DIP5	DIP6	Intermediate speed increase (%)
0	0	0* (default)
0	1	+20*
1	0	-20*
1	1	-40*

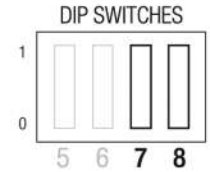
* % of increase compared to the low speed.



5.2.4 Setting of the trigger temperature threshold (Heat Recovery Mode)

To set the temperature threshold use the dip switch 7-8.

DIP7	DIP8	Thr (°C)
0	0	19 (default)
0	1	21
1	0	23
1	1	25



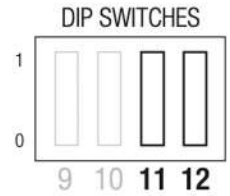
5.2.5 Setting of the trigger temperature threshold (Summer Stand-by Mode)

To set the temperature threshold use the dip switch 9-10.

5.2.6 Setting of the temperature threshold of the heating element

To set the temperature threshold use the dip switch 11-12.

DIP11	DIP12	Theat (°C)
0	0	10 (default)
0	1	13
1	0	15
1	1	18



5.2.7 Continous running (low) speed

The unit will run at the speed set as indicated in table 5.2.1 until the integral temperature sensor switches it to “Heat Recovery” or “Summer Stand by” mode.

5.2.8 Maximum speed

The maximum speed can be activated by means of a remote dedicated switch and can be set as shown in table 5.2.2.

5.2.9 Heat Recovery Mode

When the air in the loft is above a trigger temperature threshold the unit will automatically switch to an increased speed. The trigger temperature threshold can be set using the dip switched as shown in table 5.2.4. It is usually adjusted to 1°C above the temperature the home is heated to. The increase of the speed can be set using the dip switch (see table 5.2.3). For example: the low speed is set at 104m3/h and the intermediate speed is set in configuration 01 (i.e. +20%), when triggered the intermediate speed will be 104-20,8=124,8m3/h.

5.2.10 Summer Stand-by Mode

When the air in the loft is above a trigger temperature threshold, the unit will switch off to prevent that undesirable warm air being introduced unnecessarily in to the home. The trigger temperature threshold can be set using the dip switched as shown in table 5.2.5.

5.2.11 Activation of the heating element

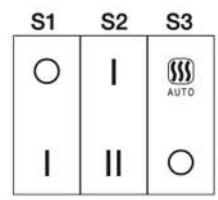
The unit is fitted with a heater that tempers incoming air when required. The desired temperature can be set using the dip switched as shown in table 5.2.6.

5.2.12 2 speed operation via CTRL-P1

S1 switch: the unit can be switched on (I) or off (O).

S2 switch: the continuous running (low) speed is activated by pressing position I; the maximum speed is activated by pressing position II.

S3 switch : it activates the automatic operation of the heating element (AUTO)
or deactivate it completely (O). Wiring diagram as in Fig.4.k.



5.2.13 Modbus control

The unit can be controlled via Modbus (Modbus RTU over RS485). For specification, contact our customer service.

6.0 MAINTENANCE

• Clean the pre-filters with a vacuum cleaner.
• Clean the G4 filters with a vacuum cleaner.
• Filters must be replaced every year. The actual need to perform this operation may vary depending on indoor and outdoor
ambient conditions.
• Clean the diffuser (Fig. 6.a-b-c).

WARNING
Make sure that the mains supply to the unit is disconnected before performing any installation, service, maintenance or electrical work!

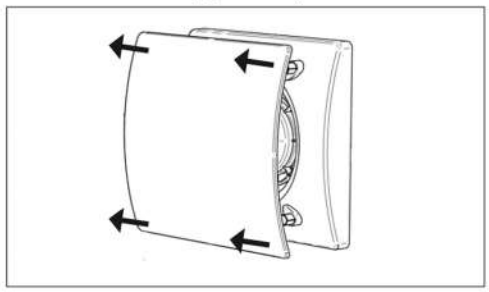


Fig.6.a

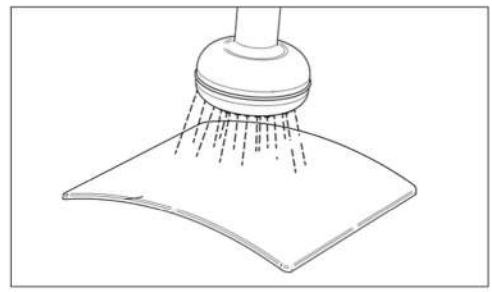


Fig.6.b

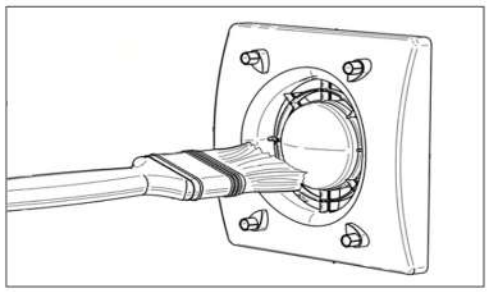


Fig.6.c

MAINTENANCE CLEANING REGISTER

	FILTER CLEANING	FILTER REPLACEMENT
DATE		
DATE		
DATE		
DATE		
DATE		
DATE		
DATE		
DATE		

7.0 DISPOSAL AND RECYCLING

Information on disposal of units at the end of life.

This product complies with EU Directive 2002/96/EC. The symbol of the crossed-out dustbin indicates that this product must be collected separately from other waste at the end of its life. The user must, therefore, dispose of the product in question at suitable electronic and electro-technical waste disposal collection centres, or else send the product back to the retailer when purchasing a new, equivalent type device. Separate collection of decommissioned equipment for recycling, treatment and environmentally compatible disposal helps to prevent negative effects on the environment and on health and promotes the recycling of the materials that make up the equipment. Improper disposal of the product by the user may result in administrative sanctions as provided by law.

8. ErP Directive Regulation 1253/2014 – 1254/2014

a)	Marking	-	Passive House Systems	
b)	Model	-	PHS –PIV-N	
c)	SEC Class	-	C	E
C_1)	SEC Warm Climates	kWh/m².a	-10.0	-6.2
C_2)	SEC Average Climates	kWh/m².a	-24.4	-16.7
C_3)	SEC Cold Climates	kWh/m².a	-49.5	-35.1
	Energy Label	-	No	
d)	Unit Typology	-	Residential - unidirectional	
e)	Type of drive	-	Multi-Speed Drive	
f)	Type of heat recovery system	-	Absent	
g)	Thermal efficiency of heat recovery	%	Not applicable	
h)	Maximum flow rate @100Pa	m³/h	216	
i)	Electrical power input at max flow rate	W	24	
j)	Sound power level (Lwa)	dBA	43	
k)	Reference flow rate	m³/h	162	
l)	Reference pressure difference	Pa	10	
m)	Specific power input	W/m³/h	0.089	
n_1)	Control factor	-	0.65	0.85
n2)	Control typology	-	Local demand	Central demand
o_1)	Max internal leakage rate	%	N/A	
o_2)	Max external leakage rate	%	N/A	
p_1)	Internal mixing rate	%	N/A	
p_2)	External mixing rate	%	N/A	
q)	Visual filter warning	-	N/A	
r)	Instructions to install regulated grilles	-	Reference instruction booklet	
s)	Internet for instruction	-	www.passivehousesystems.com	
t)	Airflow sensitivity to pressure	%	6	
u)	Indoor/outdoor air tightness	m³/h	67	
v_1)	AEC -Annual electricity consumption (Warm Climates)	KWh	0.7	1.0
V_2)	AEC -Annual electricity consumption (average Climates)	KWh	0.7	1.0
v_1)	AEC -Annual electricity consumption (Cold Climates)	KWh	0.7	1.0
w_1)	AHS -Annual heat saved (Warm Climates)	KWh	11.9	8.7
W_2)	AHS -Annual heat saved (Average Climates)	KWh	26.2	19.2
w_1)	AHS -Annual heat saved (Cold Climates)	KWh	51.3	37.6

ErP Directive - Regulations 1253/2014 - 1254/2014

a)	Marking	-	Passive House Systems	
b)	Model	-	PHS –PIV-H	
c)	SEC Class	-	C	E
C_1)	SEC Warm Climates	kWh/m².a	-10.3	-6.3
C_2)	SEC Average Climates	kWh/m².a	-24.6	-16.8
C_3)	SEC Cold Climates	kWh/m².a	-49.7	-35.2
	Energy Label	-	No	
d)	Unit Typology	-	Residential - unidirectional	
e)	Type of drive	-	Multi-Speed Drive	
f)	Type of heat recovery system	-	Absent	
g)	Thermal efficiency of heat recovery	%	Not applicable	
h)	Maximum flow rate @100Pa	m³/h	216	
i)	Electrical power input at max flow rate	W	400	
j)	Sound power level (Lwa)	dBA	43	
k)	Reference flow rate	m³/h	162	
l)	Reference pressure difference	Pa	10	
m)	Specific power input	W/m³/h	0.089	
n_1)	Control factor	-	0.65	0.85
n2)	Control typology	-	Local demand	Central demand
o_1)	Max internal leakage rate	%	N/A	
o_2)	Max external leakage rate	%	N/A	
p_1)	Internal mixing rate	%	N/A	
p_2)	External mixing rate	%	N/A	
q)	Visual filter warning	-	N/A	
r)	Instructions to install regulated grilles	-	Reference instruction booklet	
s)	Internet for instruction	-	www.passivehousesystems.com	
t)	Airflow sensitivity to pressure	%	6	
u)	Indoor/outdoor air tightness	m³/h	67	
v_1)	AEC -Annual electricity consumption (Warm Climates)	KWh	0.6	1.0
V_2)	AEC -Annual electricity consumption (average Climates)	KWh	0.6	1.0
v_1)	AEC -Annual electricity consumption (Cold Climates)	KWh	0.6	1.0
w_1)	AHS -Annual heat saved (Warm Climates)	KWh	11.9	8.7
W_2)	AHS -Annual heat saved (Average Climates)	KWh	26.2	19.2
w_1)	AHS -Annual heat saved (Cold Climates)	KWh	51.3	37.6

Passive House Systems (IRL)
Unit 5B4.
Link Road Business Park
Ballincollig
Co. Cork. P31W950
Tel: 021 487 5297
Email: Info@passivehousesystems.ie

Passive House Systems (PHS) Gmbh
Industrie Strasse 8.
97483
Eltmann
Deutschland
Tel: 09522 708 918
Email: Info@passivehousesystems.de